General Catalogue

SOLUTIONS FOR CONTROL & POWER **2011 - 2012**



www.socomec.com

socomec
Innovative Power Solutions SCP

Contents

- A high-tech organisation at your service p. 2
- Services & Technical Assistance p. 6
- Alphabetical index p. 12
- Reference list p. 518
- A worldwide presence p. 528



Load break switches

Load break switches for controlling machines or power distribution



SIRCO M
p. 18



SIRCO MV
p. 18

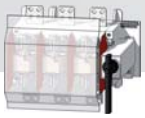


Fuse protection

Fuses, fuse holders and fuse combination switches



FUSERBLOC
p. 142



FUSOMAT
p. 184



Changeover switches

Switches, ATS, controllers and configuration software



COMO C
p. 264



SIRCOVER AND SIRCOVER BY-PASS
p. 274



Measurement & energy management

From the sensor to monitoring: complete solutions for energy management and monitoring



CURRENT TRANSFORMERS
p. 334



COUNTIS AM10
p. 352



Electronic protection

Differential protection - voltage surge protection - overcurrent protection



RESYS M40
p. 406



CORE BALANCE TRANSFORMERS
p. 410



Enclosures & accessories

All the components to facilitate the use of your electrical equipment



COMBIESTER
p. 434



CADRYS enclosures
p. 435



Integrated products

Enclosures and cabinets equipped with breaking or protection functions



STEEL SAFETY ENCLOSURES
p. 482



POLYESTER SAFETY ENCLOSURES
p. 482



"Welcome to your new SOCOMEC catalogue. To make it even easier, we have grouped all of our products into **nine major families**. Our flagship products are listed below. To find out all about our comprehensive ranges, let our 'helping hands' be your guide. Happy reading."


IDE
p. 32


SIRCO
p. 38


SIDER
p. 56

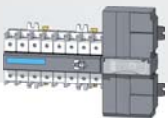

SIDERMAT
p. 70

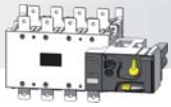

SIDERMAT
COMBINATION
p. 196


MODULAR FUSE
DISCONNECTS
p. 218


FUSE BASES
p. 224


INDUSTRIAL
FUSES
p. 236


ATyS M
p. 302


ATyS 3s
p. 310


ATyS 6e
p. 310


RELAY CONTROL
p. 326


COUNTIS E20
p. 356


DIRIS A40
p. 374

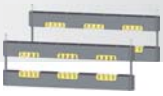

COMMUNICATION
ACCESSORIES
p. 394


SOFTWARE
CONTROL VISION
p. 396


SURGYS
G40-FE
p. 420


SURGYS
D40
p. 424


CADRYS DELTA
modular
p. 436


BUSBAR
SUPPORTS
p. 444


MOUNTING RAILS
AND PROFILES
p. 474


ATEX
ENCLOSURES
p. 490


LOCAL SAFETY
ENCLOSURES
p. 492


ENCLOSED CHANGEOVER
SWITCHES
p. 496

A high-tech organization at your service

➲ The company on your doorstep

We are wholly committed to providing you with the best response to your needs. This is why our commercial network is fully integrated and has a perfect understanding of your industrial situation. And depending on the case, each of the departments involved in your project will work directly with you. With SOCOMEC, you will always find the specialist contact you need right on your doorstep.

➲ The right product for you

We offer you the widest and most varied range of switching and protection systems available: thanks to wide-ranging adaptation of standard references, our product families cover an extensive scope of applications.
And since we use modular design as our basis, and offer a complete set of easy-to-fit accessories, you can benefit from numerous additional functions, at the best possible price.

➲ Continuous innovation

Technological foresight is a sixth sense possessed by each of our departments. And thanks to our many technological partnerships, we are constantly enriching our expertise.
Therefore, it is no surprise that our extensive R&D resources allow us to bring your expectations to life every day.
Our innovations benefit your performance.

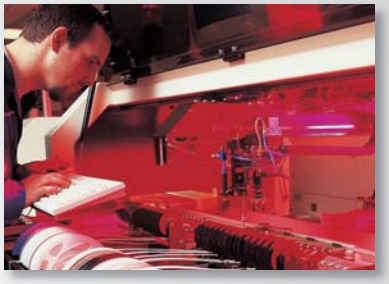


➲ "JANUS de l'industrie"

The range of Type-S handles was awarded the "JANUS de l'industrie" industrial design prize. Awarded by the French design institute, with the backing of the Ministry of Foreign Trade, this prestigious label recognised a range that has been very popular with our customers.


SITE 149 A


SITE 476 A


SITE 041 A

➲ Meeting deadlines

Thanks to the real-time management of orders and deliveries that we carry out in close collaboration with our transporters, you can count on us to honour our commitments to the full.

➲ Direct and friendly contact

Another area in which SOCOMEC lays claim to a personal "style":
Personal commitment to you, openness and friendliness, solidarity within a shared project, desire to give a response which meets your needs; these convictions guide every man and woman in our teams.

➲ Integrated production with shorter lead-times

As an independent manufacturer, SOCOMEC is in charge of all its strategic skills areas and offers the best progression in terms of flexibility.
Thanks to our integrated production and industrial organisation into autonomous cells, you can benefit from impeccable manufacturing quality and perfectly controlled deadlines.

➲ Your Guarantee of Satisfaction

An integrated ASEFA-LOVAG approved laboratory, numerous homologations and certifications testifying that our devices comply with international standards, quality recognised and proven on a daily basis, universality and adaptability to your specific configuration, this is what we offer to ensure your satisfaction.


CORPO 175A

Permanent on-line support



SYDIV 051 A GB

FLCD_URL_001_A_X

See the full presentation of the SOCOMEC group's applications, products and services on our website: www.socomec.com

➲ How to use a 2D code

1. Download 2D code reader from your smart phone, eg: QR code scanner pro, Mobiletag, ScanLife 2D code reader…
2. Launch the application from the Start menu of your mobile
3. Place the lens of your mobile's camera above or in front of the code and take a picture, or wait until the image is recognized (it depends on the reader
4. A web page opens and provides access to the destination's page on the www.socomec.com website.

➲ Access general information on the SOCOMEC group

FLCD_URL_002_A_GB

➲ Download documentation

FLCD_URL_004_A_GB

All the brochures, catalogues and technical manuals.

➲ Locate our sales offices

FLCD_URL_003_A_GB

Find your contacts all over the world.

➲ Download dxf or stp diagrams

FLCD_URL_005_A_GB

Usable with Autocad or any other CAD software to allow products to be embedded in your electrical diagram.

➲ Register on our exclusive DIRIS and ATyS spaces

For more detailed information on these 2 ranges.

➲ Find out about our job offers

Come and share in the energy of an international group with great development potential.

➲ Download photos

Available in different formats and free to use.

➲ Download software

For quick and efficient use of our supervision software.

➲ Pierre Siat test laboratory

Since 1965, SOCOMEC has had an integrated test laboratory at the heart of its production site. This laboratory is a member of ASEFA (Association de Stations d'Essais Française d'Appareils Électriques [French Association of Certified Testing Systems]) and is accredited by COFRAC (Comité Français d'Accréditation). Now, you can benefit from SOCOMEC's substantial expertise by having your own tests conducted within this specialist facility.
Our team of dedicated professionals will assist you in carrying out tests for compliance with French, European or world standards.

Types of test: dielectric tests, thermal tests, mechanical endurance tests, systems tests, climatic tests, short circuit tests.

asefa LOVAG



CORPO 163A

➲ Metrology

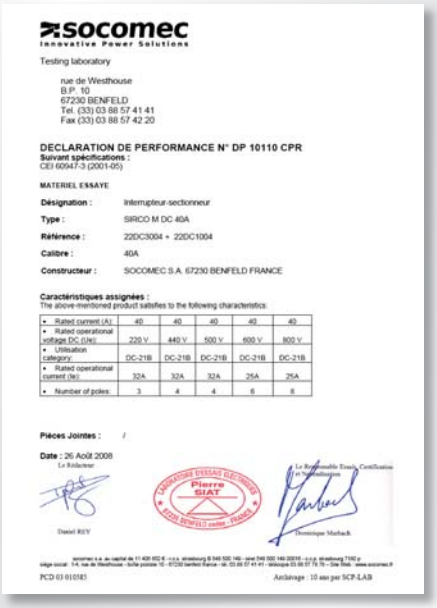
Can you guarantee the quality of the measurements that you take during the development, manufacture or testing of your products?
SOCOMEC is pleased to offer you our wealth of metrological expertise to verify and certify your measuring equipment.



APPLI 079 A

➲ Homologation and certification

Our laboratory is able to provide homologation certificates and declarations of conformity and performance on request.



socomec
Innovative Power Solutions

Testing laboratory

rue de Westhouse
B.P. 10
67230 BENFELD
Tel. (33) 03 88 57 41 41
Fax (33) 03 88 57 42 20

DECLARATION DE PERFORMANCE N° DP 10110 CPR
Suivant spécifications :
CEI 60947-3 (2001-05)

MATERIEL ESSAYE

Désignation : Interrupteur-sectionneur
Type : SIRCO M DC 40A
Référence : 22DC3004 + 22DC1004
Calibre : 40A
Constructeur : SOCOMEC S.A. 67230 BENFELD FRANCE

Caractéristiques assignées :
The above-mentioned product satisfies to the following characteristics:

• Rated current (A)	40	40	40	40	40
• Rated operational voltage DC (Ue)	220 V	440 V	500 V	600 V	800 V
• Utilisation category	DC-21B	DC-21B	DC-21B	DC-21B	DC-21B
• Rated operational current (Ie)	32A	32A	32A	25A	25A
• Number of poles	3	4	4	6	8

Pièces Jointes : /

Date : 26 Août 2008

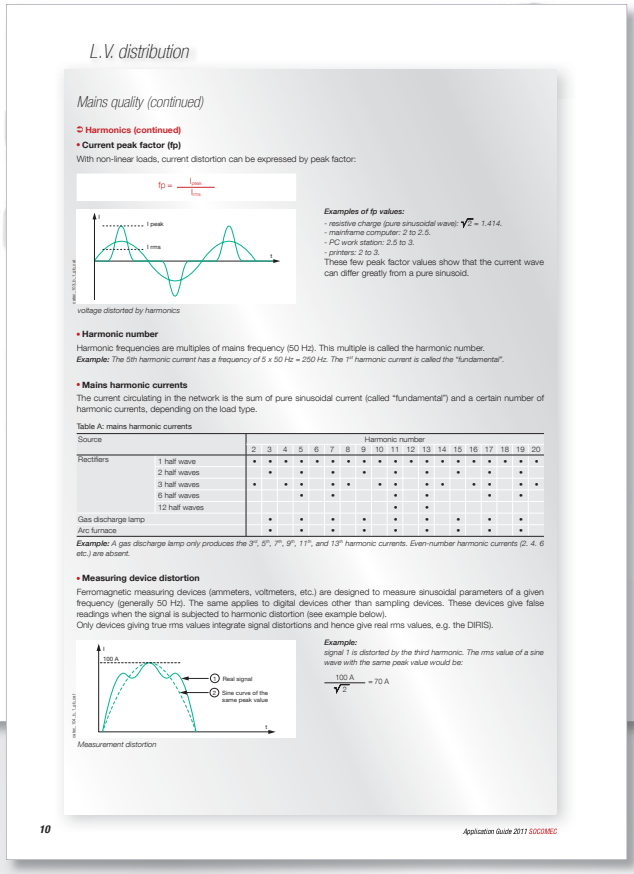
Pierre SIAT

PCD 03 010185

Application Guide

INDUSTRIAL SWITCHING & PROTECTION SYSTEMS **2011**





L.V. distribution

Mains quality (continued)

➲ **Harmonics (continued)**

• **Current peak factor (fp)**

With non-linear loads, current distortion can be expressed by peak factor:

$$fp = \frac{I_{peak}}{I_{rms}}$$

voltage distorted by harmonics

Examples of fp values:
- resistive charge (pure sinusoidal wave): $\sqrt{2}$ = 1.414.
- mainframe computer: 2 to 2.5.
- PC work station: 2.5 to 3.
- printers: 2 to 3.

These few peak factor values show that the current wave can differ greatly from a pure sinusoid.

• **Harmonic number**

Harmonic frequencies are multiples of mains frequency (50 Hz). This multiple is called the harmonic number.
Example: *The 5th harmonic current has a frequency of 5 x 50 Hz = 250 Hz. The 1st harmonic current is called the "fundamental".*

• **Mains harmonic currents**

The current circulating in the network is the sum of pure sinusoidal current (called "fundamental") and a certain number of harmonic currents, depending on the load type.

Table A: mains harmonic currents

Source		Harmonic number																	
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Rectifiers	1 half wave	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	2 half waves		•		•		•		•		•		•		•		•		•	
	3 half waves	•		•	•		•		•		•		•	•		•	•		•	•
	6 half waves				•		•				•		•				•		•	
	12 half waves										•		•							
Gas discharge lamp			•		•		•		•		•		•		•		•		•	
Arc furnace			•		•		•		•		•		•		•		•		•	

Example: *A gas discharge lamp only produces the 3rd, 5th, 7th, 9th, 11th, and 13th harmonic currents. Even-number harmonic currents (2, 4, 6 etc.) are absent.*

• **Measuring device distortion**

Ferromagnetic measuring devices (ammeters, voltmeters, etc.) are designed to measure sinusoidal parameters of a given frequency (generally 50 Hz). The same applies to digital devices other than sampling devices. These devices give false readings when the signal is subjected to harmonic distortion (see example below).
Only devices giving true rms values integrate signal distortions and hence give real rms values, e.g. the DIRIS).

Measurement distortion

Example:
signal 1 is distorted by the third harmonic. The rms value of a sine wave with the same peak value would be:

$$\frac{100\ A}{\sqrt{2}} = 70\ A$$

10

Application Guide 2011 SOCOMEC

www.socomec.com

FLCD_URL_010_A_GB

➲ **Download documentation**

Link to the download: http://www.socomec.com/application-guide-scp_en

Service & Technical Assistance: Your peace of mind assured

➲ Manufacturer's expertise

Over several decades, SOCOMEC's Switching and Protection. Systems have acquired a distinguished reputation in the domain of low voltage electrical distribution equipment testing and safety. Our manufacturer's expertise naturally extends to a complete offer of services designed to help you get the most out of our solutions.

➲ Optimum service guaranteed

Source inversion in complete safety
Changeover switches are strategic components that ensure continuity of service of supplies. In order to guarantee complete operational safety, we will implement our range of innovative source transfer solutions.

Your energy consumption comprehensively managed
Monitoring of energy consumption within a production unit is one of your primary operational considerations. For this our consultant engineers implement SOCOMEC's range of market-leading energy measurement and management systems.

Effective insulation monitoring for your electrical installation
To ensure that your fault monitoring and location system operates to its optimum capacity, our team of specialists perform all operations on site.
This means that you benefit from renowned expertise, as well as solutions tailored to the specific monitoring requirements of your electrical installation.

Cost-effective electrical usage
The presence of a specialist enables you to reduce your reactive energy costs, limit your energy losses by Joule effect, cut end of line voltage drops or increase your available active power… A real return on investment.



CORPO 154A

➲ The security of a fully committed partner

Specially adapted skills
Our service team is formed of specialists in our fields, with hands-on experience and well-acquainted with the maintenance of industrial electrical systems. You get the benefits from a dual skills base: technical expertise relating to the products that have been installed and practical knowledge of your usage needs.

Reassuringly close at hand
Our geographical coverage means that we are close to every user, ensuring we can respond to any request and guarantee comprehensive assistance, from technical diagnostics before repair to implementing solutions specifically adapted to your installations.

Constantly attentive to your needs
True to our principles, we favour direct and friendly contact. Our repairs are targeted responses to one, single problem: your own. Our engineers are attentive to your needs to bring you the most appropriate technical support and advice so you can plan your investments with confidence.


CORPO 164A

➲ Adapted services

Commissioning
Installation of your equipment is carried out by a specialist, and is totally compatible with and adapted to your use.

Engineering your installation
A broad range of features tailored to respond to the particular requirements and limitations of your electrical installation, and to help you deal with specific operational demands.

Training
You will receive training, specially adapted to your needs, in order to familiarise you with our equipment and enable you to use it to your best advantage.

Maintenance
A wide range of preventive or corrective maintenance options designed to suit your installation and its environment, and to ensure continuity of service of your electrical networks.

Engineering your project
From initial studies to operating your system, our team will guide you, ensuring full commitment.

Do not hesitate to contact our Socomec sales office to discuss a service package tailored to your requirements.


CORPO 155A

In compliance with the specifications from its customer EDF, SOCOMEC is designing switching and protection systems specifically for transformer substations and public utility networks.


SITE 343 A

HVB generation station


SITE 140 A

➲ Power station


DP 002 A

CT short-circuiter


UA 001 A

Auxiliary services panel

➲ HVA/LV transformer substation and LV distribution substation

Feeder pillars

The "TIPI" public utility boards (specification EDF HN 63 S 61) are marketed in France by our subsidiary SOCOMEC GUERIN.


DP 024 A

EDF "TIPI" switchboard

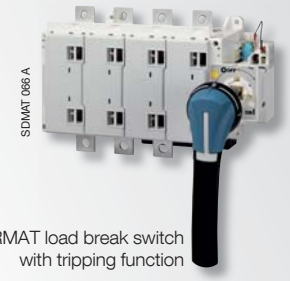

DP 033 A

DIN type switchboard (for TN earthing system distribution)

General load breaking


SIRCO 025 A

SIRCO load break switch with visualised breaking


SDMAT 066 A

SIDERMAT load break switch with tripping function

Load break switch, fuse holder current transformer and energy monitoring.

Circuit breaker: BT fuses


048 C RANGE

Energy management and control: DIRIS system

Equipment for healthcare buildings

The provision of electricity in healthcare buildings presents particular challenges: the availability of reliable electrical power is an absolute imperative driven by the need to guarantee the quality of patient care and the obligation to ensure their safety.

This requirement is now coupled with the need to improve the energy efficiency of premises for sustainable management of installations.


SITE 336 A


SITE 310 A


NHC 03-2008

➲ Power supply redundancy with ATyS and ATyS M source changeover switches

Essential for guaranteeing the safety of electrical energy in critical sectors, source changeover enable automatic switching to a generator set or other network if the main supply circuit fails (normal/emergency switching).


134 A RANGE


APPLI 243 A

➲ 100% energy availability in operating areas with the IT medical power distribution unit

The IT medical cabinet ensures the high availability distribution of high quality power. It is a product of SOCOMEC's expertise in the fields of source switching, ISOM insulation monitoring and uninterruptible power supply.
The IT medical cabinet meets comprehensive specifications:

- Compliance with, amongst others, the NFC 15-211 and CEI 60364-7-710 standards.
- Double input via an ATyS M source changeover switch, ensuring automatic control of switching between the two sources.
- Distribution including:
  - an ISOM insulation monitoring system
  - automatic fault locator.
- uninterruptible power distribution based on NeTYS range of UPS.


APPLI 243 A

➲ Energy efficiency

The new DIRIS and COUNTIS ranges constitute a global response by SOCOMEC to the needs of installers, integrators and users in industry and the service sector. All these elements are easily interconnected, to enable exchange and processing of the available information, and to ensure efficient system monitoring.
They comply with the new IEC 61557-12 standard relating to PMDs (Performance measuring & monitoring devices).



117 B RANGE

COUNTIS E range


132 A RANGE

DIRIS A range


124 A RANGE

DIRIS N range

Equipment for IT centres and buildings

In a very large number of buildings, the availability of reliable electrical power is an absolute imperative, with clear economic or security-related consequences.

This requirement is now coupled with the need to significantly improve the energy efficiency of premises for sustainable management of installations.


SITE 131 A


SITE 466 A


SITE 374 A

➲ Power supply redundancy with ATyS and ATyS M source changeover switches

Essential for guaranteeing the safety of electrical energy in critical sectors, source changeover enable automatic switching to a generating set or other network if the main supply circuit fails (normal/ emergency switching).


134 A RANGE

➲ Energy efficiency

In service sector buildings, controlling the heating, ventilation, air conditioning and lighting, setting up a Building Management System (BMS) and, last but not least, correcting the power factor allow consumption to be reduced by up to 30%.

For the user, the most important thing is to know the consumption according to three criteria: the geographical location, the use (ventilation, lighting, etc.) and the type of energy.

For each stage: concrete, interconnectable solutions

The new DIRIS and COUNTIS ranges constitute a global response by SOCOMEC to the needs of installers, integrators and users in industry and the service sector. All these elements are easily interconnected, to enable exchange and processing of the available information, and to ensure efficient system monitoring.
They comply with the new IEC 61557-12 standard relating to PMDs (Performance measuring & monitoring devices).

Measurement
COUNTIS E products meter power consumed by loads, thereby enabling control and allocation of consumption. They are MID certified and communicate via RS485.

Management
Besides metering functions, the new multifunction DIRIS A power measurement units provide network monitoring and optimisation via alarm management and monitor electrical apparatus distribution and remote control parameters. They communicate via Ethernet and have temperature modules.

Analysis
Also covering the metering and monitoring functions, the DIRIS N guarantees an analysis of the quality of the energy provided, as per the criteria defined in the EN 50160 standard, and supplies a detailed analysis of the 'pollution' (harmonic, inter-harmonic, transients, flicker effects, etc.).

Communication
The CONTROL VISION software allows all the electrical readings taken to be displayed, and the power consumption of various workstations in a building or data centre to be read.



117 B RANGE

COUNTIS E range


132 A RANGE

DIRIS A range


124 A RANGE

DIRIS N range

Equipment for Photovoltaic applications

Our expertise in the world of controlling and protecting electrical installations has quite naturally been expressed in both standard solutions and those adapted to photovoltaic applications. Whatever the type of architecture, we can offer breaking and protection systems adapted to each application from 2kWc to tens of MWc. Our modular designs ensure installation is exceptionally easy, providing a wide range of functionalities.

➲ Main applications



site_408_a

Residential

Electric installations up to approximately 5 kW are affected by this application. It is composed of panels installed on house roofs which are mainly used for electric equipment.



© SMA solar technologie 1135

Commercial

Electric installations up to approximately 250 kW are affected by this application. It is composed of panels installed on terrace roofs, skylights, glass sections or on building facades.



site_317_a

Solar parks

Electrical installations of several MW are affected by this application designed for the resale of the produced energy to distributors (EDF…). It is composed of solar panels installed in fields of several acres.

➲ Safe operations

To ensure electrical isolation during maintenance operations, or for emergency breaking to prevent a risk of fire or electrical shock, it is essential that dedicated switches are being used.
For load breaking on a photovoltaic chain, generator set or UPS, DC side, only SIRCO PV devices can:

- isolate raised DC voltages
- break on load and in complete safety.

➲ Protection of installation

Fuses need to be installed to ensure protection of the panels against reverse currents or protection of the photovoltaic generator pipes. These fuses, which are type gPV, are able to interrupt weak DC fault currents.
Depending on its location, the size of the photovoltaic generator may make it a considerable antenna in the event of a storm (destructive voltage surges).
Setting up dedicated SURGYS PV surge arrestors will significantly lower this risk.

➲ Fault prevention

In a non-polarised installation, the ISOM AM480 PIC will allow any insulation fault to be monitored as a preventative measure.
In a polarised installation, the RESYS class B earth leakage relay will detect the fault thanks to its ability to measure DC homopolar currents.







Alphabetical index

A

Active energy meters and concentrator COUNTIS 331
Analogue meters 351
ATEX enclosures 490
ATS BY-PASS 290
ATS By-Pass solution 506
ATyS 310
ATyS 3s steel enclosure 503
ATyS 6e steel enclosure 504
ATyS M 302
ATyS M mono 302
ATyS M steel enclosure 502
ATyS_C30_C40 326
Automatic Transfer Switches (ATS) 261

B

Bar or cable-through saturation current transformer 348
BILLING APPLICATION software 400
BS88 fuses 140
BS88 industrial fuselinks 230
BS88, NFC and DIN fuse combination switches 141
Busbar 433
Busbar supports 444

C

Cable clamps and cage terminals 466
CADRYS DELTA modular 436
CADRYS enclosures 435
Changeover SIRCO VM1 enclosure tôle with front operation 497
Changeover switches 351
Changeover switches 260
Changeover Switches SIRCO M 268
COMBIESTER 434
Communication accessories 394
COMO C 264
CONTROL VISION software 396
Core balance transformers type A and B 410
COUNTIS AM10 352
COUNTIS Ci 364
COUNTIS E10 / E11 / E12 354
COUNTIS E20 / E21 356
COUNTIS E30 / E31 / E32 / E33 / E34 358
COUNTIS E40 / E41 / E42 / E43 / E44 360
COUNTIS E50 / E53 362
Current transformers 334

D

Digital meters 351
DIRIS A10 366
DIRIS A20 370
DIRIS A40 / A41 374
DIRIS A60 380
DIRIS multifunction meters 331
DIRIS N300 / N600 386
Distribution 433
Distribution blocks 468

E

Earth leakage 403
Electronic protection 403
Enclosed changeover switches 496
Enclosed changeover switches 261
Enclosed fuse switches 494
Enclosures 433
Enclosures & accessories 433
Enclosures and cabinets equipped with breaking or protection functions 479
Enclosures and distribution switchboards 481
Energy efficiency 329

F

Fuse bases 224
Fuse protection 139
FUSERBLOC 142
FUSERBLOC and high speed fuses (UR) 178
FUSERBLOC polyester enclosure with front operation 495
FUSERBLOC polyester enclosure with side operation 495
FUSERBLOC steel enclosure with front operation 494
FUSERBLOC UL 204
FUSOMAT 184

H

High speed fuses (UR) 246
Hour counters 351

I

IDE 32
Indicators and transducers 331
Insulated flexible copper bars 442
Integrated products 479
Integrated products - Customised solutions 512

L

Load break switches for direct current (DC) applications ___ 17
Load break switches for machine control ___ 16
Load break switches for special applications ___ 17
Load Break Switches for specific applications ___ 136
Load break switching ___ 15
Local safety enclosures ___ 492
Local safety enclosures ___ 481

M

Manual Changeover ___ 263
Measurement sensors ___ 331
Measurement shunts ___ 346
Modular fuse disconnects and Fuse bases ___ 141
Modular transducers ___ 351
Monitoring and communications interfaces ___ 331
Monitoring software ___ 263
Motorised Changeover ___ 263
Mounting rails and profiles ___ 474

N

NFC and DIN fuses ___ 140
NFC and DIN industrial fuselinks ___ 236

O

Other electrical measurement devices ___ 350

P

Plug-in ranges ___ 141
Polycarbonate enclosure SIRCO M with front operation ___ 492
Polyester enclosure COMO C with front operation ___ 496
Power terminals ___ 464
Primary wound saturation current transformer ___ 348
Protection against overvoltages ___ 414
PTI ___ 350
PTI : CT automatic short-circuiter ___ 348
PV Fuses ___ 256
PV surge protection devices ___ 414

R

RESYS M20 ___ 404
RESYS M40 ___ 406
RESYS P40 ___ 408
Rigid copper bars ___ 440
RM - RMS ___ 218
RM PV ___ 222

S

Safety enclosures ___ 482
Safety enclosures ___ 481
SIDER ___ 56
SIDER polyester enclosure ___ 486
SIDER steel plate enclosure ___ 484
SIDER with in a steel enclosure, side operation ___ 491
SIDERMAT ___ 70
SIDERMAT combination ___ 196
Single phase ATyS M with in polycarbonate enclosure ___ 501
SIRCO ___ 38
SIRCO DC UL98 ___ 124
SIRCO M and MV ___ 18
SIRCO M PV ___ 80
SIRCO M UL508 ___ 100
SIRCO M UL98 ___ 110
SIRCO MV PV ___ 88
SIRCO polyester enclosure with front operation ___ 493
SIRCO PV ___ 94
SIRCO steel enclosure with front operation ___ 493
SIRCO UL98 ___ 116
SIRCO VM1 ___ 270
SIRCOVER and SIRCOVER BY-PASS ___ 274
SIRCOVER BY-PASS steel enclosure with front operation ___ 499
SIRCOVER polyester enclosure with front operation ___ 500
SIRCOVER steel enclosure with front operation ___ 498
SIRCOVER UL ___ 294
Strategic installations subject to lightning strikes ___ 415
Surge protection devices ___ 415
SURGYS surge protection devices ___ 403
SURGYS® D40 ___ 424
SURGYS® E10 ___ 426
SURGYS® G140-F ___ 418
SURGYS® G40-FE ___ 420
SURGYS® G50-PV ___ 416
SURGYS® G70 ___ 422
SURGYS® L1 ___ 430
SURGYS® Low current ___ 428

T

Transducers ___ 350
Transformer with integrated transducer ___ 349
TVSS UL98 ___ 134

U

UL range ___ 263
UL/CSA range ___ 17
UL/CSA ranges ___ 141

V

Voltage transformer BTV 25 ___ 349

Load break switches

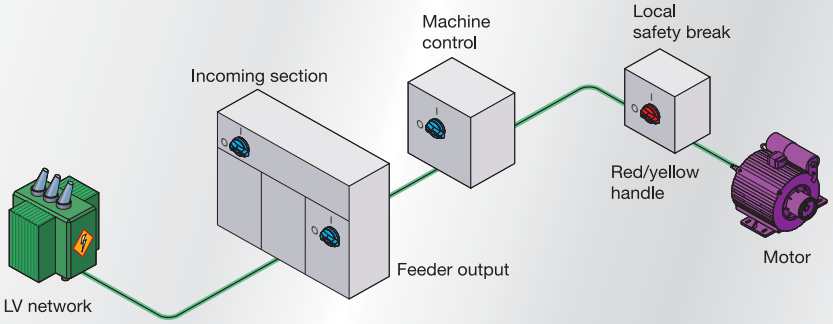


Load break switches for machine controller power distribution



Evolved in the electrical breaking technology market since 1922, SOCOMEC is both a global leader and unrivalled benchmark.

Our range of load break switches is currently one of the largest on the market. Although the SIRCO M and SIRCO products alone meet the majority of requirements, SOCOMEC has set out to cover the entire range of applications. **Discover all of our products in our selection guide on the next page.**



We have developed numerous special products: switches with over rated neutral, high short circuit capability switches, multipolar switches, earthing switches, switches for 1000 V networks, special motorised switches, etc.

Whatever your requirements, you will find the perfect solution in the next few pages.

The essential

Load break switches for machine control



SIRCO M
p. 18

Load break switches for power distribution



SIRCO
p. 38

Load break switches enclosed solutions



p. 492



➲ **Discover our complete selection guide** *(see next page)*

➲ **Need a suggestion?** We will help you find the best solution for your application.

➲ **A special requirement?** SOCOMEC creates specific products. Please feel free to consult us.

Choosing the right load break switches



Depending on their rating, SOCOMEC load break switches can be used to control machines or power distribution. The selection guide gives an indication of general uses.

In addition to the rating, the other criteria in your selection include:
- fully visible breaking*,
- tripping function**,
- motorised operation .

Please do not hesitate to contact us for suggestions or any special requirement.

* Fully visible breaking is used for low voltage metering and in applications where, for safety reasons, the break must be made fully visible in a more explicit way.

** Tripping function is used to remotely control the break in the event of an emergency break or automatic break relating to protection relays. It can also be used, when power is restored, to avoid erratic start-ups of machine equipment.

➲ Need an enclosed switch?

SOCOMEC offers you a range of local safety enclosures made from sheet metal or polyester.



See p. 492

Selection guide

➲ Load break switches for machine control



Manually operated switches

16 A ▸ 125 A



SIRCO M
p. 18

100 A ▸ 160 A



SIRCO MV
p. 18



Tripping switches

32 A ▸ 160 A



IDE
p. 32

➲ Load break switches for power distribution



Manually operated switches

16 A ▸ 160 A



SIRCO M / MV
p. 18

125 A ▸ 4000 A



SIRCO
p. 38

2500 A ▸ 5000 A



CMP
p. 137



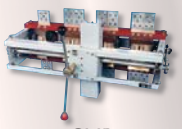
Fully visible breaking switches

100 A ▸ 160 A

SIRCO MV
p. 18

125 A ▸ 1600 A

SIDER
p. 56

2500 A ▸ 5000 A

CMP
p. 137



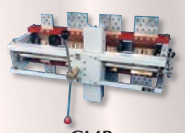
Tripping switches

32 A ▸ 160 A

IDE
p. 32

250 A ▸ 1800 A

SIDERMAT
p. 70

2500 A ▸ 5000 A

CMP
p. 137



Motorised control switches

125 A ▸ 3200 A

Motorised SIRCO
p. 137

Load break switches for direct current (DC) applications



Manual or motorised control switches

40 A ▸ 80 A

SIRCO M PV
p. 80

63 A ▸ 80 A

SIRCO MV PV
p. 88

100 A ▸ 800 A

SIRCO PV
p. 94

UL/CSA range

Load break switches and power distribution

16 A ▸ 80 A

SIRCO M UL 508
p. 100

30 A ▸ 100 A

SIRCO M UL 98
p. 110

100 A ▸ 1200 A

SIRCO UL 98
p. 116

100 A ▸ 1200 A

SIRCO DC UL 98
p. 124

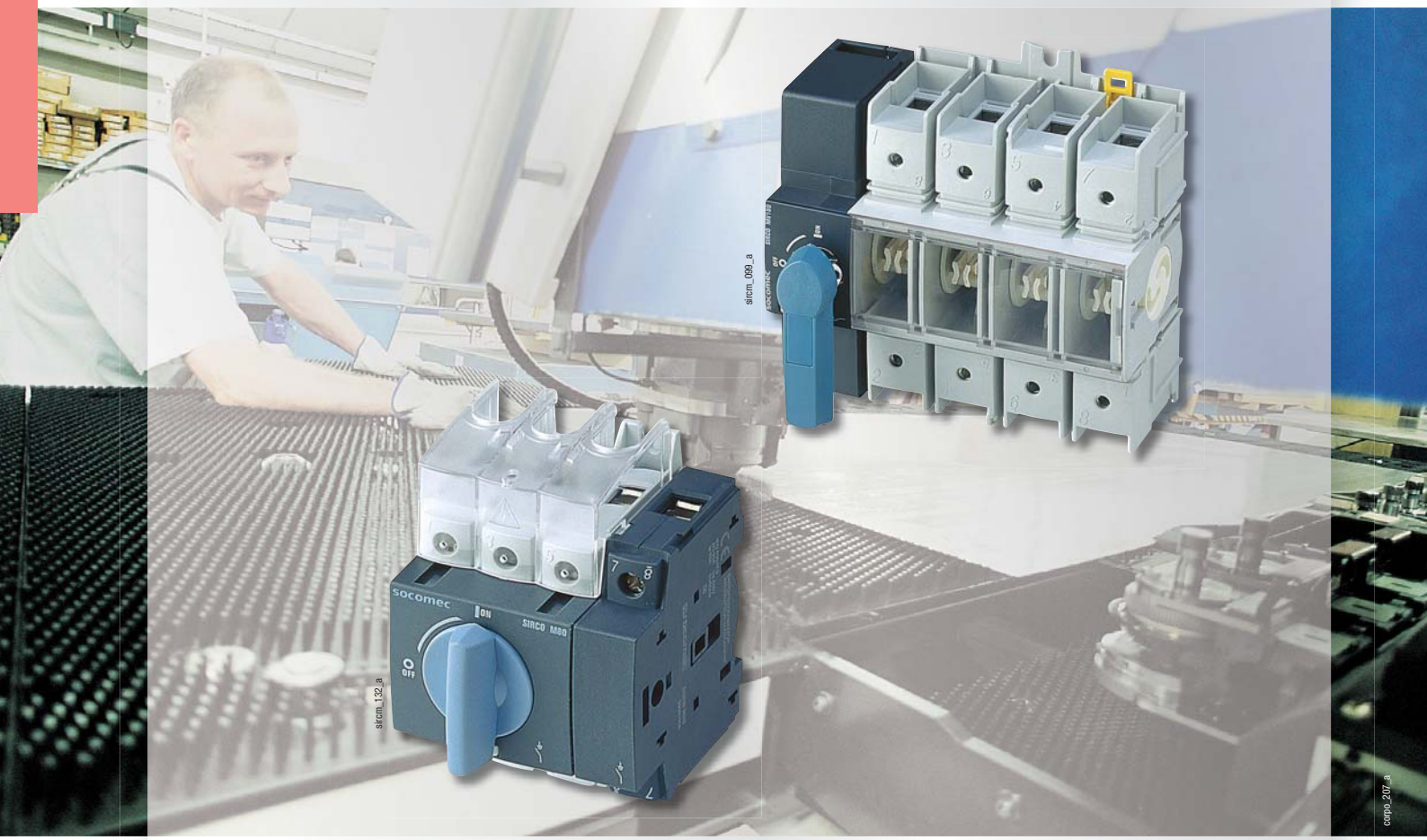

TVSS UL 98
p. 134

Load break switches for special applications

- with over rated neutral
- higher short-circuit performance
- multipolar switches
- for earthing
- for 1000 V networks
- special motorised switches


p. 136

SIRCO M and MV



Load break switches from 16 to 160 A

➲ Function

SIRCO M and **MV** are manually operated modulable and modular multipolar load break switches.
They make and break under load conditions and provide safety isolation for any low voltage circuit, particularly for machine control circuits.

➲ Specific characteristics

SIRCO M
- Fully visualised breaking.
- Contact point technology.
- For panel mounting device, use the "Door mounting kit" (see accessories).

SIRCO MV
- Visible double breaking based on contact carriers equipped with sliding contacts (type SIRCO, see page 38).
- Fully visualised breaking.

➲ General characteristics

- Double break per phase.
- DIN rail mounting, panel or modular panel with 45 mm front cut out.
- IP20 devices and accessories.
- Severe load duty categories (AC-22 and AC-23).

➲ Conformity to standards

- IEC 60947-3
- EN 60947-3
- IS13947-3
- Standard UL: see SIRCO M UL

➲ Approvals and certifications(1)

- KEMA
- RINA (Registre Naval Italien)

(1) Product reference on request.

➲ Other products

- The changeover switches are composed of two 3 poles SIRCO M switches and conversion kit.
- They ensure switching, transfer of sources or transfer of two low voltage circuits on load as well as their safety disconnection.



What you need to know

SIRCO M

- SIRCO M can be operated in different ways:


sircm_028_a_2_x_cat

Complete switch body
toggle operation


sircm_029_c_2_x_cat

Direct operation with
handle


sircm_030_a_1_x_cat

External operation
front, left side or right side

- The SIRCO M is a 3 pole device available from 16 to 125 A, complete with an unswitched neutral or PE pole and type M auxiliary pre-break and signalling contacts.
  The basic 3 pole device is available enclosed in a polyester enclosure from 16 to 100 A (see page 492).

- From 16 to 80 A, it is possible to mount the device on a door and transform a 3 pole switch into a 6 or 8 pole switch or a 3 or 4 pole changeover switch, by adding a conversion kit and a switched 4th pole.


coff_337_a_1_cat

Compact enclosure: see page 492

SIRCO MV

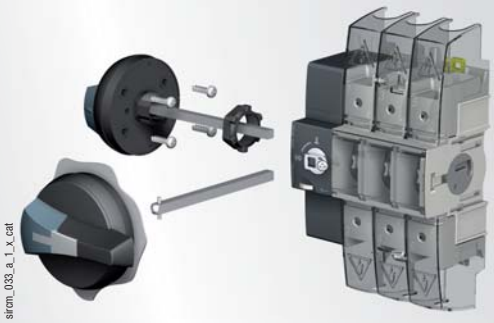
- 3 operations are available:


sircm_032_c_1_x_cat

Direct operation


sircm_034_a_2_x_cat

External right side operation

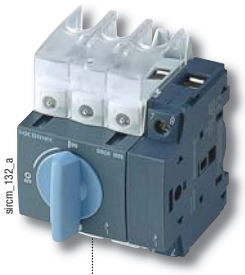

sircm_033_a_1_x_cat

External front and left side operation

- SIRCO MV can be ordered in 3 or 4 pole from 100 to 160 A.
  Two types of auxiliary contacts are available:
  - U type pre-break,
  - M type signalisation.

➲ SIRCO M and MV - References





SIRCO M

Rating (A)	No. of poles	Complete switch body toggle operation	Switch body	Direct handle	External front and right side handle	External left side handle	External front handle for changeover switches	Shaft extensions for external front and side handle	4e pole
16 A	3 P	2205 **3000**	2200 **3000**(1)(2)(3)	Blue 2299 **5012** Red 2299 **5013**	S00 type I - 0 Black IP55 1471 **1111**(4) Black IP65 1473 **1111**(4) Red/Yellow IP65 1474 **1111**(4)	S00 type I - 0 Black IP65 147A **5111** Red/Yellow IP65 147B **5111**	S00 type I - 0 - II Black IP65 1473 **1113**(4) I - I+II - II Black IP65 1473 **1114**(4)	150 mm 1407 **0515** 200 mm 1407 **0520** 320 mm 1407 **0532**	1 P 2200 **1000**
20 A	3 P	2205 **3001**	2200 **3001**(1)(2)(3)						1 P 2200 **1001**
25 A	3 P	2205 **3002**	2200 **3002**(1)(2)(3)						1 P 2200 **1002**
32 A	3 P	2205 **3003**	2200 **3003**(1)(2)(3)						1 P 2200 **1003**
40 A	3 P	2205 **3004**	2200 **3004**(1)(2)(3)						1 P 2200 **1004**
63 A	3 P	2205 **3006**	2200 **3006**(1)(2)(3)						1 P 2200 **1006**
80 A	3 P	2205 **3008**	2200 **3008**(1)(2)(3)						1 P 2200 **1008**
100 A	3 P		2200 **3010**(2)	Blue 2299 **5032**	S0 type I - 0 Black IP55 1481 **1111**(4) Black IP65 1483 **1111**(4) Red/Yellow IP65 1484 **1111**(4)	S0 type I - 0 Black IP65 148A **5111** Red/Yellow IP65 148B **5111**			1 P 2200 **1010**
125 A	3 P		2200 **3011**(2)						1 P 2200 **1011**

Rating (A)	No. of poles	Complete switch body toggle operation	Switch body	Unswitched neutral pole	Unswitched protective earth module	Auxiliary contacts	Terminal shrouds	Conversion kit	Door mounting kit
16 A	3 P	2205 **3000**	2200 **3000**(1)(2)(3)	1 P 2200 **5005**	1 P 2200 **9005**	M type 1 contact NO + NC 2299 **0001** 1 contact 2 NC 2299 **0011**	1 P 2294 **1005**(5) 3 P 2294 **3005**(5)	Switch 6 / 8 P 2269 **6009**(6) Changeover switches I - 0 - II 2209 **6009**(6) Changeover switches I - I+II - II 2299 **6009**(6)	3/4 P Complete protection IP2X 2299 **3309**(7)(8) Overall dimensions reduce 2299 **3409**(7)(8)
20 A	3 P	2205 **3001**	2200 **3001**(1)(2)(3)						
25 A	3 P	2205 **3002**	2200 **3002**(1)(2)(3)						
32 A	3 P	2205 **3003**	2200 **3003**(1)(2)(3)						
40 A	3 P	2205 **3004**	2200 **3004**(1)(2)(3)						
63 A	3 P	2205 **3006**	2200 **3006**(1)(2)(3)	1 P 2200 **5009**	1 P 2200 **9009**		1 P 2294 **1009**(5) 3 P 2294 **3009**(5)		
80 A	3 P	2205 **3008**	2200 **3008**(1)(2)(3)						
100 A	3 P		2200 **3010**(2)	1 P 2200 **5011**	1 P 2200 **9011**		1 P 2294 **1011**(5) 3 P 2294 **3016**(5)		
125 A	3 P		2200 **3011**(2)						

(1) For 8 pole device in direct operation, order 2 x 3 pole device + 2 main poles + conversion kit (for external operation, add the shaft + the handle).
(2) Front and side operation.
(3) For 6-pole device in direct operation, order 2 x 3-pole device + conversion kit (for external operation, add the shaft + the handle).
(4) Defeatable handle.
(5) Top and bottom.
(6) Delivered with a direct handle.
(7) Available for SIRCO M only.
(8) Delivered with a shaft.


sircm_099_a

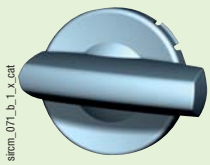
SIRCO MV

Rating (A)	No. of poles	Switch body	Direct handle	External front handle	External right side handle	External left side handle	Shaft extensions for external front and side	Auxiliary signal contact	Auxiliary contacts for pre-break	Terminal shrouds	Voltage sensing and power supply kit
100 A	3 P	2200 **3110**	Blue 2299 **5042**(1) Blue 2299 **5022**	S0 type I - 0 Black IP55 1491 **0111**(2) Black IP65 1493 **0111**(2) I - 0 Red/Yellow IP65 1494 **0111**(2) S1 type 0 I - 0 Black IP55 1411 **2111**(2) Red/Yellow IP65 1414 **2111**(2)	S0 type I - 0 Black IP55 1491 **0111**(2) Red/Yellow IP65 1494 **0111**(2) S1 type I - 0 Black IP55 1415 **2111** Red/Yellow IP65 1418 **2111**	S0 type I - 0 Black IP65 149A **9111** Red/Yellow IP65 149B **9111** S1 type I - 0 Black IP65 141A **2111** Red/Yellow IP65 141B **2111**	S0 type 150 mm 1409 **0615** 200 mm 1409 **0620** 320 mm 1409 **0632** S1 type 200 mm 1401 **0620** 320 mm 1401 **0632** 400 mm 1401 **0640**	M type 1 contact NO + NC 2299 **0001** 1 contact 2 NC 2299 **0011**	U type NC contact 3999 **0701** 1 contact NO 3999 **0702**	3 P 2294 **3016**(3) 4 P 2294 **4016**(3)	2 pieces 1399 **4006**
	4 P	2200 **4110**									
125 A	3 P	2200 **3012**									
	4 P	2200 **4012**									
160 A	3 P	2200 **3016**									
	4 P	2200 **4016**									

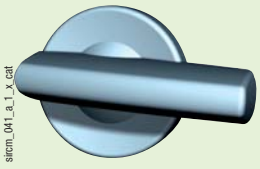
(1) Standard.
(2) Defeatable handle.
(3) Top and bottom.

➲ Accessories

Direct operation handle


sircm_071_b_1_x_cat

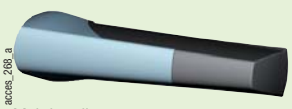
M00 handle


sircm_041_a_1_x_cat

M01 handle


sircm_042_b_1_x_cat

M0 handle


accès_268_a

M0b handle

For SIRCO M

Rating (A)	Handle colour	Handle	Reference
16 … 80	Blue	M00 type	2299 **5012**
16 … 80	Red	M00 type	2299 **5013**
100 ... 125	Blue	M01 type	2299 **5032**

For SIRCO MV

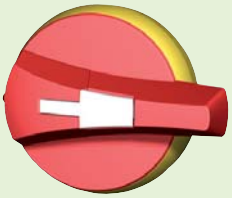
Rating (A)	Handle colour	Handle	Reference
100 ... 160	Blue	M0B type	2299 **5042**(1)
100 ... 160	Blue	M0 type	2299 **5022**

(1) Standard.

External handle operation - SIRCO M



S00 handle



S0 handle

Front and right side operation I - 0

Rating (A)	Handle colour	Handle	External IP	Reference
16 … 80	Black	S00 type	IP55	1471 **1111**
16 … 80	Black	S00 type	IP65	1473 **1111**
16 … 80	Red/Yellow	S00 type	IP65	1474 **1111**
100 … 125	Black	S0 type	IP55	1481 **1111**(1)
100 ... 125	Black	S0 type	IP65	1483 **1111**(1)
100 ... 125	Red/Yellow	S0 type	IP65	1484 **1111**(1)

(1) Defeatable handle.

Left side operation I - 0

Rating (A)	Handle colour	Handle	External IP	Reference
16 ... 80	Black	S00 type	IP65	147A **5111**
16 ... 80	Red/Yellow	S00 type	IP65	147B **5111**
100 ... 125	Black	S0 type	IP65	148A **5111**
100 ... 125	Red/Yellow	S0 type	IP65	148B **5111**

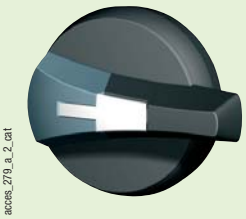
Front operation for changeover switches I - 0 - II

Rating (A)	Handle colour	Handle	External IP	Reference
16 … 80	Black	S00 type	IP65	1473 **1113**

Front operation for changeover switches I - I+II - II

Rating (A)	Handle colour	Handle	External IP	Reference
16 … 80	Black	S00 type	IP65	1473 **1114**

External handle operation - SIRCO MV



S0 handle



S1 handle

S0 type handle - Front and right side operation I - 0

Rating (A)	Handle colour	External IP	Reference
100 ... 160	Black	IP55	1491 **0111**(1)
100 ... 160	Black	IP65	1493 **0111**(1)
100 ... 160	Red/Yellow	IP65	1494 **0111**(1)

(1) Defeatable handle.

S0 type handle - Left side operation I - 0

Rating (A)	Handle colour	External IP	Reference
100 ... 160	Black	IP65	149A **9111**(1)
100 ... 160	Red/Yellow	IP65	149B **9111**(1)

(1) Defeatable handle.

S1 type handle - Front operation I - 0

Rating (A)	Handle colour	External IP	Reference
100 ... 160	Black	IP55	1411 **2111**(1)
100 ... 160	Black	IP65	1413 **2111**(1)
100 ... 160	Red/Yellow	IP65	1414 **2111**(1)

(1) Defeatable handle.

S1 type handle - Right side operation I - 0

Rating (A)	Handle colour	External IP	Reference
100 ... 160	Black	IP55	1415 **2111**
100 ... 160	Black	IP65	1417 **2111**
100 ... 160	Red/Yellow	IP65	1418 **2111**

S1 type handle - Left side operation I - 0

Rating (A)	Handle colour	External IP	Reference
100 ... 160	Black	IP65	141A **2111**
100 ... 160	Red/Yellow	IP65	141B **2111**

Shaft for external handle


sircm_045_a_2_x_cat

Use
Standard lengths:
- 150 mm,
- 200 mm,
- 320 mm.

Other lengths: consult us.

For 3/4 pole switches, shaft extensions for external front and side handle.
For 6/8 pole switches and SIRCOVER M changeover switches, shaft extensions for front operation only.

For SIRCO M

Rating (A)	Handle	Shaft length (mm)	Reference
16 ... 125	S00 type	150 mm	1407 **0515**
16 ... 125	S00 type	200 mm	1407 **0520**
16 ... 125	S00 type	320 mm	1407 **0532**

For SIRCO MV

Rating (A)	Handle	Shaft length (mm)	Reference
100 ... 160	S0 type	150 mm	1409 **0615**
100 ... 160	S0 type	200 mm	1409 **0620**
100 ... 160	S0 type	320 mm	1409 **0632**
100 ... 160	S1 type	200 mm	1401 **0620**
100 ... 160	S1 type	320 mm	1401 **0632**
100 ... 160	S1 type	400 mm	1401 **0640**

Shaft guide for external operation

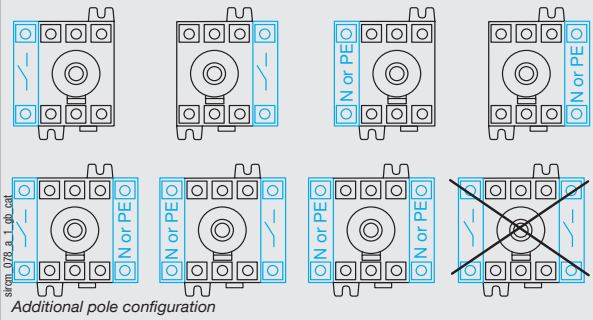

acces_260_a_2_cat

Use
To guide the extension shaft into the external handle.
This accessory enables handle to engage extension shaft with a misalignment of up to 15 mm.
Required for a shaft length over 320 mm.

Description	Handle type	Reference
Shaft guide	S00 and S0	1419 **0000**
Shaft guide	S1	1429 **0000**

Additional pole for SIRCO M


sircm_072_b_1_x_cat



sircm_078_a_1_gb_cat

Additional pole configuration

4e pole

Use
Adds one or two poles and transforms:
- 3 pole load break switches into a 4 pole,
- 6 pole load break switches into a 8 pole,
- 3 pole changeover switches into a 4 pole.

Rating (A)	No. of poles	Type	Reference
16	1 P	switched	2200 **1000**
20	1 P	switched	2200 **1001**
25	1 P	switched	2200 **1002**
32	1 P	switched	2200 **1003**
40	1 P	switched	2200 **1004**
63	1 P	switched	2200 **1006**
80	1 P	switched	2200 **1008**
100	1 P	switched	2200 **1010**
125	1 P	switched	2200 **1011**

Neutral pole

Use
Transforms the 3-pole switch into a 3-pole + solid neutral.

Rating (A)	No. of poles	Type	Reference
16 … 40	1 P	unswitched	2200 **5005**
63 … 80	1 P	unswitched	2200 **5009**
100 ... 125	1 P	unswitched	2200 **5011**

Protective earth module

Use
Adds 1 protective earth module pole to the switch-disconnector.

Rating (A)	No. of poles	Type	Reference
16 … 40	1 P	unswitched	2200 **9005**
63 … 80	1 P	unswitched	2200 **9009**
100 ... 125	1 P	unswitched	2200 **9011**

Terminal shrouds


sircm_049_a_1_cat

Use

Top and bottom protection against direct contact with the terminals or connection parts.
Available in 1 or 3 pole versions for SIRCO M and 3 or 4 pole for SIRCO MV.
An opening on each terminal cover makes it possible to insert a probe to measure temperature.

For SIRCO M

Rating (A)	No. of poles	Position	Reference
16 … 40	1 P	top / bottom	2294 **1005**
16 … 40	3 P	top / bottom	2294 **3005**
63 … 80	1 P	top / bottom	2294 **1009**
63 … 80	3 P	top / bottom	2294 **3009**
100 ... 125	1 P	top / bottom	2294 **1011**(1)
100 ... 125	3 P	top and bottom	2294 **3016**(1)

(1) Reference composed of 2 pieces.

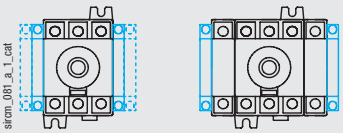
For SIRCO MV

Rating (A)	No. of poles	Position	Reference
100 … 160	3 P	top / bottom	2294 **3016**
100 … 160	4 P	top / bottom	2294 **4016**

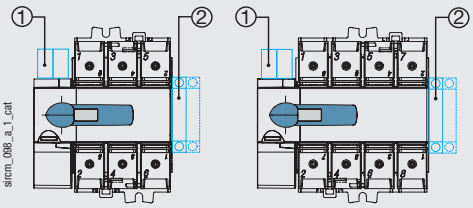
Auxiliary contacts

M type


sircm_075_b_2_cat


sircm_061_a_1_cat

Auxiliary contacts configurations for SIRCO M



sircm_068_a_1_cat

Auxiliary contacts configurations for SIRCO MV

1. Maximum 2 "U" type auxiliary contacts.
2. Maximum 4 "M" type auxiliary contacts

Use

Pre-break and signalisation of positions 0 and I by NO+NC or 2 NO auxiliary contacts.
They allow to anticipate the switching of the main poles. They can be mounted on the left or on the right side of the device.
Max 4 auxiliary contacts (2 modules).

Pre-break is not guaranteed on the **SIRCO MV**.

Characteristics

NO+NC auxiliary contacts: IP2 with front operation.

For SIRCO M

Rating (A)	Number of AC	Type of AC	Reference
16 … 125	1 AC	NO + NC	2299 **0001**
16 … 125	1 AC	2 NC	2299 **0011**

For SIRCO MV

Rating (A)	Number of AC	Type of AC	Reference
100 … 160	1 AC	NO + NC	2299 **0001**
100 … 160	1 AC	2 NC	2299 **0011**

Characteristics

		Operating current I_e (A) 230 VAC	
Contact type	Nominal current (A)	AC-13	AC-15
NO + NC	10	10	6

U type


sircm_048_a_1_x_cat

Use

Pre-break and signalisation by NO or NC auxiliary contact.
Maximum 2 auxiliary contacts.
For use only with SIRCO MV switches.

For SIRCO MV

Rating (A)	Number of AC	Type of AC	Reference
100 … 160	1 AC	NC	3999 **0701**
100 … 160	1 AC	NO	3999 **0702**

Conversion kit


sircm_050_c_2_cat

Conversion kit for 6/8 pole load break switches


sircm_097_b_2_x_cat

Escutcheon for 3/4-pole changeover switches (I - 0 - II) or (I - I+II - II)


sircm_086_b_1_cat

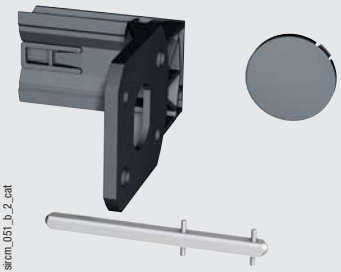
Use

It must be ordered at the same time as the handle for external control.
This accessory enables the assembly of two 3 pole switches and additional poles in order to achieve:
- 6 or 8-pole SIRCO M load break switches,
- 3 or 4-pole SIRCOVER M changeover switches.

SIRCOVER M changeover switches ensure switching, transfer of sources (I - 0 - II) or transfer of two low voltage circuits on load (I - I+II - II), with the continuity of power supply.

Rating (A)	Type	Reference
16 … 80	Load break switches 6 / 8 P	2269 **6009**
16 … 80	Changeover switch 3/4 pole (I - 0 - II)	2209 **6009**
16 … 80	Changeover switch 3/4 pole (I - I+II - II)	2299 **6009**

Door mounting kit


sircm_051_b_2_cat

Use
This kit enables direct mounting of the switch on the door panel, on the right or left side of the panel.
Moreover, the connection clamps of the switch are always accessible.

The external handle is quick and easy to install due to an internal locking nut mounted on the inside of the enclosure.
2 kits are available:
- one for complete protection IP2X
- one with overall dimensions reduced.

For SIRCO M

Rating (A)	No. of poles	Description	Reference
16 … 80	3/4 P	Complete protection IP2X	2299 **3309**
16 … 80	3/4 P	Overall dimensions reduce	2299 **3409**

Cap for side operation mounting


sircm_126_a_2_cat

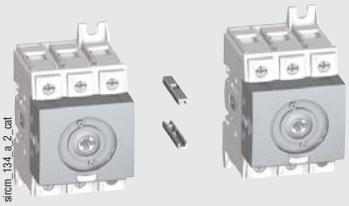
Use
Accessory for capping the front face of the **SIRCO M** when utilising in side operation, 20 units per pack.

This piece can be snapped on the switch body directly.

For SIRCO M

Rating (A)	Pack	Reference
16 ... 80	20 pieces	2299 **9409**

6/8 pole joining accessory


sircm_134_a_2_cat

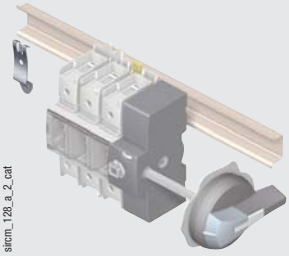
Use
40 units per pack, they allow the joining of two 3 pole switches (+ additional pole) in order to form a 6 or 8 pole switch for external side operation.

For multi-pole switches, please consult us.

For SIRCO M

Rating (A)	Pack	Reference
16 ... 80	40 pieces	2299 **9909**

DIN rail locking clip


sircm_128_a_2_cat

Use
This locking clip prevents the **SIRCO MV** from sliding when DIN rail mounted.

For SIRCO MV

Rating (A)	Type	Reference
100 ... 160	M4	5000 **0041**
100 ... 160	M5	5000 **0051**

Voltage sensing and power supply tap


altysm_026_a_1_cat

Use
It allows connection of 2 x $\leq$ 1.5 mm^2 voltage sensing or power cables.

For SIRCO MV

Rating (A)	Pack	Reference
100 ... 160	2 pieces	1399 **4006**

➲ Characteristics according to IEC 60947-3

SIRCO M - 16 to 125 A

Thermal current I_{th} (40°C)		**16 A**	**20 A**	**25 A**	**32 A**	**40 A**	**63 A**	**80 A**	**100 A**	**125 A**
Rated insulation voltage U_i (V)		800	800	800	800	800	800	800	800	800
Rated impulse withstand voltage U_{imp} (kV)		8	8	8	8	8	8	8	8	8
Rated operational currents Ie (A)										
Rated voltage	Load duty category	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]
415 VAC	AC-21 A / AC-21 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100	125/125
415 VAC	AC-22 A / AC-22 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100	125/125
415 VAC	AC-23 A / AC-23 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100	125/125
500 VAC	AC-21 A / AC-21 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100	125/125
500 VAC	AC-22 A / AC-22 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100	125/125
500 VAC	AC-23 A / AC-23 B	16/16	20/20	25/25	25/25	25/25	63/63	63/63	80/80	100/100
690 VAC	AC-21 A / AC-21 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100	125/125
690 VAC	AC-22 A / AC-22 B	16/16	20/20	25/25	32/32	32/40	40/63	63/80	80/100	100/125
690 VAC	AC-23 A / AC-23 B	16/16	20/20	25/25	25/25	25/25	40/40	40/40	63/63	63/63
Operational power in AC-23 (kW)										
At 400 VAC without pre-break in AC-23 (kW)[1][2]		7.5	9	11	15	18.5	30	37	45	55
At 500 VAC without pre-break in AC-23 (kW)[1][2]		7.5	9	11	15	18.5	30	37	45	55
At 690 VAC without pre-break in AC-23 (kW)[1][2]		7.5	11	15	15	15	30	37	45	55
Fuse protected short-circuit withstand (kA rms prospective)										
Prospective short-circuit (kA rms)[3]		50	50	50	50	50	50	50	25	25
Associated fuse rating (A)[3]		16	20	25	32	40	63	80	100	125
Short-circuit capacity (U_e 415 VAC)										
Rated short-time withstand current 0.3 s. I_{cw} (kA eff.)		2.5	2.5	2.5	2.5	2.5	3	3	5	5
Rated peak withstand current (kA peak)[3]		6	6	6	6	6	9	9	12	12
Connection										
Minimum Cu cable section (mm^2)		1.5	1.5	1.5	1.5	1.5	2.5	2.5	10	10
Maximum Cu cable section (mm^2)		16	16	16	16	16	35	35	70	70
Tightening torque min/max (Nm)		2 / 2.2	2 / 2.2	2 / 2.2	2 / 2.2	2 / 2.2	3.5 / 3.85	3.5 / 3.85		
Mechanical characteristics										
Durability (number of operating cycles)		100 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000
Operating effort (Nm)		0.8	0.8	0.8	0.8	0.8	1	1		
Weight of a 3 pole device (kg)		0.16	0.16	0.16	0.16	0.16	0.26	0.26	0.7	0.7

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) The power value is given for information only, the current values vary from one manufacturer to another.
(3) For a rated operational voltage U_e = 400 VAC.

➲ Characteristics according to IEC 60947-3

SIRCO MV - 100 to 160 A

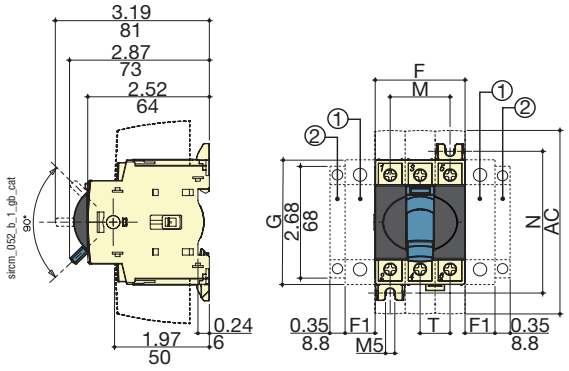
Thermal current I_{th} (40°C)		**100 A**	**125 A**	**160 A**
Rated insulation voltage U_i (V)		800	800	800
Rated impulse withstand voltage U_{imp} (kV)		8	8	8
Rated operational currents Ie (A)				
Rated voltage	Load duty category	A/B[1]	A/B[1]	A/B[1]
415 VAC	AC-21 A / AC-21 B	100/100	125/125	160/160
415 VAC	AC-22 A / AC-22 B	100/100	125/125	160/160
415 VAC	AC-23 A / AC-23 B	100/100	125/125	125/160
500 VAC	AC-21 A / AC-21 B	100/100	125/125	160/160
500 VAC	AC-22 A / AC-22 B	100/100	125/125	125/160
500 VAC	AC-23 A / AC-23 B	80/80	100/100	100/100
690 VAC	AC-20 A / AC-20 B	100/100	125/125	160/160
690 VAC	AC-21 A / AC-21 B	100/100	125/125	160/160
690 VAC	AC-22 A / AC-22 B	63/80	80/100	100/125
690 VAC	AC-23 A / AC-23 B	63/63	80/80	80/80
Reactive power (kvar)				
At 400 VAC (kvar)[2]		45	55	75
Operational power in AC-23 (kW)				
At 400 VAC without pre-break in AC-23 (kW)[1][2]		45	55	75
At 500 VAC without pre-break in AC-23 (kW)[1][2]		45	55	75
At 690 VAC without pre-break in AC-23 (kW)[1][2]		45	75	75
Fuse protected short-circuit withstand (kA rms prospective)				
Prospective short-circuit (kA rms)[3]		100	65	50
Associated fuse rating (A)[3]		100	125	160
Short-circuit capacity (U_e 415 VAC)				
Rated short-time withstand current 0.3 s. I_{cw} (kA eff.)		7	7	7
Rated peak withstand current (kA peak)[3]		12	12	12
Connection				
Minimum Cu cable section (mm²)		10	10	10
Maximum Cu cable section (mm²)		70	70	70
Tightening torque min/max (Nm)		4 / 4.4	4 / 4.4	4 / 4.4
Mechanical characteristics				
Durability (number of operating cycles)		50 000	50 000	50 000
Operating effort (Nm)		4	4	4
Weight of a 3 pole device (kg)		0.7	0.7	0.7
Weight of a 4 pole device (kg)		0.9	0.9	0.9

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) The power value is given for information only, the current values vary from one manufacturer to another.
(3) For a rated operational voltage U_e = 400 VAC.

SIRCO M

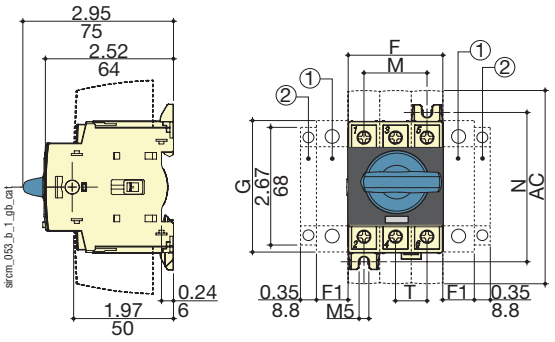
SIRCO M 16 to 80 A

Toggle operation



1. Location for: 1 switched fourth pole module (1 per device max.) **or** *1 unswitched neutral pole*
or *1 protective earth module* **or** *1 auxiliary contact.*
2. Position for 1 auxiliary contact only.
Note: max 4 additional blocks

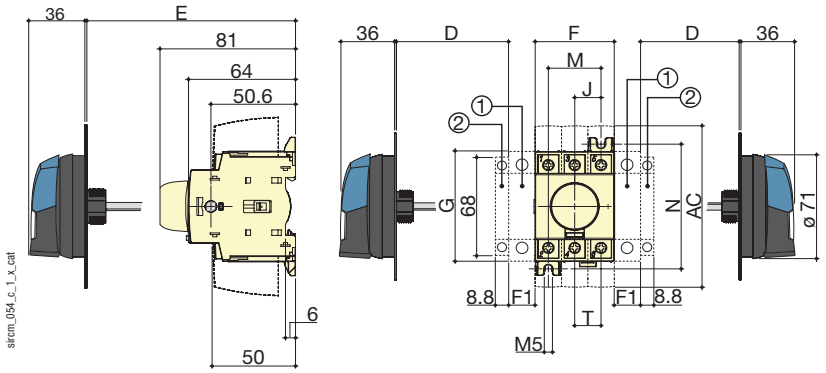
Direct operation with handle



1. Location for: 1 switched fourth pole module (1 per device max.) **or** *1 unswitched neutral pole*
or *1 protective earth module* **or** *1 auxiliary contact.*
2. Position for 1 auxiliary contact only.
Note: max 4 additional blocks

External front operation

External side operation

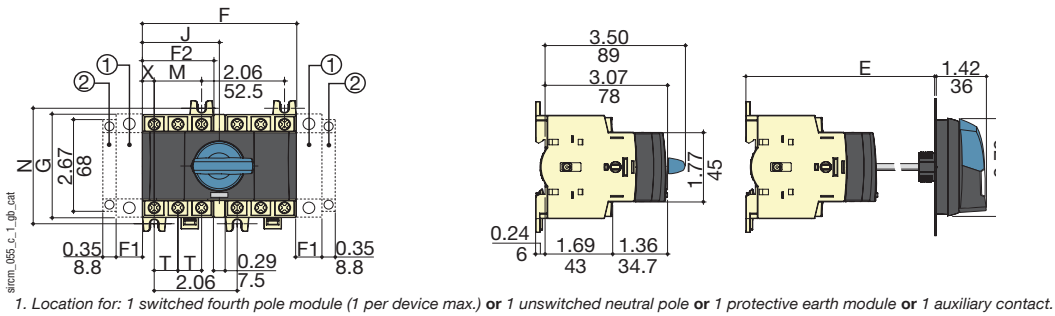


1. Location for: 1 switched fourth pole module (1 per device max.) **or** *1 unswitched neutral pole* **or** *1 protective earth module* **or** *1 auxiliary contact.*
2. Position for 1 auxiliary contact only.
Note: max 4 additional blocks

	Overall dimensions				Terminal shrouds	Switch body				Switch mounting		Connection
Rating (A)	D min	D max	E min	E max	AC	F	F1	G	J	M	N	T
16…40	30	235	100	372	110	45	15	68	15	30	75	15
63…80	30	235	100	372	110	52.5	17.5	76	17.5	35	85	17.5

Direct front operation for 6/8-pole load break switches or 3/4-pole changeover switches

External front operation for 6/8-pole load break switches or 3/4-pole changeover switches

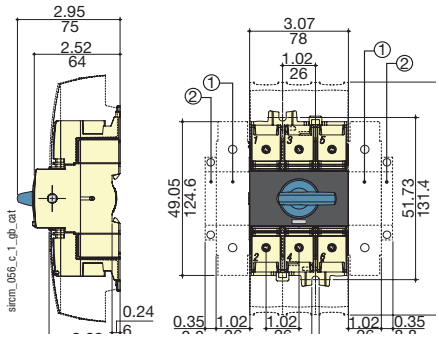


1. Location for: 1 switched fourth pole module (1 per device max.) **or** *1 unswitched neutral pole* **or** *1 protective earth module* **or** *1 auxiliary contact.*
2. Position for 1 auxiliary contact only.
Note: max 4 additional blocks

	Overall dimensions		Switch body					Switch mounting		Connection	
Rating (A)	E min	E max	F	F1	F2	G	J	M	N	T	X
16…40	105	372	97.5	15	45	68	48.75	30	75	15	7.5
63…80	105	372	105	17.5	52.5	76	52.5	35	85	17.5	8.75

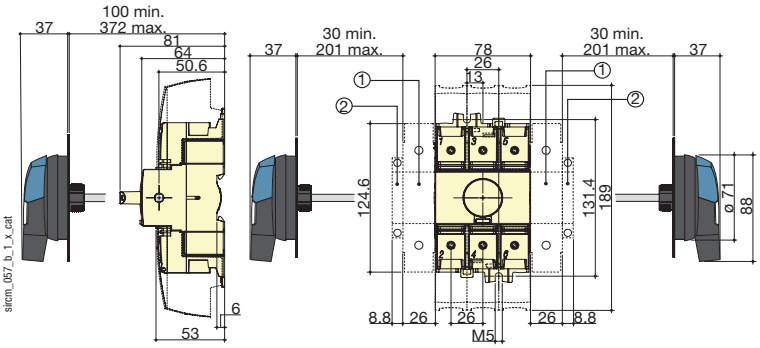
SIRCO M 100 to 125 A

Direct operation with handle



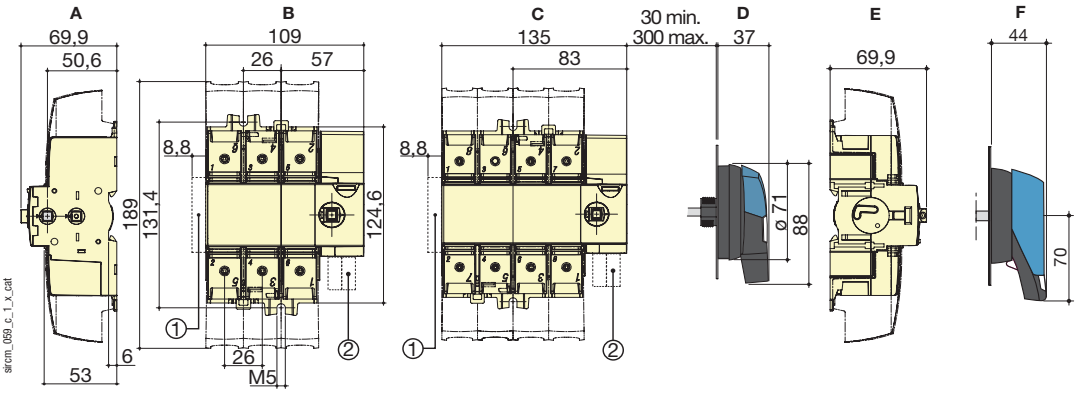
1. Location for: 1 switched fourth pole module (1 per device max.)
or *1 unswitched neutral pole* **or** *1 protective earth module* **or** *1 auxiliary contact.*
2. Position for 1 auxiliary contact only.
Note: max 4 additional blocks

External front operation



1. Location for: 1 switched fourth pole module (1 per device max.)
or *1 unswitched neutral pole* **or** *1 protective earth module* **or** *1 auxiliary contact.*
2. Position for 1 auxiliary contact only.
Note: max 4 additional blocks

External side operation

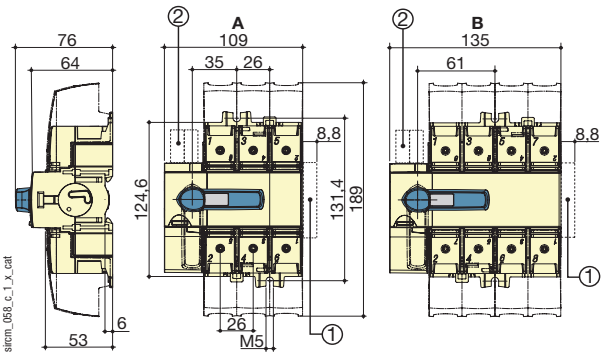


A. Right side operation
B. 3 pole
C. 4 pole
D. S0 type handle
E. Left side operation
F. S1 type handle
1. Maximum 4 "M" type auxiliary contacts
2. Maximum 2 "U" type auxiliary contacts

SIRCO MV

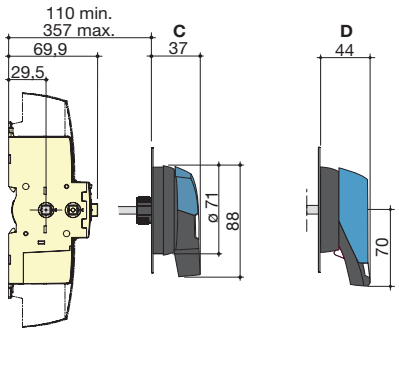
SIRCO MV 100 to 160 A

Direct front operation



A. 3 pole
B. 4 pole

External front operation

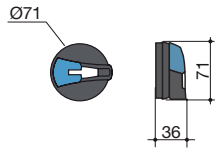
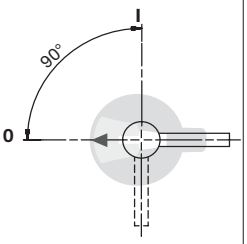
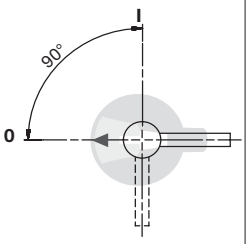
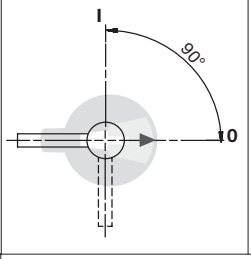
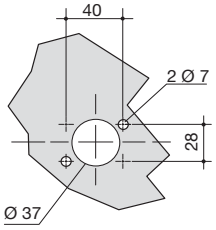
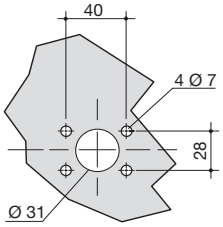
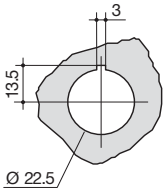


C. S0 type handle
D. S1 type handle
1. Maximum 4 "M" type auxiliary contacts
2. Maximum 2 "U" type auxiliary contacts

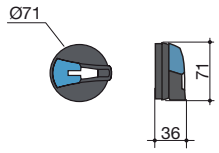
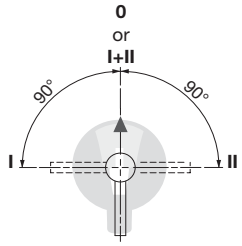
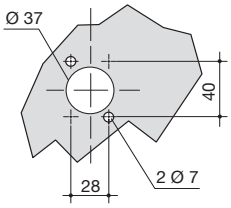
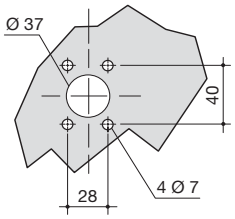
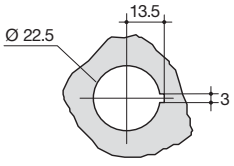
➲ Dimensions for external handles

SIRCO M

SIRCO M 16 to 80 A

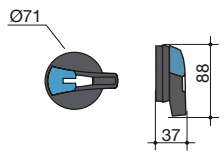
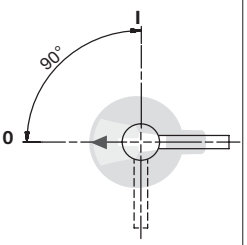
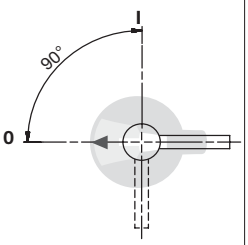
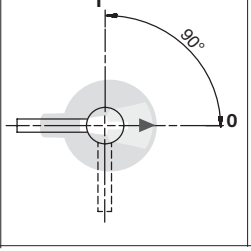
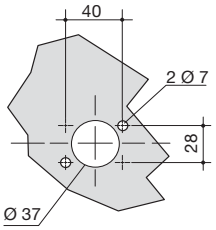
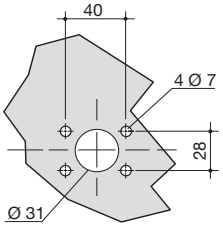
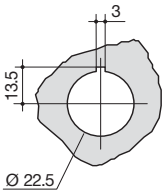
Handle type	Front operation Direction of operation	Side operation Direction of operation	Door drilling
S00 type Load break switches 		**Right side operation**  **Left side operation** 	IP55 with 2 fixing clips  IP65 with 4 fixing screws  With fixing nut 

sircm_177_a_1_gb_cat

Handle type	Front operation Direction of operation	Door drilling
Typ S00 Changeover switches I 0 II and I - I+II - II 		IP55 with 2 fixing clips  IP65 with 4 fixing screws  With fixing nut 

sircm_180_a_1_gb_cat

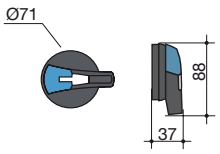
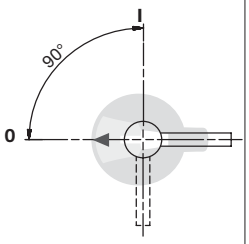
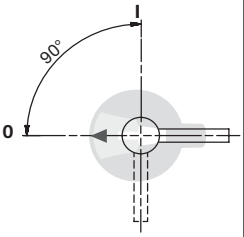
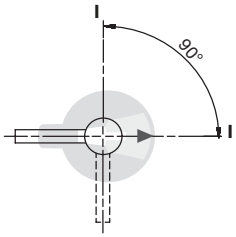
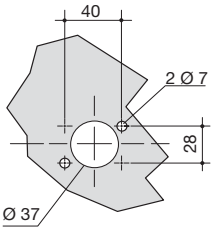
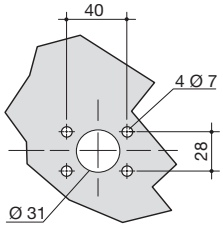
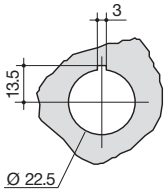
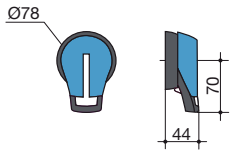
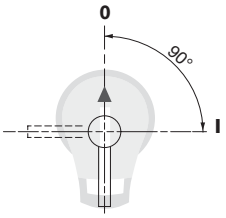
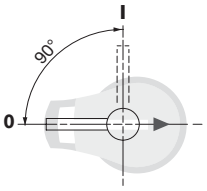
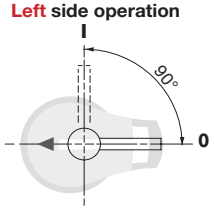
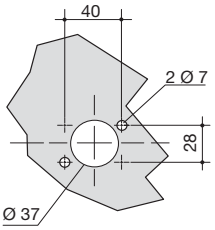
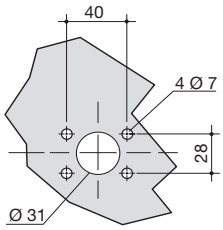
SIRCO M 100 to 125 A

Handle type	Front operation Direction of operation	Side operation Direction of operation	Door drilling
S0 type Load break switches 		**Right side operation**  **Left side operation** 	IP55 with 2 fixing clips  IP65 with 4 fixing screws  With fixing nut 

sircm_178_a_1_gb_cat

SIRCO MV

SIRCO MV 100 to 160 A

Handle type	Front operation Direction of operation	Side operation Direction of operation	Door drilling
S0 type Load break switches 		**Right side operation**  **Left side operation** 	IP55 with 2 fixing clips  IP65 with 4 fixing screws  With fixing nut 
S1 type Load break switches 		**Right side operation**  **Left side operation** 	IP55 with 2 fixing clips  IP65 with 4 fixing screws 

sircm_179_a_1_gb_cat



Remotely trippable switch from 32 to 160 A

➲ Function

IDE are manually operated multipolar load break switches which can be tripped remotely.
They make and break under load conditions and provide safety isolation for any low voltage electric circuit, particularly for compliance with the machine directive: **protection against automatic restart after isolation and re-establishment of the mains voltage (EN 60204.1 \'a7 7 7.5).**

➲ General characteristics

Customized design of IDE switches provides the following advantages:

- operating safety:
  - remote control by tripping coils,
  - fully visualised breaking,
  - IP20 protection with terminal shrouds (accessory).
- ease of positioning:
  - device originally equipped with an early break auxiliary contact to simplify the wiring,
  - front or rear mounting, in direct or external operation.

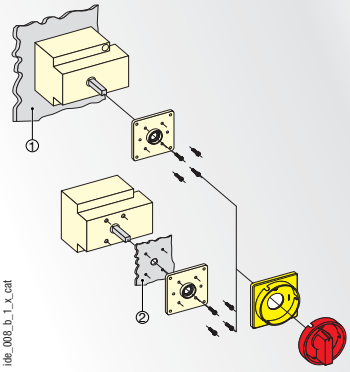
➲ Conformity to standards

- IEC 60947-3
- EN 60947-3
- EN 60204-1 § 7.5
- VDE 0660-107
- VDE 0113-1

What you need to know

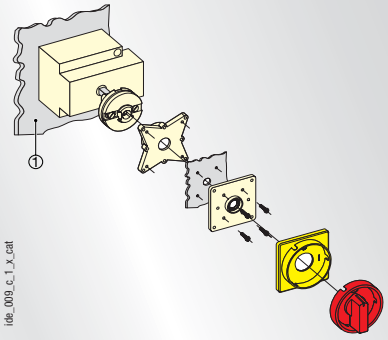
- The IDEs are available in direct and disconnectable external operation versions.
  Can be equipped with 3 or 4 pole and are available with two types of mounting:
  - rear mounting on plate or on DIN rail, direct operation or disconnectable external operation,
  - door or panel mounting.

Direct operation



1. Base mounted
2. Door mounted

Disconnectable external control



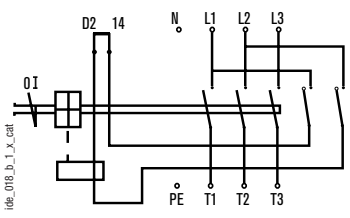
1. Base mounted

- Available in 230 or 400 VAC versions, the IDEs can be tripped remotely via a shunt trip or undervoltage coil.
  They are used to protect against automatic restarting and to prevent damage caused if the network malfunctions and is then re-established.

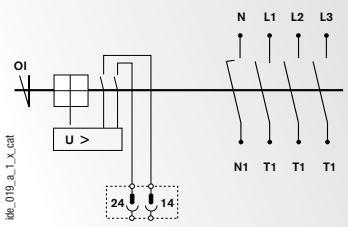
- Factory mounted, IDE includes an internal cabling.
  Coil is supplied between:
  - L1 and N for device 230 VAC,
  - L1 and L2 for device 400 VAC.

  For an IDE 32 A, an actuator relay can be incorporated between D2 and 14 (other wiring on request).

IDE 32 A



Internal cabling IDE 40 to 160 A





➲ IDE - References



ide_021_a_1_cat

Base mounted

Rating (A)	No. of poles	Switch body Undervoltage coil	Switch body shunt trip coil	Direct handle	External operation 200 mm	Auxiliary contact position	Terminal covers top/bottom (2 sets)	Empty enclosure
32 A	3 P	1260 **3003**(1)		Black IP65 1299 **5012** Red/Yellow IP65 1299 **5013**	Black IP65 1299 **6022** Red/Yellow IP65 1299 **6023**	1 contact NO+NC 1299 **5001**	3/4 P 1299 **8003**	1295 **9001**(2)
	3 P	1270 **3003**(3)						
	4 P							
	4 P							
40 A	3 P	1260 **3004**(4)(1)	1280 **3004**(4)(1)	Black IP65 1299 **6142**(5) Red/Yellow IP65 1299 **6143**(5)	Black IP65 1299 **6032** Red/Yellow IP65 1299 **6033**	1 contact NO+NC 1299 **0031**	3/4 P 1299 **8007**	consult us
	3 P	1270 **3004**(4)(3)	1290 **3004**(4)(3)					
	4 P	1260 **4004**(4)(1)	1280 **4004**(4)(1)					
	4 P	1270 **4004**(4)(3)	1290 **4004**(4)(3)					
63 A	3 P	1260 **3007**(4)(1)	1280 **3007**(4)(1)					
	3 P	1270 **3007**(4)(3)	1290 **3007**(4)(3)					
	4 P	1260 **4007**(4)(1)	1280 **4007**(4)(1)					
	4 P	1270 **4007**(4)(3)	1290 **4007**(4)(3)					
125 A	3 P	1260 **3013**(1)	1280 **3013**(1)	Black IP65 1299 **5032** Red/Yellow IP65 1299 **5033**	Black IP65 1299 **6042** Red/Yellow IP65 1299 **6043**	1 contact NO+NC 1299 **0021**	3/4 P 1299 **8013**	
	3 P	1270 **3013**(3)	1290 **3013**(3)					
	4 P	1260 **4013**(1)	1280 **4013**(1)					
	4 P	1270 **4013**(3)	1290 **4013**(3)					
160 A	3 P	1260 **3016**(1)	1280 **3016**(1)					
	3 P	1270 **3016**(3)	1290 **3016**(3)					
	4 P	1260 **4016**(1)	1280 **4016**(1)					
	4 P	1270 **4016**(3)	1290 **4016**(3)					

(1) 230 VAC.
(2) This drilled pre-equipped enclosure enables immediate installation of a direct control rear mounted IDE without auxiliary contact, with protection rating of IP65.
(3) 400 VAC.
(4) Modular device.
(5) Modular handle.

➲ Accessories

Direct operation handle for base mounting

Rating (A)	Handle colour	External IP	Reference
32	Black	IP65	1299 **5012**
32	Red/Yellow	IP65	1299 **5013**
40 … 63	Black	IP65	1299 **6142**(1)
40 … 63	Red/Yellow	IP65	1299 **6143**(1)
125 … 160	Black	IP65	1299 **5032**
125 … 160	Red/Yellow	IP65	1299 **5033**

(1) Modular handle.

Rear-mounted empty enclosure for IDE with direct operation

Use
This drilled pre-equipped enclosure enables immediate installation of a direct control rear mounted IDE without auxiliary contact, with protection rating of IP65.

Rating (A)	Reference
32	1295 **9001**
40 … 160	consult us



Door mounted

Rating (A)	No. of poles	Switch body Undervoltage coil	Switch body shunt trip coil	Direct handle	Auxiliary contact position	Terminal covers top/bottom (2 sets)
32 A	3 P	1210 **3003**(1)		Black IP65 1299 **5012** Red/Yellow IP65 1299 **5013**	1 contact NO+NC 1299 **5001**	3/4 P 1299 **8003**
	3 P	1220 **3003**(2)				
	4 P					
	4 P					
40 A	3 P	1210 **3004**(1)	1230 **3004**(1)	Black IP65 1299 **5022** Red/Yellow IP65 1299 **5023**	1 contact NO+NC 1299 **0031**	3/4 P 1299 **8007**
	3 P	1220 **3004**(2)	1240 **3004**(2)			
	4 P	1210 **4004**(1)	1230 **4004**(1)			
	4 P	1220 **4004**(2)	1240 **4004**(2)			
63 A	3 P	1210 **3007**(1)	1230 **3007**(1)			
	3 P	1220 **3007**(2)	1240 **3007**(2)			
	4 P	1210 **4007**(1)	1230 **4007**(1)			
	4 P	1220 **4007**(2)	1240 **4007**(2)			
125 A	3 P	1210 **3013**(1)	1230 **3013**(1)	Black IP65 1299 **5032** Red/Yellow IP65 1299 **5033**	1 contact NO+NC 1299 **0021**	3/4 P 1299 **8013**
	3 P	1220 **3013**(2)	1240 **3013**(2)			
	4 P	1210 **4013**(1)	1230 **4013**(1)			
	4 P	1220 **4013**(2)	1240 **4013**(2)			
160 A	3 P	1210 **3016**(1)	1230 **3016**(1)			
	3 P	1220 **3016**(2)	1240 **3016**(2)			
	4 P	1210 **4016**(1)	1230 **4016**(1)			
	4 P	1220 **4016**(2)	1240 **4016**(2)			

(1) 230 VAC.
(2) 400 VAC.

Direct operation handle for door mounting

Rating (A)	Handle colour	External IP	Reference
32	Black	IP65	1299 **5012**
32	Red/Yellow	IP65	1299 **5013**
40 … 63	Black	IP65	1299 **5022**
40 … 63	Red/Yellow	IP65	1299 **5023**
125 … 160	Black	IP65	1299 **5032**
125 … 160	Red/Yellow	IP65	1299 **5033**

Terminal shrouds



Use
Top or bottom protection against direct contact with terminals or connection parts. Top and bottom pair.

Rating (A)	Position	Reference
32	top / bottom	1299 **8003**(1)
40 … 63	top / bottom	1299 **8007**(1)
125 … 160	top / bottom	1299 **8013**(1)

(1) Reference composed of 2 pieces.

Position auxiliary contact



Use
Position 0 and I signalling NO+NC auxiliary contact

Connection to the control circuit
Per terminal.

Rating (A)	Mounting	Contact(s)	Reference
32	client	1 NO+NC	1299 **5001**
40 … 63	client	1 NO+NC	1299 **0031**
125 … 160	client	1 NO+NC	1299 **0021**
125 … 160	factory	1 NO+NC	1299 **0121**

Characteristics

Rating (A)	Contact type	Nominal current (A)
32 … 63	NO + NC	12
125 … 160	NO + NC	5

External operation for rear mounting device

Use
Standard lengths: 200 mm.
Other lengths: consult us.

Shaft extension and black handle

Rating (A)	Shaft length (mm)	External IP	Reference
32	200	IP65	1299 **6022**
40 … 63	200	IP65	1299 **6032**
125 … 160	200	IP65	1299 **6042**

Shaft extension and red handle

Rating (A)	Shaft length (mm)	External IP	Reference
32	200	IP65	1299 **6023**
40 … 63	200	IP65	1299 **6033**
125 … 160	200	IP65	1299 **6043**

➲ Characteristics according to IEC 60947-3

32 to 160 A

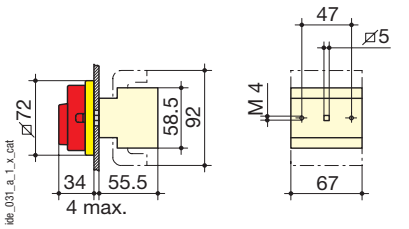
Thermal current I_{th} (40°C)		**32 A**	**40 A**	**63 A**	**125 A**	**160 A**
Rated insulation voltage U_i (V)		690	690	690	690	690
Rated operational currents Ie (A)						
Rated voltage	Load duty category	A(1)	A(1)	A(1)	A(1)	A(1)
400 VAC	AC-21	32	40	63	125	160
400 VAC	AC-23	14	40	63	125	160
400 VAC	AC-3	14	30	44	100	100
690 VAC(2)	AC-21 A	32	40	63	125	160
Motor power output (kW)						
At 400 VAC without pre-break in AC-23 (kW)(3)(1)		7.5	22	30	63	80
At 400 VAC without pre-break in AC-3 (kW)(3)()		7.5	15	22	55	55
Short-circuit capacity						
Rated short-time withstand current 1 s. I_{cw} (kA eff.)		1	1.5	1.5	2.5	2.5
Closing capacity on short-circuit (kA peak) (4)		3	5.2	5.2	6.6	6.6
Connection						
Minimum Cu cable section (mm^2)		1	2.5	2.5	6	6
Maximum Cu cable section (mm^2)		4	10	10	70	70
Mechanical characteristics						
Durability (number of operating cycles)		100 000	60 000	60 000	30 000	30 000

(1) Category with index A = frequent operation.
(2) With terminal shrouds or phase barrier.
(3) The power value is given for information only, the current values vary from one manufacturer to another.
(4) For a rated operational voltage U_e = 400 VAC.

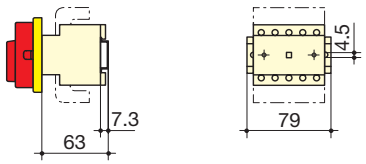
Dimensions

IDE 32 A

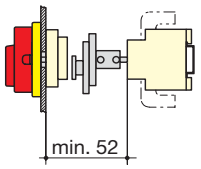
Direct operation with front door or panel



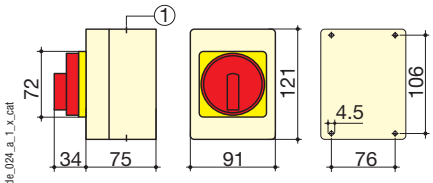
Direct operation with back DIN rail mounting



Door interlocked external front operation with DIN rail mounting



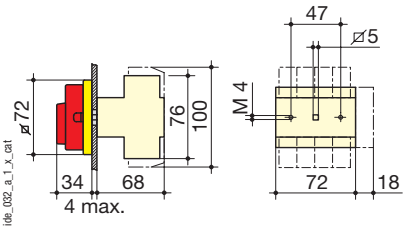
Enclosure for IDE 32 A



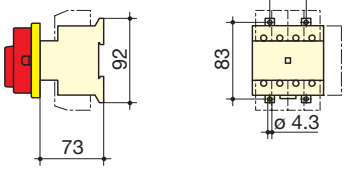
1. For PE 16 mm

IDE 40 to 63 A

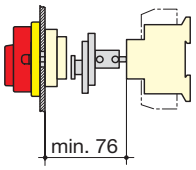
Direct operation with front door or panel



Direct operation with DIN rail or back plate base mounting

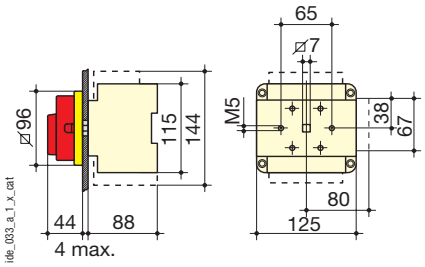


Door interlocked external front operation with DIN rail or back plate base mounting

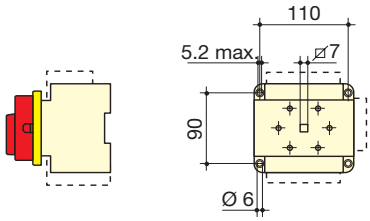


IDE 125 to 160 A

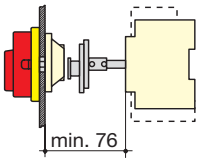
Direct operation with front door or panel



Direct operation with DIN rail or back plate base mounting



Door interlocked external front operation with DIN rail or back plate base mounting





Load break switch with fully visualised breaking from 125 to 5 000 A

➲ Function

SIRCO switches are manually operated or motorised multipolar load break switches. They make and break under load conditions and provide safety isolation for any low voltage circuit.

➲ General characteristics

- Fully visualised breaking.
- High thermal and dynamic withstand.
- Severe utilisation categories (AC-22 and AC-23).
- Good electrical and mechanical endurance.
- High resistance to humidity (supplied "tropicalised").

➲ Available on request

- Early break auxiliaries.
- SIRCO 9 and 12 poles up to 1600 A.
- 3 pole + neutral.
- Early break advanced neutral for networks charged with harmonics.
- Conducting neutral.
- Neutral earthing stud.

➲ Conformity to standards

- IEC 60947-3
- EN 60947-3
- VDE 0660-107 (1992)
- NBN EN 60947-3
- BS EN 60947-3
- Standards UL: see SIRCO UL

➲ Approvals and certifications(1)

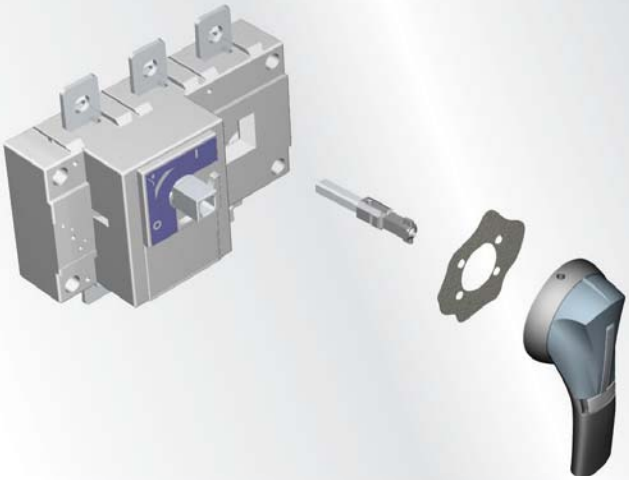
- CEBEC (Belgium)
- FI (Finland)
- ASEFA
- KEMA
- CCA
- GOST (Russia)
- BBJ Poland (Attestaion of verification)
- PSA E03.15.605.G
- RENAULT EB03.15.613
- RINA (Registre Naval Italien)

(1) Product reference on request.

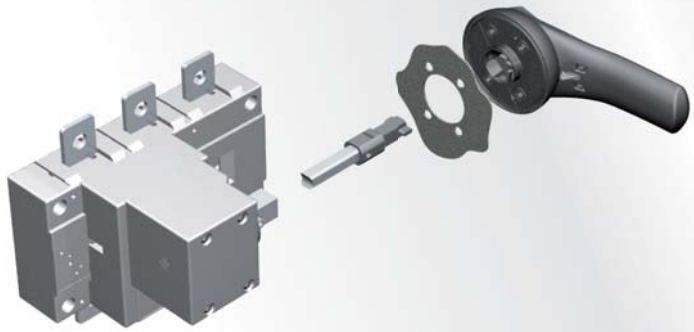
➲ What you need to know

- In front direct or external operation,
  SIRCO is available in 3 and 4-pole versions from 125 to 5000 A.

Can be ordered in 6 or 8 pole from 125 to 1600 A.
The switch can be enclosed in a polyester or sheet metal enclosure from 125 to 1250 A.


sirco_372_a_1_cat

- External right side operation,
  SIRCO is available in 3 and 4-pole versions from 125 to 1800 A.

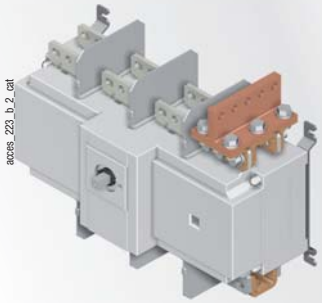

sirco_371_a_1_cat

- For rating 2000, 2500 and 3200A, a connection kit for copper bars allows the connection between the 2 connection terminals of one pole.

Flat connection
Top or bottom


acces_220_c_2_cat

Edgewise connection
Top or bottom


acces_223_b_2_cat



➲ SIRCO - References



Front operation - 3 & 4 pole

Rating (A)	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Auxiliary contacts	Terminal shrouds	Terminal screens
125 A	3 P	2600 **3014**(1)	Black 2699 **5042**(2) Red 2699 **5043**	Type S2 Black IP55 1421 **2111**(2) Black IP65 1423 **2111** Red IP65 1424 **2111**	200 mm 1400 **1020** 320 mm 1400 **1032**(2) 500 mm 1400 **1050**	1st contact NO/NC 2699 **0031** 2nd contact NO/NC 2699 **0032**	3 P 2694 **3014** 4 P 2694 **4014**	3 P 2698 **3012**(3) 4 P 2698 **4012**(3)
	4 P	2600 **4014**(1)						
160 A	3 P	2600 **3017**(1)						
	4 P	2600 **4017**(1)						
200 A	3 P	2600 **3021**	Black 2699 **5052**(2) Red 2699 **5053**				3 P 2694 **3021** 4 P 2694 **4021**	3 P 2698 **3020**(3) 4 P 2698 **4020**(3)
	4 P	2600 **4021**						
250 A	3 P	2600 **3026**(1)						
	4 P	2600 **4026**(1)						
315 A	3 P	2600 **3032**					3 P 2694 **3051**(3) 4 P 2694 **4051**(3)	3 P 2698 **3050**(3) 4 P 2698 **4050**(3)
	4 P	2600 **4032**						
400 A	3 P	2600 **3041**(1)						
	4 P	2600 **4041**(1)						
500 A	3 P	2600 **3051**(1)						
	4 P	2600 **4051**(1)						
630 A	3 P	2600 **3064**(1)						
	4 P	2600 **4064**(1)						
800 A	3 P	2600 **3081**(1)	Black 2799 **7012**(2) Red 2799 **7013**	Type S4 Black IP65 1443 **3111**(2) Red/Yellow IP65 1444 **3111**	200 mm 1401 **1520** 320 mm 1401 **1532**(2) 400 mm 1401 **1540**			3 P 2698 **3080**(3) 4 P 2698 **4080**(3)
	4 P	2600 **4081**(1)						
1 000 A	3 P	2600 **3099**(1)						
	4 P	2600 **4099**(1)						
CD 1 250 A	3 P	2600 **3119**						
	4 P	2600 **4119**						
1 250 A	3 P	2600 **3121**(1)						3 P 2698 **3120**(3) 4 P 2698 **4120**(3)
	4 P	2600 **4121**(1)						
1 600 A	3 P	2600 **3161**						
	4 P	2600 **4161**						
1 800 A	3 P	2600 **3181**						
	4 P	2600 **4181**						
2 000 A	3 P	2600 **3200**		Black IP65 2799 **7136**(2) Red IP65 2799 **7134**	200 mm 2799 **3015** 320 mm 2799 **3018**(2)			3 P 2698 **3200** 4 P 2698 **4200**
	4 P	2600 **4200**						
2 500 A	3 P	2600 **3250**						
	4 P	2600 **4250**						
3 200 A	3 P	2600 **3320**						
	4 P	2600 **4320**						
4 000 A	3 P	2600 **3401**	Black 2799 **7072**(2)	Black IP65 2799 **7155**(2)		1st/2nd contact NO/NC included		consult us
	4 P	2600 **4401**						
5 000 A	3 P	2600 **3500**						
	4 P	2600 **4500**						

(1) Available enclosed (see page 493 "Enclosed load break switches").
(2) Standard.
(3) Top/bottom.


sirco_188_a_2_cat

Front operation - 6 & 8 pole

Rating (A)	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Auxiliary contacts	Terminal shrouds	Terminal screens
125 A	6 P	2601 **6013**	Black 4199 **5012**(1)	Type S2 Black IP55 1421 **2111**(1) Red IP65 1424 **2111**	200 mm 1400 **1020** 320 mm 1400 **1032**(1)	1st contact NO/NC 2699 **0061** 2nd contact NO/NC 2699 **0062**	6 P 2694 **3014**(2)(3) 8 P 2694 **4014**(2)(3)	6 P 1509 **3012**(4) 8 P 1509 **4012**(4)
	8 P	2601 **8013**						
160 A	6 P	2601 **6016**						
	8 P	2601 **8016**						
250 A	6 P	2601 **6025**	Black 2799 **7052**(1) Red 2799 **7053**	Type S4 Black IP65 1443 **3111**(1) Red/Yellow IP65 1444 **3111**	200 mm 1401 **1520** 320 mm 1401 **1532**(1)		2694 **3021**(2)(3)	1509 **3025**(4)
	8 P	2601 **8025**					2694 **4021**(2)(3)	1509 **4025**(4)
400 A	6 P	2601 **6040**					6 P 2694 **3051**(2)(3) 8 P 2694 **4051**(2)(3)	6 P 1509 **3063**(4) 8 P 1509 **4063**(4)
	8 P	2601 **8040**						
630 A	6 P	2601 **6063**						
	8 P	2601 **8063**						
800 A	6 P	2601 **6080**	Black 2799 **7012**(1) Red 2799 **7013**	Black IP65 2799 **7145**	320 mm 2799 **3018**			6 P 1509 **3080**(5) 8 P 1509 **4080**(5)
	8 P	2601 **8080**						
1 000 A	6 P	2601 **6100**						
	8 P	2601 **8100**						
1 250 A	6 P	2601 **6120**						
	8 P	2601 **8120**						
1 600 A	6 P	2601 **6160**						1509 **3160**(5)
	8 P	2601 **8160**						1509 **4160**(5)

(1) Standard.
(2) Top/bottom.
(3) Select 2 sets for front or rear.
(4) 2 pieces: one for top side and another for bottom side.
(5) Top or bottom.


sirco_333_a_1_cat

External right side operation

Rating (A)	No. of poles	Switch body	External handle	Shaft for external handle	Auxiliary contacts	Terminal shrouds	Terminal screens
125 A	3 P	2605 **3014**	Type S2 Black IP55 1425 **2111**(1) Black IP65 1427 **2111** Red/Yellow IP65 1428 **2111**	200 mm 1400 **1020** 250 mm 1400 **1025** 320 mm 1400 **1032**(1)	1st contact NO/NC 2699 **0031** 2nd contact NO/NC 2699 **0032**	3 P 2694 **3014**(2) 4 P 2694 **4014**(2)	3 P 2698 **3012**(2) 4 P 2698 **4012**(2)
	4 P	2605 **4014**					
160 A	3 P	2605 **3017**					
	4 P	2605 **4017**					
200 A	3 P	2605 **3021**				3 P 2694 **3021**(2) 4 P 2694 **4021**(2)	3 P 2698 **3020**(2) 4 P 2698 **4020**(2)
	4 P	2605 **4021**					
250 A	3 P	2605 **3026**					
	4 P	2605 **4026**					
315 A	3 P	2605 **3032**				3 P 2694 **3051**(2) 4 P 2694 **4051**(2)	3 P 2698 **3050**(2) 4 P 2698 **4050**(2)
	4 P	2605 **4032**					
400 A	3 P	2605 **3041**					
	4 P	2605 **4041**					
500 A	3 P	2605 **3051**					
	4 P	2605 **4051**					
630 A	3 P	2605 **3064**					
	4 P	2605 **4064**					
800 A	3 P	2605 **3081**	Type S3 Black IP65 1437 **3111**(1) Red/Yellow IP65 1438 **3111**	200 mm 1401 **1520** 320 mm 1401 **1532**(1)			3 P 2698 **3080**(2) 4 P 2698 **4080**(2)
	4 P	2605 **4081**					
CD 1 250 A	3 P	2605 **3119**					
	4 P	2605 **4119**					
1 800 A	3 P	2605 **3181**					2698 **3120**(2)
	4 P	2605 **4181**					2698 **4120**(2)

(1) Standard.
(2) Top/bottom.

Accessories

Direct operation handle



Rating (A)	No. of poles	Handle colour	Reference
125 … 160	3/4 P	Black	2699 **5042**
125 … 160	6/8 P	Black	4199 **5012**
125 … 160	3/4 P	Red	2699 **5043**
200 ... 630	3/4 P	Black	2699 **5052**
200 ... 630	3/4 P	Red	2699 **5053**
250 … 630	6/8 P	Black	2799 **7052**
250 … 630	6/8 P	Red	2799 **7053**
800 … 3 200	3/4 P	Black	2799 **7012**
800 … 3 200	3/4 P	Red	2799 **7013**
800 … 1 600	6/8 P	Black	2799 **7012**
800 … 1 600	6/8 P	Red	2799 **7013**
4 000 ... 5 000	3/4 P	Black	2799 **7072**

External operation handle



S2 type handle



S3 type handle



S4 type handle

Use
The door interlocked external operation handle includes one padlockable handle, one escutcheon and must be utilised with an extension shaft.

Front operation

Rating (A)	No. of poles	Handle	Handle colour	External IP (1)	Reference
125 ... 630	3/4 P	S2 type	Black	IP55	1421 **2111**
125 … 630	3/4 P	S2 type	Black	IP65	1423 **2111**
125 … 630	3/4 P	S2 type	Red/Yellow	IP65	1424 **2111**
125 … 160	6/8 P	S2 type	Black	IP55	1421 **2111**
125 … 160	6/8 P	S2 type	Black	IP65	1423 **2111**
125 … 160	6/8 P	S2 type	Red/Yellow	IP65	1424 **2111**
250 ... 630	6/8 P	S4 type	Black	IP65	1443 **3111**
250 ... 630	6/8 P	S4 type	Red/Yellow	IP65	1434 **3111**
800 ... 1600	6/8 P		Black	IP65	2799 **7145**
800 … 1 800	3/4 P	S4 type	Black	IP65	1443 **3111**
800 … 1 800	3/4 P	S4 type	Red/Yellow	IP65	1444 **3111**
2 000 … 3200	3/4 P		Black	IP65	2799 **7136**(2)
2 000 … 3 200	3/4 P		Red	IP65	2799 **7134**
4 000 ... 5 000	3/4 P		Black	IP65	2799 **7155**(2)

(1) IP: Degree of protection according to standard IEC 60529.
(2) Standard.

External right side operation

Rating (A)	No. of poles	Handle	Handle colour	External IP (1)	Reference
125 ... 630	3/4 P	S2 type	Black	IP55	1425 **2111**(2)
125 … 630	3/4 P	S2 type	Black	IP65	1427 **2111**
125 … 630	3/4 P	S2 type	Red/Yellow	IP65	1428 **2111**
800 ... 1 800	3/4 P	S3 type	Black	IP65	1437 **3111**(2)
800 ... 1 800	3/4 P	S3 type	Red/Yellow	IP65	1438 **3111**

(1) IP: Degree of protection according to standard IEC 60529.
(2) Standard.

Alternative S type handle cover colors



Use
For single lever handles type S1, S2, S3 and double lever handle, type S4.
Other colours: consult us.

Handle colour	To be ordered in multiples of	Handle	Reference
Light grey	50	Type S1, S2	1401 **0001**
Dark grey	50	Type S1, S2	1401 **0011**
Light grey	50	S4 type	1401 **0031**
Dark grey	50	S4 type	1401 **0041**

S type handle adapter


acces_167_a_1_cat

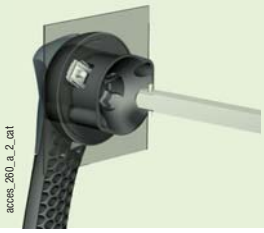
Use
Enables S type handles to be fitted in place of existing older style Socomec handles. Adapter can also be utilised as a spacer to increase the distance between the panel door and the handle lever.

Dimensions
Adds 12 mm to the depth.

Handle colour	To be ordered in multiples of	External IP (1)	Reference
Black	10	IP65	1493 **0000**

(1) IP: Degree of protection according to standard IEC 60529.

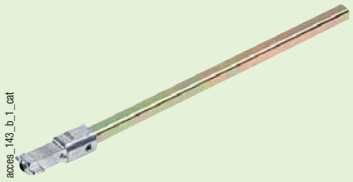
Shaft guide for external operation


acces_260_a_2_cat

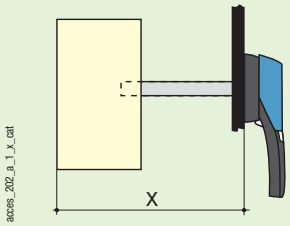
Use
To guide the shaft extension into the external handle.
This accessory enables handle to engage extension shaft with a misalignment of up to 15 mm.
Required for a shaft length over 320 mm.

Description	Reference
Shaft guide	1429 **0000**

Shaft for external handle


acces_143_b_1_cat


acces_144_b_1_cat



acces_202_a_1_x_cat

For 3/4 pole

Rating (A)	Dimension X (mm)	Shaft length (mm)	Reference
125 … 160	125 ... 250	200 mm	1400 **1020**
125 … 160	125 … 300	250 mm	1400 **1025**
125 … 160	125 … 370	320 mm	1400 **1032**
125 … 160	125 ... 550	500 mm	1400 **1050**
125 … 160	125 ... 850	750 mm	1400 **1075**
200 … 250	135 … 265	200 mm	1400 **1020**
200 … 250	135 … 315	250 mm	1400 **1025**
200 … 250	135 … 385	320 mm	1400 **1032**
200 … 250	135 … 565	500 mm	1400 **1050**
200 … 250	135 … 880	750 mm	1400 **1075**
315… 630	165 … 295	200 mm	1400 **1020**
315… 630	165 … 345	250 mm	1400 **1025**
315… 630	165 … 415	320 mm	1400 **1032**
315… 630	165 … 595	500 mm	1400 **1050**
315… 630	165 … 940	750 mm	1400 **1075**
800 ... 1800	221 … 343	200 mm	1401 **1520**
800 … 1 800	221 … 463	320 mm	1401 **1532**
800 … 1 800	221 … 543	400 mm	1401 **1540**
2000 … 3 200	415 … 570	200 mm	2799 **3015**
2000 … 3 200	415 … 690	320 mm	2799 **3018**
2000 … 3 200	415 … 820	450 mm	2799 **3019**
4 000 ... 5 000	550 … 680	200 mm	2799 **3015**
4 000 ... 5 000	651 … 921	320 mm	2799 **3018**

Use
Standard lengths:
- 200 mm
- 250 mm
- 300 mm
- 400 mm
- 500 mm
- 750 mm

Other lengths: consult us.

For 6/8 pole

Rating (A)	Dimension X (mm)	Shaft length (mm)	Reference
125 … 160	270 … 436	200 mm	1400 **1020**
125 … 160	270 … 556	320 mm	1400 **1032**
250 ... 630	221 … 308	200 mm	1401 **1520**
250 ... 630	221 … 428	320 mm	1401 **1532**
250 ... 630	221 … 508	400 mm	1401 **1540**
800 ... 1600	651 … 921	320 mm	2799 **3018**

Door mounting kit

Use
Kit enables door mounting for the SIRCO.

For 3/4 pole direct front operation

Rating (A)	No. of poles	Reference
125 ... 160	3 P	2699 **3312**
125 ... 160	4 P	2699 **4312**
200 ... 250	3 P	2699 **3420**
200 ... 250	4 P	2699 **4420**

Auxiliary contacts


acces_076_a_1_cat


acces_065_a_1_cat

Use
Pre-break and signalling of positions 0 and I:
- 1 to 2 NO/NC auxiliary contacts,
- 1 to 4 NO + NC auxiliary contacts,
- 1 to 2 low level NO/NC auxiliary contacts..

Characteristics
NO/NC AC: IP2 with front and side operation.

Connection to the control circuit
By 6.35 mm fast-on terminal.

Electrical characteristics
30 000 operations.

References

NO/NC contact for 3/4 pole

Rating (A)	Position AC	Reference
125 … 3 200	1st	2699 **0031**
125 … 3 200	2nd	2699 **0032**
4 000 ... 5 000	1st/2nd	included

NO/NC contact for 6/8 pole

Rating (A)	Position AC	Reference
125 … 1600	1st	2699 **0061**
125 … 1600	2nd	2699 **0062**

NO+NC contact for 3/4 pole

Rating (A)	Position AC	Reference
125 … 3 200	1st	2699 **0141**
125 … 3 200	2nd	2699 **0142**

Low level NO/NC contact for 3/4 pole

Rating (A)	Position AC	Reference
100 … 3 200	1st	2699 **0301**
100 … 3 200	2nd	2699 **0302**

Characteristics

Rating (A)	Contact type	Current nominal (A)	Operating current I_e (A) 230 VAC AC-12	AC-13/15	400 VAC AC-12	AC-13/15	24 VDC DC-12	DC-13	DC-14	48 VDC DC-12	DC-13	DC-14
125 … 4 000	NO/NC	16	16	4	12	3	2.5	2.5	1	2.5	1.2	0.2
125 … 3 200	NO + NC	16	16	4	16	3	16	5	1	2.5	1.2	0.2

Terminal shrouds

Use
Top or bottom protection against direct contact with terminals or connection parts.

Advantage
Perforations allowing remote thermographic inspection without removal.
The terminal shrouds also provide phase separation for SIRCOs from 125 to 630 A.


acces_077_a_1_cat

For 3/4 pole (1)

Rating (A)	No. of poles	Position	Reference
125 … 160	3 P	top or bottom	2694 **3014**(2)
125 … 160	4 P	top or bottom	2694 **4014**(3)
200 … 250	3 P	top or bottom	2694 **3021**(2)
200 … 250	4 P	top or bottom	2694 **4021**(3)
315 … 630	3 P	top or bottom	2694 **3051**(2)
315 … 630	4 P	top or bottom	2694 **4051**(3)

(1) 2 sets required to shroud top and bottom terminals on 3/4 pole switch.
(2) Reference composed of 3 pieces.
(3) Reference composed of 4 pieces.

For 6/8 pole (1)

Rating (A)	No. of poles	Position	Reference
125 … 160	6 P	top / bottom	2694 **3014**
125 … 160	8 P	top / bottom	2694 **4014**
250	6 P	top / bottom	2694 **3021**
250	8 P	top / bottom	2694 **4021**
400 … 630	6 P	top / bottom	2694 **3051**
400 … 630	8 P	top / bottom	2694 **4051**

(1) 4 sets required to shroud top and bottom terminals on 6/8 pole switch.

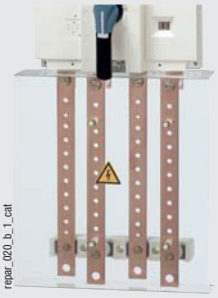
Shrouded distribution block


repar_027_a_2_cat

Use
Easy connection of several cables, can be clipped onto a symmetric DIN rail.

Rating (A)	No. of poles	No. of connections by section (mm²)	Reference
125	3/4 P	2x25 + 7x10	5420 **4108**
125	3/4 P	2x25 + 2x16 + 9x10	5420 **4112**
160	3/4 P	13x25 + 8x16 + x10	5420 **4016**

Bottom distribution kit


repar_020_b_1_cat

Use
Easy connection of several cables, downstream mounting of the SIRCO.

Rating (A)	No. of poles	No. of connections by section (mm²)	Reference
125 ... 160	3 P	1 x 95 + 8 x 25	5411 **3016**
125 ... 160	4 P	1 x 95 + 8 x 25	5411 **4016**
200 ... 250	3 P	1 x 150 + 8 x 50	5411 **3025**
200 ... 250	4 P	1 x 150 + 8 x 50	5411 **4025**
315 ... 400	3 P	1 x 240 + 8 x 95	5411 **3040**
315 ... 400	4 P	1 x 240 + 8 x 95	5411 **4040**
500 … 630	3 P	1 x 300 + 8 x 150	5411 **3063**
500 … 630	4 P	1 x 300 + 8 x 150	5411 **4063**

Terminal screens

Use
Top or bottom protection against direct contact with terminals or connection parts.


acces_079_a_1_cat

For 3/4 pole

Rating (A)	No. of poles	Position	Reference
125 ... 160	3 P	top / bottom	2698 **3012**
125 ... 160	4 P	top / bottom	2698 **4012**
200 ... 250	3 P	top / bottom	2698 **3020**
200 ... 250	4 P	top / bottom	2698 **4020**
315 ... 630	3 P	top / bottom	2698 **3050**
315 ... 630	4 P	top / bottom	2698 **4050**
800 … CD 1 250	3 P	top / bottom	2698 **3080**
800 … CD 1 250	4 P	top / bottom	2698 **4080**
1 250 … 1 800	3 P	top / bottom	2698 **3120**
1 250 … 1 800	4 P	top / bottom	2698 **4120**
2 000 … 3200	3 P	top / bottom	2698 **3200**
2 000 … 3200	4 P	top / bottom	2698 **4200**
4 000 ... 5 000	3/4 P	top / bottom	consult us

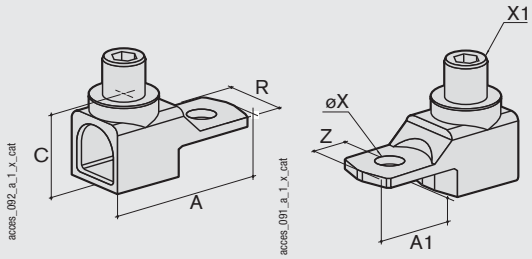
For 6/8 pole

Rating (A)	No. of poles	Position	Pack	Reference
125 … 160	6 P	top / bottom	1	1509 **3012**
125 … 160	8 P	top / bottom	1	1509 **4012**
250	6 P	top / bottom	1	1509 **3025**
250	8 P	top / bottom	1	1509 **4025**
400 … 630	6 P	top / bottom	2	1509 **3063**
400 … 630	8 P	top / bottom	2	1509 **4063**
800 … 1 250	6 P	top / bottom	2	1509 **3080**
800 … 1 250	8 P	top / bottom	2	1509 **4080**
1 600	6 P	top / bottom	2	1509 **3160**
1 600	8 P	top / bottom	2	1509 **4160**

Cage terminals

Use

Connection of bare copper cables onto the terminals (without lugs).





References

Rating (A)	No. of poles	Reference
125 … 160	3 P	5400 **3016**
125 … 160	4 P	5400 **4016**
200 … 250	3 P	5400 **3025**
200 … 250	4 P	5400 **4025**
315 … 400	3 P	5400 **3040**
315 … 400	4 P	5400 **4040**
500 … 630	3 P	5400 **3063**
500 … 630	4 P	5400 **4063**

Connections

Rating (A)	Section flexible cable (mm^2)	Section rigid cable (mm^2)	Width flexible bar (mm)	Stripped over (mm)
125 … 160	16 … 95	16 … 95	13	22
200 … 250	16 … 185	16 … 185	18	27
315 … 400	50 … 240	50 … 300	20	34
500 … 630	70 … 300	70 … 300	24	34

Dimensions

Rating (A)	A	A1	C	R	ØX	X1	Z
125 … 160	47.5	22.5	25	20	8.5	M12	10
200 … 250	62	31.5	31.5	25	10.5	M16	14
315 … 400	71.5	32	38	32	10.5	M20	15
500 … 630	76.5	37	38	40	12.5	M20	15

Copper bars connection kits

Fig. 1

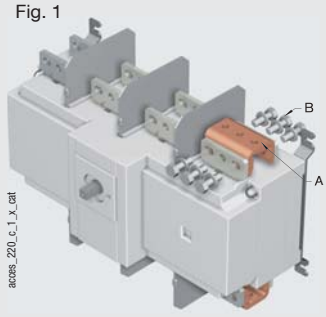
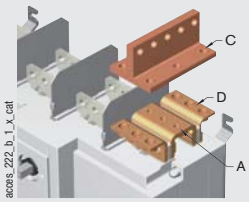


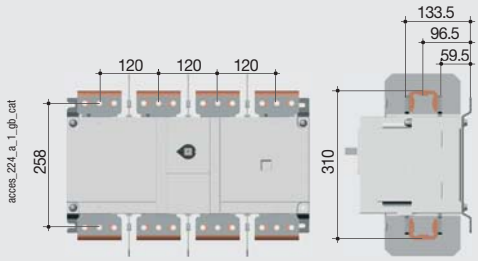
Fig.2



Use

To allow connection between the two power terminals from a same pole for 2000 to 3200 A ratings (Fig. 1 and Fig 2).
For 3200 A rating, the connection piece (part A) are delivered bridged from factory.
Bolt sets must be ordered separately.
Technical notice for these specific accessories is downloadable from www.socomec.com.

Fig. 1

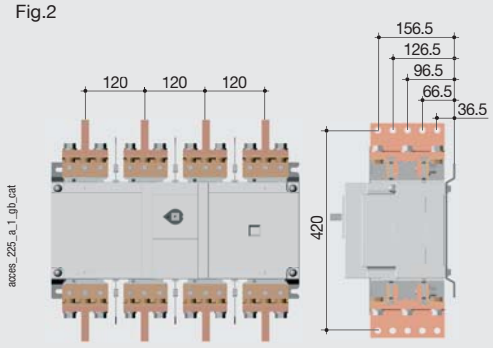


Top or bottom flat connection - Fig. 1

Rating (A)	Piece	Quantity to order per pole(1)	Reference
2 000 … 2 500	Connection - part A	1	2619 **1200**
2 000 … 2 500	Bolt set - part B	1	2699 **1200**
3 200	Connection - part A		included
3 200	Bolt set - part B	1	2699 **1200**

(1) Example for 3 pole device equipped upstream only: order 3 times the indicated quantities.

Fig.2



Top or bottom edgewise connection - Fig. 2

Rating (A)	Piece	Quantity to order per pole(1)	Reference
2 000 … 2 500	Connection - part A	1	2619 **1200**
2 000 … 2 500	T piece - part C	1	2629 **1200**(2)
2 000 … 2 500	Right angle - part D	1	2639 **1200**(2)
3 200	Connection - part A		included
3 200	T piece - part C	1	2629 **1200**
3 200	Right angle - part D	1	2639 **1200**

(1) Example for 3 pole device equipped upstream only: order 3 times the indicated quantities.
(2) Bolt set is provided with the accessories.

Inter phase barrier


acces_036_a_1_cat

Use

Safety isolation between the terminals, essential for use at 690 VAC or in a polluted or dusty atmosphere.
The terminal shrouds also provide phase separation for SIRCOs from 125 to 630 A.

Rating (A)	No. of poles	Reference
125 ... 160	3 P	2998 **0033**
125 ... 160	4 P	2998 **0034**
200 ... 250	3 P	2998 **0023**
200 ... 250	4 P	2998 **0024**
315 ... 630	3 P	2998 **0013**
315 ... 630	4 P	2998 **0014**
800 … 3 200	3/4 P	included
4 000 ... 5 000	3/4 P	included

Handle key interlocking accessories

Fig. 1

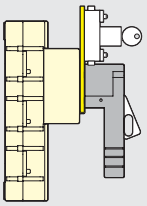

acces_001_a_1_x_cat

Fig.2

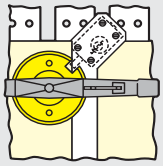

acces_005_a_1_x_cat

Fig. 3

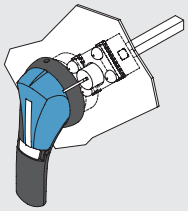
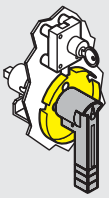

acces_158_a_1_x_cat

Fig. 5


acces_004_c_1_x_cat

Use

Locking in position 0 of the front or side operation handle:
- using a lock (not supplied) and the factory integrated padlocking function of the handle. From 125 to 1800 A, the padlock on the external front operation handle also locks the door,
- using padlock (not supplied): see diagrams opposite,
- using undervoltage coil: the SIRCO can only be closed if the coil is live.

For 6/8 pole: consult us.

Locking using RONIS EL11AP lock (not supplied)

Rating (A)	No. of poles	Operation	Figure	Reference
125 ... 630	3/4 P	front direct	1	2699 **6008**(1)
125 … 1 800	3/4 P	external front	3	1499 **7701**
800 ... 3200	3/4 P	front direct	2	2699 **6027**
4 000 ... 5 000	3/4 P	external front	4	2799 **7002**

(1) Front operation handle included.

Locking using CASTELL lock (not supplied)

Rating (A)	No. of poles	Operation	Lock type	Figure	Reference
125 … 160	6/8 P	external front	K	2	4109 **8507**
125 … 1 800	3/4 P	external front	FS	3	1499 **7703**
125 … 1 800	3/4 P	external front	K	3	1499 **7702**
250 ... 630	6/8 P	external front	K	2	2999 **8707**
800 … 1600	6/8 P	external front	K	2	2799 **7003**
2000 … 4000	3/4 P	external front	K	2	2799 **7003**

Locking using 230 VAC undervoltage coil
(other voltages: please consult us)

Rating (A)	No. of poles	Operation	Reference
125 ... 630	3/4 P	external front	2699 **9063**(1)
800 … 3 200	3/4 P	front direct	2699 **9315**(1)

(1) The locking system is directly mounted on the device.

Other specific accessories


bd_02_04_01

- Mechanical coupling device for making switches with "n" poles of the same or different ratings.
- Mechanical interlocking device.

➲ Characteristics according to IEC 60947-3

125 to 800 A

Thermal current I_{th} (40°C)		**125 A**	**160 A**	**200 A**	**250 A**	**315 A**	**400 A**	**500 A**	**630 A**	**800 A**
Rated insulation voltage U_i (V)		800	800	800	800	1 000	1 000	1 000	1 000	1 000
Rated impulse withstand voltage U_{imp} (kV)		8	8	8	8	12	12	12	12	12
Rated operational currents Ie (A)										
Rated voltage	Load duty category	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)
400 VAC	AC-21 A / AC-21 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630	800/800
400 VAC	AC-22 A / AC-22 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630	800/800
400 VAC	AC-23 A / AC-23 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	500/500	800/800
500 VAC	AC-21 A / AC-21 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630	800/800
500 VAC	AC-22 A / AC-22 B	125/125	125/125	200/200	250/250	315/315	400/400	400/400	500/500	800/800
500 VAC	AC-23 A / AC-23 B	100/100	100/100	160/200	200/250	315/315	315/315	315/315	315/315	630/800
690 VAC(2)	AC-20 A / AC-20 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630	800/800
690 VAC(2)	AC-21 A / AC-21 B	125/125	160/160	160/200	200/250	315/315	400/400	400/400	500/500	800/800
690 VAC(2)	AC-22 A / AC-22 B	125/125	125/125	125/160	125/160	250/315	250/315	250/315	315/315	800/800
690 VAC(2)	AC-23 A / AC-23 B	63/80	63/80	80/100	100/125	160/200	160/200	160/200	160/200	200/250
220 VDC	DC-20 A / DC-20 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630	800/800
220 VDC	DC-21 A / DC-21 B	125/125	160/160	160/200	250/250	315/315	400/400	500/500	630/630	800/800
220 VDC	DC-22 A / DC-22 B	125/125	160/160	160/200	250/250	315/315	400/400	400/500	500/500	800/800
220 VDC	DC-23 A / DC-23 B	125/125	125/125	160/160	200/200	315/315	400/400	400/400	500/500	800/800
440 VDC	DC-20 A / DC-20 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630	800/800
440 VDC	DC-21 A / DC-21 B	125/125(3)	160/160(3)	160/200(3)	200/200(3)	315/315(3)	400/400(3)	400/500(3)	500/500(3)	800/800(4)
440 VDC	DC-22 A / DC-22 B	125/125(3)	125/125(3)	160/160(3)	200/200(3)	315/315(3)	400/400(3)	400/400(3)	500/500(3)	800/800(4)
440 VDC	DC-23 A / DC-23 B	125/125(4)	125/125(4)	160/160(4)	200/200(4)	315/315(4)	400/400(4)	400/400(4)	500/500(4)	800/800(4)
500 VDC	DC-20 A / DC-20 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630	800/800
500 VDC	DC-21 A / DC-21 B	125/125(3)	125/125(3)	160/200(3)	200/200(3)	315/315(3)	400/400(3)	400/400(3)	500/500(3)	800/800(4)
500 VDC	DC-22 A / DC-22 B	125/125(4)	125/125(4)	160/160(4)	200/200(4)	315/315(4)	315/400(4)	315/400(4)	500/500(4)	800/800(4)
500 VDC	DC-23 A / DC-23 B	125/125(4)	125/125(4)	160/160(4)	200/200(4)	315/315(4)	315/400(4)	315/400(4)	500/500(4)	800/800(4)
Operational power in AC-23 (kW)										
At 400 VAC without pre-break in AC(1)(5)		63/63	80/80	100/100	132/132	160/160	220/220	280/280	280/280	450/450
At 500 VAC without pre-break in AC(1)(5)		63/63	63/63	110/140	140/160	220/220	220/220	220/220	220/220	450/560
At 690 VAC without pre-break in AC(1)(5)		55/75	55/75	75/90	90/110	150/185	150/185	150/185	150/185	185/220
Reactive power (kvar)										
At 400 VAC (kvar)(5)		55	75	90	115	145	185	230	290	365
Fuse protected short-circuit withstand (kA rms prospective)										
Prospective short-circuit (kA rms)(6)		100	100	80	50	100	100	100	70	50
Associated fuse rating (A)(6)		125	160	200	250	315	400	500	630	800
Short-circuit capacity										
Rated short-time withstand current 0.3 s. I_{cw} (kA eff.)		15	15	17	17	25	25	25	25	50
Rated peak withstand current (kA peak)(6)		20	20	30	30	45	45	45	45	55
Connection										
Min. connection wire range		35	50	70	95	150	185	240	2 x 150	2 x 185
Minimum Cu busbar section (mm^2)									2 x 30 x 5	2 x 40 x 5
Maximum Cu cable section (mm^2)		50	95	95	150	240	240	240	2 x 300	2 x 300
Maximum Cu busbar width (mm)		25	25	32	32	40	40	40	50	63
Tightening torque min (Nm)		9	9	20	20	20	20	20	20	
Mechanical characteristics										
Durability (number of operating cycles)		10 000	10 000	10 000	10 000	5 000	5 000	5 000	5 000	3 000
Operating effort (Nm)		6.5	6.5	10	10	14.5	14.5	14.5	14.5	37
Weight of a 3 pole device (kg)		1	1.5	2	2	3.5	3.5	3.5	3.5	8
Weight of a 4 pole device (kg)		1.5	1.5	2	2	4	4	4.5	4.5	10

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) With terminal shrouds or phase barrier.
(3) 3-pole device with 2 pole in series for the "+" and 1 pole for the "-".
(4) 4-pole device with 2 pole in series by polarity.
(5) The power value is given for information only, the current values vary from one manufacturer to another.
(6) For a rated operational voltage U_e = 400 VAC.

1000 to 5000 A

Thermal current I_{th} (40°C)		**1000 A**	**CD 1250 A**	**1250 A**	**1600 A**	**1800 A**	**2000 A**	**2500 A**	**3200 A**	**4000 A**	**5000 A**
Rated insulation voltage U_i (V)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)		12	12	12	12	12	12	12	12	12	12
Rated operational currents Ie (A)											
Rated voltage	Load duty category	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)
400 VAC	AC-21 A / AC-21 B	1000/1000	1250/1250	1250/1250	1600/1600	1 800/1 800	2 000/2 000	2500/2500	3 200/3 200	-/4000	-/5000
400 VAC	AC-22 A / AC-22 B	1000/1000	1250/1250	1250/1250	1600/1600	1 800/1 800	2 000/2 000	2 000/2500	2500/3 200		
400 VAC	AC-23 A / AC-23 B	1000/1000	1250/1250	1250/1250	1250/1250	1250/1250	1600/1600	1600/1600	1600/1600		
500 VAC	AC-21 A / AC-21 B	800/800	800/800	1250/1250	1600/1600	1600/1600	2 000/2 000	2500/2500	3 200/3 200		
500 VAC	AC-22 A / AC-22 B	800/800	800/800	1250/1250	1250/1250	1250/1250	1600/2 000	1600/2 000	2 000/2 000		
500 VAC	AC-23 A / AC-23 B	630/800	630/800	1000/1000	1000/1000	1000/1000	1000/1000	1000/1000	1000/1000		
690 VAC(2)	AC-20 A / AC-20 B	1000/1000	1250/1250	1250/1250	1600/1600	1 800/1 800	2 000/2 000	2500/2500	3 200/3 200		
690 VAC(2)	AC-21 A / AC-21 B	800/800	800/800	1000/1000	1000/1000	1000/1000	2 000/2 000	2 000/2500	2 000/2500		
690 VAC(2)	AC-22 A / AC-22 B	800/800	800/800	1000/1000	1000/1000	1000/1000	1000/1000	1000/1000	1000/1000		
690 VAC(2)	AC-23 A / AC-23 B	200/250	200/250	500/500	500/500	500/500	800/800	800/800	800/800		
220 VDC	DC-20 A / DC-20 B	1000/1000	1250/1250	1250/1250	1600/1600	1 800/1 800	2 000/2 000	2500/2500	3 200/3 200	4000/4000	5000/5000
220 VDC	DC-21 A / DC-21 B	1000/1000	1250/1250	1250/1250	1250/1250	1250/1250	2 000/2 000	2 000/2500	2 000/2500		
220 VDC	DC-22 A / DC-22 B	1000/1000	1250/1250	1250/1250	1250/1250	1250/1250	1250/1600	1250/1600	1250/1600		
220 VDC	DC-23 A / DC-23 B	1000/1000	1250/1250	1250/1250	1250/1250	1250/1250	1250/1250(3)	1250/1250(3)	1250/1250(3)		
440 VDC	DC-20 A / DC-20 B	1000/1000	1250/1250	1250/1250	1600/1600	1 800/1 800	2 000/2 000	2500/2500	3 200/3 200	4000/4000	5000/5000
440 VDC	DC-21 A / DC-21 B	1000/1000(4)	1250/1250(4)	1250/1250(4)	1250/1250(3)	1250/1250(3)	2 000/2 000	2 000/2 000	2 000/2 000		
440 VDC	DC-22 A / DC-22 B	1000/1000(4)	1250/1250(4)	1250/1250(4)	1250/1250(3)	1250/1250(3)	1250/1250(3)	1250/1250(3)	1250/1250(3)		
440 VDC	DC-23 A / DC-23 B	1000/1000(4)	1250/1250(4)	1250/1250(4)	1250/1250(3)	1250/1250(3)	1000/1000(3)	1000/1000(3)	1000/1000(3)		
500 VDC	DC-20 A / DC-20 B	1000/1000	1250/1250	1250/1250	1600/1600	1 800/1 800	2 000/2 000	2500/2500	3 200/3 200	4000/4000	5000/5000
500 VDC	DC-21 A / DC-21 B	1000/1000(4)	1250/1250(4)	1250/1250(4)	1250/1250(3)	1250/1250(3)	1250/1250	1250/1250	1250/1250		
500 VDC	DC-22 A / DC-22 B	1000/1000(4)	1250/1250(4)	1250/1250(4)	1250/1250(3)	1250/1250(3)	1250/1250(3)	1250/1250(3)	1250/1250(3)		
500 VDC	DC-23 A / DC-23 B	1000/1000(4)	1250/1250(4)	1250/1250(4)	1250/1250(3)	1250/1250(3)	1000/1000(3)	1000/1000(3)	1000/1000(3)		
Operational power in AC-23 (kW)											
At 400 VAC without pre-break in AC(1)(5)		560/560	710/710	710/710	710/710	710/710	710/710	710/710	710/710		
At 500 VAC without pre-break in AC(1)(5)		450/560	450/560	710/710	710/710	710/710	710/710	710/710	710/710		
At 690 VAC without pre-break in AC(1)(5)		185/220	185/220	475/475	475/475	475/475	750/750	750/750	750/750		
Reactive power (kvar)											
At 400 VAC (kvar)(5)		460	575	575							
Fuse protected short-circuit withstand (kA rms prospective)											
Prospective short-circuit (kA rms)(6)		100	100	100	100	100	100	100			
Associated fuse rating (A)(6)		1000	1250	1250	2 x 800	2 x 800	2 x 1000	2 x 1250			
Short-circuit capacity											
Rated short-time withstand current 0,3 s. I_{cw} (kA eff.)		65	65	100	100	100	100	100	110	75(6)	75(6)
Rated peak withstand current (kA peak)(6)		80	80	110	110	110	110	110	120	165	165
Connection											
Min. connection wire range		2 x 240									
Minimum Cu busbar section (mm^2)		2 x 50 x 5	2 x 60 x 5	2 x 60 x 5	2 x 80 x 5	3 x 100 x 5	3 x 100 x 5	4 x 100 x 5	4 x 100 x 5	1 x 100 x 5	1 x 100 x 5
Maximum Cu cable section (mm^2)		4 x 185	4 x 185	4 x 185	6 x 185	6 x 185					
Maximum Cu busbar width (mm)		63	63	100	100	100	100	100	100		
Tightening torque min (Nm)				40	40	40	40	40	40	40	40
Mechanical characteristics											
Durability (number of operating cycles)		3 000	3 000	4000	4000	4000	3 000	3 000	3 000	2 000	2 000
Operating effort (Nm)		37	37	56	56	56	75	75	75	100	100
Weight of a 3 pole device (kg)		8	8	12	12	12	22	22	22	45	45
Weight of a 4 pole device (kg)		10	10	15	15	15	25	25	25	50	50

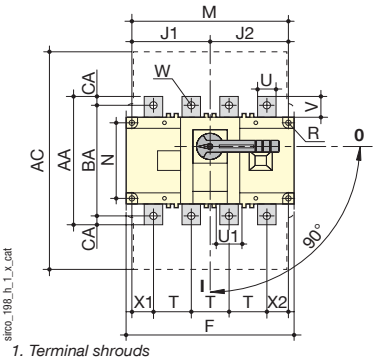
(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) With terminal shrouds or phase barrier.
(3) 3-pole device with 2 pole in series for the "+" and 1 pole for the "-".
(4) 4-pole device with 2 pole in series by polarity.
(5) The power value is given for information only, the current values vary from one manufacturer to another.
(6) For a rated operational voltage U_e = 400 VAC.

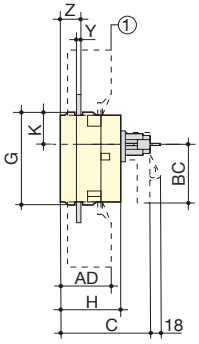
Dimensions

Front operation

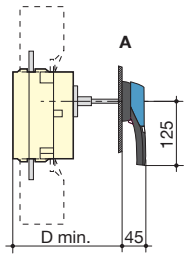
SIRCO 125 to 630 A

Direct front operation





External front operation

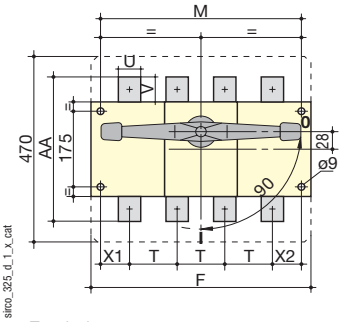


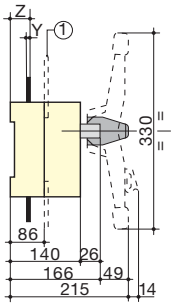
1. Terminal shrouds
A. S2 type handle

Rating (A)	Overall dimensions C	Overall dimensions D min	Terminal shrouds AC	Terminal shrouds AD	Switch body F 3p.	Switch body F 4p.	Switch body G	Switch body H	Switch body J1 3p.	Switch body J1 4p.	Switch body J2	Switch body K	Switch body BC	Switch mounting M 3p.	Switch mounting M 4p.	Switch mounting N	Switch mounting R	Connection T	Connection U	Connection U1	Connection V	Connection W	Connection X1 3p.	Connection X1 4p.	Connection X2	Connection Y	Connection Z	Connection AA	Connection BA	Connection AC
125	115	125	235	50	140	170	93	65	45	75	75	31.5	80	120	150	65	5.5	36	20	20.5	25	9	28	22	20	3.5	20.5	135	115	10
160	115	125	235	50	140	170	93	65	45	75	75	31.5	80	120	150	65	5.5	36	20	20.5	25	9	28	22	20	3.5	20.5	135	115	10
200	125	135	280	60	180	230	108	75	55	105	105	34	115	160	210	80	5.5	50	25	25.5	30	11	33	33	27	3.5	22.5	160	130	15
250	125	135	280	60	180	230	108	75	55	105	105	34	115	160	210	80	5.5	50	25	25.5	30	11	33	33	27	3.5	22.5	160	130	15
315	160	165	401	89	230	290	170	110	75	135	135	55	115	210	270	140	7	65	32	45.5	37.5	11	42.5	37.5	37.5	5	36	235	205	15
400	160	165	401	89	230	290	170	110	75	135	135	55	115	210	270	140	7	65	32	45.5	37.5	11	42.5	37.5	37.5	5	36	235	205	15
500	160	165	401	89	230	290	170	110	75	135	135	55	115	210	270	140	7	65	32	45.5	37.5	13	42.5	37.5	37.5	5	36	235	205	15
630	160	165	400	89	230	290	170	110	75	135	135	55	115	210	270	140	7	65	45	45.5	50	13	42.5	37.5	37.5	5	36	260	220	20

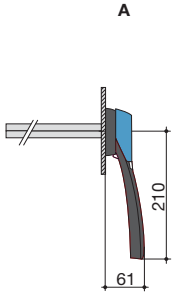
SIRCO 800 to 1800 A

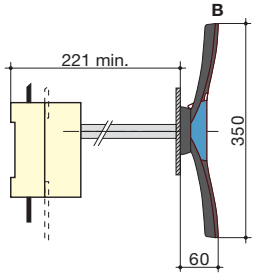
Direct front operation





External front operation





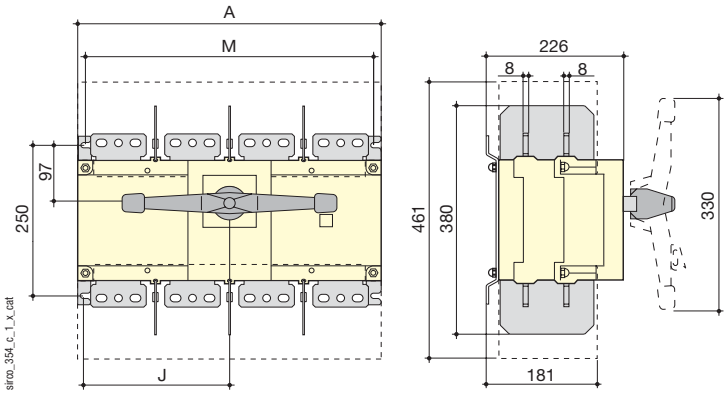
1. Terminal screens
A. Handle single lever S3 type
B. Handle double lever S4 type

Rating (A)	Switch body F 3p.	Switch body F 4p.	Switch mounting M 3p.	Switch mounting M 4p.	Connection T	Connection U	Connection V	Connection Y	Connection X1	Connection X2	Connection Z	Connection AA
800	280	360	255	335	80	50	60.5	7	47.5	47.5	46.5	321
1 000	280	360	255	335	80	50	60.5	7	47.5	47.5	46.5	321
CD 1 250	280	360	255	335	80	60	65	7	47.5	47.5	46.5	330
1 250	372	492	347	467	120	90	44	8	53.5	53.5	47.5	288
1 600	372	492	347	467	120	90	44	8	53.5	53.5	47.5	288
1 800	372	492	347	467	120	90	44	8	53.5	53.5	47.5	288

Front operation (continued)

SIRCO 2 000 to 3200 A

Direct front operation

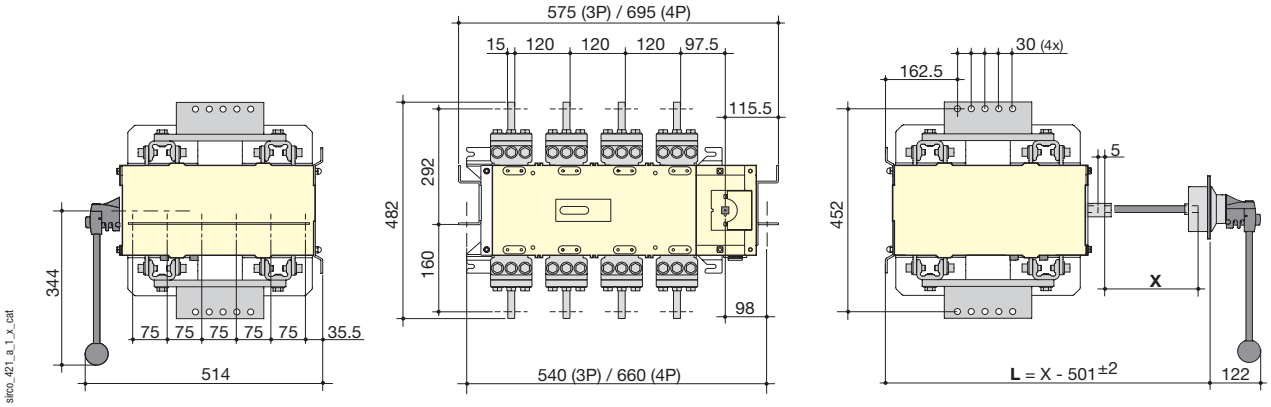


Rating (A)	Overall dimensions A 3p.	A 4p.	Switch body J 3p.	J 4p.	Switch mounting M 3p.	M 4p.
2 000	372	492	173.5	233.5	347	467
2 500	372	492	173.5	233.5	347	467
3 200	372	492	173.5	233.5	347	467

SIRCO 4 000 to 5000 A

Direct front operation

External front operation

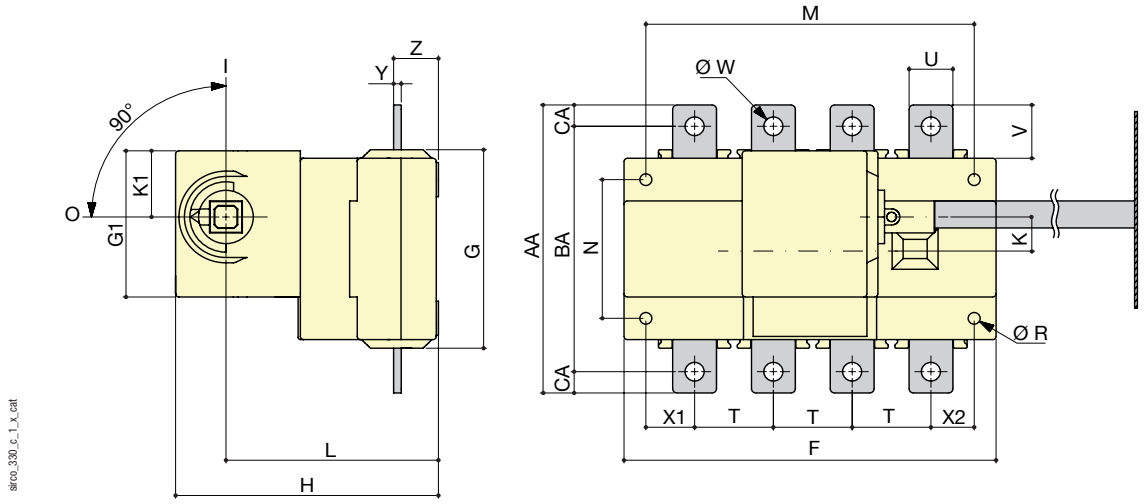


Rating (A)	Overall dimensions A 3p.	A 4p.	Switch body F 3p.	F 4p.	Switch mounting M 3p.	M 4p.
4 000…5 000	684	804	470	590	347	467

Side operation

SIRCO 125 to 630 A

External right side operation

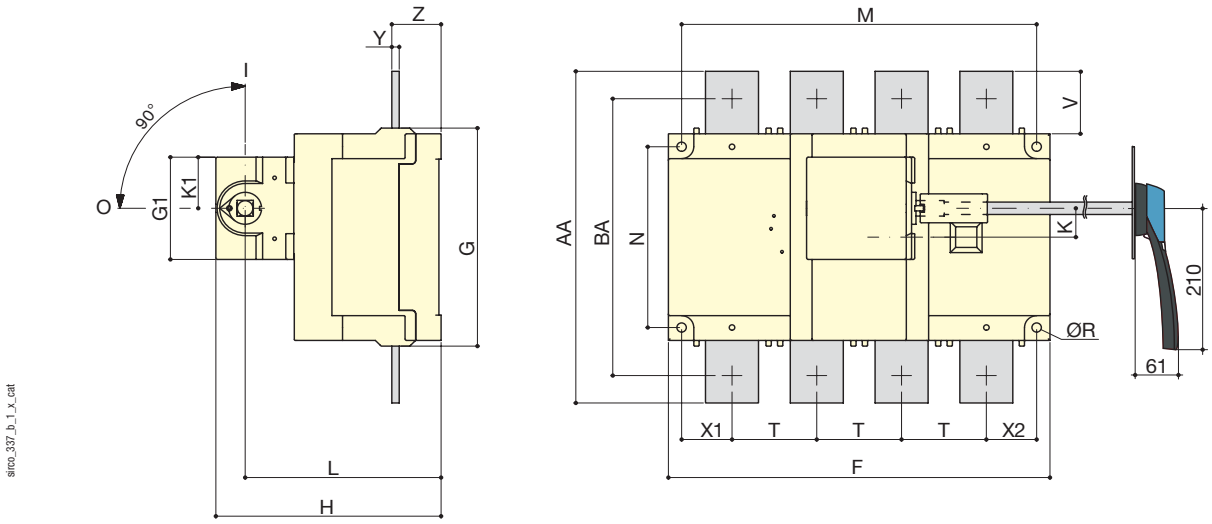


sirco_330_c_1_x_cat

Rating (A)	Switch body F 3p.	F 4p.	G	G1	H	Switch mounting K	K1	L	M 3p.	M 4p.	N	R	Connection T	U	V	W	X1 3p.	X1 4p.	X2	Y	Z	AA	BA	AC
125	140	170	93	69	120	15	31	97	120	150	65	5.5	36	20	25	9	28	22	20	3.5	20.5	135	115	10
160	140	170	93	69	120	15	31	97	120	150	65	5.5	36	20	25	9	28	22	20	3.5	20.5	135	115	10
200	180	230	108	69	130	20	31	108	160	210	80	5.5	50	25	30	11	33	33	27	3.5	22.5	160	130	15
250	180	230	108	69	130	20	31	160	210	80	5.5	50	25	30	11	33	33	27	3.5	22.5	160	130	15	
315	230	290	170	69	165	29	31	142	210	270	140	7	65	32	37.5	11	42.5	37.5	37.5	5	36	235	205	15
400	230	290	170	69	165	29	31	142	210	270	140	7	65	32	37.5	11	42.5	37.5	37.5	5	36	235	205	15
500	230	290	170	69	165	29	31	142	210	270	140	7	65	32	37.5	13	42.5	37.5	37.5	5	36	235	205	15
630	230	290	170	69	165	29	31	142	210	270	140	7	65	45	50	13	42.5	37.5	37.5	5	36	260	220	20

SIRCO 800 to 1800 A

External right side operation

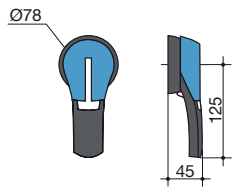
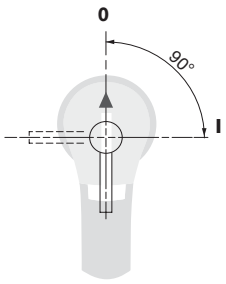
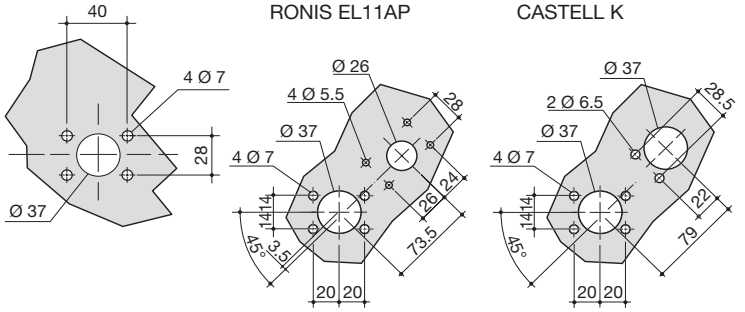


sirco_337_b_1_x_cat

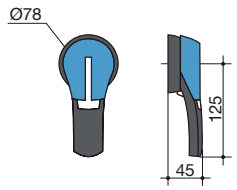
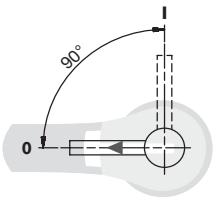
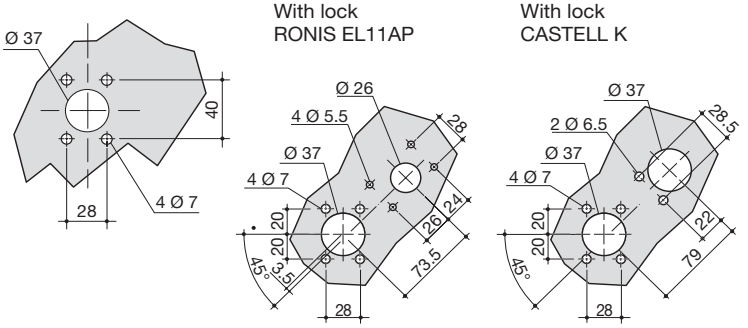
Rating (A)	Switch body F 3p.	F 4p.	G	G1	H	Switch mounting K	K1	L	M 3p.	M 4p.	N	R	Connection T	V	X1	X2	Y	Z	AA	BA
800	280	360	211	99	213	28	50	185	255	335	175	9	80	60.5	47.5	47.5	7	46.5	321	268
CD 1 250	280	360	211	99	213	28	50	185	255	335	175	9	80	65	47.5	47.5	7	46.5	330	
1 800	372	492	211	99	213	28	50	185	347	467	175	9	120	44	53.5	53.5	8	47.5	288	258

➲ Dimensions for external handles

SIRCO 125 to 630 A

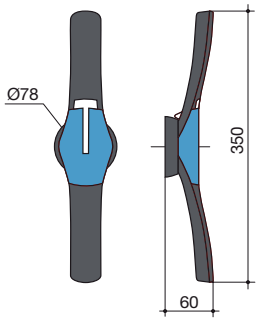
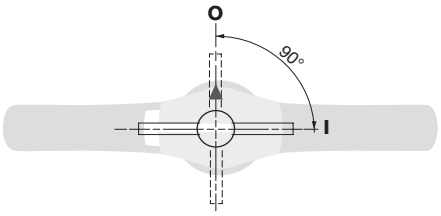
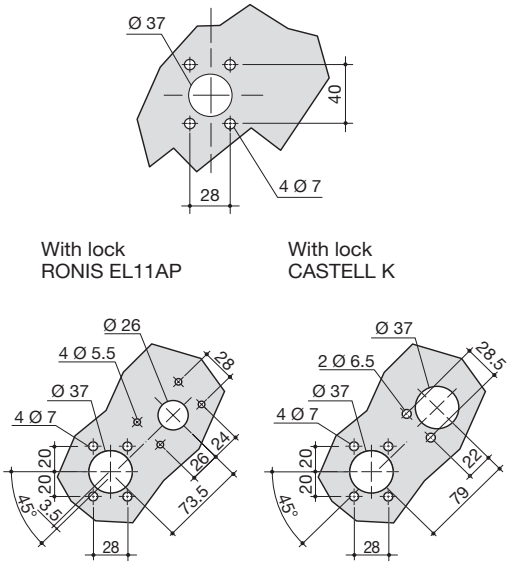
Handle type	Front operation Direction of operation	Door drilling
S2 type 		

sirco_426_a_1_gb_cat

Handle type	Side operation Direction of operation	Door drilling
S2 type 	**Right side operation** 	

sirco_427_a_1_gb_cat

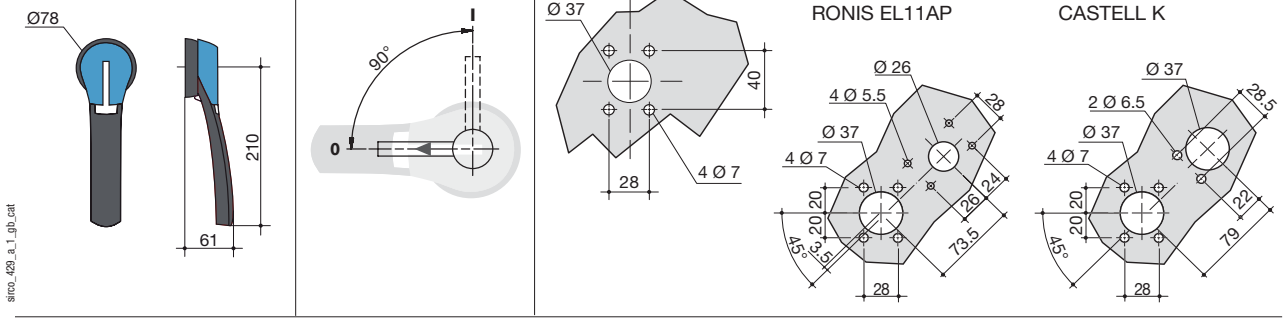
SIRCO 800 to 1800 A

Handle type	Front operation Direction of operation	Door drilling
S4 type 		

sirco_428_a_1_gb_cat

SIRCO 800 to 1800 A

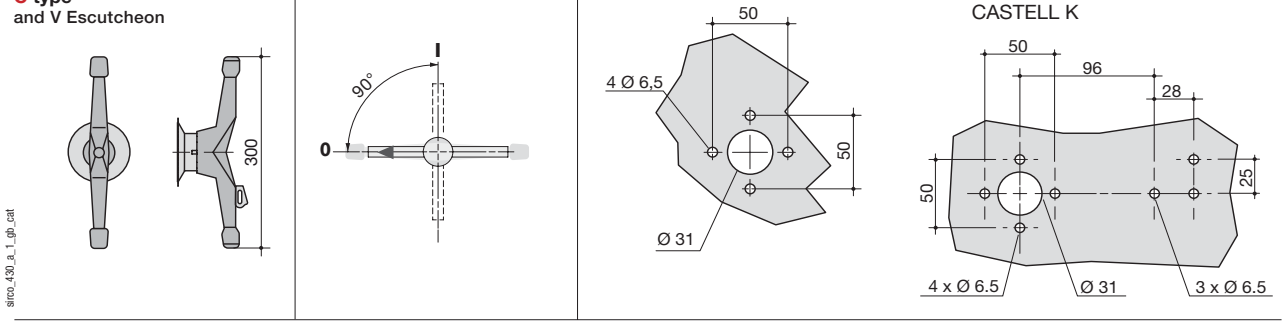
Handle type	Side operation Direction of operation	Door drilling
S3 type	**Right side operation**	With lock RONIS EL11AP / With lock CASTELL K



sirco_429_a_1_gb_cat

SIRCO 2 000 to 3200 A

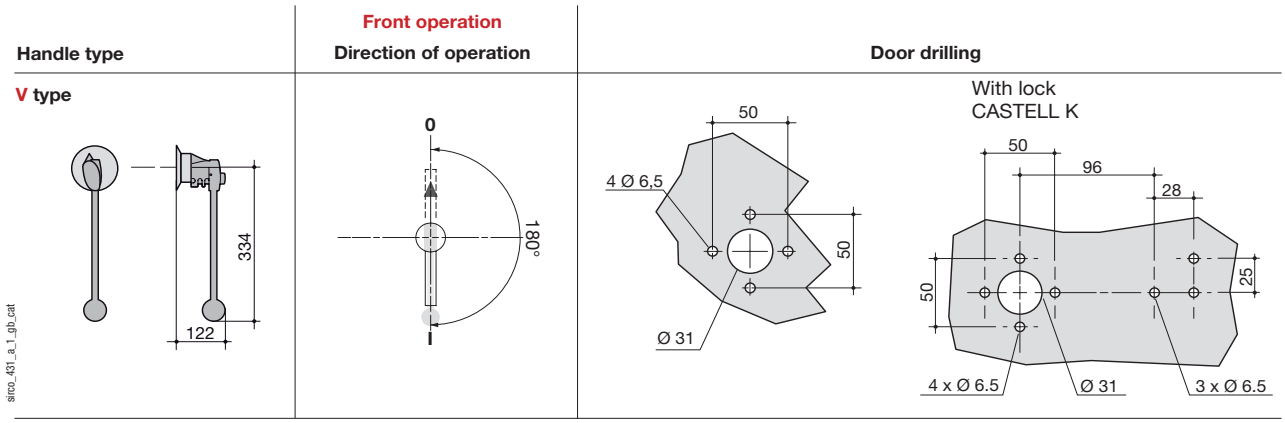
Handle type	Front operation Direction of operation	Door drilling
C type and V Escutcheon		With lock CASTELL K



sirco_430_a_1_gb_cat

SIRCO 4 000 to 5000 A

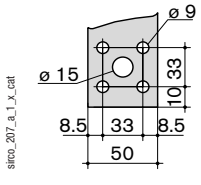
Handle type	Front operation Direction of operation	Door drilling
V type		With lock CASTELL K



sirco_431_a_1_gb_cat

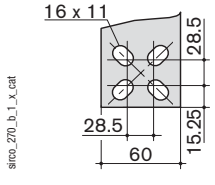
➲ Connection terminals

SIRCO 800 to 1000 A



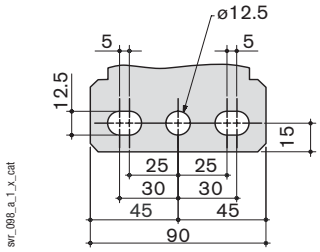
sirco_207_a_1_x_cat

SIRCO CD 1 250 A



sirco_270_b_1_x_cat

SIRCO 1 250 to 3200 A



svr_098_a_1_x_cat



Load break switches with visible breaking from 125 to 1600 A

➲ Function

SIDER are manually operated 3 or 4 pole load break switches.
They make and break under load conditions and provide safety isolation for any low voltage electric circuit.

➲ General characteristics

- Fully visible breaking.
- Visible double breaking.

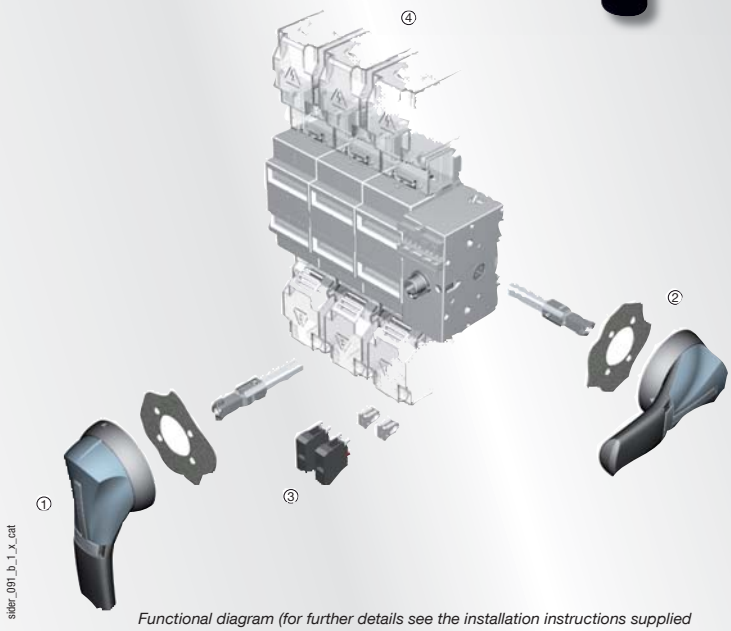
➲ Conformity to standards

- IEC 60947-3
- EN 60947-3
- VDE 0660-107 (1992)
- NBN EN 60947-3
- BS EN 60947-3

➲ Approvals and certifications(1)

- PSA E03.15.605.G
- RENAULT EB03.15.613
- UKR (Ukraine)
- GOST (Russia)

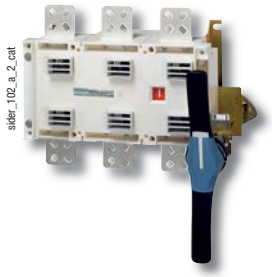
(1) Product reference on request.



Functional diagram (for further details see the installation instructions supplied with every device).

1. External front operation
2. External side operation
3. 2x2 configurable U type ACs, for pre-break and signalling or TEST.
4. Terminal shrouds

➲ References



Front operation

Rating (A)	No. of poles	Switch body Direct operation	Switch body External operation	Direct handle	External handle	Shaft for external handle	Auxiliary contacts
ND 125 A	3 P	2915 **3012**	2921 **3012**	Black 3629 **7901**(1)	S2 type Black IP55 1421 **2111**(1) Black IP65 1423 **2111** Red IP65 1424 **2111**	200 mm 1400 **1020** 320 mm 1400 **1032**(1) 500 mm 1400 **1050**	1st contact NO/NC 3999 **0021**(2)(3) 2 contacts NO/NC 3999 **0022**(2)(3) 1 contact NC 3999 **0701**(4)(5) 1 contact NO 3999 **0702**(4)(5)
	4 P	2915 **4012**	2921 **4012**				
ND 200 A	3 P	2915 **3021**	2921 **3020**				
	4 P	2915 **4021**	2921 **4020**				
ND 250 A	3 P	2915 **3025**	2921 **3025**				
	4 P	2915 **4025**	2921 **4025**				
ND 315 A	3 P	2915 **3031**	2921 **3031**				
	4 P	2915 **4031**	2921 **4031**				
ND 400 A	3 P	2915 **3041**	2921 **3041**				
	4 P	2915 **4041**	2921 **4041**				
ND 500 A	3 P	2915 **3051**	2921 **3051**				
	4 P	2915 **4051**	2921 **4051**				
630 A	3 P	2900 **3063**	2900 **3063**	Black 2799 **7012**(1) Red 2799 **7013**	S4 type Black IP65 1443 **3111**(1) Red/Yellow IP65 1444 **3111**	200 mm 1401 **1520** 320 mm 1401 **1532**(1) 400 mm 1401 **1540**	1st inverter NO/NC 2799 **0001**(2) 2nd contact NO/NC 2799 **0002**(2)
	4 P	2900 **4063**	2900 **4063**				
800 A	3 P	2900 **3080**	2900 **3080**				
	4 P	2900 **4080**	2900 **4080**				
1 250 A	3 P	2900 **3120**	2900 **3120**				
	4 P	2900 **4120**	2900 **4120**				
1 600 A	3 P	2900 **3160**	2900 **3160**				
	4 P	2900 **4160**	2900 **4160**				

(1) Standard.
(2) Auxiliary signal contact - Type S.
(3) For direct operation.
(4) For external operation.
(5) Auxiliary signal contact - Type U.



Side operation

Rating (A)	No. of poles	Switch body Direct operation	Switch body External right side operation	Direct handle	External handle	Shaft for external handle	Auxiliary contacts
ND 125 A	3 P	2915 **3012**	2921 **3012**	Black 3629 **7901**(1)	S2 type Black IP55 1425 **2111**(1) Black IP65 1427 **2111** Red/Yellow IP65 1428 **2111**	200 mm 1400 **1020**(1)	1st contact NO/NC 3999 **0021**(2)(3) 2 contacts NO/NC 3999 **0022**(2)(3) 1 contact NC 3999 **0701**(4)(6) 1 contact NO 3999 **0702**(4)(6)
	4 P	2915 **4012**	2921 **4012**				
ND 200 A	3 P	2915 **3021**	2921 **3020**				
	4 P	2915 **4021**	2921 **4020**				
ND 250 A	3 P	2915 **3025**	2921 **3025**				
	4 P	2915 **4025**	2921 **4025**				
ND 315 A	3 P	2915 **3031**	2921 **3031**				
	4 P	2915 **4031**	2921 **4031**				
ND 400 A	3 P	2915 **3041**	2921 **3041**				
	4 P	2915 **4041**	2921 **4041**				
ND 500 A	3 P	2915 **3051**	2921 **3051**				
	4 P	2915 **4051**	2921 **4051**				
630 A	3 P	2905 **3063**	2905 **3063**	Black 2799 **7052**(1) Conversion kit 2799 **7070**(5) Red 2799 **7053** Conversion kit 2799 **7070**(5)	S3 type Black IP65 1437 **3111**(1) Red/Yellow IP65 1438 **3111**	200 mm 1401 **1520**(1)	1st contact NO/NC 2799 **0011**(2) 2nd contact NO/NC 2799 **0012**(2)
	4 P	2905 **4063**	2905 **4063**				
800 A	3 P	2905 **3080**	2905 **3080**				
	4 P	2905 **4080**	2905 **4080**				
1 250 A	3 P	2905 **3120**	2905 **3120**				
	4 P	2905 **4120**	2905 **4120**				
1 600 A	3 P	2905 **3160**	2905 **3160**				
	4 P	2905 **4160**	2905 **4160**				

(1) Standard.
(2) Auxiliary signal contact - Type S.
(3) For direct operation.
(4) For external operation.
(5) Conversion kit necessary for any direct operation.
(6) Auxiliary signal contact - Type U.

Accessories

Direct operation handle


acces_148_a_1_cat


acces_153_a_1_cat

For front operation

Rating (A)	Handle colour	Reference
ND 125 … ND 500	Black	3629 **7901**
630 … 1 600	Black	2799 **7012**(1)
630 … 1 600	Red	2799 **7013**

(1) Standard.

For side operation

Rating (A)	Handle colour	Reference
ND 125 … ND 500	Black	3629 **7901**
630 … 1 600	Black	2799 **7052**
630 … 1 600	Red	2799 **7053**

Direct side escutcheon for operation

Rating (A)	External IP	Reference
630 … 1 600	IP54	2799 **7070**

External operation handle


acces_150_a_3_cat

S2 type handle


acces_166_a_2_cat

S3 type handle


acces_152_a_1_cat

S4 type handle

For front operation

Rating (A)	Handle colour	Handle	External IP (1)	Reference
ND 125 … ND 500	Black	S2 type	IP55	1421 **2111**(2)
ND 125 ND 500	Black	S2 type	IP65	1423 **2111**
ND 125 … ND 500	Red	S2 type	IP65	1424 **2111**
630 … 1 600	Black	S4 type	IP65	1443 **3111**(2)
630 … 1 600	Red	S4 type	IP65	1444 **3111**

(1) IP: Degree of protection according to standard IEC 60529.
(2) Standard.

For right side operation

Rating (A)	Handle	Handle colour	External IP (1)	Reference
ND 125 … ND 500	S2 type	Black	IP55	1425 **2111**
ND 125 … ND 500	S2 type	Red	IP65	1428 **2111**
630 … 1 600	S3 type	Black	IP65	1437 **3111**
630 … 1 600	S3 type	Red	IP65	1438 **3111**

(1) IP: Degree of protection according to standard IEC 60529.

Shaft guide for external operation


acces_260_a_2_cat

Use
To guide the shaft extension into the external handle.
This accessory enables handle to engage extension shaft with a misalignment of up to 15 mm.
Required for a shaft length over 320 mm.

Description	Reference
Shaft guide	1429 **0000**

S type handle adapter


acces_187_a_1_cat

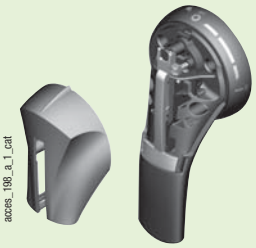
Use
Enables S type handles to be fitted in place of existing older style Socomec handles. Adapter can also be utilised as a spacer to increase the distance between the panel door and the handle lever.

Dimensions
Adds 12 mm to the depth.

Handle colour	To be ordered in multiples of	External IP (1)	Reference
Black	10	IP65	1493 **0000**

(1) IP: Degree of protection according to standard IEC 60529.

Alternative S type handle cover colors

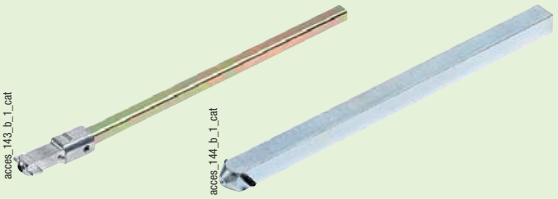


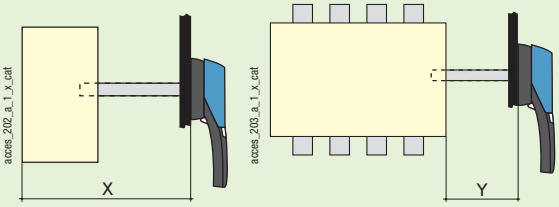
Use

For single lever handles type S1, S2, S3 and double lever handle, type S4.
Other colours: consult us.

Handle colour	To be ordered in multiples of	Handle	Reference
Light grey	50	Type S1, S2	1401 **0001**
Dark grey	50	Type S1, S2	1401 **0011**
Light grey	50	S4 type	1401 **0031**
Dark grey	50	S4 type	1401 **0041**

Shaft for external handle





Use

Standard lengths:
- 80 mm,
- 200 mm,
- 320 mm,
- 400 mm,
- 500 mm.

Other lengths: consult us.

For front operation

Rating (A)	Dimension X (mm)	Shaft length (mm)	Type	Reference
ND 125 … ND 500	95 … 230	200 mm	10 x 10	1400 **1020**
ND 125 … ND 500	95 … 350	320 mm	10 x 10	1400 **1032**
ND 125 … ND 500	95 … 530	500 mm	10 x 10	1400 **1050**
630 … 1 600	295 … 555	200 mm	15 x 12	1401 **1520**
630 … 1 600	295 … 675	320 mm	15 x 12	1401 **1532**
630 … 1 600	295 … 755	400 mm	15 x 12	1401 **1540**

For side operation

Rating (A)	Dimension Y (mm)	Shaft length (mm)	Type	Reference
ND 125 … ND 500	20 … 110	80 mm	10 x 10	included
ND 125 … ND 500	20 … 230	200 mm	10 x 10	1400 **1020**
630 … 1 600	98 … 258	200 mm	15 x 12	1401 **1520**

Auxiliary contacts for pre-break and signalling - Front operation





Use

Pre-break and signalling of positions 0 and I:
- 1 to 2 NO/NC auxiliary contacts,
- 1 to 4 NO or NC auxiliary contacts.
- 1 to 4 NO+NC auxiliary contacts.

Connection to the control circuit

By 6.35 mm fast-on terminal.

Characteristics

NO/NC AC: IP2.

Electrical characteristics

30 000 operations.

NO/NC contact

Rating (A)	Position AC	Reference
ND 125 … ND 500	1st	3999 **0021**(1)
ND 125 … ND 500	2	3999 **0022**(1)
630 … 1 600	1st	2799 **0001**
630 … 1 600	2nd	2799 **0002**

(1) For direct operation.

NC contact

Rating (A)	Position AC	Reference
ND 125 … ND 500	1 to 4	3999 **0701**(1)

(1) For direct operation.

NO contact

Rating (A)	Position AC	Reference
ND 125 … ND 500	1 to 4	3999 **0702**(1)

(1) For direct operation.

NO+NC contact

Rating (A)	Position AC	Reference
630 … 1 600	1	2799 **0005**

Low level NO/NC auxiliary contacts

Rating (A)	Position AC	Reference
630 … 1 600	1	2699 **0101**

Characteristics

Rating (A)	Contact type	Current nominal (A)	Operating current I_e (A) 250 VAC AC-13	400 VAC AC-13	24 VDC DC-13	48 VDC DC-13
ND 125 … ND 500	inverter NO/NC	16		3	12	2
ND 125 … ND 500	NC	10	6	4	5	3
ND 125 … ND 500	NO	10	6	4	5	3
630 … 1 600	inverter NO/NC	16	12	8	14	6
630 … 1 600	NO + NC	15	10	6	15	12

Auxiliary contacts for pre-break and signalling - Right side operation


acces_047_a_2_cat


acces_056_a_1_cat

Use
Pre-break and signalling of positions 0 and I:
- 1 to 2 NO/NC auxiliary contacts,
- 1 to 4 NO or NC auxiliary contacts.

Connection to the control circuit
By 6.35 mm fast-on terminal.

Characteristics
NO/NC AC: IP2.

Electrical characteristics
30 000 operations.

NO/NC contact

Rating (A)	Position AC	Reference
ND 125 … ND 500	1st	3999 **0021**
ND 125 … ND 500	2	3999 **0022**
630 … 1 600	1st	2799 **0011**
630 … 1 600	2nd	2799 **0012**

NC contact

Rating (A)	Position AC	Reference
ND 125 … ND 500	1 to 4	3999 **0701**

NO contact

Rating (A)	Position AC	Reference
ND 125 … ND 500	1 to 4	3999 **0702**

Low level NO/NC auxiliary contacts

Rating (A)	Position AC	Reference
630 … 1 600	1	2799 **0111**

Characteristics

			Operating current I_e (A)			
		Current nominal (A)	250 VAC AC-13	400 VAC AC-13	24 VDC DC-13	48 VDC DC-13
Rating (A)	Contact type					
ND 125 … ND 500	inverter NO/NC	16		3	12	2
ND 125 … ND 500	NC	10	6	4	5	3
ND 125 … ND 500	NO	10	6	4	5	3
630 … 1 600	inverter NO/NC	16	12	8	14	6

S type auxiliary contacts for signalisation - Front and right side operation


acces_051_a_2_cat

Use
Position 0 and I signalling 1 to 4 NO+NC auxiliary contacts.

Connection to the control circuit
By terminals with max. section 10 mm².

Electrical principle
The NO+NC S-type auxiliary contacts can be configured as 2 NO or 2 NC.

Electrical characteristics
30 000 operations.

NO+NC contact

Rating (A)	Position AC	Reference
ND 125 … ND 500	1	3999 **0041**
ND 125 … ND 500	2	3999 **0042**
ND 125 … ND 500	3	3999 **0043**
ND 125 … ND 500	4	3999 **0044**

Characteristics

			Operating current I_e (A)	
		Current nominal (A)	250 VAC AC-13	400 VAC AC-13
Rating (A)	Contact type			
ND 125 … ND 500	NO + NC	20	10	8

Terminal shrouds


acces_093_a_1_cat

Use
Top or bottom protection against direct contact with terminals or connection parts.

Advantage
Perforations allowing remote thermographic inspection without removal.

Rating (A)	No. of poles	Position	Reference
ND 125 … ND 200	3 P	top or bottom	3998 **3016**(1)
ND 125 … ND 200	4 P	top or bottom	3998 **4016**(2)
ND 250 … ND 500	3 P	top or bottom	3998 **3025**(1)
ND 250 … ND 500	4 P	top or bottom	3998 **4025**(2)

(1) Reference composed of 3 pieces.
(2) Reference composed of 4 pieces.

Terminal screens

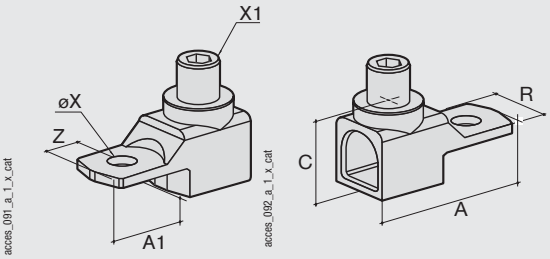


Use
Top or bottom protection against direct contact with terminals or connection parts.

Rating (A)	No. of poles	Position	Reference
630 … 800	3 P	top / bottom	2998 **3080**
630 … 800	4 P	top / bottom	2998 **4080**
1 250 … 1 600	3 P	top / bottom	2998 **3120**
1 250 … 1 600	4 P	top / bottom	2998 **4120**

Cage terminals





Use
Connection of bare copper cables onto the terminals (without lugs).

Connections

Rating (A)	Section flexible cable (mm²)	Section rigid cable (mm²)	Width flexible bar (mm)	Stripped over (mm)
ND 125	16 … 95	16 … 95	13	22
ND 200 … ND 250	16 … 185	16 … 185	18	27
ND 315 … ND 400	50 … 240	50 … 300	20	34
ND 500 … 630	70 … 300	70 … 300	24	34

Dimensions

Rating (A)	A	A1	C	R	ØX	X1	Z
ND 125	47.5	22.5	25	20	8.5	M12	10
ND 200 … ND 250	62	31.5	31.5	25	10.5	M16	14
ND 315 … ND 400	71.5	32	38	32	10.5	M20	15
ND 500 … 630	76.5	37	38	40	12.5	M20	15

Rating (A)	No. of poles	Reference
ND 125	3 P	5400 **3016**
ND 125	4 P	5400 **4016**
ND 200 … ND 250	3 P	5400 **3025**
ND 200 … ND 250	4 P	5400 **4025**
ND 315 … ND 400	3 P	5400 **3040**
ND 315 … ND 400	4 P	5400 **4040**
ND 500 … 630	3 P	5400 **3063**
ND 500 … 630	4 P	5400 **4063**

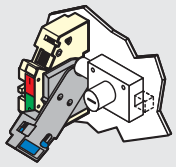
Inter phase barrier



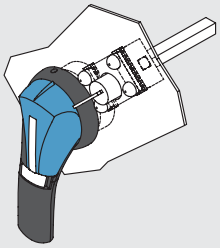
Use
Safety isolation between the terminals, essential for use at 690 VAC or in a polluted or dusty atmosphere.

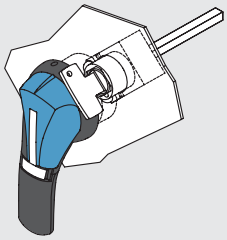
Rating (A)	No. of poles	Reference
630 … 1 600	3 P	2998 **0003**
630 … 1 600	4 P	2998 **0004**

Handle key interlocking accessories


acces_042_a_1_x_cat
Fig. 1


acces_084_a_1_x_cat
Fig.2


acces_158_a_1_x_cat
Fig. 3


acces_157_a_1_x_cat
Fig.4

Use
Locking in position 0 of front or side operation handle:
- using RONIS EL11AP lock in direct front or right-side operation (Fig. 1),
- using RONIS EL11AP lock in direct front operation (Fig. 2),
- using RONIS EL11AP or CASTELL type K-type lock in external front operation (Fig. 3),
- using RONIS EL11AP lock in external right-side operation,
- using CASTELL FS-type in external front operation (Fig. 4).

Locking using RONIS EL11AP lock (not supplied)

Rating (A)	Operation	Figure	Reference
ND 125 … ND 500	Front direct	1	3629 **7913**(1)
630 … 1 600	Front direct	2	2799 **7007**(2)
ND 125 … 1 600	External front	3	1499 **7701**
ND 125 … ND 500	Direct right side	1	3629 **7913**(1)
ND 125 … 1 600	External right side	3	1499 **7701**

(1) Handle included.
(2) Factory mounting only.

Locking using type K CASTELL lock (not supplied)

Rating (A)	Operation	Figure	Reference
ND 125 … ND 500	external front	3	1499 **7702**

Locking using type FS CASTELL lock (not supplied)

Rating (A)	Operation	Figure	Reference
ND 125 ND 500	external front	4	1499 **7703**

Other specific accessories


bd_03_04_01

- Mechanical coupling device for making switches with "n" poles of the same or different ratings.
- Mechanical interlocking device.
- Mechanical plates and escutcheon for standard systems.

➲ SIDER - Characteristics according to IEC 60947-3

ND 125 to ND 500 A

Thermal current I_{th} (40°C)		ND 125 A	ND 200 A	ND 250 A	ND 315 A	ND 400 A	ND 500 A
Rated insulation voltage U_i (V)		800	800	800	800	800	800
Rated impulse withstand voltage U_{imp} (kV)		8	8	8	8	8	8
Rated operational currents Ie (A)							
Rated voltage	Load duty category	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)
400 VAC	AC-21 A / AC-21 B	125/125	200/200	250/250	315/315	400/400	500/500
400 VAC	AC-22 A / AC-22 B	125/125	200/200	250/250	315/315	400/400	500/500
400 VAC	AC-23 A / AC-23 B	125/125	200/200	250/250	315/315	400/400	500/500
500 VAC	AC-20 A / AC-20 B	125/125	200/200	250/250	315/315	400/400	500/500
500 VAC	AC-21 A / AC-21 B	125/125	160/160	250/250	250/250	315/315	315/315
500 VAC	AC-22 A / AC-22 B	125/125	160/160	250/250	250/250	315/315	315/315
500 VAC	AC-23 A / AC-23 B	125/125	160/160	250/250	250/250	315/315	315/315
690 VAC(2)	AC-20 A / AC-20 B	125/125	200/200	250/250	315/315	400/400	500/500
690 VAC(2)	AC-21 A / AC-21 B	125/125	160/160	250/250	315/315	400/400	500/500
690 VAC(2)	AC-22 A / AC-22 B	125/125	160/160	250/250	315/315	400/400	500/500
690 VAC(2)	AC-23 A / AC-23 B	125/125	160/160	250/250	250/250	315/315	315/315
220 VDC	DC-20 A / DC-20 B	125/125	200/200	250/250	315/315		
220 VDC	DC-21 A / DC-21 B	125/125	160/160	250/250	250/250		
220 VDC	DC-22 A / DC-22 B	125/125	160/160	250/250	250/250		
220 VDC	DC-23 A / DC-23 B	125/125	125/125	200/200	200/200		
440 VDC	DC-20 A / DC-20 B	125/125	200/200	250/250	315/315		
440 VDC	DC-21 A / DC-21 B	125/125(3)	160/160(3)	250/250(3)	250/250(3)		
440 VDC	DC-22 A / DC-22 B	125/125(3)	160/160(3)	250/250(3)	250/250(3)		
440 VDC	DC-23 A / DC-23 B	125/125(3)	125/125(3)	200/200(3)	200/200(3)		
500 VDC	DC-20 A / DC-20 B	125/125	200/200	250/250	315/315	400/400	500/500
500 VDC	DC-21 A / DC-21 B	125/125(3)	160/160(3)	250/250(3)	250/250(3)	315/315(3)	315/315(3)
500 VDC	DC-22 A / DC-22 B	125/125(3)	160/160(3)	250/250(3)	250/250(3)	315/315(3)	315/315(3)
500 VDC	DC-23 A / DC-23 B	125/125(3)	125/125(3)	200/200(3)	200/200(3)	200/315(3)	200/315(3)
Operational power in AC-23 (kW)							
At 400 VAC without pre-break in AC-23 (kW)(1)(4)		63/63	110/110	140/140	160/160	220/220	295/295
At 500 VAC without pre-break in AC-23 (kW)(1)(4)		85/85	110/110	160/160	160/160	220/220	220/220
At 690 VAC without pre-break in AC-23 (kW)(1)(4)		110/110	150/150	220/220	220/220	295/295	295/295
Reactive power (kvar)							
At 400 VAC (kvar)(4)		55	90	115	145	185	230
Fuse protected short-circuit withstand (kA rms prospective)							
Prospective short-circuit (kA rms)(5)		100	35	100	60	50	30
Associated fuse rating (A)(5)		125	200	250	315	400	500
Short-circuit capacity							
Rated short-time withstand current 0.3 s. I_{cw} (kA eff.)		15	15	17	17	17	17
Rated peak withstand current (kA peak)(5)		20	20	32.5	32.5	40	40
Connection							
Min. connection wire range							
Minimum Cu busbar section (mm^2)							
Maximum Cu cable section (mm^2)		120	120	240	240	2 x 150	2 x 150
Maximum Cu busbar width (mm)		20	20	32	32	45	45
Tightening torque min (Nm)		9	9	20	20	20	20
Mechanical characteristics							
Durability (number of operating cycles)(6)		10 000	10 000	10 000	10 000	10 000	10 000
Operating effort (Nm)		10	10	12	12	15	15
Weight of a 3 pole device (kg)		1.8	1.8	3.2	3.2	4.8	4.8
Weight of a 4 pole device (kg)		2.3	2.3	4.5	4.5	6.1	6.1

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) With terminal shrouds or phase barrier.
(3) 4-pole device with 2 pole in series by polarity.
(4) The power value is given for information only, the current values vary from one manufacturer to another.
(5) For a rated operational voltage U_e = 400 VAC.
(6) Increased endurances: please consult us.

630 to 1600 A

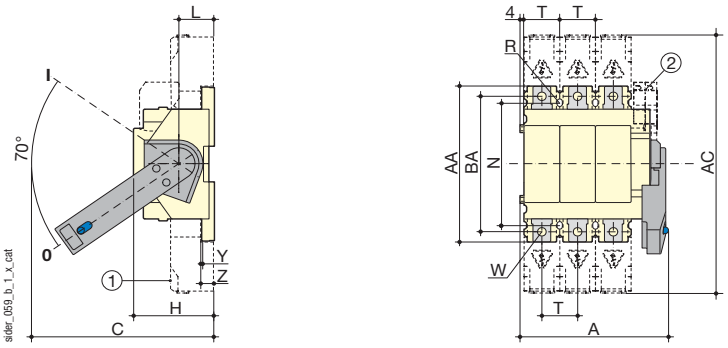
Thermal current I_{th} (40°C)		**630 A**	**800 A**	**1 250 A**	**1 600 A**
Rated insulation voltage U_i (V)		1 000	1 000	1 000	1 000
Rated impulse withstand voltage U_{imp} (kV)		12	12	12	12
Rated operational currents Ie (A)					
Rated voltage	Load duty category	A/B[1]	A/B[1]	A/B[1]	A/B[1]
400 VAC	AC-21 A / AC-21 B	630/630	800/800	1 250/1 250	1 600/1 600
400 VAC	AC-22 A / AC-22 B	630/630	800/800	1 250/1 250	1 250/1 250
400 VAC	AC-23 A / AC-23 B	630/630	630/800	1 000/1 000	1 000/1 000
500 VAC	AC-20 A / AC-20 B	630/630	800/800	1 250/1 250	1 600/1 600
500 VAC	AC-21 A / AC-21 B	630/630	800/800	1 250/1 250	1 600/1 600
500 VAC	AC-22 A / AC-22 B	630/630	800/800	1 000/1 000	1 000/1 000
500 VAC	AC-23 A / AC-23 B	500/500	500/500	800/800	800/800
690 VAC[2]	AC-20 A / AC-20 B	630/630	800/800	1 250/1 250	1 600/1 600
690 VAC[2]	AC-21 A / AC-21 B	630/630	800/800	1 000/1 000	1 250/1 250
690 VAC[2]	AC-22 A / AC-22 B	315/315	315/315	400/400	400/400
690 VAC[2]	AC-23 A / AC-23 B	100/100	125/125	200/200	200/200
220 VDC	DC-20 A / DC-20 B	630/630	800/800	1 250/1 250	1 600/1 600
220 VDC	DC-21 A / DC-21 B	630/630	800/800	1 000/1 000	1 250/1 250
220 VDC	DC-22 A / DC-22 B	630/630	800/800	800/800	800/800
220 VDC	DC-23 A / DC-23 B	630/630	800/800	800/800	800/800
440 VDC	DC-20 A / DC-20 B	630/630	800/800	1 250/1 250	1 600/1 600
440 VDC	DC-21 A / DC-21 B	500/500	630/630		1 000/1 000
440 VDC	DC-22 A / DC-22 B	630/630[3]	800/800[3]	800/800[3]	800/800[3]
440 VDC	DC-23 A / DC-23 B	630/630[3]	800/800[3]	800/800[3]	800/800[3]
500 VDC	DC-20 A / DC-20 B	630/630	800/800	1 250/1 250	1 600/1 600
500 VDC	DC-21 A / DC-21 B	500/500	630/630	800/800[3]	1 000/1 000
500 VDC	DC-22 A / DC-22 B	630/630[3]	800/800[3]	800/800[3]	800/800[3]
500 VDC	DC-23 A / DC-23 B	630/630[3]	800/800[3]	800/800[3]	800/800[3]
Operational power in AC-23 (kW)					
At 400 VAC without pre-break in AC-23 (kW)[1][4]		355/355	355/355	560/560	560/560
At 500 VAC without pre-break in AC-23 (kW)[1][4]		355/355	355/355	560/560	560/560
At 690 VAC without pre-break in AC-23 (kW)[1][4]		90/90	110/110	185/185	185/185
Reactive power (kvar)					
At 400 VAC (kvar)[4]		290	365	575	
Fuse protected short-circuit withstand (kA rms prospective)					
Prospective short-circuit (kA rms)[5]		100	70	100	120
Associated fuse rating (A)[5]		630	800	1 250	2 x 800
Short-circuit capacity					
Rated short-time withstand current 0.3 s. I_{cw} (kA eff.)		50	50	100	100
Rated peak withstand current (kA peak)[5]		55	55	100	110
Connection					
Min. connection wire range		2 x 150	2 x 185		
Minimum Cu busbar section (mm^2)		2 x 30 x 5	2 x 40 x 5	2 x 60 x 5	2 x 80 x 5
Maximum Cu cable section (mm^2)		2 x 300	2 x 300	4 x 185	6 x 240
Maximum Cu busbar width (mm)		63	63	100	100
Tightening torque min (Nm)		20		20	40
Mechanical characteristics					
Durability (number of operating cycles)[6]		5 000	4 000	4 000	3 000
Operating effort (Nm)		45	45	45	60
Weight of a 3 pole device (kg)		8	8.5	11	16.5
Weight of a 4 pole device (kg)		9.5	10	14	20.5

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) With terminal shrouds or phase barrier.
(3) 4-pole device with 2 pole in series by polarity.
(4) The power value is given for information only, the current values vary from one manufacturer to another.
(5) For a rated operational voltage U_e = 400 VAC.
(6) Increased endurances: please consult us.

Front operation

SIDER ND 125 to ND 500 A

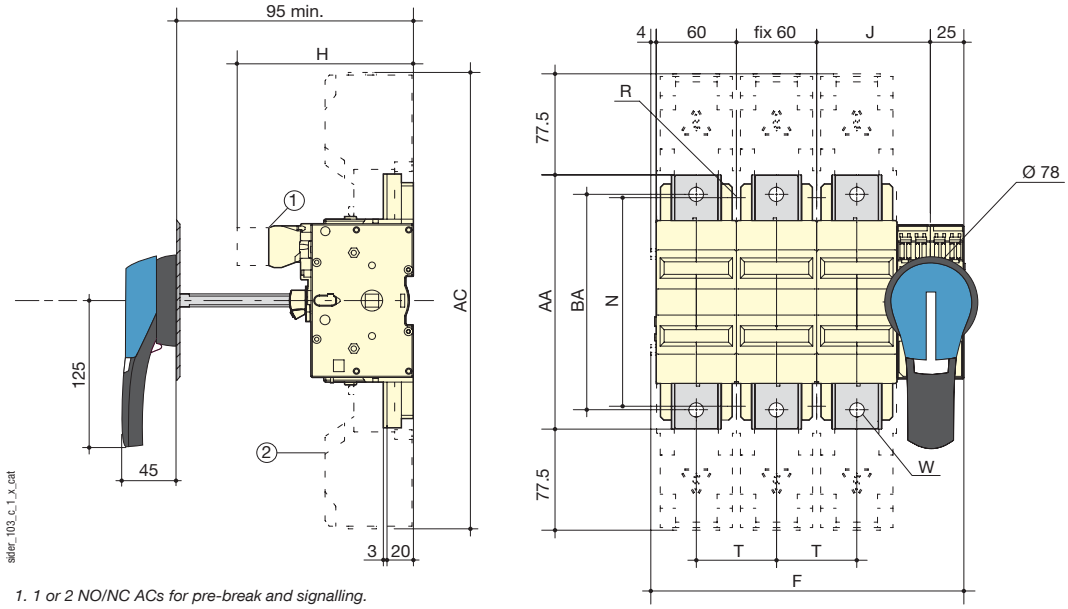
Direct operation



1. Terminal shrouds
2. 1 or 2 NO/NC ACs for pre-break and signalling.

Rating	Overall dimensions			Terminal shrouds	Switch body		Switch mounting		Connection					
(A)	A 3p.	A 4p.	C	AC	H	L	N	R	T	W	Y	Z	AA	BA
ND 125	160	196	178	268	82	36	130	5	36	8	3	20	162	141
ND 200	160	196	178	268	82	36	130	5	36	8	3	20	162	141
ND 250	232	322	173	350	77	31	162	6	60	10	3	20	195	165
ND 315	232	322	173	350	77	31	162	6	60	10	3	20	195	165
ND 400	280	346	173	360	77	31	172	6	66	10	3	20	214	175
ND 500	280	346	173	360	77	31	172	6	66	10	3	20	214	175

External front operation

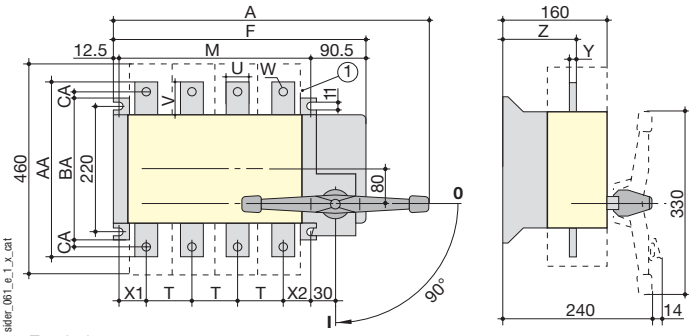


1. 1 or 2 NO/NC ACs for pre-break and signalling.
2. Terminal shrouds

	Terminal shrouds	Switch body				Switch mounting		Connection			
Rating (A)	AC	F 3p.	F 4p.	H	J	N	R	T	W	AA	BA
ND 125	268	148	184	137	54	130	5	36	8	162	141
ND 200	268	148	184	137	54	130	5	36	8	162	141
ND 250	350	234	294	132	85	162	6	60	10	195	165
ND 315	350	234	294	132	85	162	6	60	10	195	165
ND 400	360	252	318	132	91	172	6	66	10	214	175
ND 500	360	252	318	132	91	172	6	66	10	214	175

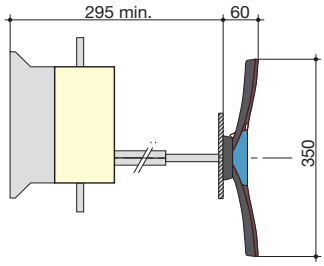
SIDER 630 to 1600 A

Direct front operation



1. Terminal screens

External front operation

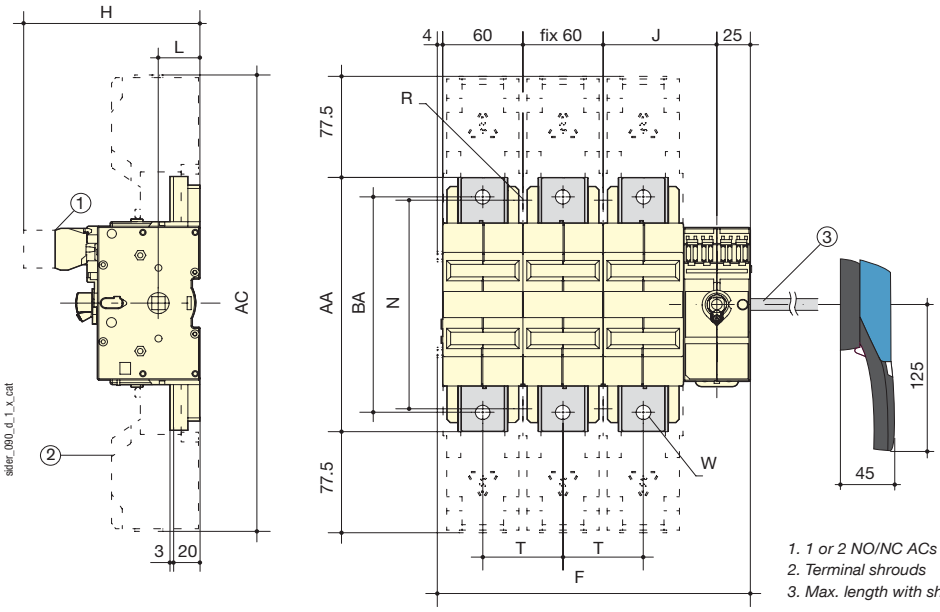


Rating	Overall dimensions		Switch body		Switch mounting		Connection										
(A)	A 3p.	A 4p.	F 3p.	F 4p.	M 3p.	M 4p.	T	U	V	W	X1	X2	Y	Z	AA	BA	AC
630	463	543	358	438	255	335	80	40	50	13	42.5	52.5	6	106	300	260	20
800	463	543	358	438	255	335	80	50	60		47.5	47.5	6	106	320		
1 250	555	675	450	560	347	457	120	63	65		46.5	60.5	7	107	330		
1 600	555	675	450	560	347	457	120	80	80		46.5	60.5	15	111	360		

Side operation

SIDER ND 125 to ND 500 A

External side operation



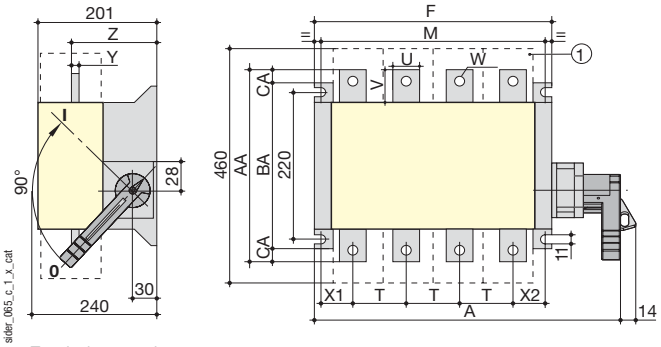
1. 1 or 2 NO/NC ACs for pre-break and signalling.
2. Terminal shrouds
3. Max. length with shaft extension: 230 mm

	Terminal shrouds	Overall dimensions		Switch body			Switch mounting		Connection			
Rating (A)	AC	F 3p.	F 4p.	H	J	L	N	R	T	W	AA	BA
ND 125	268	148	184	137	54	36	130	5	36	8	162	141
ND 200	268	148	184	137	54	36	130	5	36	8	162	141
ND 250	350	234	294	132	85	31	162	6	60	10	195	165
ND 315	350	234	294	132	85	31	162	6	60	10	195	165
ND 400	360	252	318	132	91	31	172	6	66	10	214	175
ND 500	360	252	318	132	91	31	172	6	66	10	214	175

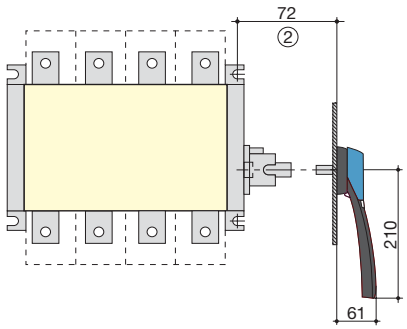
Side operation (continued)

SIDER 630 to 1600 A

Direct side operation



External side operation



1. Terminals protection screen
2. Max length with shaft extension: 111 mm

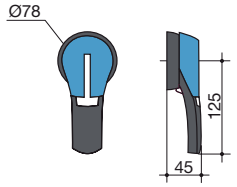
Rating (A)	Overall dimensions A 3p.	A 4p.	Switch body F 3p.	F 4p.	Switch mounting M 3p.	M 4p.	Connection T	U	V	W	X1	X2	Y	Z	AA	BA	AC
630	387	467	280	360	255	335	80	40	50	13	42.5	52.5	6	147	300	260	20
800	387	467	280	360	255	335	80	50	60		47.5	47.5	6	147	320		
1 250	479	599	372	492	347	467	120	63	65		46.5	60.5	7	148	330		
1 600	479	599	372	492	347	467	120	80	80		46.5	60.5	15	152	360		

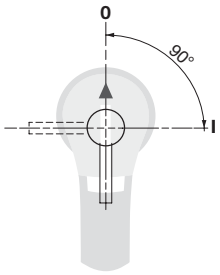
➲ Dimensions for external handles

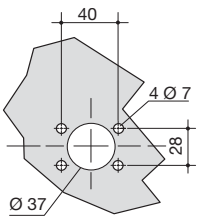
SIDER ND 125 to ND 500 A

Front operation

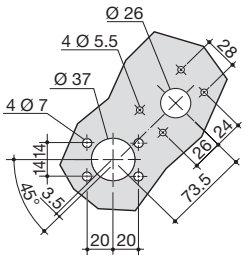
Handle type	Direction of operation	Door drilling
S2 type		



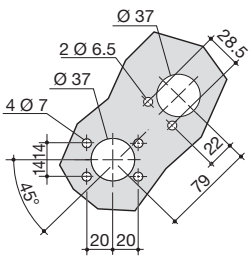




With lock RONIS EL11AP

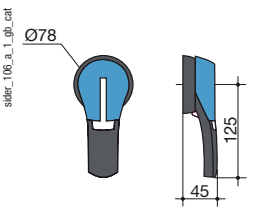


With lock CASTELL K

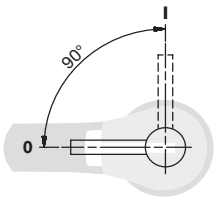


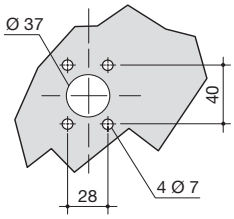
Side operation

Handle type	Direction of operation	Door drilling
S2 type		

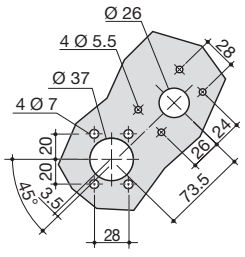


Right side operation

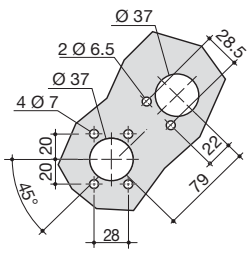




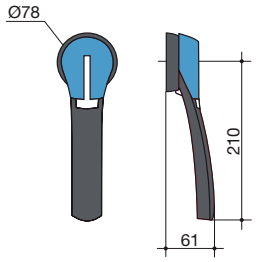
With lock RONIS EL11AP



With lock CASTELL K

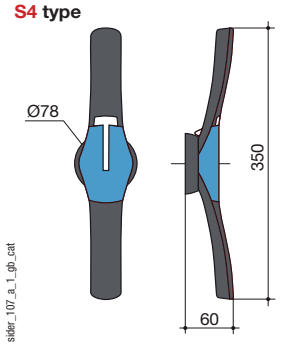
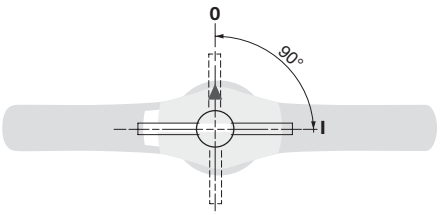
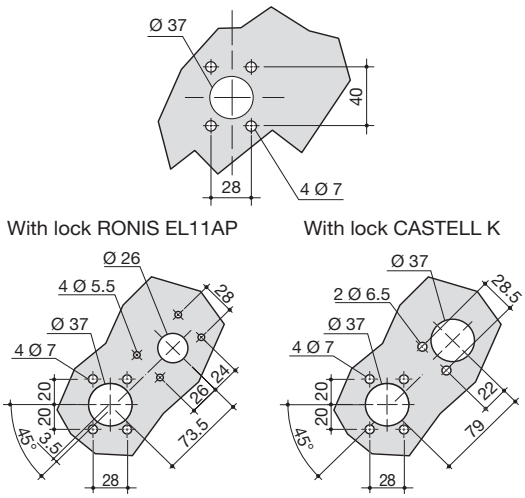


S3 type



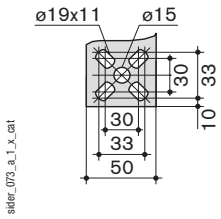
➲ Dimensions for external handles (continued)

SIDER 630 to 1600 A

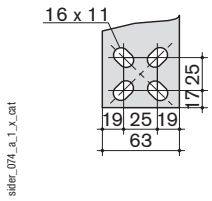
Handle type	Front operation Direction of operation	Door drilling
S4 type  	 	

➲ Connection terminals

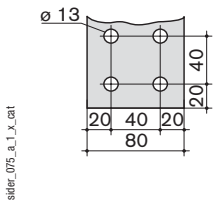
SIDER 800 A

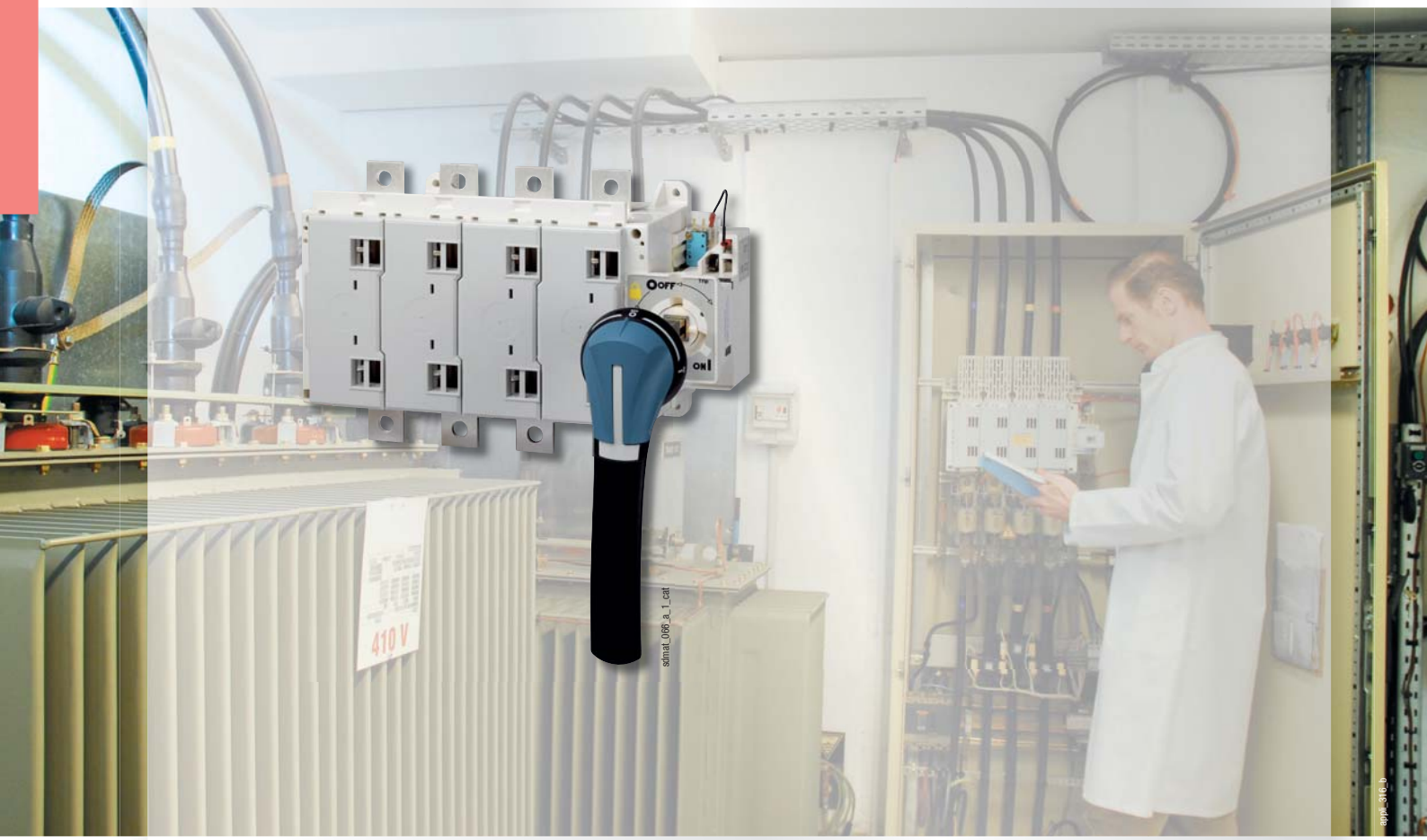


SIDER 1 250 A



SIDER 1 600 A





Visible breaking and tripping load break switch from 250 to 1800 A

➲ Function

SIDERMAT are manually operated tri- or tetrapolar load break switches which can be tripped remotely.
They make and break under load conditions and provide safety isolation for any low voltage circuit.
The tripping function is used to provide the following functions:
- personal protection against insulation faults by combination with toroids and differential relays,
- protection against overloads by combination with CT and thermal relays,
- protection against short circuits with fuses (see page 196 "SIDERMAT combination").

➲ General characteristics

- Remote breaking by voltage release device.
- Visible double breaking.
- Can be triggered by complementary protection modules.

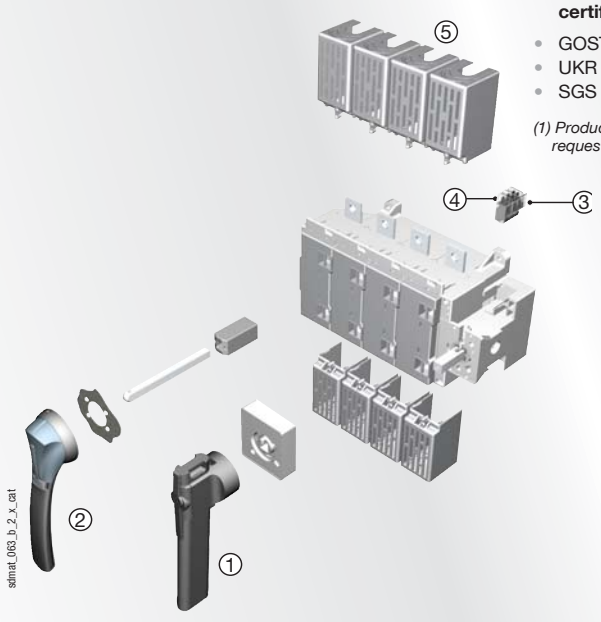
➲ Conformity to standards

- IEC 60947-3
- EN 60947-3
- VDE 0660-107 (1992)
- NBN EN 60947-3
- BS EN 60947-3

➲ Approvals and certifications(1)

- GOST (Russia)
- UKR (Ukraine)
- SGS (Saudi Arabia)

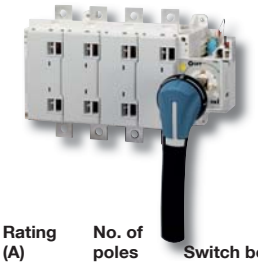
(1) Product reference on request.



Overview (for further details, please see the installation instructions supplied with each device).

1. Direct front operation
2. External front operation
3. NO/NC position AC.
4. NO/NC AC wired to ready mounted transmission coil.
5. Terminal shrouds

➲ References


sidmat_066_a_1_cat

Front operation - Switch body with a shunt trip coil 230 VAC

Rating (A)	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Auxiliary contact position	Auxiliary contact tripping	Terminal shrouds	Terminal screens	Inter phase barrier
250 A	3 P	3500 **3026**	Black 3999 **6203**	Type S3 Black IP55 1431 **3511**(1) Type S3 Red/yellow IP55 1432 **3511**	200 mm 1401 **1520** 320 mm 1401 **1532**(1)	1st contact NO/NC 3999 **0051** 2nd contact NO/NC 3999 **0052**	1 contact NO/NC 3999 **0031**	3 P 3998 **3040**(2) 4 P 3998 **4040**(2)		
	4 P	3500 **4026**								
400 A	3 P	3500 **3041**								
	4 P	3500 **4041**								
630 A	3 P	3500 **3064**								
	4 P	3500 **4064**								
800 A	3 P	3500 **3081**						3 P 3998 **3063**(2) 4 P 3998 **4063**(2)		
	4 P	3500 **4081**								
1 250 A	3 P	3500 **3121**							3 P 2998 **3120**(2) 4 P 2998 **4120**(2)	3 P 2998 **0003** 4 P 2998 **0004**
	4 P	3500 **4121**								
1 600 A	3 P	3500 **3161**								
	4 P	3500 **4161**								
1 800 A	3 P	3500 **3180**								included
	4 P	3500 **4180**								

(1) Standard.
(2) Top/bottom.


sdmat_070_a_1_cat

Side operation - Switch body with a shunt trip coil 230 VAC

Rating (A)	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Auxiliary contact position	Auxiliary contact tripping	Terminal shrouds	Terminal screens	Inter phase barrier
250 A	3 P	3505 **3026**	Black 3999 **6012**(1) Red 3999 **6013**	Type S3 Black IP55 1435 **3511**(1) Type S3 Red IP55 1436 **3511**	200 mm 1403 **1520**	1st contact NO/NC 3999 **0051** 2nd contact NO/NC 3999 **0052**	1 contact NO/NC 3999 **0031**	3 P 3998 **3040**(2) 4 P 3998 **4040**(2)		
	4 P	3505 **4026**								
400 A	3 P	3505 **3041**								
	4 P	3505 **4041**								
630 A	3 P	3505 **3064**								
	4 P	3505 **4064**								
800 A	3 P	3505 **3081**						3998 **3063**(2)		
	4 P	3505 **4081**						3998 **4063**(2)		
1 250 A	3 P	3505 **3121**							3 P 2998 **3120**(2) 4 P 2998 **4120**(2)	3 P 2998 **0003** 4 P 2998 **0004**
	4 P	3505 **4121**								
1 600 A	3 P	3505 **3161**								
	4 P	3505 **4161**								
1 800 A	3 P	3505 **3180**								included
	4 P	3505 **4180**								

(1) Standard.
(2) Top/bottom.

External operation handle



S3 type handle

For front operation

Rating (A)	Handle	Handle colour	External IP(1)	Reference
250 … 1 800	S3 type	Black	IP55	1431 **3511**(2)
250 … 1 800	S3 type	Red/Yellow	IP55	1432 **3511**

(1) IP: Degree of protection according to standard IEC 60529.
(2) Standard.

For side operation

Rating (A)	Handle	Handle colour	External IP(1)	Reference
250 … 1 800	S3 type	Black	IP55	1435 **3511**(2)
250 … 1 800	S3 type	Red	IP55	1436 **3511**

(1) IP: Degree of protection according to standard IEC 60529.
(2) Standard.

Direct operation handle



For front operation

Rating (A)	Handle colour	Reference
250 … 1 800	Black	3999 **6203**
250 … 1 800	Red	consult us

For side operation

Rating (A)	Handle colour	Reference
250 … 1 800	Black	3999 **6012**
250 … 1 800	Red	3999 **6013**

Alternative S type handle cover colors



Use
For Handle single lever S3 type. Other colours: consult us.

Colour	To be ordered by multiple	Handle	Reference
Light grey	50	S3	1401 **0001**
Dark grey	50	S3	1401 **0011**

S type handle adapter



Use
Enables S type handles to be fitted in place of existing older style SOCOMEC handles. Adapter can also be utilised as a spacer to increase the distance between the panel door and the handle lever.

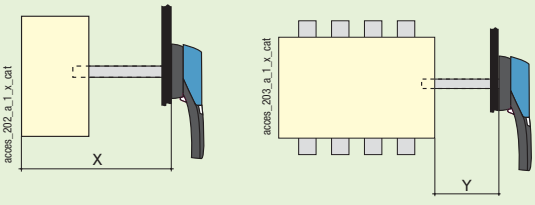
Dimensions
Adds 12 mm to the depth.

Handle colour	To be ordered by multiple	External IP(1)	Reference
Black	10	IP65	1493 **0000**

(1) IP: Degree of protection according to standard IEC 60529.

Shaft for external handle





Use
Standard lengths:
- 200 mm,
- 320 mm.

Other lengths: consult us.

For front operation

Rating (A)	Dimension X (mm)	Shaft length (mm)	Reference
250 … 630	275 … 439	200 mm	1401 **1520**
250 … 630	275 … 559	320 mm	1401 **1532**(1)
800	296 … 460	200 mm	1401 **1520**
800	296 … 580	320 mm	1401 **1532**(1)
1 250 … 1 800	291 … 455	200 mm	1401 **1520**
1 250 … 1 800	291 … 575	320 mm	1401 **1532**(1)

(1) Standard.

For side operation

Rating (A)	Dimension Y (mm)	Shaft length (mm)	Reference
250 … 1 800	110 … 279	200 mm	1403 **1520**

Alternative tripping coils


acces_049_a_1_cat

Shunt trip coil


acces_050_a_1_cat

Undervoltage trip coil

Use

Omnipolar breaking remotely controlled by shunt trip or undervoltage voltage release coil.
Note: the shunt trip coil must not be supplied for more than 5 s.
A 230 VAC shunt trip coil is fitted to the standard switch body.
To modify this coil, the reference opposite must be added to the switch reference (use "original coil" reference).

Examples for ordering:

- SIDERMAT with shunt trip coil 230 VAC - 1 reference: SIDERMAT 250 A, 3 pole, front operation: 3500 3026.
- SIDERMAT fitted with a non standard coil - 2 references: SIDERMAT 250 A, 3 pole, front operation, fitted with a 110 VAC undervoltage trip coil: 3500 3026 + 39913110.

References

Shunt trip coil

Voltage	Replacement tripping coil Reference	Original coil(1) Reference
24 VAC	3990 **1024**	3991 **1024**
48 VAC	3990 **1048**	3991 **1048**
110 VAC	3990 **1110**	3991 **1110**
230 VAC	3990 **1220**	included
400 VAC	3990 **1380**	3991 **1380**
24 VDC	3990 **2024**	3991 **2024**
48 VDC	3990 **2048**	3991 **2048**
220 VDC	3990 **2220**	
12 VDC		3991 **2012**
110 / 200 VDC		3991 **2220**

Undervoltage trip coil

Voltage	Replacement tripping coil Reference	Original coil(1) Reference
24 VAC	3990 **3024**	3991 **3024**
48 VAC	3990 **3048**	3991 **3048**
110 VAC	3990 **3110**	3991 **3110**
230 VAC	3990 **3220**	3991 **3220**
400 VAC	3990 **3380**	3991 **3380**
12 VDC	3990 **4012**	3991 **4012**
24 VDC	3990 **4024**	3991 **4024**
48 VDC	3990 **4048**	3991 **4048**
110 VDC	3990 **4110**	3991 **4110**
220 VDC	3990 **4220**	3991 **4220**

(1) To be ordered at same time as switch (factory fitted).

Delayed undervoltage trip coil

Voltage	Time (ms)	Reference
230 VAC	430	3993 **3230**
400 VAC	410	3993 **3400**

Characteristics

Shunt trip coil

Alternating voltage (V) (+5% to -20%)(1)	24	48	110	230	400
Consumption on inrush (VA)	80	100	100	120	120
Direct voltage (V) (+5% to -20%)	12	24	48	110	220
Consumption on inrush (W)	80	100	100	120	120

(1) Note: The shunt trip coil VAC must not be supplied for more than 5 s.
A shunt trip coil is suited for the standard device.

Undervoltage AC trip coil

Alternating voltage (V) (+5% to -10%)	24	48	110	230	400
Permanent consumption (VA)	13	13	13	13	20
Consumption on inrush (VA)	13	13	13	13	20
Minimum maintaining voltage (V)	15	25	60	140	200

Undervoltage DC trip coil

Direct voltage (V) (+5% to -10%)	12	24	48	110	220
Permanent consumption (W)	13	13	13	13	13
Consumption on inrush (W)	13	13	13	13	13
Minimum maintaining voltage (V)	6	15	25	60	140

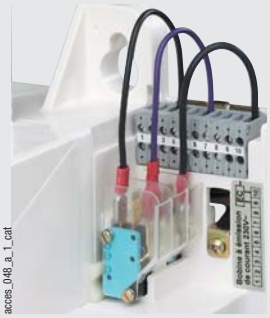
Current-reducing resistor for undervoltage trip coil

Use

Reduces, by limiting the current, the effects on the undervoltage coils used in continuous processes or processes exposed to high ambient temperatures.

Voltage	Reference
110 VAC	3999 **3112**
230 VAC	3999 **3230**
400 VAC	3999 **3400**
110 VDC	3999 **4110**

Auxiliary contacts


acces_048_a_1_cat

Use
Pre-break and signalling of positions 0 and I:
1 to 2 NO/NC auxiliary contacts

Coil tripping
1 to 2 NO/NC auxiliary contacts

Connection to the control circuit
By 6.35 mm fast-on terminal.

Characteristics
NO/NC auxiliary contact: IP2.

Electrical characteristics
30 000 operations.

References

NO/NC position contact

Rating (A)	Position AC	Reference
250 … 1 800	1st	3999 **0051**
250 … 1 800	2nd	3999 **0052**

NO/NC low level position contact

Rating (A)	Position AC	Reference
250 … 1 800	1st	3999 **0111**
250 … 1 800	2nd	3999 **0112**

NO/NC contact, signalling coil tripping

Rating (A)	Position AC	Reference
250 … 1 800	1	3999 **0031**

Characteristics

NO/NC position contact

Rating (A)	Current nominal (A)	Operating current I_e (A) 250 VAC AC-13	400 VAC AC-13	24 VDC DC-13	48 VDC DC-13
250 … 1 800	16	12	8	14	6

NO/NC changeover contact, signalling coil tripping

Rating (A)	Current nominal (A)	Operating current I_e (A) 250 VAC AC-13	400 VAC AC-13	24 VDC DC-13	48 VDC DC-13
250 … 1 800	16	12	8	12	2

Terminal shrouds


acces_212_a_1_cat

Use
Top or bottom protection against direct contact with terminals or connection parts.

Perforations allowing remote thermographic inspection without removal.

Advantage

Rating (A)	No. of poles	Position	Reference
250 … 630	3 P	top or bottom	3998 **3040**
250 … 630	4 P	top or bottom	3998 **4040**
800	3 P	top or bottom	3998 **3063**
800	4 P	top or bottom	3998 **4063**

Terminal screens

Use
Top or bottom protection against direct contact with terminals or connection parts.

Rating (A)	No. of poles	Position	Reference
1 250 … 1 800	3 P	top / bottom	2998 **3120**
1 250 … 1 800	4 P	top / bottom	2998 **4120**

Inter phase barrier

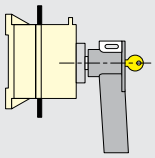

acces_036_a_1_cat

Use
Safety isolation between the terminals, essential for use at 690 VAC or in a polluted or dusty atmosphere.

Rating (A)	No. of poles	Reference
1 250 … 1 600	3 P	2998 **0003**
1 250 … 1 600	4 P	2998 **0004**
1 800	3/4 P	included

Handle key interlocking accessories

acces_010_b_1_x_cat



Lock RONIS 1104A

Use

Locking in position 0 of front or side operation handle:
- using a padlock (not supplied) and factory integrated padlocking function of the handle. Padlocking, in external front operation, locks the door.
- using RONIS 1104 A lock (key BC 3318) to be mounted directly on the padlockable handle.
- locking using RONIS EL11AP lock (not supplied).

Locking using RONIS EL11AP lock 1104 (supplied)

Rating (A)	Operation	Reference
250 … 1 800	direct	3999 **8104**

Locking using RONIS EL11AP lock (not supplied)

Rating (A)	Operation	Reference
250 … 630	direct	3999 **6107**
800 … 1 800	direct	3999 **7007**

Locking using RONIS EL11AP lock (not supplied)

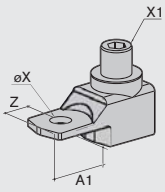
Rating (A)	Operation	Reference
250 … 1 800	external	1499 **7701**

Cage terminals

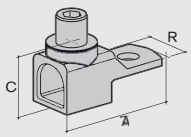
acces_053_a_1_cat



acces_091_a_1_x_cat



acces_092_a_1_x_cat



Use

Connection of bare copper cables onto the terminals (without lugs).

References

Rating (A)	No. of poles	Reference
250	3 P	5400 **3025**
250	4 P	5400 **4025**
400	3 P	5400 **3040**
400	4 P	5400 **4040**
630	3 P	5400 **3063**
630	4 P	5400 **4063**

Connections

Rating (A)	Section flexible cable (mm^2)	Section rigid cable (mm^2)	Width flexible bar (mm)	Stripped over (mm)
250	16 … 185	16 … 185	18	27
400	50 … 240	50 … 300	20	34
630	70 … 300	70 … 300	24	34

Dimensions

Rating (A)	A	A1	C	R	ØX	X1	Z
250	62	31.5	31.5	25	10.5	M16	14
400	71.5	32	38	32	10.5	M20	15
630	76.5	37	38	40	12.5	M20	15

Other specific accessories

bd_03_04_01



- Connection accessories.
- Mounting plates for standard systems.
- Special construction available for specific environments.

➲ SIDERMAT - Characteristics according to IEC 60947-3

250 to 1 800 A

Thermal current I_{th} (40°C)		**250 A**	**400 A**	**630 A**	**800 A**	**1 250 A**	**1 600 A**	**1 800 A**
Rated insulation voltage U_i (V)		1 000	1 000	1 000	1 000	1 000	1 000	1 000
Rated impulse withstand voltage U_{imp} (kV)		8	12	12	12	12	12	12
Rated operational currents Ie (A)								
Rated voltage	Load duty category	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]
400 VAC	AC-22 A / AC-22 B	250/250	400/400	630/630	800/800	1 250/1 250	1 600/1 600	1 600/1 800
400 VAC	AC-23 A / AC-23 B	250/250	400/400	630/630	630/630	1 250/1 250	1 600/1 600	1 600/1 600
500 VAC	AC-22 A / AC-22 B	250/250	400/400	630/630	800/800	1 250/1 250	1 600/1 600	1 600/1 600
500 VAC	AC-23 A / AC-23 B	200/250	315/400	500/630	630/630	1 000/1 000	1 250/1 250	1 250/1 250
690 VAC[2]	AC-21 A / AC-21 B	250/250	400/400	630/630	800/800	1 250/1 250	1 600/1 600	1 600/1 600
690 VAC[2]	AC-22 A / AC-22 B	250/250	400/400	500/630	630/800	1 000/1 000	1 250/1 250	1 250/1 250
690 VAC[2]	AC-23 A / AC-23 B	200/250	315/400	400/500	500/500	800/800	1 000/1 000	1 000/1 000
400 VDC	DC-20 A / DC-20 B	250/250	400/400	630/630	800/800	1 250/1 250	1 600/1 600	1 800/1 800
400 VDC	DC-21 A / DC-21 B	250/250	400/400	630/630	800/800	1 250/1 250	1 600/1 600	1 600/1 600
400 VDC	DC-22 A / DC-22 B	250/250	400/400[3]	630/630[3]	800/800[3]	1 250/1 250[4]	1 600/1 600[4]	1 600/1 600[4]
400 VDC	DC-23 A / DC-23 B	200/250	315/400[3]	500/630[3]	630/800[3]	1 250/1 250[4]	1 250/1 250[4]	1 250/1 250[4]
Operational power in AC-23 (kW)								
At 400 VAC without pre-break in AC-23 (kW)[1][5]		132/132	220/220	355/355	355/355	710/710	900/900	900/900
At 690 VAC without pre-break in AC-23 (kW)[1][5]		185/220	295/400	400/475	475/475	750/750	900/900	900/900
Reactive power (kvar)								
At 400 VAC (kvar)[5]		115	185	290	365	575		
Fuse protected short-circuit withstand (kA rms prospective)								
Prospective short-circuit (kA rms)[6]		100	100	100	100	100	120	120
Associated fuse rating (A)[6]		250	400	630	800	1 250	2 x 800	2 x 900
Short-circuit capacity								
Rated short-time withstand current 0.3 s. I_{cw} (kA eff.)		17	25	50	65	65	80	80
Rated peak withstand current (kA peak)[6]		30	45	55	80	100	120	120
Connection								
Minimum Cu cable section (mm^2)		95	185	2 x 150	2 x 185			4 x 240
Minimum Cu busbar section (mm^2)				2 x 30 x 5	2 x 40 x 5	2 x 60 x 5	2 x 80 x 5	
Maximum Cu cable section (mm^2)		240	240	2 x 300	2 x 300	4 x 185	6 x 240	8 x 240
Maximum Cu busbar width (mm)		40	40	50	63	100	100	100
Tightening torque min (Nm)		20	40	40		20	40	40
Mechanical characteristics								
Durability (number of operating cycles)		8 000	8 000	5 000	5 000	5 000	3 000	3 000
Weight of a 3 pole device (kg)		6.5	7	8	11	14	19	21
Weight of a 4 pole device (kg)		7.5	8	9.5	13	16	21.5	23.5

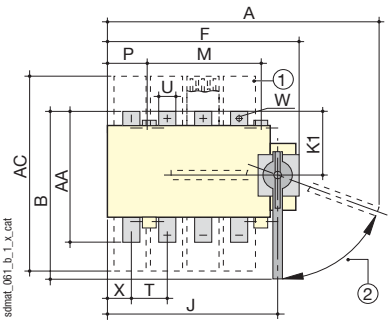
(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) With terminal shrouds or phase barrier.
(3) Poles cannot be juxtaposed.
(4) 4-pole device with 2 pole in series by polarity.
(5) The power value is given for information only, the current values vary from one manufacturer to another.
(6) For a rated operational voltage U_e = 400 VAC.

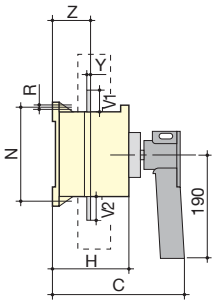
Dimensions

Front operation

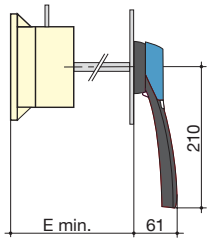
SIDERMAT 250 to 800 A

Direct front operation





External front operation

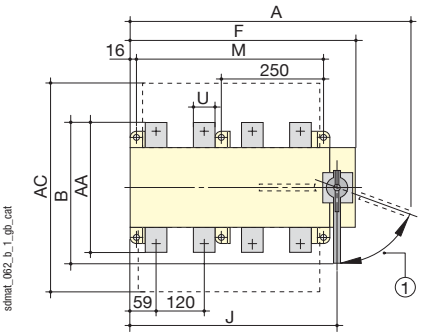


1. Terminal shrouds
2. Reset fuse 70°

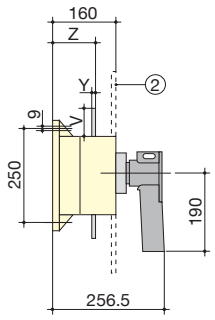
Rating	Overall dimensions					Terminal shrouds	Switch body						Switch mounting					Connection										
(A)	A 3p.	A 4p.	B	C	E min	AC	F 3p.	F 4p.	H	J 3p.	J 4p.	K1	M	N	P 3p.	P 4p.	R	T	U	V1	V2	W	X 3p.	X 4p.	Y	Z	AA
250	435	495	309	248	275	388	285	345	148	253	313	115	210	180	10	70	7	65	32	35	43	11	31	46	3	67	238
400	435	495	309	248	275	388	285	345	148	253	313	115	210	180	10	70	7	65	32	35	43	13	31	46	5	69	238
630	435	495	318.5	248	275	388	285	345	148	253	313	115	210	180	10	70	7	65	32	35	43	13	31	46	8	72	257
800	491	570	350	262	296	470	346	426	178	308	388	160	250	250	20	100	9	80	50	60	60	15	36	65	7	72	320

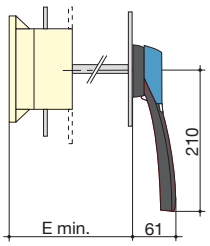
SIDERMAT 1 250 to 800 A

Direct front operation



External front operation





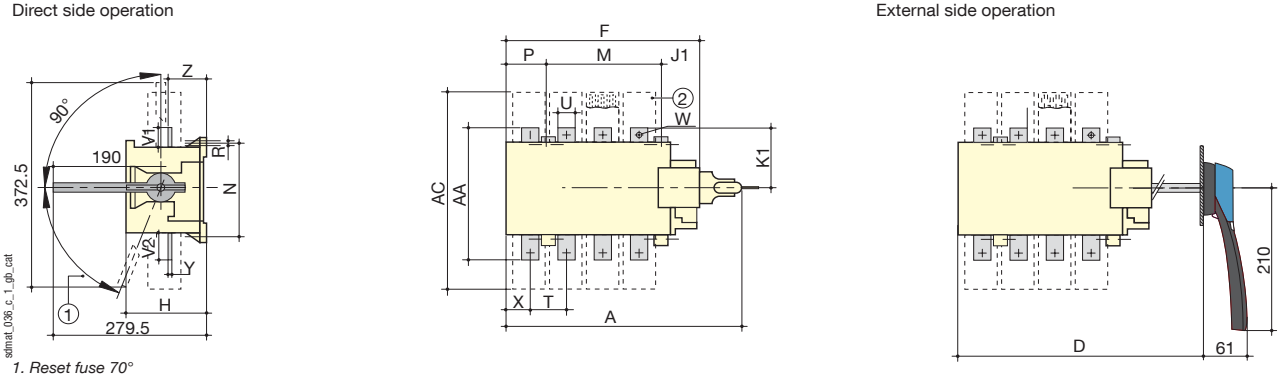
1. Reset fuse 70°
2. Terminals protection screen

	Overall dimensions				Terminal shrouds	Switch body				Switch mounting		Connection				
Rating (A)	A 3p.	A 4p.	B	E min	AC	F 3p.	F 4p.	J 3p.	J 4p.	M 3p.	M 4p.	U	V	Y	Z	AA
1 250	582	702	355	291	480	437	557	400	520	345	465	63	65	7	106	330
1 600	582	702	370	291	479	437	557	400	520	345	465	80	80	15	110	360
1 800	582	702	370	291	479	437	557	400	520	345	465	100	80	15	110	360

Side operation

SIDERMAT 250 to 800 A

Direct side operation



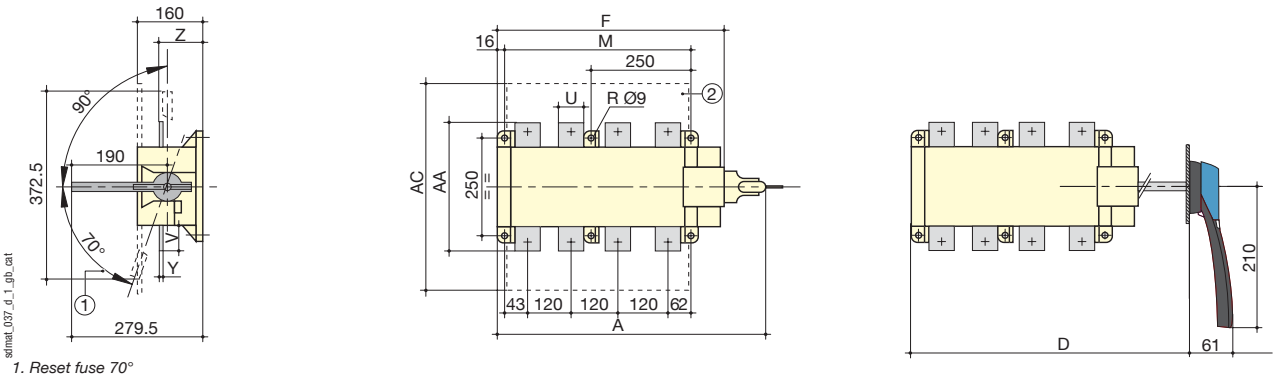
External side operation

1. Reset fuse 70°
2. Terminal shrouds

Rating (A)	Overall dimensions A 3p.	A 4p.	D 3p.	D 4p.	Terminal shrouds AC	Switch body F 3p.	F 4p.	H	K1	Switch mounting M	N	P 3p.	P 4p.	R	Connection T	U	V1	V2	W	X 3p.	X 4p.	Y	Z	AA
250	365	425	357	417	388	285	345	148	115	210	180	10	70	7	65	32	35	43	11	31	46	3	67	238
400	365	425	357	417	388	285	345	148	115	210	180	10	70	7	65	32	35	43	13	31	46	5	69	238
630	365	425	357	417	388	285	345	148	129	210	180	10	70	7	65	45	49	49	13	31	46	8	72	257
800	421	501	413	493	470	346	426	178	160	250	250	20	100	9	80	50	60	60	15	36	65	7	72	320

SIDERMAT 1 250 to 1 800 A

Direct side operation



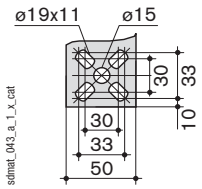
External side operation

1. Reset fuse 70°
2. Terminals protection screen

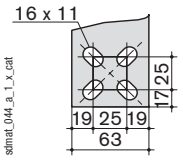
Rating (A)	Overall dimensions A 3p.	A 4p.	D 3p.	D 4p.	Terminal shrouds AC	Switch body F 3p.	F 4p.	Switch mounting M 3p.	M 4p.	Connection U	V	Y	Z	AA
1 250	522	641	504	624	480	437	557	345	465	63	65	7	106	330
1 600	522	641	504	624	479	437	557	345	465	80	80	15	110	360
1 800	522	641	504	624	479	437	557	345	465	100	80	15	110	360

Connection terminals

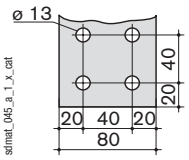
SIDERMAT 800 A



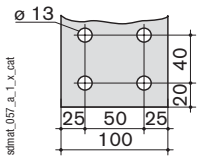
SIDERMAT 1 250 A



SIDERMAT 1 600 A



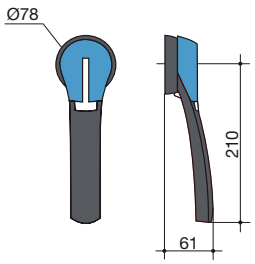
SIDERMAT 1 800 A

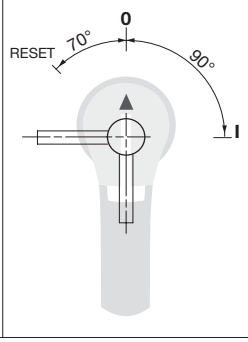


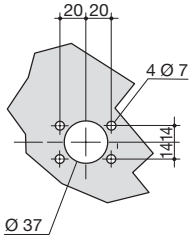
Dimensions for external handles

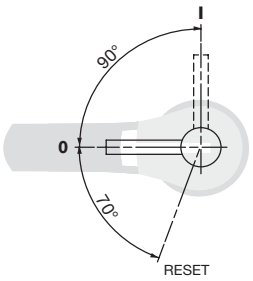
SIDERMAT 250 to 1800 A

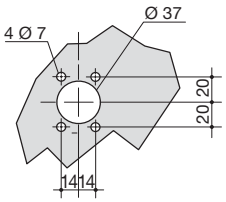
Handle type	Front operation		Side operation	
	Direction of operation	Door drilling	Direction of operation	Door drilling
S3 type				





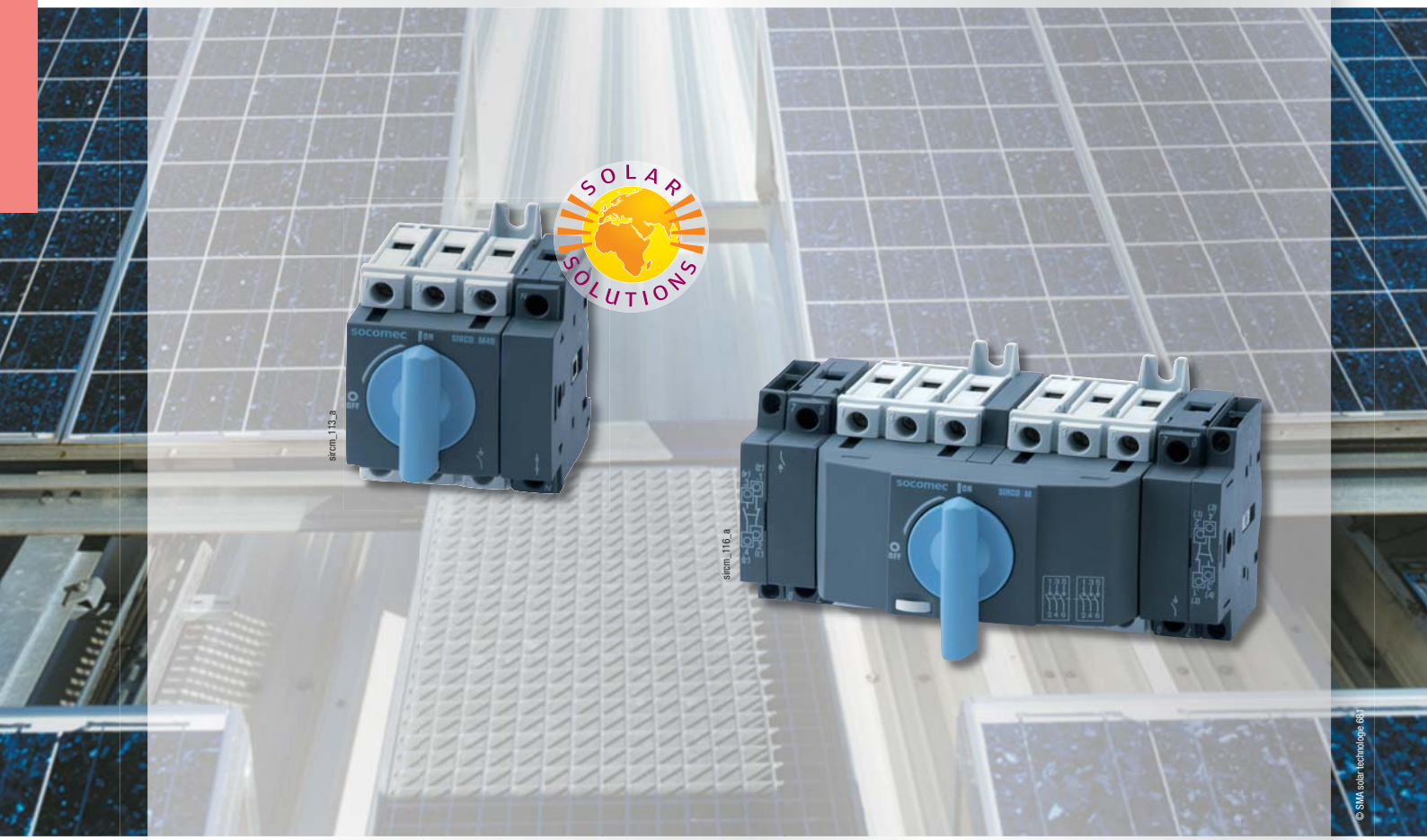






SIRCO M PV

Load break switches for solar applications



500 V d.c., 600 V d.c. and 800 V d.c. Photovoltaic Switch 25 to 40 A

➲ Function

SIRCO M PV are manually operated multipolar load break switches. They make and break under load conditions and provide safety isolation for any low voltage of photovoltaic applications.

➲ General characteristics

- Modular and flexible device.
- Fully visualised breaking.
- Double break per phase.
- Contact point technology.
- DIN rail mounting, panel or modular panel with 45 mm front cut out.

➲ Customised solutions

- SIRCO M PV 9 and 12 poles.
- SIRCO M PV and SIRCO M for simultaneous break of AC / DC circuits.
- SIRCO M PV mixed ratings.

➲ Conformity to standards

- IEC 60947-3
- EN 60947-3
- IEC 60364-4-410 (They provide safety disconnection and protection against overcurrents)
- IEC 60364-7-712 (Buildings electrical installations - Part 7-712: rules for special locations - Solar photovoltaic power supplies (PV)

➲ Available on request

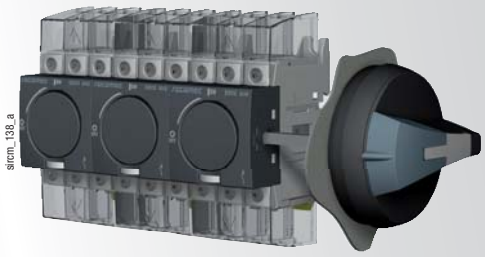
- Other rating: consult us
- Enclosed multipolar switches: consult us

What you need to know

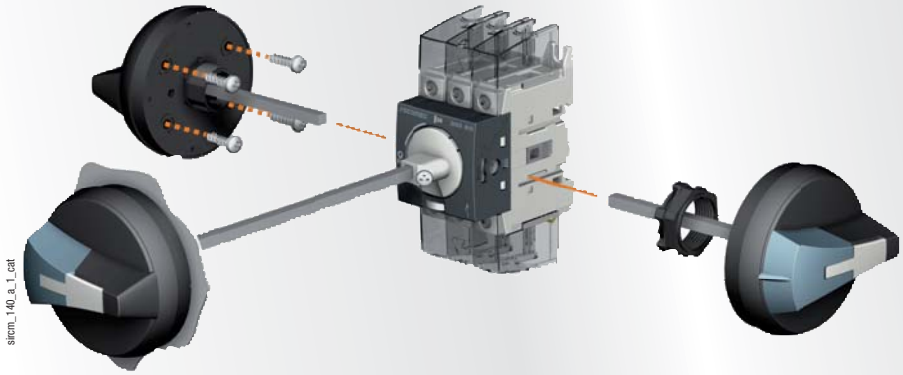
Direct operation



External side operation for multipolar configuration



External operation



- In a combiner box, located close to the solar cell strings, or located close to the inverter, we recommand the use of a door interlocked external handle for its safety features. The locking function of the enclosure in the "ON" position will force the operator to safely disconnect and isolate the solar cell strings prior to any intervention.





Think about it...



You can combine overcurrent protection (see page 402) with protection against transient overvoltages due to lightning (see page 414).

- **Need an enclosed switch ?**
  No problem with our specific product department. SOCOMEC also manufactures solutions for all your requirements.
  For further information, please contact us.

➲ References

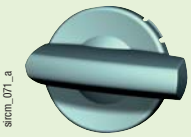
SIRCO M PV

Voltage (V d.c.)	Rating (A)	No. of poles	Switch body	Direct handle	External front and right side handle	External left side handle	Shaft for external front and side operation	Auxiliary contacts	Door mounting kit
500	32 A	4 P	22PV **4004**	Blue 2299 **5012**(1) Red 2299 **5013**(1)	Type S00 Black IP55 1471 **1111**(2) Type S00 Black IP65 1473 **1111**(2) Type S00 Red/yellow IP65 1474 **1111**(2)	Type S00 Black IP65 147A **5111** Type S00 Red/yellow IP65 147B **5111**	150 mm 1407 **0515** 200 mm 1407 **0520** 320 mm 1407 **0532**	M type 1 contact NO + NC 2299 **0001** M type 1 contact 2 NC 2299 **0011**	Overall dimensions reduce 2299 **3409**(1)(3) Complete protection IP2X 2299 **3309**(1)(3)
	40 A	4 P	22PV **4008**						
600	25 A	6 P	22PV **6004**(4)						
	40 A	6 P	22PV **6008**(4)						
800	25 A	8 P	22PV **8004**(4)						
	40 A	8 P	22PV **8008**(4)						

(1) For 4 pole switches
(2) Defeatable handle.
(3) Supplied with a shaft.
(4) Direct handle supplied as standard.

➲ Accessories

Direct operation handle



M00 handle

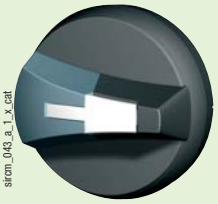
Use
Direct handle for SIRCO M PV 4 poles 500 V d.c.

For SIRCO M PV - 4 poles

Rating (A)	Handle colour	Handle	Reference
32 ... 40	Blue	M00 type	2299 **5012**(1)(2)
32 ... 40	Red	M00 type	2299 **5013**(2)

(1) Direct handle supplied as standard for 6 and 8 pole equipment.
(2) For 4 pole switches

External operation handle



S00 handle

Use
The door interlocked external operation handle includes a padlockable handle, a conversion kit and must be combined with a shaft extension.
In a combiner box, located close to the solar cell strings, or located close to the inverter, we recommand the use of a door interlocked external handle for its safety features.

Example
The locking function of the enclosure in the "ON" position will force the operator to safely disconnect and isolate the solar cell strings prior to any intervention. Opening the door when the switch is on "ON" position is possible by defeating the interlocking function with the use of a tool (authorized persons only).
The interlocking function is restored when the door is re-closed.

Front and right side operation I - 0

Rating (A)	Handle colour	Handle	External IP	Reference
25 ... 40	Black	S00 type	IP55	1471 **1111**(1)
25 ... 40	Black	S00 type	IP65	1473 **1111**(1)
25 ... 40	Red/Yellow	S00 type	IP65	1474 **1111**(1)

(1) Defeatable handle.

Left side operation I - 0

Rating (A)	Handle colour	Handle	External IP	Reference
25 ... 40	Black	S00 type	IP65	147A **5111**
25 ... 40	Red/Yellow	S00 type	IP65	147B **5111**

Shaft for external handle



Use
Standard lengths:
- 150 mm,
- 200 mm,
- 320 mm.

Other lengths: consult us.

For 3/4 pole switches: shaft extensions for external front and side handle.
For 6/8 pole front operated switches: shaft extensions for external front handle only.
For 6/8 pole side operated switches: shaft extensions for external side handle only.

For SIRCO M PV

Rating (A)	Shaft length (mm)	Reference
25 ... 40	150 mm	1407 **0515**
25 ... 40	200 mm	1407 **0520**
25 ... 40	320 mm	1407 **0532**

Terminal shrouds


sircm_049_a_1_cat

Use
Top and bottom protection against direct contact with the terminals or connection parts. 2 units per pack.
1 or 3 pole are available.

Advantage
Perforations enabling remote thermographic inspection without dismantling.

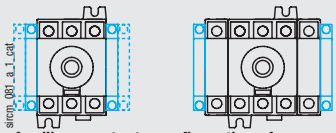
For fitting a complete device
4 poles: please order one reference of 3 pole and one reference of 1 pole terminal shrouds.
6 poles: please order 2 references of 3 pole terminal shrouds.
8 poles: please order 2 references of each terminal shrouds (1 pole and 3 poles).

For SIRCO M PV

Rating (A)	No. of poles	Position	Reference
25 ... 32	1 P	top and bottom	2294 **1005**
25 ... 32	3 P	top and bottom	2294 **3005**
40	1 P	top and bottom	2294 **1009**
40	3 P	top and bottom	2294 **3009**

M type auxiliary contacts


sircm_075_b_2_cat


sircm_081_a_1_cat

Auxiliary contacts configurations for SIRCO MPV

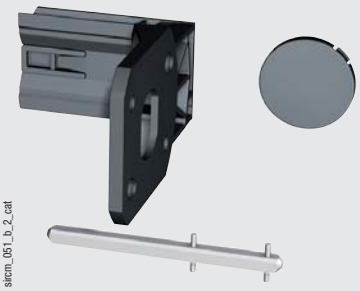
Use
Pre-break and signalisation of positions 0 and I by NO+NC or 2 NO auxiliary contacts.
They allow to anticipate the switching of the main poles. They can be mounted on the left or on the right side of the device.
Max 4 auxiliary contacts (2 blocks).

Characteristics
NO+NC auxiliary contacts: IP2 with front operation.

For SIRCO M PV

Rating (A)	Number of AC	Type of AC	Reference
25 ... 40	1 AC	NO + NC	2299 **0001**
25 ... 40	1 AC	2 NC	2299 **0011**

Door mounting kit


sircm_051_b_2_cat

Kit with reduced overall dimensions.

Use
This kit enables direct mounting of the SIRCO M PV 4 poles switch, on the door front panel, on the right or left side panels.
Moreover, the connection clamps of the switch are always accessible.
The external handle is quick and easy to install due to an internal locking nut mounted on the inside of the enclosure.

2 kits are available:
- one for complete protection IP2X,
- one with overall dimensions reduced.

For SIRCO M PV

Rating (A)	No. of poles	Description	Reference
25 ... 40	3/4 P	Overall dimensions reduce	2299 **3409**(1)(2)
25 ... 40	3/4 P	Complete protection IP2X	2299 **3309**(1)

(1) Delivered with a shaft.
(2) Standard.

Cap for side operation mounting


sircm_126_a_2_cat

Use
Accessory for capping the front face of the **SIRCO M PV** when utilising in door mounting or side operation, 20 units per pack.
This piece can be snapped on the switch body directly.

For SIRCO M PV

Rating (A)	Pack	Reference
25 ... 40	20 pieces	2299 **9409**

SIRCO M PV polycarbonate enclosure



Connecting enclosure of photovoltaic generators

➲ References

Empty enclosures

Rated operational voltage Ue (V d.c.)	Rating (A)	No. of pole	Handle colour	Enclosure colour	Reference
500	32	4 P	Black	Grey	2215 **9305**
500	32	4 P	Red	Yellow	2215 **9405**
500	40	4 P	Black	Grey	2215 **9309**
500	40	4 P	Red	Yellow	2215 **9409**

Enclosed switches

Rated operational voltage Ue (V d.c.)	Rating (A)	No. of pole	Handle colour	Enclosure colour	Reference
500	32	4 P	Black	Grey	22PV **4304**
500	32	4 P	Red	Yellow	22PV **4404**
500	40	4 P	Black	Grey	22PV **4308**
500	40	4 P	Red	Yellow	22PV **4408**

➲ General characteristics

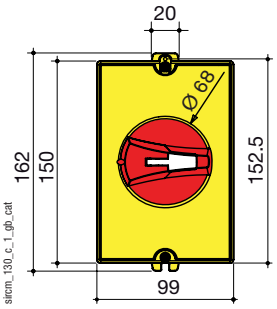
- Equipped with a 4 pole SIRCO M PV
- 1 removable neutral terminal and 1 removable earth terminal.
- IP65 protection
- Possibility of adding M type auxiliary contact module.

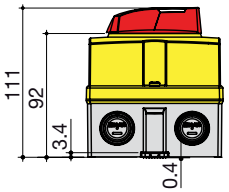
SIRCO M PV 32 A
- M16 pre-drilled holes (side).
- M20/M25 pre-drilled holes (upstream/downstream).
- M20 pre-drilled holes (rear).

SIRCO M PV 40 A
- M16 pre-drilled holes (side).
- M25/M32 pre-drilled holes (upstream/downstream).
- M25/M32 pre-drilled holes (rear).

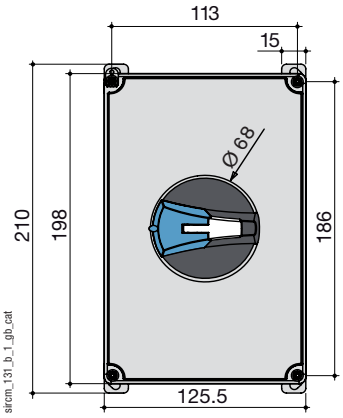
➲ Dimensions

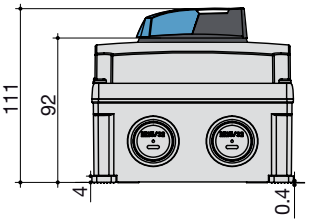
Enclosed SIRCO M PV 32 A





Enclosed SIRCO M PV 40 A





➲ Characteristics according to IEC 60947-3

SIRCO M PV 25 to 40 A

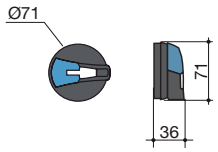
Rated current I (A)			**25 A**	**32 A**	**40 A**
Rated insulation voltage U_i (V)			800	800	800
Rated impulse withstand voltage U_{imp} (kV)			8	8	8
Rated operational currents Ie (A)					
Rated voltage	No. of poles	Number of pole in series per polarity	(A)	(A)	(A)
500 V d.c.	4 P	2 P + and 2 P -		32	40
600 V d.c.	6 P	3 P + and 3 P -	25		40
800 V d.c.	8 P	4 P + and 4 P -	25		40
Short-circuit capacity					
Rated short-time withstand current 0.3 s. I_{cw} (kA eff)(1)			2.5	2.5	3
Rated peak withstand current (kA peak)(1)			6	6	9
Connection					
Minimum Cu cable section (mm^2)			1.5	1.5	2.5
Maximum Cu cable section (mm^2)			16	16	35
Tightening torque min/max (Nm)			2 / 2.5	2 / 2.2	3.5 / 3.85
Mechanical characteristics					
Durability (number of operating cycles)			100 000	100 000	100 000
Operating effort (Nm)			0.8	0.8	1
Weight of 4 p (kg)			0.225	0.225	0.350
Weight of 6 P (kg)			0.405	0.405	0.585
Weight of 8 P (kg)			0.510	0.510	0.755

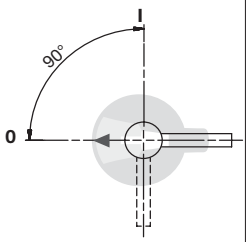
(1) For a rated operational voltage U_e = 400 V a.c.

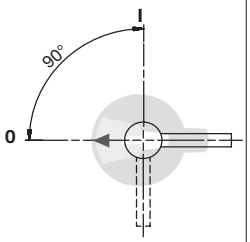
➲ Dimensions for external handles

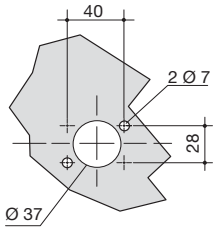
SIRCO M PV 25 to 40 A

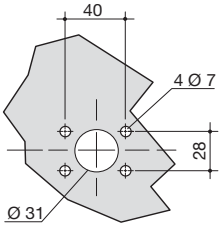
Handle type	Front operation Direction of operation	Side operation Direction of operation	Door drilling
S00 type Load break switches		**Right side operation**	IP55 with 2 fixing clips IP65 with 4 fixing screws
		Left side operation	With fixing nut

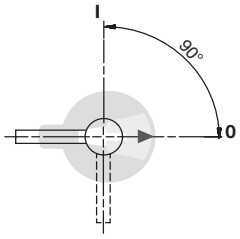


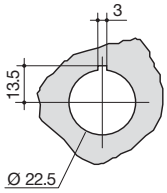










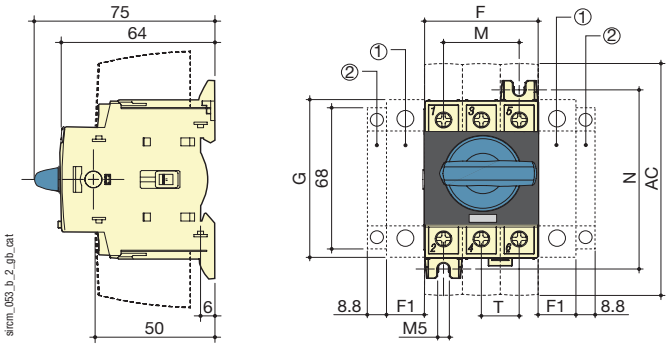


sircm_177_a_1_gb_cat

➲ Dimensions

SIRCO M PV 25 to 40 A

Direct operation with handle



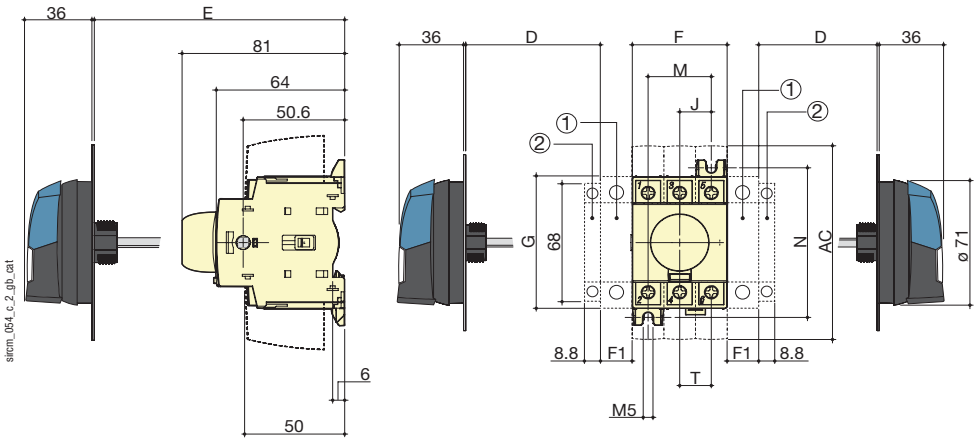
1. Location for: 1 main pole (maximum 1 per switch) **or** *auxiliary contact.*
2. Position for 1 auxiliary contact only.
Note: Max 4 additional blocks.

Rating (A)	Overall dimensions D min	D max	E min	E max	Terminal shrouds AC	Switch body F	F1	G	J	Switch mounting M	N	Connection T
25	30	235	100	372	110	45	15	68	15	30	75	15
32	30	235	100	372	110	45	15	68	15	30	75	15
40	30	235	100	372	110	52.5	17.5	76	17.5	35	85	17.5

SIRCO M PV 25 to 40 A

External front operation

External side operation

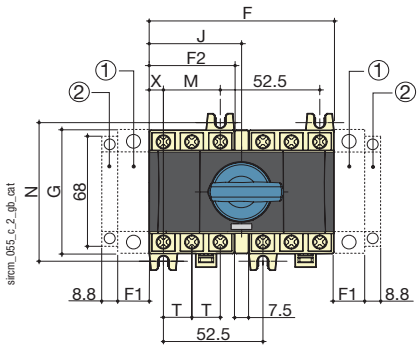


1. Location for: 1 main pole (maximum 1 per switch) **or** *auxiliary contact.*
2. Position for 1 auxiliary contact only.
Note: Max 4 additional blocks.

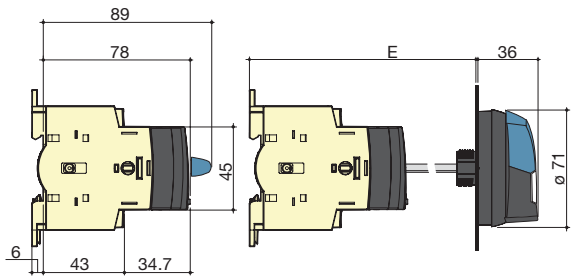
Rating (A)	Overall dimensions D min	D max	E min	E max	Terminal shrouds AC	Switch body F	F1	G	J	Switch mounting M	N	Connection T
25	30	235	100	372	110	45	15	68	15	30	75	15
32	30	235	100	372	110	45	15	68	15	30	75	15
40	30	235	100	372	110	52.5	17.5	76	17.5	35	85	17.5

SIRCO M PV 25 to 40 A

Direct front operation for 6/8-pole load break switches



External front operation for 6/8-pole load break switches

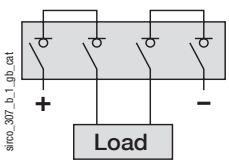


1. Location for: 1 main pole (maximum 1 per switch) **or** *auxiliary contact.*
2. Position for 1 auxiliary contact only.
Note: Max 4 additional blocks.

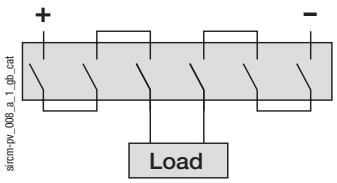
	Overall dimensions		Switch body				Switch mounting		Connection	
Rating (A)	E min	E max	F	F1	G	J	M	N	T	X
25	105	372	97.5	15	68	48.75	30	75	15	7.5
32	105	372	97.5	15	68	48.75	30	75	15	7.5
40	105	372	105	17.5	76	52.5	35	85	17.5	8.75

Pole in series connection diagram[(1)]

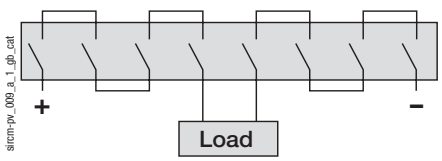
4 pole - bottom / bottom



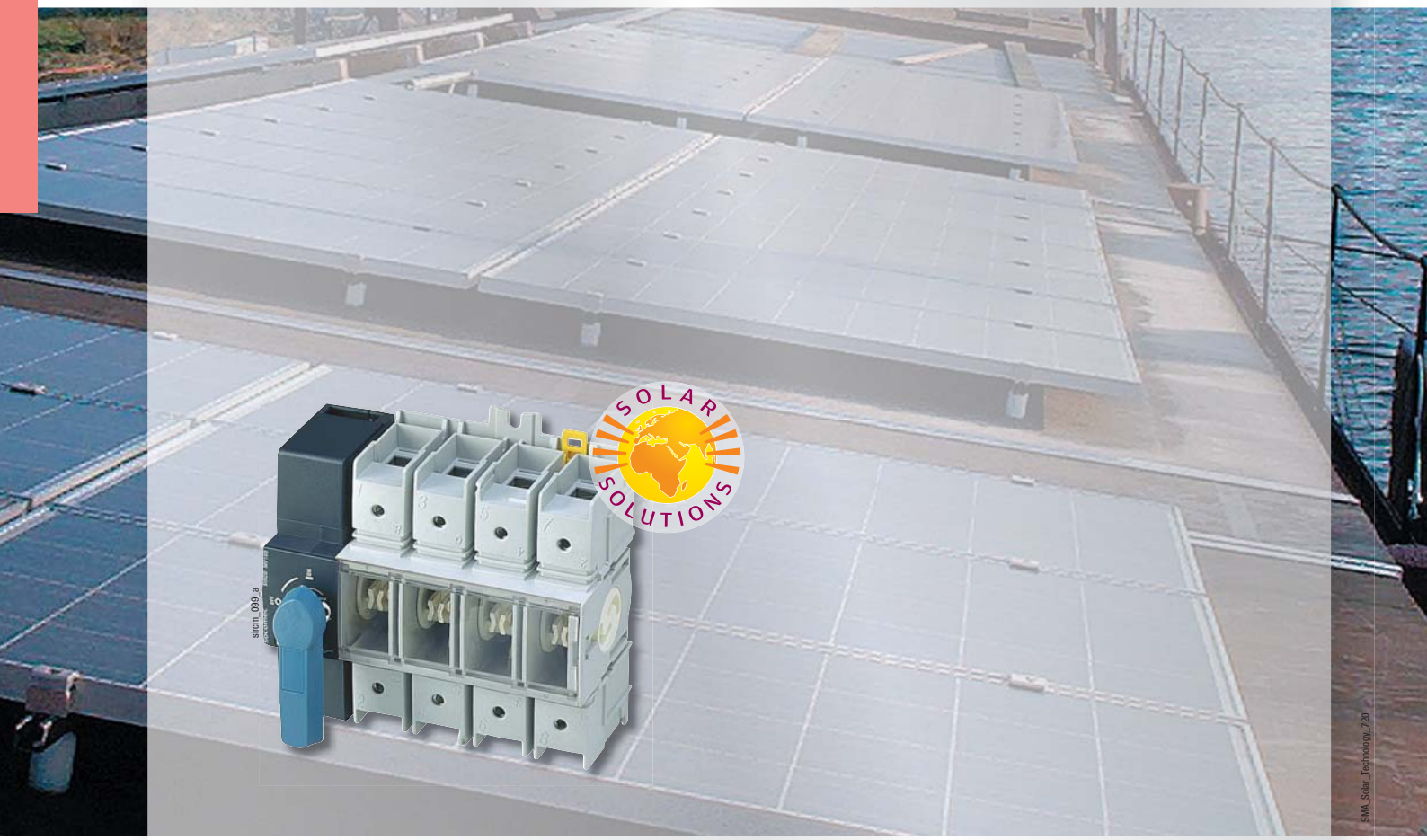
6 pole - top / bottom



8 pole - bottom / bottom



(1) Other connections: refer to mounting instructions.



600 V d.c. and 800 V d.c. Photovoltaic Switch 63 to 80 A

➲ Function

SIRCO MV PV are manually operated multipolar load break switches.
They make and break under load conditions and provide safety isolation for any low voltage of photovoltaic applications.

➲ General characteristics

- Modular device.
- Fully visualised breaking.
- Backplate or DIN rail mounting with 45 mm cut-out up to 80 A.
- Up to 800 V d.c.
- IP20 devices and accessories.

➲ Conformity to standards

- IEC 60947-3
- EN 60947-3
- VDE 0660-107 (1992)
- IEC 60364-4-410 (They provide safety disconnection and protection against overcurrents)
- IEC 60364-7-712 (Buildings electrical installations - Part 7-712: rules for special locations - Solar photovoltaic power supplies (PV)

➲ Available on request

- Other rating: consult us.
- Enclosed devices: consult us.

References

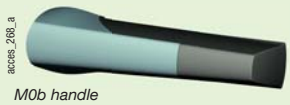
Front and side operation

Voltage (V d.c.)	Rating (A)	No. of poles	Switch body	Direct handle	External front handle	External right side handle	External left side handle	Shaft for external front and side handle	Auxiliary contacts	Bridging bar
600	63 A	3 P	22PV **3106**	M0b Blue 2299 **5042**(1) M0 Blue 2299 **5022**	S0 type Black IP55 1491 **0111**(1)(2) Black IP65 1493 **0111**(2) Red/Yellow IP65 1494 **0111**(2)	S0 type Black IP55 1491 **0111** Black IP65 1493 **0111** Red/Yellow IP65 1494 **0111**	S0 type Black IP65 149A **9111** Red/Yellow IP65 149B **9111**	S0 type 150 mm 1409 **0615** 200 mm 1409 **0620** 320 mm 1409 **0632**	1 contact NO + NC 2299 **0001**(3) 1 contact 2 NC 2299 **0011**(3)	2 pieces 2209 **0016**
	80 A	3 P	22PV **3108**							
800	63 A	4 P	22PV **4106**		S1 type Black IP55 1411 **2111**(2) Black IP65 1413 **2111**(2) Red/Yellow IP65 1414 **2111**(2)	S1 type Black IP55 1415 **2111** Black IP65 1417 **2111** Red/Yellow IP65 1418 **2111**	S1 type Black IP65 141A **2111** Red/Yellow IP65 141B **2111**	S1 type 200 mm 1401 **0620** 320 mm 1401 **0632** 400 mm 1401 **0640**	1 contact NC 3999 **0701** 1 contact NO 3999 **0702**	2 pieces 2209 **2016**
	80 A	4 P	22PV **4108**							

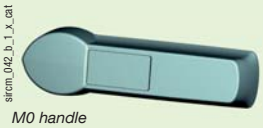
(1) Standard.
(2) Defeatable handle.
(3) Signalling contact only.

Accessories

Direct operation handle



M0b handle



M0 handle

Direct handle type M0b

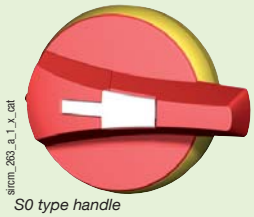
Rating (A)	Handle colour	Reference
63 ... 80	Blue	2299 **5042**(1)

Type M0 direct reduced handle

Rating (A)	Handle colour	Reference
63 ... 80	Blue	2299 **5022**

(1) Standard.

External operation handle



S0 type handle



S1 type handle

S0 type handle - Front and right side operation I - 0

Rating (A)	Handle	Handle colour	External IP(1)	Reference
63 ... 80	S0 type	Black	IP55	1491 **0111**(2)
63 ... 80	S0 type	Black	IP65	1493 **0111**(2)
63 ... 80	S0 type	Red/Yellow	IP65	1494 **0111**(2)

S0 type handle - Left side operation I - 0

Rating (A)	Handle	Handle colour	External IP(1)	Reference
63 ... 80	S0 type	Black	IP65	149A **9111**
63 ... 80	S0 type	Red/Yellow	IP65	149B **9111**

S1 type handle - Front operation I - 0

Rating (A)	Handle	Handle colour	External IP(1)	Reference
63 ... 80	S1 type	Black	IP55	1411 **2111**(2)
63 ... 80	S1 type	Black	IP65	1413 **2111**(2)
63 ... 80	S1 type	Red/Yellow	IP65	1414 **2111**(2)

S1 type handle - Right side operation I - 0

Rating (A)	Handle	Handle colour	External IP(1)	Reference
63 ... 80	S1 type	Black	IP55	1415 **2111**
63 ... 80	S1 type	Black	IP65	1417 **2111**
63 ... 80	S1 type	Red/Yellow	IP65	1418 **2111**

S1 type handle - Left side operation I - 0

Rating (A)	Handle	Handle colour	External IP(1)	Reference
63 ... 80	S1 type	Black	IP65	141A **2111**
63 ... 80	S1 type	Red/Yellow	IP65	141B **2111**

(1) IP: Degree of protection according to standard IEC 60529.
(2) Defeatable handle.

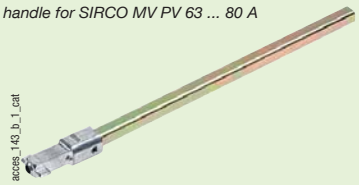
Use
The door interlocked external operation handle includes a padlockable handle, a conversion kit and must be combined with a shaft extension.
In a combiner box, located close to the solar cell strings, or located close to the inverter, we recommand the use of a door interlocked external handle for its safety features.

Example
The locking function of the enclosure in the "ON" position will force the operator to safely disconnect and isolate the solar cell strings prior to any intervention.
Opening the door when the switch is on "ON" position is possible by defeating the interlocking function with the use of a tool (authorized persons only).
The interlocking function is restored when the door is closed back.

Shaft for external handle



Shaft for S0 type handle for SIRCO MV PV 63 ... 80 A



Shaft for S1 type handle for SIRCO MV PV 63 ... 80 A

Use

Standard lengths:
- 150 mm
- 200 mm
- 320 mm
- 400 mm

Other lengths: consult us.

For SIRCO MV PV

Rating (A)	Handle type	Shaft length (mm)	Reference
63 ... 80	S0 type	150 mm	1409 **0615**
63 ... 80	S0 type	200 mm	1409 **0620**
63 ... 80	S0 type	320 mm	1409 **0632**
63 ... 80	S1 type	200 mm	1401 **0620**
63 ... 80	S1 type	320 mm	1401 **0632**
63 ... 80	S1 type	400 mm	1401 **0640**

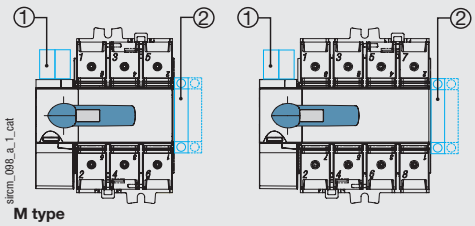
Auxiliary contacts



M type



U type



M type

Auxiliary contacts configurations for SIRCO MV PV
1. Maximum 2 "U" type auxiliary contacts
2. Maximum 4 "M" type auxiliary contacts

Use

M type

Signalisation of positions 0 and I by NO+NC or 2 NO auxiliary contacts. They can be mounted on the right side on the SIRCO MV PV.
Max 4 auxiliary contacts (2 modules).

U type

Pre-break and signalisation by NO or NC auxiliary contact can be mounted on the device.
Max 2 auxiliary contacts.

M type

Rating (A)	Contact(s)	Contact type	Reference
63 ... 80	1 AC	NO + NC	2299 **0001**(1)
63 ... 80	1 AC	2 NC	2299 **0011**(1)

(1) Signalling contact only.

U type

Rating (A)	Contact(s)	Contact type	Reference
63 ... 80	1 AC	NC	3999 **0701**
63 ... 80	1 AC	NO	3999 **0702**

Terminal shrouds

Use

Top and bottom protection against direct contact with the connection parts.

Advantage

Perforations allowing remote thermographic inspection without removal.
The terminal shrouds also provide phase separation.

For SIRCO MV PV

Rating (A)	No. of poles	Position	Reference
63 ... 80	3 P	top and bottom	2294 **3016**
63 ... 80	4 P	top and bottom	2294 **4016**

Bridging bars to connect poles in series

Use

The bridging bars will make easy the connection of the poles in series, allowing the following configurations:
- Bottom / Bottom
- Top / Top
- Top / Bottom
- Bottom / Top

Connection diagrams, see "Poles in series connection diagram", page 93.

Rating (A)	Pack	Reference
63 ... 80	1 piece	2209 **0016**
63 ... 80	2 pieces	2209 **2016**

Enclosed switches

Our SIRCO MV PV can be delivered enclosed, please consult us. Close to the installation, they guarantee:
- Disconnection under DC load between the inverters and PV generators (necessary according to the IEC 60364-712 standard).

For local safety disconnection, SOCOMEC - a leader on the market - offers the widest range of enclosed switches. Whatever the level of safety is, we are able to meet all your requirements (disconnection, switching for mechanical maintenance, emergency breaking).
- Enclosed solar load break switches
- Enclosed fuse combination switches
- Enclosed changeover switches
- Complete integrated equipment.

Available on request:
- Enclosures made of steel or stainless steel sheet metal (painted for sea environments or brushed), insulating materiels
- Specific colors (enclosure paint, handle)
- Specific dimensions
- Specific connections: classe II quick connectors.

For any request of customised products, please consult us.

➲ Characteristics according to IEC 60947-3

63 to 80 A

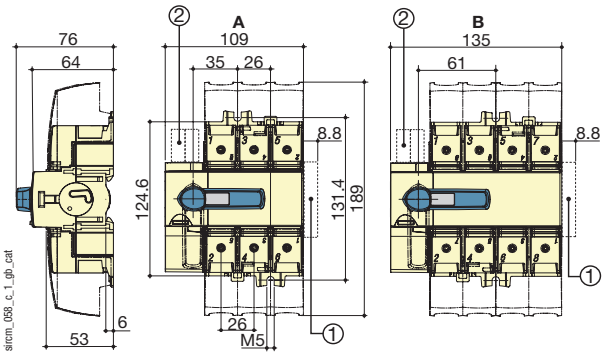
Thermal current I_{th} (40°C)			**63 A**	**80 A**
Rated insulation voltage U_i (V)			1 000	1 000
Rated impulse withstand voltage U_{imp} (kV)			8	8
Rated operational currents Ie (A)				
Rated voltage	No. of poles	Number of pole in series per polarity	(A)	(A)
600 V d.c.	3 P	2 P + and 1 P -	63	80
800 V d.c.	4 P	2 P + and 2 P -	63	80
Short-circuit capacity				
Rated short-time withstand current 0.3 s. I_{cw} (kA eff.)			7	7
Rated peak withstand current (kA peak)(1)			12	12
Connection				
Maximum Cu cable section (mm^2)			70	70
Tightening torque min (Nm)			4	4
Tightening torque max (Nm)			5	5
Mechanical characteristics				
Operating effort (Nm)			4	4
Weight of a 3 poles device (kg)			0.7	0.7
Weight of a 4 poles device (kg)			0.9	0.9

(1) For a rated operational voltage U_e = 400 V a.c.

➲ Dimensions

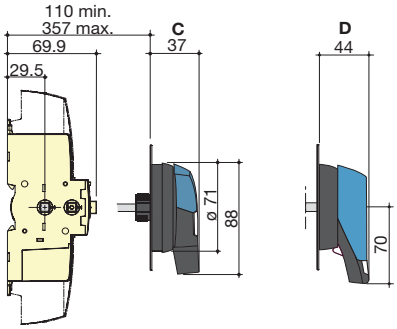
SIRCO MV PV 63 to 80 A

Direct front operation



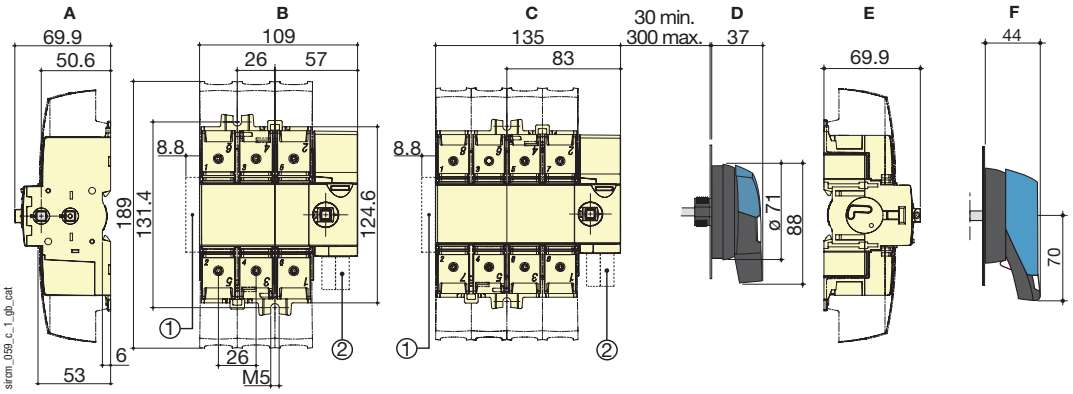
A. 3 poles
B. 4 poles
C. S0 type handle
D. S1 type handle

External front operation



1. Maximum 4 "M" type auxiliary contacts
2. Maximum 2 "U" type auxiliary contacts

External side operation

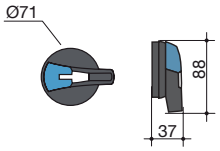
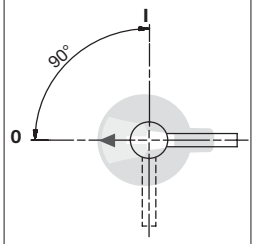
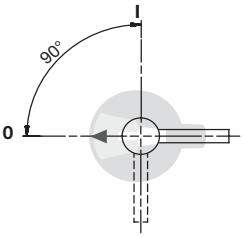
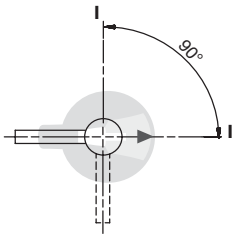
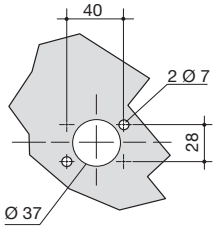
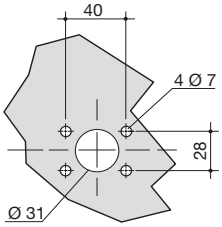
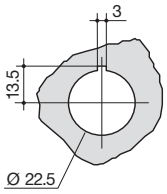
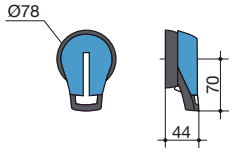
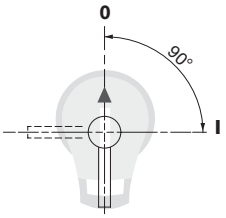
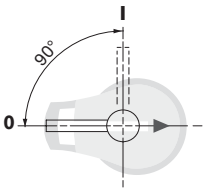
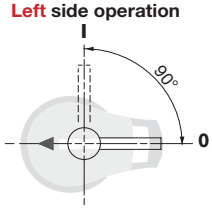
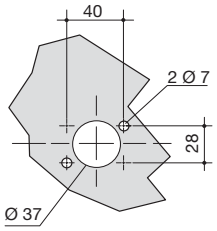
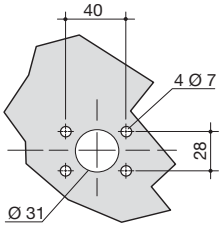


A. Right side operation
B. 3 poles
C. 4 poles
D. S0 type handle
E. Left side operation
F. S1 type handle

1. Maximum 4 "M" type auxiliary contacts
2. Maximum 2 "U" type auxiliary contacts

➲ Dimensions for external handles

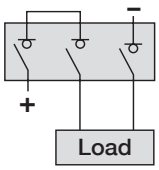
SIRCO MV PV 63 to 80 A

Handle type	Front operation Direction of operation	Side operation Direction of operation	Door drilling
S0 type Load break switches 		**Right side operation**  **Left side operation** 	IP55 with 2 fixing clips  IP65 with 4 fixing screws  With fixing nut 
S1 type Load break switches 		**Right side operation**  **Left side operation** 	IP55 with 2 fixing clips  IP65 with 4 fixing screws 

sircm_179_a_1_gb_cat

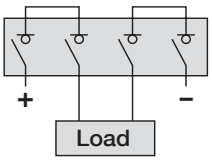
➲ Pole in series connection diagrams(1)

3 poles - bottom / top



sirco_305_b_1_gb_cat

4 poles - bottom / bottom



sirco_307_b_1_gb_cat

(1) Other connections: refer to mounting instructions.



750 V d.c. and 1000 V d.c. Photovoltaic Switch 100 to 800 A

➲ Function

SIRCO PV are manually operated multipolar load break switches.
They make and break under load conditions and provide safety isolation for any low voltage of photovoltaic applications.

➲ General characteristics

- Patented switching technology.
- Fully visualised breaking.
- DIN rail or panel mounting.
- Up to 1000 V d.c.

➲ Available on request

- Other rating: consult us.
- Enclosed devices: consult us.

➲ Conformity to standards

- IEC 60947-3
- EN 60947-3
- VDE 0660-107 (1992)
- IEC 60364-4-410 (They provide safety disconnection and protection against overcurrents)
- IEC 60364-7-712 (Buildings electrical installations - Part 7-712: rules for special locations - Solar photovoltaic power supplies (PV)

➲ References

Front operation

Voltage (V d.c.)	Rating (A)	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Auxiliary contacts	Bridging bars
750	100 A	3 P	26PV **3010**	Black 2699 **5052**(1) Red 2699 **5053**	Type S2 Black IP55 1421 **2111**(1) Type S2 Black IP65 1423 **2111** Type S2 Red IP65 1424 **2111**	200 mm 1400 **1020** 320 mm 1400 **1032**(1) 500 mm 1400 **1050**	1st contact NO/NC 2699 **0031** 2nd contact NO/NC 2699 **0032**	2609 **0025**
	125 A		26PV **3012**					
	160 A		26PV **3016**					
	200 A		26PV **3020**					
	250 A		26PV **3025**					
	315 A		26PV **3031**					
	400 A		26PV **3040**					2609 **2050**
	500 A		26PV **3050**					
	630 A		26PV **3063**					2609 **0080**
	800 A		26PV **3080**					
1000	100 A	4 P	26PV **4010**					2609 **2025**
	125 A		26PV **4012**					
	160 A		26PV **4016**					
	200 A		26PV **4020**					
	250 A		26PV **4025**					
	315 A		26PV **4031**					
	400 A		26PV **4040**					2609 **4050**
	500 A		26PV **4050**					
	630 A		26PV **4063**					2609 **2080**
	800 A		26PV **4080**					

(1) Standard.

➲ Accessories

Direct handle



Direct handle

Rating (A)	Handle colour	Reference(1)
100 … 800	Black	2699 **5052**(2)
100 … 800	Red	2699 **5053**

(1) IP: Degree of protection according to standard IEC 60529.
(2) Standard.

External handle



S2 type handle

Use
The door interlocked external operation handle includes a padlockable handle, a conversion kit and must be combined with a shaft extension.
In a combiner box, located close to the solar cell strings, or located close to the inverter, we recommande to use a door interlocked external handle for its safety features.

Example
The locking function of the enclosure in the "ON" position will force the operator to safely disconnect and isolate the solar cell strings prior to any intervention.
Opening the door when the switch is on "ON" position is possible by defeating the interlocking function using a tool (authorized persons only).
The interlocking function is restored when the door is closed back.

Front operation

Rating (A)	Handle	Handle colour	External IP(1)	Reference
100 … 800	S2 type	Black	IP55	1421 **2111**(2)
100 ... 800	S2 type	Black	IP65	1423 **2111**
100 … 800	S2 type	Red	IP65	1424 **2111**

(1) IP: Degree of protection according to standard IEC60529 standard.
(2) Standard.

Shaft guide for external operation

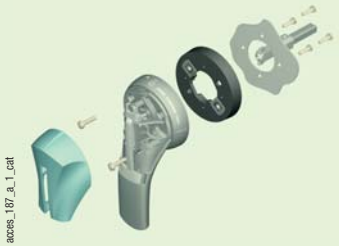


Use
To guide the shaft extension into the external handle.
This accessory enables handle to engage extension shaft with a misalignment of up to 15 mm.
Required for a shaft lenght over 320 mm.

Description	Reference(1)
Shaft guide	1429 **0000**

(1) IP: Degree of protection according to standard IEC 60529.

S type handle adapter



Use
Enables S type handles to be fitted in place of existing older style SOCOMEC handles. Adapter can also be utilised as a spacer to increase the distance between the panel door and the handle lever.

Dimensions
Adds 12 mm to the depth.

Handle color	External IP(1)	To be ordered per batch of	Reference(1)
Black	IP65	10	1493 **0000**

(1) IP: Degree of protection according to standard IEC 60529 standard.

Alternative S type handle cover colors

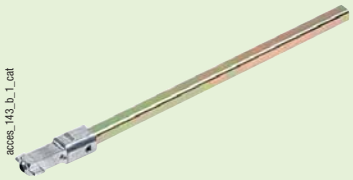


Use
For single lever handles type S1, S2.
Other colors: consult us.

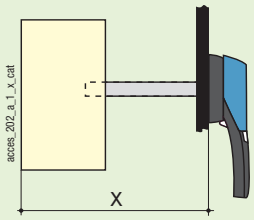
Handle color	To be ordered per batch of	Handle	Reference(1)
Light grey	50	Type S1, S2	1401 **0001**
Dark grey	50	Type S1, S2	1401 **0011**

(1) IP: Degree of protection according to standard IEC 60529.

Shaft for external operation



Shaft for SIRCO PV 100 ... 800 A



Use
Standard lengths:
- 200 mm
- 250 mm
- 320 mm
- 500 mm
- 750 mm

Other lengths: consult us.

For 3/4 poles

Rating (A)	Dimension X (mm)	Shaft length (mm)	Reference
100 ... 800	135 ... 265	200 mm	1400 **1020**
100 ... 800	135 ... 315	250 mm	1400 **1025**
100 ... 800	135 ... 385	320 mm	1400 **1032**
100 ... 800	135 ... 565	500 mm	1400 **1050**
100 ... 800	135 ... 880	750 mm	1400 **1075**

Auxiliary contacts



Use
Pre-break and signalling of positions 0 and I:
- 1 to 2 NO/NC auxiliary contacts,
- 1 to 4 NO + NC auxiliary contacts,
- 1 to 2 low level NO/NC auxiliary contacts.

Characteristics
NO/NC AC: IP2 with front operation.

Connection to the control circuit
By 6.35 mm fast-on terminal.

Electrical characteristics
30 000 operations.

References

NO/NC contact for 3/4 poles

Rating (A)	Position AC	Reference
100 … 800	1st	2699 **0031**
100 … 800	2nd	2699 **0032**

NO+NC contact for 3/4 poles

Rating (A)	Position AC	Reference
100 … 800	1st	2699 **0141**
100 … 800	2nd	2699 **0142**

Low level NO/NC contact for 3/4 poles

Rating (A)	Position AC	Reference
100 … 800	1st	2699 **0301**
100 … 800	2nd	2699 **0302**

Characteristics according to IEC 60947-5-1

Rating (A)	Contact type	Current nominal (A)	Operating current I_e (A) 230 VAC AC-12	AC-13/15	400 VAC AC-12	AC-13/15	24 VDC DC-12	DC-13	DC-14	48 VDC DC-12	DC-13	DC-14
100 … 800	NO/NC	16	16	4	12	3	2.5	2.5	1	2.5	1.2	0.2
100 … 800	NO + NC	16	16	4	16	3	16	5	1	2.5	1.2	0.2

Door mounting kit

Use
This kit allows easy door mounting for the SIRCO PV range.

For 3/4 poles direct front operation

Rating (A)	No. of poles	Reference
100 ... 500	3 P	2699 **3420**
100 ... 500	4 P	2699 **4420**

Terminal shrouds


acces_077_a_1_cat

Use
Top or bottom protection against direct contact with terminals or connection parts.

Advantage
Perforations allowing remote thermographic inspection without removal.
The terminal shrouds also provide phase separation for SIRCOs PV from 100 to 800 A.

For 3/4 poles

Rating (A)	No. of poles	Position	Reference
100 ... 500	3 P	top / bottom	2694 **3021**
100 ... 500	4 P	top / bottom	2694 **4021**
630 ... 800	3 P	top / bottom	2694 **3051**
630 ... 800	4 P	top / bottom	2694 **4051**

Terminal screens


acces_079_a_1_cat

Use
Top or bottom protection against direct contact with terminals or connection parts.

For 3/4 poles

Rating (A)	No. of poles	Position	Reference
100 ... 500	3 P	top / bottom	2698 **3020**
100 ... 500	4 P	top / bottom	2698 **4020**
630 ... 800	3 P	top / bottom	2698 **3050**
630 ... 800	4 P	top / bottom	2698 **4050**

Inter phase barrier


acces_036_a_1_cat

Use
Safety isolation between the terminals.
For 100 to 800 A Photovoltaic SIRCO, the inter phase barriers allow insulation between poles connected in series.

Rating (A)	No. of poles	Reference
100 ... 500	3 P	2998 **0023**
100 ... 500	4 P	2998 **0024**
630 ... 800	3 P	2998 **0013**
630 ... 800	4 P	2998 **0014**

Bridging bars for connecting poles in series

Use
The bridging bars will make easy the connection of the poles in series, allowing the following configurations:
- Bottom / Bottom
- Top / Top
- Top / Bottom
- Bottom / Top

Connection diagrams, see "Poles in series connection diagram", page 99.

Rating (A)	Pack	Number of poles of the device in series	Reference
125 ... 315	1 piece(1)	2	2609 **0025**
125 ... 315	2 pieces(2)	4	2609 **2025**
400 ... 500	2 pieces(1)	2	2609 **2050**
400 ... 500	4 pieces(2)	4	2609 **4050**
630 ... 800	1 piece(1)	2	2609 **0080**
630 ... 800	2 pieces(2)	4	2609 **2080**

(1) Connection in series of 2 poles of the device
(2) Connection in series of 4 poles of the device

Handle key interlocking accessories

Fig. 1

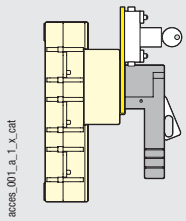
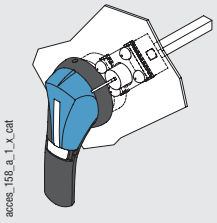

acces_001_a_1_x_cat

Fig. 3


acces_158_a_1_x_cat

Use
Locking in position 0 of the front operation handle prior to any intervention on the photovoltaic installation:
- using a padlock (not supplied) and the factory integrated padlocking function of the handle. From 100 to 800 A, the padlock on the external front operation handle will also lock the door,
- using padlock (not supplied): see diagrams opposite,
- using undervoltage coil: the SIRCO PV can only be switched in position "OFF" when the coil is supplied.

Locking using RONIS EL11AP lock (not supplied)

Rating (A)	No. of poles	Operation	Figure	Reference
100 … 800	3/4 P	direct front	1	2699 **6008**(1)
100 … 800	3/4 P	external front	3	1499 **7701**

(1) Front operation handle included.

Locking using 230 V a.c. undervoltage coil (other voltages: please consult us)

Rating (A)	No. of poles	Operation	Reference
100 … 800	3/4 P	external front	2699 **9063**(1)

(1) The locking system is directly mounted on the device.

Customised solutions


coff_343_a

When they are not being mounted into larger panels, load break switches, changeover switches or fuse combination switches are generally delivered in their own enclosure. Close to the installation, they guarantee:

• Disconnection under PV load between inverters and PV generators (necessary according to IEC 60364-712 standard).

For local safety disconnection, SOCOMEC - a leader on the market - offers the widest range of enclosed switches. Whatever the level of safety is, we are able to meet all your requirements (disconnection, switching for mechanical maintenance, emergency breaking).

Enclosed PV load break switches
Enclosed PV fuse combination switches
Enclosed PV changeover switches
Complete integrated equipments.

Available on request:
- Enclosures made of steel or stainless steel sheet metal (painted for sea environments or brushed), insulating materials
- Specific colors (enclosure paint, handle)
- Specific dimensions
- Specific connections: speed class II connectors

For any request of customised products, please consult us.

Other specific accessories


bd_03_04_01

• Mechanical coupling system to get mutipolar switches of the same or different ratings.
• Mechanical interlocking device.

➲ Characteristics according to IEC 60947-3

100 to 800 A

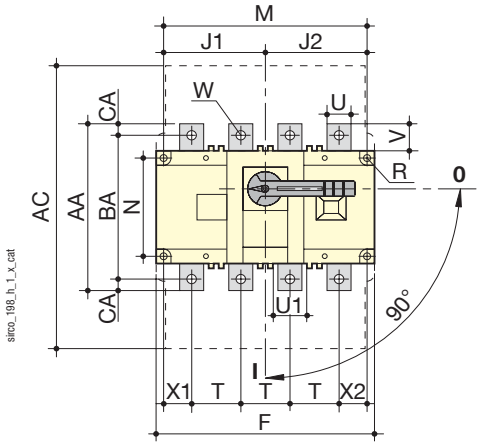
Thermal current I_{th} (40°C)			**100 A**	**125 A**	**160 A**	**200 A**	**250 A**	**315 A**	**400 A**	**500 A**	**630 A**	**800 A**
Rated insulation voltage U_i (V)			1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200	1 200
Rated impulse withstand voltage U_{imp} (kV)			12(1)	12(1)	12(1)	12(1)	12(1)	12(1)	12(1)	12(1)	12	12
Rated operational currents Ie (A)												
Rated voltage	No. of poles	Number of pole in series per polarity	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
750 V d.c.	3 P	2 P + and 1 P -	100	125	160	200	250	315	400	500	630	800
1 000 V d.c.	4 P	2 P + and 2 P -	100	125	160	200	250	315	400	500	630	800
Overload capacity												
Rated short-time withstand current 0.3 s. I_{cw} (kA eff)(2)			17	17	17	17	17	17	17	17	25	25
Rated peak withstand current (kA peak)(2)			30	30	30	30	30	30	30	30	45	45
Connection												
Maximum Cu cable section (mm^2)			50	50	95	95	120	185	240	2 x 150	2 x 185	2 x 240
Maximum Cu busbar width (mm)			32	32	32	32	32	32	32	32	40	50
Tightening torque min (Nm)			20	20	20	20	20	20	20	20	40	40
Tightening torque max (Nm)			26	26	26	26	26	26	26		45	45
Mechanical characteristics												
Durability (number of operating cycles)			10 000	10 000	10 000	10 000	10 000	10 000	5 000	5 000	5 000	5 000
Operating effort (Nm)			10	10	10	10	10	10	10	10	14.5	14.5
Weight of a 3 pole device (kg)			2	2	2	2	2	2	2	2	3.5	3.5
Weight of a 4 pole device (kg)			2	2	2	2	2	2	2	2	4	4

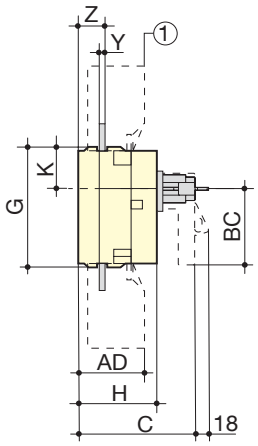
(1) The delivered spacers have to be installed.
(2) For a rated operational voltage U_e = 400 V a.c.

Dimensions

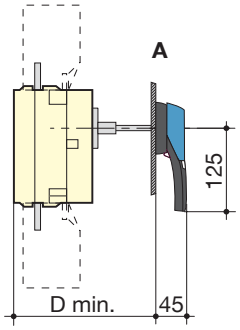
SIRCO PV 100 to 800 A

Direct front operation





External front operation



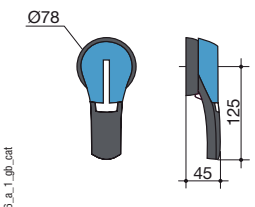
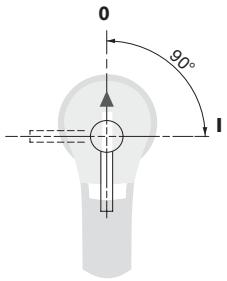
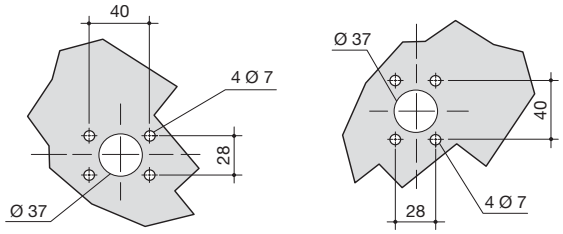
1. Terminal shrouds
A. S2 type handle

Rating (A)	Overall dimensions C	Overall dimensions D min	Terminal shrouds AC	Terminal shrouds AD	Switch body F 3p.	Switch body F 4p.	Switch body G	Switch body H	Switch body J1 3p.	Switch body J1 4p.	Switch body J2	Switch body K	Switch body BC	Switch mounting M 3p.	Switch mounting M 4p.	Switch mounting N	Switch mounting R	Connection T	Connection U	Connection U1	Connection V	Connection W	Connection X1 3p.	Connection X1 4p.	Connection X2	Connection Y	Connection Z	Connection AA	Connection BA	Connection AC
100	125	135	280	60	180	230	108	75	55	105	105	34	115	160	210	80	5.5	50	25	25.5	30	11	33	33	27	3.5	22.5	160	130	15
125	125	135	280	60	180	230	108	75	55	105	105	34	115	160	210	80	5.5	50	25	25.5	30	11	33	33	27	3.5	22.5	160	130	15
160	125	135	280	60	180	230	108	75	55	105	105	34	115	160	210	80	5.5	50	25	25.5	30	11	33	33	27	3.5	22.5	160	130	15
200	125	135	280	60	180	230	108	75	55	105	105	34	115	160	210	80	5.5	50	25	25.5	30	11	33	33	27	3.5	22.5	160	130	15
250	125	135	280	60	180	230	108	75	55	105	105	34	115	160	210	80	5.5	50	25	25.5	30	11	33	33	27	3.5	22.5	160	130	15
315	125	135	280	60	180	230	108	75	55	105	105	34	115	160	210	80	5.5	50	35	25.5	30	11	33	33	27	3.5	22.5	160	130	15
400	125	135	280	60	180	230	108	75	55	105	105	34	115	160	210	80	5.5	50	35	25.5	30	11	33	33	27	3.5	22.5	160	130	15
500	125	135	280	60	180	230	108	75	55	105	105	34	115	160	210	80	5.5	50	35	25.5	30	11	33	33	27	3.5	22.5	160	130	15
630	160	165	400	89	230	290	170	110	75	135	135	55	115	210	270	140	7	65	45	45.5	50	13	42.5	37.5	37.5	5	36	260	220	20
800	160	165	400	89	230	290	170	110	75	135	135	55	115	210	270	140	7	65	45	45.5	50	13	42.5	37.5	37.5	5	36	260	220	20

Dimensions for external handles

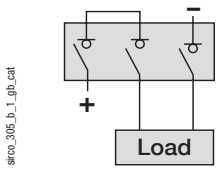
SIRCO PV 100 to 800 A

Dimensions for external handles

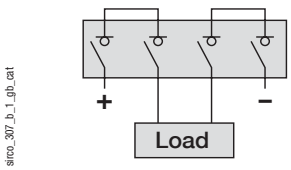
Handle type	Front operation Direction of operation	Door drilling
S2 type 		

Poles in series connection diagram(1)

3 poles - bottom / top



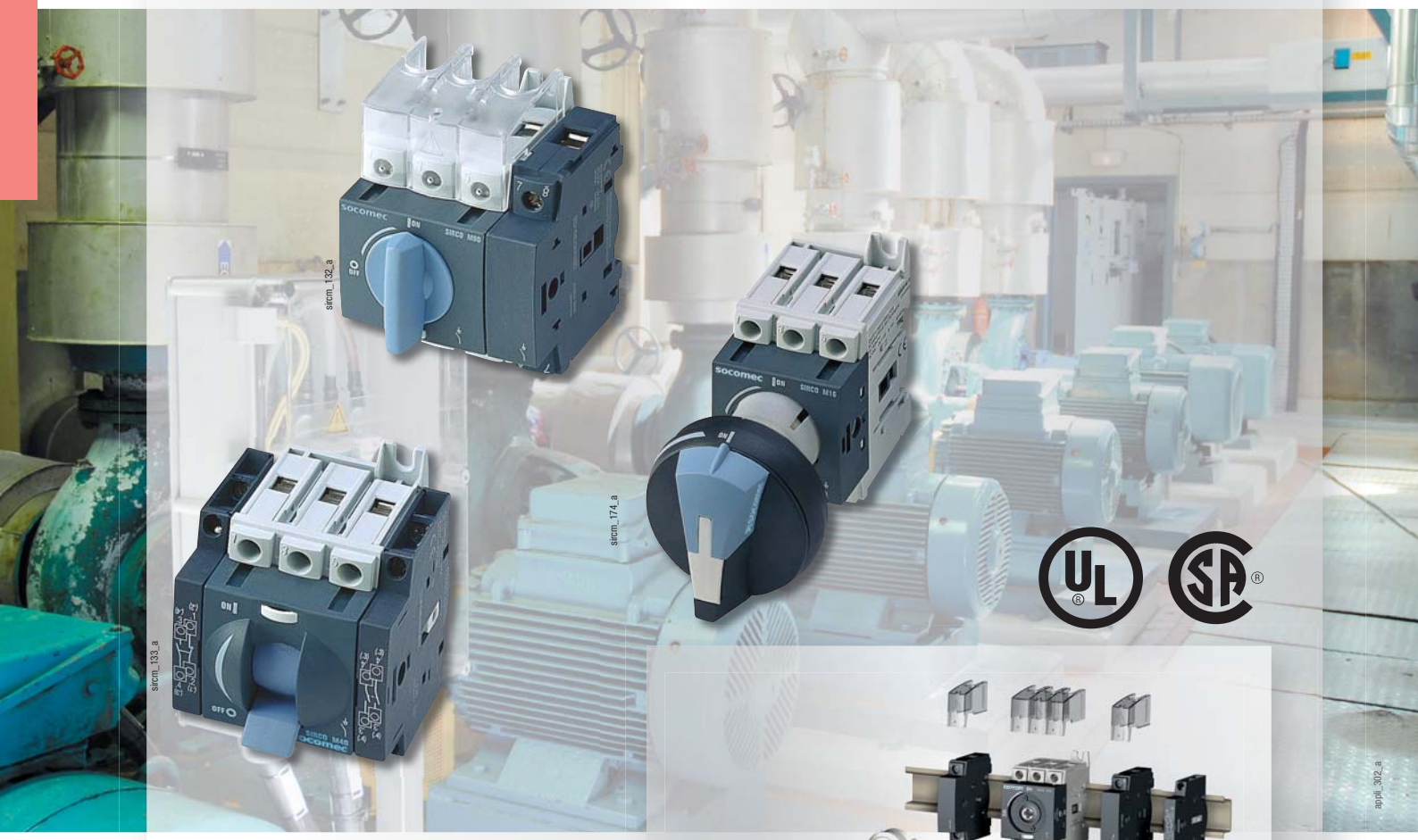
4 poles - bottom / bottom



(1) Other connections: refer to mounting instructions.

SIRCO M UL508

Load break switches standards UL and CSA





16 to 80 A

➲ Function

SIRCO M UL/CSA non fusible disconnect switches are compact modulable and modular switches. They make and break under load conditions and provide safety isolation for any low voltage circuit, particularly for machine and control circuits.



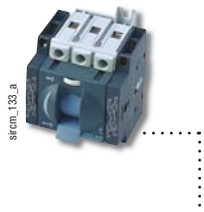
➲ General characteristics

- Direct or external operation
- Compact footprint
- DIN rail or base mount
- Wide range of accessories
- Up to 8 pole or 4 pole MTS

➲ Conformity to standards

- UL 508 listed, Guide NLRV, File E173959
- CSA C22.2§14, class 3211-05, File 112964
- IEC 60947-3

➲ References



UL508 manual motor controller "Suitable as motor disconnect"

Rating (A)	No. of poles	Toggle switch (direct handle included)	Rotary switch	Direct handle	External front and right side handles[4]	Shaft for external handles	Switched fourth pole module	Auxiliary contacts	Terminal shrouds	Door mounting kit
16 A	3 P	2205 **3000**	2200 **3000**	Blue 2299 **5012**	S00 type I - 0 Black 3R, 12[1] 1473 **1111** Red/Yellow 3R, 12[1] 1474 **1111** Black 4, 4X[1] 147D **1111** Red/Yellow 4, 4X[1] 147E **1111** S0 type I - 0 Black 1, 3R, 12[1] 1483 **1111** Red/Yellow 1, 3R, 12[1] 1484 **1111** Black 4, 4X[1] 148D **1111** Red/Yellow 4, 4X[1] 148E **1111**	S00 and S0 type 150 mm 5.9 in 1407 **0515** 200 mm 7.9 in 1407 **0520** 320 mm 12.6 in 1407 **0532**[2]	1 P 2200 **1000**	M type 1 AC NO + NC 2299 **0001** 1 AC 2 NC 2299 **0011**	1 P 2294 **1005**[3] 3 P 2294 **3005**[3]	2299 **3409**
20 A	3 P	2205 **3001**	2200 **3001**				1 P 2200 **1001**			
25 A	3 P	2205 **3002**	2200 **3002**				1 P 2200 **1002**			
32 A	3 P	2205 **3003**	2200 **3003**				1 P 2200 **1003**			
40 A	3 P	2205 **3004**	2200 **3004**				1 P 2200 **1004**			
63 A	3 P	2205 **3006**	2200 **3006**				1 P 2200 **1006**		1 P 2294 **1009**[3] 3 P 2294 **3009**[3]	
80 A	3 P	2205 **3008**	2200 **3008**				1P 2200 **1008**			

(1) Nema type.
(2) Please order the shaft guide: 1419 0000 with the shaft.
(3) Top and bottom.
(4) There is no door interlocking when the switch is fitted on the side of the enclosure.

UL508 non-metallic polycarbonate 4, 4X enclosed SIRCO M



coff_368_a_1_cat

➲ Function

Enclosed **SIRCO M** switches allow safe control and safe disconnect on of any motor application.

➲ Conformity to standards

- UL508, Guide NLRV, file E173959
- CSA C22.2#14, Class 3211-05, file 702154
- IEC 60947-3

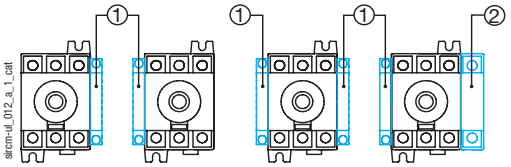
➲ General characteristics

- Grey enclosure with red handle.
- Equipped with a 3 pole SIRCO M.
- 1 removable earth terminal.
- Possibility of adding 1 power pole and 1 auxiliary contact.
- Nema type 1, 3R, 12, 4, 4X.

Rating (A)	No. of poles	Enclosed switches	Enclosure size	Switched fourth pole module	Unswitched neutral pole	Unswitched protective earth module	Auxiliary contacts	Terminal shrouds
32 A	3 P	2214 **3503**	Size 1	1 P 2200 **1003**	1 P 2200 **5005**	1 P 2200 **9005**	M type 1 AC NO + NC 2299 **0001**	1 P 2294 **1005**(1) 3 P 2294 **3005**(1)
	3 P	2224 **3503**	Size 2					
63 A	3 P	2224 **3506**	Size 2	1 P 2200 **1006**	1 P 2200 **5009**	1 P 2200 **9009**	1 AC 2 NC 2299 **0011**	1 P 2294 **1009**(1) 3 P 2294 **3009**(1)

(1) Top and bottom.

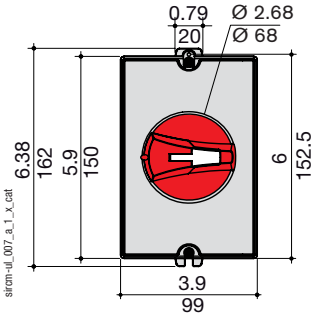
➲ Configuration



sircm-ul_012_a_1_cat

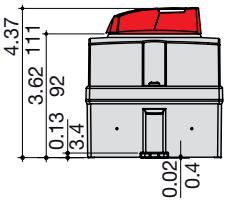
Configuration of the auxiliary contacts for enclosed SIRCO M.
1. M type auxiliary contacts.
2. Additional pole.

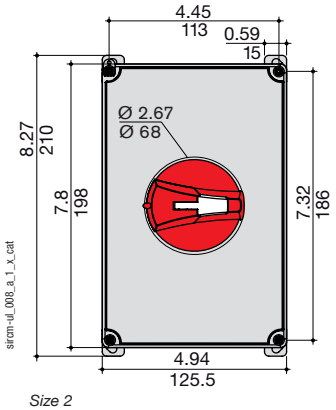
➲ Dimensions (in / mm)



sircm-ul_007_a_1_x_cat

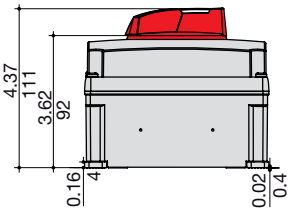
Size 1





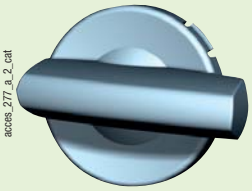
sircm-ul_008_a_1_x_cat

Size 2



➲ Accessories

Direct handle



Rating (A)	Handle colour	Handle	Reference
16 … 80	Blue	M00 type	2299 **5012**

External handle



S00 handle



S0 handle

Use
The handle locking function prevents the user from opening the door of the enclosure when the switch is in the "ON" position (only if the handle is fitted on the door).

Opening the door when the switch is in the "ON" position is possible by defeating the interlocking function with the use of a tool (authorized persons only).
The interlocking function is restored when the door is closed back.
The handle is padlockable with 3 padlocks.

Front and right side handles I - 0

Rating (A)	Handle colour	Handle	Nema type	Reference
16 … 80	Black	S00 type	3R, 12	1473 **1111**
16 … 80	Red/Yellow	S00 type	3R, 12	1474 **1111**
16 … 80	Black	S00 type	4, 4X	147D **1111**
16 … 80	Red/Yellow	S00 type	4, 4X	147E **1111**
16 … 80	Black	S0 type	1, 3R, 12	1483 **1111**
16 … 80	Red/Yellow	S0 type	1, 3R, 12	1484 **1111**
16 … 80	Black	S0 type	4, 4X	148D **1111**
16 … 80	Red/Yellow	S0 type	4, 4X	148E **1111**

Front handle for changeover switches I - 0 - II

Rating (A)	Handle colour	Handle	Nema type	Reference
16 … 80	Black	S00 type	4, 4X	1473 **1113**

Front handle for changeover switches I - I+II - II

Rating (A)	Handle colour	Handle	Nema type	Reference
16 … 80	Black	S00 type	4, 4X	1473 **1114**

Shafts for external handle



Use
Standard lengths:
- 150 mm,
- 200 mm,
- 320 mm.

Other lengths: please consult us.

For 3/4 pole switches, shaft extensions for external front and side handle.
For 6/8 pole switches and SIRCOVER M changeover switches.

For 3/4 pole

Rating (A)	Handle	Length (inches)	Length (mm)	Reference
16 ... 80	S00 type	5.9 in	150 mm	1407 **0515**
16 ... 80	S00 type	7.9 in	200 mm	1407 **0520**
16 ... 80	S00 type	12.6 in	320 mm	1407 **0532**

For 6/8 poles

Rating (A)	Handle	Length (inches)	Length (mm)	Reference
16 ... 80	S00 type	5.9 in	150 mm	1407 **0515**
16 ... 80	S00 type	7.9 in	200 mm	1407 **0520**
16 ... 80	S00 type	12.6 in	320 mm	1407 **0532**

Shaft guide for external handle

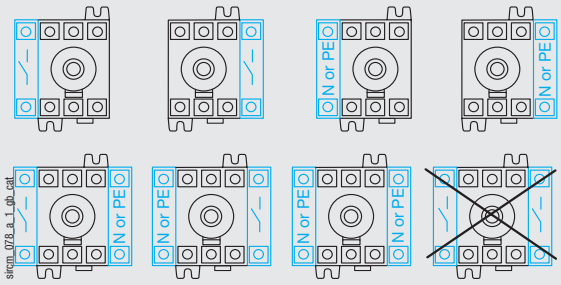


Use
This accessory enables handle to engage extension shaft with a misalignment of up to 15 mm.
Required for a shaft lenght from 320 mm.

Handle type	Reference
S00 and S0	1419 **0000**

Additional pole for SIRCO M





4th pole

Use
Transforms:
- 3 pole SIRCO M load break switches into a 4 pole,
- 3 pole SIRCOVER M changeover switches into a 4 pole.

Rating (A)	No. of poles	Type	Reference
16	1 P	switched	2200 **1000**
20	1 P	switched	2200 **1001**
25	1 P	switched	2200 **1002**
32	1 P	switched	2200 **1003**
40	1 P	switched	2200 **1004**
63	1 P	switched	2200 **1006**
80	1 P	switched	2200 **1008**

Solid neutral pole

Use
Transforms the 3-pole switch into a 3-pole + solid neutral.

Rating (A)	No. of poles	Type	Reference
16 … 40	1 P	unswitched	2200 **5005**
63 … 80	1 P	unswitched	2200 **5009**

Earth module

Use
Adds 1 protective earth module pole to the switch-disconnector.

Rating (A)	No. of poles	Type	Reference
16 … 40	1 P	unswitched	2200 **9005**
63 … 80	1 P	unswitched	2200 **9009**

Terminal shrouds

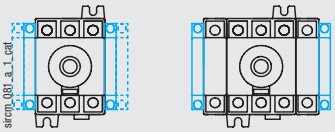


Use
Top and bottom additional protection against direct contact with the terminals or connection parts.
1 or 3 pole are available.
Perforation on each terminal cover enables remote thermographic inspection without dismantling.

Rating (A)	No. of poles	Position	Reference
16 … 40	1 P	top and bottom	2294 **1005**
16 … 40	3 P	top and bottom	2294 **3005**
63 … 80	1 P	top and bottom	2294 **1009**
63 … 80	3 P	top and bottom	2294 **3009**

M type Auxiliary Contacts


sircm_075_b_2_cat


sircm_081_a_1_cat

Auxiliary contacts configurations for SIRCO M

Use
Pre-break and signalisation of positions 0 and I by NO+NC or 2 NO Auxiliary Contacts.
They can be mounted on the left or on the right side of the device.
Max 4 Auxiliary Contacts per product (2 modules).

Characteristics
A300.

Rating (A)	Nb de CA	AC type	Reference
16 … 80	1 AC	NO + NC	2299 **0001**
16 … 80	1 AC	2 NC	2299 **0011**

Conversion kit


sircm_050_c_2_cat

Conversion kit for 6 or 8 pole load break switches


sircm_097_b_2_x_cat

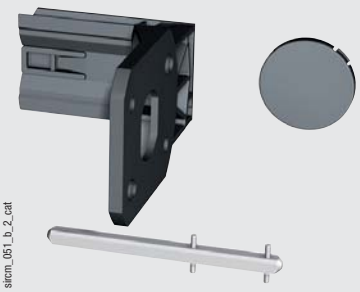
Conversion kit for 3 and 4-pole changeover switches (I - 0 - II) or (I - I+II - II)


sircm_086_b_1_cat

Use
These accessories enable the assembly of 2 switches in order to achieve:
- 6 or 8 pole switches
- 3 or 4 pole open or close transition changeover switches.

Rating (A)	Type	Reference
16 … 80	Load break switches 6/8 P	2269 **6009**
16 … 80	Changeover switch 3/4 pole (I - 0 - II)	2209 **6009**
16 … 80	Changeover switch 3/4 pole (I - I+II - II)	2299 **6009**

Door mounting kit


sircm_051_b_2_cat

Use
This kit enables direct mounting of the switch on the panel door or on the right or left side of the panel.
The external handle is quick and easy to install due to an internal locking nut mounted on the inside of the enclosure.

Rating (A)	No. of poles	Reference
16 … 80	3/4 P	2299 **3409**

➲ SIRCO M UL508 - Characteristics according to UL508/CSA22.2#14 suitable as motor disconnect

16 to 80 A

General use rating	16	20	25	32	40	63	80
Short circuit rating at 600 VAC (kA)	65	65	65	65	10/65	50/65	50/65
Type of fuse	J	J	J	J	J	J	J
Max fuse rating (A)	30	30	30	30	60/30	100/60	100/60
Max. motor hp / FLA 3 ph motor max.							
208 VAC	3 / 10.6	5 / 16.7	7.5 / 24.2	7.5 / 24.2	7.5 / 24.2	15 / 46.2	15 / 46.2
220-240 VAC	5 / 15.2	5 / 15.2	7.5 / 22	7.5 / 22	7,5 / 22	20 / 54	20 / 54
440-480 VAC	10 / 14	10 / 14	15 / 21	20 / 27	20 / 27	40 / 52	40 / 52
600 VAC	10 / 11	15 / 17	20 / 22	25 / 27	25 / 27	40 / 41	40 / 41
Connection terminals							
Solid - 1 wire	#14 - #10	#14 - #10	#14 - #10	#14 - #10	#14 - #10	#14 - #10	#14 - #10
Solid - 2 wires	2x #12	2x #12	2x #12	2x #12	2x #12	2x #12	2x #12
Stranded - 1 wire	#14 - #4	#14 - #4	#14 - #4	#14 - #4	#14 - #4	#14 - #1	#14 - #1
Stranded - 2 wires	2x (#14 - #12)	2x (#14 - #12)	2x (#14 - #12)	2x (#14 - #12)	2x (#14 - #12)	2x (#10 - #6)	2x (#10 - #6)
Auxiliary contacts							
Electrical characteristics	A300	A300	A300	A300	A300	A300	A300
Mechanical characteristics							
Endurance (number of operating cycles)	100 000	100 000	100 000	100 000	100 000	100 000	100 000
Operating torque (lbs.in/Nm)	7/0.8	7/0.8	7/0.8	7/0.8	7/0.8	8.9/1	8.9/1

➲ Characteristics according to IEC 60947-3

16 to 80 A

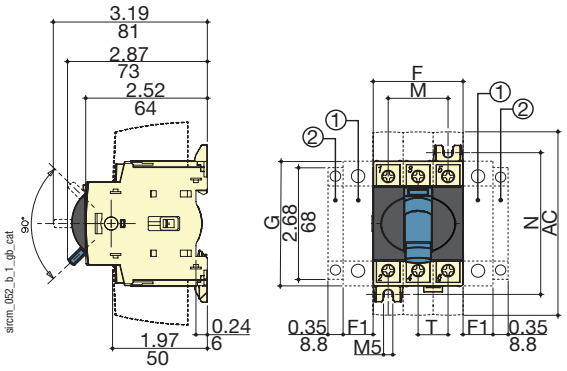
General use rating		16	20	25	32	40	63	80
Thermal current I_{th} (40°C)		16	20	25	32	40	63	80
Rated insulation voltage U_i (V)		800	800	800	800	800	800	800
Rated impulse withstand voltage U_{imp} (kV)		8	8	8	8	8	8	8
Rated operational currents I_e (A)								
Rated voltage	Load duty category	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)
415 VAC	AC-23 A / AC-23 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80
500 VAC	AC-22 A / AC-22 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80
500 VAC	AC-23 A / AC-23 B	16/16	20/20	25/25	25/25	25/25	63/63	63/63
690 VAC	AC-21 A / AC-21 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80
690 VAC	AC-22 A / AC-22 B	16/16	20/20	25/25	32/32	32/40	40/63	63/80
690 VAC	AC-23 A / AC-23 B	16/16	20/20	25/25	25/25	25/25	40/40	40/40
Operational power in AC-23 (kW)								
At 400 VAC without prebreaking AC in AC-23 (kW)(1)(2)		7.5	9	11	15	18.5	30	37
At 500 VAC without prebreaking AC in AC-23 (kW)(1)(2)		7.5	9	11	15	15	30	37
At 690 VAC without prebreaking AC in AC-23 (kW)(1)(2)		7.5	11	15	18.5	18.5	30	37
Fuse protected short-circuit withstand (kA rms prospective)								
Prospective short-circuit current (kA rms)(3)		50	50	50	50	50	50	50
Associated fuse rating (A)(3)		16	20	25	32	40	63	80
Overload capacity (U_e 415 VAC)								
Rated short-time withstand current 0.3 s. I_{cw} (kA rms)(3)		2.5	2.5	2.5	2.5	2.5	3	3
Rated short-circuit making capacity Icm (kA peak)(3)		6	6	6	6	6	9	9
Connection								
Minimum Cu cable cross section (mm^2)		1.5	1.5	1.5	1.5	1.5	2.5	2.5
Maximum Cu cable section (mm^2)		16	16	16	16	16	35	35
Tightening torque min / max (Nm)		2 / 2.2	2 / 2.2	2 / 2.2	2 / 2.2	2 / 2.2	3.5 / 3.85	3.5 / 3.85

(1) A/B: Category with index A = frequent operation - Category with index B = infrequent operation.
(2) The power value is given for information only, the current values vary from one manufacturer to another.
(3) For a rated operating voltage U_e = 400 VAC.

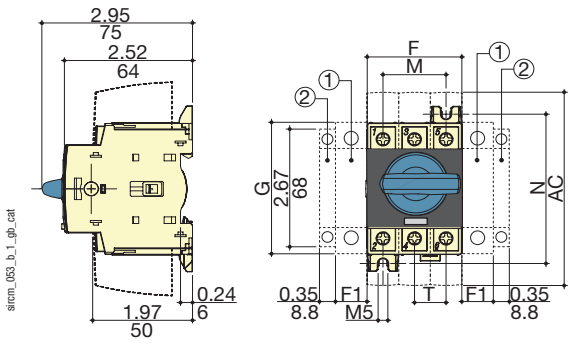
➲ SIRCO M UL508 - Dimensions (in / mm)

16 to 80 A

Toggle operation

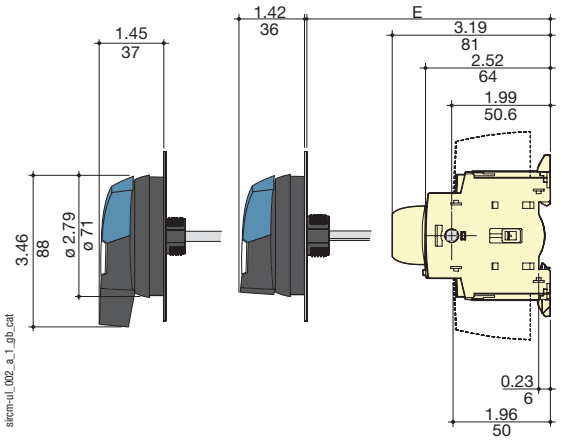


Direct operation with handle

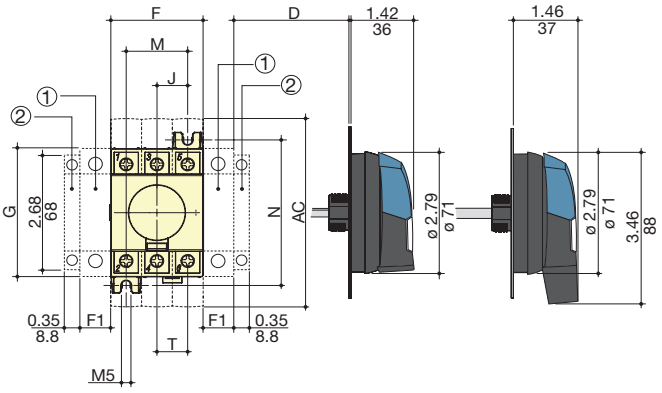


1. Position for 1 switched fourth pole module (1 per device max.) **or** *1 unswitched neutral pole* **or** *1 protective earth module* **or** *1 auxiliary contact.*
2. Position for 1 auxiliary contact only.
Note: Maximum of 4 additional blocks.

External front handle



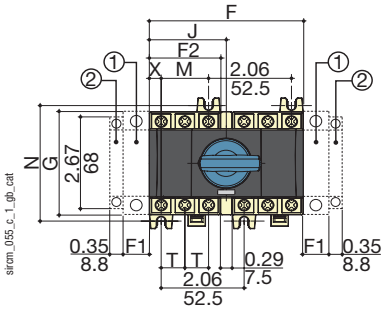
External side handle



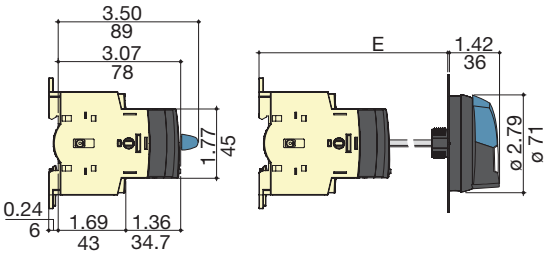
1. Position for 1 switched fourth pole module (1 per device max.) **or** *1 unswitched neutral pole* **or** *1 earth module* **or** *1 auxiliary contact.*
2. Position for 1 auxiliary contact only.
Note: Maximum of 4 additional blocks.

Rating (A)	Units	Overall dimensions D min	D max	E min	E max	Terminal shrouds AC	Switch body F	F1	G	J	Switch mounting M	N	Connection T
16 to 40	in	1.18	9.25	3.94	14.64	4.33	1.77	0.59	2.67	0.59	1.18	2.95	0.59
	mm	30	235	100	372	110	45	15	68	15	30	75	15
63 to 80	in	1.18	9.25	3.93	14.64	4.33	2.06	0.69	2.99	0.69	1.38	3.35	0.69
	mm	30	235	100	372	110	52.5	17.5	76	17.5	35	85	17.5

Direct front handle for 6/8-pole load break switches or 3/4-pole changeover switches



External front handle for 6/8-pole load break switches or 3/4-pole changeover switches

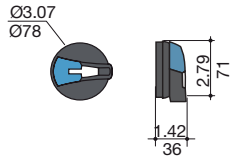
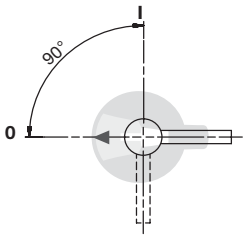
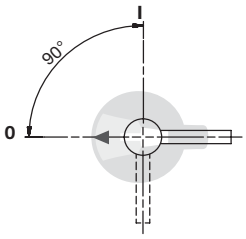
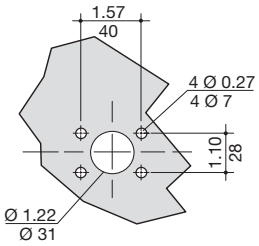
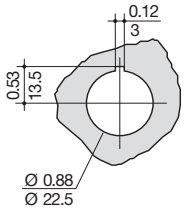


1. Position for 1 switched fourth pole module (1 per device max.) **or** *1 unswitched neutral pole* **or** *1 earth module* **or** *1 auxiliary contact.*
2. Position for 1 auxiliary contact only.
Note: Maximum of 4 additional blocks.

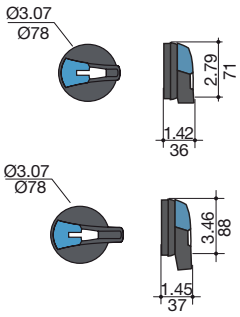
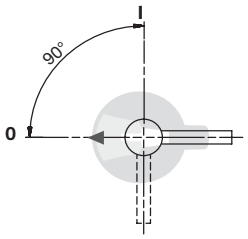
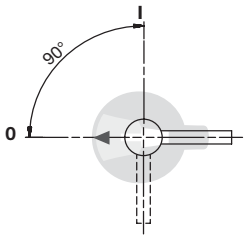
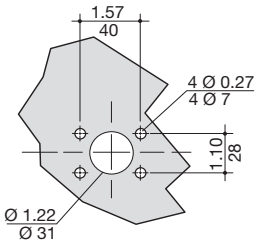
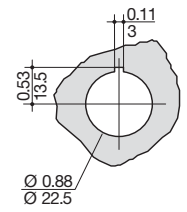
Rating (A)	Units	Overall dimensions E min	E max	Switch body F	F1	F2	G	J	Switch mounting M	N	Connection T	X
16 to 40	in	4.13	14.64	3.83	0.59	1.77	2.67	1.92	1.18	2.95	0.59	0.29
	mm	105	372	97.5	15	45	68	48.75	30	75	15	7.5
63 to 80	in	4.13	14.65	4.13	0.69	2.06	2.99	2.06	1.38	3.35	0.69	0.34
	mm	105	372	105	17.5	52.5	76	52.5	35	85	17.5	8.75

External handles dimensions (in / mm)

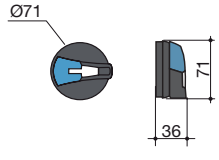
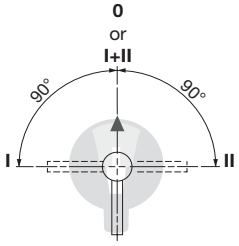
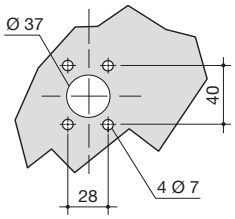
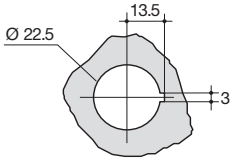
16 to 80 A

Handle type	Front operation Direction of operation	Side operation Direction of operation	Door drilling
S00 type Load break switches 			IP65 with 4 fixing screws  With fixing nut 

sircm-ul_015_a_1_gb_cat

Handle type	Front operation Direction of operation	Side operation Direction of operation	Door drilling
S00 / S0 type 			With 4 fixing screws  With fixing nut 

sircm-ul_014_a_1_gb_cat

Handle type	Front operation Direction of operation	Door drilling
Typ S00 Changeover switches 		With 4 fixing screws  With fixing nut 

sircm_013_a_1_gb_cat

SIRCO M UL98



30 to 100 A

➲ Function

SIRCO M non fusible disconnect switches are compact switches that break and make power circuits on and off load and provide safety isolation.
These switches are extremely durable and are tested and approved for use in the most demanding applications.

➲ General characteristics

- Touch safe.
- DIN rail or back plate mounted.
- Direct or external handle.

➲ Specific characteristics

- Contact point technology.

➲ Conformity to standards

- UL98, Guide WHTY, file E201138
- CSA 22.2#4, Class 4651-02, file 112964
- IEC 60947-3

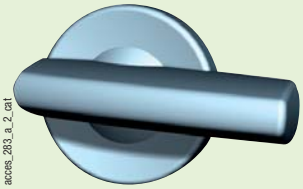
➲ **References**

UL98 Non Fusible Disconnect switches

Rating (A)	No. of poles	Switch body	Direct handle	External front and right side handles	Shafts for external front and side handles	Switched fourth pole module	Unswitched neutral pole	Earth module	Auxiliary contacts	Terminal shrouds
30 A	3 P	2201 **3003**	Blue 2299 **5032**	S00 type I - 0 Black 4, 4X 147D **1111** Red/Yellow 4, 4X 147E **1111** S0 type I - 0 Black 4, 4X 148D **1111** Red/Yellow 4, 4X 148E **1111**	150 mm 5.9 in 1407 **0515** 200 mm 7.9 in 1407 **0520** 320 mm 12.6 in 1407 **0532**(1)	1 P 2201 **1003**	1 P 2200 **5011**	1 P 2200 **9011**	M type 1 AC NO + NC 2299 **0001** M type 1 AC 2 NC 2299 **0011**	1 P 2294 **1011**(2) 3 P 2294 **3016**(2)
60 A	3 P	2201 **3006**				1 P 2201 **1006**				
100 A	3 P	2200 **3010**				1 P 2200 **1010**				

(1) Shaft guide reference 14190000, is required for shaft length over 15.7 inches (400 mm).
(2) Top and bottom.

Direct handle


acces_283_a_2_cat

M01 handle

Rating (A)	Colour	Handle	Reference
30 ... 100	Blue	M01 type	2299 **5032**

External handle


acces_264_a_2_cat

S00 handle


acces_279_a_2_cat

S0 handle

Use

The handle interlocking function prevents the user from opening the door of the enclosure when the switch is in the "ON" position (only if the handle is fitted on the door).
Opening the door when the switch is in the "ON" position is possible by defeating the interlocking function with the use of a tool (authorized persons only).
The interlocking function is restored when the door is re-closed. The handle is padlockable with 3 padlocks.

Front and right side handles I - 0

Rating (A)	Handle colour	Handle	Nema type	Reference
16 … 80	Black	S00 type	3R, 12	1473 **1111**
16 … 80	Red/Yellow	S00 type	3R, 12	1474 **1111**
16 … 80	Black	S00 type	4, 4X	147D **1111**
16 … 80	Red/Yellow	S00 type	4, 4X	147E **1111**
16 … 80	Black	S0 type	1, 3R, 12	1483 **1111**
16 … 80	Red/Yellow	S0 type	1, 3R, 12	1484 **1111**
16 … 80	Black	S0 type	4, 4X	148D **1111**
16 … 80	Red/Yellow	S0 type	4, 4X	148E **1111**

Shafts for external handle


sirom_045_a_2_x_cat

Use

Standard lengths:
- 150 mm,
- 200 mm,
- 320 mm.

Other lengths: please consult us.

Rating (A)	Length (inches)	Length (mm)	Reference
30 ... 100	5.9 in	150 mm	1407 **0515**
30 ... 100	7.9 in	200 mm	1407 **0520**
30 ... 100	12.6 in	320 mm	1407 **0532**

Shaft guide for external handle


acces_260_a_2_cat

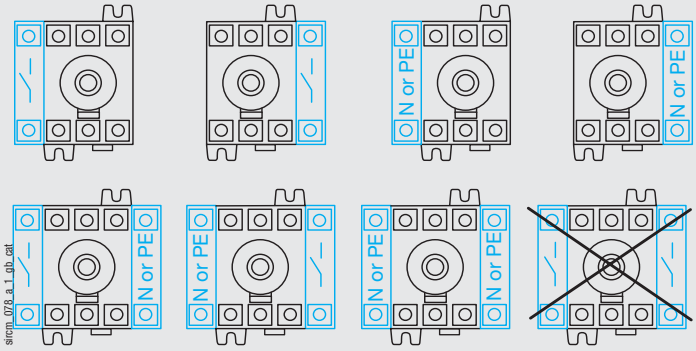
Use

This accessory makes shaft introduction easier with up to 15 mm misalignement.
Required for a shaft length from 320 mm.

Handle type	Reference
S0	1419 **0000**

Additional pole for SIRCO M


sircm_072_b_1_x_cat



sircm_078_a_1_gb_cat

4th pole

Use
Adding one or two additional poles transforms a load break switch from 3 poles to 4 poles.

Rating (A)	No. of poles	Type	Reference
30	1 P	switched	2201 **1003**
60	1 P	switched	2201 **1006**
100	1 P	switched	2200 **1010**

Solid neutral pole

Use
Transforms the 3-pole switch into a 3-pole + solid neutral.

Rating (A)	No. of poles	Type	Reference
30 … 100	1 P	unswitched	2200 **5011**

Earth module

Use
Adds 1 earth module pole to the switch-disconnector.

Rating (A)	No. of poles	Type	Reference
30 … 100	1 P	unswitched	2200 **9011**

Terminal shrouds


sircm_049_a_1_cat

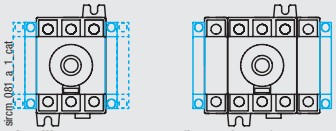
Use
Top and bottom additional protection against direct contact with the terminals or connection parts.
1 or 3 pole are available.

Perforation on each terminal cover enables remote thermographic inspection without dismantling.

Rating (A)	No. of poles	Position	Reference
30 … 100	1 P	top and bottom	2294 **1011**
30 ... 100	3 P	top and bottom	2294 **3016**

M type auxiliary contacts


sircm_075_b_2_cat


sircm_081_a_1_cat

Auxiliary contacts configurations for SIRCO M

Use
Pre-break and signalisation of positions 0 and I by NO+NC or 2 NO auxiliary contacts.
They can be mounted on the left or on the right side of the switch.
Max 4 auxiliary contacts (2 modules).

Characteristics
A300.

Rating (A)	Nb de CA	AC type	Reference
30 ... 100	1 AC	NO + NC	2299 **0001**
30 ... 100	1 AC	2 NC	2299 **0011**

➲ SIRCO M UL98 - Characteristics according to UL98/CSA22.2#4

30 to 100 A

General use rating	30 A	60 A	100 A
Short-circuit rating at 480 VAC (kA)	100	100	100
Short circuit rating at 600 VAC (kA)	100	100	25
Type of fuse	J	J	J
Max fuse rating (A)	30	60	100
Max. motor hp / FLA 3 ph motor max.			
220-240 VAC	10 / 28	20 / 54	20 / 54
440-480 VAC	20 / 27	40 / 52	50 / 65
600 VAC	25 / 27	50 / 52	50 / 52
Max. motor hp / FLA 1 ph motor max.			
120 VAC	2 / 24	3 / 34	5 / 56
240 VAC	5 / 28	10 / 50	10 / 50
Connection terminals			
Solid - 1 wire	#12 - #10	#12 - #10	#12 - #10
Stranded - 1 wire	#12 - 2/0	#12 - 2/0	#12 - 2/0
Mechanical characteristics			
Endurance (number of operating cycles)	10000	10000	10000
Operating torque (lbs.in/Nm)	12.4/1.4	12.4/1.4	12.4/1.4
Auxiliary contacts			
Electrical characteristics	A300	A300	A300

➲ Characteristics according to IEC 60647-3

Thermal current I_{th} at 40°C (A)	30 A	60 A	100 A
Thermal current I_{th} (40°C)	30 A	60 A	100 A
Rated insulation voltage U_i (V)	800	800	800
Rated impulse withstand voltage U_{imp} (kV)	8	8	8

Rated operational currents I_e (A)

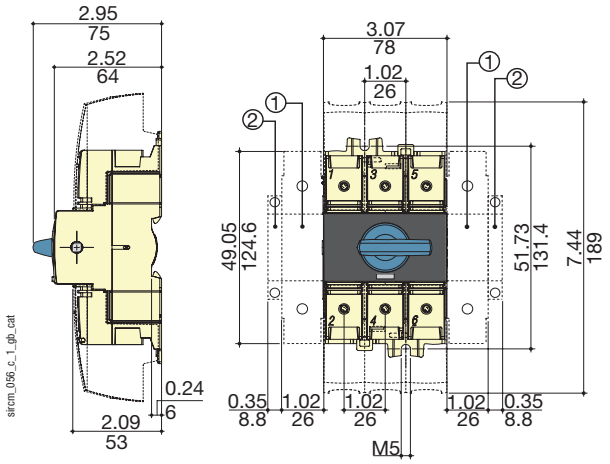
Load duty category	Rated voltage	A[1]	A[1]	A[1]
400 VAC	AC-22 A	32	63	100
400 VAC	AC-23 A	32	63	100
690 VAC	AC-22 A	32	63	80
690 VAC	AC-23 A	32	63	63
Operational power in AC-23 (kW)				
At 400 VAC without prebreak AC in AC23 (kW)[2][3]		15	30	45
At 500VAC without prebreak AC in AC23 (kW)[2][3]		15	30	45
At 690VAC without prebreak AC in AC23 (kW)[2][3]		18.5	30	45
Overload capacity (U_e 415 VAC)				
Rated short-circuit making capacity Icm (kA peak)[4]		12	12	12
Connection				
Min. connection section/ (mm^2)		2.5	2.5	10
Max. connection section/ (mm^2)		70	70	70

(1) Category with index A = frequent operation.
(2) A/B: Category with index A = frequent operation - Category with index B = infrequent operation.
(3) The power value is given for information only, the current values vary from one manufacturer to another.
(4) For a rated operating voltage U_e = 400 VAC.

➲ Dimensions (in / mm)

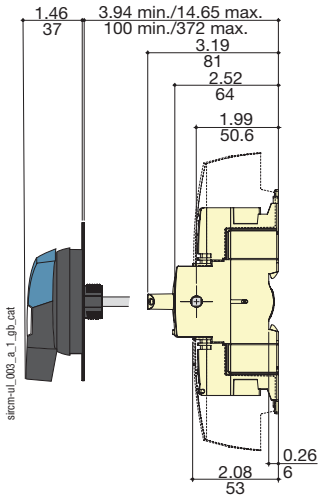
30 to 100 A

Direct handle

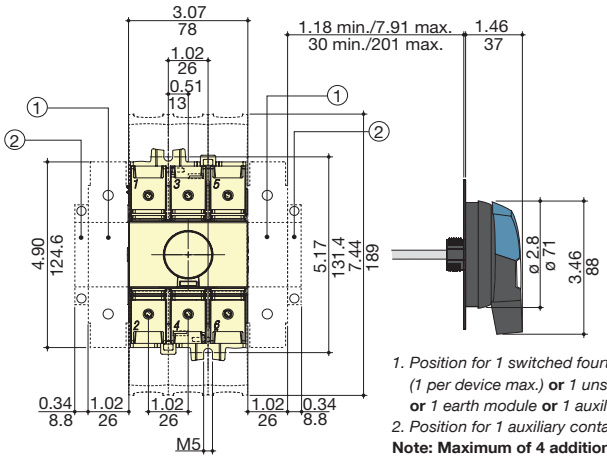


1. Position for 1 switched fourth pole module (1 per device max.) **or** *1 unswitched neutral pole* **or** *1 earth module* **or** *1 auxiliary contact.*
2. Position for 1 auxiliary contact only.
Note: Maximum of 4 additional blocks.

External front handle



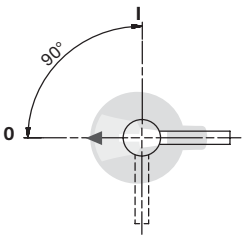
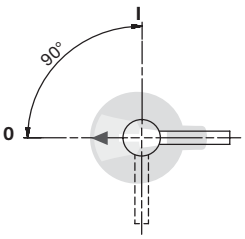
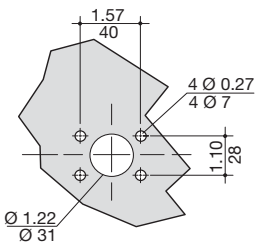
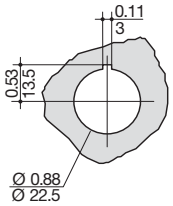
External side handle



1. Position for 1 switched fourth pole module (1 per device max.) **or** *1 unswitched neutral pole* **or** *1 earth module* **or** *1 auxiliary contact.*
2. Position for 1 auxiliary contact only.
Note: Maximum of 4 additional blocks.

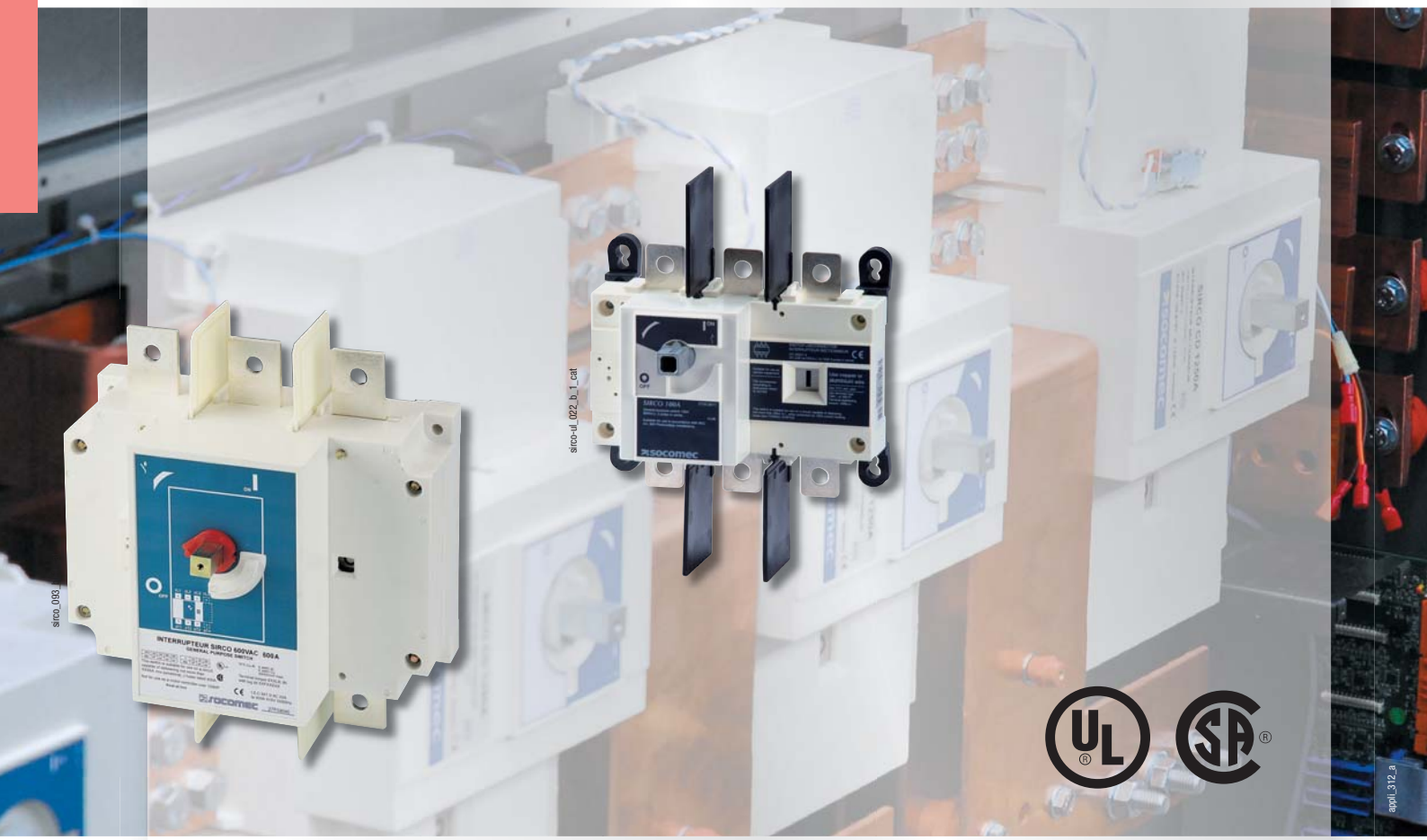
➲ External handles dimensions (in / mm)

30 to 100 A

Handle type	Front operation Direction of operation	Side operation Direction of operation	Door drilling
S00 / S0 type			With 4 fixing screws  With fixing nut 

SIRCO UL 98

Load break switches standards UL and CSA



100 to 1200 A

➲ Function

SIRCO non fusible disconnect switches are heavy duty switches that break and make power circuits on and off load and provide safety isolation.
These switches are extremely durable and are tested and approved for use in the most demanding applications.

➲ General characteristics

- Fully visualised disconnection.
- High thermal and dynamic withstand.
- Severe utilisation categories.
- High electrical and mechanical endurance.

➲ Conformity to standards

- UL98, Guide WHTY, file E201138
- CSA Pending 22.2#4, Class 4652-04, file 703166
- IEC 60947-3

➲ Customized solutions (please consult us):

- Visible contacts from 30A to 400A.
- NFPA79 on non fusible disconnects.

References



Rating (A)	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Auxiliary contacts	Terminal protection screens	Terminal Lugs kits
100 A	3 P	2700 **3011**	Black 2699 **5052**	S2 type Black 1, 3R, 12 142F **2111**(1) Red/Yellow 1, 3R, 12 142G **2111**(1) Black 4, 4X 142D **2111**(1) Red/Yellow 4, 4X 142E **2111**(1)	200 mm 7.9 inches 1400 **1020** 320 mm 12.6 inches 1400 **1032** 400 mm 15.7 inches 1400 **1040**	1st contact NO/NC 2799 **0021** 2nd contact NO/NC 2799 **0022**	3 P 2798 **3021**(2) 3 P 2798 **8021**(3) 4 P 2798 **4021**(4)	3 P 3954 **3020**(4) 4 P 3954 **4020**(4)
	4 P	2700 **4011**						
200 A	3 P	2700 **3021**						
	4 P	2700 **4021**						
400 A	3 P	2700 **3041**					3 P 2798 **3041**(2) 3 P 2798 **8041**(3) 4 P 2798 **4041**(4)	3 P 3954 **3040**(4) 4 P 3954 **4040**(4)
	4 P	2700 **4041**						
600 A	3 P	2700 **3060**	Black 3799 **6012**	S3 type Black 4, 4X 143D **3111**(1) Red/Yellow 4, 4X 143E **3111**(1)	200 mm 7.9 inches 1401 **1520** 320 mm 12.6 Inches 1401 **1532** 400 mm 15.7 Inches 1401 **1540**	Contact holder 3999 **0720**(5) Contact NO 3999 **0701** Contact NC 3999 **0702**	3 P 2798 **3060**(4) 4 P 2798 **4060**(4)	3 P 3954 **3060** 4 P 3954 **4060**
	4 P	2700 **4060**						
800 A	3 P	2700 **3080**					3 P 2798 **3120**(4) 4 P 2798 **4120**(4)	3 P 3954 **3120** 4 P 3954 **4120**
	4 P	2700 **4080**						
1000 A	3 P	2700 **3100**						
	4 P	2700 **4100**						
1200 A	3 P	2700 **3120**						
	4 P	2700 **4120**						

(1) Defeatable handle.
(2) Top.
(3) Bottom.
(4) Top or bottom.
(5) Max. 4 ACs.

Accessories

Direct handle



H type handle



B type handle

Rating (A)	Colour	Handle	Reference
100 ... 400	Black	B type	2699 **5052**
600 ... 1200	Black	H type	3799 **6012**

External handle



S2 type handle



S3 type handle



S4 type handle



Heavy duty S2 type handle

Use

The interlocking function of the front external handle prevents the user from opening the door of the enclosure when the switch is in the "ON" position or when the switch is padlocked in the "OFF" position (S1, S2, S3 and S4 type handles only).

Opening the door when the switch is in the "ON" position is possible by defeating the interlocking function with the use of a tool (authorized persons only). The interlocking function is restored when the door is re-closed.

Front handle I - 0

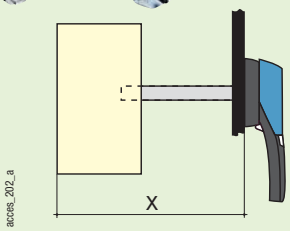
Rating (A)	Handle	Colour	Nema type	Reference
100 ... 400	S2 type	Black	1, 3R, 12	142F **2111**
100 ... 400	S2 type	Red/Yellow	1, 3R, 12	142G **2111**
100 ... 400	S2 type	Black	4, 4X	142D **2111**
100 ... 400	S2 type	Red/Yellow	4, 4X	142E **2111**
600 … 1200	S3 type	Black	4, 4X	143D **3111**
600 … 1200	S3 type	Red/Yellow	4, 4X	143E **3111**
600 … 1200	S4 type	Black	4, 4X	144D **3111**
600 … 1200	S4 type	Red/Yellow	4, 4X	144E **3111**

Front handle heavy duty I - 0 with metallic lever

Rating (A)	Handle	Colour	Nema type	Reference
100 ... 400	S2 type	Black	4, 4X	142D **2911**
100 ... 400	S2 type	Red/Yellow	4, 4X	142E **2911**
600 … 1200	S3 type	Black	4, 4X	143D **3911**
600 … 1200	S3 type	Red/Yellow	4, 4X	143E **3911**
600 1200	S4 type	Black	4, 4X	144D **3911**
600 … 1200	S4 type	Red/Yellow	4, 4X	144E **3911**

Shaft for external handle





Use

Standard lengths:
- 7.9 in / 200 mm,
- 12.6 in / 320 mm,
- 15.7 in / 400 mm.

Other lengths: please consult us.

Rating (A)	Dimension X (in)	Dimension X (mm)	Handle	Length (inches)	Length (mm)	Reference
100 … 400	5.31 ... 10.43	135 ... 265	S2 type	7.9	200	1400 **1020**
100 … 400	5.31 ... 15.16	135 ... 385	S2 type	12.6	320	1400 **1032**
100 … 400	5.31 ... 18.31	135 ... 465	S2 type	15.7	400	1400 **1040**
600 … 1200	8.70 ... 13.50	221 … 343	S3, S4 type	7.9	200	1401 **1520**
600 … 1200	8.70 ... 18.23	221 ... 463	S3, S4 type	12.6	320	1401 **1532**
600 … 1200	8.70 ... 21.38	221 … 543	S3, S4 type	15.7	400	1401 **1540**

Alternative colour S type handle cover



Use

For single lever handles type S1, S2, S3 and double lever handle, type S4.
Other colours: please consult us.

Handle colour	Pack qty	Handle	Reference
Light grey	50	S2, S3 type	1401 **0001**
Dark grey	50	S2, S3 type	1401 **0011**
Light grey	50	S4 type	1401 **0031**
Dark grey	50	S4 type	1401 **0041**

S type handle raiser



Use

Enables S type handles to be fitted in place of existing older style Socomec handles. Adapter can also be utilised as a spacer to increase the distance between the panel door and the handle lever.

Dimensions

Adds 12 mm to the depth.

Handle colour	Pack qty	Nema type	Reference
Black	10	1, 3R, 12	1493 **0000**

Shaft guide for external handle


acces_260_a_2_cat

Use
This accessory makes shaft introduction easier with up to 15 mm misalignment.
Required for a shaft length over 400 mm.

Description	Reference
Shaft guide	1429 **0000**

Auxiliary Contacts


acces_076_a_1_cat


acces_045_a_1_cat

Use
Pre-break and signalling of positions 0 and I.

Electrical characteristics
A300 for 100 to 400 A.
A600 for 600 to 1200 A.

NO/NC contact for 100 ... 400 A

Rating (A)	No. of AC	Reference
100 ... 400	1st	2799 **0021**
100 ... 400	2nd	2799 **0022**

Low level NO/NC contact for 100 ... 400 A

Rating (A)	No. of AC	Reference
100 ... 400	1st	2799 **0121**
100 ... 400	2nd	2699 **0122**

Auxiliary contact holder for 600 ... 1200 A

Rating (A)	Type	Reference
600 ... 1200	Holder	3999 **0720**(1)
600 ... 1200	NO	3999 **0701**
600 ... 1200	NC	3999 **0702**

(1) Please order the holder.

Terminal screens

Use
Top or bottom protection against direct contact with terminals or connection parts.


acces_079_a_1_cat

Rating (A)	No. of poles	Position	Reference
100 ... 200	3 P	top	2798 **3021**
100 ... 200	3 P	bottom	2798 **8021**
100 ... 200	4 P	top / bottom	2798 **4021**
400	3 P	top	2798 **3041**
400	3 P	bottom	2798 **8041**
400	4 P	top / bottom	2798 **4041**
600	3 P	bottom	2798 **3060**(1)
600	4 P	bottom	2798 **4060**(1)
800 … 1200	3 P	bottom	2798 **3120**(1)
800 … 1200	4 P	bottom	2798 **4120**(1)

(1) Load side screen, the line side is included with the switch.

Terminal lugs

Use
Connection of bare copper cables onto the lugs (without lugs).


ul_032_a

Rating max (A)	Wires range	No wires per lug	Lugs per kit	Wires	Reference
100 ... 200	6 - 300MCM	1	2	Cu / Al	3954 **2020**
100 ... 200	6 - 300MCM	1	3	Cu / Al	3954 **3020**
100 ... 200	6 - 300MCM	1	4	Cu / Al	3954 **4020**
400	2 - 600MCM	1	2	Cu / Al	3954 **2040**
400	2 - 600MCM	1	3	Cu / Al	3954 **3040**
400	2 - 600MCM	1	4	Cu / Al	3954 **4040**
400	2x (#6 - 350MCM)	2	2	Cu / Al	3954 **2041**
400	2x (#6 - 350MCM)	2	3	Cu / Al	3954 **3041**
400	2x (#6 - 350MCM)	2	4	Cu / Al	3954 **4041**
600	2x (#2 - 600MCM)	1	2	Cu / Al	3954 **2060**
600	2x (#2 - 600MCM)	2	3	Cu / Al	3954 **3060**
600	2x (#2 - 600MCM)	2	4	Cu / Al	3954 **4060**
800 … 1200	4x (#2 - 600MCM)	2	6	Cu / Al	3954 **6120**
800 … 1200	4x (#2 - 600MCM)	2	8	Cu / Al	3954 **8120**

➲ SIRCO UL98 - Characteristics according to UL98/CSA22.2#4

100 to 1200 A

General use rating (A)	100 A	200 A	400 A	600 A	800 A	1000 A	1200 A
Short circuit rating at 600 VAC (kA)	200	200	200	200	100	100	100
Type of fuse	J	J	J	J	L	L	L
Max. fuse rating (A)	100	200	400	600	800	1000	1200
Max. motor hp / FLA 3 ph motor max.							
220-240 VAC	30 / 80	75 / 196	125 / 312	200 / 480	200 / 480	200 / 480	200 / 480
440-480 VAC	75 / 96	150 / 180	250 / 302	400 / 477	500 / 590	500 / 590	500 / 590
600 VAC	100 / 99	200 / 192	350 / 336	350 / 336	500 / 472	500 / 472	500 / 472
Max. motor hp / DC FLA motor max.							
125 VDC(1)	10 / 76	15 / 112	20 / 148	20 / 148			
250 VDC(2)	15 / 55	15 / 55	50 / 173	50 / 173			
Connection terminals							
Min. connection section / AWG	#6	#6	#2	2x #2	4x #2	4x #2	4x #2
Max. connection section / AWG	300MCM	300MCM	600MCM	2x 600MCM	4x 600MCM	4x 600MCM	4x 600MCM
Mechanical characteristics							
Endurance (number of operating cycles)	10000	8000	6000	6000	3500	3500	3500
Operating torque (lbs.in/Nm)	88.5/10	88.5/10	128.3/14.5	327.5/37	442.5/50	442.5/50	442.5/50
Auxiliary contacts							
Electrical characteristics	A300	A300	A300	A600	A600	A600	A600

(1) 2 pole in series.
(2) 3 pole in series.

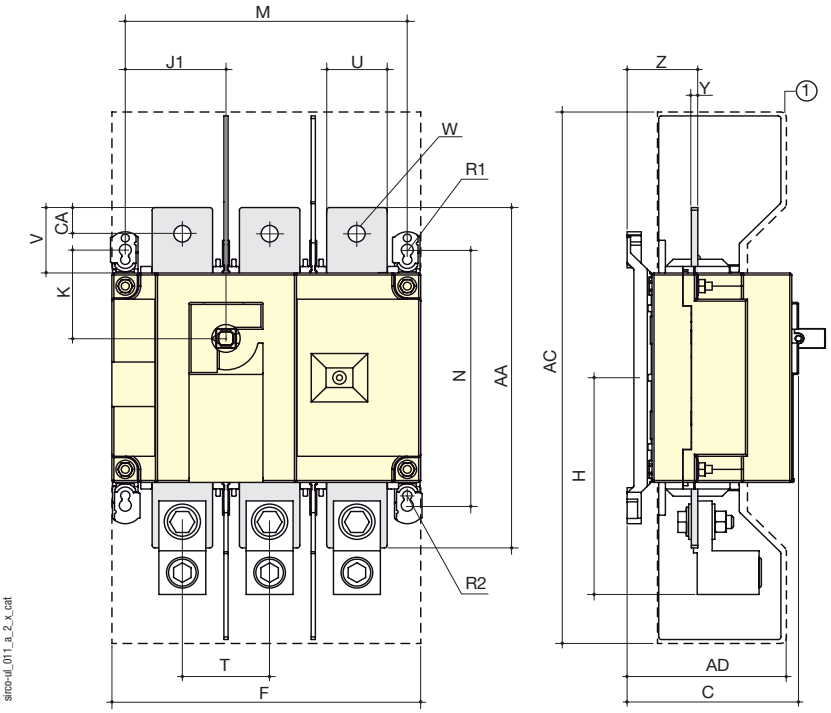
➲ Characteristics according to IEC 60947-3

Thermal current I_{th} (40°C)		100 A	200 A	400 A	600 A	800 A	1000 A	1200 A
Rated insulation voltage U_i (V)		1000	1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)		12	12	12	12	12	12	12
Rated operational currents I_e (A)								
Rated voltage	Load duty category	A(1)	A(1)	A(1)	A(1)	A(1)	A(1)	A(1)
400 VAC	AC-22 A	100	200	400	630	800	1000	1200
400 VAC	AC-23 A	100	200	400	630	800	1000	1000
690 VAC	AC-22 A	100	200	400	500	630	630	630
690 VAC	AC-23 A	100	200	315	200	400	400	400
Connection								
Min. Cu cable cross section (mm²)		35	70	185	2 x 150	2 x 185	2 x 240	
Min. Cu busbar section (mm²)					2 x 30 x 5	2 x 40 x 5	2 x 50 x 5	2 x 60 x 5
Operational power in AC-23 (kW)								
At 400 VAC without prebreaking AC in AC23 (kW)(2)(3)		51	100	220	355	450	560	560
At 500 VAC without prebreaking AC in AC23 (kW)(2)(3)		63	140	280	450	560	560	560
At 690 VAC without prebreaking AC in AC23 (kW)(2)(3)		90	185	185	185	400	400	400
Overload capacity (U_e 415 VAC)								
Rated short-circuit making capacity Icm (kA peak)(4)		17,6	32	48	48	75	48	75

(1) Category with index A = frequent operation.
(2) A/B: Category with index A = frequent operation - Category with index B = infrequent operation.
(3) The power value is given for information only, the current values vary from one manufacturer to another.
(4) For a rated operating voltage U_e = 400 VAC.

Dimensions (in / mm)

100 to 400 A

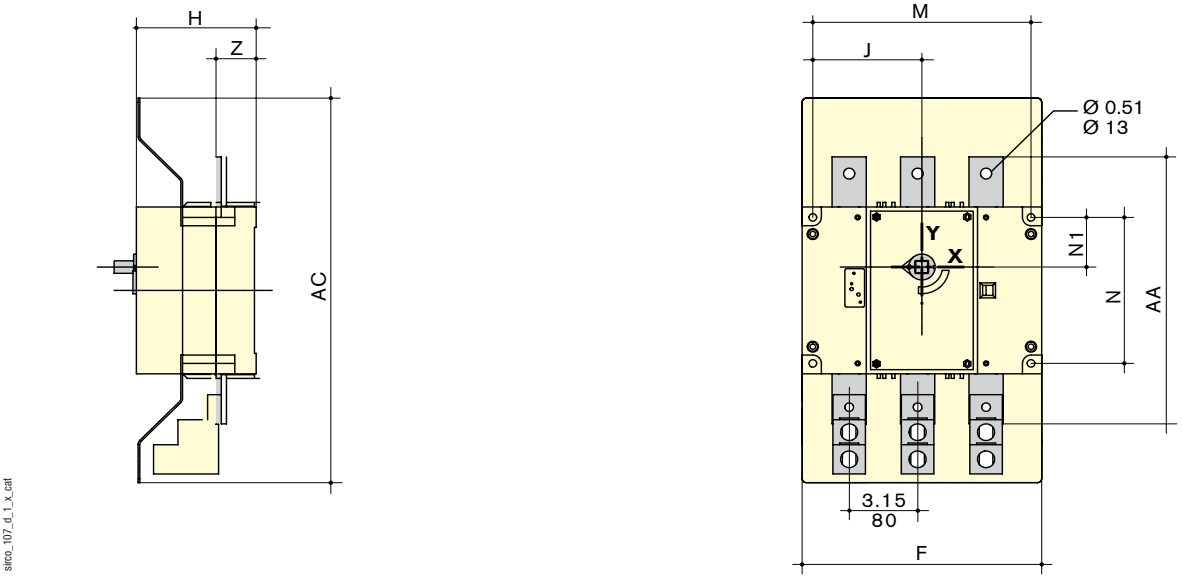


sirco-ul_011_a_2_x_cat

1. Terminal shrouds

Rating (A)	Unit	Overall dimensions C	Terminal shrouds AC	AD	Switch body F 3p.	F 4p.	H	J1 3p.	J1 4p.	K	Switch mounting M 3p.	M 4p.	N	R1	R2	Connection T	U	V	W	Y	Z	AA	AC
100	in	3.72	10.1	3.05	7.09	9.06	4.22	2.17	4.13	1.8	6.3	8.7	5.31	0.35	0.27	1.97	0.98	1.18	0.43	0.14	1.35	6.3	0.6
	mm	94.6	256	77.5	180	230	107	55	105	45.6	160	210	135	9	7	50	25	30	11	3.5	34.4	160	15
200	in	3.72	10.1	3.05	7.09	9.06	4.22	2.17	4.13	1.8	6.3	8.27	5.31	0.35	0.27	1.97	0.98	1,18	0,43	0,14	1,35	6,3	0,6
	mm	94.6	256	77.5	180	230	107	55	105	45.6	160	210	135	9	7	50	25	30	11	3,5	34,4	160	15
400	in	4.92	16	4.15	9.05	11.4	6.53	2.95	5.31	2.65	8.26	10.6	7.67	0.35	0.27	2.56	1.77	1.97	0.43	0.2	2.08	10.2	0.8
	mm	128	406	115	230	290	166	75	135	67,5	210	270	195	9	7	65	45	50	13	5	53	260	20

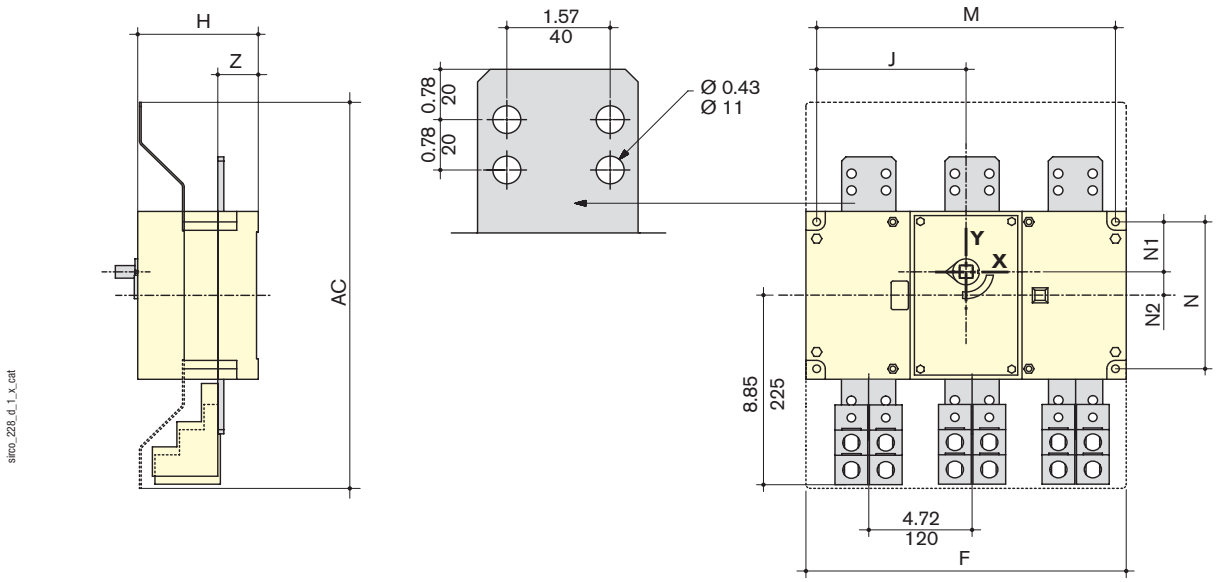
600 A



sirco_107_d_1_x_cat

Rating (A)	Unit	Terminal shrouds AC	Switch body F 3p.	F 4p.	H	J 3p.	J 4p.	Switch mounting M 3p.	M 4p.	N	N1	Connection AA	Z
600	in	18.12	11	14.17	5.5	5	6.59	10.03	13.19	6.88	2.34	12.6	1.85
	mm	460	280	360	140	127.5	167.5	255	335	175	59.5	320	47

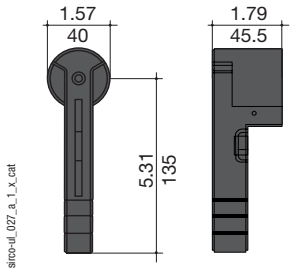
800 to 1200 A



Rating (A)	Unit	Terminal shrouds AC	Switch body F 3p.	Switch body F 4p.	H	J 3p.	J 4p.	Switch mounting M 3p.	Switch mounting M 4p.	N	N1	Connection AA	Z
800	in	18.12	14.64	19.37	5.5	6.83	9.19	13.66	18.38	6.88	2.34	1.10	1.85
	mm	460	372	492	140	173.5	233.5	347	467	175	59.5	28	47
1 000	in	18.12	14.64	19.37	5.5	6.83	9.19	13.66	18.38	6.88	2.34	1.10	1.85
	mm	460	372	492	140	173.5	233.5	347	467	175	59.5	28	47
1 200	in	18.12	14.64	19.37	5.5	6.83	9.19	13.66	18.38	6.88	2.34	13	1.85
	mm	460	372	492	140	173.5	233.5	347	467	175	59.5	330	47

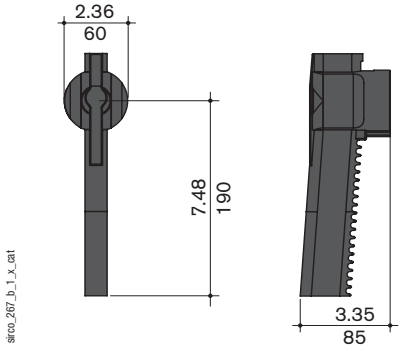
100 to 400 A

Front direct handle



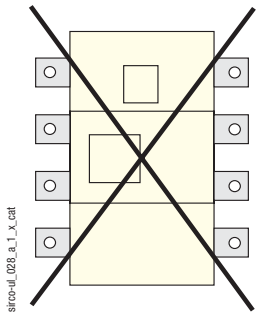
600 to 1200 A

Front direct handle



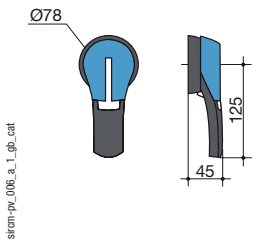
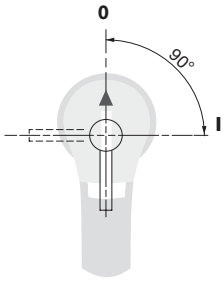
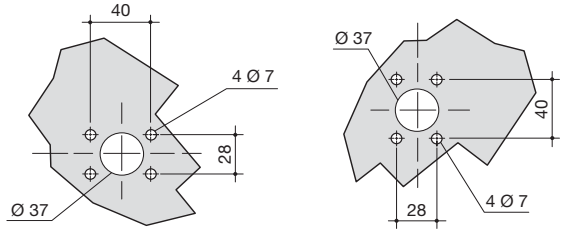
➲ Mounting orientation

3/4 pole



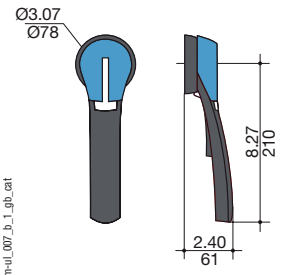
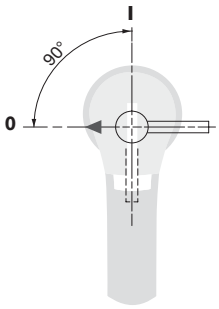
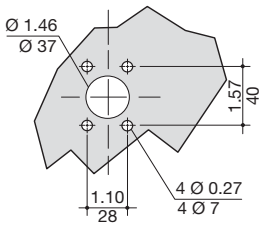
External handles dimensions (in / mm)

100 to 400 A

Handle type	Front operation Direction of operation	Door drilling
S2 type 		

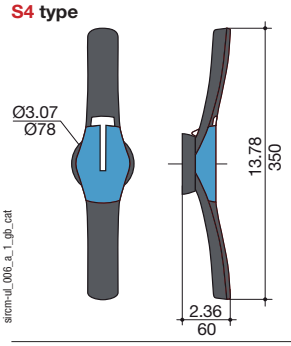
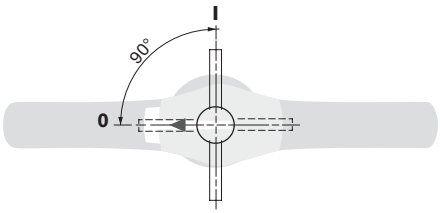
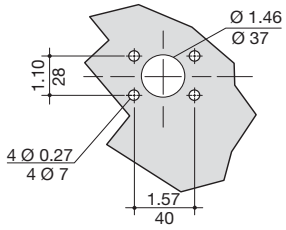
sircm-pv_006_a_1_gb_cat

600 to 1200 A

Handle type	Front operation Direction of operation	Door drilling
S3 type 		

sircm-ul_007_b_1_gb_cat

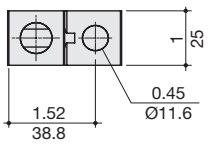
600 to 1200 A

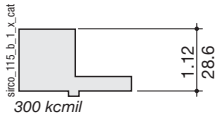
Handle type	Front operation Direction of operation	Door drilling
S4 type 		

sircm-ul_006_a_1_gb_cat

Terminal lugs (in / mm)

100 to 200 A

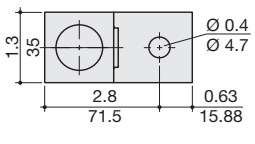


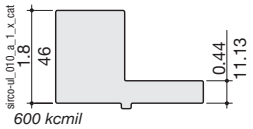


sirco_115_b_1_x_cat

300 kcmil

400 A

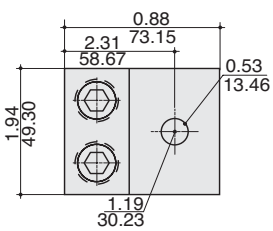


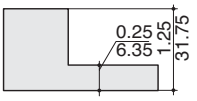


sirco-ul_010_a_1_x_cat

600 kcmil

400 A

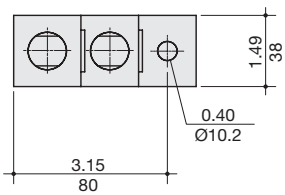


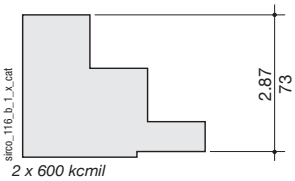


sirco-ul_026_a_1_cat

2 x 350 kcmil

600 to 1200 A





sirco_116_b_1_x_cat

2 x 600 kcmil

SIRCO DC UL98

Load break switches standards UL and CSA



100 to 1200 A (600 A x 2) 600VDC UL98 General use

➲ Function

SIRCO DC non fusible disconnect switches are heavy duty switches that break and make 600VDC photovoltaic circuits on and off load, they are suitable for use in accordance with NEC Atr. 690 Photovoltaic Installations.
These switches are extremely durable and are tested and approved for use in the most demanding applications.
They are available in 3, 4, and 6, 8 poles for dual-input configurations, in order to suit all your requirements.

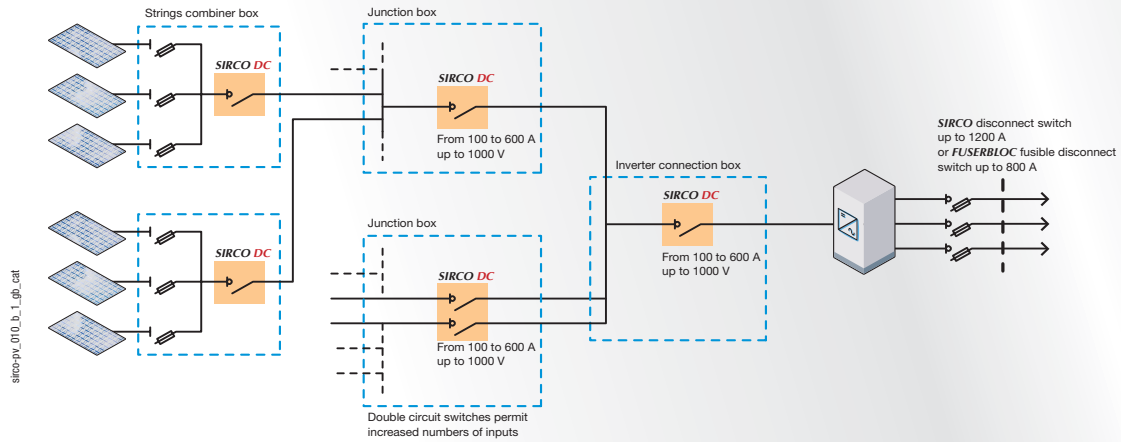
➲ General characteristics

- Patented switching technology.
- Up to 600 V d.c. according to UL98/CSA C22.2#4.
- Up to 1000 V d.c. according to IEC 60947-3.
- Suitable for use in accordance with NEC Art. 690.

➲ Conformity to standards

- UL98, Guide WHTY, file E201138
- CSA Pending C22.2#4, Class 4651-02, file 112964
- NEC Art. 690
- IEC 60947-3

Simplified large photovoltaic system layout



➲ References



UL98 - 3 & 4 pole switches

Rating (A)	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Auxiliary contacts	Terminals protection screen	Lug terminals	Jumpers for poles in serie connection
100 A	3 P	27DC **3011**	Black 2699 **5052**	S2 type Black 1, 3R, 12 142F **2111**(1) Red/Yellow 1, 3R, 12 142G **2111**(1) Black 4, 4X 142D **2111**(1) Red/Yellow 4, 4X 142E **2111**(1)	200 mm 7.9 inches 1400 **1020** 320 mm 12.6 inches 1400 **1032** 400 mm 15.7 inches 1400 **1040**(2)	C type 1st Contact NO+NC 2799 **0021** C type 2nd Contact NO+NC 2799 **0022**	3 P 2798 **3021**(3) 3 P 2798 **8021**(4) 4 P 2798 **4021**(5)	3 P 3954 **3020**(5) 4 P 3954 **4020**(5)	2 pieces 2709 **2021** 3 pieces 2709 **3021**
	4 P	27DC **4011**							
200 A	3 P	27DC **3021**							
	4 P	27DC **4021**							
400 A	3 P	27DC **3041**					3 P 2798 **3041**(3) 3 P 2798 **8041**(4) 4 P 2798 **4041**(5)	3 P 3954 **3040**(5) 4 P 3954 **4040**(5)	2 pieces 2709 **2041** 3 pieces 2709 **3041**
	4 P	27DC **4041**							
600 A	3 P	27DC **3060**	Black 2699 **7012**	S4 type Black 4, 4X 144D **3111**(1) Red/Yellow 4, 4X 144E **3111**(1)	200 mm 7.9 inches 1401 **1520** 320 mm 12.6 inches 1401 **1532** 400 mm 15.7 inches 1401 **1540**(2)	Contact holder 3999 **0720**(6) Contact NO 3999 **0701** Contact NC 3999 **0702**	3 P 2798 **3061**(5) 4 P 2798 **4061**(5)	3 P 3954 **3060**(5) 4 P 3954 **4060**(5)	2 pieces 2709 **2061** 3 pieces 2709 **3061**
	4 P	27DC **4060**							

(1) Defeatable handle.
(2) Shaft guide reference 1429 0000, is required for shaft length over 15.7 inches (400mm).
(3) Top.
(4) Bottom.
(5) Top or bottom.
(6) Max. 4 ACs.



UL98 - 6 & 8 pole switches

Rating (A)	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Auxiliary contacts	Terminals protection screen	Terminal lugs kits	Jumpers for connecting poles in series
400 A	6 P	27DC **6041**	Black 2799 **5012**	S3 type Black 4, 4X 143D **3111**(1) Red/Yellow 4, 4X 143E **3111**(1)	200 mm 7.9 inches 1401 **1520** 320 mm 12.6 inches 1401 **1532**(2)	1st Contact NO+NC 4159 **0021**	6 P 4158 **3041**(3)(4) 8 P 4158 **4041**(3)(4)	3 P 3954 **3040**(3) 4 P 3954 **4040**(3)	2 pieces 2709 **2041** 3 pieces 2709 **3041**
	8 P	27DC **8041**							
600 A	6 P	27DC **6060**	Black 4199 **7012** 4199 **7062**	V1 type Black NEMA 1 2799 **7145**	320 mm 12.6 inches 4199 **3018**	1 NO/NC as standard	6 P 1609 **3063**(3) 8 P 1609 **4063**(3)	3 P 3954 **3060**(3) 4 P 3954 **4060**(3)	2 pieces 2709 **2061** 3 pieces 2709 **3061**
	8 P	27DC **8060**							

(1) Defeatable handle.
(2) Shaft guide reference 1429 0000, is required for shaft length over 15.7 inches (400mm).
(3) Top or bottom.
(4) Order 2 sets for front and rear poles.



➲ Zoom

A 6 or 8 pole switch allows the connection of two independant solar string circuits to its inputs, the output can be paralleled in order to concentrate currents up to 1200A 600VDC general use.

On and Off on-load disconnection are operated with one handle.

Accessories

External handle


acces_150_a_1_cat

S2-type handle


acces_166_a_1_cat

S3-type handle


acces_152_a_2_cat

S4-type handle


acces_230_a

S2-type heavy duty handle

Use
The interlocking function of the front external handle prevents the user from opening the door of the enclosure when the switch is in the "ON" position, and when the switch is padlocked in the "OFF" position (S2, S3 and S4 type handles only). Opening the door when the switch is in the "ON" position is possible by defeating the interlocking with the use of a tool (authorized persons only). The interlocking function is restored when the door is re-closed.

Front handle I - 0, 3/4 poles

Rating (A)	Handle	Colour	Nema type	Reference
100 ... 400	S2 type	Black	1, 3R, 12	142F **2111**(1)
100 ... 400	S2 type	Red/Yellow	1, 3R, 12	142G **2111**(1)
100 ... 400	S2 type	Black	4, 4X	142D **2111**(1)
100 ... 400	S2 type	Red/Yellow	4, 4X	142E **2111**(1)
600	S4 type	Black	4, 4X	144D **3111**(1)
600	S4 type	Red/Yellow	4, 4X	144E **3111**(1)

(1) Defeatable handle.

Front handle I - 0, 6/8 poles

Rating (A)	Handle	Colour	Nema type	Reference
400	S3 type	Black	4, 4X	143D **3111**(1)
400	S3 type	Red/Yellow	4, 4X	143E **3111**(1)

(1) Defeatable handle.

Front handle I - 0 heavy duty(2), 3/4 poles

Rating (A)	Handle	Colour	Nema type	Reference
100 ... 400	S2 type	Black	4, 4X	142D **2911**(1)
100 ... 400	S2 type	Red/Yellow	4, 4X	142E **2911**(1)

(1) Defeatable handle.
(2) With metallic padlocking lever.

Front handle I - 0 heavy duty(2), 6/8 poles

Rating (A)	Handle	Colour	Nema type	Reference
400	S3 type	Black	4, 4X	143D **3911**(1)
400	S3 type	Red/Yellow	4, 4X	143E **3911**(1)
600	V1 type	Black	1	2799 **7145**

(1) Defeatable handle.
(2) With metallic padlocking lever.

S type handle raiser


acces_187_a_1_cat

Use
Handle raiser.

Dimensions
Adds 12 mm to the depth.

Handle colour	Nema type	Pack qty	Reference
Black	1, 3R, 12	10	1493 **0000**

Alternative colours S type handle cover

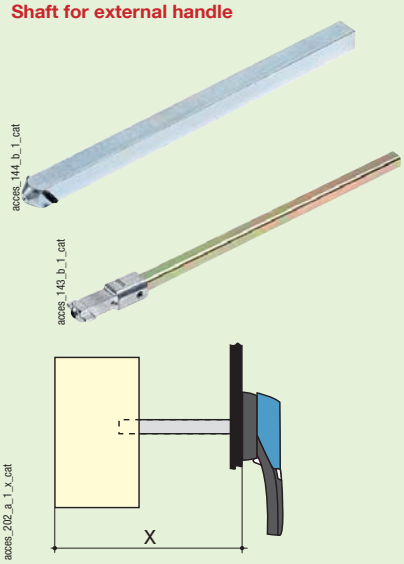

acces_198_a_1_cat

Use
For handle S2, S3 and S4.

Other colours: please consult us.

Handle colour	Pack qty	Handle	Reference
Light grey	50	S2, S3 type	1401 **0001**
Dark grey	50	S2, S3 type	1401 **0011**
Light grey	50	S4 type	1401 **0031**
Dark grey	50	S4 type	1401 **0041**

Shaft for external handle



Use

Standard lengths:
- 7.9 in / 200 mm,
- 12.6 in / 320 mm,
- 15.7 in / 400 mm.

Other lengths: please consult us.

For 3/4 pole

Rating (A)	Dimension X (inches)	Dimension X (mm)	Handle	Length (inches)	Length (mm)	Reference
100 ... 400	5.31 ... 10.43	135 ... 265	S2 type	7.9	200	1400 **1020**
100 ... 400	5.31 ... 15.16	135 ... 385	S2 type	12.6	320	1400 **1032**
100 ... 400	5.31 ... 18.30	135 ... 465	S2 type	15.7	400	1400 **1040**
600	8.70 ... 13.50	221 ... 343	S4 type	7.9	200	1401 **1520**
600	8.70 ... 18.23	221 ... 463	S4 type	12.6	320	1401 **1532**
600	8.70 ... 21.38	221 ... 543	S4 type	15.7	400	1401 **1540**

For 6/8 pole

Rating (A)	Dimension X (inches)	Dimension X (mm)	Handle	Length (inches)	Length (mm)	Reference
400	11.73 ... 15.16	298 ... 385	S3 type	7.9	200	1401 **1520**
400	11.73 ... 19.88	298 ... 505	S3 type	12.6	320	1401 **1532**
400	11.73 ... 23.03	298 ... 585	S3 type	15.7	400	1401 **1540**
600	16.73 ... 22.72	425 ... 577	V type	12.6	320	4199 **3018**
600	16.73 ... 25.81	425 ... 657	V type	15.7	400	4199 **3019**

Shaft guide for external handle



Use

This accessory enables handle to engage shaft with a misalignment of up to 15 mm.
Required for a shaft length over 400 mm for S1 to S3 handles and for a shaft lenght from 320 mm for S0 handle.

Description	Reference
Shaft guide for S1 to S3 handles	1429 **0000**
Shaft guide for S0 handle	1419 **0000**

Auxiliary contacts



Use

Pre-break and signalling of positions 0 and I:
- 1 to 2 NO/NC auxiliary contacts,
- 1 to 2 low level NO/NC auxiliary contacts.

Electrical characteristics

A300.

NO/NC contact for 3/4 poles

Rating (A)	No. of AC	Type	Reference
100 ... 600	1st contact	C type	2799 **0021**
100 ... 600	2nd contact	C type	2799 **0022**

NO/NC contact for 6/8 and 4 pole

Rating (A)	No. of AC	Type	Reference
400		C type	4159 **0021**

Low level NO/NC contact for 3/4 pole

Rating (A)	No. of AC	Type	Reference
100 ... 600	1st contact	C type	2799 **0121**
100 ... 600	2nd contact	C type	2799 **0122**

Low level NO/NC contact for 6/8 pole

Rating (A)	No. of AC	Type	Reference
400	1st contact		4159 **0022**

Terminal screens

Use

Top or bottom protection against direct contact with terminals or connection parts.



For 3/4 pole

Rating (A)	No. of poles	Position	Reference
100 ... 200	3 P	top	2798 **3021**
100 ... 200	3 P	bottom	2798 **8021**
100 ... 200	4 P	top / bottom	2798 **4021**
400	3 P	top	2798 **3041**
400	3 P	bottom	2798 **8041**
400	4 P	top / bottom	2798 **4041**
600	3 P	top / bottom	2798 **3061**
600	4 P	top / bottom	2798 **4061**

For 6/8 pole

Rating (A)	No. of poles	Position	Reference
400	6 P	top / bottom	4158 **3041**(1)
400	8 P	top / bottom	4158 **4041**(1)
600	6 P	top / bottom	1609 **3063**
600	4 P	top / bottom	1609 **4063**

(1) Order 2 sets for front and rear poles.

Terminals lugs



Use
Connection of bare copper cables onto the terminals (without lugs).

Rating (A)	Wires range	No wires per lug	Lugs per kit	Wires	Reference
100 ... 200	6 - 300MCM	1	2	Cu / Al	3954 **2020**
100 ... 200	6 - 300MCM	1	3	Cu / Al	3954 **3020**
100 ... 200	6 - 300MCM	1	4	Cu / Al	3954 **4020**
400	2 - 600MCM	1	2	Cu / Al	3954 **2040**
400	2 - 600MCM	1	3	Cu / Al	3954 **3040**
400	2 - 600MCM	1	4	Cu / Al	3954 **4040**
400 ... 600	2X (#6 - 350MCM)	2	2	Cu / Al	3954 **2041**
400 ... 600	2X (#6 - 350MCM)	2	3	Cu / Al	3954 **3041**
400 ... 600	2X (#6 - 350MCM)	2	4	Cu / Al	3954 **4041**
600	2x (#2 - 600MCM)	1	2	Cu / Al	3954 **2060**
600	2x (#2 - 600MCM)	2	3	Cu / Al	3954 **3060**
600	2x (#2 - 600MCM)	2	4	Cu / Al	3954 **4060**

Jumpers for connection poles in series

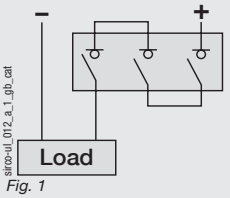


Fig. 1

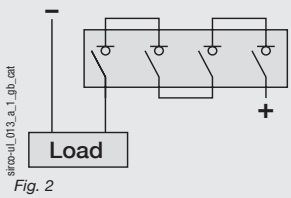


Fig. 2

Use
The jumpers will make easy the connection of the poles in series, allowing the following configurations(1):
Connection diagrams.
(1) Other connections: refer to mounting instructions.

Rating (A)	No. of poles in serie	Kit of	Figure	Reference
100 ... 200	3	2 pieces	1	2709 **2021**
100 ... 200	4	3 pieces	2	2709 **3021**
400	3	2 pieces	1	2709 **2041**
400	4	3 pieces	2	2709 **3041**
600	3	2 pieces	1	2709 **2061**
600	4	3 pieces	2	2709 **3061**

➲ SIRCO DC - Characteristics according to UL98/CSA22.2#4

100 to 600 A

General use rating with 200% overload extra test

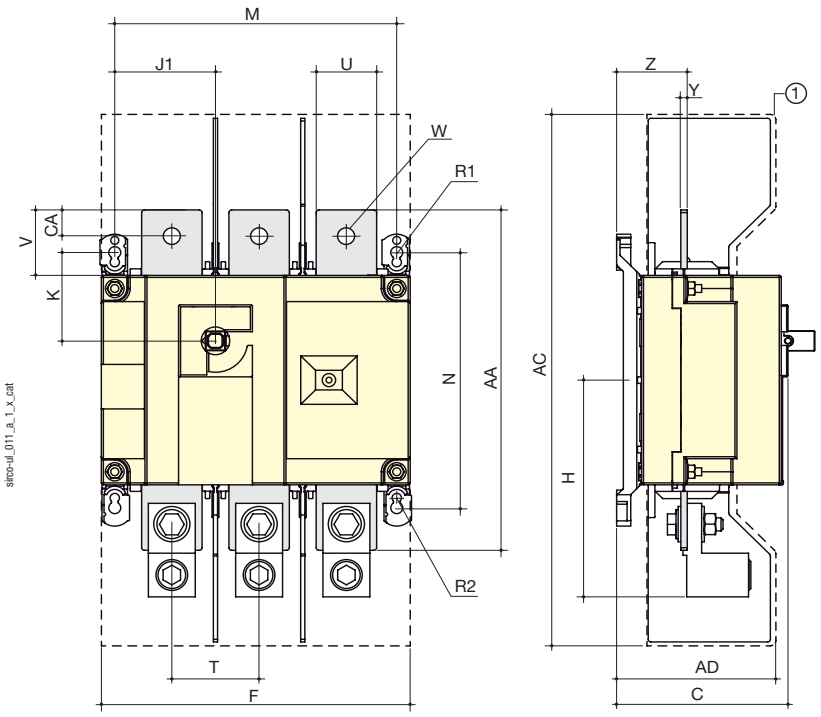
Rated voltage	No of poles in series				
600 V d.c.	3 P	100 A	200 A	400 A	600 A
Overload capacity					
Prospective short-circuit current (kA rms)		20	20	20	20
Type of fuse		A70P100	A70P200	LDC	A6D600R
Fuse rating (A)		100	200	400	600
Connection					
Min. connection section/ AWG		#6	#6	2x #6 / #2	2x #2
Max. connection section/ AWG		300 kcmil	300 kcmil	2x 350 / 600 kcmil	2x 600 kcmil
Mechanical characteristics					
Endurance (number of operating cycles)		10000	10000	6000	6000
Operating torque (lbs.in/Nm)		88.5/10	88.5/10	128.3/14.5	327.5/37
Auxiliary contacts					
Electrical characteristics		A300	A300	A300	A300

➲ Characteristics according to IEC 60947-3

Thermal current I_{th} (40°C)		**160 A**	**250 A**	**630 A**	**800 A**
Rated insulation voltage Ui (V)		1200	1200	1200	1200
Rated impulse withstand voltage Uimp (kV)		12	12	12	12
Rated operational currents I_e (A), DC-22 B					
Rated voltage	In series	(A)	(A)	(A)	(A)
750 V d.c.	3 P	160	250	630	
750 V d.c.	4 P				800
1 000 V d.c.	4 P	160	250	630	

➲ SIRCO DC UL98 - Dimensions (in / mm)

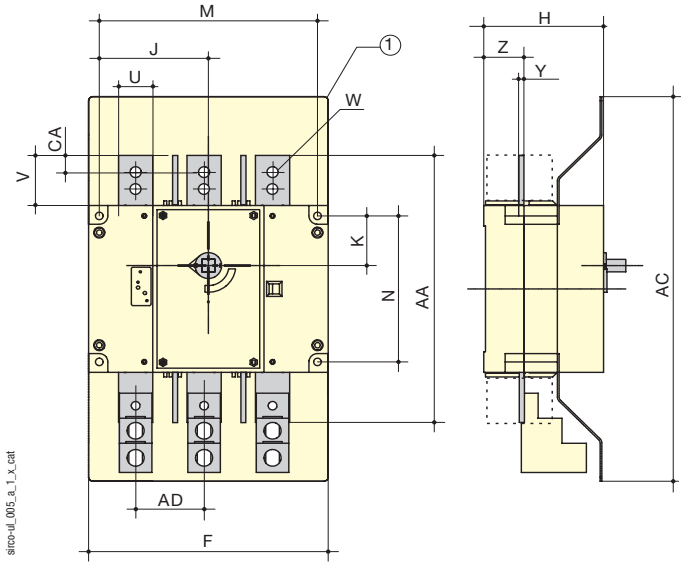
100 to 400 A - 3/4 poles



1. Terminal shrouds

Rating (A)	Unit	Overall dimensions C	Terminal shrouds AC	AD	Switch body F 3p.	F 4p.	H	J1 3p.	J1 4p.	K	Switch mounting M 3p.	M 4p.	N	R1	R2	Connection terminal T	U	V	W	Y	Z	AA	CA
100 … 200	in	3.72	10.1	3.05	7.09	9.06	4.22	2.17	4.13	1.8	6.3	8.27	5.31	0.35	0.27	1.97	0.98	1.18	0.43	0.14	1.35	6.3	0.6
100 … 200	mm	94.6	256	77.5	180	230	107	55	105	45.6	160	210	135	9	7	50	25	30	11	3.5	34.4	160	15
400	in	4.92	16	4.51	9.05	11.4	6.53	2.95	5.31	2.65	8.26	10.6	7.6	0.35	0.27	2.56	1.77	1.97	0.43	0.2	2.08	10.2	0.8
400	mm	128	406	115	230	290	166	75	135	67.5	210	270	195	9	7	65	45	50	13	5	53	260	20

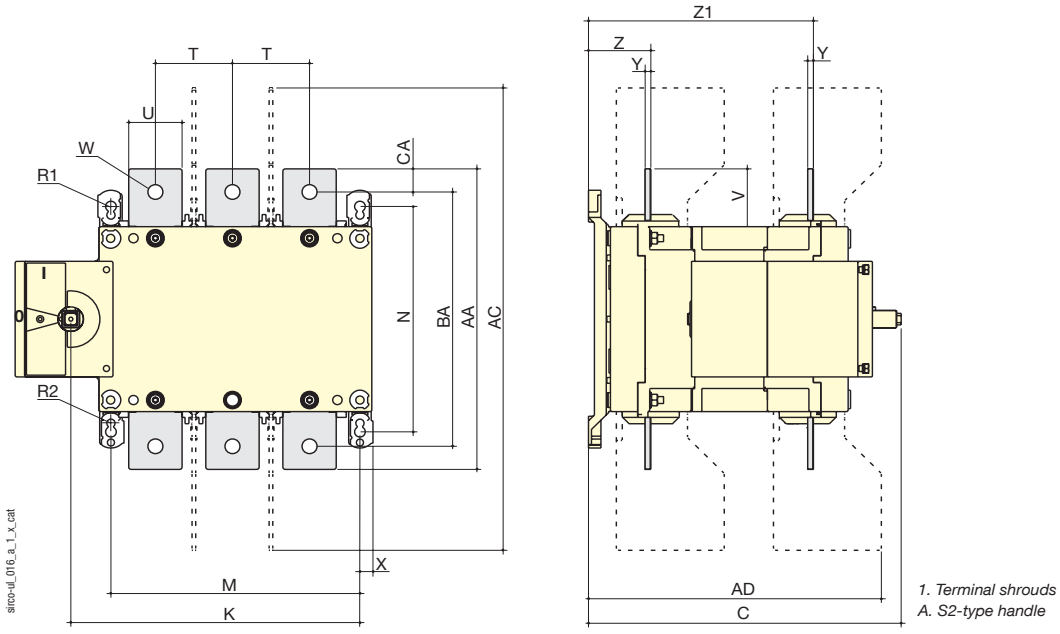
600 A - 3/4 poles



1. Terminals protection screen

Rating (A)	Unit	Terminal shrouds AC	H	Switch body F 3p.	F 4p.	K	J 3p.	J 4p.	Switch mounting M 3p.	M 4p.	N	Connection terminal U	V	Y	W	Z	AA	CA	AD
600	in	18.12	5.5	11.02	14.17	2.34	5	6.59	10.04	13.19	6.88	1.97	2.38	0.28	0.41	1.83	12.64	0.82	3.15
600	mm	460	140	280	360	59.5	127.5	167.5	255	335	175	50	60.5	7	10.5	46.5	321	20.9	80

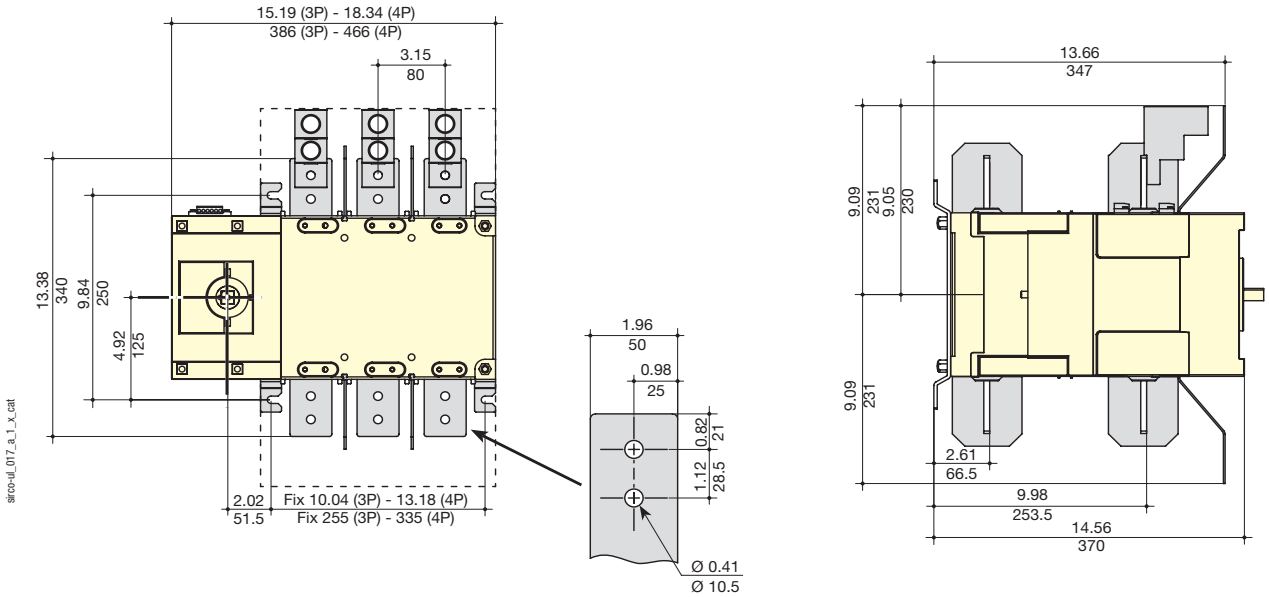
400 A - 6/8 poles



1. Terminal shrouds
A. S2-type handle

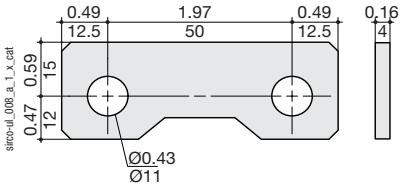
Rating		Overall dimensions	Terminal shrouds		Switch body		Switch mounting					Connection terminal										
(A)	Unit	C	AC	AD	K 3p.	K 4p.	M 3p.	M 4p.	N	R1	R2	T	U	V	W	X	Y	Z	Z1	AA	BA	CA
400	in	10.39	15.75	9.72	9.61	11.97	8.27	10.63	7.68	0.35	0.27	2.56	1.77	1.97	0.50	0.43	0.20	2.07	7.48	10.24	8.66	0.79
400	mm	264	400	247	244	304	210	270	195	9	7	65	45	50	12.7	11	5	52.6	190	260	220	20

600 A - 6/8 poles

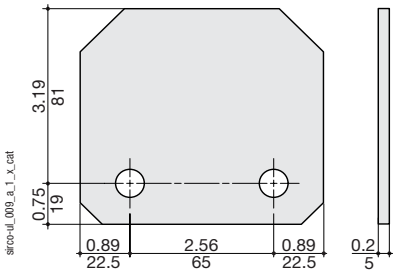


➲ SIRCO DC UL98 - Jumpers (in / mm)

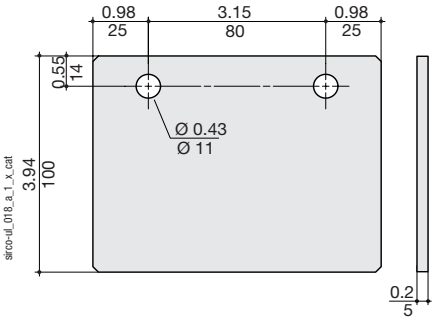
100 to 200 A



400 A

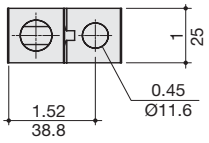


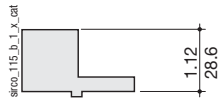
600 A



➲ Terminal Lugs (in / mm)

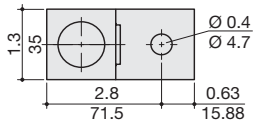
100 to 200 A

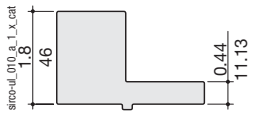




300 kcmil

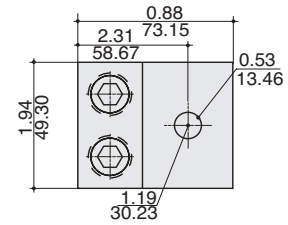
400 A





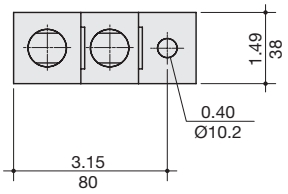
600 kcmil

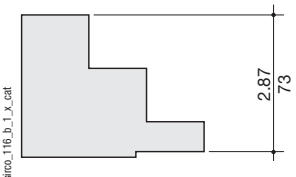
400 A



2 x 350 kcmil

600 A

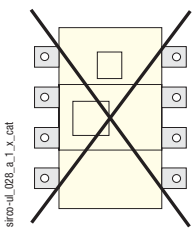




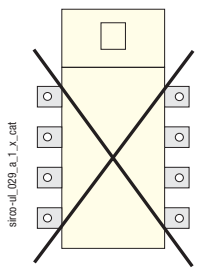
2x 600 kcmil

➲ Mounting orientation

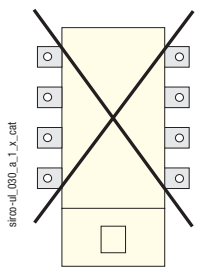
3/4 pole



6/8 pole - 100 to 400 A



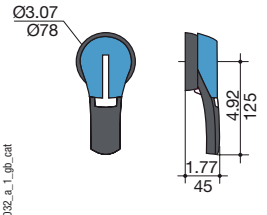
6/8 pole - 600 A

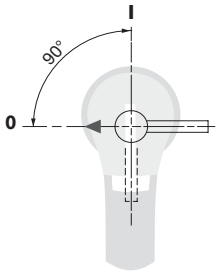


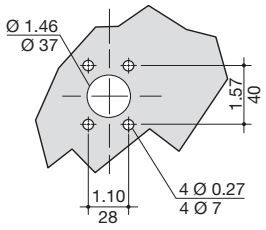
External handles dimensions (in / mm)

100 to 400 A - 3/4 poles

Handle type	Front operation Direction of operation	Door drilling
S2 type		



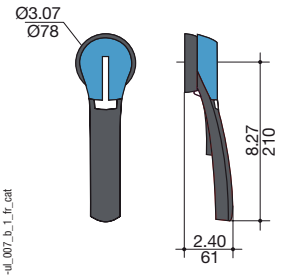


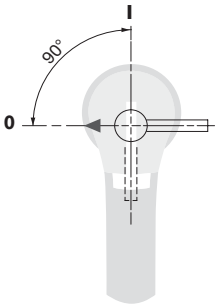


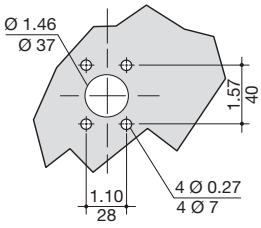
sircm-ul_032_a_1_gb_cat

400 A - 6/8 poles

Handle type	Front operation Direction of operation	Door drilling
S3 type		



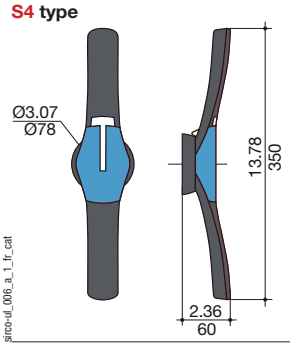


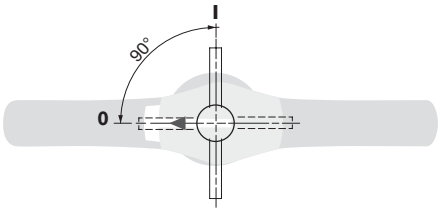


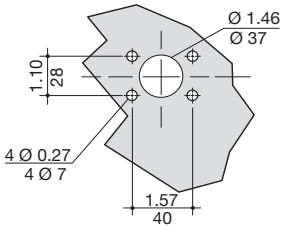
sirco-ul_007_b_1_fr_cat

600 A - 3/4 poles and 6/8 poles

Handle type	Front operation Direction of operation	Door drilling
S4 type		



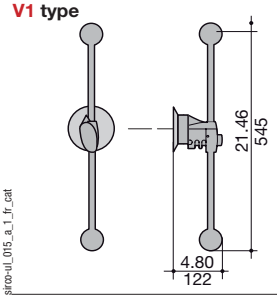


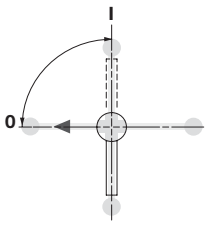


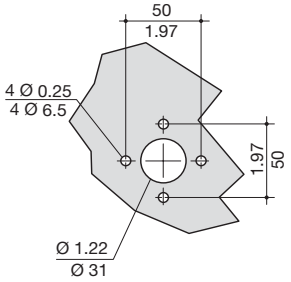
sirco-ul_006_a_1_fr_cat

600 A - 6/8 poles

Handle type	Front operation Direction of operation	Door drilling
V1 type		







sirco-ul_015_a_1_fr_cat

TVSS SURGE SWITCH UL

Load break switches standards UL and CSA



TVSS (Transient Voltage Surge Suppressor) Surge Switch

➲ Function

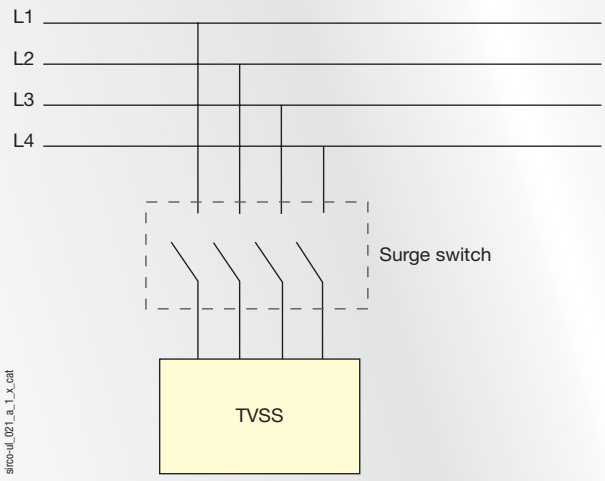
The **TVSS Surge Switch** is an extremely compact, high performance, manualy operated, non-fused switch. It is specifically designed to withstand the high surge current of 200kA with an 8 x 20 µs waveform seen in today's transient voltage Surge Protective Device (SPD) applications. Socomec Surge Switch uses a unique contact design that actually clamp contacts tighter during a surge.

➲ General characteristics

- 200kA 8/20µs shockwave withstand.
- Rated 100A 600VAC UL508 general use.
- High electrical and mechanical endurance.

➲ Conformity to standards

- UL508, Guide NRNT, File E224992
- IEC 60947-3



Front operation - 3/4 pole switches

Rating (A)	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Terminal shrouds
8/20µs 200KA 600VAC	**3P**	2700 **3017**	Black 2699 **5042** Red 2699 **5043**	S1 type Black 141F **2111** S1 type Red/Yellow 141G **2111** S1 type Black 141D **2111** S1 type Red/Yellow 141E **2111**	200 mm 1400 **1020** 320 mm 1400 **1032** 400 mm 1400 **1040**	3 P 2694 **3014**(1) 4 P 2694 **4014**(1)
	4P	2700 **4017**				

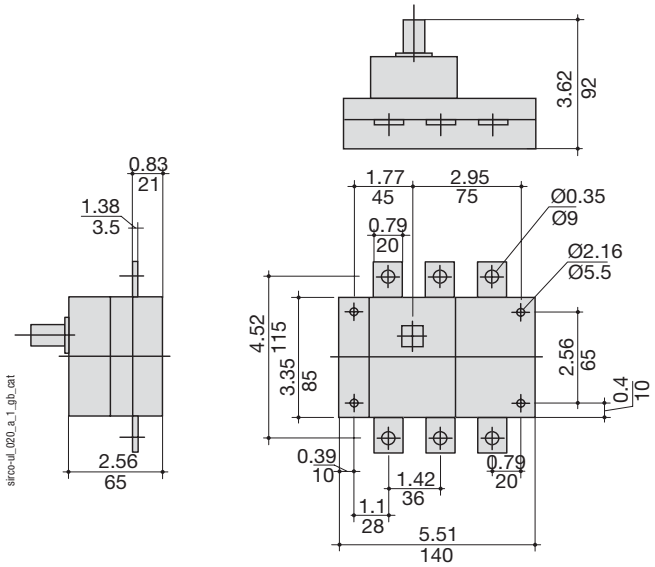
(1) Top or bottom.

➲ UL characteristics

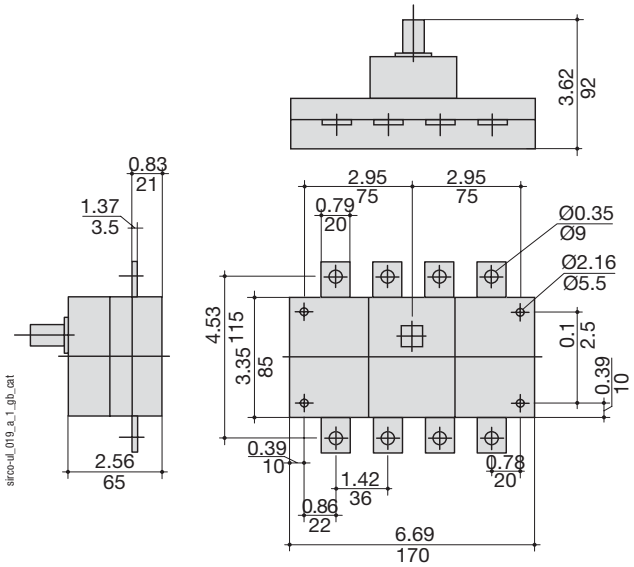
UL 508 100A 600VAC GENERAL USE

➲ Dimensions (in / mm)

TVSS 200 kA - 3 pole



TVSS 200 kA - 4 pole



Load Break Switches for specific applications



Despite already having in stock a wide range of load break switches, SOCOMEC also manufactures specific products suitable for all your requirements. Some of these products can be seen on these two pages, but this list does not include them all. Please, feel free to consult us.

➲ Conformity to standards

- IEC 60947-3
- BS EN 60947-3
- EN 60947-3
- NBN EN 60947-3
- VDE 0660-107 (1992)

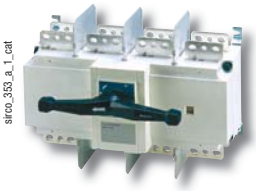
SIRCO range with over rated neutral



The use of power electronics is becoming more frequent. Chopper rectifiers and current inverters distort the signal by reinjecting the 3rd order harmonics which are added to each other on the neutral.
Available from 125 to 1800 A.

SIRCO 3 x 250 A with neutral at 400 A.

SIRCO HW short-circuit performance



- 80 kA eff. 1 s.
- 110 kA eff. 0.1 s.
- 240 kA peak.

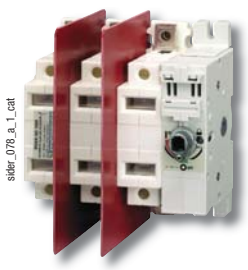
Multipolar SIRCO



SOCOMEC can provide switches up to 16 poles.

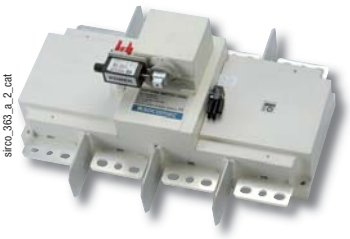
12 pole SIRCO.

Specific range for 1000 V network

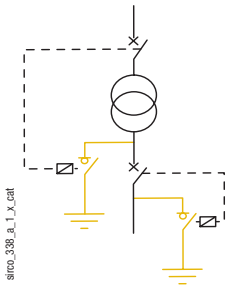


AC-22 / AC-23 characteristics.

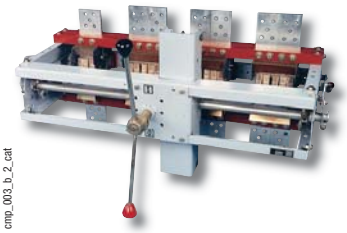
SIRCO for earthing


sirco_363_a_2_cat

- From 800 to 1800 A.
- 50 kA eff. 1 s.
- Special S4 type handle.
- Undervoltage coil interlocking.


sirco_338_a_1_x_cat

CMP


cmp_003_b_2_cat

Function

CMP are manually operated high power load-break switches from 2500 to 5000 A with optional remote tripping.

Available on request

- X poles.
- Tripping coil.

General characteristics

- Safety isolation by fully visible breaking.
- High thermal and dynamic withstand.
- Easy to use for large flat busbars.

Motorised SIRCO based on an ATyS motorised switch


sirco_343_a_1_cat

Function

Remote controlled, they ensure making and breaking on load and security breaking of any low voltage electrical circuit.

References

Rating (A)

No. of poles	Power supply voltage	125 Reference	160 Reference	250 Reference
3 P	230 VAC	1915 **3012**(1)	1915 **3016**(1)	1915 **3025**(1)
4 P	230 VAC	1915 **4012**(1)	1915 **4016**(1)	1915 **4025**(1)

(1) Other voltages 12, 24 VDC: consult us.

Rating (A)

No. of poles	Power supply voltage	400 Reference	630 Reference	800 Reference
3 P	230 VAC	1915 **3040**(1)	1915 **3063**(1)	1915 **3080**(1)
4 P	230 VAC	1915 **4040**(1)	1915 **4063**(1)	1915 **4080**(1)

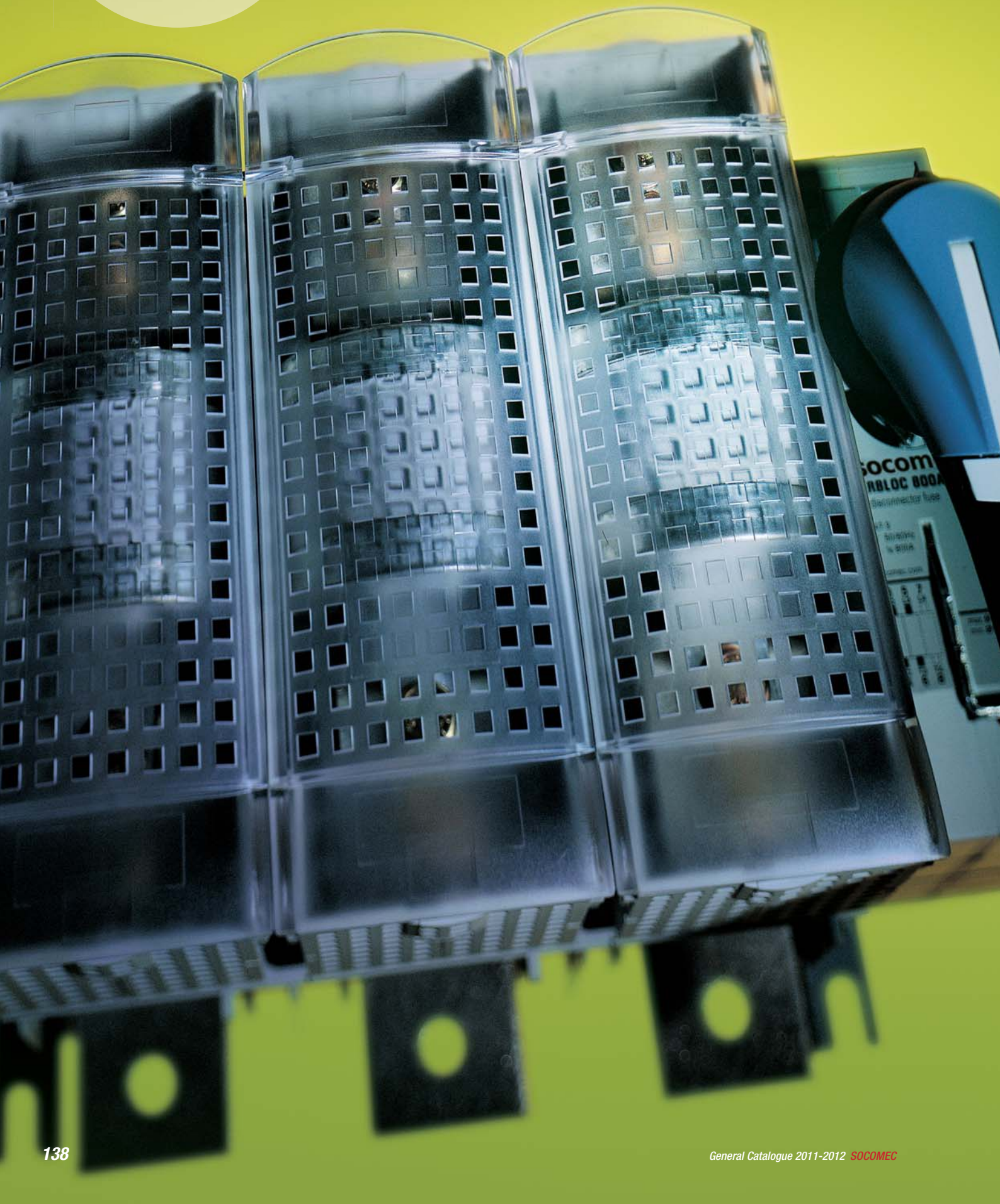
(1) Other voltages 12, 24 VDC: consult us.

Rating (A)

No. of poles	Power supply voltage	1 000 Reference	1 250 Reference	1 600 Reference
3 P	230 VAC	1915 **3100**(1)	1915 **3120**(1)	1915 **3160**(1)
4 P	230 VAC	1915 **4100**(1)	1915 **4120**(1)	1915 **4160**(1)

(1) Other voltages 12, 24 VDC: consult us.

Fuse protection



Fuses, fuse holders and fuse combination switches

INNOVATION



Fuse protection offers lots of benefits compared to the circuit breaker in a large number of industrial applications. With over 80 years' experience, SOCOMEC offers a range of switches and components useful for building a complete fuse protection solution.

➲ **Do you want…**

- **better understanding of fuse protection?**
  See our information on the next page
- **design an LV installation and its fuse protection?**
  Discover our ***INSTALFUSE® v2*** software.
  Please consult us

➲ **And to help you choose the right device:**
See our selection guide on the next page

➲ **Are your requirements outside of the standard offering?** Do not hesitate to contact us so we can discuss the adaptation of one of our devices together.

➲ **SOCOMEC also offers you** a large range of devices for guaranteeing electrical protection (differential protection, protection against voltage surges, current protection).
See our section on "Electronic protection"

The essential

Manually operated fuse combination switches


FUSERBLOC
p. 142

with tripping function


FUSOMAT
p. 184

Modular fuse disconnects


RM - RMS
p. 218

Fuses BS88


gG - aM fuses
p. 230

Fuses NFC and DIN


gG - aM fuses
p. 236

New

Plug-in

160 A ▸ 400 A

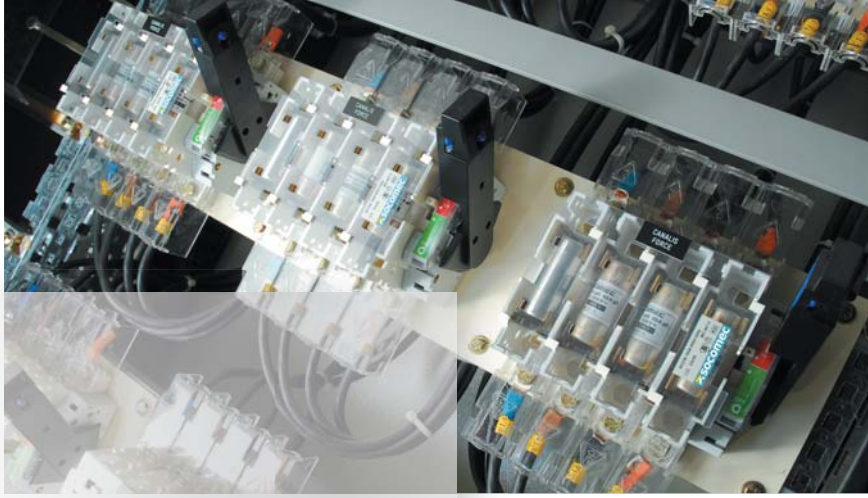

FUSERBLOC Plug-in
Consult us

➲ **Discover our complete selection guide**
(see next page)

➲ **Need a suggestion?**
We will help you find the best solution for your application.

➲ **Standards BS, UL and CSA**
(see next page)

Better understanding of fuse protection



Fuse combination switches provide a guarantee of reliable breaking and protection from power distribution to motor protection. Summary of the main benefits:

- **Significant limitation of short circuits**

The thermal and mechanical effects generated during a short circuit can be considerable. Since a fuse can cut-out short circuit much faster than a circuit breaker, it offer a greater limitation of the mechanical effect on your switchboard and wires (see fig. 1).

- **High breaking capacity**

Starting 1A, gG and aM fuses have a breaking capacity of 100 kA (or more); it is therefore not necessary to worry too much about the short circuit current when choosing the product which has the right characteristics.

- **Simplified selectivity**

Fuses allow total selectivity, regardless of the short circuit level. This is ensured as soon as the ratio of ratings between the upstream and downstream fuse is at least 1:6. This characteristic guarantees perfect continuity of the energy supplied (see an example in fig. 2).

- **The visible breaking**

When eliminating a short circuit, the energy generated is absorbed by the silica and remains confined in the body of the fuse, stopping the propagation of the arc or even the projection of white-hot materials.

- **Visible double breaking**

Fuse combination switches ensure breaking upstream and downstream of the fuses which allows them to be replaced in complete safety.

➲ **Useful information:**

• Controlled by the HV/LV transformer sensor, the fuse combination switches with tripping function are the best way of ensuring its general breaking and protection functions.

• Protection with high speed (UR) fuses is the only way to efficiently protect the semiconductors used in electronic equipment (variable speed drives, etc.) against short circuits.

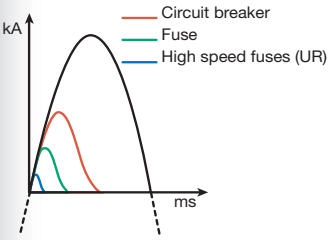
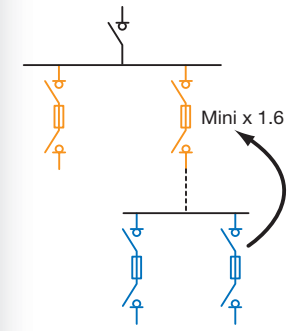


Fig. 1: Limitation of the current



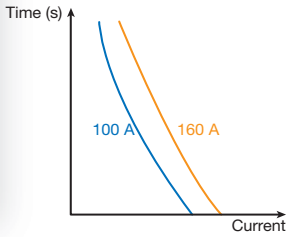


Fig. 2: Example of total selectivity

Selection guide

➲ BS88 fuses

Distribution protection



gG fuses
p. 230

Motor protection



gM fuses
p. 230

➲ NFC and DIN fuses

Distribution protection



gG fuses
p. 236

Motor protection



aM fuses
p. 236

Semiconductor protection



UR fuses
p. 246

Photovoltaic



PV fuses
p. 256



➲ **How to calculate fuse protection?**

The ***INSTALFUSE®*** ***v2*** software carries out sizing calculations for low-voltage electrical installations and their fuse protection. Please consult us.

➲ Modular fuse disconnects and Fuse bases

32 A ▸ 100 A



RM - RMS
p. 218

160 A ▸ 2500 A



Fuse bases
p. 224



RM PV
p. 222



➲ Photovoltaic applications

SOCOMEC provides solutions based on fuse disconnects or fuse combination switches.
please consult us.

➲ BS88, NFC and DIN fuse combination switches



Protection of transformer outputs

Visible breaking and tripping

250 A ▸ 1250 A



FUSOMAT
p. 184

630 A ▸ 1800 A



SIDERMAT combination
p. 196



Protection of feeders

Manual control

25 A ▸ 1250 A



FUSERBLOC
p. 142

Visible breaking and tripping

250 A ▸ 1250 A



FUSOMAT
p. 184

630 A ▸ 1800 A



SIDERMAT combination
p. 196



Protection of section incomers

Manual control

25 A ▸ 1250 A



FUSERBLOC
p. 142

Visible breaking and tripping

250 A ▸ 1250 A



FUSOMAT
p. 184



Protection of motor circuits

Manual control

25 A ▸ 1250 A



FUSERBLOC
p. 142



Semiconductor protection

Manual control

50 A ▸ 1250 A



FUSERBLOC and UR fuses
p. 178

➲ Need an enclosed switch?

SOCOMEC offers you a range of pre-equipped enclosures in steel or in polyester.



See p. 482

➲ Plug-in range

Connected directly to the busbar by contact clamps, the Plug-in FUSERBLOCS offer significant time and money savings during maintenance and extension operations.
These devices are available with side or bottom outputs for fuses rated 160A to 400A (DIN and BS fuses).

160 A ▸ 400 A



please consult us.

➲ UL/CSA range

Fuse combination switches to standard UL 98:

- standard positions 0 and 1
- standard positions 0 and 1 and Test

UL fuses: please consult us.

30 A ▸ 800 A



FUSERBLOC UL
p. 204

FUSERBLOC



20 to 1250 A
Manual operation

➲ Function

FUSERBLOC are manually operated multipolar fuse combination switches. They break or switch off on load and provide safety isolation and protection against overcurrent for any low voltage electrical circuit.

➲ General characteristics

- Fully visualised breaking.
- Double break by phase (top and bottom of fuse).
- Protection against overcurrent by fuse circuit-breakers (gG, aM, UR, BS88) with high breaking capacity (100 kA eff.).
- IP20 protection with terminal shrouds front panel.
- Compact.
- TEST position for testing control circuits without power using U type auxiliary contacts. In TEST position, the enclosure door can be opened.

➲ Available on request

- **FUSERBLOC** with **rear top or bottom connections:** consult us.
- **Multipolar FUSERBLOC** providing various coupling possibilities (for example: FUSERBLOC 3 x 400 A + 3 x 50 A with front or side operation).
- **FUSERBLOC UL and CSA** for the North American markets (see page 204).
- **FUSERBLOC with centred operation:** consult us.
- **FUSERBLOC for solar applications**: consult us.

➲ Conformity to standards

- IEC 60947-3
- EN 60947-3
- BS EN 60947-3
- NBN EN 60947-3
- IEC 60269-1
- DIN EN 60269-1
- NF EN 60269-1
- IEC 60269-2
- VDE 0636-1
- VDE 0660-107
- IS 14947-3
- Standards UL: see FUSERBLOC UL

➲ Approvals and certifications(1)

- KEMA
- LOVAG
- CCC
- GOST (Russia)
- CEBEC (Belgium)
- FI (Finland)
- CCA
- UKR (Ukraine)

(1) Product reference on request.



Multipolar FUSERBLOC



Centred operation



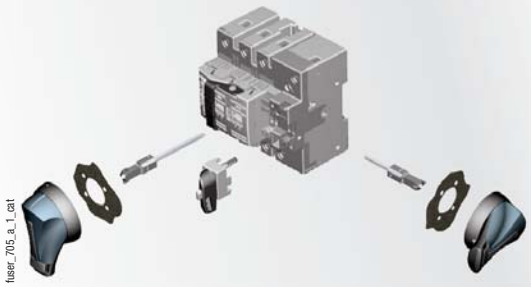
FUSERBLOC for solar applications

➲ What you need to know

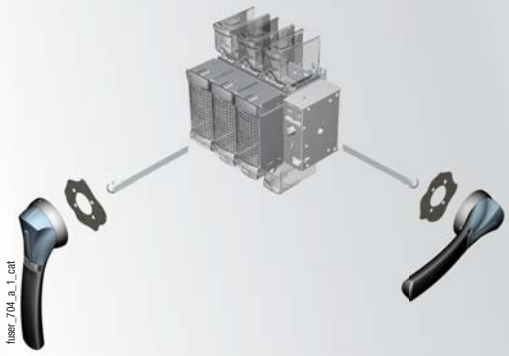
- Along with the rating, FUSERBLOC is selected according to the fuse type and functional specifications. SOCOMEC FUSERBLOC can be equipped with NFC, DIN or BS88 fuses.

- The INSTALFUSE® v2 software carries out sizing calculations for low-voltage electrical installations and their fuse protection.

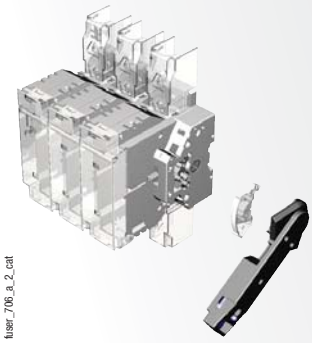
- Whether it is 3 pole + switched neutral or 3 pole + solid neutral, the FUSERBLOC 20 to 32 A with direct front operation and external operation is the best suited solution in compact design.



- From 630 to 1250 A, the FUSERBLOC unit allows direct and external front or right side operation in 2, 3 or 4 poles.



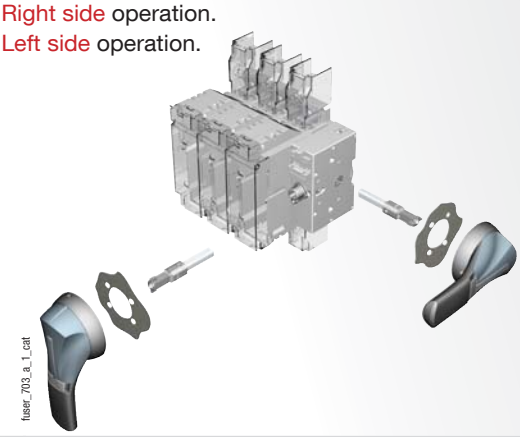
- From 32 to 400 A, the FUSERBLOC is available in 2, 3 or 4 poles with direct side operation.



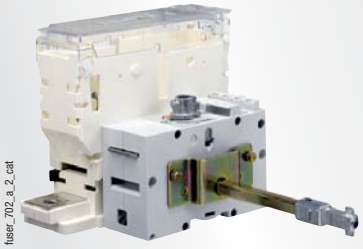
- FUSERBLOC is available in 3 and 4-pole versions within 2 types of enclosures:
  - Steel enclosure for front operation from 25 to 800 A, (NFC and DIN)
  - Polyester enclosure with front and side operation from 50 to 400 A (NFC and DIN).
  - For BS88 steel enclosed FUSERBLOC please consult us.



- With external operation, it is possible to operate the device in 3 ways:
  - Front operation.
  - Right side operation.
  - Left side operation.



- For ratings 20 to 400 A, the flat mounting kit provides a compact solution ideally suited to withdrawable applications.





fuser_570_a_2_cat

BS 88 - External front and side operation 20 to 160 A

Rating (A) Fuse size Frame size	Number of poles	Reference Switch I-0	Reference Changeover Switch I-0-II	External front handle I-0	TEST External front handle I-0 TEST	External right side handle I-0	Changeover external front handle I-0-II	Shaft extensions for handle	Terminal shrouds[3]	Additional contact holder for U type AC	Integrated solid neutral link
20 A A1 0	3 P	3641 **3000**	3680 **3000**	Black S1 type IP55 1411 **2111**[1] Red/Yellow S1 type IP65 1414 **2111**	Black S1 type IP65 1413 **2115**[1] Red/Yellow S1 type IP65 1414 **2115**	Black S1 type IP55 1415 **2111**[1] Red/Yellow S1 type type IP65 1418 **2111**	Black S1 type IP55 1411 **2113**[1] Red/Yellow S1 type IP65 1414 **2113**	320 mm 1401 **0532**		3999 **0710**[2]	
	3 P + switched neutral	3641 **4000**	3680 **4000**								
	3 P+solid neutral	3641 **5000**									
CD 32 A A1 0	3 P	3641 **3001**	3680 **3001**								
	3 P + switched neutral	3641 **4001**	3680 **4001**								
	3 P + solid neutral	3641 **5001**									
32 A A1 11	2 P	3841 **2003**						320 mm 1400 **1032**	Standard	3999 **0600**[2]	
	3 P	3841 **3003**	3880 **3003**								
	4 P	3841 **6003**	3880 **6003**								
63 A A2-A3 12	2 P	3841 **2006**									
	3 P	3841 **3006**	3880 **3006**								
	4 P	3841 **6006**	3880 **6006**								
100 A A4[4] **13**	2 P	3841 **2010**		Black S2 type IP55 1421 **2111**[1] Red/Yellow S2 type IP65 1424 **2111**	Black S2 type IP65 1423 **2115**[1] Red/Yellow S2 type IP65 1424 **2115**	Black S2 type IP55 1425 **2111**[1] Red/Yellow S2 type IP65 1428 **2111**	Black S2 type IP55 1421 **2113**[1] Red/Yellow IP65 1424 **2113**		2 P 3998 **2016** 3 P 3998 **3016** 4 P 3998 **4016**		3829 **9310**
	3 P	3841 **3010**	3880 **3010**								
	4 P	3841 **6010**	3880 **6010**								
CD 160 A A3-A4[4] **13 A**	2 P	3841 **2014**									3829 **9320**
	3 P	3841 **3014**	3880 **3014**								
	4 P	3841 **6014**	3880 **6014**								
160 A A4 14	2 P	3841 **2015**									
	3 P	3841 **3015**	3880 **3015**								
	4 P	3841 **6015**	3880 **6015**								
160 A B1-B2 14	2 P	3841 **2016**									
	3 P	3841 **3016**	3880 **3016**								
	4 P	3841 **6016**	3880 **6016**								

(1) Standard.
(2) 4 auxiliary contacts as standard without support (the support is for 4 additional auxiliary contacts.
(3) Top/bottom.
(4) For fuse size A4: max diameter 31 mm.



fuser_554_a_2_cat

BS 88 - External front and side operation 200 to 1250 A

Rating (A) Fuse size Frame size	Number of poles	Reference Switch I-0	Reference Changeover Switch I-0-II	External front handle I-0	TEST External front handle I-0 TEST	External right side handle I-0	Changeover external front handle I-0-II	Shaft extensions for handle	Terminal shrouds[3]	Additional contact holder for U type AC	Integrated solid neutral link
CD 200 A A3-A4[5] 13 A	2 P	3841 **2019**		Black S2 type IP55 1421 **2111**[1] Red/Yellow S2 type IP65 1424 **2111**	Black S2 type IP65 1423 **2115**[1] Red/Yellow S2 type IP65 1424 **2115**	Black S2 type IP55 1425 **2111**[1] Red/Yellow S2 type IP65 1428 **2111**	Black S2 type IP55 1421 **2113**[1] Red/Yellow S2 type IP65 1424 **2113**	320 mm 1400 **1032**	2 P 3998 **2016** 3 P 3998 **3016** 4 P 3998 **4016**	3999 **0600**[4]	3829 **9320**
	3 P	3841 **3019**	3880 **3019**								
	4 P	3841 **6019**	3880 **6019**								
200 A B1-B2 15	2 P	3841 **2021**							2 P 3998 **2025** 3 P 3998 **3025** 4 P 3998 **4025**		3829 **9325**
	3 P	3841 **3021**	3880 **3021**								
	4 P	3841 **6021**	3880 **6021**								
250 A B1-B2-B3 15	2 P	3841 **2024**									
	3 P	3841 **3024**	3880 **3024**								
	4 P	3841 **6024**	3880 **6024**								
315 A B1-B2-B3 16	2 P	3841 **2032**									3829 **9339**
	3 P	3841 **3032**	3880 **3032**								
	4 P	3841 **6032**	3880 **6032**								
400 A B1-B2-B3-B4 16	2 P	3841 **2039**									
	3 P	3841 **3039**	3880 **3039**								
	4 P	3841 **6039**	3880 **6039**								
630 A C1-C2 17	2 P	3821 **2063**		Black S3 type IP65 1433 **3111**[1] Red/Yellow S3 type IP65 1434 **3111**		Black S3 type IP65 1437 **3111**[1] Red/Yellow S3 type IP65 1438 **3111**		320 mm 1400 **1232**	2 P 3898 **2080** 3 P 3898 **3080** 4 P 3898 **4080**		3829 **9308**
	3 P	3821 **3063**									
	4 P	3821 **6063**									
800 A C1-C2-C3 17	2 P	3821 **2080**									
	3 P	3821 **3080**									
	4 P	3821 **6080**									
1250 A D1 18	2 P	3821 **2120**		Black S4 type IP65 1443 **3111**[1]					3898 **2120**		3829 **9312**
	3 P	3821 **3120**							3898 **3120**		
	4 P	3821 **6120**							3898 **4120**		

(1) Standard.
(2) 4 auxiliary contacts as standard without support (the support is for 4 additional auxiliary contacts.
(3) Top/bottom.
(4) 8 AC as standard without support (the support is for 8 additional auxiliary contacts.
(5) For fuse size A4: max diameter 31mm



fuser_539_a_1_cat

BS 88 - Direct operation
20 to 160 A

Rating (A) Fuse size Frame size	Number of poles	Reference Side direct operation	Reference Direct front operation	Side direct handle operation switch	Direct front handle	Auxiliary contacts	Terminal shrouds[3]	Cage terminals	Handle key interlocking accessories[2]
20 A **A1** **0**	3 P		3641 **3000**		Black 3629 **4012**	1 contact NO/NC A type 3999 **0001**[1] 2 contacts NO/NC A type 3999 **0002**[1]	Standard	Standard	
	3 P + switched neutral		3641 **4000**						
	3 P + solid neutral		3641 **5000**						
CD 32 A **A1** **0**	3 P		3641 **3001**						
	3 P + switched neutral		3641 **4001**						
	3 P + solid neutral		3641 **5001**						
32 A **A1** **1**	2 P	3625 **2003**	consult us	Black 3629 **7900**		1 contact NO/NC A type 3999 **0021**[1] 2 contacts NO/NC A type 3999 **0022**[1]	2 P 3998 **2016** 3 P 3998 **3016** 4 P 3998 **4016**	3 P 5400 **3016** 4 P 5400 **4016**	3629 **7903**
	3 P	3625 **3003**	consult us						
	4 P	3625 **6003**	consult us						
63 A **A2-A3** **2**	2 P	3625 **2006**	consult us						
	3 P	3625 **3006**	consult us						
	4 P	3625 **6006**	consult us						
100 A **A4**[4] **3**	2 P	3625 **2010**	consult us	Black 3629 **7901**					3629 **7913**
	3 P	3625 **3010**	consult us						
	4 P	3625 **6010**	consult us						
CD 160 A **A3-A4**[4] **3 A**	2 P	3625 **2014**	consult us						
	3 P	3625 **3014**	consult us						
	4 P	3625 **6014**	consult us						
160 A **A4** **4**	2 P	3625 **2015**	consult us						
	3 P	3625 **3015**	consult us						
	4 P	3625 **6015**	consult us						
160 A **B1-B2** **4**	2 P	3625 **2016**	consult us						
	3 P	3625 **3016**	consult us						
	4 P	3625 **6016**	consult us						

(1) Max. 2 contacts.
(2) Lock not included.
(3) Top/bottom.
(4) For fuse size A4: max diameter 31 mm.



fuser_230_a_1_cat

BS 88 - Direct operation 200 to 400 A

Rating (A) Fuse size Frame size	Number of poles	Reference Side direct operation	Reference Direct front operation	Side direct handle operation switch	Direct front handle	Auxiliary contacts	Terminal shrouds[3]	Cage terminals	Handle key interlocking accessories[2]
CD 200 A A3-A4[4] **13 a**	2 P	3625 **2019**	consult us	Black 3629 **7901**	Consult us	1 contact NO/NC A type 3999 **0021**[1] 2 contacts NO/NC A type 3999 **0022**[1]	2 P 3998 **2016** 3 P 3998 **3016** 4 P 3998 **4016**	3 P 5400 **3016** 4 P 5400 **4016**	3629 **7913**
	3 P	3625 **3019**	consult us						
	4 P	3625 **6019**	consult us						
200 A B1-B2 5	2 P	3625 **2021**	consult us						
	3 P	3625 **3021**	consult us						
	4 P	3625 **6021**	consult us						
250 A B1-B2-B3 5	2 P	3625 **2024**	consult us				2 P 3998 **2025** 3 P 3998 **3025** 4 P 3998 **4025**	3 P 5400 **3025** 4 P 5400 **4025**	
	3 P	3625 **3024**	consult us						
	4 P	3625 **6024**	consult us						
315 A B1-B2-B3 6	2 P	3625 **2032**	consult us					3 P 5400 **3040** 4 P 5400 **4040**	
	3 P	3625 **3032**	consult us						
	4 P	3625 **6032**	consult us						
400 A B1-B2-B3-B4 6	2 P	3625 **2039**	consult us						
	3 P	3625 **3039**	consult us						
	4 P	3625 **6039**	consult us						

(1) Max. 2 contacts.
(2) Lock not included.
(3) Top/bottom.
(4) For fuse size A4: max diameter 31 mm.



fuser_416_a_1_cat

BS 88 - Direct operation 630 to 1250 A

Rating (A) Fuse size Frame size	Number of poles	Reference Side direct operation	Reference Direct front operation	Side direct handle operation switch	Direct front handle	Auxiliary contacts	Terminal shrouds[3]	Cage terminals	Handle key interlocking accessories[2]
630 A C1-C2 17	2 P	3821 **2063**	3821 **2063**	Black 3899 **7911**	Black 3899 **6011**	1 contact NO U type 3999 **0701**[1] 1 contact NO U type 3999 **0702**[1]	2 P 3898 **2080** 3 P 3898 **3080** 4 P 3898 **4080**		
	3 P	3821 **3063**	3821 **3063**						
	4 P	3821 **6063**	3821 **6063**						
800 A C1-C2-C3 17	2 P	3821 **2080**	3821 **2080**						
	3 P	3821 **3080**	3821 **3080**						
	4 P	3821 **6080**	3821 **6080**						
1250 A D1 18	2 P	3821 **2120**	3821 **2120**		Black 3899 **7011**		3898 **2120**		
	3 P	3821 **3120**	3821 **3120**				3898 **3120**		
	4 P	3821 **6120**	3821 **6120**				3898 **4120**		

(1) Max.number of U type auxiliary contact is 8.
(2) Lock not included.
(3) Top/bottom.



fuser_566_a_2_cat

NFC and DIN
External front and right side operation
25 to 125 A

Rating (A) / Fuse / Frame size	No. of poles	Switch I-0-TEST	Changeover switch I-0-II	External front handle	TEST external front handle	External right side handle	Changeover external front handle	Shaft for external handle	Auxiliary contacts[2]	Terminal shrouds[1]	Integrated solid neutral link
25 A 10 x 38 0	3 P	3631 **3002**[1]	3670 **3002**	S1 type Black IP55 1411 **2111** Red/Yellow IP65 1414 **2111**	S1 type Black IP65 1413 **2115** Red/Yellow IP65 1414 **2115**	S1 type Black IP55 1415 **2111** Red/Yellow IP65 1418 **2111**	S1 type Black IP55 1415 **2113** Red/Yellow IP65 1418 **2113**	320 mm 1401 **0532**	U type 1 contact 3999 **0710**		
	3 P + switch neutral	3631 **4002**[1]	3670 **4002**								
	3 P + solid neutral	3631 **5002**[1]									
CD 32 A 10 x 38 0	3 P	3631 **3003**	3670 **3003**								
	3 P + switch neutral	3631 **4003**	3670 **4003**								
	3 P + solid neutral	3631 **5003**									
32 A 14 x 51 0	3 P	3631 **3004**[1]	3670 **3004**								
	3 P + switch neutral	3631 **4004**[1]	3670 **4004**								
	3 P + solid neutral	3631 **5004**[1]									
50 A 14 x 51 11	2 P	3831 **2005**		S1 type Black IP65 1411 **2111** Red/Yellow IP65 1414 **2111**	S1 type Black IP65 1413 **2115** Red/Yellow IP65 1414 **2115**			320 mm 1400 **1032**[2]	U type 1 contact 3999 **0600**	Standard	3829 **9310**
	3 P	3831 **3005**[1]	3870 **3005**								
	4 P	3831 **6005**[1]	3870 **6005**								
63 A 00C 12	2 P	3831 **2006**									
	3 P	3831 **3006**[1]	3870 **3006**								
	4 P	3831 **6006**[1]	3870 **6006**								
100 A 22 x 58 13	2 P	3831 **2010**		S2 type Black IP65 1421 **2111** Red/Yellow IP65 1424 **2111**	S2 type Black IP55 1423 **2115** Red/Yellow IP65 1424 **2115**	S2 type Black IP55 1425 **2111** Red/Yellow IP65 1428 **2111**	S2 type Black IP55 1421 **2113** Red/Yellow IP65 1424 **2113**			2 P 3998 **2016** 3 P 3998 **3016** 4 P 3998 **4016**	
	3 P	3831 **3010**[1]	3870 **3010**								
	4 P	3831 **6010**[1]	3870 **6010**								
125 A 22 x 58 13	2 P	3831 **2011**									
	3 P	3831 **3011**	3870 **3010**								
	4 P	3831 **6011**	3870 **6010**								
125 A 00 13	2 P	3831 **2012**									
	3 P	3831 **3012**	3870 **3011**								
	4 P	3831 **6012**	3870 **6011**								

(1) Available enclosed (see page 494 "Enclosed fuse switches").
(2) Top/bottom.
(3) Maximum 4 contacts.


fuser_549_a_1_cat

NFC and DIN
External front and right side operation
160 to 1250 A

Rating (A) / Fuse / Frame size	No. of poles	Switch I-0	Changeover switch I-0-II	External front handle	TEST external front handle	External right side handle	Changeover external front handle	Shaft for external handle	Auxiliary contacts	Terminal shrouds[2]	Integrated solid neutral link
160 A 00 13	2 P	3831 **2015**		Type S2 Black IP55 1421 **2111** Red/Yellow IP65 1424 **2111**	Type S2 Black IP65 1423 **2115** Red/Yellow IP65 1424 **2115**	Type S2 Black IP55 1425 **2111** Red/Yellow IP65 1428 **2111**	Type S2 Black IP55 1425 **2113** Red/Yellow IP65 1428 **2113**	320 mm 1400 **1032**	U type 1 contact 3999 **0600**[3]	2 P 3998 **2016** 3 P 3998 **3016** 4 P 3998 **4016**	3829 **9320**
	3 P	3831 **3015**	3870 **3015**								
	4 P	3831 **6015**	3870 **6015**								
160 A 0 14	2 P	3831 **2016**									
	3 P	3831 **3016**[1]	3870 **3016**								
	4 P	3831 **6016**[1]	3870 **6016**								
250 A 1 15	2 P	3831 **2024**							U type 1 contact 3999 **0600**[4]	2 P 3998 **2025** 3 P 3998 **3025** 4 P 3998 **4025**	3829 **9325**
	3 P	3831 **3024**[1]	3870 **3024**								
	4 P	3831 **6024**[1]	3870 **6024**								
400 A 2 16	2 P	3831 **2039**									3829 **9339**
	3 P	3831 **3039**[1]	3870 **3039**								
	4 P	3831 **6039**[1]	3870 **6039**								
630 A 3 17	2 P	3811 **2063**		Type S3 Black IP65 1433 **3111** Red/Yellow IP65 1434 **3111**		Type S3 Black IP65 1437 **3111** Red/Yellow IP65 1438 **3111**		320 mm 1400 **1232**		2 P 3898 **2080** 3 P 3898 **3080** 4 P 3898 **4080**	3829 **9308**
	3 P	3811 **3063**[1]									
	4 P	3811 **6063**[1]									
800 A 3 17	2 P	3811 **2080**									
	3 P	3811 **3080**									
	4 P	3811 **6080**									
800 A 4 18	2 P	3811 **2081**		Type S4 Black IP65 1443 **3111** Red/Yellow IP65 1444 **3111**						2 P 3898 **2120** 3 P 3898 **3120** 4 P 3898 **4120**	3829 **9312**
	3 P	3811 **3081**									
	4 P	3811 **6081**									
1250 A 4 18	2 P	3811 **2120**									
	3 P	3811 **3120**									
	4 P	3811 **6120**									

(1) Available enclosed (see page 494 "Enclosed fuse switches").
(2) Top/bottom.
(3) Maximum 4 contacts.
(4) Maximum 8 contacts.

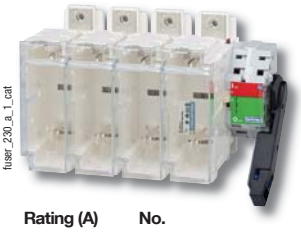


fuser_539_a_1_cat

NFC and DIN - Direct operation
25 to 125 A

Rating (A) Fuse size Frame size	No. of poles	Direct side operation	Direct front operation	Direct handle	Auxiliary contacts	Terminal shrouds	Cage terminals	Lock for fuse protection cover	Handle ley interlocking accessories[6]
25 A 10 x 38 0	3 P		3631 **3002**	Black 3629 **4012**[1][2]	A type 1 contact NO/NC 3999 **0001**[3] A type 2 contacts NO/NC 3999 **0002**[3]	Standard	Standard	Standard	
	3 P + switch neutral		3631 **4002**						
	3 P + solid neutral		3631 **5002**						
CD 32 A 10 x 38 0	3 P		3631 **3003**						
	3 P + switch neutral		3631 **4003**						
	3 P + solid neutral		3631 **5003**						
32 A 14 x 51 0	3 P		3631 **3004**						
	3 P + switch neutral		3631 **4004**						
	3 P + solid neutral		3631 **5004**						
50 A 14 x 51 1	2 P	3615 **2005**	Consult us	Black 3629 **7900**[5][2]	A type 1 contact NO/NC 3999 **0021**[3] A type 2 contacts NO/NC 3999 **0022**[3]	2 P 3998 **2016**[4] 3 P 3998 **3016**[4] 4 P 3998 **4016**[4]	3 P 5400 **3016** 4 P 5400 **4016**	3999 **8912**	3629 **7913**
	3 P	3615 **3005**	Consult us						
	4 P	3615 **6005**	Consult us						
63 A 00C 2	2 P	3615 **2006**	Consult us						
	3 P	3615 **3006**	Consult us						
	4 P	3615 **6006**	Consult us						
100 A 22 x 58 3	2 P	3615 **2010**	Consult us						
	3 P	3615 **3010**	Consult us						
	4 P	3615 **6010**	Consult us						
125 A 22 x 58 3	2 P	3615 **2011**	Consult us						
	3 P	3615 **3011**	Consult us						
	4 P	3615 **6011**	Consult us						
125 A 00 3	2 P	3615 **2012**	Consult us						
	3 P	3615 **3012**	Consult us						
	4 P	3615 **6012**	Consult us						

(1) Direct front operation.
(2) Standard.
(3) Maximum 2 contacts.
(4) Top or bottom.
(5) Direct right side operation.
(6) Loccking using RONIS EL11AP lock (lock not included).


fuser_230_a_1_cat

NFC and DIN - Direct operation 160 to 400 A

Rating (A) Fuse size Frame size	No. of poles	Direct side operation	Direct front operation	Direct handle	Auxiliary contacts	Terminal shrouds	Cage terminals	Lock for fuse protection cover	Handle ley interlocking accessories[5]
160 A 00 3	2 P	3615 **2015**	Consult us	Black 3629 **7901**[4][1]	A type 1 contact NO/NC 3999 **0021**[2]	2 P 3998 **2016**[3]	3 P 5400 **3016**	3999 **8912**	3629 **7913**
	3 P	3615 **3015**	Consult us			3 P 3998 **3016**[3]	4 P 5400 **4016**		
	4 P	3615 **6015**	Consult us			4 P 3998 **4016**[3]			
160 A 0 4	2 P	3615 **2016**	Consult us	Black 3629 **7901**[4][1]				3999 **8216**	
	3 P	3615 **3016**	Consult us					3999 **8316**	
	4 P	3615 **6016**	Consult us					3999 **8416**	
250 A 1 5	2 P	3615 **2024**	Consult us		A type 2 contacts NO/NC 3999 **0022**[2]	2 P 3998 **2025**[3]	3 P 5400 **3025** 4 P 5400 **4025**	3999 **8225**	
	3 P	3615 **3024**	Consult us			3 P 3998 **3025**[3]		3999 **8325**	
	4 P	3615 **6024**	Consult us			4 P 3998 **4025**[3]		3999 **8425**	
400 A 2 6	2 P	3615 **2039**	Consult us				3 P 5400 **3040** 4 P 5400 **4040**	3999 **8240**	
	3 P	3615 **3039**	Consult us					3999 **8340**	
	4 P	3615 **6039**	Consult us					3999 **8440**	

(1) Standard.
(2) Maximum 2 contacts.
(3) Top/bottom.
(4) Direct right side operation.
(5) Locking using RONIS EL11AP lock (lock not included).


fuser_416_a_1_cat

NFC and DIN - Direct operation 630 to 1250 A

Rating (A) Fuse size Frame size	No. of poles	Direct side and front operation	Direct front handle	Direct side handle	Auxiliary contacts	Terminal shrouds
630 A 3 17	2 P	3811 **2063**	Black 3899 **6011**[1][2]	Black 3899 **7911**	U type 1 contact NC 3999 **0701**[4] 1 contact NO 3999 **0702**[4]	2 P 3898 **2080**[3] 3 P 3898 **3080**[3] 4 P 3898 **4080**[3]
	3 P	3811 **3063**				
	4 P	3811 **6063**				
800 A 3 17	2 P	3811 **2080**				
	3 P	3811 **3080**				
	4 P	3811 **6080**				
800 A 4 18	2 P	3811 **2081**	Black 3899 **7011**[1][2]			2 P 3898 **2120**[3] 3 P 3898 **3120**[3] 4 P 3898 **4120**[3]
	3 P	3811 **3081**				
	4 P	3811 **6081**				
1250 A 4 18	2 P	3811 **2120**				
	3 P	3811 **3120**				
	4 P	3811 **6120**				

(1) Direct front operation.
(2) Standard.
(3) Top/bottom.
(4) Maximum 8 contacts.

Direct handle



Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5

For front operation

Rating (A)	Frame size	Figure no.	Handle colour	Reference
20 ... 32	0	1	Black	3629 **4012**
20 ... 32	0	1	Red	3629 **4013**
32 ... 400	11 ... 16	2	Black	3629 **7910**
630 ... 800	17	2	Black	3899 **6011**
800 ... 1250	18	3	Black	3899 **7011**

For right side operation

Rating (A)	Frame size	Figure no.	Handle colour	Reference
32 ... 63	1/2	4	Black	3629 **7900**
100 ... 400	3 … 6	4	Black	3629 **7901**
630 ... 1250	17 ... 18	5	Black	1437 **7911**

External front operation handle



S1 type handle



S2 type handle



S3 type handle



S4 type handle

Padlockable handle in position 0

Rating (A)	Frame size	Handle type	Handle colour	Operation	External IP(1)	Defeatable handle	Reference
CD 25 … 63	0/11/12	S1	Black	I - 0	IP55	Yes	1411 **2111**
CD 25 … 63	0/11/12	S1	Black	I - 0	IP65	Yes	1413 **2111**
CD 25 … 63	0/11/12	S1	Red/Yellow	I - 0	IP65	Yes	1414 **2111**
CD 25 … 63	0/11/12	S1	Black	I - 0 - Test	IP65	Yes	1413 **2115**
CD 25 … 63	0/11/12	S1	Red/Yellow	I - 0 - Test	IP65	Yes	1414 **2115**
100 … 400	13 … 16	S2	Black	I - 0	IP55	Yes	1421 **2111**
100 … 400	13 … 16	S2	Black	I - 0	IP65	Yes	1423 **2111**
100 … 400	13 … 16	S2	Red/Yellow	I - 0	IP65	Yes	1424 **2111**
100 … 400	13 … 16	S2	Black	I - 0 - Test	IP55	Yes	1423 **2115**
100 … 400	13 … 16	S2	Red/Yellow	I - 0 - Test	IP65	Yes	1424 **2115**
630 … 800	17	S3	Black	I - 0	IP65	Yes	1433 **3111**
630 … 800	17	S3	Red/Yellow	I - 0	IP65	Yes	1434 **3111**
800 … 1250	18	S4	Black	I - 0	IP65	Yes	1443 **3111**
800 … 1250	18	S4	Red/Yellow	I - 0	IP65	Yes	1444 **3111**

(1) IP: Degree of protection according to standard IEC 60529.

Padlockable handle in position 0 and I

Rating (A)	Frame size	Handle type	Handle colour	External IP(1)	Reference
CD 25 … 63	0/11/12	S1	Black	IP65	1413 **2311**
100 … 400	13 … 16	S2	Black	IP65	1423 **2311**

(1) IP: Degree of protection according to standard IEC 60529.

External right side operation handle



S1 type handle



S3 type handle

Rating (A)	Frame size	Handle type	Handle colour	External IP(1)	Reference
CD 25 … 63	0/11/12	S1	Black	IP55	1415 **2111**
CD 25 … 63	0/11/12	S1	Black	IP65	1417 **2111**
CD 25 … 63	0/11/12	S1	Red/Yellow	IP65	1418 **2111**
100 … 400	13 … 16	S2	Black	IP55	1425 **2111**
100 … 400	13 … 16	S2	Black	IP65	1427 **2111**
100 … 400	13 … 16	S2	Red/Yellow	IP65	1428 **2111**
630 … 1250	17/18	S3	Black	IP65	1437 **3111**
630 … 1250	17/18	S3	Red/Yellow	IP65	1438 **3111**

(1) IP: Degree of protection according to standard IEC 60529.

External front handle with metal tab


acces_236_a_1_cat

S2 type handle


acces_235_a

S3 type handle

Rating (A)	Frame size	Handle type	Handle colour	External IP (1)	Defeatable handle	Reference
CD 25 … 63	0/11/12	S1	Black	IP65	Yes	141D **2911**
CD 25 … 63	0/11/12	S1	Red/Yellow	IP65	Yes	141E **2911**
100 … 400	13 … 16	S2	Black	IP65	Yes	142D **2911**
100 … 400	13 … 16	S2	Red/Yellow	IP65	Yes	142E **2911**
600…800	17	S3	Black	IP65	Yes	143D **3911**
600…800	17	S3	Red/Yellow	IP65	Yes	143E **3911**
800 … 1250	18	S4	Black	IP65	Yes	144D **3911**
800 … 1250	18	S4	Red/Yellow	IP65	Yes	144E **3911**

(1) IP: Degree of protection according to standard IEC 60529.

S type handle adapter


acces_187_a_1_cat

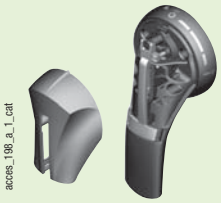
Use
Enables S type handles to be fitted in place of existing older style SOCOMEC handles. Adapter can also be utilised as a spacer to increase the distance between the panel door and the handle lever.

Dimensions
Adds 12 mm to the depth.

Handle colour	To be ordered in multiples of	External IP(1)	Reference
Black	10	IP65	1493 **0000**

(1) IP: Degree of protection according to standard IEC 60529.

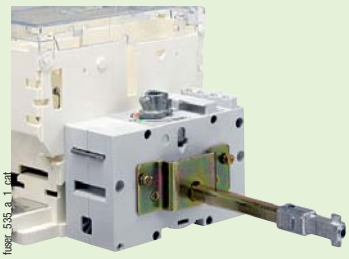
Alternative S-type handle cover colours


acces_198_a_1_cat

Use
For single lever handles type S1, S2, S3 and double arms lever handle, type S4.
Other colours: consult us.

Handle colour	To be ordered in multiples of	Handle	Reference
Light grey	50	Type S1, S2, S3	1401 **0001**
Dark grey	50	Type S1, S2, S3	1401 **0011**
Light grey	50	S4 type	1401 **0031**
Dark grey	50	S4 type	1401 **0041**

Flat mounting kit


fuser_538_a_1_cat

Use
The flat mounting kit provides a compact solution ideally suited to withdrawable applications.

Rating (A)	Frame size	Type	Reference
CD 20 … CD 32	0	Kit + Shaft 200 mm	1429 **7709**
32 … 400	11 … 16	Kit + Shaft 200 mm	1429 **7710**

Handle for flat mounting kit


fuser_536_a_1_cat

S2 type handle.

Padlockable handle in position 0

Rating (A)	Frame size	Handle type	Handle colour	External IP(1)	Reference
CD 20 … 63	0/11/12	S1	Black	IP55	1411 **2111**(2)
CD 20 … 63	0/11/12	S1	Red/Yellow	IP65	1414 **2111**(2)
100 … 400	13 … 16	S2	Black	IP55	1421 **2111**(2)
100 … 400	13 … 16	S2	Red/Yellow	IP65	1424 **2111**(2)

(1) IP: Degree of protection according to standard IEC 60529.
(2) Defeatable handle in position I.

Front operation shaft support accessory



Use

This support maintains shaft position for extension shafts greater than 320 mm in length.

Rating (A)	Frame size	Reference
32 … 400	11 … 16	3899 **0400**

Shaft guide for external operation

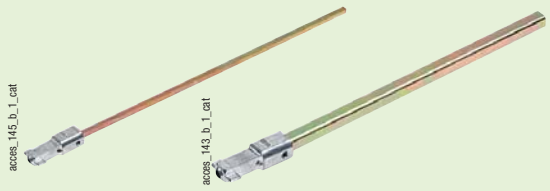


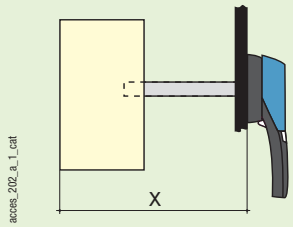
Use

To guide the shaft extension into the external handle.
This accessory enables handle to engage extension shaft with a misalignment of up to 15 mm.
Required for a shaft length over 320 mm.

Description	Reference
Shaft guide	1429 **0000**

Shaft for external front





Use

Standard lengths:
- 200 mm
- 320 mm
- 400 mm
- 500 mm.

Other lengths: consult us.

Rating (A)	Frame size	Shaft length (mm)	Reference
CD 20 …CD 32	0	200	1401 **0520**
CD 20 …CD 32	0	320	1401 **0532**
CD 20 …CD 32	0	400	1401 **0540**(1)
32 … 400	11 … 16	200	1400 **1020**
32 … 400	11 … 16	320	1400 **1032**
32 … 400	11 … 16	500	1400 **1050**(2)
630 … 800	17	200	1400 **1220**
630 … 1250	17/18	320	1400 **1232**
630 … 1250	17/18	500	1400 **1250**(1)

(1) Use the accessory "guide cone for external control".
(2) Use the accessory "shaft extension support for external front control".

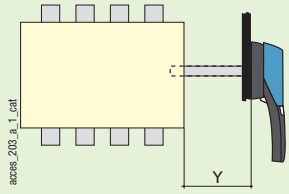
Dimension X (mm) for FUSERBLOC BS88

Shaft extension length (mm)	Rating (A) Fuse size Frame size	CD 20 … CD 32 A1 0	32 A1 11	63 … 160 A2-A3/A4 12/13/14	CD160 … CD200 A3-A4 13 A	160 … 200 B1-B2 14/15	250 … 315 B1-B2-B3 15/16	630 … 800 C1-C2-C3 17	1250 D1 18
200		102 … 245	100 … 230	125 … 230	150 … 230	135 … 230	160 … 230	270 … 304	
320		102 … 365	100 … 350	125 … 350	150 … 350	135 … 350	160 … 350	270 … 424	304 … 424
400		102 … 445							
500			100 … 530	125 … 530	150 … 530	135 … 530	160 … 530	270 … 600	304 … 600

Dimension X (mm) for FUSERBLOC NFC and DIN

Shaft extension length (mm)	Rating (A) Fuse size Frame size	CD 25 … CD 32 10x38/14x51 0	50 14x51 11	63 00C 12	100 … 160 22x58/00 13	160 0 14	250 … 400 1/2 15/16	630 … 800 3 17	800 … 1250 4 18
200		102 … 245	100 … 230	125 … 230	135 … 230	145 … 230	160 … 230	270 … 304	
320		102 … 365	100 … 350	125 … 350	135 … 350	145 … 350	160 … 350	270 … 424	304 ... 424
400		102 … 445	100 ... 430	125 ... 430	135 ... 430	145 ... 430	160 ... 430	270 ... 504	304 ... 504
500			100 … 530	125 … 530	135 … 530	145 … 530	160 … 530	270 … 604	304 ... 604

Shaft for external side



Use

Standard lengths, 200 mm.

Rating (A)	Frame size	Handle type	Dimension Y (mm)	Shaft length (mm)	Reference
CD 20 … CD 32	0	S	36 … 159	200	1401 **0520**
32 … 400	11 … 16	S	36 … 172	200	1400 **1020**
630 … 1250	17/18	S	15 … 150	200	1400 **1220**

Integrated solid neutral link


acces_130_a_1_cat


acces_131_a_1_cat

Use
Fixing the solid neutral onto the mechanism produces a device with a solid neutral of the same size as a standard three-pole device (+ 6 mm).

BS88 for external front operation

Rating (A)	Switch body size	Bar rating (A)	Reference
100	13	125	3829 **9310**
CD 160 … CD 200	13a	200	3829 **9320**
160	14	200	3829 **9320**
200 … 250	15	250	3829 **9325**
315 … 400	16	400	3829 **9339**
630 … 800	17	800	3829 **9308**
1250	18	1250	3829 **9312**

NFC and DIN for external front operation

Rating (A)	Switch body size	Bar rating (A)	Reference
100 … 125	13	125	3829 **9310**
160	13	160	3829 **9320**
160	14	200	3829 **9320**
250	15	250	3829 **9325**
400	16	400	3829 **9339**
630 … 800	17	800	3829 **9308**
800 …1250	18	1250	3829 **9312**

Solid neutral module


acces_199_a_2_cat

BS88 for external front operation

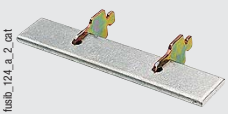
Rating (A)	Switch body size	I_{max} (A)	Distance (mm)	Reference
32	11	32	27	3629 **9227**
63	12	63	32	3629 **9232**
100	13	100	36	3629 **9236**
CD 160 … CD 200	13 a	200	36	3629 **9237**
160	14	160	50	3629 **9250**
200 … 250	15	250	60	3629 **9260**
315 … 400	16	400	66	3629 **9266**
630 … 800	17	800	94	3629 **9294**
1250	18	1250	120	3629 **9212**

NFC and DIN for external front operation

Rating (A)	Frame size	I_{max}(A)	Distance (mm)	Reference
50	1/11	50	27	3629 **9227**
63	2/12	63	32	3629 **9232**
100 … 160	3/13	160	36	3629 **9236**
160	4/14	160	50	3629 **9250**
250	5/15	250	60	3629 **9260**
400	6/16	400	60	3629 **9266**
630 … 800	17	800	94	3629 **9294**
800 … 1250	18	1250	120	3629 **9212**

Solid links


fusib_123_a_2_cat


fusib_124_a_2_cat

BS88 switches

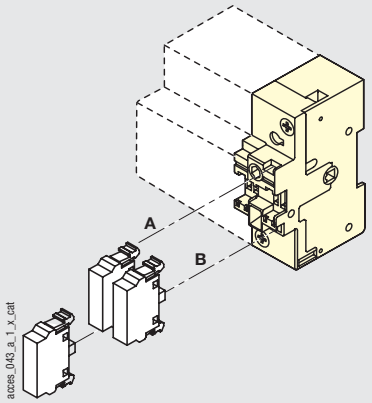
Rating (A)	Frame size	Fuse size	I_{max} (A)	Reference
32	11	A1	32	3629 **9003**
63	12	A2-A3	63	3629 **9006**
100	13	A4	160	3629 **9010**
CD 160	13a	A3-A4	160	3629 **9010**
160	14	A4	160	3629 **9010**
160	14	B1-B2	200	3629 **9016**
CD 200	13a	A3-A4	160	3629 **9010**
200	15	B1-B2	200	3629 **9016**
250	15	B1-B2-B3	315	3629 **9025**
315	16	B1-B2-B3	315	3629 **9025**
400	16	B1-B2-B3-B4	400	3629 **9040**
630 … 800	17	C1-C3	800	3629 **9063**
1250	18	D1	1250	3629 **9120**

NFC and DIN switches

Rating (A)	Frame size	Fuse size	I_{max} (A)	Reference
50	1/11	14 x 51	50	6029 **0000**
63	2/12	00C	160	6420 **0000**
100 … 125	3/13	22 x 58	125	6039 **0000**
125 … 160	3/13	00	160	6420 **0000**
160	4/14	0	160	6421 **0000**
250	5/15	1	250	6421 **0001**
400	6/16	2	400	6421 **0002**
630 … 800	17	3	630	6421 **0003**
800 ... 1250	18	4	1250	6441 **0005**

U type auxiliary contacts





Use
Compact universal type auxiliaries can be configured to be operated on both, standard and TEST position switches from CD 20 to 1250 A. Each slot can accommodate up to 2 interlocked ACs.

Connection to the control circuit
By terminals with max. section 2 x 2.5 mm². For FUSERBLOC CD 20 to 400 A. Pre-break and signalling of positions 0, I and Test. For FUSERBLOC ≥ 630 A: Pre-break and position 0 and I signalling.

References

NO auxiliary contacts

Rating (A)	Frame size	Contact(s)	Reference
CD 20 … 1250	0 … 18	1	3999 **0701**

NC auxiliary contacts

Rating (A)	Frame size	Contact(s)	Reference
CD 20 … 1250	0 … 18	1	3999 **0702**

Contact holder for auxiliary contacts

Rating (A)	Frame size	Contact(s)	Reference(2)
CD 20 … 160	0 … 14	4 (2 x 2 max)	included
250 … 400	15/16	8 (4 x 2 max)	included
630 … 1250	17/18	8 (4 x 2 max)	included

(2) Cannot be mounted in direct operation.

Contact holder for additional auxiliary contacts

Rating (A)	Frame size	Contact(s)	Reference
CD 20 … CD 32	0	4 (2 x 2 max)	3999 **0710**
32 … 400	11 … 16	4 (2 x 2 max)	3999 **0600**

Characteristics

	Operating current I_e (A)			
	250 VAC	400 VAC	24 VDC	48 VDC
Rating (A)	AC-15	AC-15	DC-13	DC-13
CD 20 … 1250	3	1.8	2.8	1.4

A type auxiliary contacts



Use
Pre-break and position 0 and I signalling by 1 or 2 NO /NC auxiliary contacts. For low level use, specific auxiliary contacts: consult us.

Connection to the control circuit
By 6.35 mm fast-on terminal.

Electrical characteristics
30 000 operations.

References

NO / NC auxiliary contacts

Rating (A)	Frame size	Contact(s)	Reference
CD 20 …CD 32	0	1	3999 **0001**
CD 20 …CD 32	0	2	3999 **0001**
32 … 400(1)	1 … 6	1	3999 **0021**(2)
32 … 400(1)	1 … 6	2	3999 **0022**(2)

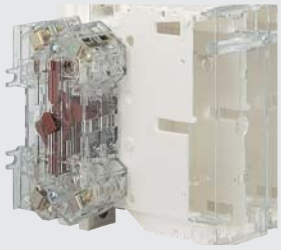
(1) Side direct operation switch only.
(2) A type auxiliary contacts cannot be mounted conjunction with integrated solid neutral.

Characteristics

		Operating current I_e (A)			
	Current	250 VAC	400 VAC	24 VDC	48 VDC
Rating (A)	nominal (A)	AC-13	AC-13	DC-13	DC-13
CD 20 … 400	16	4	2	12	2

S and ST type auxiliary contacts


acces_051_a_2_cat


acces_083_a_1_cat

Use
For FUSERBLOCs 32 to 1250 A, position 0 and I signalling by 1 to 4 NO + NC auxiliary contacts.

Electrical principle
The NO + NC S type auxiliary contacts can be configured as 2 NC or 2 NO.

Connection
By terminals with max. section 10 mm².

Mechanical characteristics
30 000 operations.

References

S type auxiliary contacts I-0 for external front and right-side operation (Standard operation)

Rating (A)	Frame size	Contact type	Reference
32 … 1250	11 … 18	NC+NO	3999 **0041**

ST type auxiliary contacts I-0-TEST for external front and right-side operation (TEST operation)

Rating (A)	Frame size	Contact type	Description	Reference
32 … 400	11 … 16	NC+NO	TEST + ON	3999 **0141**
32 … 400	11 … 16	2 0	TEST + ON	3999 **0241**

Drive shaft kit for auxiliary contact operation.

Type of AC	Operation type	Reference
S type	Standard	3999 **0003**
ST type	TEST	3999 **0103**

Characteristics

Rating (A)	Current nominal (A)	Operating current I_e (A) 250 VAC AC-13	400 VAC AC-13
32 … 1250	20	10	8

Fuse cover interlocking

Use
On NFC and DIN, side direct operation, locking of the opening of the fuse protection cover when FUSERBLOC is engaged (position I).

Rating (A)	Frame size	Fuse size	No. of poles	Reference
CD 25 … 50	0 … 11	10 x 38 / 14 x 51	2 / 3 / 4	included
63	12	00C	2 / 3 / 4	3999 **8906**
100 … 125	13	22 x 58	2 / 3 / 4	3999 **8912**
125 … 160	13	00	2 / 3 / 4	3999 **8912**
160	14	0	2 P	3999 **8216**
160	14	0	3 P	3999 **8316**
160	14	0	4 P	3999 **8416**
250	15	1	2 P	3999 **8225**
250	15	1	3 P	3999 **8325**
250	15	1	4 P	3999 **8425**
400	16	2	2 P	3999 **8240**
400	16	2	3 P	3999 **8340**
400	16	2	4 P	3999 **8440**

Terminal shrouds



Use

Top or bottom IP 20 protection (at front) against direct contact with terminals or connection parts. 2 sets required to fully shroud both incoming and outgoing terminals.

Rating (A)	Frame size	Position	No. of poles	Reference
CD 20 … 63	0 … 12	top / bottom	2 / 3 / 4 P	integrated
100 … CD 200	13/14	top / bottom	2 P	3998 **2016**
100 … CD 200	13/14	top / bottom	3 P	3998 **3016**
100 … CD 200	13/14	top / bottom	4 P	3998 **4016**
200 … 400	15/16	top / bottom	2 P	3998 **2025**
200 … 400	15/16	top / bottom	3 P	3998 **3025**
200 … 400	15/16	top / bottom	4 P	3998 **4025**
630 … 800	17	top / bottom	2 P	3898 **2080**
630 … 800	17	top / bottom	3 P	3898 **3080**
630 … 800	17	top / bottom	4 P	3898 **4080**
800 … 1250	18	top / bottom	2 P	3898 **2120**
800 … 1250	18	top / bottom	3 P	3898 **3120**
800 … 1250	18	top / bottom	4 P	3898 **4120**

NFC and DIN fuse blowm indication





Use

For fuse cartridge with striker (size 14 x 51 22 x 58; 0; 1; 2; 3 and 4).

Electrical principle

A NO/ NC auxiliary contact detects that the fuse has blown.

Connection to the control circuit

By 6.35 mm fast-on terminal.

Mechanical characteristics

30 000 operations.

References

NO/ NC type auxiliary contacts for 2 pole

Rating (A)	Frame size	Fuse	Contact(s)	Reference
50	11	14 x 51	1st	3994 **0405**
100 … 125	13	22 x 58	1st	3994 **0210**
160	14	0	1st	3994 **0216**
250 … 400	15/16	1-2	1st	3994 **0225**
630	17	3	1st	3894 **1206**
800 … 1250	18	4	1st	3894 **1212**

NO/ NC type auxiliary contacts for 3 pole

Rating (A)	Frame size	Fuse	Contact(s)	Reference
CD 32	0	14 x 51	1st	3994 **0303**
50	11	14 x 51	1st	3994 **0405**
100 … 125	13	22 x 58	1st	3994 **0310**
160	14	0	1st	3994 **0316**
250 … 400	15/16	1-2	1st	3994 **0325**
630	17	3	1st	3894 **1306**
800 … 1250	18	4	1st	3894 **1312**
50 … 1250	11 … 18		2nd	3994 **1901**

NO/ NC type auxiliary contacts for 4 pole or 3 pole + neutral

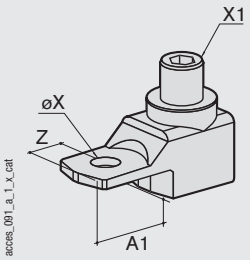
Rating (A)	Frame size	Fuse	Contact(s)	Reference
50	11	14 x 51	1st	3994 **0405**
100 … 125	13	22 x 58	1st	3994 **0410**
160	14	0	1st	3994 **0416**
250 … 400	15/16	1-2	1st	3994 **0425**
630	17	3	1st	3894 **1406**
800 … 1250	18	4	1st	3894 **1412**
50 … 1250	11 … 18		2nd	3994 **1901**

Characteristics

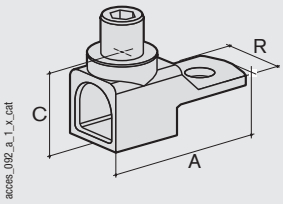
		Operating current I_e (A)			
Rating (A)	Current nominal (A)	250 VAC AC-13	400 VAC AC-13	24 VDC DC-13	48 VDC DC-13
CD 32 ... 1250	16	4	3	12	2

Cage terminals


acces_053_a_1_cat



acces_091_a_1_x_cat



acces_092_a_1_x_cat

Use
Connection of bare copper cables onto the terminals (without lugs).

References

Rating max (A)	Frame size	No. of poles	Reference
CD 20 … 63	0 … 12	2 / 3 / 4 P	integrated
100 … 160	13/14	3 P	5400 **3016**
100 … 160	13/14	4 P	5400 **4016**
200 … 250	15	3 P	5400 **3025**
200 … 250	15	4 P	5400 **4025**
315 … 400	16	3 P	5400 **3040**
315 … 400	16	4 P	5400 **4040**

Connections

Rating (A)	Section flexible cable (mm²)	Section rigid cable (mm²)	Width flexible bar (mm)	Stripped over (mm)
100 … 160	16 … 95	16 … 95	13	22
250	16 … 185	16 … 185	18	27
400	50 … 240	50 … 300	20	34

Dimensions

Rating (A)	A	A1	C	R	ØX	X1	Z
100 … 160	47.5	22.5	25	20	8.5	M12	10
250	62	31.5	31.5	25	10.5	M16	14
400	71.5	32	38	32	10.5	M20	15

Handle key interlocking accessories

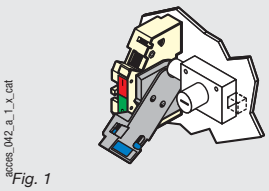

acces_042_a_1_x_cat

Fig. 1

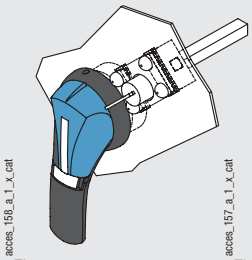

acces_150_a_1_x_cat

Fig. 2

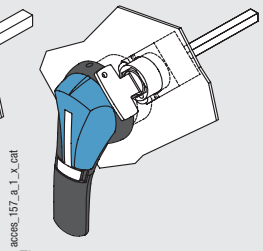

acces_157_a_1_x_cat

Fig. 3

Use
Locking in position 0 of the direct, front or right side operation:
- using padlock (not supplied) in direct operation:
  - integrated into the handle of 20 to 400 A,
  - integrated into the frame of 630 to 1250 A.
- using key interlocking (not supplied) in external operation (see below).

Locking using RONIS EL 11 AP lock (not supplied)

Rating (A)	Frame size	Operation	Figure n°	Reference
CD 20 ... 1250	0 … 18	external front	2	1499 **7701**
32 … 63	1/2	direct	1	3629 **7903**
100 … 400	3…6	direct	1	3629 **7913**
630 … 1250	17 … 18	direct		3829 **7923**

Locking using CASTELL K lock (not supplied)

Rating (A)	Frame size	Operation	Figure n°	Reference
CD 20 … 1250	0 … 18	external front	3	1499 **7702**

Locking using CASTELL FS lock (not supplied)

Rating (A)	Frame size	Operation	Figure n°	Reference
CD 20 … 1250	0 … 18	external front	3	1499 **7703**

Locking using XOP (not included)

Rating (A)	Frame size	Operation	Reference
CD 20 … 1250	0 … 18	external front	1499 **7702**

Label holder



acces_044_a_1_cat

Use
Recognisable self-adhesive label allowing identification of the devices.

Dimensions W x H (mm)	To be ordered in multiples of	Reference
18 x 13	50	7769 **9999**

➲ FUSERBLOC - Characteristics according to IEC 60947-3

20 to 100 A

Thermal current I_{th} (40°C)		20 A	25 A	CD 32 A	CD 32 A	32 A	50 A	63 A	100 A
BS88/DIN fuse size		A1/-	-/10 x 38	-/10 x 38	A1/14 x 51	A1/-	-/14 x 51	A2-A3/00C	A4*/22 x 58
Frame size for direct operation		0	0	0	0	1	1	2	3
Switch body size for front and side operation		0	0	0	0	11	11	12	13
Rated insulation voltage U_i (V)		800	800	800	800	750	750	750	750
Rated impulse withstand voltage U_{imp} (kV)		8	8	8	8	8	8	8	8
Rated operational currents Ie (A)									
Rated voltage	Load duty category	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)
400 VAC	AC-22 A / AC-22 B	20/20	25/25	32/32	32/32	32/32	50/50	63/63	100/100
400 VAC	AC-23 A / AC-23 B	20/20	25/25	32/32	32/32	32/32	50/50	63/63	100/100
690 VAC	AC-22 A / AC-22 B	20/20	25/25	32/32	32/32	32/32	50/50	63/63	100(4)/100(4)
690 VAC	AC-23 A / AC-23 B	20/20	25/25	32/32	32/32	32/32	50/50	63/63	100(4)/100(4)
220 VDC	DC-20 A / DC-20 B			-/32		32/32	50/50	63/63	100/100
220 VDC	DC-21 A / DC-21 B		-/25(2)			32/32	40/40	40/40	100/100
440 VDC	DC-20 A / DC-20 B					32(3)/32(3)	50(3)/50(3)	63(3)/63(3)	100(3)/100(3)
440 VDC	DC-21 A / DC-21 B					32(3)/32(3)	40(3)/40(3)	40(3)/40(3)	100(3) / 100(3)
Operational power in AC-23 (kW)									
At 400 VAC without pre-break in AC(1)(5)		9/9	11/11	15/15	15/15	15/15	25/25	30/30	51/51
At 690 VAC without pre-break in AC(1)(5)		15/15	22/22	25/25	25/25	25/25	45/45	55/55	90/90
Reactive power (kvar)									
At 400 VAC(5)		8	11	15	15	15	23	28	45
Fuse protected short-circuit withstand BS88/DIN (kA rms prospective)									
Prospective short-circuit (kA rms)(6)		80/-	-/100	-/100	80/100	80/100	-/100	80/100	80/100
Associated fuse rating (A)(6)		20/-	-/25	-/32	32/32	32/32	-/50	63/63	100/100
Short-circuit capacity									
Rated peak withstand current (kA peak)(6)		5.5	5.5	5.5	5.5	9	7.6	10.6	20
Fuse selection (maximum fuse size)(7)									
SOCOMEC BS88		6A10 0020	6012 0025	6012 0032	6A10 0032	6A10 0032		6A30 0063	6A40 0100
SOCOMEC BS88		6A1M 0032	6013 0025	6013 0032	6A1M 0063	6A1M 0032		6A3M 0080	6A4M 0125
SOCOMEC DIN							6022 0050	6600 0063	6032 0100
SOCOMEC DIN							6023 0050	6601 0063	6033 0100
BUSSMANN		NITD 20			NITD 32	NITD 32		BA0 63	CE0 100
BUSSMANN		NITD 20M32			NITD 32M63	NITD 32M63		BA0 63M80	CE0 100M125
LAWSON		NIT 20			NIT 32	NIT 32		TIS 63	TCP 100
LAWSON		NIT 20M32				NIT 20M32		TIS 63M80	CTFP100M125
GE		NIT 20			NET 32	NET 32		TIS 63	TCP 100
GE		NIT 20M32			NET 32M63	NET 32M63		TIS 63M80	OCP 100M125
Connection									
Minimum Cu cable section (mm^2)		2.5	2.5	2.5	2.5	6	6	10	25
Maximum Cu cable section (mm^2)		16	16	16	16	25	25	25	95
Maximum busbar width (mm)									20
Min. / Max. tightening torque min (Nm)		2/-	2/-	2/3	2	2.5/3	2.5/3	2.5/3	8.3/13
Mechanical characteristics									
Durability (number of operating cycles)		20 000	20 000	20 000	20 000	10 000	10 000	10 000	10 000
Weight of 3 P switch (kg)		0.48	0.48	0.48	0.50	0.80	0.80	1	1.5
Weight of 4 P switch (kg)		0.50	0.50	0.50	0.52	1	1	1.3	2
Weight of 1 P extra (kg)						0.2	0.2	0.3	0.5
Frame pitch (mm)						32	27	32	36

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) With terminal shrouds or terminal screen.
(3) 4-pole device with 2 pole in series by polarity.
(4) Poles cannot be juxtaposed.
(5) The power value is given for information only, the current values vary from one manufacturer to another.
(6) For a rated operational voltage U_e = 400 VAC.
(7) Fuse 800 A, 690 Vac does not exist, tests conducted with bars.
** For fuse size A4: max diameter 31 mm.*
*** Please ensure that fuse let through current does not exceed short-circuit capacity of the switch (kA peak).*

125 to 200 A

Thermal current I_{th} (40°C)		**125 A**	**125 A**	**160 A**	**CD 160 A**	**160 A**	**160 A**	**CD 200 A**	**200 A**
NFC/DIN fuse size		-/22 x 58	-/00	-/00	A3-A4*/-	A4/0	B1-B2/-	A3-A4*/-	B1-B2/-
Frame size for direct operation		3	3	3		4	4		5
Switch body size for front and side operation		13	13	13	13a	14	14	13a	15
Rated insulation voltage U_i (V)		750	750	750	750	750	750	800	750
Rated impulse withstand voltage U_{imp} (kV)		8	8	8	8	8	8	8	8
Rated operational currents Ie (A)									
Rated voltage	Load duty category	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]
400 VAC	AC-22 A / AC-22 B	125/125	125/125	160/160	160/160	160/160	160/160	200/200	200/200
400 VAC	AC-23 A / AC-23 B	125/125	125/125	160/160	160/160	160/160	160/160	200/200	200/200
690 VAC	AC-22 A / AC-22 B	125[2]/125[2]	125[2]/125[2]	160[2]/160[2]	160[2]/160[2]	160[2]/160[2]	160[2]/160[2]	160[2]/160[2]	200[2]/200[2]
690 VAC	AC-23 A / AC-23 B	100[2]/100[2]	100[2]/100[2]	125[2]/125[2]	125[2]/125[2]	125[2]/125[2]	125[2]/125[2]	125[2]/125[2]	200[2]/160[2]
220 VDC	DC-20 A / DC-20 B	125/125	125/125	160/160	160/160	160/160	160/160	160/160	200/200
220 VDC	DC-21 A / DC-21 B	100/100	100/100	125/125	125/125	125/125	125/125	125/125	200/200
440 VDC	DC-22 A / DC-22 B	125[3]/125[3]	125[3]/125[3]	160[3]/160[3]	160[3]/160[3]	160[3]/160[3]	160[3]/160[3]	160[3]/160[3]	200[3]/200[3]
440 VDC	DC-23 A / DC-23 B	100[3]/100[3]	100[3]/100[3]	125[3]/125[3]	160[3]/160[3]	125[3]/125[3]	125[3]/125[3]	125[3]/125[3]	200[3]/200[3]
Operational power in AC-23 (kW)									
At 400 VAC without pre-break in AC[1][5]		63/63	63/63	80/80	80/80	80/80	80/80	80/80	100/100
At 690 VAC without pre-break in AC[1][5]		90/90	90/90	110/110	110/110	110/110	110/110	110/110	150/185
Reactive power (kvar)									
At 400 VAC[5]		55	55	75	70	75	75	90	90
Fuse protected short-circuit withstand (kA rms prospective)									
Prospective short-circuit (kA rms)[6]		-/100	-/100	-/100 (50)	50/-	80/100	80/100	50/-	80/-
Associated fuse rating (A)[6]		-/125	-/125	-/125 (160)	160/-	160/160	160/160	200/-	200/-
Short-circuit capacity									
Rated peak withstand current (kA peak)[6]		20	20	20	20	22.7	22.7	20	32.5
Fuse selection (maximum fuse size)[7]									
SOCOMEC BS88						6A4 0160	6B20 0160	6B20 0200	6B20 0200
SOCOMEC BS88					6A40 0160	6A4M 0160	6B1M 0200	6B2M 0315	6B2M 0315
SOCOMEC DIN		6032 0125	6692 0125	6692 0160		6702 0160			
SOCOMEC DIN		6033 0125	6693 0125	6693 0160		6703 0160			
BUSSMANN					DEO 160	DEO 160	DD 160	DD 200	DD 200
BUSSMANN					CEO 100M160	DEO 100M200	CD 100M200	DD 200M315	DD 200M315
LAWSON					CTFP 160	TFP 160	TF 160	TF 200	TF 200
LAWSON					CTCP 100M160	TCP 100M200	TCP 100M200	TC 200M315	TC 200M315
GE					TCP 100	TFP 160	TF 160	TF 200	TF 200
GE					OCP 100M160	TCP 100M201	TC 100M200	TF 200M315	TF 200M315
Connection									
Minimum Cu cable section (mm^2)		35	35	35	35	50	50	95	95
Maximum Cu cable section (mm^2)		95	95	95	95	95	95	240	240
Maximum busbar width (mm)		20	20	20	20	20	20	32	32
Tightening torque min (Nm)		8.3/13	8.3/13	8.3/13	8.3/13	8.3/13	8.3/13	20/26	20/26
Mechanical characteristics									
Durability (number of operating cycles)		10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000
Weight of 3 P switch (kg)		1.5	1.5	1.8	1.8	1.8	1.8	3.2	3.2
Weight of 4 P switch (kg)		2	2	2.3	2.3	2.3	2.3	4.5	4.5
Weight of 1 P extra (kg)		0.5	0.5	0.5	0.5	0.5	0.5	1.3	1.3
Frame pitch (mm)		36	36	36	50	50	50	60	60

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) With terminal shrouds or terminal screen.
(3) 4-pole device with 2 pole in series by polarity.
(4) Poles cannot be juxtaposed.
(5) The power value is given for information only, the current values vary from one manufacturer to another.
(6) For a rated operational voltage U_e = 400 VAC.
(7) Fuse 800 A, 690 Vac does not exist, tests conducted with bars.
** For fuse size A4: max diameter 31 mm.*
*** Please ensure that fuse let through current does not exceed short-circuit capacity of the switch (kA peak).*

250 to 1250 A

Thermal current I_{th} (40°C)	**250 A**	**315 A**	**400 A**	**630 A**	**800 A**	**800 A**	**1250 A**
NFC/DIN fuse size	B1-B2-B3/1	B1-B2-B3/-	B1-B2-B3-B4/2	C1-C2/3	C1-C2-C3/3	-/4	D1/4
Frame size for direct operation	5	6	6	17	17	18	18
Switch body size for front and side operation	15	16	16	17	17	18	18
Rated insulation voltage U_i (V)	750	800	800	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)	8	8	8	12	12	12	12
Rated operational currents Ie (A)							
Rated voltage / Load duty category	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]
400 VAC AC-22 A / AC-22 B	250/250	315/315	400/400	630/630	800/800	800/800	1250/1250
400 VAC AC-23 A / AC-23 B	250/250	315/315	400/400	630/630	800/800	800/800	1000/1250
690 VAC AC-22 A / AC-22 B	250[2]/250[2]	315[2]/315[2]	315/400	500/630	800/800	800/800[7]	800/1250
690 VAC AC-23 A / AC-23 B	250[2]/250[2]	250[2]/315[2]	250/315	315/400	630/630	800/800[7]	800/630
220 VDC DC-20 A / DC-20 B	250/250	250/250	315/315	315/630	800/800	800/800	1250/1250
220 VDC DC-21 A / DC-21 B	200/200	200/200	200/315	400/630	800/800	800/800	1250/1250
440 VDC DC-22 A / DC-22 B	250[3] / 250[3]	250[3] / 250[3]	315[4]/315[4]	315/630[4]	800[3] / 800[3]	800/800	1000[3] / 1000[3]
440 VDC DC-23 A / DC-23 B	200[3] / 200[3]	200[3] / 200[3]	250[4] / 315[4]	400[4]/630[4]	800[3] / 800[3]	800/800[3]	1000[3] / 1000[3]
Operational power in AC-23 (kW)							
At 400 VAC without pre-break in AC[1][5]	132/132	160/160	220/220	355/355	450/450	450/450	560/560
At 690 VAC without pre-break in AC[1][5]	220/220	220/295	220/295	295/400	400/400	400/400	400/475
Reactive power (kvar)							
At 400 VAC[5]	115	145	185	290	365	355	460
Fuse protected short-circuit withstand (kA rms prospective)							
Prospective short-circuit (kA rms)[6]	80/100	80/-	80/50	80/100	80/100	-/100	-/100
Associated fuse rating (A)[6]	250/250	315/-	400/400	630/630	800/800	-/800	-/1250
Short-circuit capacity							
Rated peak withstand current (kA peak)[6]	32.5	40	40	70	80	80	90
Fuse selection (maximum fuse size)[7]							
SOCOMEC BS88	6B20 0250	6B30 0315	6B40 0400	6C20 0630	6C30 0800		
SOCOMEC BS88	6B2M 3015	6B3M 0400	6B4M 0500				
SOCOMEC DIN	6712 0250		6722 0400	6732 0400		6746 0800	6746 1200
SOCOMEC DIN	6713 0250		6723 0400	6733 0400		6747 0800	6747 1200
BUSSMANN	ED 250	ED 315	ED 400	FF 630	GF 800		
BUSSMANN	DD 200M315	ED 315M400	ED 400M500				
LAWSON	TKF 250	TKF 315	TMF 400	TTM 630	TLM 800		
LAWSON	TF 200M315	TKF 315M400	TMF 400M500				
GE	TKF 250	TKF 315	TMF 400	TTM 630	TLM 800		
GE	TF 200M315	TKF 315M355	TMF 400M450				
Connection							
Minimum Cu cable section (mm^2)	95	185	185	2 x 150	2 x 185		
Maximum Cu cable section (mm^2)	240	240	240	2 x 300	2 x 300	4 x 185	4 x 185
Maximum busbar width (mm)	32	45	45	63	63	80	80
Tightening torque min (Nm)	20/26	20/26	20/26	40/45	40/45	40/45	40/45
Mechanical characteristics							
Durability (number of operating cycles)	10 000	10 000	10 000	8 000	8 000	5 000	5 000
Weight of 3 P switch (kg)	3.2	4.8	4.8	16	17	25	25
Weight of 4 P switch (kg)	4.5	6.1	6.1	20	21.5	30	30
Weight of 1 P extra (kg)	1.3	1.3	1.3			3	3
Frame pitch (mm)	60	66	66	94	94	120	120

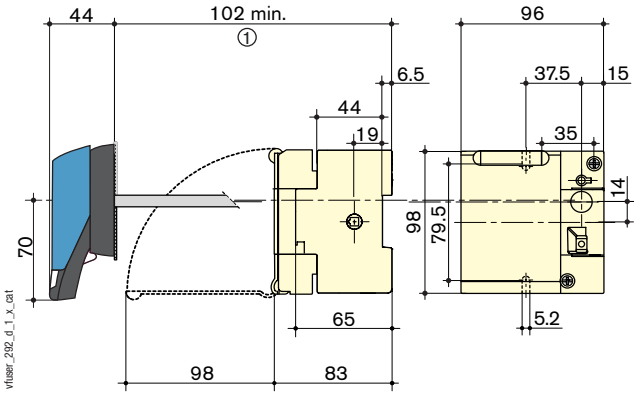
(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) With terminal shrouds or terminal screen.
(3) 4-pole device with 2 pole in series by polarity.
(4) Poles cannot be juxtaposed.
(5) The power value is given for information only, the current values vary from one manufacturer to another.
(6) For a rated operational voltage U_e = 400 VAC.
(7) Fuse 800 A, 690 Vac does not exist, tests conducted with bars.
*** Please ensure that fuse let through current does not exceed short-circuit capacity of the switch (kA peak).*

➲ FUSERBLOC - Dimensions

External operation

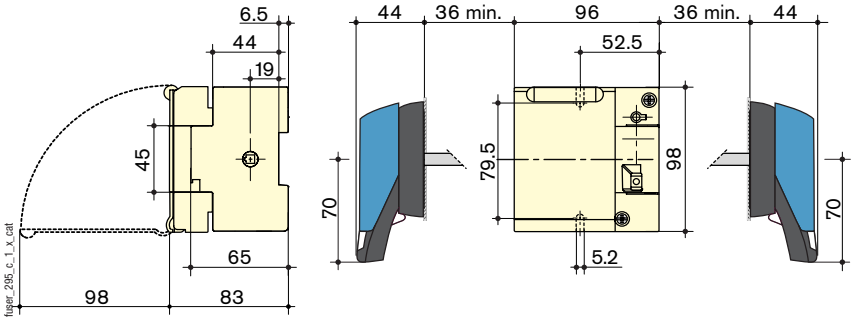
BS88 - FUSERBLOC CD 20 to CD 32 A in size A1

External front operation

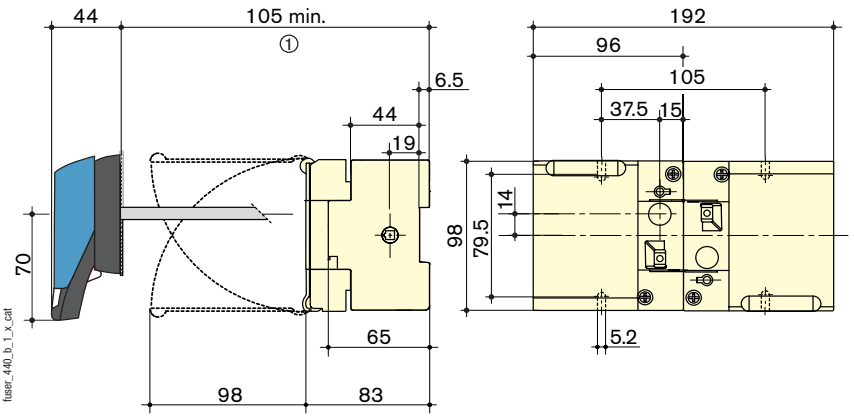


1. With 1 U type AC: 130 mm
With 2 U type AC: 155 mm.

External side operation



External front operation fuse combination changeover

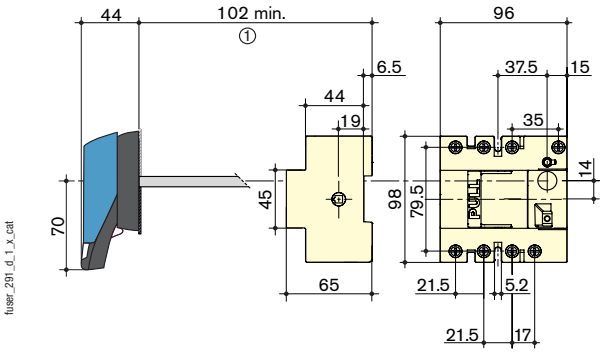


1. With 1 U type AC: 130 mm
With 2 U type AC: 155 mm.

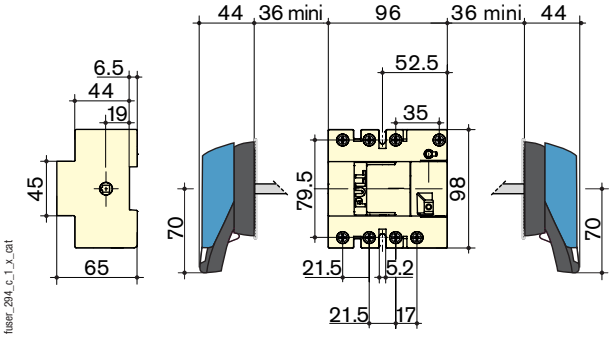
External operation

NFC and DIN - FUSERBLOC 25 to 32 A in size 10 x 38

External front operation



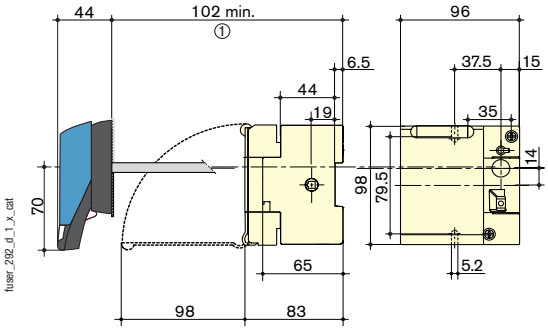
External side operation



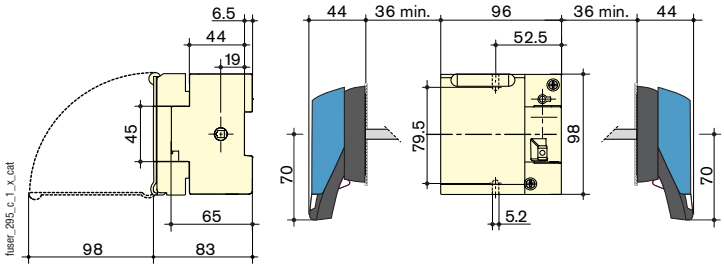
1. With 1 U type AC: 130 mm.
With 2 U type AC: 155 mm.

NFC and DIN - FUSERBLOC 32 A in size 14 x 51

External front operation



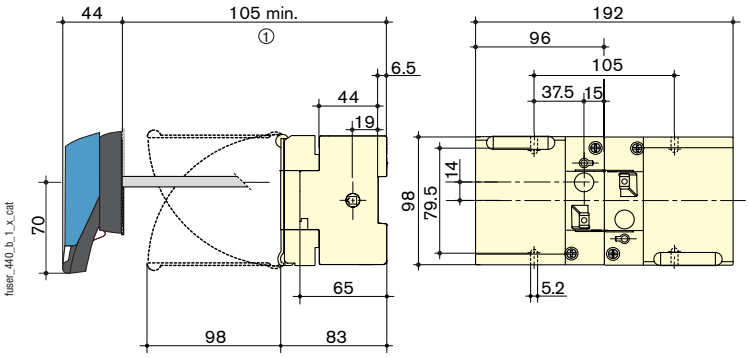
External side operation



1. With 1 U type AC: 130 mm.
With 2 U type AC: 155 mm.

NFC and DIN - FUSERBLOC 25 to 32 A in size 10 x 38 and 14 x 51

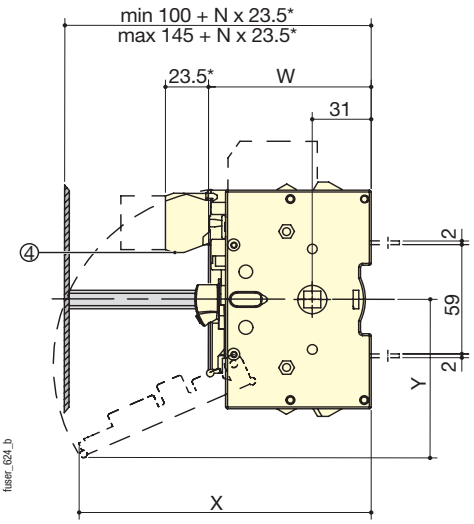
External front operation fuse combination changeover



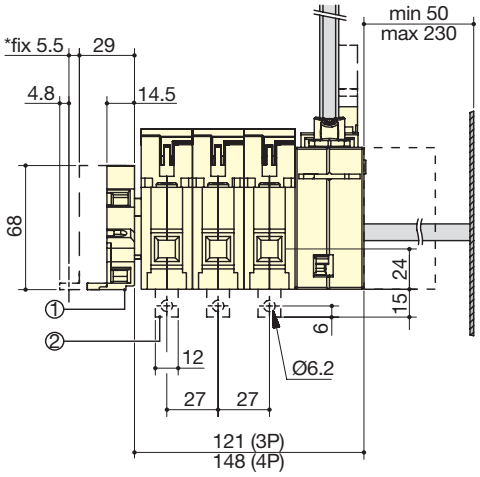
1. With 1 U type AC: 130 mm.
With 2 U type AC: 155 mm.

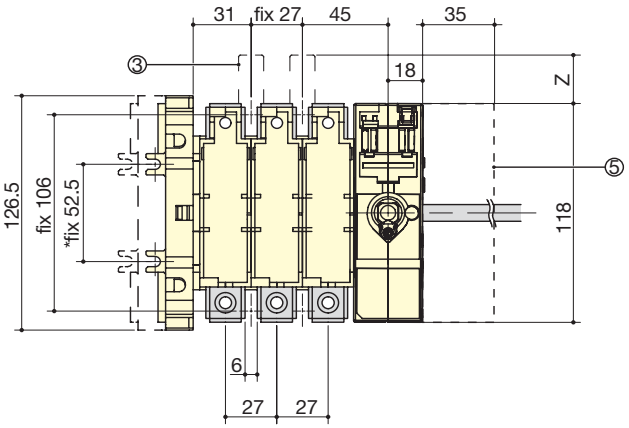
External front or right side operation

BS88 - FUSERBLOC 32 A in fuse size A1



NFC and DIN - FUSERBLOC 50 A in fuse size 14 x 51





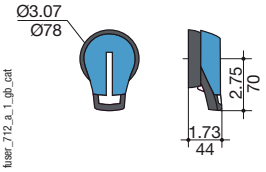
** to use if pre-break auxiliary contact number > 4*
W : 84.5 for BS88 ; 87 for NFC and DIN
X : 153 only for DIN
Y : 85 only for DIN
Z : 26 only for DIN

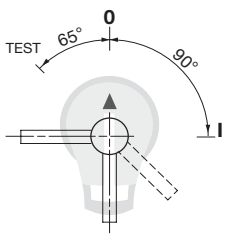
1. S type auxiliary contact NO + NC to use if block number > 4
2. Rear connection (option)
3. 1 or 2 pre-break auxiliary contact (fuse blown indication)
4. 1 to 4 pre-break auxiliary contact for signalisation
5. Additional contact holder for U type AC

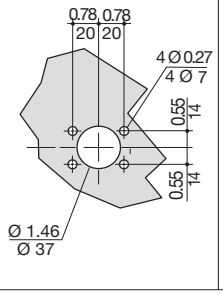
➲ Dimensions for external handles

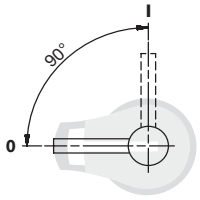
BS88 - FUSERBLOC 32 to 63 A
NFC and DIN - FUSERBLOC 25 to 63 A

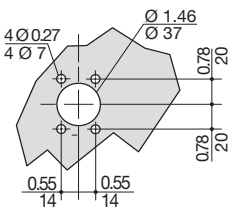
Handle type	Front operation		Side operation	
	Direction of operation	Door drilling	Direction of operation	Door drilling
S1 type Box size 0				





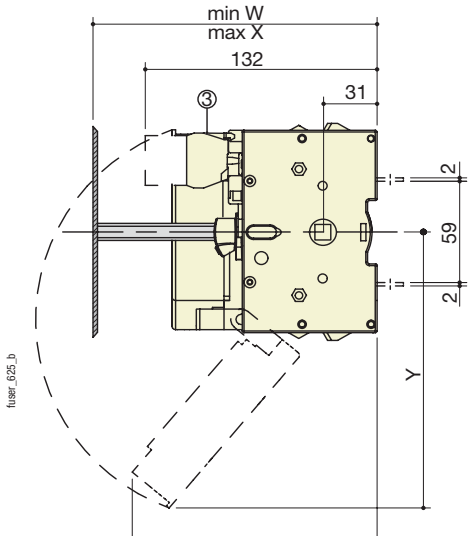






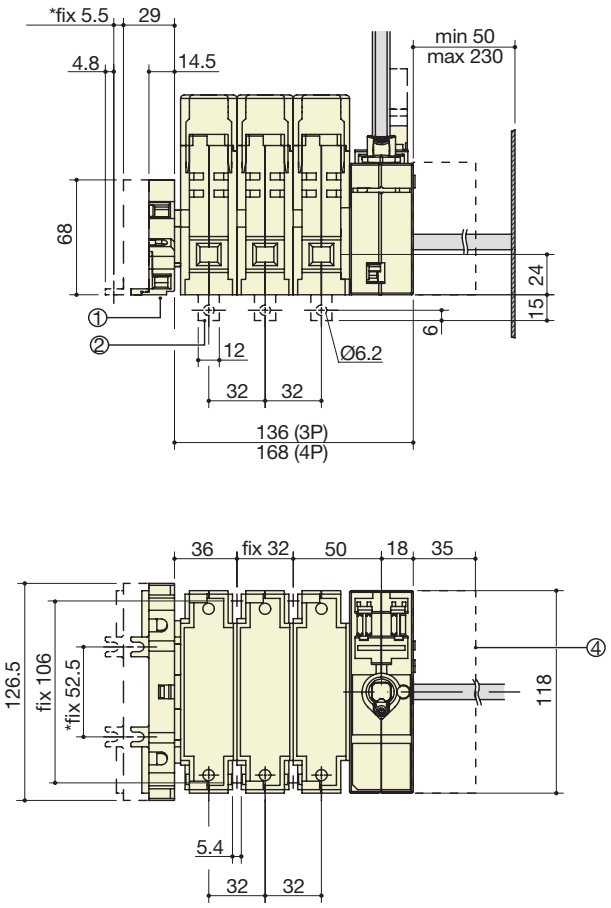
External front or right side operation

BS88 - FUSERBLOC 63 A in fuse size A2 - A3



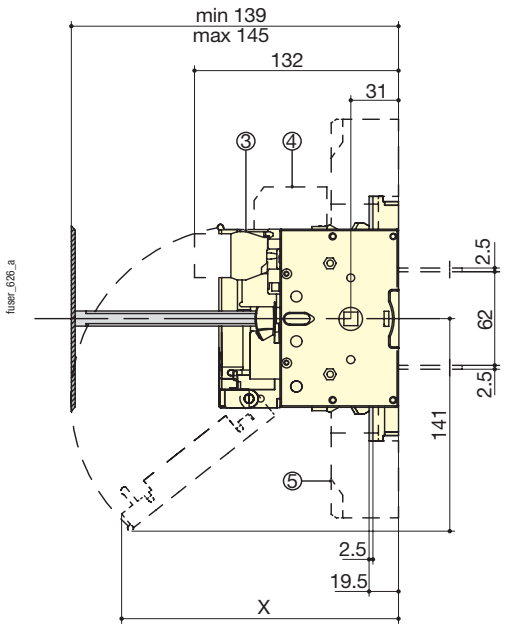
** to use if pre-break auxiliary contact number > 4*
W : 124 + N x 23.5 for BS88 ; 139 for NFC and DIN
X : 145 + N x 23.5 for BS88 ; 145 for NFC and DIN
Y : 159 only for DIN
Z : 145 only for DIN

NFC and DIN - FUSERBLOC 63 A in fuse size 00C



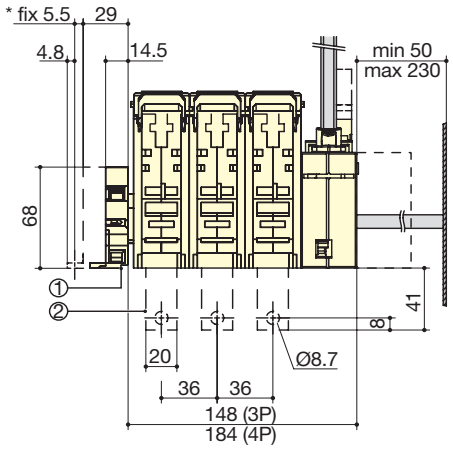
1. S type auxiliary contact NO + NC to use if block number > 4
2. Rear connection (option)
3. 1 to 4 pre-break auxiliary contact for signalisation
4. Additional contact holder for U type AC

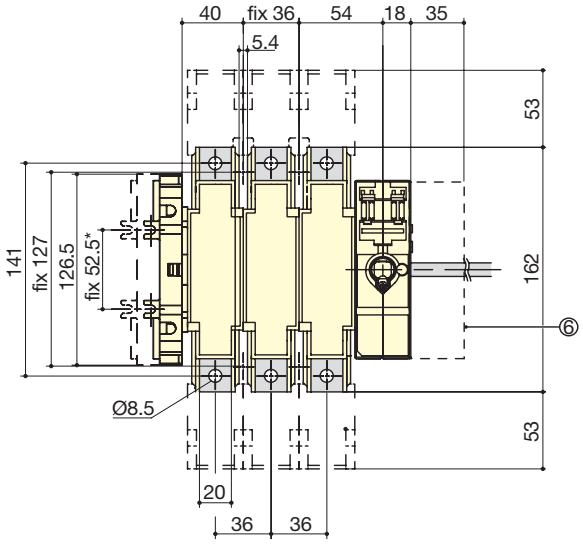
BS88 - FUSERBLOC 100 A in fuse size A4 - max Ø 31 mm



** to use if pre-break auxiliary contact number > 4*
X : 179 for BS88 / NFC and DIN 100 to 125 A
189 for NFC and DIN 125 to 160 A

NFC and DIN - FUSERBLOC 100 to 125 A in fuse size 22 x 58
FUSERBLOC 125 to 160 A in fuse size 00

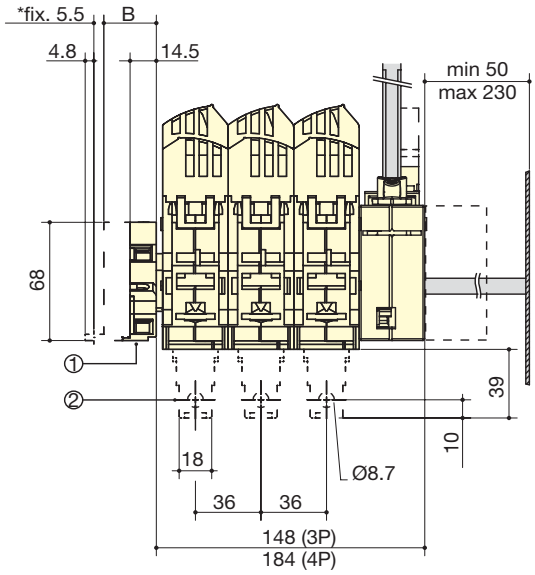


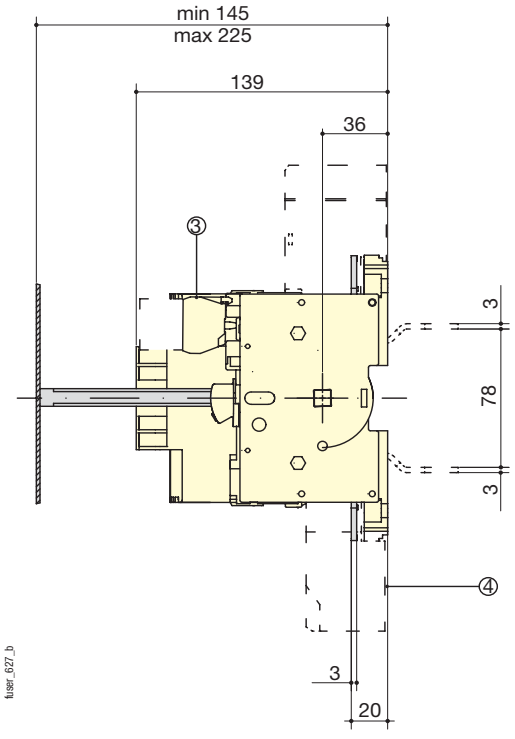


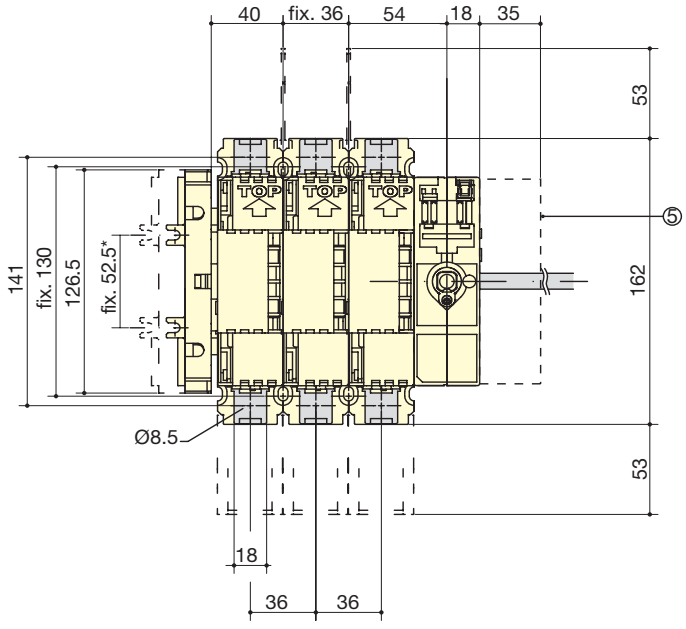
1. S type auxiliary contact NO + NC to use if block number > 4
2. Rear connection (option)
3. 1 to 4 pre-break auxiliary contact for signalisation
4. 1 or 2 pre-break auxiliary contact (fuse blown indication)
5. Terminal shrouds
6. Additional contact holder for U type AC

External front or right side operation

BS88 - FUSERBLOC CD 160 to CD 200 A in fuse size A3-A4 (A4 max Ø 31 mm)

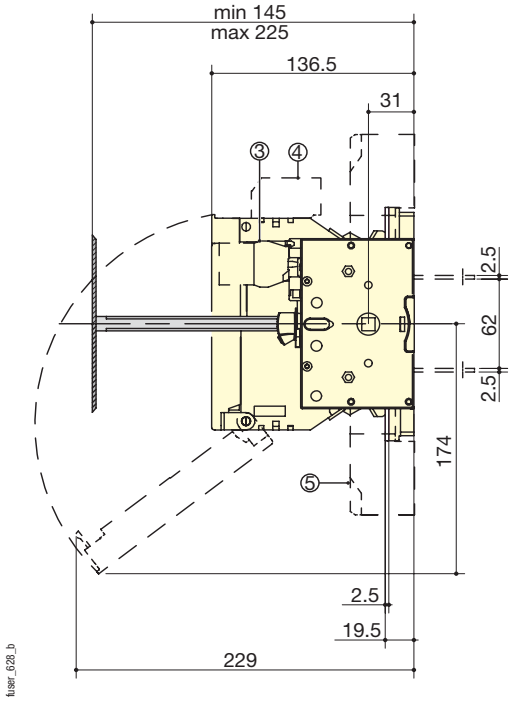






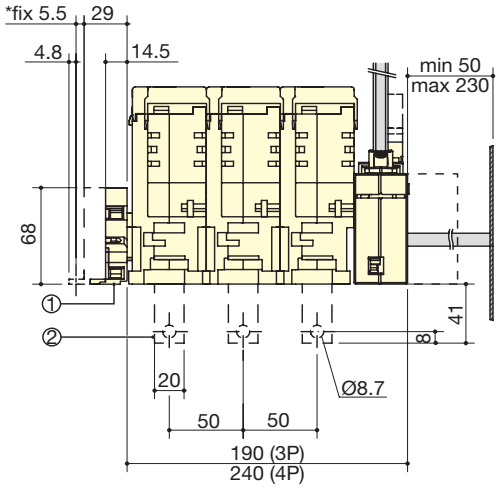
** to use if pre-break auxiliary contact number > 4*
1. S type auxiliary contact NO + NC to use if block number > 4
2. Rear connection (option)
3. 1 to 4 pre-break auxiliary contact for signalisation
4. Terminal shrouds
5. Additional contact holder for U type AC

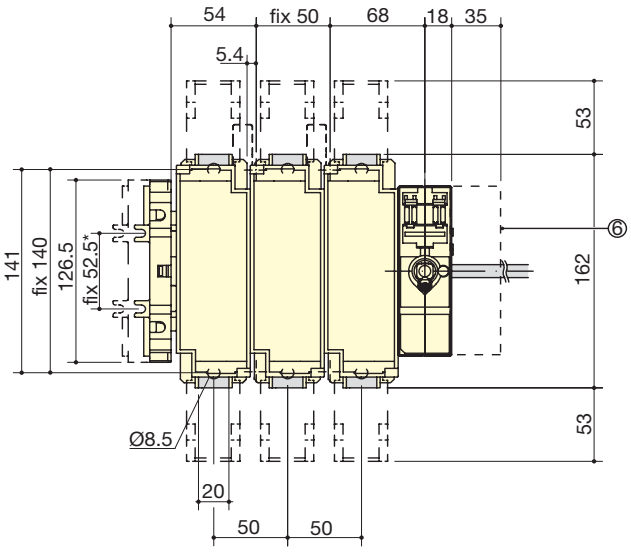
BS88 - FUSERBLOC 160 A in fuse size A4 & B1-B2



** to use if pre-break auxiliary contact number > 4*
1. S type auxiliary contact NO + NC to use if block number > 4
2. Rear connection (option)
3. 1 to 4 pre-break auxiliary contact for signalisation

NFC and DIN - FUSERBLOC 160 A in fuse size 0

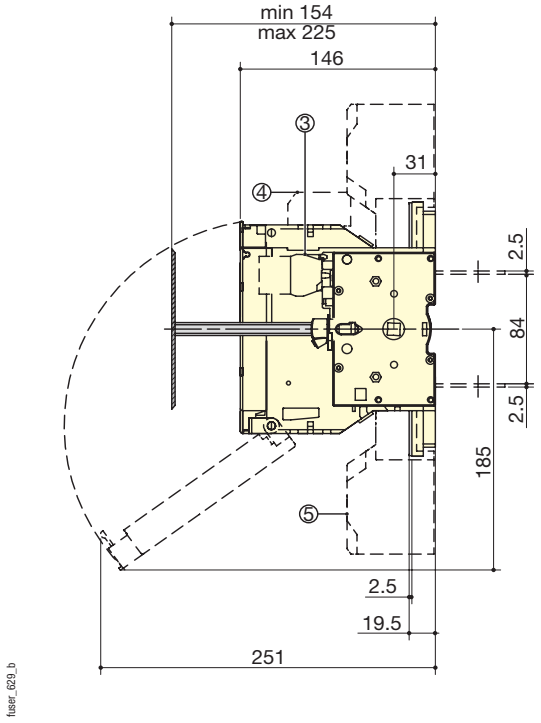




4. 1 or 2 pre-break auxiliary contact (fuse blown indication)
5. Terminal shrouds
6. Additional contact holder for U type AC

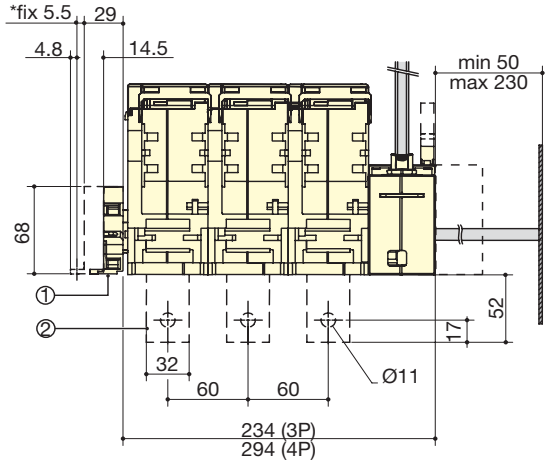
External front or right side operation

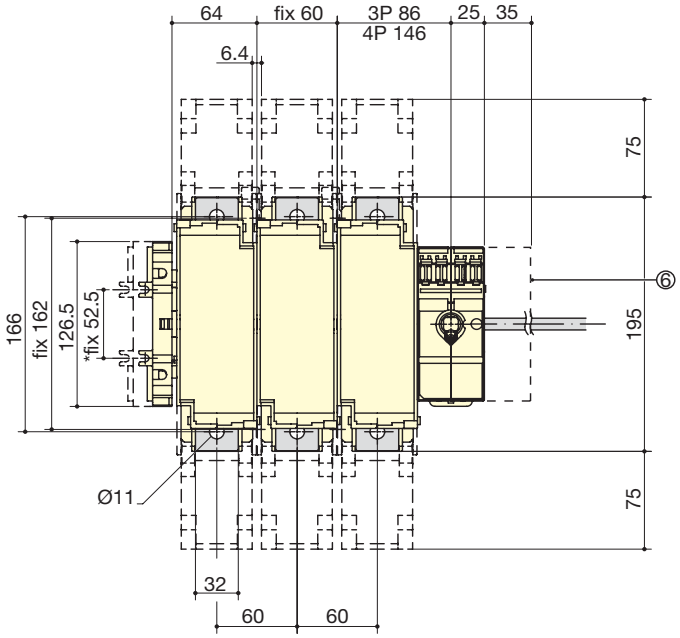
BS88 - FUSERBLOC 200 A in fuse size B1-B2
FUSERBLOC 250 A in fuse size B1-B2-B3



** to use if pre-break auxiliary contact number > 4*
1. S type auxiliary contact NO + NC to use if block number > 4
2. Rear connection (option)
3. 1 to 8 pre-break auxiliary contact for signalisation

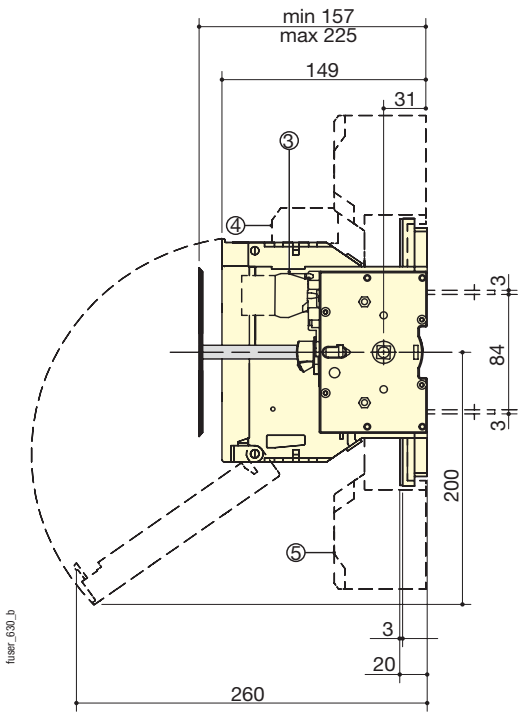
NFC and DIN - FUSERBLOC 250 A in fuse size 1





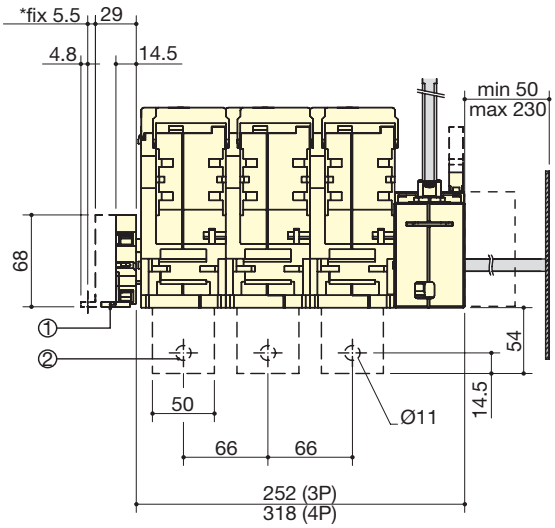
4. 1 or 2 pre-break auxiliary contact (fuse blown indication)
5. Terminal shrouds
6. Additional contact holder for U type AC

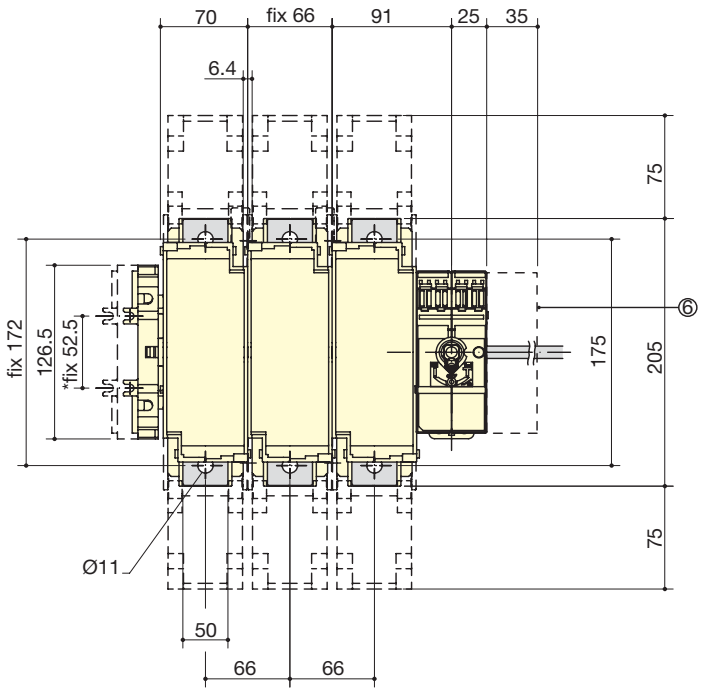
BS88 - FUSERBLOC 315 A in fuse size B1-B2-B3
FUSERBLOC 400 A in fuse size B1-B2-B3-B4



** to use if pre-break auxiliary contact number > 4*
1. S type auxiliary contact NO + NC to use if block number > 4
2. Rear connection (option)
3. 1 to 8 pre-break auxiliary contact for signalisation4. 1 or 2 pre-break auxiliary contact (fuse blown indication)
5. Terminal shrouds
6. Additional contact holder for U type AC

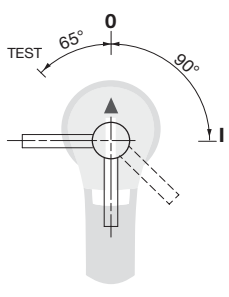
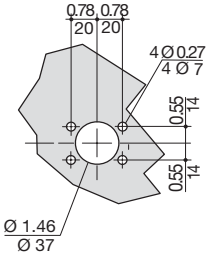
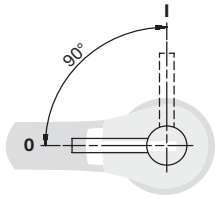
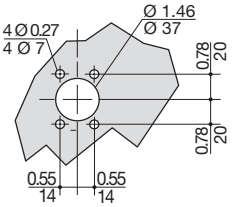
NFC and DIN - FUSERBLOC 400 A in fuse size 2

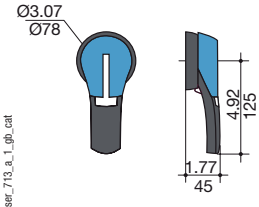




Dimensions for external handles

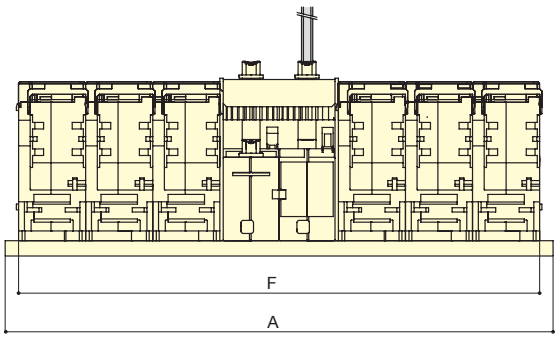
BS88 / NFC and DIN - FUSERBLOC 100 to 400 A

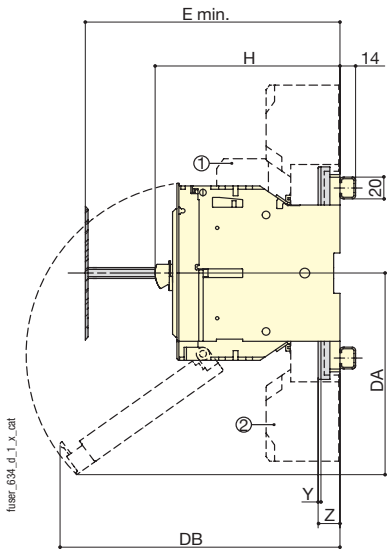
Handle type	Front operation		Side operation	
	Direction of operation	Door drilling	Direction of operation	Door drilling
S2 type Box size 11-16				

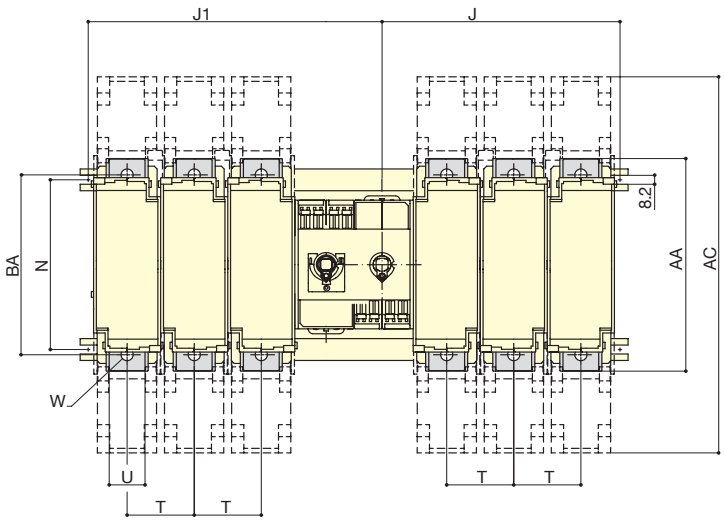


BS88 - External front operation fuse combination changeover

FUSERBLOC 32 to 400 A







A. S1 handle: 32 and 63 A
B. S2 handle: 100 to 400 A
C. Door drilling

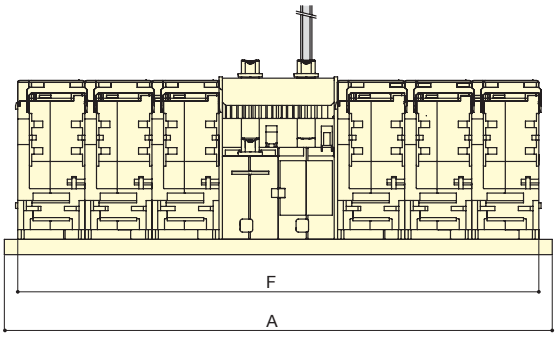
1. Fuse blown indicaion not available for BS88
2. Terminal shrouds

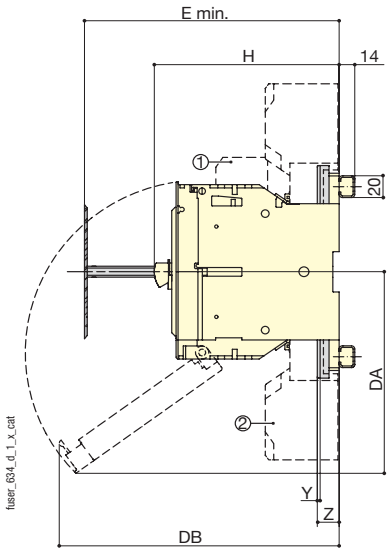
Rating (A)	Fuse size	Frame size	Dimensions A 3p.	A 4p.	E min	E max	Terminal shrouds AC	Switch body F 3p.	F 4p.	H	J 3p.	J 4p.	J1 3p.	J1 4p.	DA	DB	Switch mounting N	Connection T	U	W	Y	Z	AA	BA
32	A1	11	264	318	100(1)	146(1)		242	296	87	102	129	138	165	85	153	90	27					118	
63	A2-A3	12	294	358	124	145		272	336	116.5	121	153	157	189	159	145	90	32					118	
100	A4	13	318	390	124	145	268	296	368	116(2)	133	169	169	205	141	179	128	36	20	8.5	2.5	19.5	162	141
CD 160	A3-A4	13a	318	390	145	225	268	296	368	139	133	169	169	205			128	36	18	8.5	3	20	162	141
160	A4	14	402	502	124	225	268	380	480	136.5	176	226	212	262	174	229	128	50	20	8.5	2.5	19.5	162	141
160	B1-B2	14	402	502	130	225	268	380	480	136.5	176	226	212	262	174	229	128	50	20	8.5	2.5	19.5	162	141
CD 200	A3-A4	13a	318	390	145	225	268	296	368	139	133	169	169	205			128	36	18	8.5	3	20	162	141
200	B1-B2	15	490	610	130	225	345	468	588	146	213	273	263	323	185	251	155	60	32	11	2.5	19.5	195	166
250	B1-B2-B3	15	490	610	154	225	345	468	588	146	213	273	263	323	185	251	155	60	32	11	2.5	19.5	195	166
315	B1-B2-B3	16	526	658	154	225	355	504	636	149	231	297	281	347	200	260	168	66	50	11	3	20	205	175
400	B1-B2-B3-B4	16	526	658	157	225	355	504	636	149	231	297	281	347	200	260	168	66	50	11	3	20	205	175

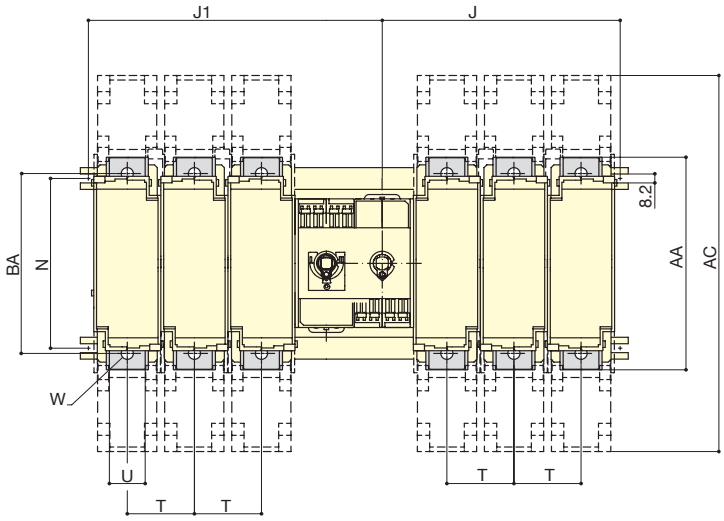
(1) 1 AC: + 23.5 mm / 2 AC: + 47 mm.
(2) 132 mm with 2 AC.

NFC and DIN - External front operation fuse combination changeover

FUSERBLOC 50 to 400 A







A. S1 handle: 50 and 63 A
B. S2 handle: 100 to 400 A
C. Door drilling

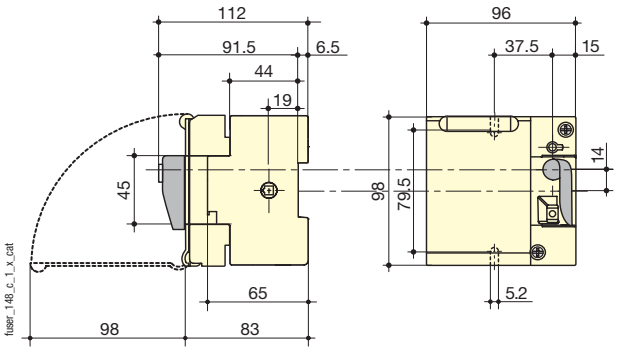
1. Fuse blown indicaion not available for BS88
2. Terminal shrouds

Rating (A)	Fuse size	Frame size	Overall dimensions A 3p	A 4p	E min	E max	Terminal shrouds AC	Switch body F 3p.	F 4p.	H	J 3p	J 4p	J1 3p	J1 4p	DA	DB	Switch mounting N	Connection T	U	W	Y	Z	AA	BA
50	14 x 51	11	264	318	100(1)	146(1)		121	148	87(1)	102	129	138	165	85	153	90	27					118	
63	00C	12	294	358	125	145		136	168	116.5(2)	121	153	158	189	159	145	90	32					118	
100	22 x 58	13	318	390	135	145	268	148	184	116(2)	133	169	169	205	141	187	128	36	20	8.5	2.5	19.5	162	141
125	22 x 58	13	318	390	135	145	268	148	184	116(2)	133	169	169	205	141	179	128	36	20	8.5	2.5	19.5	162	141
125	00	13	318	390	135	145	268	148	184	126.5	133	169	169	205	141	193	128	36	20	8.5	2.5	19.5	162	141
160	00	13	318	390	135	145	268	148	184	126.5	133	169	169	205	141	193	128	36	20	8.5	2.5	19.5	162	141
160	0	14	402	502	145	225	268	190	240	136.5	176	226	212	262	174	229	128	50	20	8.5	2.5	19.5	162	141
250	1	15	490	610	154	225	345	234	294	146	213	273	263	323	185	251	155	60	32	11	2.5	19.5	195	166
400	2	16	526	658	157	225	355	252	318	149	231	297	281	347	200	260	168	66	50	11	3	20	205	175

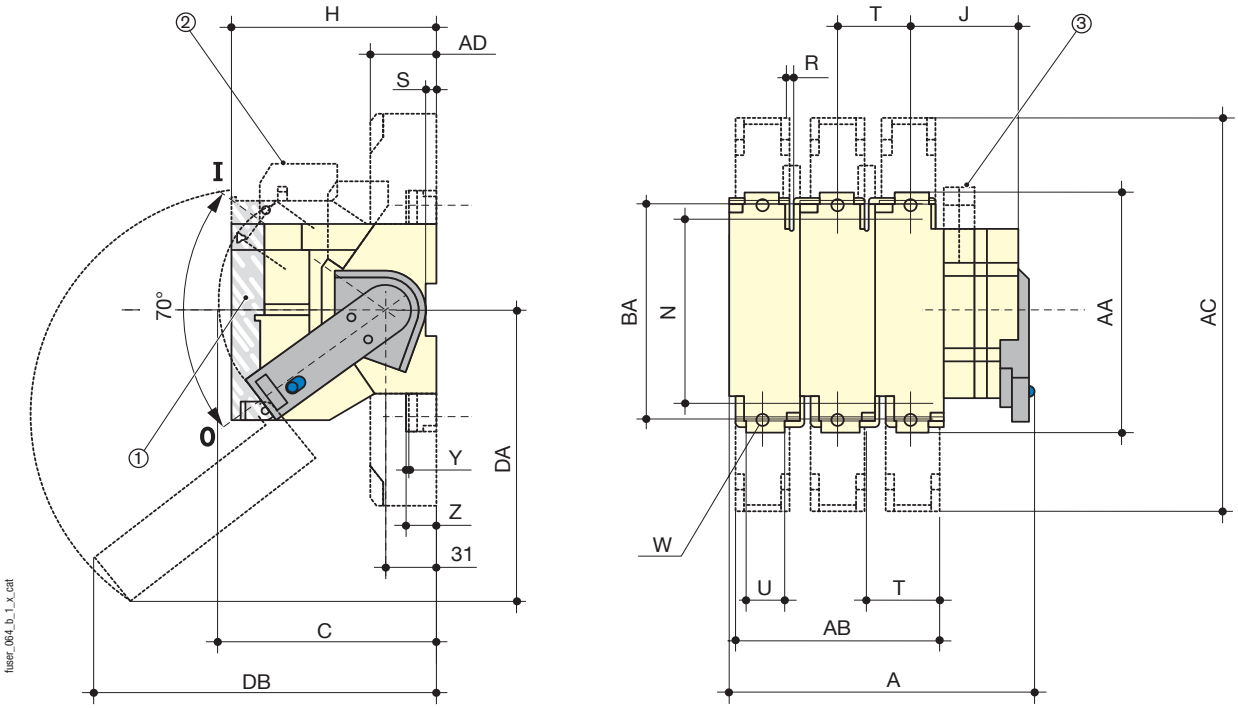
(1) 1 AC: +23.5 / 2 AC: +47
(2) 132 with 2 AC

BS88 - Direct operation

FUSERBLOC CD 20 to CD 32 A in frame size 0 / fuse size A1



FUSERBLOC 32 to 400 A

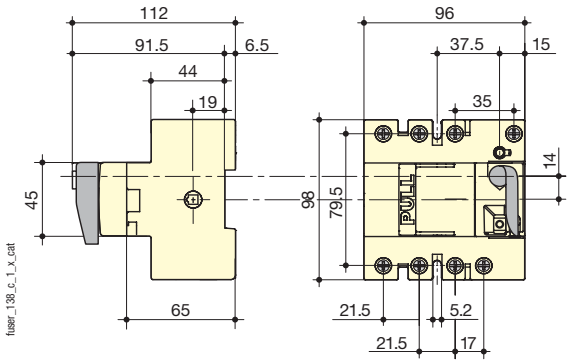


1. Protection screen lockable in position I
2. 1 or 2 fuse blown indication.
3. 1 or 2 A type ACs

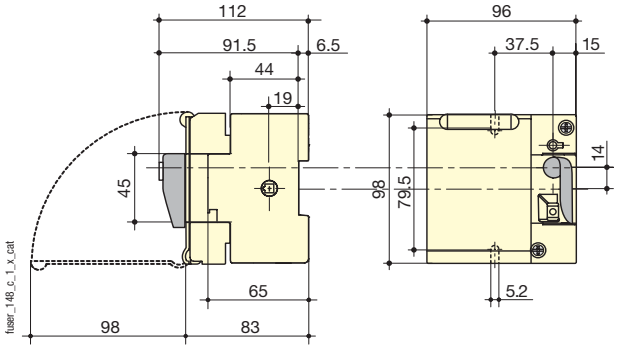
Rating		Frame	Dimensions			Terminal shrouds				Switch body				Switch mounting			Connection						
(A)	Fuse size	size	A 3p.	A 4p.	C	AB 3p	AB 4p	AC	AD	H	J	DA	DB	N	R	S	T	U	W	Y	Z	AA	BA
32	A1	1	133	165	134					116.5	36	159	145	106	5.4	6.5	27					118	
63	A2-A3	2	133	165	134					116.5	36	159	145	106	5.4	6.5	32					118	
100	A4	3	150	186	173	108	144	268	44	116	38			127	5.4		36	20	8.5	2.5	19.5	162	141
CD 160	A3-A4	3a	152	188	173	108	144	268	44	139	38			130	5.4		36	20	8.5	3	19.5	162	141
160	A4	4	150	186	173	108	144	268	44	116	38			127	5.4		50	20	8.5	2.5	19.5	162	141
160	B1-B2	4	192	242	173	136	172	268	44	123	45			140	5.4		50	20	8.5	2.5	19.5	162	141
CD 200	A3-A4	3a	152	188	173	108	144	268	44	139	38			130	5.4		36	20	8.5	3	19.5	162	141
200	B1-B2	5	192	242	173	136	172	345	44	123	45			140	5.4		60	20	8.5	2.5	19.5	195	166
250	B1-B2-B3	5	253	313	173	180	240	345	65	146	81	185	251	162	6.4		60	32	11	2.5	19.5	195	166
315	B1-B2-B3	6	253	313	173	180	240	355	65	146	81	185	251	162	6.4		66	32	11	2.5	19.5	195	175
400	B1-B2-B3-B4	6	271	337	173	192	258	355	65	149	86	200	260	172	6.4		66	50	11	3	20	205	175

NFC and DIN - Direct operation

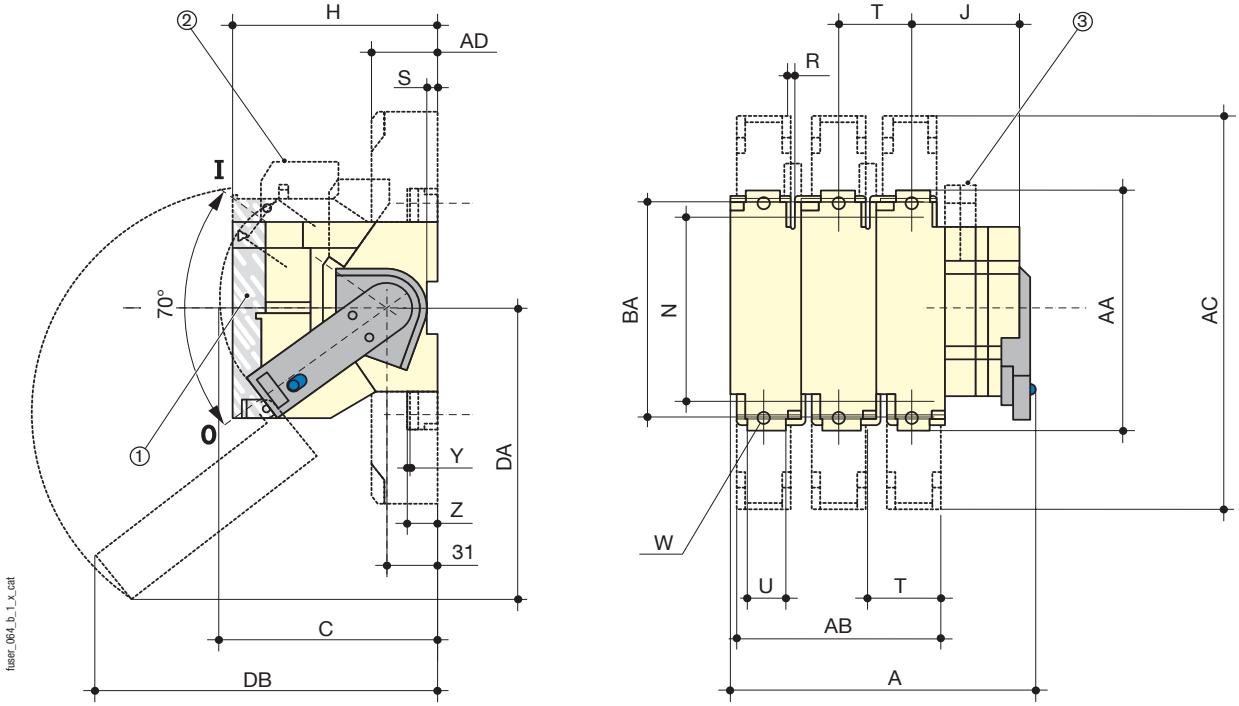
FUSERBLOC 25 to 32 A in frame size 0 / fuse size 10 x 38



FUSERBLOC 32 A in frame size 0 / fuse size 14 x 51



FUSERBLOC 50 to 400 A

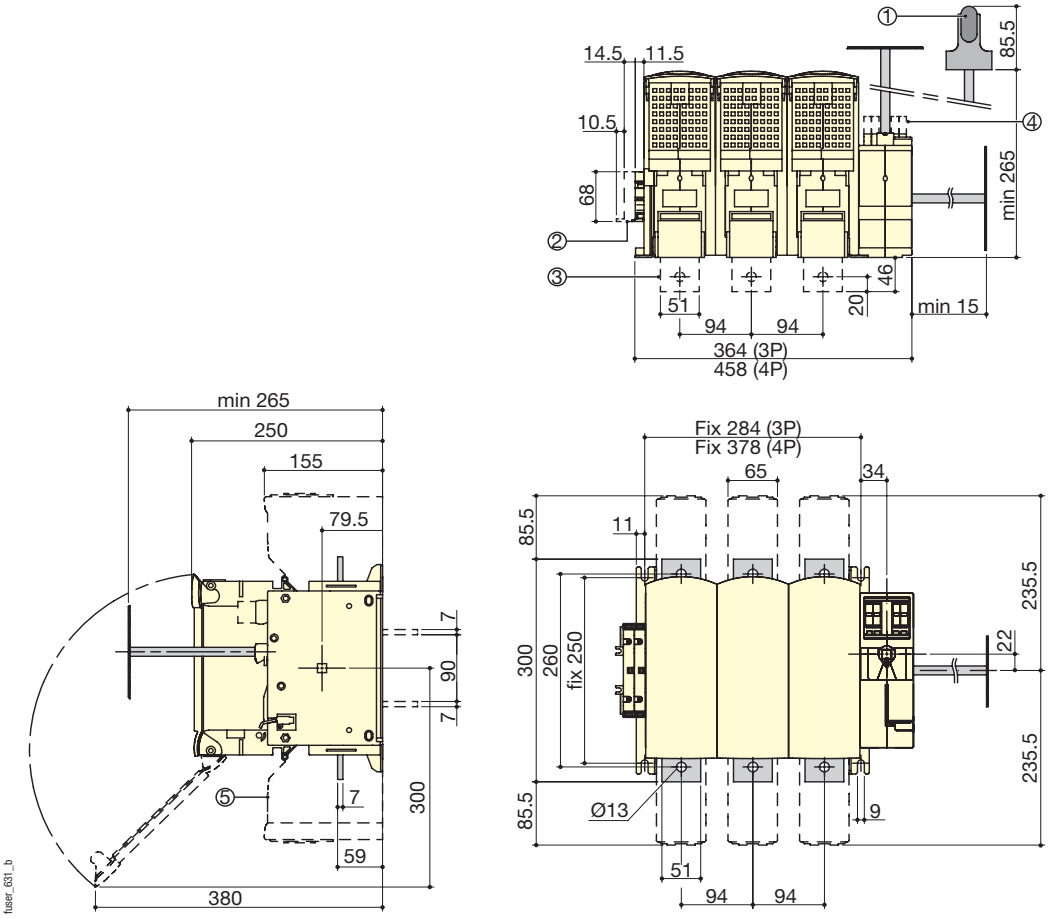


1. Protection screen lockable in position I
2. 1 or 2 fuse blown indication.
3. 1 or 2 A type ACs

Rating			Overall dimensions			Terminal shrouds				Switch body				Switch mounting			Connection						
(A)	Fuse size	Frame size	A 3p.	A 4p.	C	AB 3p.	AB 4p.	AC	AD	H	J	DA	DB	N	R	S	T	U	W	Y	Z	AA	BA
50	14 x 51	1	118	145	134					87	33.5			106	5.4	6.5	27					118	
63	00C	2	133	165	134					116.5	36	159	145	106	5.4	6.5	32					118	
100	22 x 58	3	150	186	173	108	144	268	44	116	38			127	5.4		36	20	8.5	2.5	19.5	162	141
125	22 x 58	3	150	186	173	108	144	268	44	116	38			127	5.4		36	20	8.5	2.5	19.5	162	141
125	00	3	150	186	173	108	144	268	44	126.5	38	141	193	127	5.4		36	20	8.5	2.5	19.5	162	141
160	00	3	150	186	173	108	144	268	44	126.5	38	141	189	127	5.4		36	20	8.5	2.5	19.5	162	141
160	0	4	192	242	173	136	172	268	44	136.5	45	174	229	140	5.4		50	20	8.5	2.5	19.5	162	141
250	1	5	253	313	173	180	240	345	65	146	81	185	251	162	6.4		60	32	11	2.5	19.5	195	166
400	2	6	271	337	173	192	258	355	65	149	86	200	260	172	6.4		66	50	11	3	20	205	175

Direct and external front or right side operation

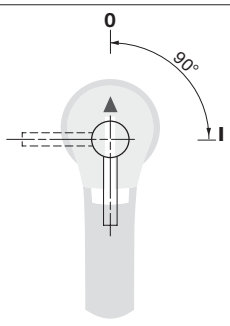
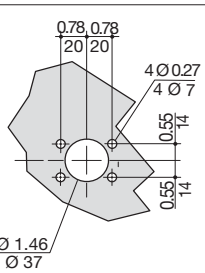
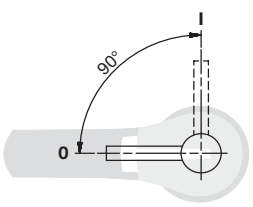
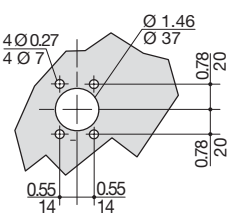
BS88 - FUSERBLOC 630 A in fuse size C1-C2
FUSERBLOC 800 A in fuse size C1-C2-C3
NFC and DIN - FUSERBLOC 630 to 800 A in fuse size 3



1. Direct operation
2. S type auxiliary contact NO + NC
3. Rear connection (option)
4. 1 to 8 pre-break auxiliary contact for signalisation
5. Terminal shrouds

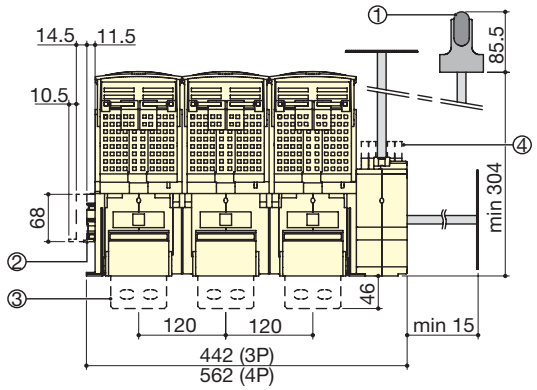
➲ Dimensions for external handles

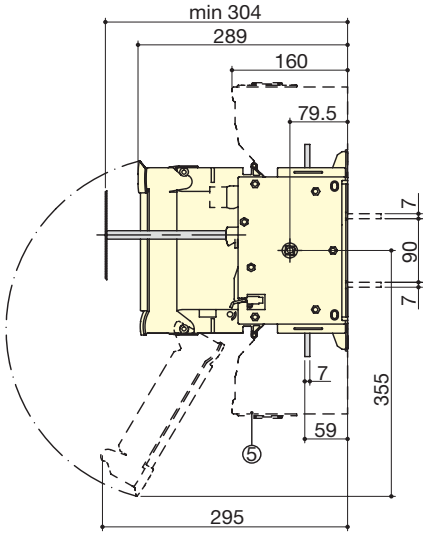
FUSERBLOC 630 to 800 A

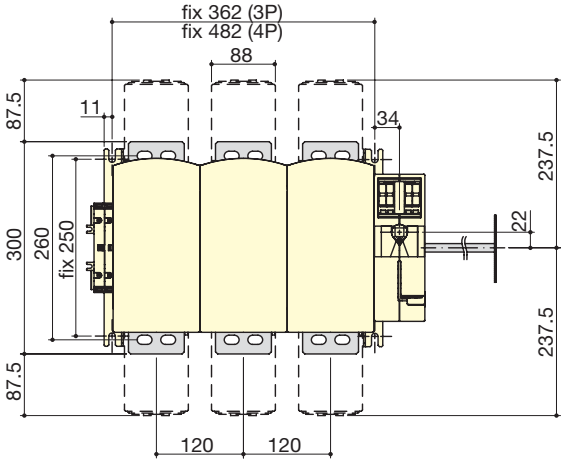
Handle type	Front operation		Side operation	
	Direction of operation	Door drilling	Direction of operation	Door drilling
S3 type Box size 17				

BS88 - FUSERBLOC 1250 A in fuse size D1
NFC and DIN - FUSERBLOC 800 to 1250 A in fuse size 4

1. Direct operation
2. S type auxiliary contact NO + NC
3. Rear connection (option)
4. 1 to 8 pre-break auxiliary contact for signalisation
5. Terminal shrouds

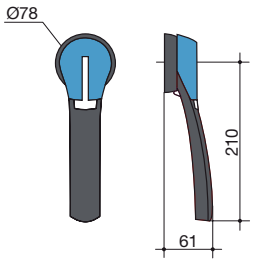
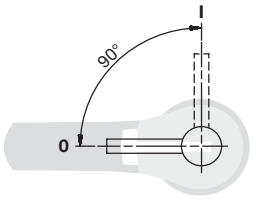
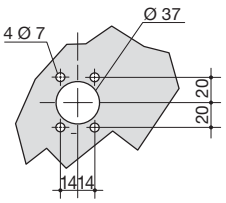
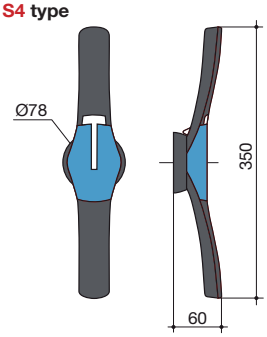
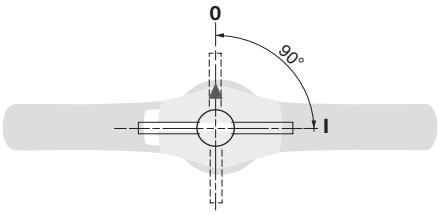






fuser_632_b

FUSERBLOC 800 to 1250 A

Handle type	Front operation Direction of operation	Side operation Direction of operation	Door drilling
S3 type Box size 18 			
S4 type 			

fuser_715_a_1_gb_cat

FUSERBLOC and high speed fuses (UR)



High speed fuses (UR) protect power semi-conductors and DC circuits

➲ Function

FUSERBLOC fuse combination switches combined with high speed fuses (UR) provide optimal breaking and making on load, safety isolation and protection of power semi-conductor circuits.

➲ Comments

- These associations were determined following tests performed in our laboratory. Correct functioning of the FUSERBLOC unit and UR fuses is only guaranteed when these combinations are respected.
- For FUSERBLOC V, we recommend using threaded bolted tag fuses (type BK/50) in preference to knife-edge fuses (DIN 43620), so as to improve the power dissipation of the fuses.
- Contact us for any other combinations (1250 V UR fuses, notched fuses with 80 mm distance between centres, other sizes, etc.)
- For remote tripping devices: consult us.
- To determine the UR fuses required, see page 247 "High speed fuses (UR)"

FUSERBLOC for 690 VAC UR cylindrical fuses

Characteristics

FUSERBLOC 50 A for fuse size 14 x 51								
Fuse rating (A)	10	12	16	20	25	32	40	50
Max. I for the FUSERBLOC (A)	10	12	16	20	25	29	36	40

FUSERBLOC 125 A for fuse size 22 x 58								
Fuse rating (A)	20	25	32	40	50	63	80	100
Max. I for the FUSERBLOC (A)	20	25	32	40	50	63	71	85

References


fuser_284_a_1_cat

Direct right side operation

Rating (A) Fuse Frame size	No. of poles	Switch body	Direct handle	Auxiliary contact Pre-break and position AC
50 A / 14 x 51 1	2 P	3615 **2005**	Black 3629 **7900**	1 contact NO/NC 3999 **0021** 2 contacts NO/NC 3999 **0022**
	3 P	3615 **3005**		
	4 P	3615 **6005**		
125 A / 22 x 58 3	2 P	3615 **2011**	Black 3629 **7901**	
	3 P	3615 **3011**		
	4 P	3615 **6011**		


fuser_556_a_2_cat

External front or right side operation

Rating (A) Fuse Frame size	No. of poles	Switch body	External front handle	External side handle	Shaft extensions for external handle	Auxiliary contact pre-break and position
50 A / 14 x 51 11	2 P	3831 **2005**	Black IP55 1411 **2111** Red/Yellow IP65 1414 **2111**	Black IP55 1415 **2111** Red/Yellow IP65 1418 **2111**	320 mm 1400 **1032**	1 contact NC 3999 **0701** 1 contact NO 3999 **0702**
	3 P	3831 **3005**				
	4 P	3831 **6005**				
125 A / 22 x 58 13	2 P	3831 **2011**	Black IP55 1421 **2111** Red IP65 1424 **2111**	Black IP55 1425 **2111** Red/Yellow IP65 1428 **2111**		
	3 P	3831 **3011**				
	4 P	3831 **6011**				

Accessories

Other accessories: see page 142 "FUSERBLOC"

FUSERBLOC for DIN 43620 UR knife-edge fuses

➲ Characteristics

FUSERBLOC 160 A for fuse size 000 and 00															
Fuse rating (A)	10	16	20	25	32	40	50	63	80	100	125	160	200	250	315
Max. I for the FUSERBLOC (A)	10	16	20	25	32	32	37	44	51	92	105	121	140	140	140

FUSERBLOC 160 A for fuse size 0												
Fuse rating (A)	16	20	25	32	40	50	63	80	100	125	160	200
Max. I for the FUSERBLOC (A)	16	20	25	32	32	37	44	51	92	105	121	140

FUSERBLOC 250 A for fuse size 1*												
Fuse rating (A)	40	50	63	80	100	125	160	200	250	315	350	400
Max. I for the FUSERBLOC (A)	40	50	63	80	100	125	155	178	205	210	215	220

FUSERBLOC 400 A for fuse size 2											
Fuse rating (A)	200	250	315	350	400	450	500	550	630	700	
Max. I for the FUSERBLOC (A)	200	250	285	310	330	330	340	340	350	350	

FUSERBLOC 630 A for fuse size 3							
Fuse rating (A)	500	550	630	700	800	900	1000
Max. I for the FUSERBLOC (A)	360	380	420	450	480	500	510

➲ References



fuser_231_a_2_cat

Direct right side operation

Rating (A) Fuse Frame size	No. of poles	Switch body	Direct handle	Auxiliary contact pre-break and signalisation	Fuse protection covers
160 A / 00 3	2 P	3615 **2015**	Black 3629 **7901**	1 contact NO/NC 3999 **0021** 2 contacts NO/NC 3999 **0022**	3990 **7015**(1)
	3 P	3615 **3015**			3990 **8015**(1)
	4 P	3615 **6015**			3990 **9015**(1)
160 A / 0 4	2 P	3615 **2016**			3990 **7016**(1)
	3 P	3615 **3016**			3990 **8016**(1)
	4 P	3615 **6016**			3990 **9016**(1)
250 A / 1 5	2 P	3615 **2024**			3990 **7024**(1)
	3 P	3615 **3024**			3990 **8024**(1)
	4 P	3615 **6024**			3990 **9024**(1)
400 A / 2 6	2 P	3615 **2039**			3990 **7039**(1)
	3 P	3615 **3039**			3990 **8039**(1)
	4 P	3615 **6039**			3990 **9039**(1)
630 A / 3 17	2 P	3811 **2063**	Black 3899 **6011**	1 contact NC 3999 **0701** 1 contact NO 3999 **0702**	
	3 P	3811 **3063**			3890 **8063**(1)
	4 P	3811 **6063**			3890 **9063**(1)

(1) Terminal shrouds for FUSERBLOC fitted with fuse blown microswitch.

FUSERBLOC for DIN 43620 UR knife-edge fuses



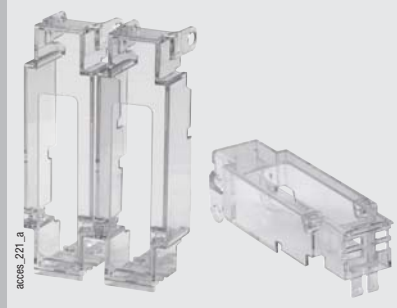
External front or right side operation

Rating (A) Fuse Frame size	No. of poles	Switch body	External front handle	External side handle	Shaft extensions for external handle	NO/NC Pre-break and position AC	Fuse protection covers
160 A / 00 13	2 P	3831 **2015**	Black IP55 1421 **2111** Red/Yellow IP65 1424 **2111**	Black IP55 1425 **2111** Red/Yellow IP65 1428 **2111**	200 mm 1400 **1020** 320 mm 1400 **1032**	1 contact NC 3999 **0701** 1 contact NO 3999 **0702**	3990 **7015**(1)
	3 P	3831 **3015**					3990 **8015**(1)
	4 P	3831 **6015**					3990 **9015**(1)
160 A / 0 14	2 P	3831 **2016**					3990 **7016**(1)
	3 P	3831 **3016**					3990 **8016**(1)
	4 P	3831 **6016**					3990 **9016**(1)
250 A / 1 15	2 P	3831 **2024**					3990 **7024**(1)
	3 P	3831 **3024**					3990 **8024**(1)
	4 P	3831 **6024**					3990 **9024**(1)
400 A / 2 16	2 P	3831 **2039**					3990 **7039**(1)
	3 P	3831 **3039**					3990 **8039**(1)
	4 P	3831 **6039**					3990 **9039**(1)
630 A / 3 17	2 P	3811 **2063**	Black IP65 1433 **3111** Red/Yellow IP65 1434 **3111**	Black IP65 1437 **3111** Red/Yellow IP65 1438 **3111**	200 mm 1400 **1220** 320 mm 1400 **1232**		
	3 P	3811 **3063**					3890 **8063**(1)
	4 P	3811 **6063**					3890 **9063**(1)

(1) Terminal shrouds for FUSERBLOC fitted with fuse blown microswitch.

➲ FUSERBLOC accessories for DIN 43620 UR knife-edge fuses

Terminal shrouds for FUSERBLOC fitted fuse blown microswitch



Use

Protection against direct contact with live parts situated in the fuse compartment for FUSERBLOC fitted with UR fuses with fuse blown auxiliary contacts.

Rating (A)	Fuses (1)	No. of poles	Options(2) References	Accessories(3) References
160	00	2 P	3990 **7015**	3999 **7015**
160	00	3 P	3990 **8015**	3999 **8015**
160	00	4 P	3990 **9015**	3999 **9015**
160	0	2 P	3990 **7016**	3999 **7016**
160	0	3 P	3990 **8016**	3999 **8016**
160	0	4 P	3990 **9016**	3999 **9016**
250	1	2 P	3990 **7024**	3999 **7024**
250	1	3 P	3990 **8024**	3999 **8024**
250	1	4 P	3990 **9024**	3999 **9024**
400	2	2 P	3990 **7039**	3999 **7039**
400	2	3 P	3990 **8039**	3999 **8039**
400	2	4 P	3990 **9039**	3999 **9039**
630	3	3 P	3890 **8063**	3899 **8063**
630	3	4 P	3890 **9063**	3899 **9063**

(1) For the fuses: see page 246 "Fuses UR 10 to 2000 A".
(2) If ordered at the same time as the standard device (factory fitted).
(3) If ordered later.

Other accessories: see page 142 "FUSERBLOC"

FUSERBLOC for UR fuses type BK/50

➲ Characteristics

FUSERBLOC V 800 A for BK fuses size 2													
Fuse rating (A)	400	450	500	550	630	700	800	900	1000	1100	1250		
Max. I for the FUSERBLOC (A)	380	420	440	450	500	520	530	530	530	540	550		
FUSERBLOC 1250 A for BK fuse size 3													
Fuse rating (A)	500	550	630	700	800	900	1000	1100	1250	1400	1500	1600	1800	2000
Max. I for the FUSERBLOC (A)	500	550	620	630	720	790	870	940	1050	1100	1100	1100	1100	1100

➲ References



Front operation

Rating (A) / Fuses	No. of poles	Switch body only(1)	Direct handle	External handle	Shaft extensions for external handle	Fuse protection covers	Auxiliary contact pre-break and position	Terminal shrouds
800 A / 2	3 P	3680 **3081**	Consult us	Black IP55 1443 **3111**(2) Red/Yellow IP65 1444 **3111**	200 mm 1400 **1220** 320 mm 1400 **1232**	Consult us	Consult us	Consult us
	4 P	3680 **6081**						
1250 A / 3	3 P	3680 **3121**						
	4 P	3680 **6121**						

(1) Please consult us.
(2) Standard.

FUSERBLOC for UR fuses type K/110

➲ Characteristics

FUSERBLOC 250 A for fuse size 1* (690 VAC)(1)																
Fuse rating (A)	40	50	63	80	100	125	160	200	250	315	350	400	450	500	550	630
Max. I for the FUSERBLOC (A)	40	50	63	80	100	120	140	165	195	215	230	240	240	240	230	240
FUSERBLOC 400 A for fuse size 1* (690 VAC)(1)																
Fuse rating (A)					200	250	315	350	400	450	500	550	630	700	800	900
Max. I for the FUSERBLOC (A)					145	165	200	220	240	265	290	310	340	370	395	395
FUSERBLOC 500 A for fuse size 2* (690 VAC)(1)																
Fuse rating (A)											400	450	500	550	630	700
Max. I for the FUSERBLOC (A)											320	345	370	390	425	460
FUSERBLOC 630 A for fuse size 2 to 690 VAC(1)																
Fuse rating (A)												800	900	1000	1100	1250
Max. I for the FUSERBLOC (A)												495	545	590	610	620
FUSERBLOC 800 A for fuse size 3 to 690 VAC(1)																
Fuse rating (A)	500	550	630	700	800	900	1000	1100	1250	1400	1500	1600	1800	2000		
Max. I for the FUSERBLOC (A)	370	395	440	480	535	590	645	695	760	800	800	800	800	800		

FUSERBLOC 1250 A for fuse size 3 consult us.

(1) For UR fuses type K/110 1250 VAC, please consult us.

➲ References

Direct right side operation

Rating (A) / Fuses	No. of poles	Switch body	Direct side handle	Direct front handle	Fuse protection covers	Auxiliary contact pre-break and signalisation	Terminal shrouds
250 A / 1*	2 P	36U1 **2024**	Black 3629 **7901**		2 P 3990 **2839**(1) 3 P 3990 **3839**(1)	1 contact NO/NC 3999 **0021**	2 P 3998 **2025** 3 P 3998 **3025**
	3 P	36U1 **3024**					
400 A / 1	2 P	36U1 **2039**					
	3 P	36U1 **3039**					
500 A / 2	2 P	38U1 **2050**	Black 1437 **7911**	Black 3899 **6011**	2 P 3890 **2U63**(1) 3 P 3890 **3U63**(1)	1 contact NC 3999 **0701** 1 contact NO 3999 **0702**	2 P 3898 **2080** 3 P 3898 **3080**
	3 P	38U1 **3050**					
630 A / 2	2 P	38U1 **2063**					
	3 P	38U1 **3063**					
800 A / 3	2 P	38U1 **2080**					
	3 P	38U1 **3080**					
1250 A / 3	2 P	38U1 **2120**		Black 3899 **7011**	3890 **2U12**(1)		3898 **2120**
	3 P	38U1 **3120**			3890 **3U12**(1)		3898 **3120**

(1) Terminal shrouds for FUSERBLOC fitted with fuse blown microswitch.

FUSERBLOC for UR fuses type K/110

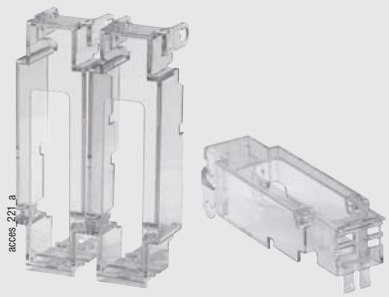
External front or right side operation

Rating (A) / Fuses	No. of poles	Switch body	External front handle	External side handle	Shaft extensions for external handle	Fuse protection covers	NO/NC Pre-break and position AC	Terminal shrouds
250 A / 1*	2 P	38U1 **2024**	Type S2 Black IP55 1421 **2111** Type S2 Red IP65 1424 **2111**	Type S2 Black IP55 1425 **2111** Type S2 Red/Yellow IP65 1428 **2111**	320 mm 1400 **1032**	2 P 3990 **2839**(1) 3 P 3990 **3839**(1)	1 contact NC 3999 **0701** 1 contact NO 3999 **0702**	2 P 3998 **2025** 3 P 3998 **3025**
	3 P	38U1 **3024**						
400 A / 1	2 P	38U1 **2039**						
	3 P	38U1 **3039**						
500 A / 2	2 P	38U1 **2050**	Type S3 Black IP65 1433 **3111** Type S3 Red/Yellow IP65 1434 **3111**	Type S3 Black IP65 1437 **3111** Type S3 Red/Yellow IP65 1438 **3111**	320 mm 1400 **1232**	2 P 3890 **2U63**(1) 3 P 3890 **3U63**(1)		2 P 3898 **2080** 3 P 3898 **3080**
	3 P	38U1 **3050**						
630 A / 2	2 P	38U1 **2063**						
	3 P	38U1 **3063**						
800 A / 3	2 P	38U1 **2080**						
	3 P	38U1 **3080**						
1250 A / 3	2 P	38U1 **2120**	Type S4 Black IP65 1443 **3111** Type S4 Red/Yellow IP65 1444 **3111**			2 P 3890 **2U12**(1) 3 P 3890 **3U12**(1)		2 P 3898 **2120** 3 P 3898 **3120**
	3 P	38U1 **3120**						

(1) Terminal shrouds for FUSERBLOC fitted with fuse blown microswitch.

➲ FUSERBLOC accessories for K/110 type UR fuses

Terminal shrouds for FUSERBLOC fitted fuse blown microswitch

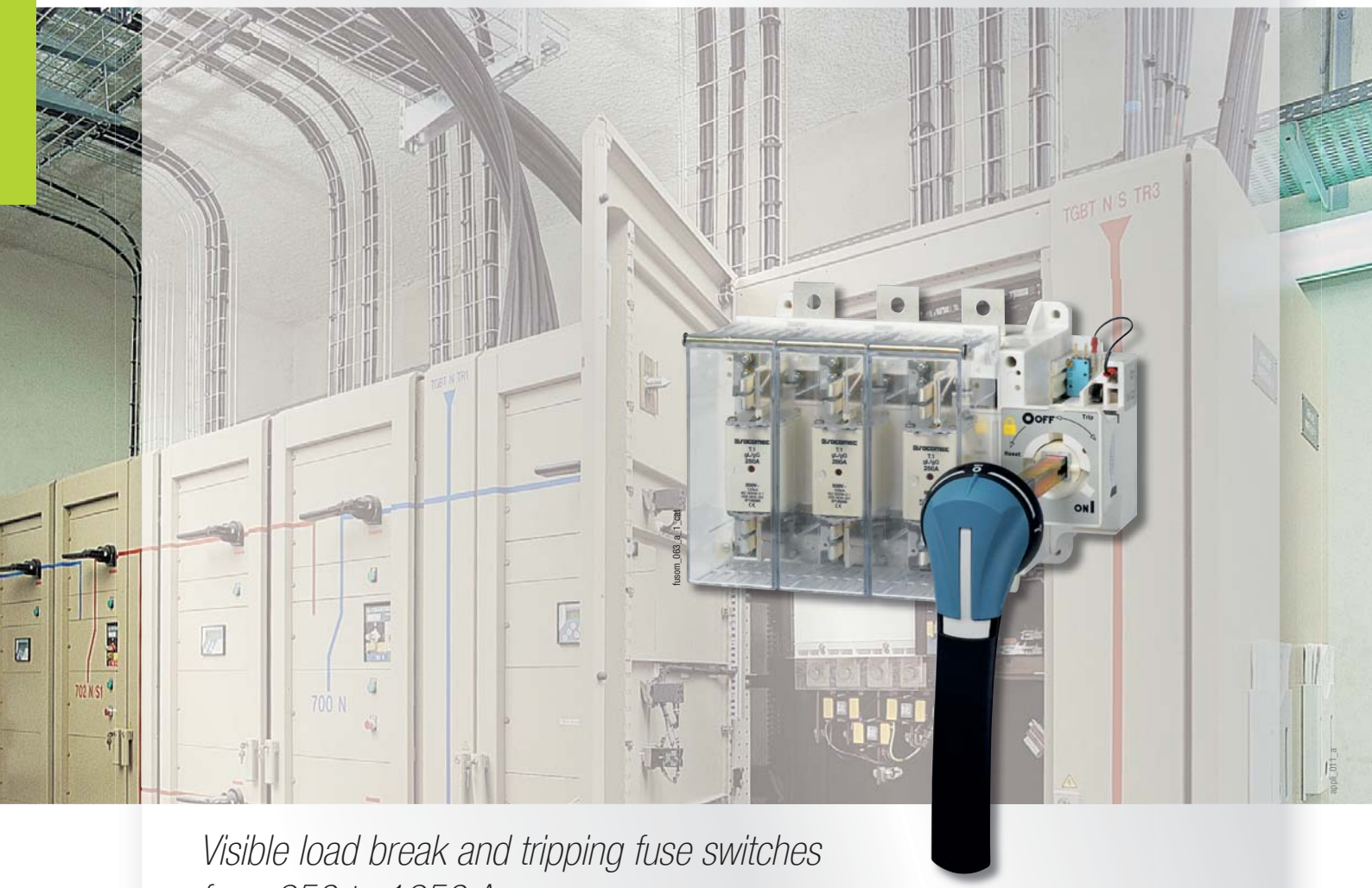


Use
Protection against direct contact with live parts situated in the fuse compartment for FUSERBLOC fitted with UR fuses with fuse blown auxiliary contacts.

			Option(1)	Accessories(2)
Rating (A)	**Fuses(3)**	**No. of poles**	**Reference**	**Reference**
250 … 400	1* / 1	2 P	3990 **2839**	3999 **2839**
250 … 400	1* / 1	3 P	3990 **3839**	3999 **3839**
500 … 800	2 / 3	2 P		3899 **2U63**
500 … 800	2 / 3	3 P	3890 **3U63**	3899 **3U63**
1250	3	2 P	3890 **2U12**	3899 **2U12**
1250	3	3 P	3890 **3U12**	3899 **3U12**
500 … 800	2 / 3	2 P	3890 **2U63**	

(1) If ordered at the same time as the standard device.
(2) If ordered later.
(3) For the fuses: see page 246 "Fuses UR 10 to 2000 A".

Other accessories: see page 142 "FUSERBLOC"



Visible load break and tripping fuse switches from 250 to 1250 A

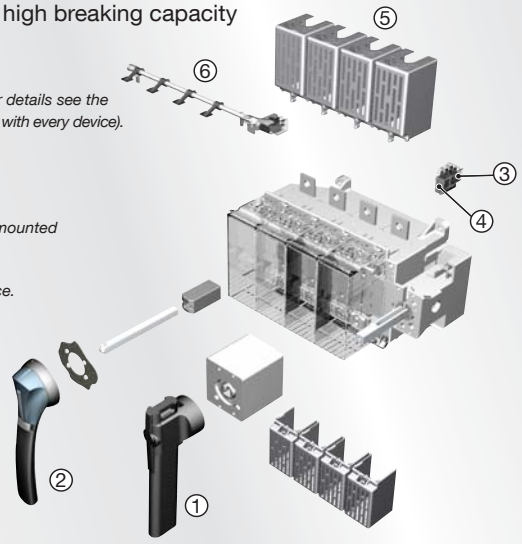
➲ Function

FUSOMAT are manually controlled tri- or tetrapolar fuse combination switches.
They can be tripped remotely.
They break or switch off on load and provide safety isolation and protection against overcurrent for any low voltage electrical circuit.
They can automatically disconnect a circuit in combination with:
- fuse blown indication,
- thermal relay,
- protective relays DIRIS,
- other protective devices.

➲ General characteristics

- Remote breaking by voltage release device.
- Fully visualised breaking.
- Double breaking by phase (top - bottom of the fuse) up to 630 A (NFC/DIN) and 800 A (BS88).
- Visible breaking up to 630 A (NFC/DIN) and 800 A (BS88).
- Protection against overcurrents by fuse links (gG, aM) with high breaking capacity (100 kA eff.).

Functional diagram (for further details see the installation instructions supplied with every device).



1. Direct front operation
2. External front operation
3. NO/NC position AC.
4. NO/NC AC wired to ready mounted transmission coil.
5. Terminal shrouds.
6. Fuse blown indication device.

➲ Conformity to standards

- IEC 60947-3
- EN 60947-3
- VDE 0660-107
- NBN EN 60947-3
- BS 88

➲ References


fusom_063_a_1_cat

BS88 - Front and side operation Switch body with a shunt trip coil 230 VAC

Rating (A) Fuse (1)	No. of poles	Front operation Switch body	Side operation Switch body	Direct handle(2)	External handle	Shaft for external handle	Auxiliary contact position	Auxiliary contact tripping	Terminal shrouds(3)	Terminal screens(4)	Inter phase barrier
250 A B1-B2-B3	3 P	3660 **3026**	3665 **3026**	Front operation Black 3999 **6201** Side operation Black 3999 **6012**	S3 type Front operation Black IP55 1431 **3511**(2) Red IP55 1432 **3511** Side operation Black IP55 1435 **3511**(2) Red IP55 1436 **3511**	Front operation 200 mm 1401 **1520** 320 mm 1401 **1532**(2) Side operation 200 mm 1403 **1520**	1st contact NO/NC 3999 **0051** 2nd contact NO/NC 3999 **0052**	1 contact NO/NC 3999 **0031**	3 P 3998 **3040** 4 P 3998 **4040**		
	4 P	3660 **6026**	3665 **6026**								
400 A B1-B2-B3-B4	3 P	3660 **3041**	3665 **3041**								
	4 P	3660 **6041**	3665 **6041**								
630 A C1-C2	3 P	3660 **3064**	3665 **3064**						3998 **3063**		
	4 P	3660 **6064**	3665 **6064**						3998 **4063**		
800 A C1-C2-C3	3 P	3660 **3080**	3665 **3080**	Front operation Black 3999 **6012** Side operation Black 3999 **6012**						3 P 3998 **3120** 4 P 3998**4120**	3 P 2998 **0003** 4 P 2998 **0004**
	4 P	3660 **6080**	3665 **6080**								
1250 A D1	3 P	3660 **3121**	3665 **3121**								
	4 P	3660 **6121**	3665 **6121**								

(1) For the fuses: see page 230 "BS88 industrial fuselinks".
(2) Standard.
(3) Top/bottom.
(4) Bottom terminals protection screen as standard.



fusom_063_a_1_cat

NFC and DIN - Front operation
Switch body with a shunt trip coil
230 VAC

Rating (A) Fuse	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Auxiliary contact position	Auxiliary contact tripping	1st Fuse blown AC	Terminal shrouds (1 piece)	Terminal screens top	Inter phase barrier
250 A / 1	3 P	3650 **3026**	Black 3999 **6201**(1)	S3 type Black IP55 1431 **3511**(1)	200 mm 1401 **1520**	1st contact NO/NC 3999 **0051**	1 contact NO/NC 3999 **0031**				
	4 P	3650 **6026**						3 P 3994 **1304**	3 P 3998 **3040**(2)		
400 A / 2	3 P	3650 **3041**						4 P 3994 **1404**	4 P 3998 **4040**(2)		
	4 P	3650 **6041**									
630 A / 3	3 P	3650 **3064**		Type S3 Red/yellow IP55 1432 **3511**	320 mm 1401 **1532**(1)	2nd contact NO/NC 3999 **0052**		3 P 3994 **1306**	3 P 3998 **3063**(2)		
	4 P	3650 **6064**						4 P 3994 **1406**	4 P 3998 **4063**(2)		
800 A / 4	3 P	3650 **3080**	Black 3999 **6012**(1)					3 P 3994 **1312**		3 P 3998 **3120**(3)	3 P 2998 **0003**
	4 P	3650 **6080**									
1250 A / 4	3 P	3650 **3121**						4 P 3994 **1412**		4 P 3998 **4120**(3)	4 P 2998 **0004**
	4 P	3650 **6121**									

(1) Standard.
(2) Top/bottom.
(3) Bottom terminals protection screen as standard.



fusom_069_a_2_cat

NFC and DIN - Side operation
Switch body with a shunt trip coil
230 VAC

Rating (A) Fuse	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Auxiliary contact position	Auxiliary contact tripping	1st Fuse blown AC	Terminal shrouds (1 piece)	Terminal screens top	Inter phase barrier
250 A / 1	3 P	3655 **3026**	Black 3999 **6012**(1)	Type S3 Black IP55 1435 **3511**(1) Type S3 Red IP55 1436 **3511**	200 mm 1403 **1520**	1st contact NO/NC 3999 **0051** 2nd contact NO/NC 3999 **0052**	1 contact NO/NC 3999 **0031**				
	4 P	3655 **6026**						3 P 3994 **1304** 4 P 3994 **1404**	3 P 3998 **3040**(2) 4 P 3998 **4040**(2)		
400 A / 2	3 P	3655 **3041**									
	4 P	3655 **6041**									
630 A / 3	3 P	3655 **3064**						3994 **1306**	3998 **3063**(2)		
	4 P	3655 **6064**						3994 **1406**	3998 **4063**(2)		
800 A / 4	3 P	3655 **3080**									
	4 P	3655 **6080**						3 P 3994 **1312** 4 P 3994 **1412**		3 P 3998 **3120**(3) 4 P 3998 **4120**(3)	3 P 2998 **0003** 4 P 2998 **0004**
1250 A / 4	3 P	3655 **3121**									
	4 P	3655 **6121**									

(1) Standard.
(2) Top/bottom.
(3) Bottom terminals protection screen as standard.

➲ Accessories

Direct handle



Front operation

Rating (A)	Handle colour	Reference
250 … 630	Black	3999 **6201**
800 … 1250	Black	3999 **6012**
250 ... 1250	Red	consult us

Side operation

Rating (A)	Handle colour	Reference
250 … 1250	Black	3999 **6012**
250 … 1250	Red	3999 **6013**

External handle



S3 type handle

Front operation

Rating (A)	Handle type	Handle colour	External IP	Reference
250 … 1250	S3	Black	IP55	1431 **3511**
250 … 1250	S3	Red	IP55	1432 **3511**

Side operation

Rating (A)	Handle type	Handle colour	External IP	Reference
250 … 1250	S3	Black	IP55	1435 **3511**
250 … 1250	S3	Red	IP55	1436 **3511**

S type handle adapter



Use
Enables S type handles to be fitted in place of existing older style SOCOMEC handles. Adapter can also be utilised as a spacer to increase the distance between the panel door and the handle lever.

Dimensions
Adds 12 mm to the depth.

Handle colour	To be ordered in multiples of	External IP (1)	Reference
Black	10	IP65	1493 **0000**

(1) IP: Degree of protection according to standard IEC 60529.

Alternative S-type handle cover colours

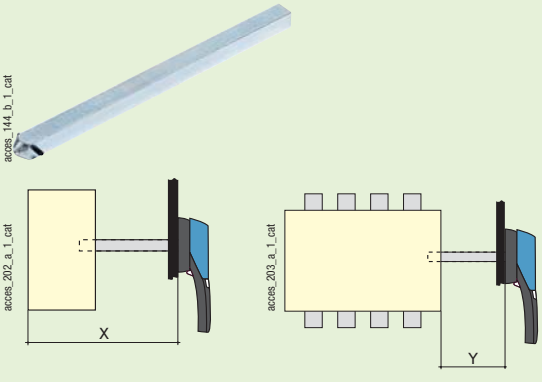


Use
For single lever S3 type handles.

Other colours: consult us.

Colour	To be ordered in multiples of	Handle	Reference
Light grey	50	S3	1401 **0001**
Dark grey	50	S3	1401 **0011**
Light grey	50	S4 type	1401 **0031**
Dark grey	50	S4 type	1401 **0041**

Shaft for external handle



Use
Standard lengths:
- 200 mm
- 320 mm.

Other lengths: consult us.

Front operation

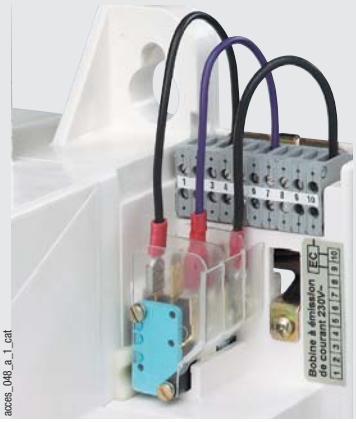
Rating (A)	Dimension X (mm)	Shaft length (mm)	Type	Reference
250 … 400	300 … 422	200	15 x 12	1401 **1520**
250 … 400	300 … 542	320	15 x 12	1401 **1532**
630 … 1250	345 … 467	200	15 x 12	1401 **1520**
630 … 1250	345 … 587	320	15 x 12	1401 **1532**

Side operation

Rating (A)	Dimension Y (mm)	Shaft length (mm)	Type	Reference
250 … 1250	78 … 200	200	15 x 12	1403 **1520**

Auxiliary contacts

Use
Pre-break and signalling of positions 0 and I: 1 to 2 NO/NC auxiliary contacts
Coil tripping
1 to 2 NO/NC auxiliary contacts
Connection to the control circuit
By 6.35 mm fast-on terminal.
Characteristics
Auxiliary contact NO/NC IP2.
Electrical characteristics
30 000 operations.



acces_040_a_1_cat

References

NO/NC position AC

Rating (A)	Position AC	Reference
250 … 1250	1st AC	3999 **0051**
250 … 1250	2nd AC	3999 **0052**
630 … 1250	3rd and more	consult us

NO/NC low level position contact

Rating (A)	Position AC	Reference
250 … 1250	1st AC	3999 **0111**
250 … 1250	2nd AC	3999 **0112**

NO/NC contact, signalling coil tripping

Rating (A)	Position AC	Reference
250 … 1250	1 AC	3999 **0031**

Characteristics

NO/NC position contact

		Operating current I_e (A)			
	Current	250 VAC	400 VAC	24 VDC	48 VDC
Rating (A)	nominal (A)	AC-13	AC-13	DC-13	DC-13
250 … 1250	16	12	8	14	6

NO/NC contact, signalling coil tripping

		Operating current I_e (A)			
	Current	250 VAC	400 VAC	24 VDC	48 VDC
Rating (A)	nominal (A)	AC-13	AC-13	DC-13	DC-13
250 … 1250	16	12	8	12	2

Alternative tripping coils


acces_049_a_1_cat
Shunt trip coil


acces_050_a_1_cat
Undervoltage trip coil

Use
Omnipolar breaking remotely controlled by shunt trip or undervoltage voltage release coil.
Note: the shunt trip coil must not be supplied for more than 5 s.
A 230 VAC shunt trip coil is fitted to the standard switch body. To modify this coil, the reference opposite must be added to the switch reference (use "original coil" reference).

Examples for ordering:
- FUSOMAT with shunt trip coil 230 VAC - 1 reference: FUSOMAT 250 A, 3 pole, front operation, reference 3650 3026.
- FUSOMAT fitted with a non standard coil - 2 references: FUSOMAT 250 A, 3 pole, front operation, fitted with a 110 VAC undervoltage trip coil: 3650 3026 + 3991 3110.

Shunt trip coil

Voltage	Replacement tripping coil Reference	Original coil(1) Reference
24 VAC	3990 **1024**	3991 **1024**
48 VAC	3990 **1048**	3991 **1048**
110 VAC	3990 **1110**	3991 **1110**
230 VAC	3990 **1220**	included
400 VAC	3990 **1380**	3991 **1380**
24 VDC	3990 **2024**	3991 **2024**
48 VDC	3990 **2048**	3991 **2048**
220 VDC	3990 **2220**	
12 VDC		3991 **2012**
110 / 200 VDC		3991 **2220**

Undervoltage trip coil

Voltage	Replacement tripping coil Reference	Original coil(1) Reference
24 VAC	3990 **3024**	3991 **3024**
48 VAC	3990 **3048**	3991 **3048**
110 VAC	3990 **3110**	3991 **3110**
230 VAC	3990 **3220**	3991 **3220**
400 VAC	3990 **3380**	3991 **3380**
12 VDC	3990 **4012**	3991 **4012**
24 VDC	3990 **4024**	3991 **4024**
48 VDC	3990 **4048**	3991 **4048**
110 VDC	3990 **4110**	3991 **4110**
220 VDC	3990 **4220**	3991 **4220**

(1) To be ordered at same time as switch (factory fitted).

Delayed undervoltage trip coil

Voltage	Reference
230 VAC	3992 **3230**
400 VAC	3992 **3400**

Current-reducing resistor for undervoltage trip coil

Use
Reduces, by limiting the current, the effects on the undervoltage coils used in continuous processes or processes exposed to high ambient temperatures.

Voltage	Reference
110 VAC	3999 **3112**
230 VAC	3999 **3230**
400 VAC	3999 **3400**
110 VDC	3999 **4110**

DIN Fuse blown indication

Use
For DIN fuse cartridges with striker.
Electrical principle
A NO/NC auxiliary contact detects that the fuse has blown.
Connection to the control circuit
By 6.35 mm fast-on terminal.
Electrical characteristics
30 000 operations.

NO/NC changeover contact

Rating (A)	No. of poles	Position AC	Reference
250 … 400	3 P	1st	3994 **1304**
250 … 400	4 P	1st	3994 **1404**
630	3 P	1st	3994 **1306**
630	4 P	1st	3994 **1406**
800 … 1250	3 P	1st	3994 **1312**
800 … 1250	4 P	1st	3994 **1412**
250 … 1250	3/4 P	2nd	3994 **1902**

Characteristics

Rating (A)	Current nominal (A)	Operating current I_e (A) 250 VAC AC-13	400 VAC AC-13	24 VDC DC-13	48 VDC DC-13
250 … 1250	16	12	8	12	2

Terminal shrouds



Use
Top or bottom protection against direct contact with terminals or connection parts.

Advantage
Perforations allowing remote thermographic inspection without removal.

Rating (A)	No. of poles	Position	Reference
250 … 400	3 P	top or bottom	3998 **3040**(1)
250 … 400	4 P	top or bottom	3998 **4040**(2)
630	3 P	top or bottom	3998 **3063**(1)
630	4 P	top or bottom	3998 **4063**(2)

(1) Reference composed of 3 pieces.
(2) Reference composed of 4 pieces.

Terminal screens



Use
Top or bottom protection against direct contact, with terminals or connecting parts.

Rating (A)	No. of poles	Position	Reference
800 … 1250	3 P	top	3998 **3120**
800 … 1250	4 P	top	3998 **4120**
800 … 1250	3/4 P	bottom	included

Inter phase barrier

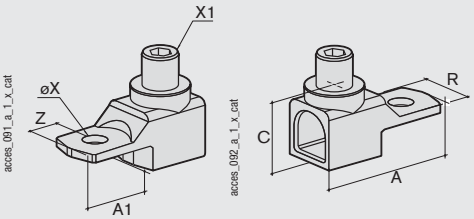


Use
Safety isolation between the terminals, essential for use at 690 VAC or in a polluted or dusty atmosphere.

Rating (A)	No. of poles	Reference
800 … 1250	3 P	2998 **0003**
800 … 1250	4 P	2998 **0004**

Cage terminals





Use

Connection of bare copper cables onto the terminals (without lugs).

References

Rating max (A)	No. of poles	Reference
250	3 P	5400 **3025**
250	4 P	5400 **4025**
400	3 P	5400 **3040**
400	4 P	5400 **4040**
500 ... 630	3 P	5400 **3063**
500 ... 630	4 P	5400 **4063**

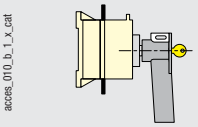
Connections

Rating (A)	Section flexible cable (mm^2)	Section rigid cable (mm^2)	Width flexible bar (mm)	Stripped over (mm)
250	16 … 185	16 … 185	18	27
400	50 … 240	50 … 300	20	34
500 ... 630	70 … 300	70 … 300	24	34

Dimensions

Rating (A)	A	A1	C	R	ØX	X1	Z
250	62	31.5	31.5	25	10.5	M16	14
400	71.5	32	38	32	10.5	M20	15
500 ... 630	76.5	37	38	40	12.5	M20	15

Handle key interlocking accessories



Lock RONIS 1104 A

Use

Locking in position 0 of front or side operation handle:

- using a padlock (not supplied) and the factory integrated padlocking function of the handle.
- using RONIS 1104 A lock (key BC 3318) to be mounted directly on the padlockable handle.
- locking using CASTELL K (not supplied)
- locking using RONIS EL11AP (not supplied).

Locking using RONIS EL 1104 A lock (supplied)

Rating (A)	Operation	Reference
250 … 1250	front direct	3999 **8104**

Locking using RONIS EL11AP lock (not supplied)

Rating (A)	Operation	Reference
250 … 1250	External	1499 **7701**

Locking using CASTELL lock (not supplied)

Rating (A)	Operation	Reference
250 … 1250	External	1499 **7702**

Label holder



Use

Recognisable self-adhesive label allowing identification of the devices.

Dimensions W x H (mm)	To be ordered by multiple	Reference
18 x 13	50	7769 **9999**

Other specific accessories



Use

- Customised protection screens (for specific dimensions or high ambiant temperatures).
- Connection accessories.
- Mounting plates for standard systems.
- Special construction available for specific environments.

➲ FUSOMAT - Characteristics according to IEC 60947-3

250 to 1250 A

Thermal current I_{th} (40°C)		**250 A**	**400 A**	**630 A**	**800 A**	**1250 A**
NFC/DIN fuse size		1	2	3	4	4
Rated insulation voltage U_i (V)		1000	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)		12	12	12	12	12
Rated operational currents Ie (A)						
Rated voltage	Load duty category	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)
400 VAC	AC-21 A / AC-21 B	250/250	400/400	630/630	800/800	1250/1250
400 VAC	AC-22 A / AC-22 B	250/250	400/400	630/630	800/800	1250/1250
400 VAC	AC-23 A / AC-23 B	250/250	400/400	630/630	800/800	1000/1000
690 VAC(2)	AC-21 A / AC-21 B	200/200	315/400	500/630	800/800	800/1250
690 VAC(2)	AC-22 A / AC-22 B	200/200	315/400	500/630	800/800	800/1000
690 VAC(2)	AC-23 A / AC-23 B	200/200	250/315	315/400	630/630	630/630
220 VDC	DC-21 A / DC-21 B	200/200	315/315	400/630	800/800	800/1250
220 VDC	DC-22 A / DC-22 B	200/200	315/315	315/630	800/800	800/1250
220 VDC	DC-23 A / DC-23 B	200/200	200/315	400/630	800/800	800/1000
440 VDC	DC-21 A / DC-21 B	200/200	315/315	400/630(3)	800/800(4)	800/1250(4)
440 VDC	DC-22 A / DC-22 B	200/200	315/315(3)	315/630(3)	800/800(4)	800/1250(4)
440 VDC	DC-23 A / DC-23 B	200/200	200/315(3)	400/630(3)	800/800(4)	800/1000(4)
Operational power in AC-23 (kW)						
At 400 VAC without pre-break in AC-23 (kW)(1)(5)		132/132	220/220	355/355	450/450	560/560
At 690 VAC without pre-break in AC-23 (kW)(1)(5)		185/185	220/295	295/400	400/400	600/600
Reactive power (kvar)						
At 400 VAC (kvar)(5)		115	185	290	365	575
Fuse protected short-circuit withstand (kA ms prospective)						
Prospective short-circuit (kA rms)(6)		80/100	80/100	80/100	80/100	80/100
Associated fuse rating (A)(6)		250	400	630	800	1250
Short-circuit capacity						
Rated peak withstand current (kA peak)(6)		30	45	60	80	80
Connection						
Min. connection wire range		95	185	2 x 150		
Minimum Cu busbar section (mm^2)				2 x 30 x 5	2 x 60 x 5	2 x 60 x 5
Maximum Cu cable section (mm^2)		240	240	2 x 300	4 x 185	4 x 185
Maximum Cu busbar width (mm)		40	40	50	100	100
Tightening torque min (Nm)		20	20	40		20
Mechanical characteristics						
Durability (number of operating cycles)		8000	8000	5000	5000	5000
Weight of a 3 pole device (kg)		7	8	16	28	28
Weight of a 4 pole device (kg)		8.5	9.5	19	33	33

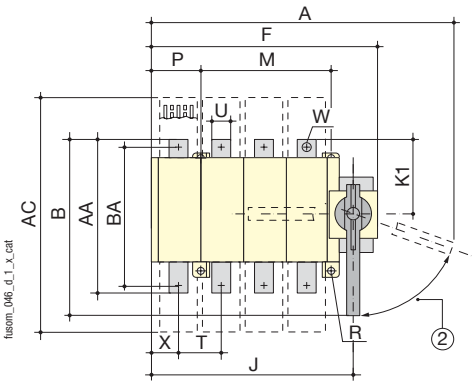
(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) With terminal shrouds or phase barrier.
(3) Poles cannot be juxtaposed.
(4) 4-pole device with 2 pole in series by polarity.
(5) The power value is given for information only, the current values vary from one manufacturer to another.
(6) For a rated operational voltage U_e = 400 VAC.

➲ Dimensions

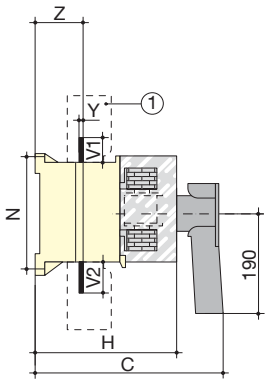
Front operation

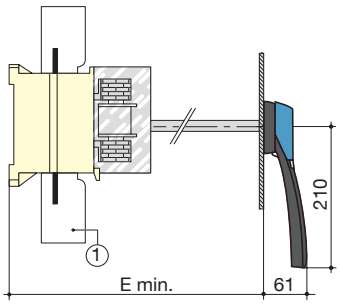
BS88 - FUSOMAT 250 to 800 A
NFC and DIN - FUSOMAT 250 to 630 A

Direct front operation



External front operation



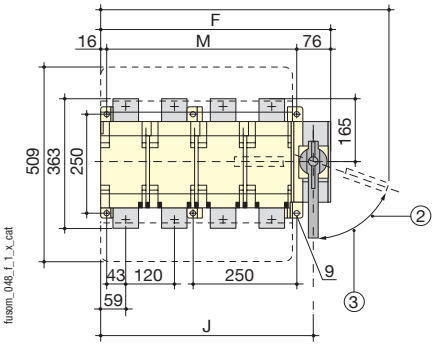


1. Terminal shrouds.
2. Reset 70°.

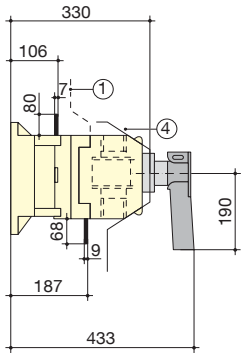
Rating (A)	Dimensions A 3p.	A 4p.	B	C	E	Terminal shrouds AC	Switch body F 3p.	F 4p.	H	J 3p.	J 4p.	Switch mounting K1	M	N	P 3p.	P 4p.	R	Connection T	U	V1	V2	W	X 3p.	X 4p.	Y	Z	AA	BA
250	435	495	305	307	297 … 343	380	285	345	221	253	313	115	210	180	10	70	7	65	32	35	43	11	31	46	3	67	238	208
400	435	495	305	307	293 … 343	380	285	345	221	253	313	115	210	180	10	70	7	65	32	35	43	13	31	46	5	69	238	208
630	490,5	570,5	350	348	341 … 440	470	345,5	425,5	268	308	388	150	250	250	20	100	9	80	50	50	50	13	36	65	7	72	300	260
800	490,5	570,5	350	348	341 … 440	470	345,5	425,5	268	308	388	150	250	250	20	100	9	80	50	50	50	13	36	65	7	72	300	-

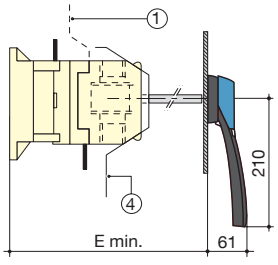
BS88 - FUSOMAT 1250 A
NFC and DIN - FUSOMAT 800 to 1250 A

Direct front operation



External front operation





1. Top terminal screens
2. Reset 70°.
3. Padlocking 65°.
4. Front terminal screens

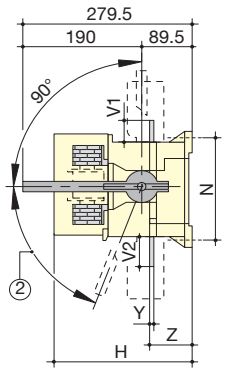
Rating (A)	Overall dimensions A 3p.	A 4p.	E min	Switch body F 3p.	F 4p.	J 3p.	J 4p.	Switch mounting M 3p.	M 4p.
800(1)	582	702	345	437	557	399.5	519.5	345	465
1250	582	702	345	437	557	399.5	519.5	345	465

(1) NFC and DIN only.

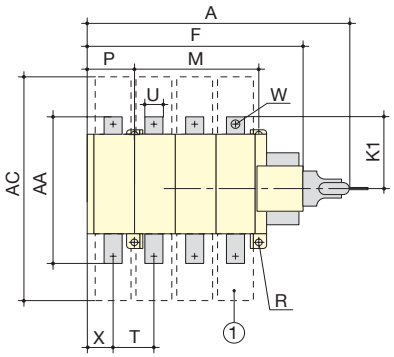
Side operation

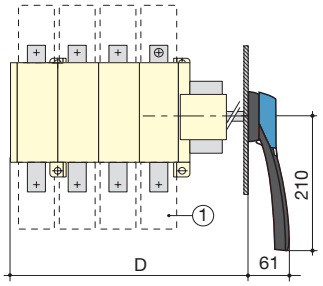
BS88 / NFC and DIN - FUSOMAT 250 to 630 A

Direct side operation



External side operation





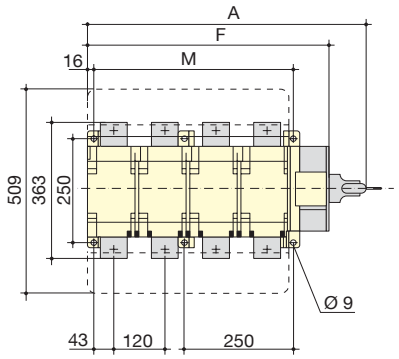
fusom_047_d_1_x_cat

1. Terminal shrouds.
2. Reset 70°.

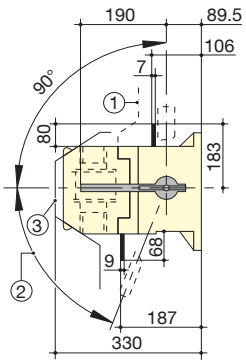
Rating (A)	Overall dimensions A 3p.	A 4p.	D 3p.	D 4p.	Terminal shrouds AC	Switch body F 3p.	F 4p.	H	K1	Switch mounting M	N	P 3p.	P 4p.	R	Connection T	U	V1	V2	W	X 3p.	X 4p.	Y	Z	AA
250	365	425	357	417	388	285	345	221	115	210	180	10	70	7	65	32	35	43	11	31	46	3	67	238
400	365	425	357	417	388	285	345	221	115	210	180	10	70	7	65	32	35	43	13	31	46	5	69	238
630	421.5	501.5	413	493	470	345.5	425.5	268	150	250	250	20	100	9	80	50	50	50	13	36	65	7	72	300

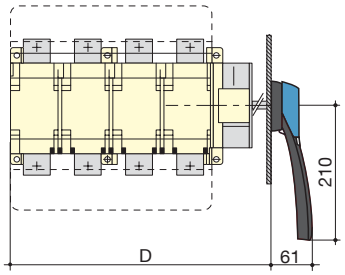
BS88 / NFC and DIN - FUSOMAT 800 to 1250 A

Direct side operation



External side operation





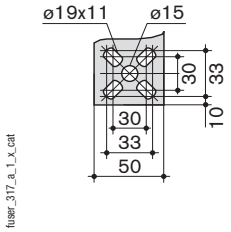
fusom_049_d_1_x_cat

1. Top terminal screens
2. Reset 70°.
3. Front terminal screens

Rating (A)	Overall dimensions A 3p.	A 4p.	D 3p.	D 4p.	Switch body F 3p.	F 4p.	Switch mounting M 3p.	M 4p.
800	522	641	504	624	437	557	345	465
1250	522	641	504	624	437	557	345	465

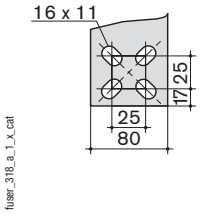
Connection terminals

FUSOMAT 800 A



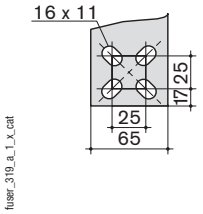
FUSOMAT 1250 A

A connection terminals
FUSOMAT 1250 A - Top



FUSOMAT 1250 A

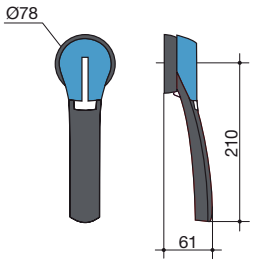
A connection terminals
FUSOMAT 1250 A - bottom A

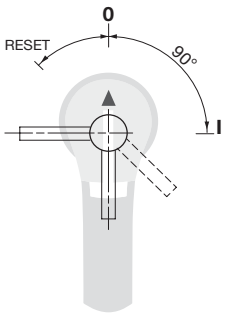


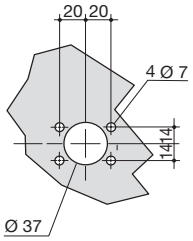
Dimensions for external handles

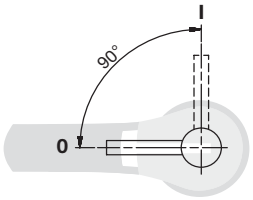
FUSOMAT 250 to 1250 A

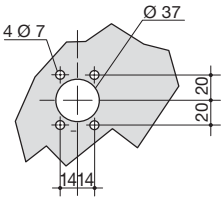
Handle type	Front operation		Side operation	
	Direction of operation	Door drilling	Direction of operation	Door drilling
S3 type				





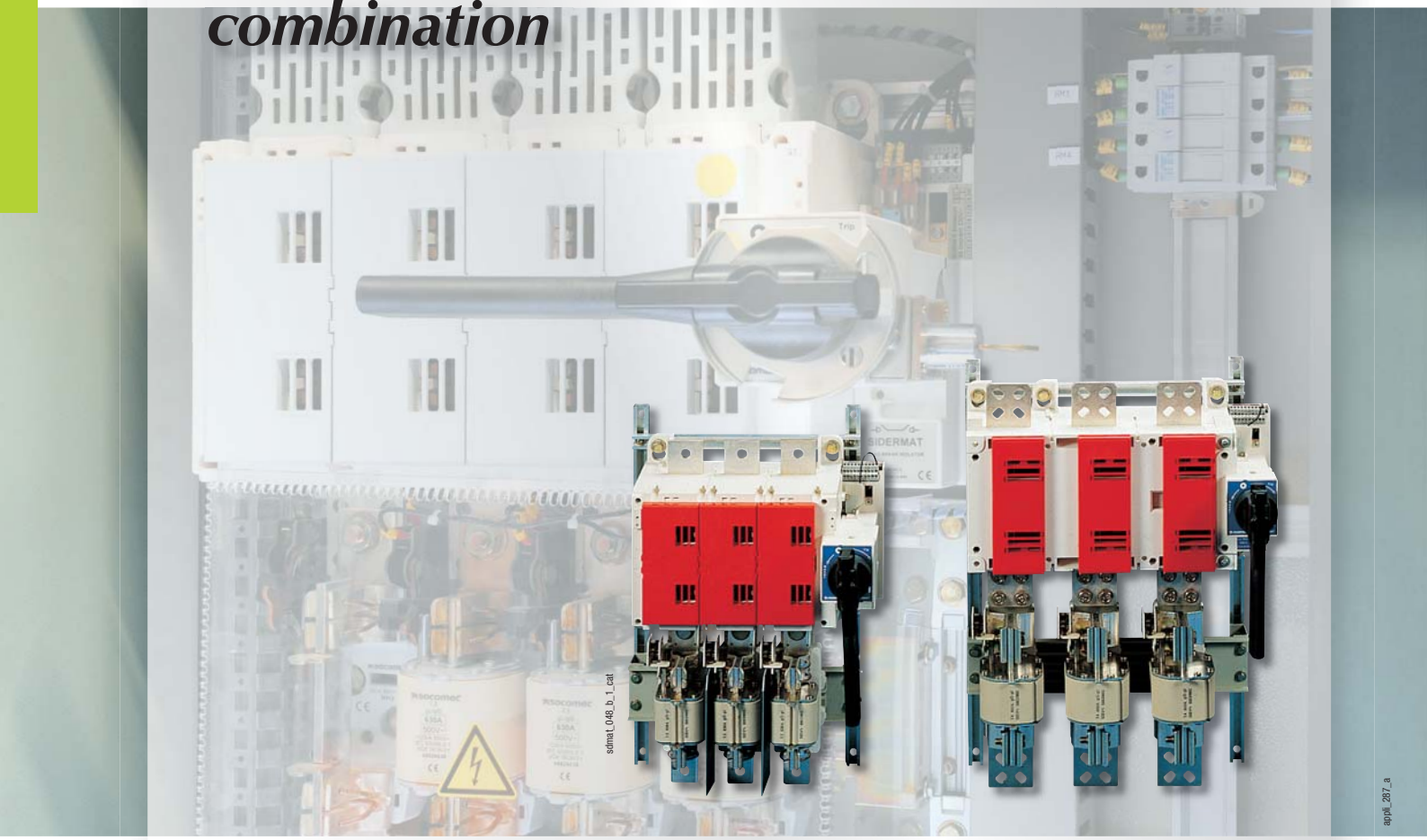






fusom_073_a_1_gb_cat

SIDERMAT combination



Visible breaking and tripping fuse switches from 630 to 1800 A

➲ Function

SIDERMAT combination are manually operated tri- or tetrapolar fuse disconnecting switches which can be triggered remotely.
They make and break under load conditions and provide safety isolation and protection against overcurrent for any low voltage electrical circuit.
They can automatically switch on a power circuit in combination with:
- fuse blown indication,
- thermal relay,
- differential relay,
- protective relays DIRIS,
- other protective devices.

➲ General characteristics

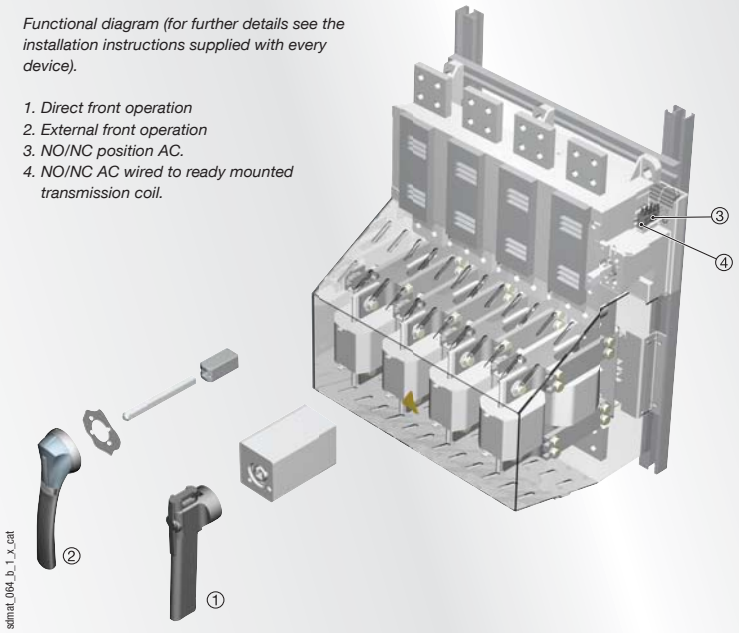
- Remote breaking by voltage release device.
- Fully visualised breaking.
- Visible double breaking.
- Protection against overcurrents by fuse links (gG, aM) with high breaking capacity (100 kA eff.).
- Device supplied without fuses.

➲ Conformity to standards

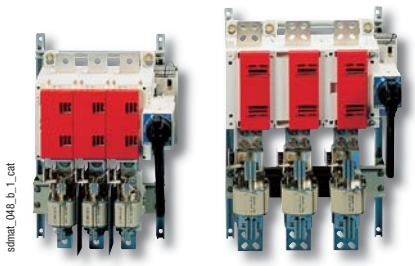
- IEC 60947-3
- EN 60947-3
- BS EN 60947-3
- NBN EN 60947-3
- IEC 60269-1
- IS 14947-3
- DIN EN 60269-1
- NF EN 60269-1
- IEC 60269-2
- VDE 0636-1
- VDE 0660-107

Functional diagram (for further details see the installation instructions supplied with every device).

1. Direct front operation
2. External front operation
3. NO/NC position AC.
4. NO/NC AC wired to ready mounted transmission coil.



➲ References



NFC and DIN - Front operation
Switch body with a shunt trip coil 230 VAC

Rating (A) / Fuse[4]	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	1st position AC	Tripping AC	Terminal shrouds top	Terminal screens top	Inter phase barrier
630 A / 3	3 P	3520 **3063**	Black 3999 **6203**[1]	Type S3 Black IP55 1431 **3511**[1] Red IP55 1432 **3511**	320 mm 1401 **1532**	1st contact NO/NC 3999 **0051** 2nd contact NO/NC 3999 **0052**	1 contact NO/NC 3999 **0031**	3998 **3063**		
	4 P	3520 **6063**						3998 **4063**		
800 A / 4	3 P	3520 **3080**							3 P 2998 **3120**[2] 4 P 2998 **4120**[2]	3 P 2998 **0003** 4 P 2998 **0004**
	4 P	3520 **6080**								
1250 A / 4	3 P	3520 **3120**								
	4 P	3520 **6120**								
1600 A / 2 x 4*	3 P	3520 **3160**								
	3 P + NC	3520 **4160**								
	4 P	3520 **6160**								
1800 A / 2 x 4*	3 P	3520 **3180**[3]							2998 **3180**[2]	
	3 P + NC	3520 **4180**[3]							included	
	4 P	3520 **6180**[3]							2998 **4180**[2]	

(1) Standard.
(2) Bottom terminals protection screen as standard.
(3) Only one of the two T4 fuses should be equipped with striker.
(4) For the fuses: see page 236 "NFC-DIN industrial fuselinks 0.16 to 1 250 A".

** Two size 4 DIN fuses in parallel per pole.*

➲ SIDERMAT combination - Accessories

Direct front operation handle

acces_150_a_2_cat



Rating (A)	Handle colour	Reference
630 … 1800	Black	3999 **6203**
630 … 1800	Red	consult us

External front operation handle

S3 type handle

acces_151_a_2_cat



acces_166_a_2_cat



Rating (A)	Handle colour	External IP	Reference
630 … 1800	Black	IP55	1431 **3511**
630 … 1800	Red	IP55	1432 **3511**

Alternative S-type handle cover colours

acces_190_a_2_cat



Use
For single lever S3 type handles.
Other colours: consult us.

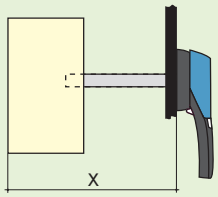
Colour	To be ordered by multiple	Reference
Light grey	50	1401 **0001**
Dark grey	50	1401 **0011**

Shaft for external handle

acces_144_b_1_cat



acces_202_a_1_x_cat



Use
Standard lengths:
- 200 mm,
- 320 mm.
Other lengths: consult us.

Rating (A)	Dimension X (mm)	Shaft length (mm)	Reference
630 … 800	350 … 450	200	1401 **1520**
630 … 800	350 … 570	320	1401 **1532**
1250 … 1800	370 … 570	320	1401 **1532**

Current-reducing resistor for undervoltage trip coil

Use
Reduces, by limiting the current, the effects on the undervoltage coils used in continuous processes or processes exposed to high ambient temperatures.

Voltage	Reference
110 VAC	3999 **3112**
230 VAC	3999 **3230**
400 VAC	3999 **3400**
110 VDC	3999 **4110**

Alternative tripping coils

undervoltage trip coil



shunt trip coil.



Use

Omnipolar breaking remotely controlled by shunt trip or undervoltage voltage release coil.
Note: the shunt trip coil must not be supplied for more than 5 s.
A 230 VAC shunt trip coil is fitted to the standard switch body.
To modify this coil, the reference opposite must be added to the switch reference (use "original coil" reference).

Examples for ordering

- Combined SIDERMAT with shunt trip coil 230 VAC - 1 reference: Combined SIDERMAT 630 A, 3 pole, front operation: 3520 3063.
- Combined SIDERMAT fitted with a non standard coil - 2 references: Combined SIDERMAT 630 A, 3 pole, front operation fitted with a 110 VAC undervoltage trip coil: 3520 3063 + 3991 3110.

Coils Characteristics: see page 70 "SIDERMAT"

Shunt trip coil

Voltage	Replacement tripping coil Reference	Original coil(1) Reference
24 VAC	3990 **1024**	3991 **1024**
48 VAC	3990 **1048**	3991 **1048**
110 VAC	3990 **1110**	3991 **1110**
230 VAC	3990 **1220**	included
400 VAC	3990 **1380**	3991 **1380**
12 VDC	3990 **2012**	3991 **2012**
24 VDC	3990 **2024**	3991 **2024**
48 VDC	3990 **2048**	3991 **2048**
110 / 200 VDC	3990 **2220**	3991 **2220**

Undervoltage trip coil

Voltage	Replacement tripping coil Reference	Original coil(1) Reference
24 VAC	3990 **3024**	3991 **3024**
48 VAC	3990 **3048**	3991 **3048**
110 VAC	3990 **3110**	3991 **3110**
230 VAC	3990 **3220**	3991 **3220**
400 VAC	3990 **3380**	3991 **3380**
12 VDC	3990 **4012**	3991 **4012**
24 VDC	3990 **4024**	3991 **4024**
48 VDC	3990 **4048**	3991 **4048**
110 VDC	3990 **4110**	3991 **4110**
220 VDC	3990 **4220**	3991 **4220**

(1) To be ordered at same time as switch (factory fitted).

Delayed undervoltage trip coil

Voltage	Reference
230 VAC	3992 **3230**
400 VAC	3992 **3400**

Auxiliary contacts



Use

Pre-break and signalling of positions and I:
1 to 2 NO/NC auxiliary contacts

Coil tripping

1 to 2 NO/NC auxiliary contacts

Connection to the control circuit

By 6.35 mm fast-on terminal.

Characteristics

NO/NC auxiliary contact: IP2.

Electrical characteristics

30 000 operations.

References

NO/NC position contact

Rating (A)	Position AC	Reference
630 … 1800	1st	3999 **0051**
630 … 1800	2nd	3999 **0052**

NO/NC low level position contact

Rating (A)	Position AC	Reference
630 … 1800	1st	3999 **0111**
630 … 1800	2nd	3999 **0112**

NO/NC contact, signalling coil tripping

Rating (A)	Position AC	Reference
630 … 1800	1	3999 **0031**

Characteristics

NO/NC position contact

Rating (A)	Current nominal (A)	Operating current I_e (A) 250 VAC AC-13	400 VAC AC-13	24 VDC DC-13	48 VDC DC-13
630 … 1800	16	12	8	14	6

NO/NC contact, signalling coil tripping

Rating (A)	Current nominal (A)	Operating current I_e (A) 250 VAC AC-13	400 VAC AC-13	24 VDC DC-13	48 VDC DC-13
630 … 1800	16	12	8	12	2

Fuse blown indication

Use
For DIN fuse cartridges with striker.

Electrical principle
A NO/ NC auxiliary contacts detects that the fuse has blown.

Connection to the control circuit
By 6.35 mm fast-on terminal.

Electrical characteristics
30 000 operations.

NO/NC changeover contact

Rating (A)	No. of poles	Position AC	Reference
630 … 1800	3/4 P	1st	included

Characteristics

Rating (A)	Nominal current (A)	Operating current I_e (A) 250 VAC AC-13	400 VAC AC-13	24 VDC DC-13	48 VDC DC-13
630 … 1800	16	12	8	12	2

Terminal shrouds



Use
Top or bottom protection against direct contact with terminals or connection parts.

Advantages
Perforations allowing remote thermographic inspection without removal.

Rating (A)	No. of poles	Position	Reference
630	3 P	top	3998 **3063**
630	4 P	top	3998 **4063**

Terminal screens

Use
Top or bottom protection against direct contact with terminals or connection parts.

Rating (A)	No. of poles	Position	Reference
800 … 1600	3 P	top	2998 **3120**
800 … 1600	4 P	top	2998 **4120**
1800	3 P	top	2998 **3180**
1800	4 P	top	2998 **4180**
800 … 1800	3/4 P	bottom	included

Inter phase barrier

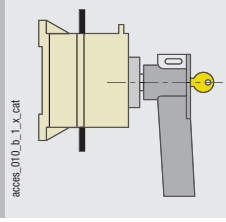


Use
Safety isolation between the terminals, essential for use at 690 VAC or in a polluted or dusty atmosphere.

Rating (A)	No. of poles	Reference
1250 … 1800	3 P	2998 **0003**
1250 … 1800	4 P	2998 **0004**

Handle key interlocking accessories

Lock RONIS 1104A



Use
Locking in position 0 of the front operation handle:
- using a padlock (not supplied) and the factory integrated padlocking function of the handle.
- using RONIS 1104 A lock (key BC 3318) to be mounted directly on the padlockable handle,
- locking using RONIS EL11AP lock (not supplied).

Locking using RONIS EL 1104 A lock (supplied)

Rating (A)	Operation	Reference
630 … 1800	front direct	3999 **8104**

Locking using RONIS EL11AP lock (not supplied)

Rating (A)	Operation	Reference
630 … 1 250	front direct	3999 **7007**
1 600 … 1 800	front direct	3999 **6117**
630 … 1 800	external front	1499 **7701**

Other specific accessories



- Customised protection screens (for specific dimensions or high ambiant temperatures).
- Connection accessories.
- Mounting plates for standard systems.
- Special construction available for specific environments.

➲ Characteristics according to IEC 60947-3

630 to 1 800 A

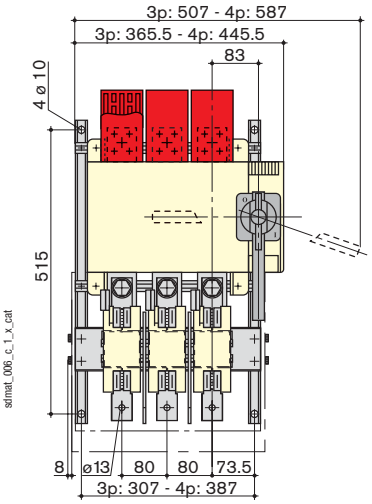
Thermal current I_{th} (40°C)		**630 A**	**800 A**	**1250 A**	**1600 A**	**1800 A**
Fuse size		3	4	4	2 x 4	2 x 4
Rated insulation voltage U_i (V)		1000	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)		12	12	12	12	12
Rated operational currents Ie (A)						
Rated voltage	Load duty category	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]
400 VAC	AC-22 A / AC-22 B	630/630	800/800	1250/1250	1600/1600	1600/1800
400 VAC	AC-23 A / AC-23 B	630/630	630/630	1250/1250	1600/1600	1600/1600
690 VAC[2]	AC-21 A / AC-21 B	630/630	800/800	1250/1250	1600/1600	
690 VAC[2]	AC-22 A / AC-22 B	500/630	630/800	1000/1000	1250/1250	
690 VAC[2]	AC-23 A / AC-23 B	400/500	500/500	800/800	1000/1000	
220 VDC	DC-21 A / DC-21 B	630/630	800/800	1250/1250	1600/1600	
220 VDC	DC-22 A / DC-22 B	630/630	800/800	1250/1250	1600/1600	
220 VDC	DC-23 A / DC-23 B	500/630	630/800	1250/1250	1250/1250	
440 VDC	DC-20 A / DC-20 B	630/630	800/800	1250/1250	1600/1600	
440 VDC	DC-21 A / DC-21 B	630/630	800/800	1250/1250	1600/1600	
440 VDC	DC-22 A / DC-22 B	630/630[3]	800/800[3]	1250/1250[4]	1600/1600[4]	
440 VDC	DC-23 A / DC-23 B	500/630[3]	630/800[3]	1250/1250[4]	1250/1250[4]	
Motor power output (kW)						
At 400 VAC without pre-break in AC-23 [1][5]		355/355	355/355	710/710	900/900	900/900
At 690 VAC without pre-break in AC-23 [1][5]		400/475	475/475	750/750	900/900	
At 400 VAC without pre-break in AC[1][5]		355/355	450/450	710/710	900/900	900/900
At 690 VAC without pre-break in AC[1][5]		475/600	600/750	900/900	1100/1100	
Reactive power (kvar)						
At 400 VAC [5]		290	365	575		
Fuse protected short-circuit withstand (kA rms prospective)						
Prospective short-circuit (kA rms)[6]		100	100	100	120	120
Associated fuse rating (A)[6]		630	800	1250	2 x 800	2 x 900
Short-circuit capacity						
Rated peak withstand current (kA peak)[6]		55	80	100	120	120
Connection						
Minimum Cu cable section (mm^2)		2 x 150	2 x 185			4 x 240
Minimum Cu busbar section (mm^2)		2 x 30 x 5	2 x 40 x 5	2 x 60 x 5	2 x 80 x 5	
Maximum Cu cable section (mm^2)		2 x 300	2 x 300	4 x 185	6 x 240	8 x 240
Maximum Cu busbar width (mm)		50	63	100	100	100
Tightening torque min (Nm)			20	20	40	
Mechanical characteristics						
Durability (number of operating cycles)		5000	5000	5000	3000	3000
Weight of 3 P switch (kg)		20	25	27	54	59
Weight of 4 P switch (kg)		24	30	32	70	75

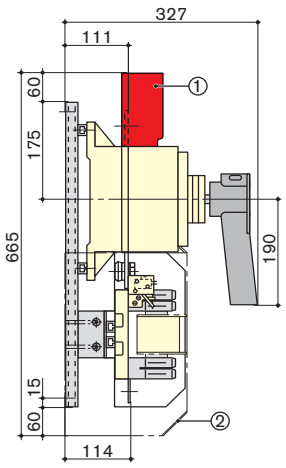
(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) With terminal shrouds or phase barrier.
(3) Poles cannot be juxtaposed.
(4) 4-pole device with 2 pole in series by polarity.
(5) The power value is given for information only, the current values vary from one manufacturer to another.
(6) For a rated operational voltage U_e = 400 VAC.

➲ Dimensions

SIDERMAT combination 630 A

Direct front operation

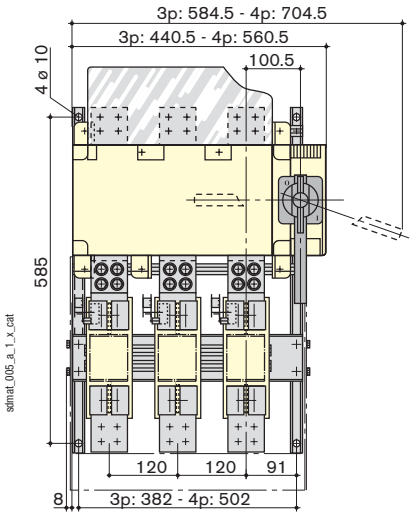


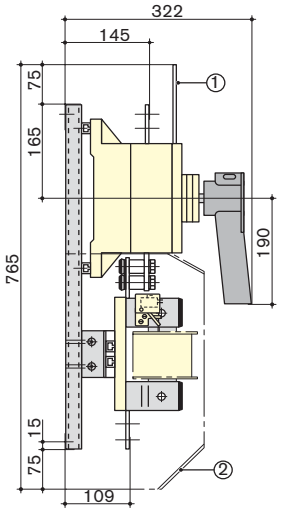


1. Terminal shrouds top.
2. Terminal screens bottom

SIDERMAT combination 800 to 1 250 A

Direct front operation

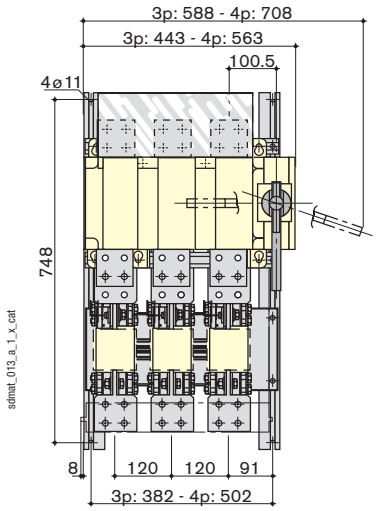


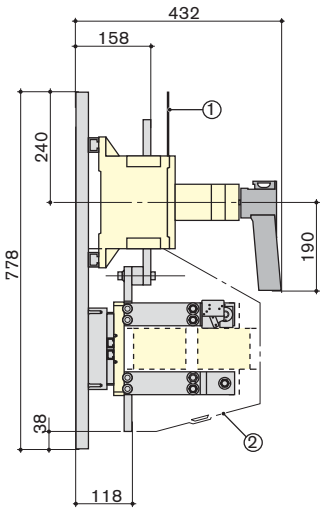


1. Terminal screens top
2. Terminal screens bottom

SIDERMAT combination 1 600 A

Direct front operation

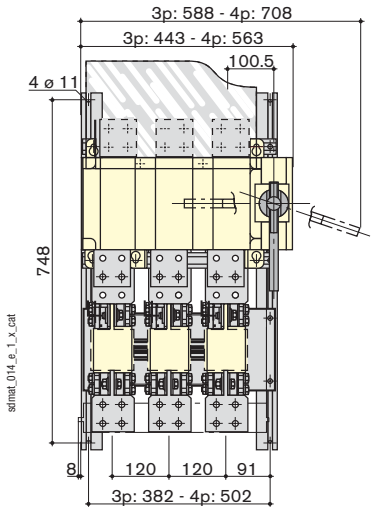


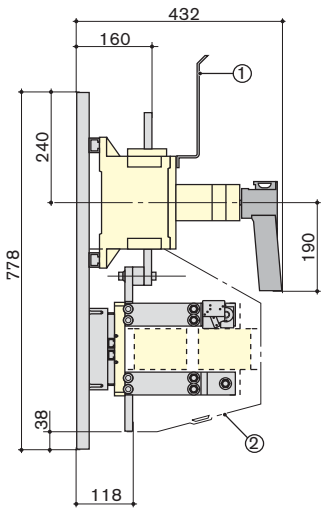


1. Terminal screens top
2. Terminal screens bottom

SIDERMAT combination 1 800 A

Direct front operation

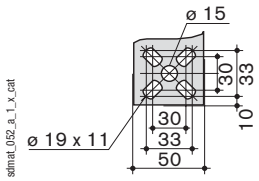




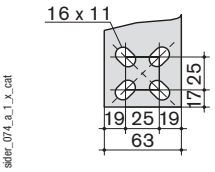
1. Terminal screens top
2. Terminal screens bottom

Connection terminals

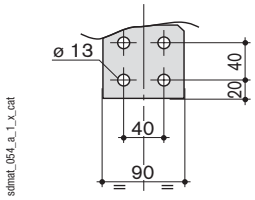
SIDERMAT combination 630 A



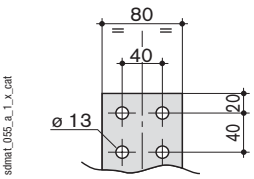
SIDERMAT combination 800 to 1250 A



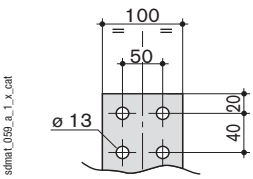
SIDERMAT combination 1600 to 1800 A
bottom



SIDERMAT combination 1600 A
top



SIDERMAT combination 1800 A
top



FUSERBLOC UL



30 to 800 A

➲ Function

FUSERBLOC Fusible disconnect switches are heavy duty switches that break and make power circuits on and off load.
The switches employ double break contacts per pole that ensure complete isolation of the fuse when the switch is in the "OFF" position.
These switches are extremely durable and are tested and approved for use in the most demanding applications.
The TEST position function is enabled with handles with the TEST position. This function tests the control circuit auxiliaries without switching the main contacts. It is a simple alternative to a separately wired push button.

➲ General characteristics

- On load make and break power circuit applications.
- Double break by phase.
- Up to 200 kA Short Circuit rating.
- Touch safe covers.
- Compact Footprints.
- Front or side operation.
- Flange operation.
- NFPA 79 compliant kits.
- Voltage sensing terminals.

➲ Conformity to standards

- NFPA79 (2002 Edition)
- UL489, Guide WJAZ, file E255272 (Frame size 1 and 2)
- UL98, Guide WHTY, file E201138 (Frame sizes 3 to 8)
- CSA22.2 #5, Class 4652-06, file 112964 (Frame size 2)
- CSA22.2 #4, Class 4651-02 , file 112964 (Frame sizes 3 to 8)
- IEC 60947-3

➲ Customized solutions (1)

- Different gear box position
- Fuse blown detection

(1) Please consult us.

➲ References


fuser-ul_006_a

Fusible disconnect

Rating (A) fuses Frame size	No. of poles	Switch body	Direct handle	Front external handle	External right side handle	Shaft external handle	NFPA79 kit	U type auxiliary contacts	Terminal shrouds
CD 30 A CC 1	3 P	3710 **3003**	Black 3729 **4012**	S0 type Black IP65 I - 0 1, 3R, 12 1493 **0111** 4, 4X 149D **0111** S1 type Black IP65 I - 0 1, 3R, 12 141F **2111** 4, 4X 141D **2111**		S0 type 200 mm 7.9 inches 1405 **0620** 320 mm 12.6 inches 1405 **0632** 400 mm 15.7 inches 1405 **0640** S1 type 200 mm 7.9 inches 1401 **0520** 320 mm 12.6 inches 1401 **0532** 400 mm 15.7 inches 1401 **0540**	3729 **4532**	1 contact NC 3999 **0701** 1 contact NO 3999 **0702**	standard
	3 P + switched neutral	3710 **4003**							
	3 P + solid neutral	3710 **5003**							
CD 30 A J 2	3 P	3710 **3004**	3729 **4014**						
	3 P + switched neutral	3710 **4004**							
	3 P + solid neutral	3710 **5004**							
30 A J 4	2 P	3861 **2004**	Black 3629 **7910**	S1 type Black I - 0 1, 3R, 12 Defeatable 141F **2111** I - 0 4, 4X Defeatable 141D **2111** I - 0 - Test 4, 4X Defeatable 141D **2115**	S1 type Black I - 0 4, 4X 141H **6111** S1 type Red / yellow I - 0 4, 4X 141I **6111**	S1 type 200 mm 7.9 inches 1400 **1020** 320 mm 12.6 inches 1400 **1032**	3729 **7540**		
	3 P	3861 **3004**							
	4 P	3861 **6004**							
60 A J 4	2 P	3861 **2005**							
	3 P	3861 **3005**							
	4 P	3861 **6005**							



fuser-ul_005_a

Rating (A) fuses Frame size	No. of poles	Switch body	Direct handle	Front external handles	External right side handle(1)	Shaft for external handle	NFPA79 kit	U type auxiliary contacts	Terminal shrouds
60 A J 5	2 P	3861 **2006**	Black 3629 **7910**	S2 type Black I - 0 1, 3R, 12 Defeatable 142F **2111** S2 type Black I - 0 4, 4X Defeatable 142D **2111** S2 type Black I - 0 - Test 4, 4X Defeatable 142D **2115**	S2 type Black I - 0 4, 4X 142H **6111** S2 type Red / yellow I - 0 4, 4X 142I **6111**	S1 type 200 mm 7.9 inches 1400 **1020** S1 type 320 mm 12.6 inches 1400 **1032**	3729 **7540**	1 contact type NC 3999 **0701** 1 contact type NO 3999 **0702**	standard
	3 P	3861 **3006**							
	4 P	3861 **6006**							
100 A J 5	2 P	3861 **2010**							
	3 P	3861 **3010**							
	4 P	3861 **6010**							
200 A J 6	2 P	3861 **2020**							3898 **2020**
	3 P	3861 **3020**							3898 **3020**
	4 P	3861 **6020**							3898 **4020**
400 A J 7	2 P	3861 **2038**					3729 **7544**		3898 **2038**
	3 P	3861 **3038**							3898 **3038**
	4 P	3861 **6038**							3898 **4038**
600 A J 8	2 P	3850 **2060**	Black 3859 **6011**	S3 type Black I - 0 1, 3R, 12 Defeatable 143F **3111** 4, 4X Defeatable 143D **3111**		S3 type 200 mm 7.9 inches 1400 **1220** S3 type 320 mm 12.6 inches 1400 **1232**	3729 **7552**		2 P 3898 **2080** 3 P 3898 **3080** 4 P 3898 **4080**
	3 P	3850 **3060**							
	4 P	3850 **6060**							
800 A L 8	2 P	3850 **2080**							
	3 P	3850 **3080**							
	4 P	3850 **6080**							

(1) No door interlocking.

FUSERBLOC UL - NFPA79 accessories

Flange handle for flange operation

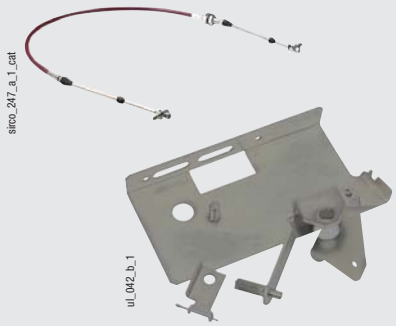


Use
Meets both UL508A and NFPA79 requirements.
The handle will operate the switch by cable or rod.

Rating (A)	Type	Nema type	Reference
30 … 200	Standard handle	1, 3, 3R, 4, 12	3729 **9002**(1)
30 … 200	Chrome plated handle	1, 3, 3R, 4, 4X, 12	3729 **9003**(1)

(1) Defeatable handle.

Cable operator

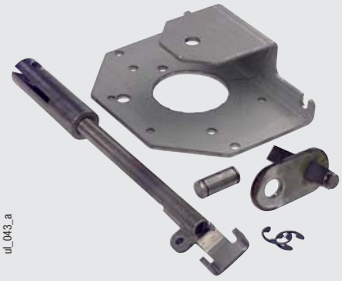


Use
Link between the flange handle and the switch, please order the flange handle, the mechanism and a cable length of your choice.

Rating(A)	Description	Reference
30 ... 200 A	Cable flange mechanism	3729 **9903**

Cable lenght (inches)	Cable lenght (mm)	Reference
36	900	3729 **9992**
60	1500	3729 **9993**
120	3000	3729 **9994**

Rod operator

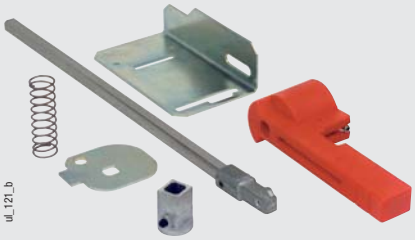


Use
Link between the flange handle and the switch. The rod flange is an economical solution, please order the flange handle and a rod kit.

Rating 30 ... 200A

For enclosure depth (inches)	For enclosure depth (mm)	Reference
8 … 24	203 … 613	3729 **9904**

NFPA79 "Through the door" kit



Use
Meets both UL508A and NFPA79 requirements.
Allows retrofitt of your installations for ratings from 30 to 800 A.
Please order an S type external handle separately.

Rating (A)	Reference
CD 30, frame 1 - 2	3729 **4532**
30 … 200, frame 3 to 6	3729 **7540**
400, frame 7	3729 **7544**
600 … 800, frame 8	3729 **7552**

Direct handle



Fig.1



Fig. 2

Rating (A)	Colour	fuses	Fig.	Reference
CD 30	Black	CC	1	3729 **4012**
CD 30	Black	J	1	3729 **4014**
30 ... 400	Black	J	2	3629 **7910**(1)
600 ... 800	Black	J / L	2	3859 **6011**

(1) Non UL.

External handle



S0 type handle



S1 type handle



S2 type handle



S3 type handle

Use

The locking function of the front external handle prevents the user from opening the door of the enclosure when the switch is in the "ON" position, and when the switch is padlocked in the "OFF" position (S1, S2, S3 and S4 type handles only).

Opening the door when the switch is in the "ON" position is possible by defeating the interlocking function with the use of a tool (authorized persons only).
The interlocking function is restored when the door is re-closed.

Front operation

Rating (A)	Frame size	Handle	Nema type	Test	Handle colour	Standard Reference	Heavy duty Reference
CD 30	1	S0 type	1, 3R, 12	I - 0	Black	1493 **0111**	
CD 30	1	S0 type	1, 3R, 12	I - 0	Red/Yellow	1494 **0111**	
CD 30	1	S0 type	4, 4X	I - 0	Black	149D **0111**	
CD 30	1	S0 type	4, 4X	I - 0	Red/Yellow	149E **0111**	
CD 30 … 60	3/4	S1 type	1, 3R, 12	I - 0	Black	141F **2111**	
CD 30 … 60	3/4	S1 type	1, 3R, 12	I - 0	Red/Yellow	141G **2111**	
CD 30 … 60	3/4	S1 type	4, 4X	I - 0	Black	141D **2111**	141D **2911**
CD 30 … 60	3/4	S1 type	4, 4X	I - 0	Red/Yellow	141E **2111**	141E **2911**
CD 30 … 60	3/4	S1 type	4, 4X	I - 0 - Test	Black	141D **2115**	141D **2915**
CD 30 … 60	3/4	S1 type	4, 4X	I - 0 - Test	Red/Yellow	141E **2115**	141E **2915**
60…400	5/6/7	S2 type	1, 3R, 12	I - 0	Black	142F **2111**	
60…400	5/6/7	S2 type	1, 3R, 12	I - 0	Red/Yellow	142G **2111**	
60…400	5/6/7	S2 type	4, 4X	I - 0	Black	142D **2111**	142D **2911**
60…400	5/6/7	S2 type	4, 4X	I - 0	Red/Yellow	142E **2111**	142E **2911**
60…400	5/6/7	S2 type	4, 4X	I - 0 - Test	Black	142D **2115**	142D **2915**
60…400	5/6/7	S2 type	4, 4X	I - 0 - Test	Red/Yellow	142E **2115**	142E **2915**
600…800	8	S3 type	1, 3R, 12	I - 0	Black	143F **3111**	
600…800	8	S3 type	1, 3R, 12	I - 0	Red/Yellow	143G **3111**	
600…800	8	S3 type	4, 4X	I - 0	Black	143D **3111**	143D **3911**
600…800	8	S3 type	4, 4X	I - 0	Red/Yellow	143E **3111**	143E **3911**

Right side operation

Rating (A)	Frame size	Handle	Nema type	Test	Handle colour	Standard Reference	Heavy duty Reference
30 … 60	3/4	S1 type	4, 4X	I - 0	Black	141H **6111**	141H **6911**
30 … 60	3/4	S1 type	4, 4X	I - 0	Red/Yellow	141I **6111**	141I **6911**
100 … 400	5/6/7	S2 type	4, 4X	I - 0	Black	142H **6111**	142H **6911**
100 … 400	5/6/7	S2 type	4, 4X	I - 0	Red/Yellow	142I **6111**	142I **6911**
600 … 800	8	S3 type	4, 4X	I - 0	Black	consult us	consult us
600 … 800	8	S3 type	4, 4X	I - 0	Red/Yellow	consult us	consult us

S type handle raiser


acces_187_a_1_cat

Use
Enables S type handles to be fitted in place of existing older style SOCOMEC handles. Adapter can also be utilised as a spacer to increase the distance between the panel door and the handle lever.

Dimensions
Increases distance to door by 12mm.

Handle colour	Pack qty	External degree of protection (IP)	Reference
Black	10	IP65	1493 **0000**

Alternative colour S-type handle cover

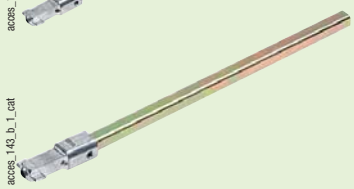

acces_198_a_1_cat

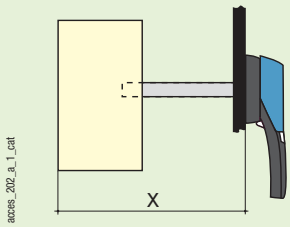
Use
For single lever handles type S1, S2, S3 and double lever handle, type S4.
Other colours: please consult us.

Handle colour	Pack qty	Handle	Reference
Light grey	50	S2, S3 type	1401 **0001**
Dark grey	50	S2, S3 type	1401 **0011**
Light grey	50	S4 type	1401 **0031**
Dark grey	50	S4 type	1401 **0041**

Shaft for external handle


acces_145_b_1_cat


acces_143_b_1_cat



acces_202_a_1_cat

Use
Standard lenghts:
- 7.9 in / 200 mm,
- 12.6 in / 320 mm,
- 15.7 in / 400 mm.

Other lenghts: please consult us.

Rating (A)	Dimensions X (in)	Dimensions X (mm)	Handle	Length (inches)	Length (mm)	Reference
CD 30	4.02 ... 9.65	102 ... 245	S0-type	7.9	200	1405 **0620**
CD 30	4.02 ... 14.37	102 ... 365	S0-type	12.6	320	1405 **0632**
CD 30	4.02 ... 17.52	102 ... 445	S0-type	15.7	400	1405 **0640**
CD 30	4.02 ... 9.65	102 ... 245	S1 type	7.9	200	1401 **0520**
CD 30	4.02 ... 14.37	102 ... 365	S1 type	12.6	320	1401 **0532**
CD 30	4.02 ... 17.52	102 ... 445	S1 type	15.7	400	1401 **0540**
30 ... 100	5.3 ... 9.06	135 ... 230	S2, S3 Type	7.9	200	1400 **1020**
200	5.7 ... 9.06	145 ... 230	S2, S3 Type	7.9	200	1400 **1020**
400	7.87 ... 10.24	200 ... 260	S2, S3 Type	7.9	200	1400 **1020**
30 ... 100	5.3 ... 13.78	135 ... 350	S2, S3 Type	12.6	320	1400 **1032**
200	5.7 ... 13.78	145 ... 350	S2, S3 Type	12.6	320	1400 **1032**
400	7.87 ... 14.96	200 ... 380	S2, S3 Type	12.6	320	1400 **1032**
30 ... 100	5.3 ... 16.93	135 ... 430	S2, S3 Type	15.7	400	1400 **1040**
200	5.7 ... 16.93	145 ... 430	S2, S3 Type	15.7	400	1400 **1040**
400	7.87 ... 18.1	200 ... 460	S2, S3 Type	15.7	400	1400 **1040**
600 ... 800	10.63 ... 11.97	270 ... 304	S3 Type	7.9	200	1400 **1220**
600 ... 800	10.63 ... 16.69	270 ... 424	S3 Type	12.6	320	1400 **1232**
600 ... 800	10.63 ... 19.84	270 ... 504	S3 Type	15.7	400	1400 **1240**

Shaft guide for external handle


acces_260_a_2_cat

Use

This accessory enables handle to engage shaft with a misalignment of up to 15 mm.
Required for a shaft length over 400 mm for S1 to S3 handles and for a shaft lenght from 320 mm for S0 handle.

Description	Reference
Shaft guide for S1 to S3 handles	1429 **0000**
Shaft guide for S0 handle	1419 **0000**

U type Auxiliary Contacts

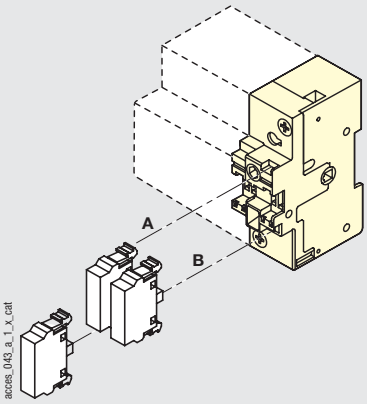

acces_056_a_1_cat

Use

U type AC can be configured to be operated on both, standard and TEST position switches from CD 30 to 800 A. Each slot can accommodate up to 2 interlocked ACs.
- For CD 30A/CC, a maximum of 4 ACs (8 with an additional holder),
- For CD 30A/J, maximum 2 ACs (6 with an additional holder),
- For 30 to 200A/J, maximum 4 ACs,
- For 400 to 800A/L, maximum 8 ACs.

Electrical characteristics

A600.



acces_043_a_1_x_cat

References

NO auxiliary contacts

Rating (A)	Number of contacts	Reference
CD 30 … 800	1	3999 **0701**

NC auxiliary contacts

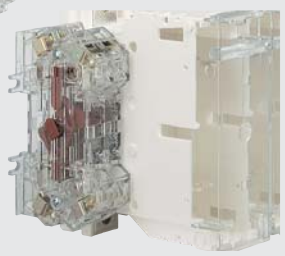
Rating (A)	Number of contacts	Reference
CD 30 … 800	1	3999 **0702**

Contact holder for additional auxiliary contacts

Rating (A)	fuses	Reference
CD 30	CC	3999 **0710**
CD 30	J	3999 **0710**

S type auxiliary contacts


acces_051_a_1_cat


acces_083_a_1_cat

Use

Side operated auxiliary contacts for FUSERBLOC 30 to 400 A, position OFF and ON signalled by 1 to 4 NO + NC auxiliary contacts.

Electrical characteristics

A600/D600.

References

NO+NC auxiliary contacts

Rating (A)	Number of contacts	Reference
30 … 800	1	3999 **U041**
30 … 800	2	3999 **U042**

Terminal shrouds


fuser_314_a_1_cat

Use
Top or bottom protection against direct contact with terminals or connection parts.
2 sets required to fully shroud both line and load terminals.

Front and side operation

Rating (A)	No. of poles	Reference(1)
30 … 100	2/3/4 P	as standard
200	2 P	3898 **2020**
200	3 P	3898 **3020**
200	4 P	3898 **4020**
400	2 P	3898 **2038**
400	3 P	3898 **3038**
400	4 P	3898 **4038**
600 … 800	2 P	3898 **2080**
600 … 800	3 P	3898 **3080**
600 … 800	4 P	3898 **4080**

(1) Top or bottom.

Terminals lugs


ul_032_a

Use
Connection of cables to the terminals.

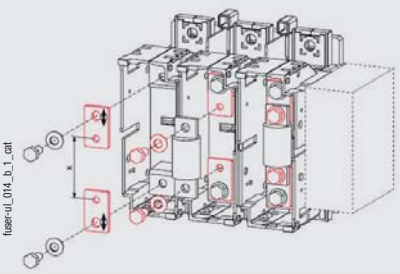
Rating (A)	Wires range	No wires per lug	Lugs per kit	Wires	Reference
CD 30	#14 - #10	1		Cu	as standard
30	#14 - #10	1		Cu	as standard
30 … 60	#10 - #6	1		Cu	as standard
60 … 100	#12 - #1	1		Cu	as standard
200	#6 - 300MCM	1	2	Cu / Al	3954 **2020**
200	#6 - 300MCM	1	3	Cu / Al	3954 **3020**
200	#6 - 300MCM	1	4	Cu / Al	3954 **4020**
400	#2 - 600MCM	1	2	Cu / Al	3954 **2040**
400	#2 - 600MCM	1	3	Cu / Al	3954 **3040**
400	#2 - 600MCM	1	4	Cu / Al	3954 **4040**
400	2 x (#6 - 350 MCM)	2	2	Cu / Al	3954 **2041**
400	2 x (#6 - 350 MCM)	2	3	Cu / Al	3954 **3041**
400	2 x (#6 - 350 MCM)	2	4	Cu / Al	3954 **4041**
600	2 x (#2 - 600MCM)	1	2	Cu / Al	3954 **2060**
600	2 x (#2 - 600MCM)	2	3	Cu / Al	3954 **3060**
600	2 x (#2 - 600MCM)	2	4	Cu / Al	3954 **4060**

Solid links


fuser-ul_013_a_1_cat

Rating (A)	fuses	No of links per kit	Reference
60	J	3	3799 **9006**
60	J	4	3799 **8006**
100	J	3	3799 **9010**
100	J	4	3799 **8010**
200	J	3	3799 **9020**
200	J	4	3799 **8020**
400	J	3	3799 **9040**
400	J	4	3799 **8040**
600 … 800	J / L	3	3799 **9080**
600 … 800	J / L	4	3799 **8080**

Class T fuse adapter


fuser-ul_014_b_1_cat

Use
The adapter makes it possible to fit class T fuses in the FUSERBLOC fuse switches.

Rating (A)	Size Class T fuse (in/mm)	No. of poles	Reference
100	2.34 / 59.5	3 P	3729 **8010**
200	2.48 / 63	3 P	3729 **8020**
400	2.71 / 69	3 P	3729 **8040**
600	2.95 / 75	3 P	3729 **8060**
800	3.17 / 80.5	3 P	3729 **8080**
100	2.34 / 59.5	4 P	3729 **9010**
200	2.48 / 63	4 P	3729 **9020**
400	2.71 / 69	4 P	3729 **9040**
600	2.95 / 75	4 P	3729 **9060**
800	3.17 / 80.5	4 P	3729 **9080**

➲ FUSERBLOC UL - Characteristics according to UL98/CSA22.2 #4

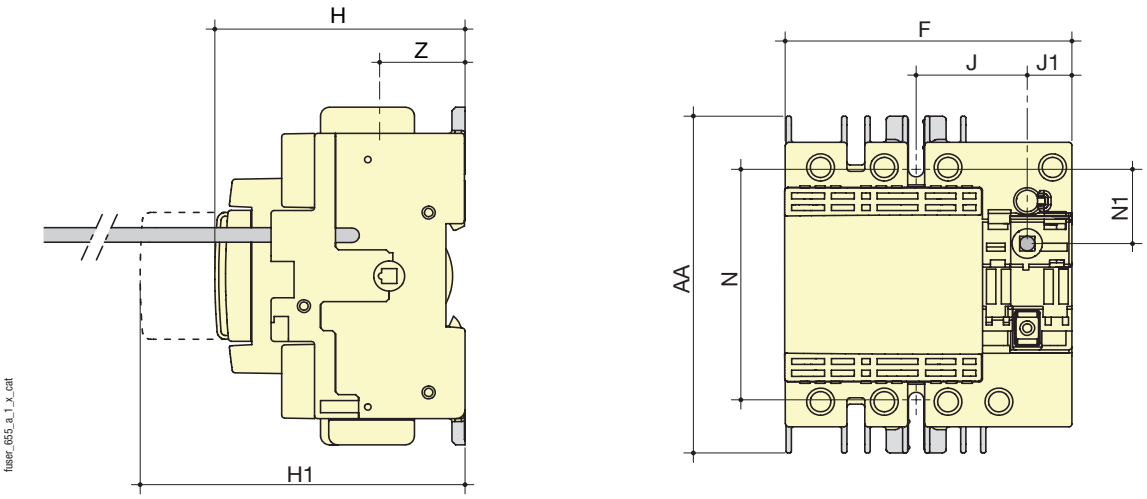
CD 30 to 800 A

Characteristics UL and CSA	CD 30A[3]	CD 30A[3]	30A	60A	60A	100A	200A	400A	600A	800A
Short circuit rating at 600 VAC (kA)	100	100	200	100	200	200	200	200	200	200
Type of fuse	CC	J	J	J	J	J	J	J	J	L
Max. fuse rating (A)	30	30	30	60	60	100	200	400	600	800
Operational power / current max Operational 3 ph										
220-240 VAC	7.5 / 22	7.5 / 22	7.5 / 22	15 / 42	15 / 42	30 / 80	60 / 154	125 / 312	200 / 480	200 / 480
440-480 VAC	15 / 21	15 / 21	15 / 21	30 / 40	30 / 40	60 / 77	125 / 156	250 / 302	500 / 590	500 / 590
600 VAC	20 / 22	20 / 22	20 / 22	50 / 52	50 / 52	75 / 77	150 / 144	350 / 336	500 / 472	500 / 472
125 VDC[1]	3 / 25	3 / 25	3 / 25	3 / 25	3 / 25	7.5 / 58	15 / 112	20 / 148		
250 VDC[2]	5 / 20	5 / 20	5 / 20	10 / 38	10 / 38	20 / 38	40 / 140	50 / 173		
Mechanical endurance										
Endurance (number of operating cycles)	10 000	10 000	10 000	10 000	10 000	10 000	8 000	6 000	5 000	5 000
Connection										
Min. connection section/ (mm^2)[2]	#14	#14	#10	#10	#12	#12	#6	#2 or 2 x #6	2 x #2	2 x #2
Max. connection section/ (mm^2)[2]	#10	#10	#6	#6	#1	#1	300MCM	600MCM or 2 x 350MCM	2 x 600MCM	2 x 600MCM

(1) 2 pole in series.
(2) 3 pole in series.
(3) UL 489/CSA22.2 #5.

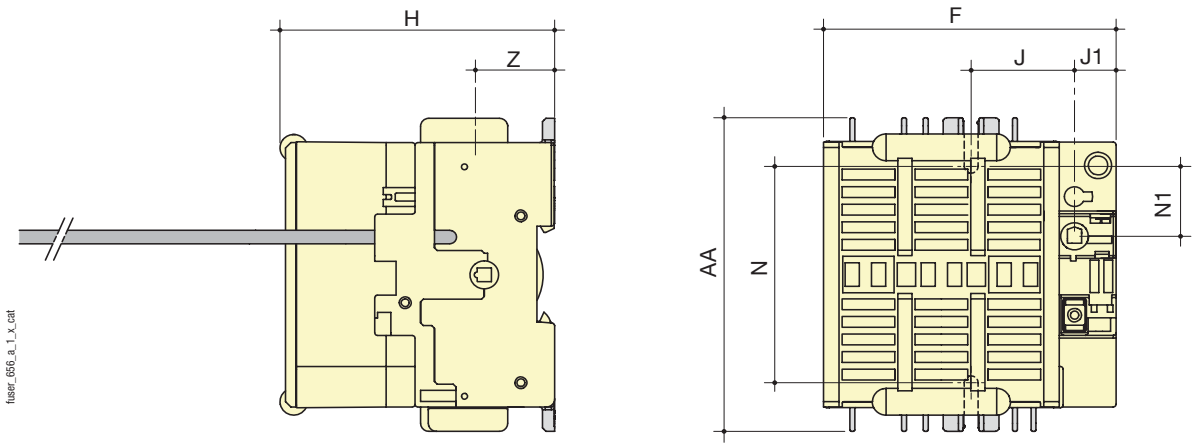
➲ Dimensions (in / mm)

FUSERBLOC CD 30 A / CC - Frame size 1



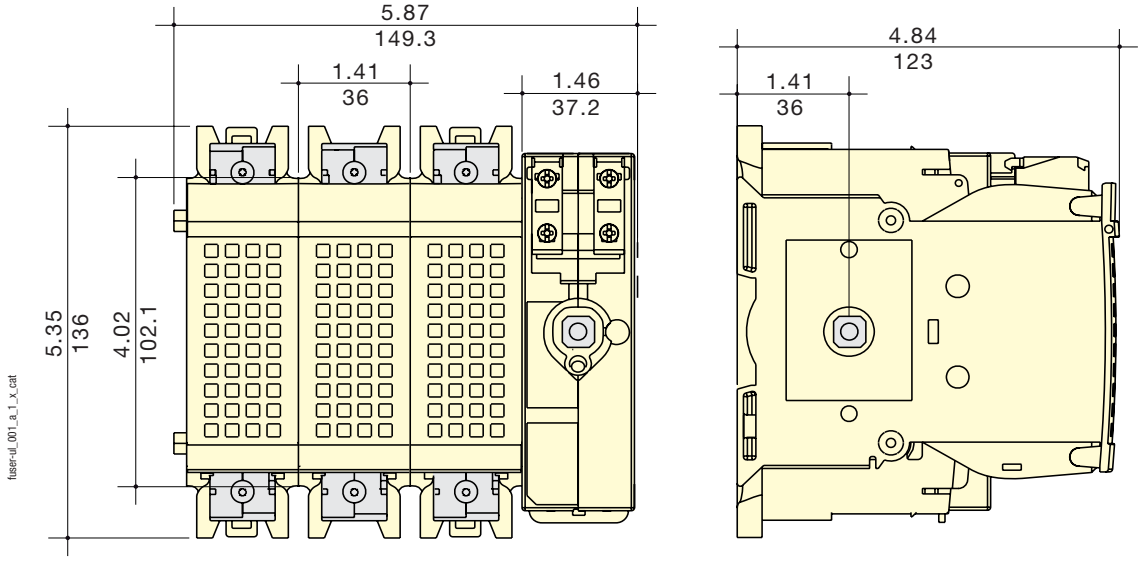
Rating (A) / Fuse	Unit	Switch body F	H	H1	J	J1	Switch mounting N	N1	Connection AA	Z
CD 30 A / CC	in	3.78	3.28	5.19	1.47	0.59	3.13	1	4.56	1.12
	mm	96	83.5	132	37.5	15	79.5	25.5	116	28.5

FUSERBLOC CD 30 A / J - Frame size 2



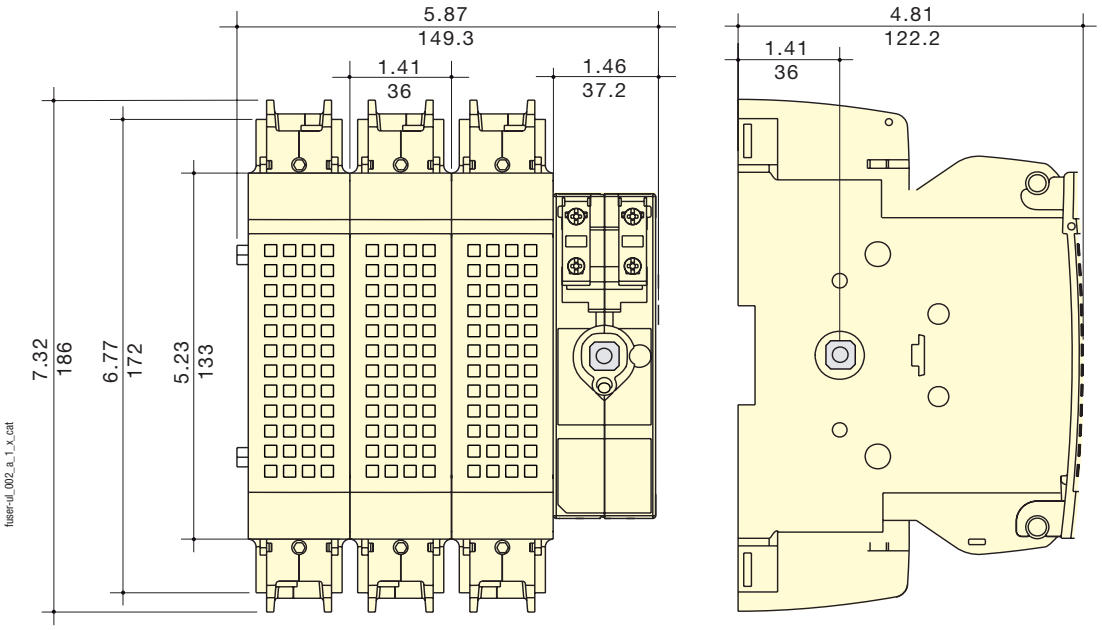
Rating (A) / Fuse	Unit	Switch body				Switch mounting		Connection	
		F	H	J	J1	N	N1	AA	Z
CD 30 A / J	in	4.13	3.89	1.47	0.59	3.30	1	4.56	1.12
	mm	105	99	37.5	15	84	25.5	116	28.5

FUSERBLOC 30 to 60 A / J - Frame size 4



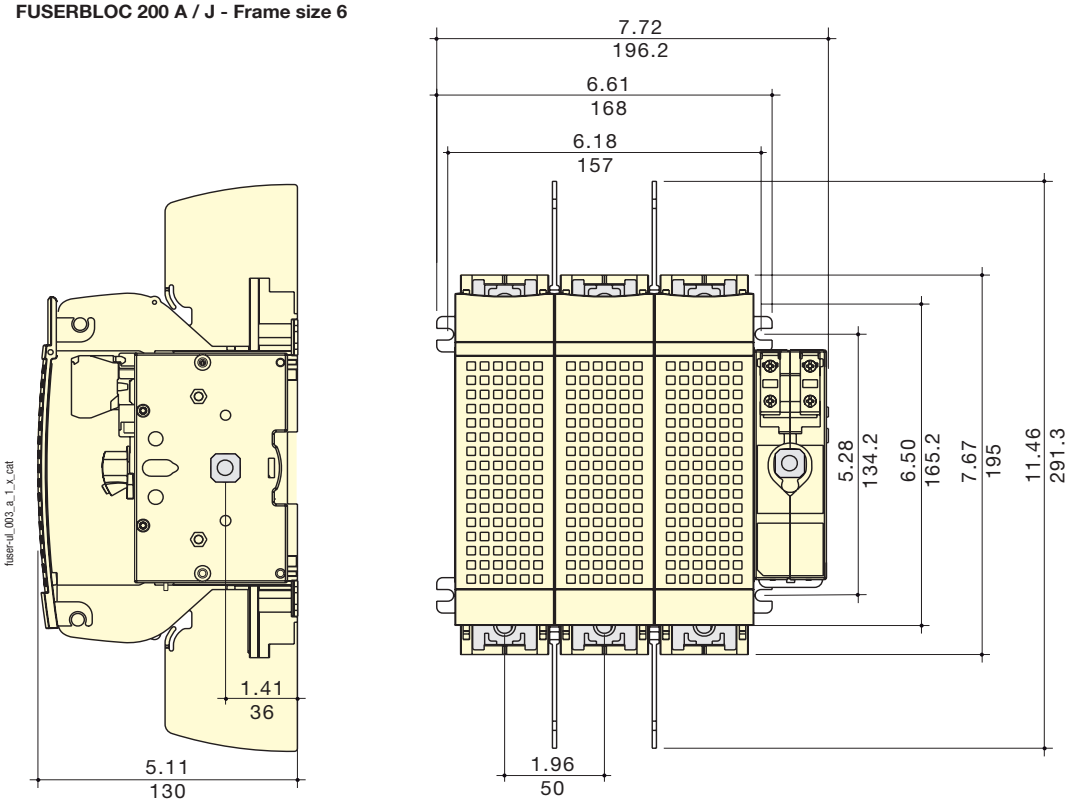
Note for width:
For 2 pole device decrease overall width by 1.41"/36mm.
For 4 pole device increase overall width by 1.41"/36mm.

FUSERBLOC 60 to 100 A / J - Frame size 5



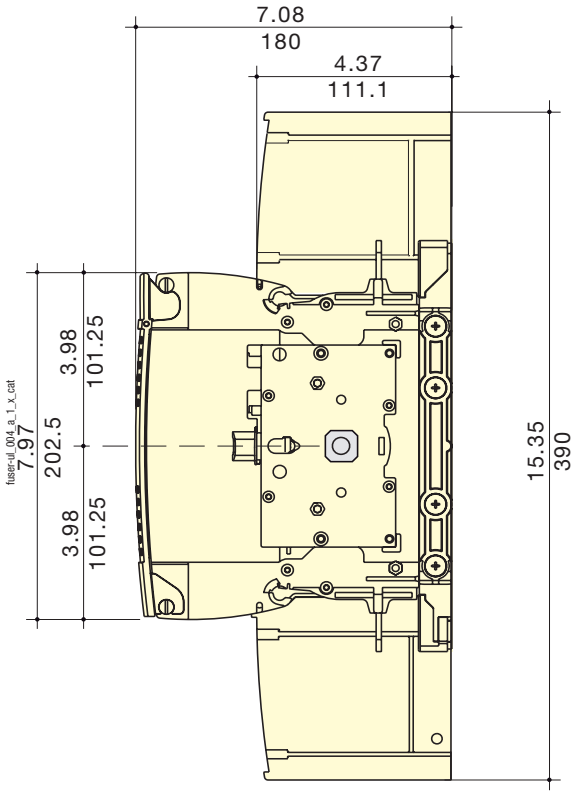
Note for width:
For 2 pole device decrease overall width by 1.41»/36mm.
For 4 pole device increase overall width by 1.41»/36mm.

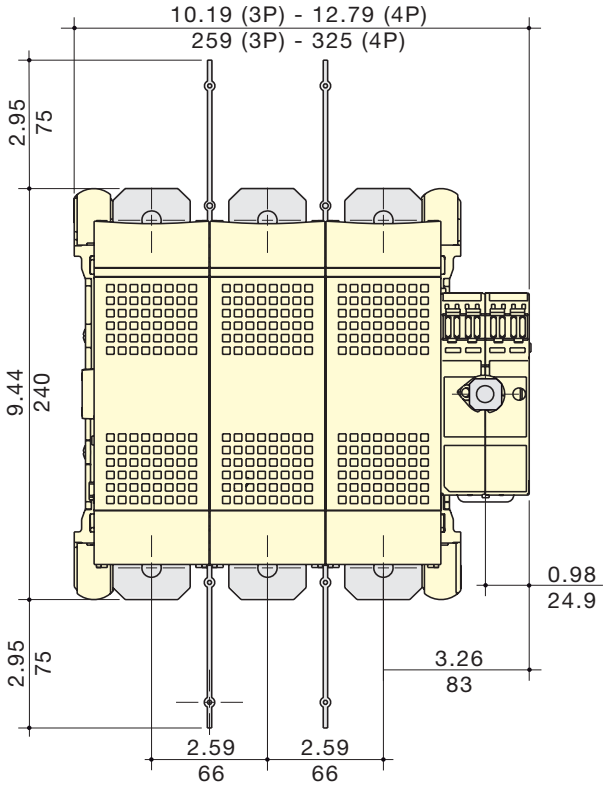
FUSERBLOC 200 A / J - Frame size 6



Note for width:
For 2 pole device decrease overall width by 1.96»/50mm.
For 4 pole device increase overall width by 1.96»/50mm.

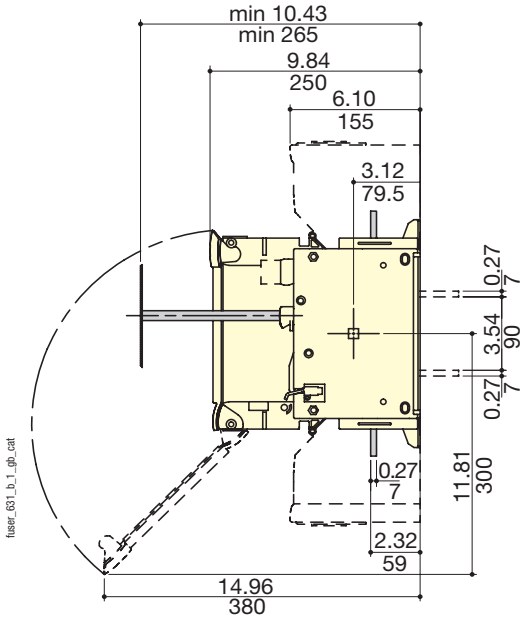
FUSERBLOC 400 A / J - Frame size 7

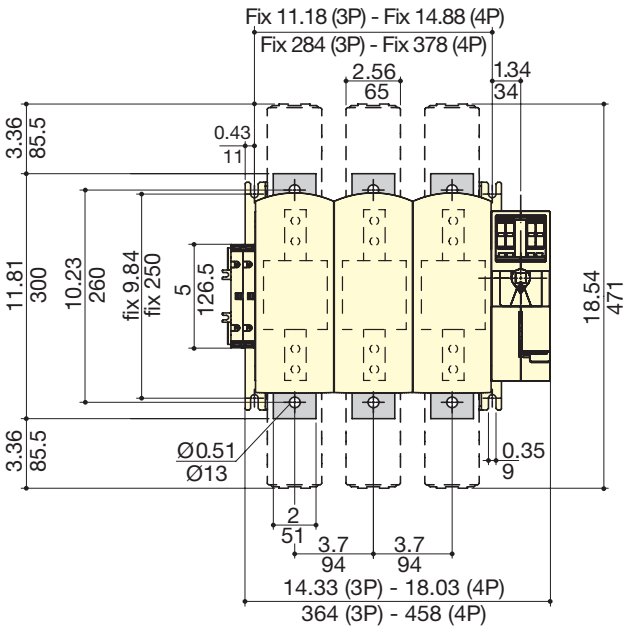




Note for width:
For 2 pole device decrease overall 3 pole width by 2.59»/66mm.

FUSERBLOC 600 to 800 A / J - Frame size 8

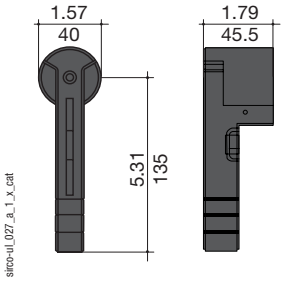




Note for width:
For 2 pole device decrease overall 3 pole width by 3.7»/94mm.

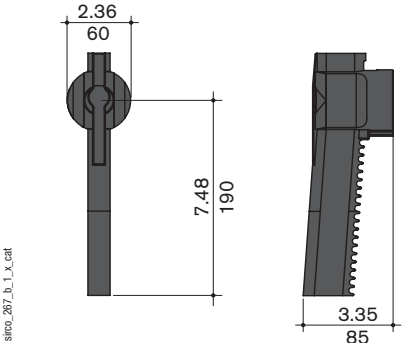
FUSERBLOC 30 to 400 A

Front direct handle



FUSERBLOC 600 to 800 A

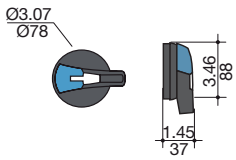
Front direct handle

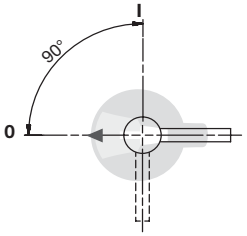


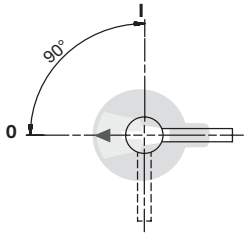
➲ External handle dimensions (in / mm)

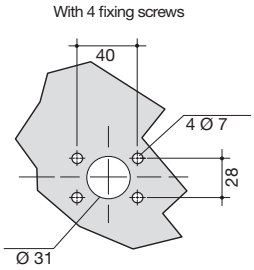
FUSERBLOC CD 30 A - Frames 1 / 2

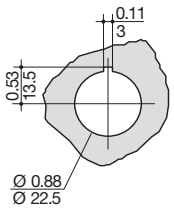
Handle type	Front operation Direction of operation	Side operation Direction of operation	Door drilling
S0 type			With 4 fixing screws With fixing nut





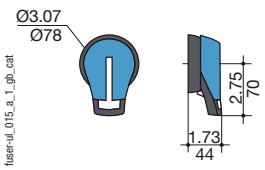


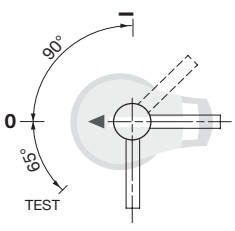


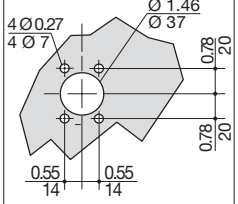


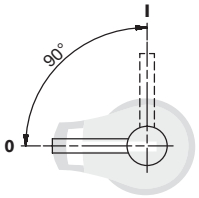
FUSERBLOC CD 30 to 60 A - Frames 1 / 2 / 4

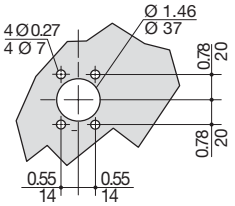
Handle type	Front operation Direction of operation	Front operation Door drilling	Side operation[1] Direction of operation	Side operation[1] Door drilling
S1 type				









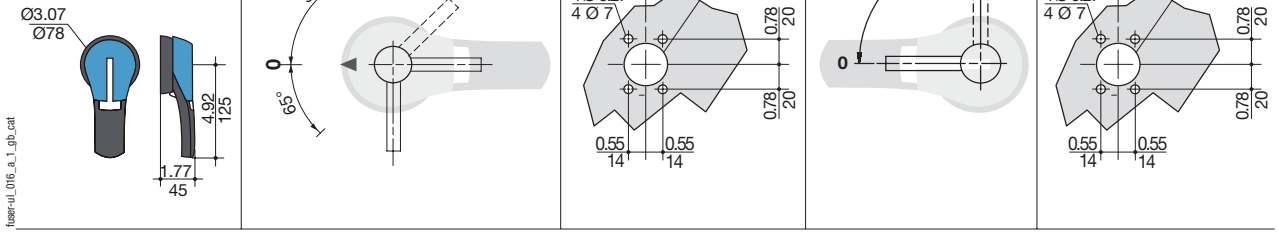


(1) Not for frames 1 and 2.

External handle dimensions (in / mm)

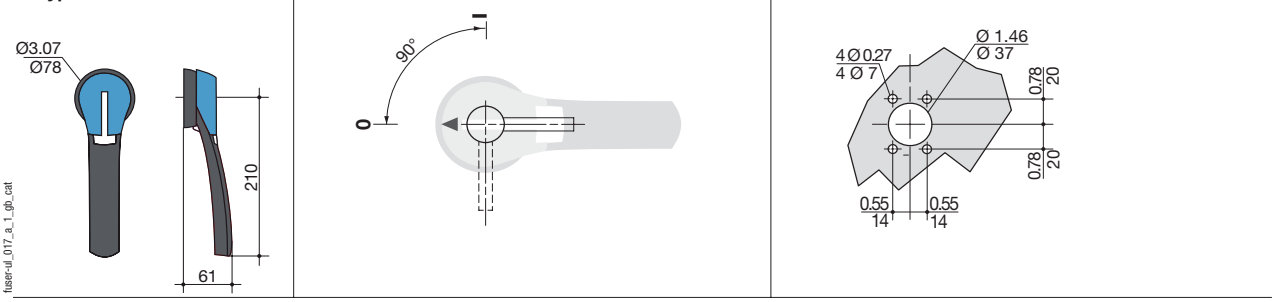
FUSERBLOC 60 to 400 A - Frames 5 / 6 / 7

Handle type	Front operation		Side operation	
	Direction of operation	Door drilling	Direction of operation	Door drilling
S2 type				



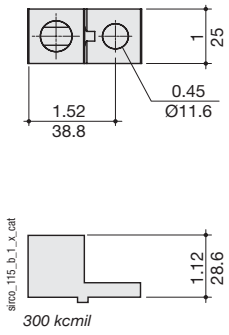
FUSERBLOC 600 and 800 A - Frame 8

Handle type	Front operation	
	Direction of operation	Door drilling
S3 type		

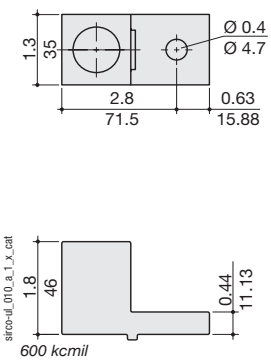


Terminal lugs (in / mm)

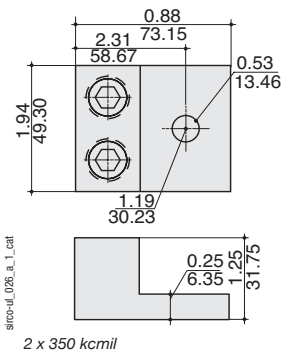
FUSERBLOC 200 A



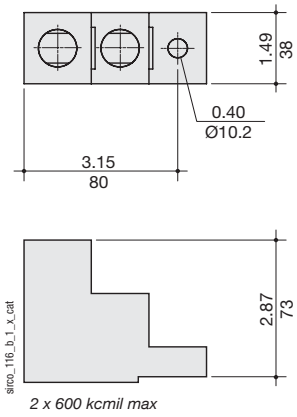
FUSERBLOC 400 A



FUSERBLOC 400 A



FUSERBLOC 600 to 800 A





For cylindrical fuses and high speed fuses (UR) 32 to 100 A

➲ Function

RM and **RMS** are modular fuse disconnect switches for cylindrical fuses. They provide safety disconnection and protection against overcurrents in any low voltage electrical circuit.
RM: fuse disconnect switches without signalisation (for fuses without striker).
RMS: fuse disconnect switches with pre-break position signalisation and fuse blown indication auxiliary contact.

➲ General characteristics

- Omnipolar and simultaneous breaking
- High dielectric strength.
- Modular DIN 45 mm cut-out.

➲ Photovoltaic applications

Consult us.

➲ Conformity to standards

- IEC 60269-2-1
- IEC 60269-1
- IEC 60269-2
- IS 14947-3
- NF EN 60269-1
- NF C 63-210
- NF C 63211
- VDE 0636-10
- DIN 43620

For RM 32 A (1P, 1P+N, 2P, 3P, 3P+N):

- CAN/CSA C22-2 0n0-M91 (R2001)
- CSA C22-2 n°39-M1987
- CSA C22-2 n°65-93
- UL listed, File E307648

➲ Approvals and certifications

- Please consult us

➲ References







RM - Device without signalisation

Basic device Fuse size	32 A 10 x 38		50 A 14 x 51		100 A 22 x 58	
No. of poles	To be ordered in multiples of	Reference	To be ordered in multiples of	Reference	To be ordered in multiples of	Reference
1 P	12	5601 **0015**	6	5602 **5001**	6	5603 **5001**
1 P + N (1 module)	12	5601 **5005**				
1 P + N (2 modules)	6	5601 **0017**	3	5602 **5005**	3	5603 **5005**
2 P	6	5601 **0020**	3	5602 **5002**	3	5603 **5002**
3 P	4	5601 **0018**	2	5602 **5003**	2	5603 **5003**
3 P + N	3	5601 **0019**	1	5602 **5004**	1	5603 **5004**
4 P			1	5602 **5006**	1	5603 **5006**
N	12	5601 **0016**	6	5602 **5000**	6	5603 **5000**

RMS - Device with signalisation auxiliary contact[1]

No. of poles	To be ordered in multiples of	Reference	To be ordered in multiples of	Reference
1 P with 1 AC	6	5602 **5011**	6	5603 **5011**
2 P with 2 AC	3	5602 **5012**	3	5603 **5012**
3 P with 1 AC	2	5602 **5013**	2	5603 **5013**
3 P with 1 AC N			1	5603 **5014**
3 P + N with 1 AC	1	5602 **5014**		
4 P with 2 AC			1	5603 **5016**

(1) The signalisation auxiliary contact provides the pre-break, fuse presence and also signals a blown fuse.

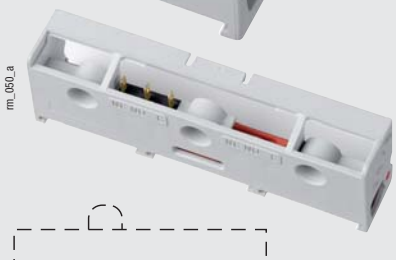


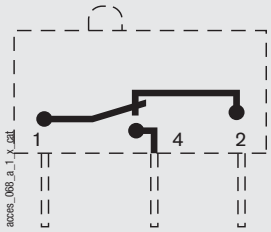
➲ Think about it

10x38 RMs equipped with 0.5A gG fuses provide effective protection for voltage inputs and auxiliary supplies for all our electronic devices (DIRIS, COUNTIS, ISOM, RESYS differential relays, etc.).

Auxiliary contacts







Use

- Pre-break, presence and fuse blown for RMS 50 and 100: 1 or 2 NO/NC auxiliary contacts
- Pre-break, presence and fuse blown for RMS 50 2 NO/NC auxiliary contacts.

Connection

By 6.35 mm fast-on terminal.

References

NO/NC contact for RMS

Rating (A)	Contact(s)	Reference
50	1 P with 1 AC	5602 **9901**
50	3 P with 1 AC	5602 **9903**
50	3 P with 2 AC	5602 **9030**
100	1 P with 1 AC	5603 **9901**
100	3 P with 1 AC	5603 **9903**
100	3 P with 2 AC	5603 **9030**

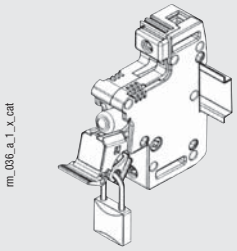
Two level NO/NC contact for RMS

Rating (A)	Contact(s)	Reference
50	1 P with 1 AC	5602 **9911**
50	3 P with 1 AC	5602 **9913**
100	1 P with 1 AC	5603 **9911**
100	3 P with 1 AC	5603 **9913**

Characteristics

Rating (A)	Contact type	Operating current I_e (A) 250 VAC AC-13
50 … 100	NO/NC contact	5
50 … 100	Two level NO/NC contacts	0.1

Handle key interlocking accessories



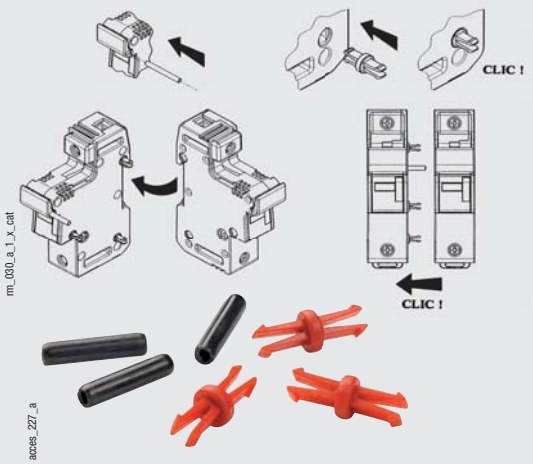
Use

Padlocking of the handle (padlock not supplied).
For padlocking when disconnected (OFF).

For RM and RMS

Rating (A)	Reference
50 … 100	included

Coupling system



Coupling system for RM

Rating (A)	Reference
32	5604 **0003**(1)(2)
50	5602 **9020**(1)(2)
100	5603 **9020**(1)(2)

(1) 1 coupling device allows to link 2 RM/RMS.
(2) 1 reference = 1 pack of 10 coupling devices.

➲ Characteristics according to IEC 60947-3

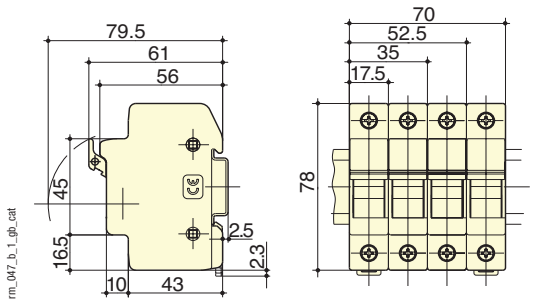
32 to 100 A

Thermal current I_{th} (20 °C)	**32 A**	**50 A**	**100 A**
Fuse size	10 x 38	14 x 51	22 x 58
Rated insulation voltage U_i (V)	690	690	690
Fuse rating (A)			**gG/aM**
to 400 VAC	32	50	100/125
to 500 VAC	32	50	100/125
to 690 VAC		50	100/125
Fuse protected short-circuit withstand (kA rms prospective)			
Prospective short-circuit (kA rms)(1)	100	100	100
Design current derating coefficient for N pole side by side			
N = 1 … 3	1	1	1
N = 4 … 6	0.8	0.8	0.8
N = 7 … 9	0.7	0.7	0.7
N ≥ 10	0.6	0.6	0.6
Connection			
Minimum Cu cable section (mm^2)	4	2.5	2.5
Maximum Cu cable section (mm^2)	25(3) / 16(4)	35(3) / 25(4)	50(3)/35(4)
Maximum Cu cable section (mm^2)(2)	16(3) / 10(4)		
Mechanical characteristics			
Weight of 1 P or N (kg)	0.1	0.15	0.21
Weight of 1 P + N (kg)		0.31	0.44
Weight of 3 p + N (kg)		0.70	1.10

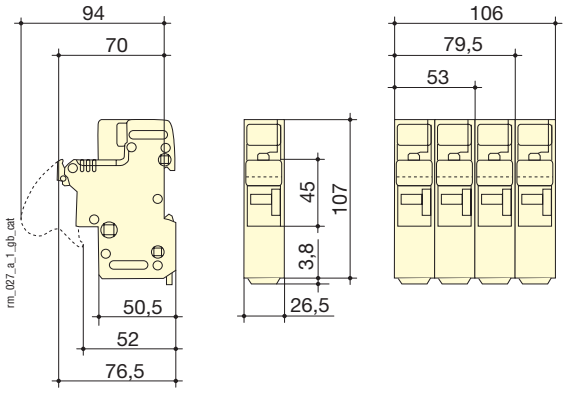
(1) For a rated operational voltage U_e = 400 VAC.
(2) Connection for RM32 1pole + N (1 module).
(3) Rigid cable.
(4) Flexible cable.

➲ Dimensions

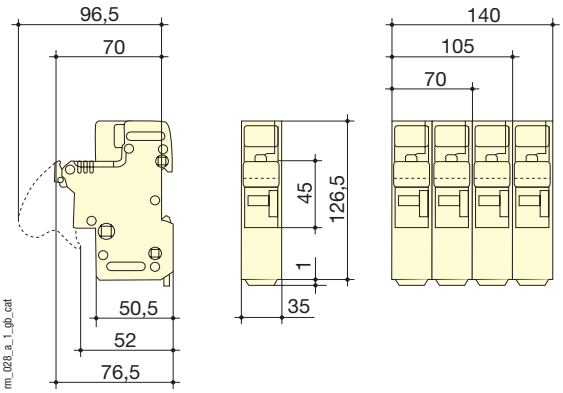
RM 32 A

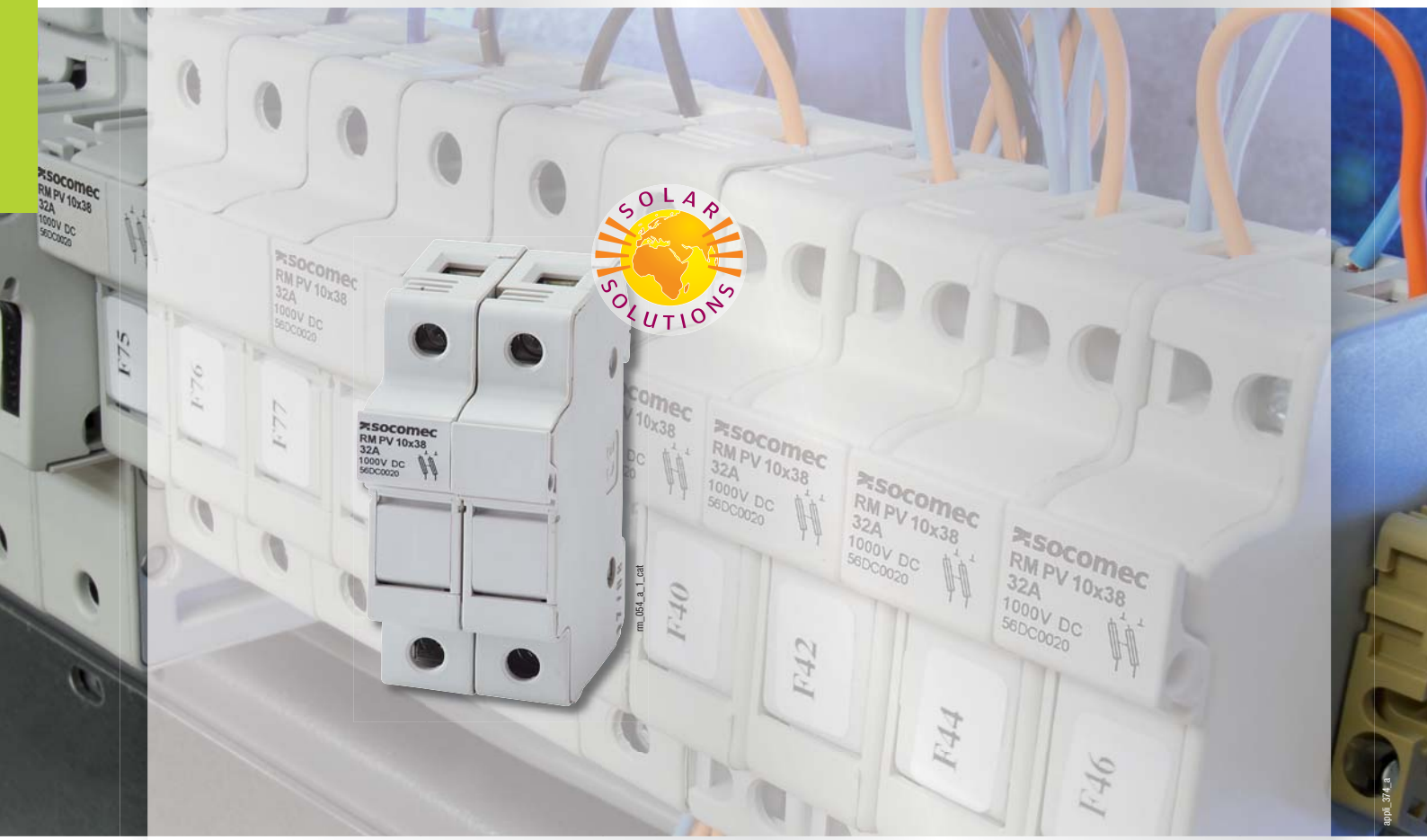


Single and multipolar RM / RMS 50 A



Single and multipolar RM / RMS 100 A





Modular fuse disconnect 10 x 38 for PV applications

➲ Functions

RM PV are unipolar or bipolar modular fuse disconnects without signalisation specially design for PV 10x38 cylindrical fuses.
They provide safety disconnection and protection against overcurrents in any low d.c. voltage photovoltaic applications.

➲ General characteristics

- Rated voltage of 1000 V d.c.
- Omnipolar and simultaneous breaking.
- High dielectric strength.
- Modular DIN 45 mm cut-out.
- Self-extinguishing thermoplastic material.
- High capacity connection.

➲ Conformity to standards

- IEC 60947-3
- IEC 60269-2-1
- IEC 60269-1
- IEC 60269-2
- IS 14947-3
- NF EN 60269-1
- NF C 63-210
- NF C 63211
- VDE 0636-10
- DIN 43620

➲ Approvals and certifications(1)

(1) Please consult us.

References



RM - Device without signalisation		32 A 10 x 38
No. of pole	**To be ordered in multiple of**	**References**
1 P	12	56DC **0015**
2 P	6	56DC **0020**

Accessories

Coupling system



Use
To link multiple single pole RM together

Coupling system for RM

Rating (A)	References
32	5604 **0003**(1)(2)

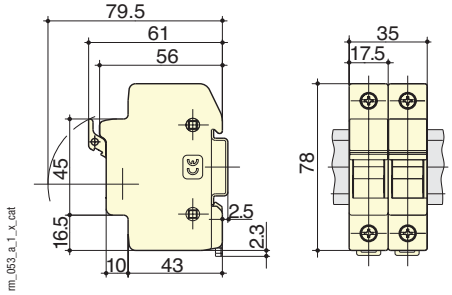
(1) 1 coupling device allows to link 2 RM/RMS.
(2) 1 reference = 1 pack of 10 coupling devices.

Characteristics according to IEC 60947-3

Thermal current I_{th} (20 *C)	**32 A**
Fuse size	10 x 38
Rated insulation voltage U_i (V)	1000
Fuse rating (A)	
Fuse rating (A)	4 to 20
Fuse protected short-circuit withstand	
Prospective short-circuit (kA rms)(1)	1.25*In
Thermal current derating factors for N pole side by side	
N = 1 … 3	1
N = 4 … 6	0.8
N = 7 … 9	0.7
N ≥ 10	0.6
Connection	
Minimum Cu cable section (mm^2)	4
Maximum Cu cable section (mm^2)	25(2) / 16(3)
Mechanical characteristics	
Weight for 1P (kg)	0.1

For PV fuses, see page 256.
(1) For a rated operational voltage U_e = 400 V a.c. - (2) Flexible cable. - (3) Rigid cable.

Dimensions



Fuse bases



For NH and high speed (UR) fuses 160 to 2500 A

➲ Function

SOCOMEC **fuse bases** provide fixed, unipolar or multipolar support for knife edge fuses.

➲ General characteristics

- High dielectric strength.

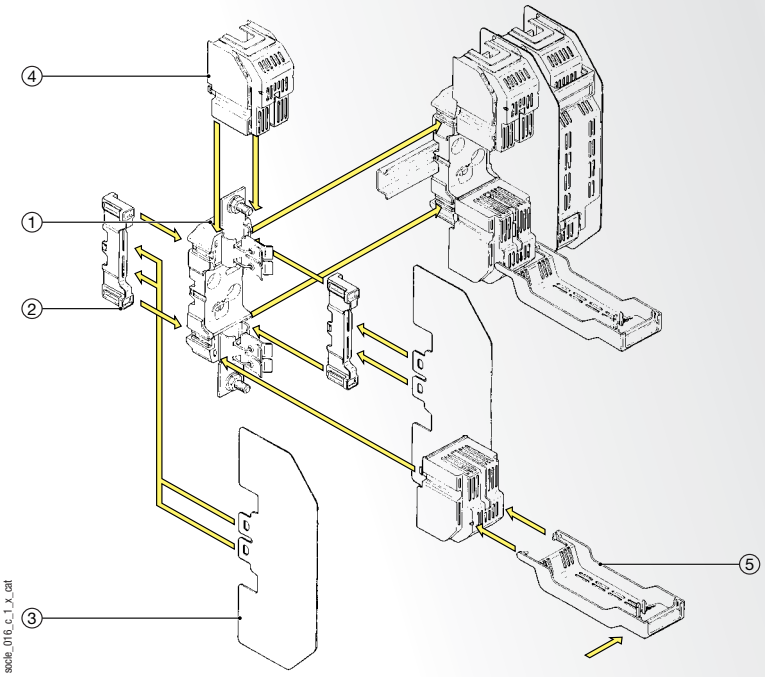
➲ Conformity to standards

- IEC 60269-1
- IEC 60269-2
- IEC 60269-2-1
- NF EN 60269-1
- NF C 63211
- VDE 0636-10
- DIN 43620

➲ Approvals and certifications(1)

- Bureau Véritas
- Lloyd's Register of Shipping

(1) Product reference on request.



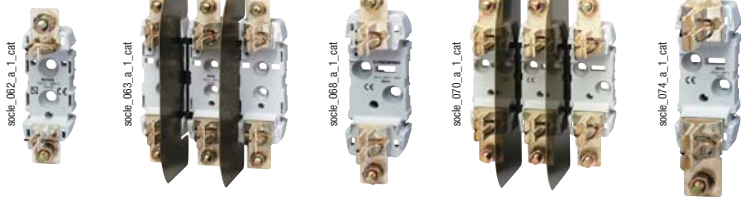
1. Fuse bases
2. Connecting block:
- block for assembling unipolar bases T00, T0, T1, T2 and T3,
- screen support for phases T00, T0, T1, T2 and T3
3. Phase separation shield
4. Terminal shrouds (mandatory for mounting fuse covers)
5. Fuse cover (provides IP2 protection for any brand of fuse).

IP20 kit:
- unipolar = 2 connecting blocks + 2 phase separation shields + 2 terminal shrouds + 1 cover
- tripolar = 2 connecting blocks for the ends + 2 phase separation shields for the ends + 6 terminal shrouds + 3 covers.

Fuse bases for fuses with or without a striker from 160 to 630 A (U = 690 V)

References

Back plate mounted device



Rating Fuse size		160 A 00	160 A 0	250 A 1	400 A 2	630 A 3
No. of poles	To be ordered in multiples of	Reference	Reference	Reference	Reference	Reference
1 P	3	6500 **1010**	6501 **1010**	6501 **1011**	6501 **1012**	6501 **1013**
3 P	1	6500 **1030**	6501 **1030**	6501 **1031**	6501 **1032**	6501 **1033**

DIN rail-mounted device

No. of poles	To be ordered in multiples of	Reference	Reference	Reference	Reference	Reference
1 P	3	6500 **1110**	6501 **1110**	6501 **1111**	6501 **1112**	6501 **1113**
3 P	1	6500 **1130**	6501 **1130**	6501 **1131**	6501 **1132**	6501 **1133**

Options: IP20 kit

No. of poles	Reference	Reference	Reference	Reference	Reference
1 P (1)	6510 **1010**	6511 **1010**	6511 **1011**	6511 **1012**	6511 **1013**
3 P (2)	6510 **1030**	6511 **1030**	6511 **1031**	6511 **1032**	6511 **1033**

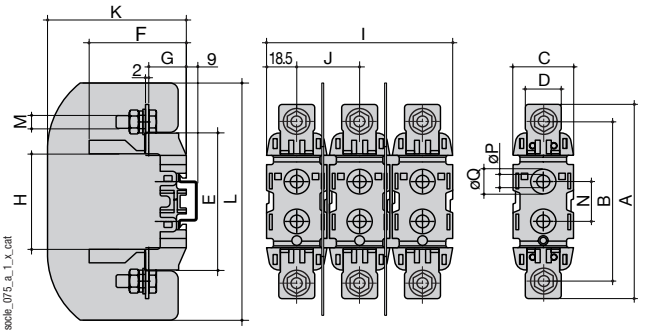
(1) IP20 single-pole kit consisting of 2 connecting blocks, 2 phase separation shields, 2 terminal shrouds and 1 fuse cover.
(2) IP20 three-pole kit consisting of 2 connecting blocks for the ends, 2 phase separation shields for the ends, 6 terminal shrouds and 3 fuse covers.

Accessories

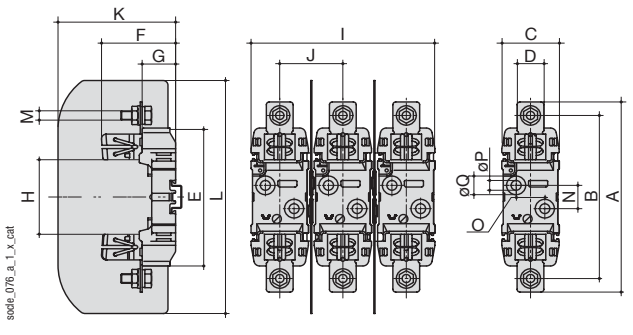
Description of accessories	To be ordered in multiples of	Reference	Reference	Reference	Reference	Reference
Connecting block - set of 1 piece	2	6500 **0033**	6500 **0030**	6500 **0031**	6500 **0031**	6500 **0032**
Phase separation shield - set of 1 piece	2	6500 **0001**	6500 **0002**	6500 **0003**	6500 **0003**	6500 **0004**
Terminal shrouds - set of 1 piece	6	6500 **0010**	6500 **0011**	6500 **0012**	6500 **0013**	6500 **0014**
Fuse cover - set of 1 piece	3	6500 **0020**	6500 **0021**	6500 **0022**	6500 **0022**	6500 **0023**

Dimensions

Fuse base 160 A size 00



Fuse base 160 to 630 A size 0, 1, 2 and 3



Rating (A)	Fuse size	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
160	00	122	100	37	22	86	59.5	23		114	38.5	85		M8	25		8	
160	0	170	150	47	24	122	63	29	74	144	48.5	91.5	185	8	25		7.5	15
250	1	200	175	60	28	148	77.5	35	80	192	66	123	250	10	25	30	10.5	20.5
400	2	225	200	60	32	148	88	35	80	192	66	123	250	12	25	30	10.5	20.5
630	3	240	210	60	38	148	97	35	80	224	82	143	270	12	25	30	10.5	20.5

Unipolar fuse bases for fuses with a striker from 160 to 630 A (U = 690 V)

➲ References









Back plate mounted device without AC

Rating Fuse size	160 A 0	250 A 1	400 A 2	630 A 3
No. of poles	**Reference**	**Reference**	**Reference**	**Reference**
1 P	6501 **1010**	6501 **1011**	6501 **1012**	6501 **1013**

DIN rail-mounted accessory without AC

No. of poles	**Reference**	**Reference**	**Reference**	**Reference**
1 P	6501 **1110**	6501 **1111**	6501 **1112**	6501 **1113**

Accessories

Presence and fuse blown signalling AC (DDMM)

No. of poles	**Reference**	**Reference**	**Reference**	**Reference**
1 P	6500 **0040**	6500 **0041**	6500 **0042**	6500 **0043**

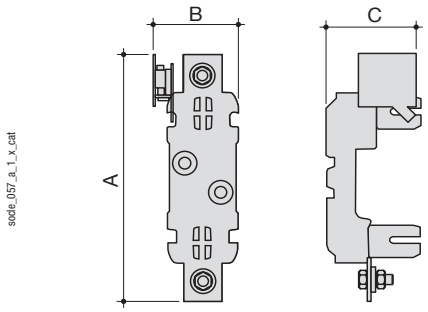
Characteristics

NO/NC contact

Nominal current I_n (A) 250 VAC	16	16	16	16

➲ Dimensions

Fuse base 160 to 630 A size 0, 1, 2 and 3



Rating (A)	Fuse size	A	B	C
160	0	193	65.5	90
250	1	215	76	98
400	2	227	76	102
630	3	235	76	102

Multipolar fuse bases for fuses with a striker from 160 to 400 A (U = 690 V)

References

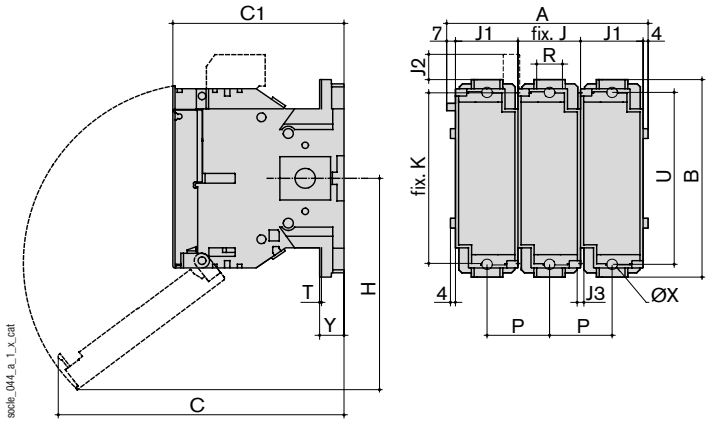
Back plate mounted device with presence and fuse blown signalling AC (DDMM)



Rating Fuse size	160 A 0	250 A 1	400 A 2
No. of poles	**Reference**	**Reference**	**Reference**
2 P	6301 **2016**	6301 **2024**	6301 **2039**
3 P	6301 **3016**	6301 **3024**	6301 **3039**
4 P	6301 **4016**	6301 **4024**	6301 **4039**
Auxiliary contacts for fuse blown indication			
Position AC	**Reference**	**Reference**	**Reference**
1st AC	included	included	included
2nd	3994 **1901**	3994 **1901**	3994 **1901**
Terminal shrouds (1 piece)			
No. of poles	**Reference**	**Reference**	**Reference**
2 P	3998 **2016**	3998 **2025**	3998 **2025**
3 P	3998 **3016**	3998 **3025**	3998 **3025**
4 P	3998 **4016**	3998 **4025**	3998 **4025**

Dimensions

Fuse base 160 to 400 A size 0



Rating (A)	Fuse size	A 2p.	A 3p.	A 4p.	B	C	C1	H	J	J1	J2	J3	K	P	R	T	U	ØX	Y
160	0	111	161	211	162	229	136.5	174	50	60	20.5	5.4	140	50	20	2.5	141	8.5	19.5
250	1	131	191	251	195	251	146	185	60	60	7.5	6.4	162	60	32	2.5	166	11	19.5
400	2	143	209	275	205	260	149	200	66	66	2.5	6.4	172	66	50	3	175	11	20

Fuse bases for fuses with or without a striker from 1000 to 2500 A (U = 690 V)

➲ References

Device without presence and fuse blown signalling (DDMM)

Rating Fuse size	1 000 A 4	1 250 A 4	2 500 A 2 x 4	2 500 A 2 x 4 (S)	2 500 A 6
No. of poles	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**
1 P	6431 **0004**	6431 **0005**	6431 **0006**		6431 **0007**(1)

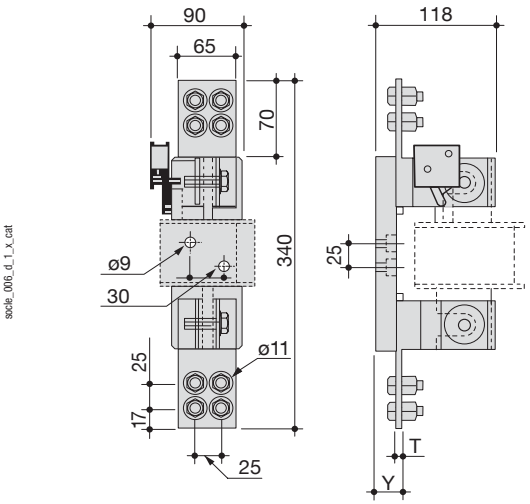
(1) Without solid link.

Device with presence and fuse blown signalling (DDMM)

No. of poles	Reference	Reference	Reference	Reference	Reference
1 P	7304 **0001**	7305 **0001**	7306 **0001**	6433 **0005**	

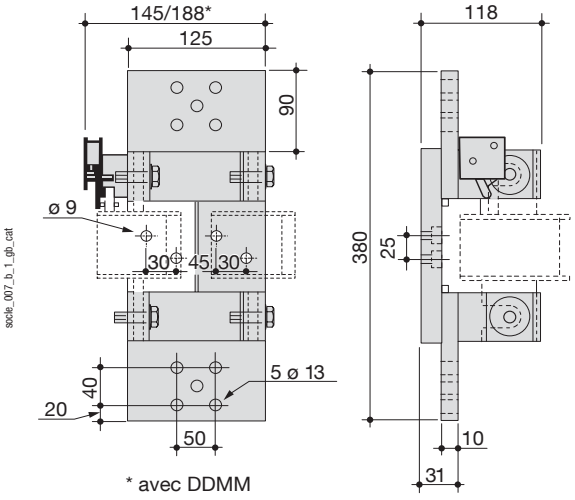
➲ Dimensions

Fuse base 1 000 to 2500 A size 4

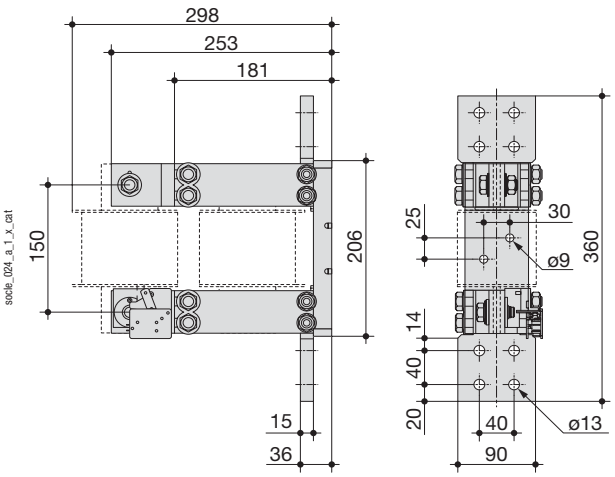


Rating (A)	Y (mm)	T (mm)
1 000	25	4
1 250	30	9

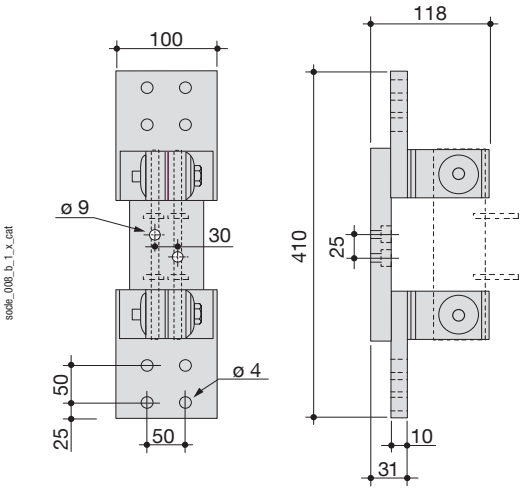
Fuse base 2 500 A, size 2 x 4



Fuse base 2 500 A, size 2 x 4 (S)



Fuse base 2 500 A, size 6 (for neutral)



Unipolar fuse bases for UR fuses

References

L shape bracket 00/80 (distance between centres 80)		690 VAC	1 000 VAC	1 400 VAC
Thermal current I_{th} (40°C)	**Type of fuse**	**Reference**	**Reference**	**Reference**
200	00 bolted connection	170A **6080**		
400	00 bolted connection		170 **H 1007**	

Knife-edge fuses /80 (distance between centres 80)				
Thermal current I_{th} (40°C)	**Type of fuse**	**Reference**	**Reference**	**Reference**
1250(1)	from 1* to 3		170 **H 3004**	

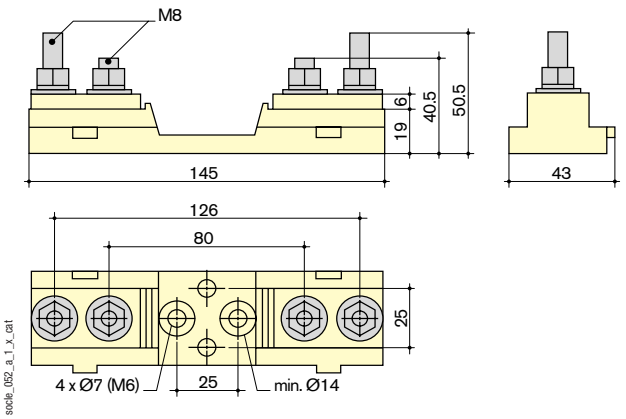
(1) For current > 1250 A, please consult us.

Knife-edge fuses /110 (distance between centres 110)				
Thermal current I_{th} (40°C)	**Type of fuse**	**Reference**	**Reference**	**Reference**
1 250(1)	from 1* to 3			170 **H 3006**

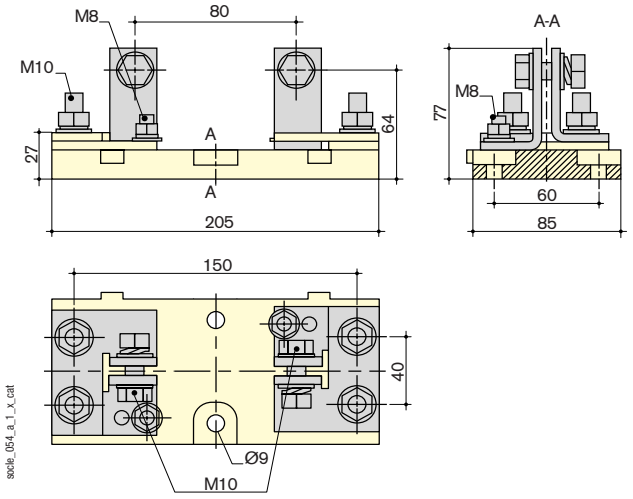
(1) For current > 1250 A, please consult us.

Dimensions

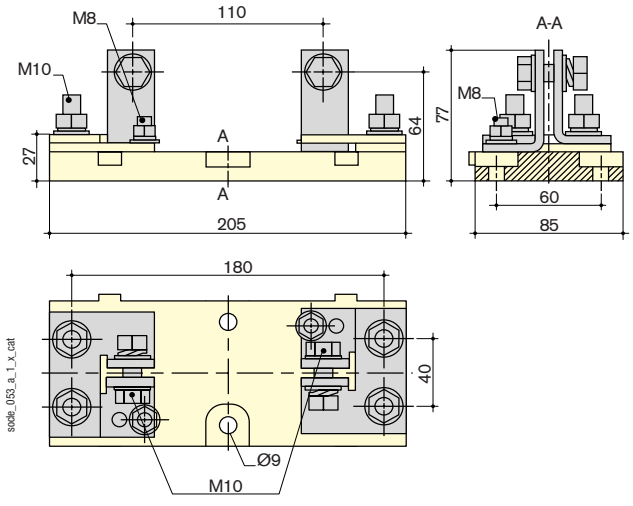
Bracket 00/80 - 200 A - 1 000 VAC - Ref:: 170H 1007



knife-edge /80 - 1 250 A - 1 000 VAC - Ref. : 170H 3004



knife-edge /110 - 1 250 A - 1 400 VAC - Ref. : 170H 3006



BS88 industrial fuselinks



From 2 to 1250 A

➲ Function

SOCOMEC **industrial fuses** protect installations and people against overcurrents for any low voltage electrical circuit.

➲ General characteristics

Performance

- High breaking capacity 120 kA at 500 V, 80 kA at 690 V.
- High short-cicuit limitation capacity.
- Simple, reliable discrimination.

Reliability

Absolute protection over time guaranteed by the simplicity of manufacture and function (Joule effect).

Safety

The energy given off whilst eliminating the fault is contained within the cartridge.

➲ Conformity to standards

- IEC 60269-1
- IEC 60269-2
- IEC 60269-2-1
- NF EN 60269-1
- NF C 63-210
- NF C 63211
- VDE 0636-10
- DIN 43620

➲ Available on request

- EDF application: T2 fuses, in accordance with standard HN 63 - S20.
- 690 V knife-edge fuses.
- UL and CSA fuses for North American markets.

Distribution industrial fuselinks (type gG)

References











	F1(1) NS / NSD		F2(1) ES / ESD		A1(1) NIT / NITD		A2(1) TIA / AAO		A3(1) TIS / BAO
Rating (A)	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference
2	550	6F10 **0002**	550	6F20 **0002**	550	6A10 **0002**	550	6A20 **0002**		
4	550	6F10 **0004**	550	6F20 **0004**	550	6A10 **0004**	550	6A20 **0004**		
6	550	6F10 **0006**	550	6F20 **0006**	550	6A10 **0006**	550	6A20 **0006**		
10	550	6F10 **0010**	550	6F20 **0010**	550	6A10 **0010**	550	6A20 **0010**		
16	550	6F10 **0016**	550	6F20 **0016**	550	6A10 **0016**	550	6A20 **0016**		
20	550	6F10 **0020**	550	6F20 **0020**	550	6A10 **0020**	550	6A20 **0020**		
25	550	6F10 **0025**	550	6F20 **0025**	550	6A10 **0025**	550	6A20 **0025**		
32	550	6F10 **0032**	550	6F20 **0032**	550	6A10 **0032**	550	6A20 **0032**		
40			550	6F20 **0040**					550	6A30 **0040**
50			550	6F20 **0050**					550	6A30 **0050**
63			550	6F20 **0063**					550	6A30 **0063**











	A3(1) OS / OSD		A4(1) TCP / CEO		A4(1) TFP / DEO		B1(1) TBC / AD		B1(1) TBC / BD
Rating (A)	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference
2							550	6B10 **0002**		
4							550	6B10 **0004**		
6							550	6B10 **0006**		
10							550	6B10 **0010**		
16							550	6B10 **0016**		
20							550	6B10 **0020**		
25							550	6B10 **0025**		
32			550	6A40 **0032**			550	6B10 **0032**		
40			550	6A40 **0040**					550	6B10 **0040**
50			550	6A40 **0050**					550	6B10 **0050**
63			550	6A40 **0063**					550	6B10 **0063**
80	550	6A30 **0080**	550	6A40 **0080**						
100	550	6A30 **0100**	550	6A40 **0100**						
125					415	6A40 **0125**				
160					415	6A40 **0160**				
200					415	6A40 **0200**				

(1) Offset blade type fuselinks
(2) Offset bolted tag type fuselinks
(3) Centre bolted tag type fuselinks.

Note: pack quantity 3 pieces for each product.









	B1(1) TC / CD		B2(1) TF / DD		CI(1) TKM / EFS		B3(1) TKF / ED		B4(1) TMF / ED
Rating (A)	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference
80	550	6B10 **0080**								
100	550	6B10 **0100**								
125			415	6B20 **0125**	415	6C10 **0125**				
160			415	6B20 **0160**	415	6C10 **0160**				
200			415	6B20 **0200**	415	6C10 **0200**				
250					415	6C10 **0250**	415	6B30 **0250**		
315					415	6C10 **0315**	415	6B30 **0315**		
355									415	6B40 **0355**
400									415	6B40 **0400**

Distribution industrial fuselinks (type gG)

➲ References









	C1(1) TM / EF		C2(1) TTM / FF		C3(1) TLM / GF		D1(1) TLU / GH		D1(1) TXU / GH
Rating (A)	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference
355	415	6C10 **0355**								
400	415	6C10 **0400**								
450			550	6C20 **0450**						
500			550	6C20 **0500**						
560			550	6C20 **0560**						
630			550	6C20 **0630**						
710					550	6C30 **0710**	550	6D10 **0710**		
800					550	6C30 **0800**	550	6D10 **0800**		
1000									550	6D10 **1000**
1250									550	6D10 **1250**

(1) Centre bolted tag type fuselinks.

Note: pack quantity 3 pieces for each product.

Motor rated industrial fuselinks (type gM)

➲ References



	F1(1) NS / NSD		F2(1)		A1(2) NIT / NITD		A2(2) TIA / AAO		A3(2) TIS / BAO	
Rating (A)	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference
20M25	415	6F1M **0025**			550	6A1M **0025**				
20M32	415	6F1M **0032**			550	6A1M **0032**				
32M36	415	6F1M **0036**								
32M40	415	6F1M **0040**			550	6A1M **0040**	550	6A2M **0040**		
32M50	415	6F1M **0050**			550	6A1M **0050**	550	6A2M **0050**		
32M63	415	6F1M **0063**			550	6A1M **0063**	550	6A2M **0063**		
63M80			415	6F2M **0080**					550	6A3M **0080**
63M100			415	6F2M **0100**					550	6A3M **0100**

	A3(2) OS / OSD		A4(2) TCP / CEO		A4(2) TFP / DEO		B1(3) TC / CD	
Rating (A)	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference
100M125	550	6A3M **0125**	415	6A4M **0125**			550	6B1M **0125**
100M160	550	6A3M **0160**	415	6A4M **0160**			550	6B1M **0160**
100M200			415	6A4M **0200**			550	6B1M **0200**
200M250					415	6A4M **0250**		
200M315					415	6A4M **0315**		



	B2(3) TF / DD		B3(3)		B4(3) TMF / ED		C1(3) TM / EF	
Rating (A)	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference
200M250	415	6B2M **0250**						
200M315	415	6B2M **0315**						
315M400			415	6B3M **0400**				
400M500					550	6B4M **0500**	550	6C1M **0500**

(1) Offset blade type fuselinks
(2) Offset bolted tag type fuselinks
(3) Centre bolted tag type fuselinks.

Note: pack quantity 3 pieces for each product.

BS88 industrial fuselinks - Accessories

Fuse holders for offset blade type fuselinks


fusib_144_a_1_cat

Voltage: 550 VAC.

References

Rating (A)	Size	Voltage (VAC)	Color	Output connection	Type	Pack qty	Reference
32	F1	550	black	front/rear	32NNSF	10	5F10 **0032**
32	F1	550	black	front/rear	32NNNSFBS	10	5F10 **0132**
32	F1	550	black	rear/rear	32NNSBS	10	5F10 **0232**
32	F1	550	white	front/rear	32NNSFW	10	5F10 **1032**
32	F1	550	white	front/rear	32NNSFBSW	10	5F10 **1132**
32	F1	550	white	rear/rear	32NNSBSW	10	5F10 **1232**
63	F2	550	black	front/rear	63ENSF	5	5F20 **0063**
63	F2	550	black	front/rear	63ENSFBS	5	5F20 **0163**
63	F2	550	black	rear/rear	63ENSBS	5	5F20 **0263**
63	F2	550	white	front/rear	63ENSFW	5	5F20 **1063**
63	F2	550	white	front/rear	63ENSFBSW	5	5F20 **1163**
63	F2	550	white	rear/rear	63ENSBSW	5	5F20 **1263**

Accessories

Rating (A)	Size	Output connection	Type	Pack qty	Reference
32	F1	busbar connecting systems	32BCSNNS	1	5F10 **0001**
63	F2	busbar connecting systems	63BCSENS	1	5F20 **0001**
32	F1	solid neutral links	32NNL	1	5F10 **0002**
63	F2	solid neutral links	63ENL	1	5F20 **0002**

Fuse holders for offset bolted tag type fuselinks


fusib_143_a_1_cat

Voltage: 660 VAC.
Output connection: front / front.

References

Rating (A)	Size	Voltage (VAC)	Color	Output connection	Type	Pack qty	Reference
32	A1	660	black	front/front	CM32FC	10	5A10 **0032**
32	A1	660	white	front/front	CM32FCW	10	5A10 **1032**
32	A2	660	black	front/front	CM32F	10	5A20 **0032**
32	A2	660	white	front/front	CM32FW	10	5A20 **1032**
63	A3	660	black	front/front	CM63F	5	5A30 **0063**
63	A3	660	white	front/front	CM63FW	5	5A30 **1063**
100	as A3	660	black	front/front	CM100F	5	5A30 **0100**
100	as A3	660	white	front/front	CM100FW	5	5A30 **1100**

Accessories

Rating (A)	Size	Output connection	Type	Pack qty	Reference
32	A1	rear connection studs	32BSC	10	5A10 **0001**
32	A2	rear connection studs	32BS	10	5A20 **0001**
63 ... 100	A3	rear connection studs	63 / 100BS	5	5A30 **0001**
32	A1 - A2	lockable safety carrier	32LSC	3	5A20 **0002**
63 ... 100	A3	lockable safety carrier	63 / 100LSC	3	5A30 **0002**
32 ... 100	A1 - A3	ganging link pack	GLP	1	5A30 **0003**
32 ... 100	A1 - A3	neon indicator (90 - 660 VAC)	NI	3	5A30 **0004**
32 ... 100	A1 - A3	security clip	CMSC	10	5A30 **0005**

Distribution industrial fuselinks (type gG)

➲ Characteristics

Fuse cut off current

	F1 NS / NSD	F2 ES / ESD	A1 NIT / NITD	A2 TIA / AAO	A3 TIS / BAO	A3 OS / OSD	A4 TCP / CEO
Rating (A)	50 / 80 kA	50 / 80 kA	50 / 80 kA	50 / 80 kA	50 / 80 kA	50 / 80 kA	50 / 80 kA
2	0.5 / 0.6	0.5 / 0.6	0.5 / 0.6	0.5 / 0.6			
4	0.9 / 1.0	0.9 / 1.0	0.7 / 0.8	1.0 / 1.1			
6	1.4 / 1.6	1.4 / 1.6	1.0 / 1.1	1.5 / 1.8			
10	2.4 / 2.6	2.4 / 2.6	1.7 / 2.0	2.4 / 2.8			
16	2.5 / 2.9	2.5 / 2.9	2.5 / 3.0	2.6 / 3.0			
20	3.2 / 3.8	3.2 / 3.8	2.5 / 3.0	3.4 / 4.0			
25	3.5 / 4.0	3.5 / 4.0	3.5 / 4.0	3.8 / 4.1			
32	4.1 / 4.9	4.1 / 4.9	3.5 / 4.0	4.2 / 5.0			4.4 / 5.0
40		5.0 / 5.9			5.1 / 6.0		5.0 / 6.0
50		5.2 / 6.0			7.0 / 8.0		6.6 / 7.8
63		5.8 / 6.6			9.0 / 10.0		8.9 / 10.0
80						9.5 / 11.0	9.5 / 11.0
100						12.0 / 14.0	12.0 / 14.0

Fuse cut off current

	A4 TFP / DEO	B1 TBC / AD	B1 TBC / BD	B1 TC / CD	B2 TF / DD	CI TKF / ED	B3 TKF / ED
Rating (A)	50 / 80 kA	50 / 80 kA	50 / 80 kA	50 / 80 kA	50 / 80 kA	50 / 80 kA	50 / 80 kA
2		0.4 / 0.5					
4		1.0 / 1.1					
6		1.4 / 1.6					
10		1.8 / 2.0					
16		2.0 / 2.2					
20		2.6 / 3.0					
25		3.6 / 4.0					
32		4.4 / 5.0					
40			5.0 / 6.0				
50			6.6 / 7.8				
63			8.9 / 10.0				
80				9.5 / 11.0			
100				12.0 / 14.0			
125	12.0 / 14.0				12.0 / 14.0	12.0 / 14.0	
160	17.0 / 19.0				17.0 / 19.0	17.0 / 19.0	
200	19.0 / 24.0				19.0 / 24.0	19.0 / 24.0	
250						23.0 / 28.0	23.0 / 28.0
315						27.0 / 30.0	27.0 / 30.0

Fuse cut off current

	B4 TMF / ED	C1 TM / EF	C2 TTM / FF	C3 TLM / GF	D1 TLU / GH	D1 TXU / GH
Rating (A)	50 / 80 kA	50 / 80 kA	50 / 80 kA	50 / 80 kA	50 / 80 kA	50 / 80 kA
355	30.0 / 34.0	30.0 / 34.0				
400	30.0 / 34.0	30.0 / 34.0				
450			40.0 / 48.0			
500			42.0 / 50.0			
560			46.0 / 54.0			
630			51.0 / 60.0			
710				55.0 / 64.0	55.0 / 64.0	
800				55.0 / 64.0	55.0 / 64.0	
1000						69.0 / 79.0
1250						90.0 / 105.0

Motor rated industrial fuselinks (type gM)

Characteristics

Fuse cut off current

	F1 NS / NSD	F2	A1 NIT / NITD	A2 TIA / AAO	A3 TIS / BAO	A3 OS / OSD	A4 TCP / CEO
Rating (A)	50 / 80 kA	50 / 80 kA	50 / 80 kA	50 / 80 kA	50 / 80 kA	50 / 80 kA	50 / 80 kA
20M25	3.4 / 4.0		4.6 / 5.5				
20M32	4.0 / 5.0		4.6 / 5.5				
32M36	4.5 / 5.1						
32M40	4.8 / 5.5		5.0 / 6.0	5.0 / 6.0			
32M50	5.3 / 6.2		6.5 / 7.5	6.6 / 7.8			
32M63	5.9 / 6.9		7.5 / 10.0	8.5 / 9.0			
63M80		9.0 / 10.0			9.5 / 12.0		
63M100		10.1 / 10.3			12.0 / 13.0		
100M125						13.0 / 15.0	13.0 / 15.0
100M160						17.0 / 20.0	17.0 / 20.0
100M200							20.0 / 23.0

Fuse cut off current

	A4 TFP / DEO	B1 TC / CD	B2 TF / DD	B3	B4 TMF / ED	C1 TM / EF
Rating (A)	50 / 80 kA	50 / 80 kA	50 / 80 kA	50 / 80 kA	50 / 80 kA	50 / 80 kA
100M125		13.0 / 15.0				
100M160		17.0 / 20.0				
100M200		20.0 / 23.0				
200M250	25.0 / 29.0		25.0 / 29.0			
200M315	27.0 / 31.0		27.0 / 31.0			
315M400				34.0 / 40.0		
400M500					42.0 / 50.0	42.0 / 50.0

NFC and DIN industrial fuselinks



From 0.16 to 1250 A

➲ Function

SOCOMEC industrial fuses protect installations and people from overcurrents for any low voltage electrical circuit.

➲ Advantages

Performance

- High breaking capacity - 120 kA at 400/500 V, 80 kA at 690 V.
- High short-circuit limitation capacity.
- Simple, reliable discrimination.

Reliability

Absolute protection over time guaranteed by the simplicity of manufacture and function (Joule effect).

Safety

The energy given off whilst eliminating the fault is contained within the cartridge.

➲ Conformity to standards

- IEC 60269-1
- DIN EN 60269-1
- NF EN 60269-1
- IEC 60269-2
- NF EN 60269-2

➲ Approvals and certifications(1)

(1) Please consult us.

➲ Available on request

- EDF application: T2 fuses, in accordance with standard HN 63 - S20.
- British Standard (BS) fuses for UK markets.
- UL and CSA fuses for North-American markets.
- T00 and T4 fuses for 690 VAC.

References

Cylindrical fuses (NF)

Fuses type gG (in multiples of 10)







	10 x 38 without striker		14 x 51 without striker		14 x 51 with striker		22 x 58 without striker		22 x 58 with striker	
Rating (A)	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference
0.5	500	6012 **0000**								
1	500	6012 **0001**	690	6022 **0001**						
2	500	6012 **0002**	690	6022 **0002**	500	6052 **0002**	690	6032 **0002**		
4	500	6012 **0004**	690	6022 **0004**	500	6052 **0004**	690	6032 **0004**	690	6062 **0004**
6	500	6012 **0006**	690	6022 **0006**	500	6052 **0006**	690	6032 **0006**	690	6062 **0006**
8	500	6012 **0008**	690	6022 **0008**	500	6052 **0008**	690	6032 **0008**	690	6062 **0008**
10	500	6012 **0010**	690	6022 **0010**	500	6052 **0010**	690	6032 **0010**	690	6062 **0010**
12	500	6012 **0012**	690	6022 **0012**	500	6052 **0012**	690	6032 **0012**	690	6062 **0012**
16	500	6012 **0016**	690	6022 **0016**	500	6052 **0016**	690	6032 **0016**	690	6062 **0016**
20	500	6012 **0020**	690	6022 **0020**	500	6052 **0020**	690	6032 **0020**	690	6062 **0020**
25	500	6012 **0025**	690	6022 **0025**	500	6052 **0025**	690	6032 **0025**	690	6062 **0025**
32	400	6012 **0032**	500	6022 **0032**	500	6052 **0032**	690	6032 **0032**	690	6062 **0032**
40			500	6022 **0040**	500	6052 **0040**	690	6032 **0040**	690	6062 **0040**
50			400	6022 **0050**	400	6052 **0050**	690	6032 **0050**	690	6062 **0050**
63							690	6032 **0063**	690	6062 **0063**
80							500	6032 **0080**	500	6062 **0080**
100							500	6032 **0100**	500	6062 **0100**
125							400	6032 **0125**	400	6062 **0125**

Description of accessories

	Reference	Reference	Reference	Reference	Reference
Solid cylindrical link	6019 **0000**	6029 **0000**	6029 **0000**	6039 **0000**	6039 **0000**

Fuses type aM (in multiples of 10)

	10 x 38 without striker		14 x 51 without striker		14 x 51 with striker		22 x 58 without striker		22 x 58 with striker	
Rating (A)	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference
0.16	500	6013 **0007**								
0.25	500	6013 **0005**	690	6023 **0005**						
0.5	500	6013 **0000**	690	6023 **0000**						
1	500	6013 **0001**	690	6023 **0001**						
2	500	6013 **0002**	690	6023 **0002**	500	6053 **0002**	690	6033 **0002**		
4	500	6013 **0004**	690	6023 **0004**	500	6053 **0004**	690	6033 **0004**	690	6063 **0004**
6	500	6013 **0006**	690	6023 **0006**	500	6053 **0006**	690	6033 **0006**	690	6063 **0006**
8	500	6013 **0008**	690	6023 **0008**	500	6053 **0008**	690	6033 **0008**	690	6063 **0008**
10	500	6013 **0010**	690	6023 **0010**	500	6053 **0010**	690	6033 **0010**	690	6063 **0010**
12	500	6013 **0012**	690	6023 **0012**	500	6053 **0012**	690	6033 **0012**	690	6063 **0012**
16	500	6013 **0016**	690	6023 **0016**	500	6053 **0016**	690	6033 **0016**	690	6063 **0016**
20	400	6013 **0020**	690	6023 **0020**	500	6053 **0020**	690	6033 **0020**	690	6063 **0020**
25	400	6013 **0025**	690	6023 **0025**	500	6053 **0025**	690	6033 **0025**	690	6063 **0025**
32			500	6023 **0032**	500	6053 **0032**	690	6033 **0032**	690	6063 **0032**
40			500	6023 **0040**	500	6053 **0040**	690	6033 **0040**	690	6063 **0040**
50			400	6023 **0050**	400	6053 **0050**	690	6033 **0050**	690	6063 **0050**
63							690	6033 **0063**	690	6063 **0063**
80							500	6033 **0080**	500	6063 **0080**
100							500	6033 **0100**	400	6063 **0100**
125							400	6033 **0125**	400	6063 **0125**

Description of accessories

	Reference	Reference	Reference	Reference	Reference
Solid cylindrical link	6019 **0000**	6029 **0000**	6029 **0000**	6039 **0000**	6039 **0000**

Knife-edge fuses (NH)



Type fuselinks gG

Rating (A)	000/00C without striker (in multiples of 3) Voltage (VAC)	Reference	00 without striker (in multiples of 3) Voltage (VAC)	Reference	0 without striker (in multiples of 3) Voltage (VAC)	Reference	0 with striker (in multiples of 3) Voltage (VAC)	Reference	1 without striker (in multiples of 3) Voltage (VAC)	Reference	1 with striker (in multiples of 3) Voltage (VAC)	Reference
6	500	6600 **0006**										
10	500	6600 **0010**										
16	500	6600 **0016**			500	6702 **0016**						
20	500	6600 **0020**			500	6702 **0020**						
25	500	6600 **0025**			500	6702 **0025**						
32	500	6600 **0032**			500	6702 **0032**	690	6852 **0032**				
40	500	6600 **0040**			500	6702 **0040**	690	6852 **0040**				
50	500	6600 **0050**			500	6702 **0050**	690	6852 **0050**				
63	500	6600 **0063**			500	6702 **0063**	690	6852 **0063**	500	6712 **0063**		
80	500	6600 **0080**			500	6702 **0080**	690	6852 **0080**	500	6712 **0080**	690	6862 **0080**
100	500	6600 **0100**			500	6702 **0100**	690	6852 **0100**	500	6712 **0100**	690	6862 **0100**
125			500	6692 **0125**	500	6702 **0125**	500	6852 **0125**	500	6712 **0125**	690	6862 **0125**
160			500	6692 **0160**	500	6702 **0160**	500	6852 **0160**	500	6712 **0160**	690	6862 **0160**
200					500	6702 **0200**	500	6852 **0200**	500	6712 **0200**	690	6862 **0200**
250									500	6712 **0250**	500	6862 **0250**
315									400	6712 **0315**	500	6862 **0315**

Description of accessories

	Reference	Reference	Reference	Reference	Reference	Reference
Neutral bar	6420 **0000**	6420 **0000**	6421 **0000**	6421 **0000**	6421 **0001**	6421 **0001**



Rating (A)	2 without striker (in multiples of 3) Voltage (VAC)	Reference	2 with striker (in multiples of 3) Voltage (VAC)	Reference	3 without striker (offered individually) Voltage (VAC)	Reference	3 with striker (offered individually) Voltage (VAC)	Reference	4 without striker (offered individually) Voltage (VAC)	Reference	4 with striker (offered individually) Voltage (VAC)	Reference
100	500	6722 **0100**										
125	500	6722 **0125**	690	6872 **0125**								
160	500	6722 **0160**	690	6872 **0160**								
200	500	6722 **0200**	690	6872 **0200**								
250	500	6722 **0250**	690	6872 **0250**								
315	500	6722 **0315**	690	6872 **0315**	500	6732 **0315**	690	6882 **0315**	500	6746 **0315**	500	6896 **0315**
400	500	6722 **0400**	500	6872 **0400**	500	6732 **0400**	690	6882 **0400**	500	6746 **0400**	500	6896 **0400**
500	500	6722 **0500**	500	6872 **0500**	500	6732 **0500**	690	6882 **0500**	500	6746 **0500**	500	6896 **0500**
630					500	6732 **0630**	500	6882 **0630**	500	6746 **0630**	500	6896 **0630**
800					500	6732 **0800**			500	6746 **0800**	500	6896 **0800**
900									500	6746 **0900**	500	6896 **0900**
1000									500	6746 **1000**	500	6896 **1000**
1250									500	6746 **1200**	500	6896 **1200**

Description of accessories

	Reference	Reference	Reference	Reference	Reference	Reference
Neutral bar	6421 **0002**	6421 **0002**	6421 **0003**	6421 **0003**	6441 **0005**	6441 **0005**

aM type fuselinks



Rating (A)	000/00C without striker (in multiples of 3)		00 without striker (in multiples of 3)		0 without striker (in multiples of 3)		0 with striker (in multiples of 3)		1 without striker (in multiples of 3)		1 with striker (in multiples of 3)	
	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference
6	500	6601 **0006**										
10	500	6601 **0010**										
16	500	6601 **0016**			500	6703 **0016**						
20	500	6601 **0020**			500	6703 **0020**						
25	500	6601 **0025**			500	6703 **0025**						
32	500	6601 **0032**			500	6703 **0032**	690	6853 **0032**				
40	500	6601 **0040**			500	6703 **0040**	690	6853 **0040**				
50	500	6601 **0050**			500	6703 **0050**	690	6853 **0050**				
63	500	6601 **0063**			500	6703 **0063**	690	6853 **0063**				
80	500	6601 **0080**			500	6703 **0080**	690	6853 **0080**			690	6863 **0080**
100			500	6693 **0100**	500	6703 **0100**	690	6853 **0100**	500	6713 **0100**	690	6863 **0100**
125			500	6693 **0125**	500	6703 **0125**	690	6853 **0125**	500	6713 **0125**	690	6863 **0125**
160			500	6693 **0160**	500	6703 **0160**	690	6853 **0160**	500	6713 **0160**	690	6863 **0160**
200					500	6703 **0200**	500	6853 **0200**	500	6713 **0200**	690	6863 **0200**
250									500	6713 **0250**	690	6863 **0250**
315									500	6713 **0315**	500	6863 **0315**

Description of accessories

	Reference	Reference	Reference	Reference	Reference	Reference
Neutral bar	6420 **0000**	6420 **0000**	6421 **0000**	6421 **0000**	6421 **0001**	6421 **0001**



Rating (A)	2 without striker (in multiples of 3)		2 with striker (in multiples of 3)		3 without striker (offered individually)		3 with striker (offered individually)		4 without striker (offered individually)		4 with striker (offered individually)	
	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference	Voltage (VAC)	Reference
100	500	6723 **0100**										
125	500	6723 **0125**										
160	500	6723 **0160**	690	6873 **0160**								
200	500	6723 **0200**	690	6873 **0200**								
250	500	6723 **0250**	690	6873 **0250**								
315	500	6723 **0315**	690	6873 **0315**	500	6733 **0315**	690	6883 **0315**	500	6747 **0315**	500	6897 **0315**
400	500	6723 **0400**	690	6873 **0400**	500	6733 **0400**	690	6883 **0400**	500	6747 **0400**	500	6897 **0400**
500	500	6723 **0500**	500	6873 **0500**	500	6733 **0500**	690	6883 **0500**	500	6747 **0500**	500	6897 **0500**
630					500	6733 **0630**	500	6883 **0630**	500	6747 **0630**	500	6897 **0630**
800									500	6747 **0800**	500	6897 **0800**
1000									500	6747 **1000**	500	6897 **1000**
1250									500	6747 **1200**	500	6897 **1200**

Description of accessories

	Reference	Reference	Reference	Reference	Reference	Reference
Neutral bar	6421 **0002**	6421 **0002**	6421 **0003**	6421 **0003**	6441 **0005**	6441 **0005**

Solid cylindrical link

fusib_123_a_1_cat



Use
Solid link to be used in conjunction with the neutral pole of cylindrical fused disconnecting switches.
3 sizes: 10 x 38, 14 x 51, 22 x 58.

Rating (A)	Size	To be ordered in multiples of	Reference
32	10 x 38	10	6019 **0000**
50	14 x 51	10	6029 **0000**
100	22 x 58	10	6039 **0000**

Solid links

fusib_124_a_1_cat



Use
Solid link to be used in conjunction with fuse bases or knife-edge fused disconnecting switches, generally fitted on the neutral pole. 6 sizes: 000/00C/00-0-1-2-3-4.

Rating (A)	Size	Tightening	Reference
160	000/00C/00	elastic	6420 **0000**
160	0	elastic	6421 **0000**
315	1	elastic	6421 **0001**
400	2	elastic	6421 **0002**
630	3	elastic	6421 **0003**
1250	4	blocked	6441 **0005**

Fuse insertion/extraction tool

fusib_122_a_1_cat



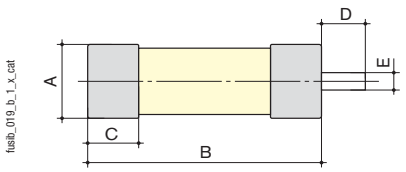
Use
For inserting and extracting knife-edge fuses, sizes 000 to 4.

Type	Reference
Operating handle	6401 **0011**

Dimensions

Cylindrical fuses (NF)

Without striker - with striker

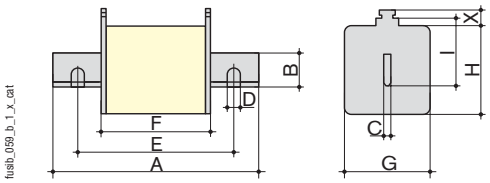


Standard dimensions (mm) as per IEC 60269-2-1

Size	A	B	C	D	E
10 x 38	10.3	38	10.5		
14 x 51	14.3	51	13.8	7.5	3.8
22 x 58	22.2	58	16.2	7.5	3.8

Knife-edge fuses (NH)

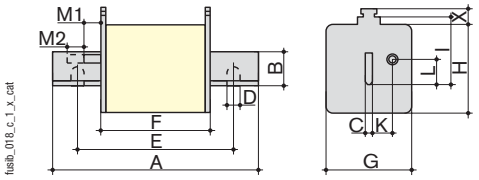
without striker



Standard dimensions (mm) as per IEC 60269-2-1

Size	A maxi	B mini	C	D	E mini	F maxi	G maxi	H maxi	I	X mini
000/00C	80	15	6			54	21	41	35	11
00	80	15	6			54	30	48	35	11
0	127.5	15	6			68	40	48	35	11
1	137.5	20	6			75	52	53	40	11
2	152.5	25	6			75	60	61	48	11
3	152.5	32	6			75	75	76	60	11
4	203	49	8	16	150	90	105	110	87	11

with striker



Standard dimensions (mm) as per IEC 60269-2-1

Size	A maxi	B mini	C	D	E	F maxi	G maxi	H maxi	I	K	L	M1	M2 mini	X mini
0	127.5	15	6			68	45	48	35	11.5	14	25	13	11
1	137.5	20	6			75	52	53	40	13	14.5	25.5	13	11
2	152.5	25	6			75	60	61	48	16	14.5	25.5	13	11
3	152.5	32	6			75	75	76	60	21	14.5	25.5	13	11
4	203	49	8	16	150	90	105	110	87	24.5	14.5	35	13	11

➲ NFC and DIN industrial fuselinks - Curves characteristic of NF and NH gG type fuses

Cut-off current diagram

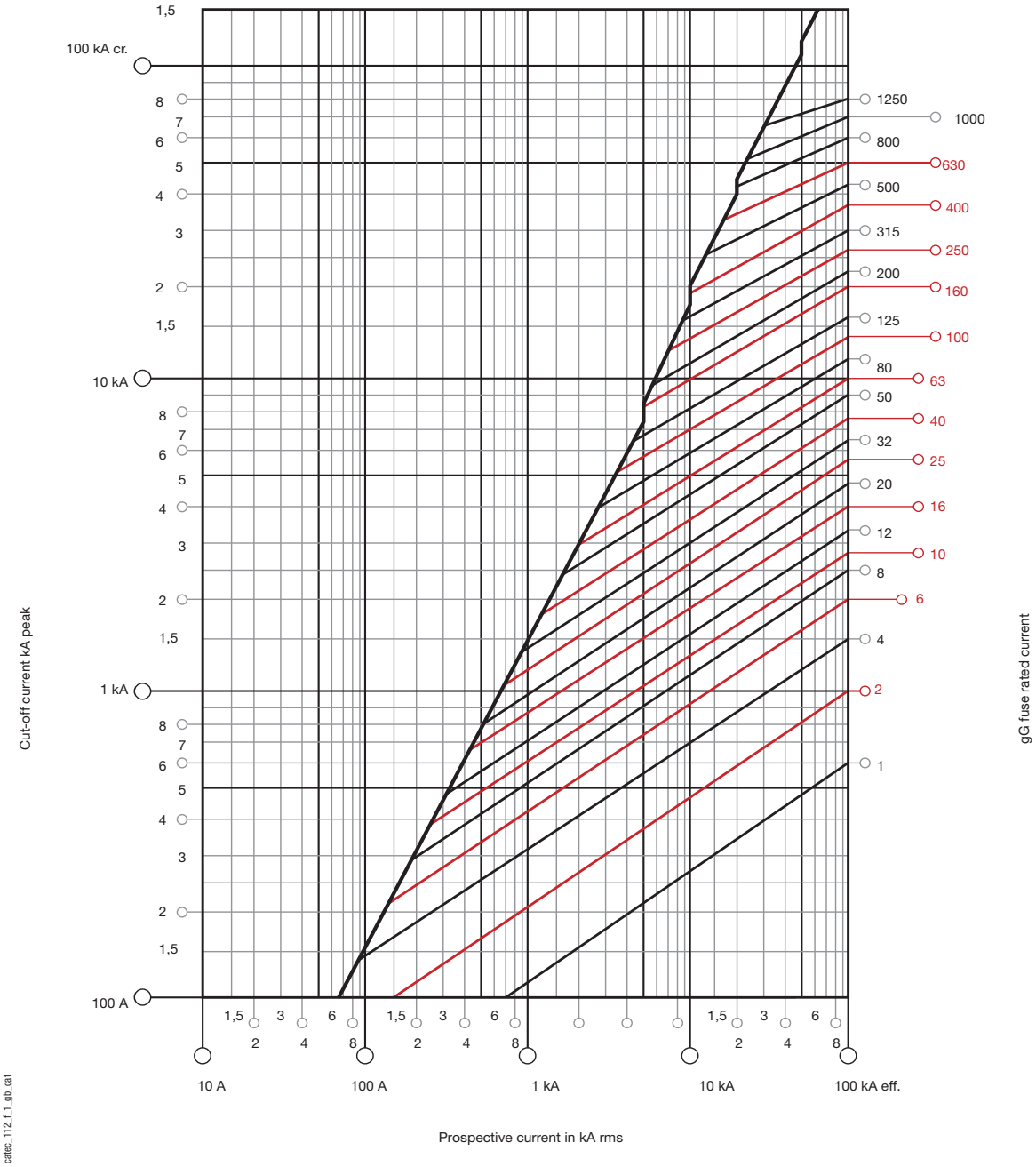
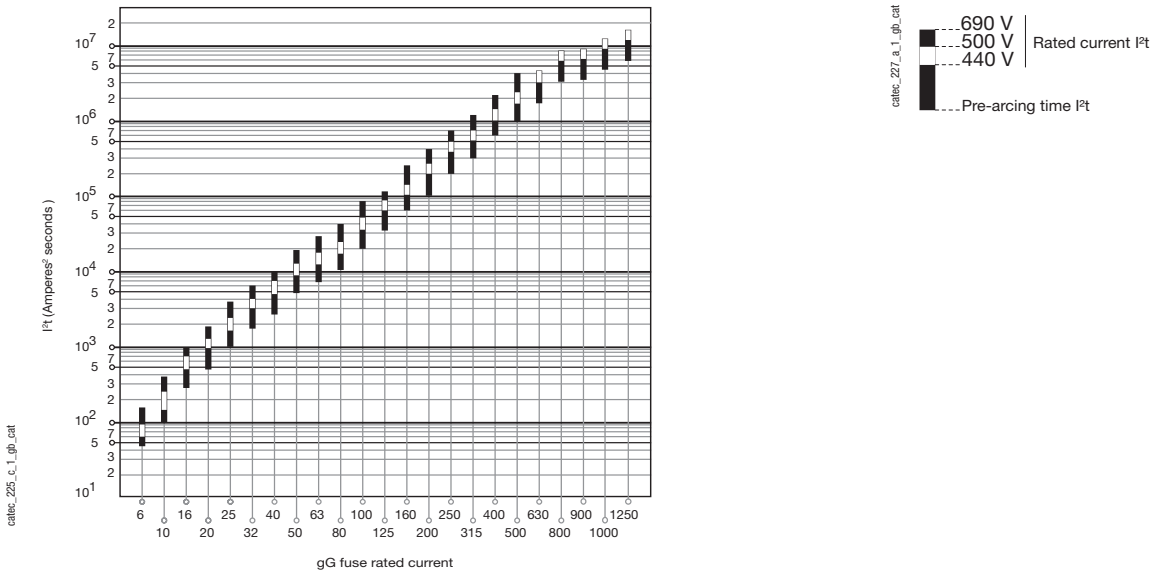
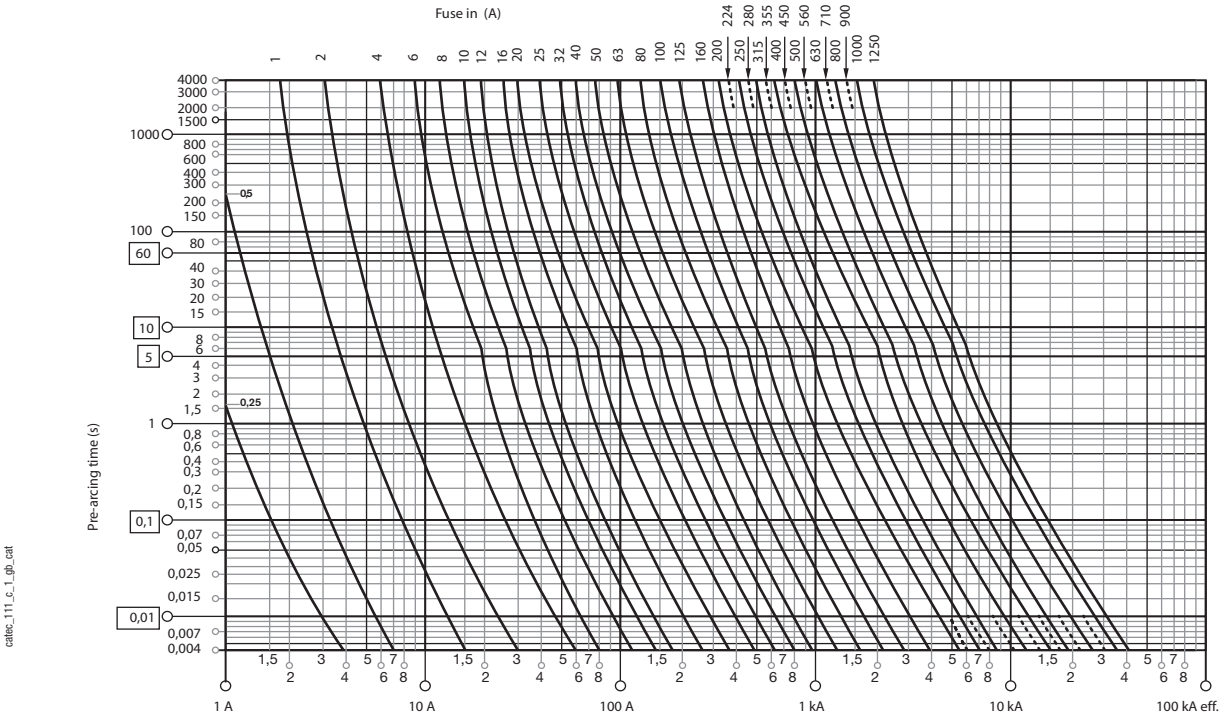


Diagram of thermal constraint limitation



Time/current operation characteristics



➲ NFC and DIN industrial fuselinks - Curves characteristic of NF and NH aM type fuses

Cut-off current diagram

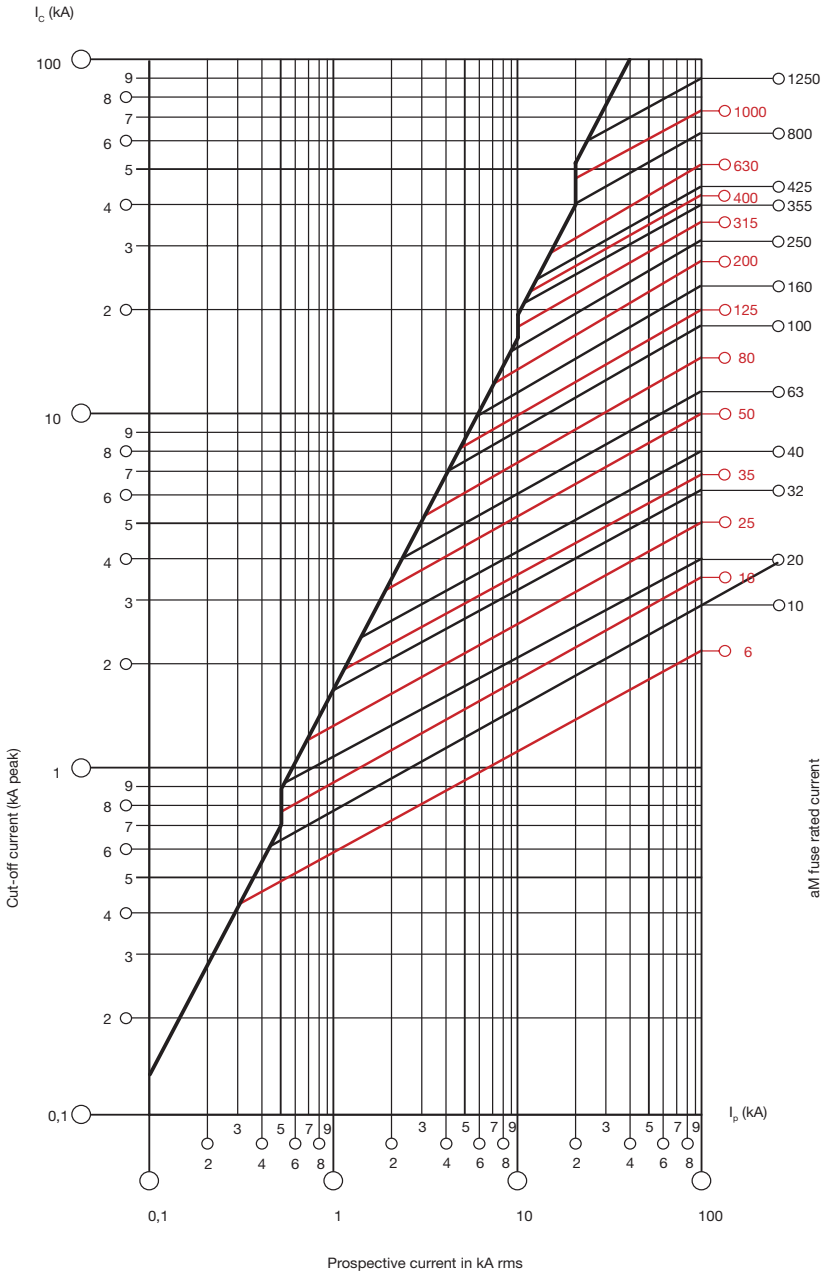
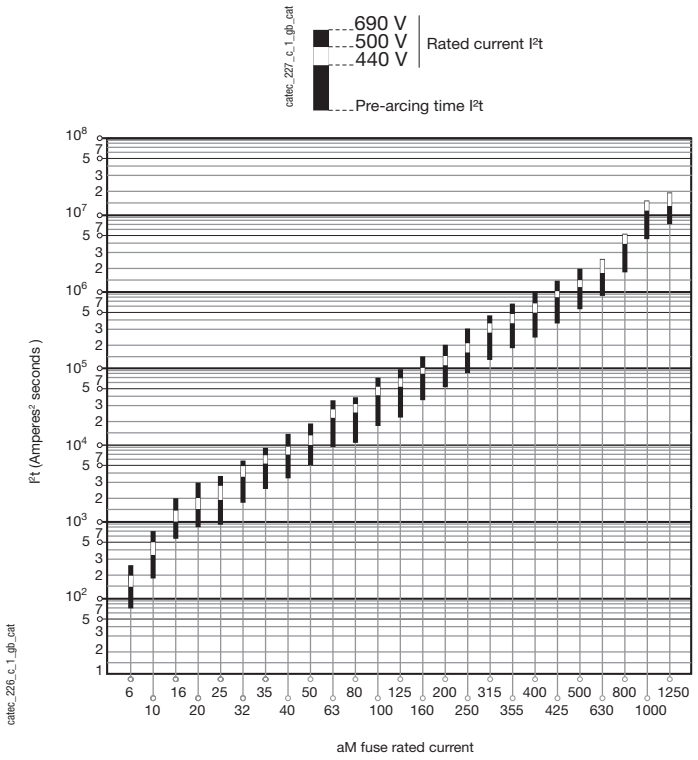


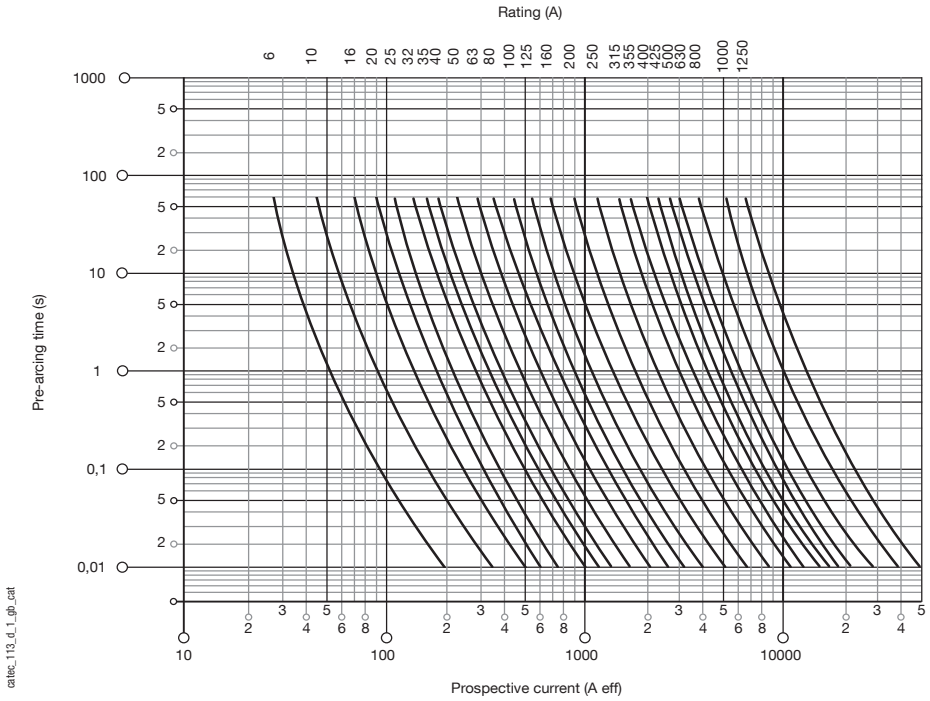
Diagram of thermal constraint limitation



Power dissipation without striker (W)

Rated operational currents In (A)	Fuse size 000	00	0 / 0S	1	2	3	4
6	0.33		0.42				
10	0.52		0.67				
16	0.81		0.98				
20	0.92		1.04				
25	1.08		1.17				
32	1.42		1.67				
35	1.58		1.72				
40	1.68		1.91				
50		2.28	2.51				
63		2.9	3.35	3.2			
80		4.19	4.93	4.6			
100		5.09	5.72	5.7			
125		6.29	7.30	6.98	7.6		
160		7.73	9.50	9.2	9.7		
200			12.3	13.7	13.9		
224				14.0	14.0		
250				15.3	17.0		
315					26.0	20.6	18.8
355					25.2	23.9	
400					29.3	26.5	23.5
425						28.3	
500						35.8	34
630						56.9	49
800							70
1000							80
1250							108

Time/current operation characteristics



High speed fuses (UR)



From 10 to 2000 A

➲ Function

High speed fuses (UR)
protect power semi-conductors and DC circuits.

➲ General characteristics

- Very high breaking capacity: 300 kA
- Very high thermal and mechanical stress limitation.
- High resistance to cyclic loads.
- An auxiliary contact can be adapted for fuse blown indication.(DDMM).
- Following tests performed in its laboratory, SOCOMEC recommends FUSERBLOC or bases designed for UR fuses.

➲ Conformity to standards

- IEC 60269-1
- NF EN 60269-1
- IEC 60269-4
- NF EN 60269-4
- DIN EN 60269-4

➲ Approvals and certifications(1)

- UL "recognized"
- CSA

(1) Product reference on request.

➲ Available on request

- gR DIN 43620 fuses - Sizes 00 - 3.

References

690 VAC UR fuses - Size 14 x 51





I_n rms value (A)	Pre-arcing I^2t when cold (A^2s)	Operating I^2t at 690 V rms (A^2s)	Losses at I_n (W)	Protection	To be ordered in multiples of	14 x 51 UR without striker Reference	14 x 51 UR with striker Reference
5	1.6	11	1.5	aR	10	170N **1405**	
10	3.6	38.5	4	aR	10	170N **1410**	170L **1410**
15	8.6	70	5.5	aR	10	170N **1415**	170L **1415**
20	26	230	6	aR	10	170N **1420**	170L **1420**
25	46.5	375	7	aR	10	170N **1425**	170L **1425**
32	68	600	7.6	aR	10	170N **1432**	170L **1432**
40	84	750	8	aR	10	170N **1440**	170L **1440**
50	200	1800	9	aR	10	170N **1450**	170L **1450**

Description of accessories	Reference	Reference
Fuse combination switch recommended (see page 142)	FUSERBLOC	FUSERBLOC
Fuse holder recommended (see page 218)	RM 50	RMS 50

690 VAC UR fuses - Size 22 x 58





I_n rms value (A)	Pre-arcing I^2t when cold (A^2s)	Operating I^2t at 690 V rms (A^2s)	Losses at I_n (W)	Protection	To be ordered in multiples of	22 x 58 UR without striker Reference	22 x 58 UR with striker Reference
20	19	260	5	aR	10	170N **2220**	170L **2220**
25	34	410	6	aR	10	170N **2225**	170L **2225**
32	53.5	605	8	aR	10	170N **2232**	170L **2232**
40	68	750	9	aR	10	170N **2240**	170L **2240**
50	135	1600	9.5	aR	10	170N **2250**	170L **2250**
63	280	3080	11	aR	10	170N **2263**	170L **2263**
80	600	6600	13.5	aR	10	170N **2280**	170L **2280**
100[1]	1100	12500	16	aR	10	170N **2299**	170L **2299**

(1) Voltage:600 VAC (IEC) / 700 VAC (UL)

Description of accessories	Reference	Reference
Fuse combination switch recommended (see page 142)	FUSERBLOC	FUSERBLOC
Fuse holder recommended (see page 218)	RM 100	RMS 100

690 VAC UR fuses - Size 0000





					DIN 43653 Brackets(1)(2)	F/65 Brackets(1)(3)
I_n rms value (A)	Pre-arcing I^2t when cold (A^2s)	Operating I^2t at 660 V rms (A^2s)	Losses at I_n (W)	Protection	Reference	Reference
10	3.8	25.5	3.5	gR	170M **0158**	170M **0258**
16	8.5	56.5	4.5	gR	170M **0159**	170M **0259**
20	15	105	5	gR	170M **0160**	170M **0260**
25	23.5	160	8	gR	170M **0161**	170M **0261**
32	43.5	290	9	gR	170M **0162**	170M **0262**
40	77.5	515	11	gR	170M **0163**	170M **0263**
50	135	915	12	aR	170M **0164**	170M **0264**
63	260	1 750	13	aR	170M **0165**	170M **0265**
80	485	3 250	17	aR	170M **0166**	170M **0266**
100	860	5 700	18	aR	170M **0167**	170M **0267**

(1) UL / CSA.
(2) Without striker.
(3) With striker.

Description of accessories	Reference	Reference
Fuse base recommended	170 **H 1007**	(1)

(1) Direct mounting on busbar.

690 VAC UR fuses - Size 000







					T/80 Brackets(1)	F/70 Brackets(1)(2)	DIN 43620 Knife-edge(3)
I_n rms value (A)	Pre-arcing I^2t when cold (A^2s)	Operating I^2t at 660 V rms (A^2s)	Losses at I_n (W)	Protection	Reference	Reference	Reference
10	3.8	25.5	3	gR	170M **1408**	170M **1508**	170M **1558**
16	7.2	48	5.5	gR	170M **1409**	170M **1509**	170M **1559**
20	11.5	78	7	gR	170M **1410**	170M **1510**	170M **1560**
25	19	130	9	gR	170M **1411**	170M **1511**	170M **1561**
32	40	270	10	gR	170M **1412**	170M **1512**	170M **1562**
40	69	460	12	gR	170M **1413**	170M **1513**	170M **1563**
50	115	770	15	gR	170M **1414**	170M **1514**	170M **1564**
63	215	1 450	16	gR	170M **1415**	170M **1515**	170M **1565**
80	380	2 550	19	aR	170M **1416**	170M **1516**	170M **1566**
100	695	4 650	24	aR	170M **1417**	170M **1517**	170M **1567**
125	1 200	8 500	28	aR	170M **1418**	170M **1518**	170M **1568**
160	2 300	16 000	32	aR	170M **1419**	170M **1519**	170M **1569**
200	4 200	28 000	37	aR	170M **1420**	170M **1520**	170M **1570**
250	7 750	51 500	42	aR	170M **1421**	170M **1521**	170M **1571**
315	12 000	80 500	52	aR	170M **1422**	170M **1522**	170M **1572**

(1) UL / CSA.
(2) With striker.
(3) UL.

Description of accessories	Reference	Reference	Reference
Fuse blown auxiliary contact	170 **H 0236**		170 **H 0236**
Fuse base recommended	170 **H 1007**	(1)	6500 **1010**(2)
Fuse combination switch recommended (see page 142)			FUSERBLOC

(1) Direct mounting on busbar.
(2) Single-pole base 160 A Size 00 (see page 224).

690 VAC UR fuses - Size 00





					T/80 Brackets	BT/60 Threaded bolted tag
I_n rms value (A)	Pre-arcing I^2t when cold (A^2s)	Operating I^2t at 660 V rms (A^2s)	Losses at I_n (W)	Protection	Reference	Reference
25	19	130	6	gR	170M **2658**	170M **2758**
32	28.5	195	7	gR	170M **2659**	170M **2759**
40	50	360	9	gR	170M **2660**	170M **2760**
50	95	640	10	gR	170M **2661**	170M **2761**
63	170	1 200	12	gR	170M **2662**	170M **2762**
80	310	2 100	15	gR	170M **2663**	170M **2763**
100	620	4 150	20	aR	170M **2664**(1)	170M **2764**
125	1 000	6 950	25	aR	170M **2665**(1)	170M **2765**
160	1 900	13 000	30	aR	170M **2666**(1)	170M **2766**
200	3 400	23 000	35	aR	170M **2667**(1)	170M **2767**
250	6 250	42 000	45	aR	170M **2668**(1)	170M **2768**
315	10 000	68 500	55	aR	170M **2669**(1)	170M **2769**
350	13 500	91 500	60	aR	170M **2670**(1)	170M **2770**
400	18 000	125 000	70	aR	170M **2671**(1)	170M **2771**

(1) UL.

Description of accessories	Reference	Reference
Fuse blown auxiliary contact	170 **H 0235**	170 **H 0235**
Fuse base recommended	170 **H 1007**	(1)

(1) Direct mounting on busbar.

690 VAC UR fuses - size 0



DIN 43620 Knife-edge

I_n rms value (A)	Pre-arcing I^2t when cold (A^2s)	Operating I^2t at 660 V rms (A^2s)	Losses at I_n (W)	Protection	Reference
16	3.8	25.5	5	aR	170M **7908**
20	7.2	48	6	aR	170M **7909**
25	11.5	78	7	aR	170M **7910**
32	23.5	160	8	aR	170M **7911**
40	40	270	9	aR	170M **7912**
50	77	515	11	aR	170M **7913**
63	115	770	14	aR	170M **7914**
80	185	1 250	18	aR	170M **7915**
100	360	2 450	21	aR	170M **7916**
125	550	3 700	26	aR	170M **7917**
160	1 100	7 500	30	aR	170M **7918**
200	2 200	15 000	35	aR	170M **7919**

Description of accessories	Reference
Fuse blown auxiliary contact	170 **H 0236**
Fuse base recommended	6501 **1010**(1)
Fuse combination switch recommended (see page 142)	FUSERBLOC

(1) Single-pole base 160 A Size 0 (see page 224).

690 VAC UR fuses - Size 1*

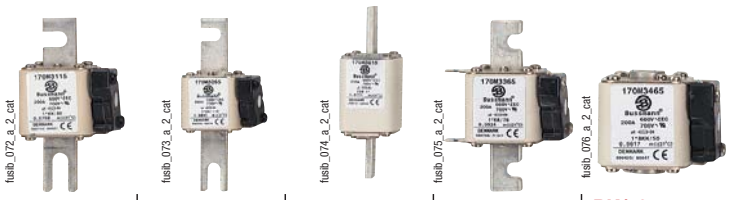
I_n rms value (A)	Pre-arcing I^2t when cold (A^2s)	Operating I^2t at 690 V rms (A^2s)	Losses at I_n (W)	Protection	K/80 Notched Reference	K/110 Notched Reference	EK/76 Notched Reference	BK/50 Threaded bolted tag Reference
40	40	270	9	aR	170M **3108**(1)	170M **3258**(1)	170M **3358**(1)	170M **3458**(1)
50	77	515	11	aR	170M **3109**(1)	170M **3259**(1)	170M **3359**(1)	170M **3459**(1)
63	115	770	14	aR	170M **3110**(1)	170M **3260**(1)	170M **3360**(1)	170M **3460**(1)
80	185	1 250	18	aR	170M **3111**(1)	170M **3261**(1)	170M **3361**(1)	170M **3461**(1)
100	360	2 450	21	aR	170M **3112**(1)	170M **3262**(1)	170M **3362**(1)	170M **3462**(1)
125	550	3 700	26	aR	170M **3113**(1)	170M **3263**(1)	170M **3363**(1)	170M **3463**(1)
160	1 100	7 500	30	aR	170M **3114**(1)	170M **3264**(1)	170M **3364**(1)	170M **3464**(1)
200	2 200	15 000	35	aR	170M **3115**(1)	170M **3265**(1)	170M **3365**(1)	170M **3465**(1)
250	4 200	28 500	40	aR	170M **3116**(1)	170M **3266**(1)	170M **3366**(1)	170M **3466**(1)
315	7 000	46 500	50	aR	170M **3117**(1)	170M **3267**(1)	170M **3367**(1)	170M **3467**(1)
350	10 000	68 500	55	aR	170M **3118**(1)	170M **3268**(1)	170M **3368**(1)	170M **3468**(1)
400	15 000	105 000	60	aR	170M **3119**(1)	170M **3269**(1)	170M **3369**(1)	170M **3469**(1)
450	21 000	140 000	65	aR	170M **3120**(1)	170M **3270**(1)	170M **3370**(1)	170M **3470**(1)
500	27 000	180 000	70	aR	170M **3121**(1)	170M **3271**(1)	170M **3371**(1)	170M **3471**(1)
550	34 000	230 000	75	aR	170M **3122**(1)	170M **3272**(1)		170M **3472**(1)
630	48 500	325 000	80	aR	170M **3123**(1)	170M **3273**(1)		170M **3473**(1)

(1) UL / CSA.

Description of accessories	K/80 Notched Reference	K/110 Notched Reference	EK/76 Notched Reference	BK/50 Threaded bolted tag Reference
Fuse blown auxiliary contact	170H **0069**	170H **0069**	170H **0069**	170H **0069**
Fuse base recommended	170 **H 3004**	170 **H 3006**	Consult us	(2)
Fuse combination switch recommended (see page 142)		FUSERBLOC		

(1) I_{max} = 200 A.
(2) Direct mounting on busbar.

690 VAC UR fuses - Size 1



I_n rms value (A)	Pre-arcing I^2t when cold (A^2s)	Operating I^2t at 660 V rms (A^2s)	Losses at I_n (W)	Protection	K/80 Notched Reference	K/110 Notched Reference	DIN 43620 Knife-edge Reference	EK/86 Notched Reference	BK/50 Threaded bolted tag Reference
40	40	285	4	aR			170M **3808**(1)		
50	78	550	4.5	aR			170M **3809**(1)		
63	120	850	6.5	aR			170M **3810**(1)		
80	185	1 350	8.5	aR			170M **3811**(1)		
100	360	2 600	10	aR			170M **3812**(1)		
125	550	3 900	11	aR			170M **3813**(1)		
160	1 150	8 250	12	aR			170M **3814**(1)		
200	1 650	11 500	45	aR	170M **4108**(2)	170M **4258**(2)		170M **4358**(2)	170M **4458**(2)
200	2 300	16 500	12.5	aR			170M **3815**(1)		
250	3 100	21 000	55	aR	170M **4109**(2)	170M **4259**(2)		170M **4359**(2)	170M **4459**(2)
250	4 350	31 000	16	aR			170M **3816**(1)		
315	6 200	42 000	58	aR	170M **4110**(2)	170M **4260**(2)		170M **4360**(2)	170M **4460**(2)
315	7 300	52 000	20	aR			170M **3817**(1)		
350	10 000	73 000	21.5	aR			170M **3818**(1)		
350	8 500	59 000	60	aR	170M **4111**(2)	170M **4261**(2)		170M **4361**(2)	170M **4461**(2)
400	13 500	91 500	65	aR	170M **4112**(2)	170M **4262**(2)		170M **4362**(2)	170M **4462**(2)
400	16 000	115 000	23	aR			170M **3819**(1)		
450	17 000	120 000	70	aR	170M **4113**(2)	170M **4263**(2)		170M **4363**(2)	170M **4463**(2)
500	25 000	170 000	72	aR	170M **4114**(2)	170M **4264**(2)		170M **4364**(2)	170M **4464**(2)
550	34 000	230 000	75	aR	170M **4115**(2)	170M **4265**(2)		170M **4365**(2)	170M **4465**(2)
630	52 000	350 000	80	aR	170M **4116**(2)	170M **4266**(2)		170M **4366**(2)	170M **4466**(2)
700	69 500	465 000	85	aR	170M **4117**(2)	170M **4267**(2)		170M **4367**(2)	170M **4467**(2)
800	105 000	725 000	95	aR	170M **4118**(2)	170M **4268**(2)		170M **4368**(2)	170M **4468**(2)
900	155 000	850 000	100	aR	170M **4119**(2)	170M **4269**(2)			170M **4469**(2)

(1) UL.
(2) UL / CSA.

Description of accessories	K/80 Notched Reference	K/110 Notched Reference	DIN 43620 Knife-edge Reference	EK/86 Notched Reference	BK/50 Threaded bolted tag Reference
Fuse blown auxiliary contact	170 **H 0069**	170 **H 0069**	170 **H 0236**	170 **H 0069**	170 **H 0069**
Fuse base recommended	170 **H 3004**	170 **H 3006**	6501 **1011**(1)	Consult us	(3)
Fuse combination switch recommended (see page 142)		FUSERBLOC	FUSERBLOC		

(1) Single-pole base 250 A Size 1 (see page 224).
(2) I_{max} = 250 A.
(3) Direct mounting on busbar.

690 VAC UR fuses - Size 2



K/80 Brackets



K/110 Brackets



DIN 43620 Knife-edge



EK/91 Brackets



BK/50 Threaded bolted tag

I_n rms value (A)	Pre-arcing I^2t when cold (A^2s)	Operating I^2t at 660 V rms (A^2s)	Losses at I_n (W)	Protection	Référence	Référence	Référence	Référence	Référence
200	1200	8200	50	aR			170M **5804**(1)		
250	2450	16500	55	aR			170M **5805**(1)		
315	4950	33000	60	aR			170M **5806**(1)		
350	7000	46500	60	aR			170M **5807**(1)		
400	11000	74000	65	aR	170M **5108**(2)	170M **5258**(2)		170M **5358**(2)	170M **5458**(2)
450	15500	105000	70	aR	170M **5109**(2)	170M **5259**(2)		170M **5359**(2)	170M **5459**(2)
500	21500	145000	75	aR	170M **5110**(2)	170M **5260**(2)		170M **5360**(2)	170M **5460**(2)
550	28000	190000	80	aR	170M **5111**(2)	170M **5261**(2)		170M **5361**(2)	170M **5461**(2)
630	41000	275000	90	aR	170M **5112**(2)	170M **5262**(2)		170M **5362**(2)	170M **5462**(2)
700	60500	405000	95	aR	170M **5113**(2)	170M **5263**(2)		170M **5363**(2)	170M **5463**(2)
800	86000	575000	105	aR	170M **5114**(2)	170M **5264**(2)		170M **5364**(2)	170M **5464**(2)
900	125000	840000	110	aR	170M **5115**(2)	170M **5265**(2)		170M **5365**(2)	170M **5465**(2)
1000	180000	1250000	115	aR	170M **5116**(2)	170M **5266**(2)		170M **5366**(2)	170M **5466**(2)
1100	245000	1600000	120	aR	170M **5117**(2)	170M **5267**(2)			170M **5467**(2)
1250	365000	2400000	130	aR	170M **5118**(2)	170M **5268**(2)			170M **5468**(2)
400	11000	79000	65	aR			170M **5808**(1)		
450	16000	115000	70	aR			170M **5809**(1)		
500	21500	155000	75	aR			170M **5810**(1)		
550	29000	215000	80	aR			170M **5811**(1)		
630	41000	295000	90	aR			170M **5812**(1)		
700	60500	430000	95	aR			170M **5813**(1)		

(1) UL
(2) UL / CSA.

Description of accessories	Reference	Reference	Reference	Reference	Reference
Fuse blown auxiliary contact	170 **H 0069**	170 **H 0069**	170 **H 0235**	170 **H 0069**	170 **H 0069**
Fuse base recommended	170 **H 3004**	170 **H 3006**	6501 **1012**(1)	Consult us	(3)
Fuse combination switch recommended (see page 142)		FUSERBLOC	FUSERBLOC		FUSERBLOC

(1) Single-pole base 400 A Size 2 (see page 224).
(2) I_{max} = 400 A.
(3) Direct mounting on busbar.

690 VAC UR fuses - Size 3

K/80 Brackets(1)

K/110 Brackets(1)

DIN 43620 Knife-edge(2)

EK/91 Brackets(1)

BK/50 Threaded bolted tag(1)

I_n rms value (A)	Pre-arcing I^2t when cold (A^2s)	Operating I^2t at 660 V rms (A^2s)	Losses at I_n (W)	Protection	Reference	Reference	Reference	Reference	Reference
500	14 000	95 000	95	aR	170M **6108**	170M **6258**	170M **6808**	170M **6358**	170M **6458**
550	19 500	135 000	100	aR	170M **6109**	170M **6259**	170M **6809**	170M **6359**	170M **6459**
630	31 000	210 000	105	aR	170M **6110**	170M **6260**	170M **6810**	170M **6360**	170M **6460**
700	44 500	300 000	110	aR	170M **6111**	170M **6261**	170M **6811**	170M **6361**	170M **6461**
800	69 500	465 000	115	aR	170M **6112**	170M **6262**	170M **6812**	170M **6362**	170M **6462**
900	100 000	670 000	120	aR	170M **6113**	170M **6263**	170M **6813**	170M **6363**	170M **6463**
1 000	140 000	945 000	125	aR	170M **6114**	170M **6264**	170M **6814**	170M **6364**	170M **6464**
1 100	190 000	1 300 000	130	aR	170M **6115**	170M **6265**		170M **6365**	170M **6465**
1 250	290 000	1 950 000	140	aR	170M **6116**	170M **6266**		170M **6366**	170M **6466**
1 400	370 000	2 450 000	155	aR	170M **6117**	170M **6267**		170M **6367**	170M **6467**
1 500	460 000	3 100 000	160	aR	170M **6118**	170M **6268**		170M **6368**	170M **6468**
1 600	580 000	3 900 000	160	aR	170M **6119**	170M **6269**			170M **6469**
1 800	880 000	5 250 000	165	aR	170M **6120**(3)	170M **6270**(3)			170M **6470**(3)
2 000	1 150 000	6 350 000	175	aR	170M **6121**(4)	170M **6271**(4)			170M **6471**(4)

(1) UL / CSA.
(2) UL.
(3) Nominal output voltage 600 VAC.
(4) Nominal output voltage 550 VAC.

Description of accessories	Reference	Reference	Reference	Reference	Reference
Fuse blown auxiliary contact	170 **H 0069**	170 **H 0069**	170 **H 0236**	170 **H 0069**	170 **H 0069**
Fuse base recommended	170 **H 3004**	170 **H 3006**	6501 **1013**(1)	170A **0632**(2)	(3)
Fuse combination switch recommended (see page 142)		FUSERBLOC	FUSERBLOC		FUSERBLOC

(1) Single-pole base 630 A Size 3 (see page 224).
(2) I_{max} = 710 A.
(3) Direct mounting on busbar.

1250 VAC UR fuses - Size 1*





I_n rms value (A)	Pre-arcing I^2t when cold (A^2s)	Operating I^2t at 1250 V rms (A^2s)	Losses at I_n (W)	Protection	K/110 Brackets[1] Reference	BK/75 Threaded bolted tag[1] Reference	BK/80 Threaded bolted tag[1] Reference
50	135	1 100	15	aR	170M **3238**	170M **3388**	170M **3438**
63	215	1 750	20	aR	170M **3239**	170M **3389**	170M **3439**
80	420	3 350	25	aR	170M **3240**	170M **3390**	170M **3440**
100	750	5 950	30	aR	170M **3241**	170M **3391**	170M **3441**
125	1 450	11 500	35	aR	170M **3242**	170M **3392**	170M **3442**
160	2 600	21 000	40	aR	170M **3243**	170M **3393**	170M **3443**
200	5 150	41 000	45	aR	170M **3244**	170M **3394**	170M **3444**
250	9 200	73 000	55	aR	170M **3245**	170M **3395**	170M **3445**
315	18 500	150 000	60	aR	170M **3246**	170M **3396**	170M **3446**
350	27 000	220 000	65	aR	170M **3247**	170M **3397**	170M **3447**
400	53 000	335 000	70	aR	170M **3248**		170M **3448**

(1) UL.

Description of accessories	Reference	Reference	Reference
Fuse blown auxiliary contact	170 **H 0069**	170 **H 0069**	170 **H 0069**
Fuse base recommended	170 **H 3006**	(1)	(1)

(1) Direct mounting on busbar.

1250 VAC UR fuses - Size 1







I_n rms value (A)	Pre-arcing I^2t when cold (A^2s)	Operating I^2t at 1250 V rms (A^2s)	Losses at I_n (W)	Protection	K/110 Brackets[1] Reference	BK/75 Threaded bolted tag[1] Reference	BK/80 Threaded bolted tag[1] Reference
160	1 900	15 500	45	aR	170M **4238**	170M **4388**	170M **4438**
200	3 800	30 000	50	aR	170M **4239**	170M **4389**	170M **4439**
250	7 750	61 500	60	aR	170M **4240**	170M **4390**	170M **4440**
315	15 000	120 000	65	aR	170M **4241**	170M **4391**	170M **4441**
350	20 000	165 000	70	aR	170M **4242**	170M **4392**	170M **4442**
400	29 500	235 000	75	aR	170M **4243**	170M **4393**	170M **4443**
450	42 000	335 000	80	aR	170M **4244**	170M **4394**	170M **4444**
500	69 500	435 000	85	aR	170M **4245**	170M **4395**[2]	170M **4445**
550	95 000	590 000	95	aR	170M **4246**	170M **4396**[3]	170M **4446**
630	130 000	600 000[4]	100	aR	170M **4247**[2]	170M **4397**[3]	170M **4447**[2]

(1) UL.
(2) Nominal output voltage 1100 VAC.
(3) Nominal output voltage 1000 VAC.
(4) Operating I^2t at 1000 V rms (A^2s).

Description of accessories	Reference	Reference	Reference
Fuse blown auxiliary contact	170 **H 0069**	170 **H 0069**	170 **H 0069**
Fuse base recommended	170 **H 3006**	(1)	(1)

(1) Direct mounting on busbar.

1250 VAC UR fuses - Size 2





I_n rms value (A)	Pre-arcing I^2t when cold (A^2s)	Operating I^2t at 1250 V rms (A^2s)	Losses at I_n (W)	Protection	K/110 Brackets[1] Reference	BK/75 Threaded bolted tag[1] Reference	BK/80 Threaded bolted tag[1] Reference
250	6 500	51 500	65	aR	170M **5238**	170M **5388**	170M **5438**
280	9 350	74 500	70	aR	170M **5239**	170M **5389**	170M **5439**
315	13 000	105 000	75	aR	170M **5240**	170M **5390**	170M **5440**
350	16 500	135 000	80	aR	170M **5241**	170M **5391**	170M **5441**
400	23 000	180 000	85	aR	170M **5242**	170M **5392**	170M **5442**
450	34 000	270 000	90	aR	170M **5243**	170M **5393**	170M **5443**
500	48 000	380 000	95	aR	170M **5244**	170M **5394**	170M **5444**
550	62 000	495 000	100	aR	170M **5245**	170M **5395**	170M **5445**
630	115 000	730 000	110	aR	170M **5246**	170M **5396**[2]	170M **5446**
700	160 000	1 050 000	115	aR	170M **5247**	170M **5397**[3]	170M **5447**[2]
800	245 000	1 550 000	120	aR	170M **5248**	170M **5398**[3]	170M **5448**[3]
900	360 000	1 750 000	125	aR	170M **5249**[2]		
1 000	480 000	2 350 000	135	aR	170M **5250**[2]		

(1) UL.
(2) Nominal output voltage 1100 VAC.
(3) Nominal output voltage 1000 VAC.

Description of accessories	Reference	Reference	Reference
Fuse blown auxiliary contact	170 **H 0069**	170 **H 0069**	170 **H 0069**
Fuse base recommended	170 **H 3006**	(1)	(1)

(1) Direct mounting on busbar.

1250 VAC UR fuses - Size 3







I_n rms value (A)	Pre-arcing I^2t when cold (A^2s)	Operating I^2t at 1250 V rms (A^2s)	Losses at I_n (W)	Protection	K/110 Brackets[1] Reference	BK/75 Threaded bolted tag[1] Reference	BK/80 Threaded bolted tag[1] Reference
315	9 500	77 500	85	aR	170M **6238**	170M **6338**	170M **6538**
350	13 500	110 000	90	aR	170M **6239**	170M **6339**	170M **6539**
400	19 500	160 000	95	aR	170M **6240**	170M **6340**	170M **6540**
450	31 000	245 000	100	aR	170M **6241**	170M **6341**	170M **6541**
500	39 000	310 000	105	aR	170M **6242**	170M **6342**	170M **6542**
550	55 000	435 000	110	aR	170M **6243**	170M **6343**	170M **6543**
630	83 500	665 000	115	aR	170M **6244**	170M **6344**	170M **6544**
700	115 000	940 000	120	aR	170M **6245**	170M **6345**	170M **6545**
800	205 000	1 300 000	125	aR	170M **6246**	170M **6346**[2]	170M **6546**
900	305 000	1 900 000	130	aR	170M **6247**	170M **6347**[3]	170M **6547**[2]
1 000	450 000	2 750 000	135	aR	170M **6248**	170M **6348**[3]	170M **6548**[2]
1 100	575 000	3 600 000	140	aR	170M **6249**	170M **6349**[3]	170M **6549**[3]
1 250	810 000	3 950 000[4]	145	aR	170M **6250**[2]		
1 400	1 250 000	6 000 000[4]	150	aR	170M **6251**[2]		

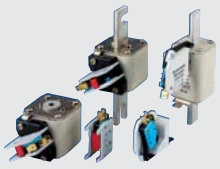
(1) UL.
(2) Nominal output voltage 1100 VAC.
(3) Nominal output voltage 1000 VAC.
(4) Operating I^2t at 1000 V rms (A^2s).

Description of accessories	Reference	Reference	Reference
Fuse blown auxiliary contact	170 **H 0069**	170 **H 0069**	170 **H 0069**
Fuse base recommended	170 **H 3006**	(1)	(1)

(1) Direct mounting on busbar.

➲ High speed fuses (UR) - Accessories

Fuse blown auxiliary contact



fusib_051_a_1_cat

Connection
6.3 x 0.8 mm fast-on connection.

Electronics principle
A NO/NC auxiliary contacts detects that the fuse has blown.

References: see pages 248 to 253.

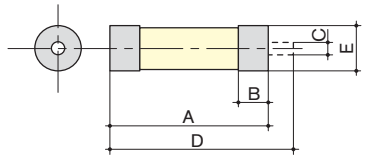
Electrical characteristics

Voltage (VAC)	Nominal current (A)
250	2

➲ Dimensions

690 VAC UR fuses

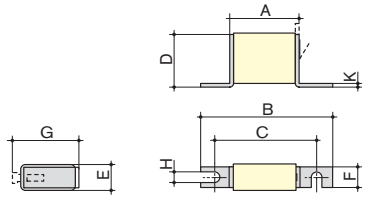
14 x 51 and 22 x 58



fusib_016_b_1_x_cat

Size	A	B	C	D	E
14 x 51	51	11	4	59	Ø 14.3
22 x 58	58	15	4	66	Ø 22.2

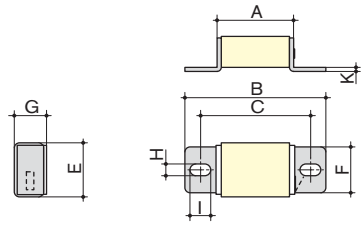
DIN 43653 and T/80



fusib_020_b_1_x_cat

Size	A	B	C	D	E	F	G	H	K
0000	54	100	78	19	18	17		8	1.5
000	54	100	78	40	21	20	51	8	2
00	54	100	78	51	30	28	67	10	2

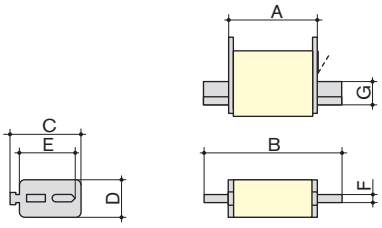
F/65 and F/70



fusib_021_b_1_x_cat

Size	A	B	C	E	F	G	H	I	K
0000	54	78	65	18	13	19	7	10	1.5
00	54	95	70	36	32	23	9	10	2

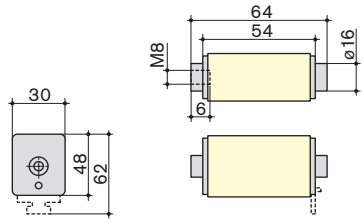
DIN 43620



fusib_022_c_1_x_cat

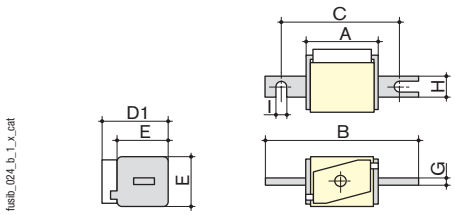
Size	A	B	C	D	E	F	G
000	54	79	48	21	35	6	15
0	68	125	60	35	35	6	15
1*	71	135	58	45	40	6	20
2	72	150	71	55	48	6	26
3	72	150	88	76	60	6	33

BT/60



fusib_023_b_1_x_cat

K/80 and K/110



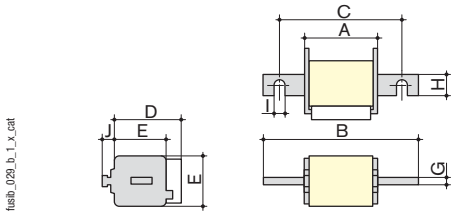
K/80

Size	A	B	C	D1	E	G	H	I
1*	50	104	78	59	45	6	22	11
1	50	108	78	69	53	6	25	11
2	50	108	78	77	61	6	25	11
3	51	109	78	92	76	6	30	11

K/110

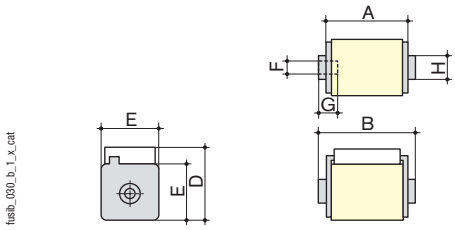
Size	A	B	C	D1	E	G	H	I
1*	50	134	108	59	45	6	22	11
1	50	138	108	69	53	6	25	11
2	50	138	108	77	61	6	25	11
3	51	139	108	92	76	6	30	11

EK/76 - EK/86 - EK/91



Size	A	B	C	D	E	G	H	I	J
1*	50	102	76	59	45	6	18	9	13
1	50	111	86	69	53	6	25	11	11
2	50	126	91	77	61	6	30	13	12
3	51	126	91	92	76	6	36	13	13

BK/50

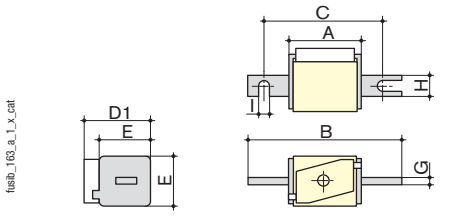


Size	A	B	D	E	F	G	H
1*	50	51	59	45	M8	5	Ø 17
1	50	51	59	53	M8	8	Ø 20
2	50	51[1]	77	61	M10	10	Ø 24
3	51	53[2]	92	76	M12	10	Ø 30

(1) B = 65 mm for ratings 1 100 to 1 250 A.
(2) B = 65 mm for ratings 1 600 to 2 000 A.

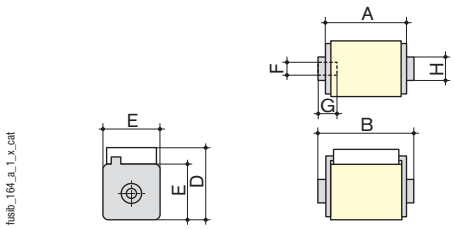
1250 VAC UR fuses

K/110



Size	A	B	C	D1	E	G	H	I
1*	80	138	108	59	45	6	20	11
1	80	138	108	69	53	6	25	11
2	80	138	108	77	61	6	25	11
3	81	139	108	92	76	6	30	11

K/75 and K/80



BK/75

Size	A	B	D	E	F	G	H
1*	74	75	59	45	M8	5	Ø 17
1	74	75	69	53	M8	8	Ø 20
2	74	75	77	61	M10	10	Ø 24
3	74	76	92	76	M12	10	Ø 30

BK/80

Size	A	B	D	E	F	G	H
1*	80	81	59	45	M8	5	Ø 17
1	80	81	69	53	M8	8	Ø 20
2	80	81	77	61	M10	10	Ø 24
3	81	83	92	76	M12	10	Ø 30

PV Fuses



PV fuses 10 x 38 gR 1000 V d.c. for photovoltaic applications

➲ Function

SOCOMEC **PV fuses** protect the installation against the inverse over-currents which could occur in the photovoltaic installation.

➲ Advantages

Performance
- High breaking capacity at 1000 V d.c.
- The working range adjusted for small over-currents specific to PV installations.
- Simple, reliable discrimination.

Reliability
- Fuses are simple and totally sealed products which guarantee a long-term protection without any maintenance.

Safety
- The energy released during a short-circuit is contained within the sealed fuse cartridge.

➲ Conformity to standards

- IEC 60269-1
- IEC 60269-2
- IEC 60269-6
- NF EN 60269-1
- VDE 0636-10

➲ Approvals and certifications(1)

(1) Please consult us.


mannie_490_a

➲ What you need to know

Used Characteristics

- I_{SC} : short circuit current of the PV string
- $I_{SC\ MAX}$: short circuit current of the PV string related to maximum sunlight density
- I_{RM} : maximum admitted reverse current
- I_n : fuse rating or fuse rated current (at 25°C in a RM disconnect switch)
- N_c : number of PV strings in parallel connection
- U_e : maximum fuse rated voltage
- $U_{OC\ MAX}$: maximum open circuit voltage in the lowest temperature conditions

When to protect

A PV string requires an over current protection when its own maximum admissible reverse current characteristic (Irm) is less than the current generated by the rest of the installation (current generated by the “Nc-1” other strings).
The protection is obligatory if $N_c \leq 1+ (I_{RM} / I_{SC})$

How to protect

The overload protection is to be applied at each of the two polarities, regardless of whether the d.c. installation is earthed or not.

➲ How to choose the fuse protection

Voltage

$U_e > U_{OC\ MAX}$

In the absence of complementary information use $U_{OC\ MAX} = 1.4\ U_{OC}$.

Fuse rating determination

Determination of the Fuse Rated Current consists of choosing a protection capable of:

- supporting without fusing the normal overload current during the periods of maximum sunlight density at the ambient temperature of the enclosure in which the fuse is installed

  $I_n > I_{SC\ MAX}$

  In the absence of complementary information use $I_{SC\ MAX} = 1.4\ I_{SC}$

- melting and reliably clearing the fault before the PV modules are damaged by the reverse current

  $I_n < I_{RM}$

➲ References

PV 1000 V d.c. fuses - Size 10 x 38 mm

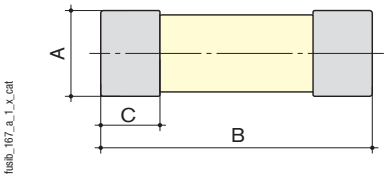


PV Fuses (Pack of 10)

Rated current I (A)	Rated voltage U (V d.c.)	Dissipated power at In (W)	at 0.8 I_n (W)	Breaking capacity	I^2t prearc (A^2s)	I^2t at 1000 V d.c.	To be ordered	Reference
1	1000	0.76	0.43	30 kA	0.35	1.3	10	60PV **0001**
2	1000	1.54	0.84	30 kA	1.78	6.5	10	60PV **0002**
3	1000	1.35	0.74	30 kA	9	33	10	60PV **0003**
4	1000	1.84	1.08	30 kA	3	11	10	60PV **0004**
6	1000	2.50	1.40	30 kA	8.5	32	10	60PV **0006**
8	1000	2.57	1.47	30 kA	25	93	10	60PV **0008**
10	1000	2.58	1.51	30 kA	11	52	10	60PV **0010**
12	1000	2.61	1.42	30 kA	25	116	10	60PV **0012**
15	1000	2.44	1.08	30 kA	25	116	10	60PV **0015**
16	1000	2.70	1.56	30 kA	33	152	10	60PV **0016**
20	1000	2.99	1.75	30 kA	85	390	10	60PV **0020**

➲ Standard dimensions (mm) as per IEC 60269-2

10 x 38 mm gPV
without striker



Size	Striker	A	B	C
10 x 38	Without	10.3	38	10.5

Ambient temperature derating factor

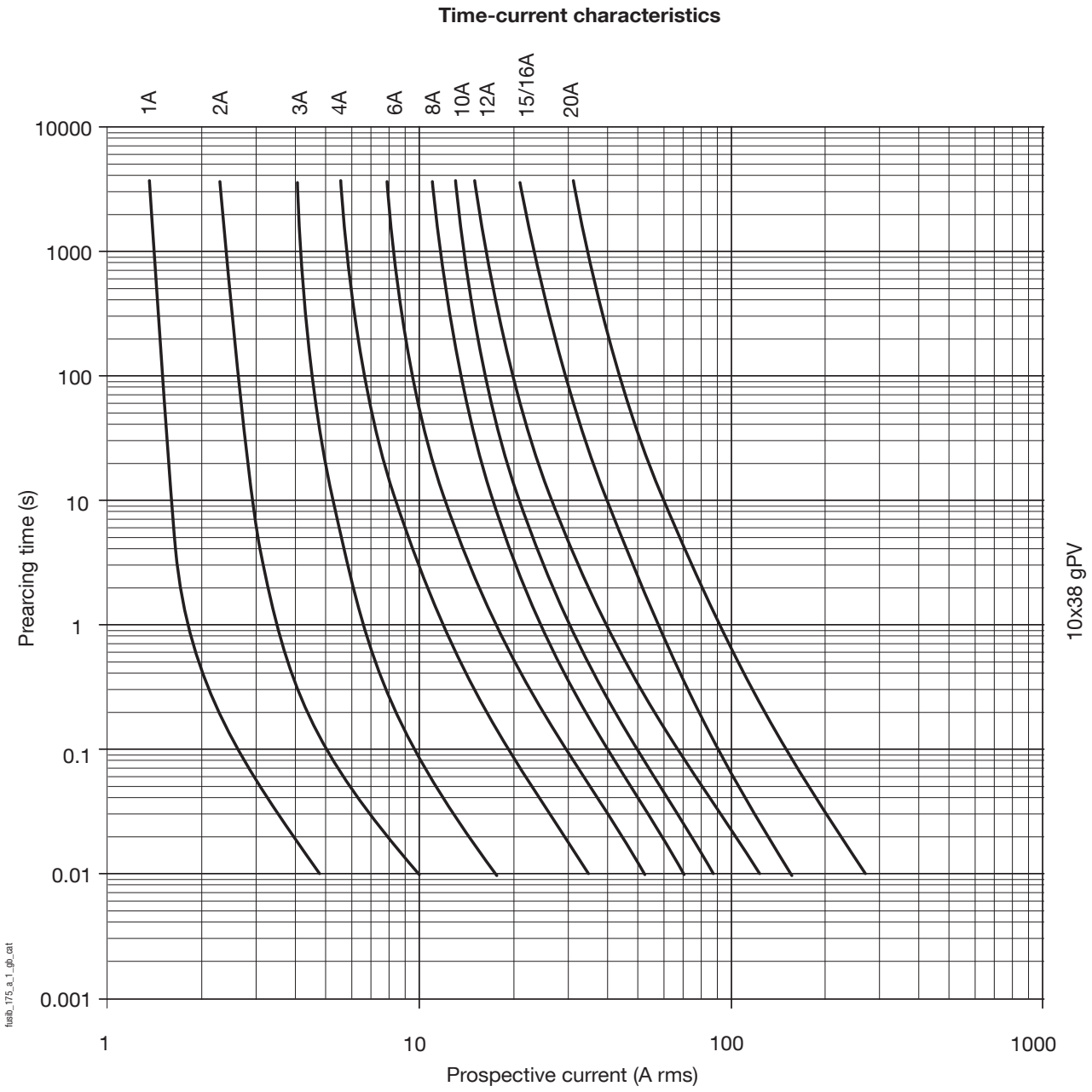
$$I_{nf} = I_{scgen}/K_t$$

I_{nf} - PV fuse rated current.
I_{scgen} - PV generator short circuit current under STC.
K_t - derating factor.

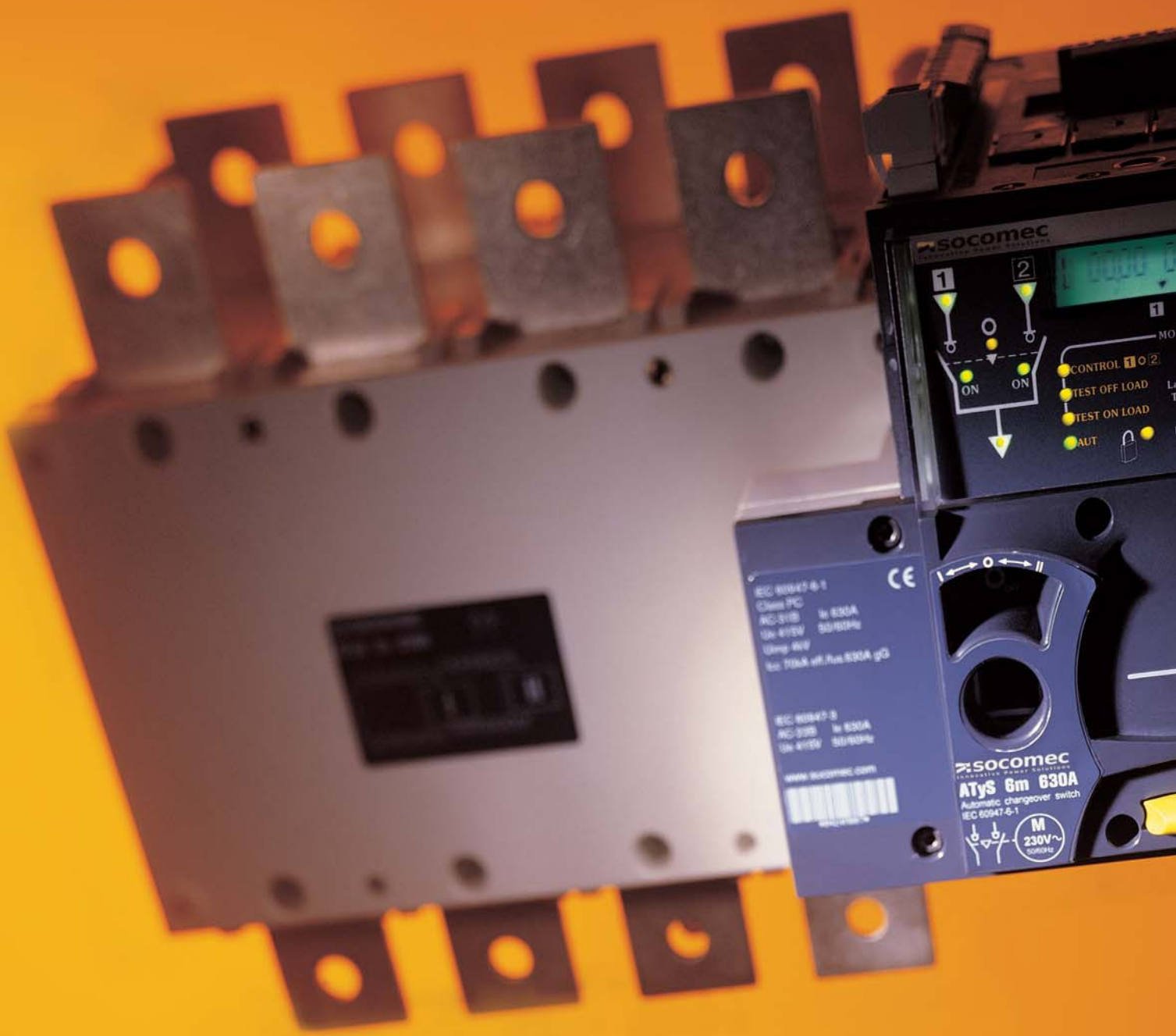
Max ambient temperature (°C)	K_t derating factor
40	0.92
45	0.90
50	0.87
55	0.85
60	0.82
65	0.79
70	0.76
75	0.72
80	0.69

➲ Time/current operation characteristics for PV fuses

PV 10 x 38 mm



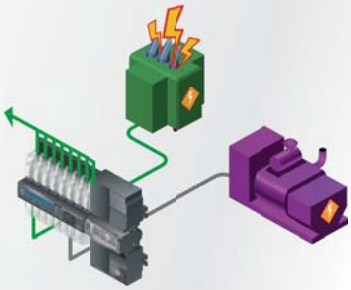
Changeover switches



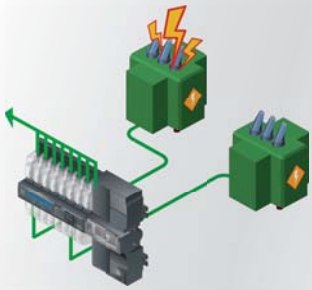
Switches, controller and monitoring software

Providing an unrivalled benchmark in source switching, SOCOMEC is continuously innovating to ensure ever more efficient ways to guarantee the continuity of distribution and, therefore, the rate of availability of your energy.

From the 'small' COMO C manual changeover switch to the ATyS 6 automatic changeover switch, the range of switches covers, as standard, a large proportion of needs.



ATyS M changeover switch for Normal/Backup use with a generating set



ATyS M changeover switch for Normal/Backup use with two networks

All these switches are also available enclosed.
Discover all of our products in our selection guide on the next pages.

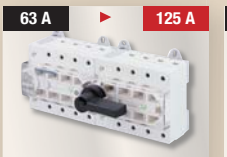
The experience we have gained from different projects has led us to develop numerous special products (make before break contact or mixed pole motorised changeover switches, etc). Please do not hesitate to contact us for more details.
Trust the experts with all your applications - even the most critical!



The essential

Manual changeover

63 A ▸ 125 A



SIRCO VM1
p. 270

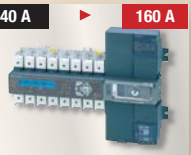
125 A ▸ 3200 A



SIRCOVER
p. 274

Motorised changeover / Automatic Transfer Switches (ATS)

40 A ▸ 160 A



ATyS M 6
p. 302

125 A ▸ 3200 A



ATyS 3
p. 310

Enclosed changeover switches

63 A ▸ 3200 A



p. 496

New

40 A ▸ 160 A



ATyS M mono
p. 302

40 A ▸ 160 A



Assembled SIRCO M changeover *p. 268*



➲ **Discover our complete selection guide** *(see next page)*

➲ **Need a suggestion?**
We will help you find the best solution for your application.

➲ **A special requirement?**
SOCOMEC makes specific products. Please feel free to consult us.

Choosing the right changeover switch



SOCOMEC changeover switches can be used not just for Normal/Backup operation, but also for managing the switching of loads or the connection of equipment to earth.

In addition to the rating and the related electrical breaking specifications, the selection criteria are:

- type of control,
- visible breaking,
- installation constraints inside the enclosure.

Please do not hesitate to contact us for suggestions or any specific requirement: We adapt our products to your specific requirements.

➲ Products for all switching applications from 25 A to 3200 A

• Applications with 2 interlocked switches

Source transfer: manual or automatic switching (ATS) between two sources, either transformer or generating set *(fig. 1)*.

Earthing of equipment such as motors or electrical lines reserved for signalling, whilst isolating them from their power supply in a fail-safe way *(fig. 2)*.

Inversion of loads: switching of the power supply from one load to another load in order to ensure that they both age at an equal rate *(fig. 3)*.

Inversion of phases on motors: inversion of the succession of phases supplying a motor in order to modify the direction of rotation *(fig. 4)*.

• Application with 3 interlocked switches

UPS 'BY-PASS': isolation then bypassing of a secure UPS type power supply using 3 interlocked breaker switches assembled very close together *(fig. 5)*.

• Application with 4 interlocked switches

Solution 'ATS BY-PASS': upstream and downstream disconnection of an ATS function (automatic switching) while guaranteeing the continuity of the distribution via a 'BY-PASS' branch. Carried out using a single operating handle, this operation allows the ATS function to be separated for maintenance, in complete safety.

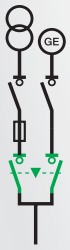


Fig.1



Fig. 2



Fig. 3



Fig. 4

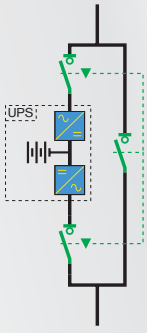


Fig. 5

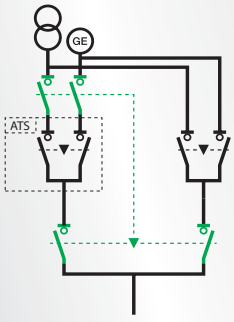


Fig. 6

Linked to a switching function, the bypass branch means it is still possible to select the sources in the event of a failure of one of them *(fig. 6)*.

Selection guide

Need an enclosed switch?

See our complete range in the section on "Built-in products"

Manual Changeover

Manually controlled multipolar switches



COMO C
p. 264



SIRCO VM1
p. 270



SIRCOVER
p. 274



SIRCOVER enclosure p. 498

BY-PASS switches for better maintenance of the installation



SIRCOVER BY-PASS
p. 274



ATS BY-PASS
p. 290



ATS By-Pass solution
p. 506

Motorised Changeover

Modular frame



ATyS M 3
p. 302



ATyS M 6e
p. 302



ATyS M enclosure
p. 501

Back to back frame



ATyS 3s
p. 310



ATyS 6
p. 310



ATyS enclosure
p. 503

N.B.: Automatic changeover switches designed especially in accordance with IEC 60947-6 will exclusively comply with the switching of sources on security installations as defined by NFC 15100 § 5-56 standard (emergency lighting, smoke control, high-rise buildings, etc.)

UL range



SIRCOVER UL
p. 294

Universal ATS controller

Automatic control of different switching technologies: circuit breakers, contactors, switches.



ATyS C30 / C40
p. 326

Monitoring software

ATyS VISION displays the parameters for the ATyS changeover switches and allows them to be remotely configured.



ATyS VISION
please consult us



Machine Changeover 25 to 100A

➲ Function

COMO C are manual multipolar changeover switches.
They provide changeover, source inversion or switching under load between two low voltage power circuits, as well as their safety isolation.

➲ General characteristics

- Fully visualised breaking.
- Fully integrated bridging bars.

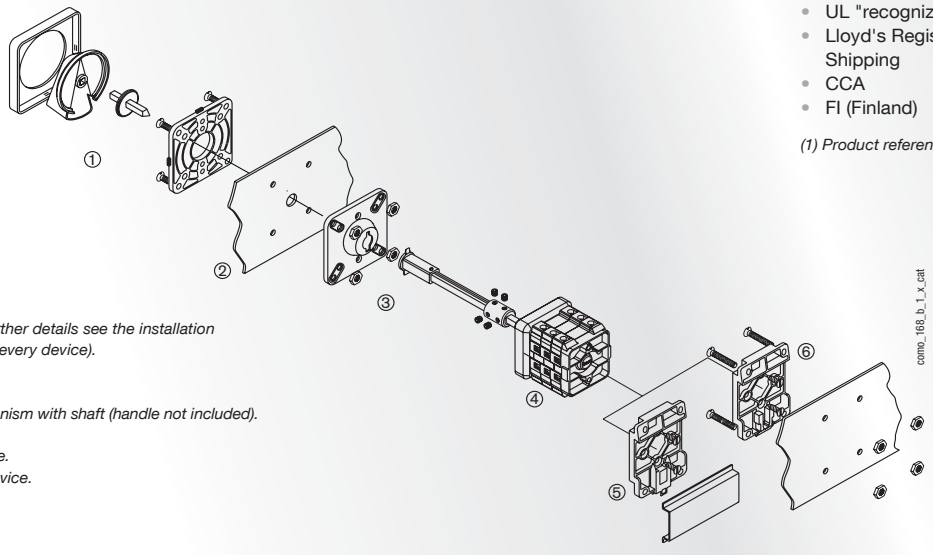
➲ Conformity to standards

- IEC 60947-3
- IS 14947-3
- EN 60947-3
- VDE 0660-107 (1992)

➲ Approvals and certifications(1)

- BBJ Poland (Attestaion of verification)
- UL "recognized"
- Lloyd's Register of Shipping
- CCA
- FI (Finland)

(1) Product reference on request.



Functional diagram (for further details see the installation instructions supplied with every device).
1. IP54 handle.
2. Enclosure door.
3. Door interlocking mechanism with shaft (handle not included).
4. Switch body.
5. DIN rail mounting device.
6. Back plate mounting device.

References


como_106_a_1_cat

Rating (A)	No. of poles	Switching type	Switch body	Padlockable handle IP54	IP54 non-padlockable white handle	Shaft and escutcheon for external handle	Mounting kit	IP65 gasket
25 A	3 P	I - II	4220 **3002**(1)	Black/Grey 4259 **1042** Red/Yellow 4259 **1043**	I - II 4259 **2022** I - 0 - II and BY-PASS 4259 **3022** I - I+II - II 4259 **4022**	200 mm 4259 **5042**	DIN rail mounted 4259 **9001** Board mounted 4259 **9040**	4299 **5001**(2)
	4 P	I - II	4220 **4002**(1)					
	3 P	I - 0 - II	4230 **3002**(1)					
	4 P	I - 0 - II	4230 **4002**(1)					
	3 P	I - I+II - II	4240 **3002**(1)					
	4 P	I - I+II - II	4240 **4002**(1)					
	3 + 6 P	BY-PASS I - 0 - II	4250 **3002**					
	4 + 8 P	BY-PASS I - 0 - II	4250 **4002**					
40 A	3 P	I - II	4220 **3004**(1)		I - II 4259 **2042** I - 0 - II and BY-PASS 4259 **3042** I - I+II - II 4259 **4042**			
	4 P	I - II	4220 **4004**(1)					
	3 P	I - 0 - II	4230 **3004**(1)					
	4 P	I - 0 - II	4230 **4004**(1)					
	3 P	I - I+II - II	4240 **3004**(1)					
	4 P	I - I+II - II	4240 **4004**(1)					
	3 + 6 P	BY-PASS I - 0 - II	4250 **3004**					
	4 + 8 P	BY-PASS I - 0 - II	4250 **4004**					
63 A	3 P	I - II	4220 **3006**(1)	Black/Grey 4259 **1082** Red/Yellow 4259 **1083**	I - II 4259 **2082** I - 0 - II and BY-PASS 4259 **3082** I - I+II - II 4259 **4082**	200 mm 4259 **5082**	DIN rail mounted 4259 **9001** Board mounted 4259 **9080**	4299 **5002**(2)
	4 P	I - II	4220 **4006**(1)					
	3 P	I - 0 - II	4230 **3006**(1)					
	4 P	I - 0 - II	4230 **4006**(1)					
	3 P	I - I+II - II	4240 **3006**(1)					
	4 P	I - I+II - II	4240 **4006**(1)					
	3 + 6 P	BY-PASS I - 0 - II	4250 **3006**					
	4 + 8 P	BY-PASS I - 0 - II	4250 **4006**					
80 A	3 P	I - II	4220 **3008**(1)					
	4 P	I - II	4220 **4008**(1)					
	3 P	I - 0 - II	4230 **3008**(1)					
	4 P	I - 0 - II	4230 **4008**(1)					
	3 P	I - I+II - II	4240 **3008**(1)					
	4 P	I - I+II - II	4240 **4008**(1)					
	3 + 6 P	BY-PASS I - 0 - II	4250 **3008**					
	4 + 8 P	BY-PASS I - 0 - II	4250 **4008**					
100 A	3 P	I - II	4220 **3010**					
	4 P	I - II	4220 **4010**					
	3 P	I - 0 - II	4230 **3010**					
	4 P	I - 0 - II	4230 **4010**					
	3 P	I - I+II - II	4240 **3010**					
	4 P	I - I+II - II	4240 **4010**					
	3 + 6 P	BY-PASS I - 0 - II	4250 **3010**					
	4 + 8 P	BY-PASS I - 0 - II	4250 **4010**					

(1) Available enclosed (see pages 496 "Enclosed changeover switches").
(2) IP65: Degree of protection according to standard IEC 60529.

➲ COMO C - Accessories

IP54 handle





Padlockable handle

Rating (A)	Handle color	Reference
25 … 40	Black/Grey	4259 **1042**
25 … 40	Red/Yellow	4259 **1043**
63 … 100	Black/Grey	4259 **1082**
63 … 100	Red/Yellow	4259 **1083**

Non-padlockable handle

Rating (A)	Switching type	Reference
25	I - II	4259 **2022**
25	I - 0 - II and BY-PASS	4259 **3022**
25	I - I+II - II	4259 **4022**
40	I - II	4259 **2042**
40	I - 0 - II and BY-PASS	4259 **3042**
40	I - I+II - II	4259 **4042**
63 … 100	I - II	4259 **2082**
63 … 100	I - 0 - II and BY-PASS	4259 **3082**
63 … 100	I - I+II - II	4259 **4082**

Shaft and escutcheon for external handle



Use
Standard lengths: 200 mm.
Other lengths: Consult us.

Rating (A)	Length (mm)	Reference
25 … 40	200 mm	4259 **5042**
63 … 100	200 mm	4259 **5082**

➲ Characteristics according to IEC 60947-3

25 to 100 A

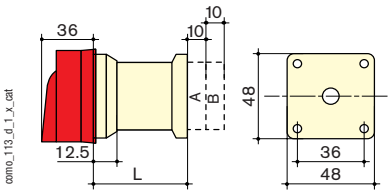
Thermal current I_{th} (40°C)		**25 A**	**40 A**	**63 A**	**80 A**	**100 A**
Rated insulation voltage U_i (V)		660	660	660	660	660
Rated impulse withstand voltage U_{imp} (kV)		4	4	4	4	4
Rated operational currents I_e (A)						
Rated voltage	Load duty category	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)
400 VAC	AC-21 A	25/25	40/40	63/63	80/80	100/100
400 VAC	AC-22 A	25/25	40/40	63/63	80/80	100/100
400 VAC	AC-23 A	20/20	32/32	63/63	63/63	63/63
Operational power in AC-23 (kW)						
At 400 VAC without Pre-break AC(1)(2)		9/9	15/15	22/22	30/30	32/32
Reactive power (kvar)						
At 400 VAC (2)		14	18	28	37	
Fuse protected short-circuit withstand (kA rms prospective)						
Prospective short-circuit current (kA rms)(3)		6	6	8	8	8
Associated fuse rating (A) (3)		25	40	63	80	100
Overload capacity						
Short-circuit making capacity (kA peak)(3)		2	2,6	5,8	5,8	6,5
Connection						
Minimum Cu cable section (mm^2)		2,5	6	10	16	16
Maximum Cu cable section (mm^2)		6	16	50	50	50
Tightening torque min (Nm)		2	2	4	4	4
Mechanical characteristics						
Endurance (number of operating cycles)(4)		100 000	100 000	100 000	100 000	100 000
Weight of 3 P switch (kg)		0.25	0.3	0.55	0.63	0.63
Weight of 4 P switch (kg)		0.31	0.4	0.7	0.8	0.8

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) The power value is given for information only, the current values vary from one manufacturer to another.
(3) For a rated operational voltage U_e = 400 VAC.
(4) Increased endurances: please consult us.

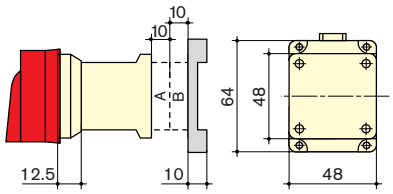
Dimensions

COMO C 25 A

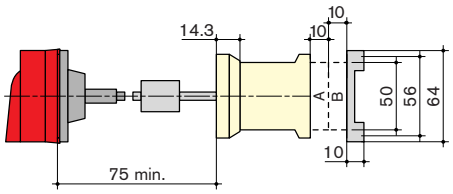
Direct operation front mounting



Direct operation rear mounting



Door interlocked external operation rear mounting

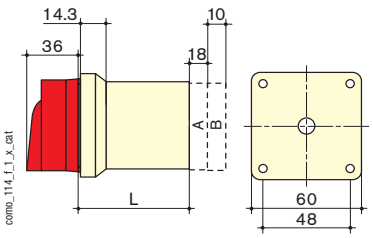


A. 1st auxiliary contact
B. 2nd auxiliary contact

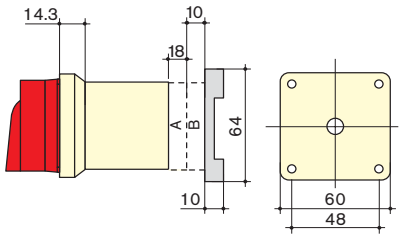
Switching type	L 3p.	L 4p.
I - II	50.5	60.5
I - 0 - II	50.5	60.5
I - I+II - II	50.5	60.5
BY-PASS I - 0 - II	70.5	80.5

COMO C 40 A

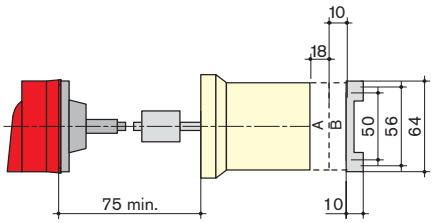
Direct operation front mounting



Direct operation rear mounting



Door interlocked external operation rear mounting

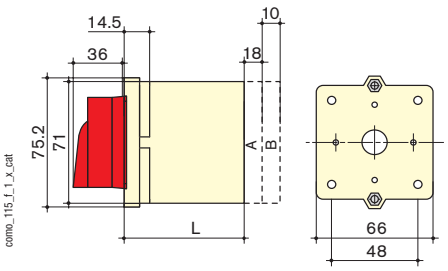


A. 1st auxiliary contact
B. 2nd auxiliary contact

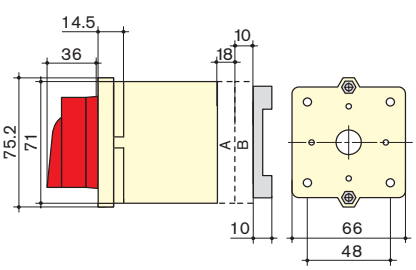
Switching type	L 3p.	L 4p.
I - II	60.3	72.3
I - 0 - II	60.3	72.3
I - I+II - II	60.3	72.3
BY-PASS I - 0 - II	84.3	96.3

COMO C 63 to 100 A

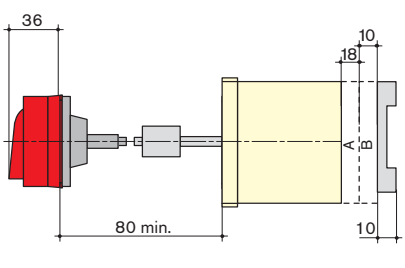
Direct operation front mounting



Direct operation rear mounting



Door interlocked external operation rear mounting



A. 1st auxiliary contact
B. 2nd auxiliary contact

Switching type	L 3p.	L 4p.
I - II	82	99.5
I - 0 - II	82	99.5
I - I+II - II	82	99.5
BY-PASS I - 0 - II	117	134.5

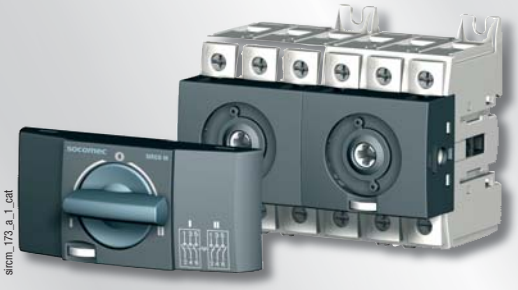
Changeover Switches
SIRCO M



What you need to know

- The changeover switches SIRCO M can be equipped with 2 operating handles:
  - front direct handle
  - front external handle.

- Changeover SIRCO M is available in 3 and 4 poles, from 25 to 100 A, with pre-break or signalisation auxiliary contacts (accessories).



Changeover switches from 25 to 100 A

Function

SIRCO M Changeover Switches are 3 or 4 pole manually operated modular changeover switches.
They provide changeover, source inversion or switching under load between two low voltage power circuits, as well as their safety isolation.

General characteristics

- Fully visualised breaking.
- DIN rail mounting, panel or modular panel with 45 mm front cut out.
- IP20 accessories.
- Overlapping Changeover I-I+II-II available, see page 18.

Conformity to standards

- IEC 60947-3
- EN 60947-3

References

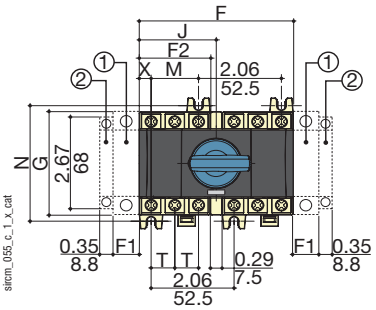
Rating (A)	No. of poles	Switch body	Direct handle	External front handle	Shaft extensions for external handle	Auxiliary contacts	Terminal shrouds	Bridging kit
25 A	3 P	2230 **3002**	Blue 2239 **5012**	S00-type I - 0 - II Black IP65 1473 **1113**(1)	150 mm 1407 **0515**	M1 type 1 contact NO + NC 2299 **0001**	1 P 2294 **1005**(2)	3 P 2299 **3005**
	4 P	2230 **4002**						
40 A	3 P	2230 **3004**					3 P 2294 **3005**(2)	4 P 2299 **4005**
	4 P	2230 **4004**						
63 A	3 P	2230 **3006**		S00-type I - 0 - II Black IP55 1471 **1113**(1)	200 mm 1407 **0520**	M1 type 1 contact 2 NC 2299 **0011**	1 P 2294 **1009**(2)	3 P 2299 **3009**
	4 P	2230 **4006**						
80 A	3 P	2230 **3008**			320 mm 1407 **0532**		3 P 2294 **3009**(2)	4 P 2299 **4009**
	4 P	2230 **4008**						
100 A	3 P	2230 **3009**						
	4 P	2230 **4009**						

(1) Defeatable handle.
(2) Set of top and bottom.

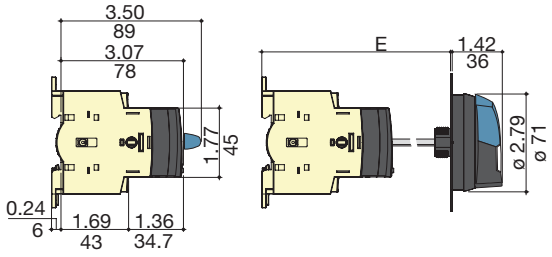
Dimensions

SIRCO M 25 to 100 A

Direct front operation 3/4-pole changeover switches



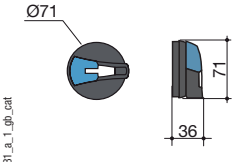
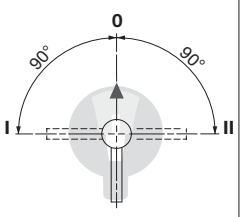
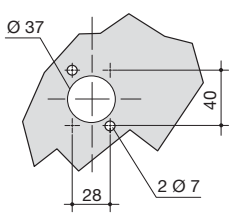
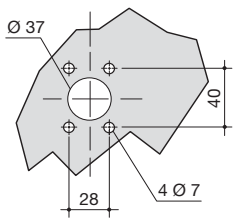
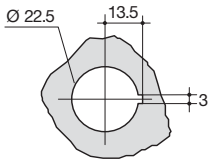
External front operation for 3 and 4-pole changeover switches



1. Location for: 1 switched fourth pole module (1 on each side max.) or 1 unswitched neutral pole or 1 protective earth module or 1 auxiliary contact (See accessories, page 21).
2. Position for 1 auxiliary contact only.
Note: max 4 additional blocks.

	Overall dimensions		Switch body					Switch mounting		Connection	
Rating (A)	E min	E max	F	F1	F2	G	J	M	N	T	X
25	105	372	97.5	15	45	68	48.75	30	75	15	7.5
40	105	372	97.5	15	45	68	48.75	30	75	15	7.5
63…100	105	372	105	17.5	52.5	76	52.5	35	85	17.5	8.75

Dimensions for external handles

Handle type	Front operation Direction of operation	Door drilling		
S00 type		IP55 with 2 fixing clips	IP65 with 4 fixing screws	With fixing nut
				

Accessories

See "SIRCO M switches", page 21 to 25.

Characteristics according to IEC 60947-3

See "SIRCO M switches", page 26.

Changeover switches

SIRCO VM1



Visible breaking changeover switches from 63 to 125 A

➲ Function

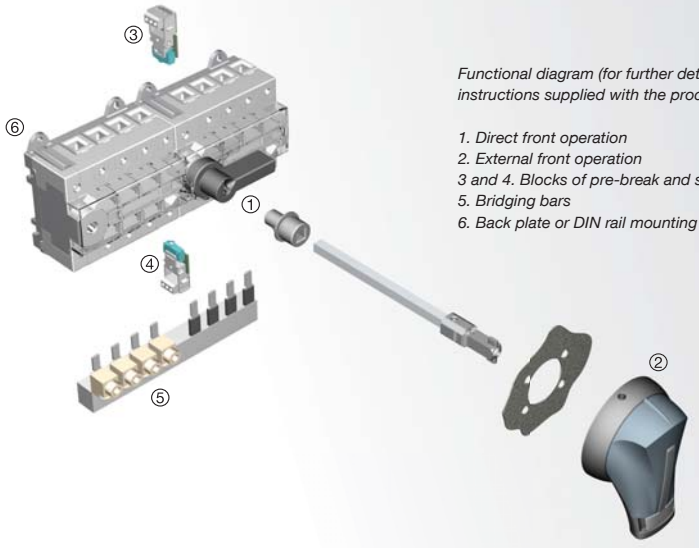
SIRCO VM1 changeover switches are manually operated three or four pole changeover switches.
They provide changeover, source inversion or switching under load between two low voltage power circuits, as well as their safety isolation.

➲ General characteristics

- Safety isolation by fully visible double breaking.
- DIN rail mounting, panel or modular panel with 45 mm front cut out.
- IP20 devices and accessories.

➲ Conformity to standards

- IEC 60947-3
- IS 14947-3
- EN 60947-3
- VDE 0660-107 (1992)
- NBN EN 60947-3
- BS EN 60947-3



comut_021_a_1_x_cat

Functional diagram (for further details see the installation instructions supplied with the product).

1. Direct front operation
2. External front operation
3 and 4. Blocks of pre-break and signalling auxiliary contacts
5. Bridging bars
6. Back plate or DIN rail mounting

References



VM1 changeover switches I-0-II

Rating (A)	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	IP20 bridging bars [2]	Auxiliary contacts
63 A	3 P	4430 **3006**[1]	Black 4439 **5012**	S1 type Black IP65 1413 **2113**	200 mm 1402 **0820**	3 P 4499 **3006**	1 auxiliar contact NO/NC 4439 **0001**
	4 P	4430 **4006**[1]					
80 A	3 P	4430 **3008**[1]					
	4 P	4430 **4008**[1]					
100 A	3 P	4430 **3010**[1]			320 mm 1402 **0832**	4 P 4499 **4006**	
	4 P	4430 **4010**[1]					
125 A	3 P	4430 **3012**					
	4 P	4430 **4012**					

(1) Available enclosed (see page 496 "Enclosed changeover switches").
(2) IP: Degree of protection according to standard IEC 60529.

VM1 changeover switches I-I+II-II

Rating (A)	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	IP20 bridging bars [1]
63 A	3 P	4440 **3006**	Black 4449 **5012**	S1 type Black IP65 1413 **2114**	200 mm 1403 **0820**	3 P 4499 **3006**
	4 P	4440 **4006**				
80 A	3 P	4440 **3008**				
	4 P	4440 **4008**				
100 A	3 P	4440 **3010**			320 mm 1403 **0832**	4 P 4499 **4006**
	4 P	4440 **4010**				
125 A	3 P	4440 **3012**				
	4 P	4440 **4012**				

(1) IP: Degree of protection according to standard IEC 60529.

Accessories

Direct handle



Rating (A)	Switching type	Reference
63 … 125	I - 0 - II	4439 **5012**
63 … 125	I - I+II - II	4449 **5012**

Door interlocked external handle



Use
Padlockable handle including escutcheon.

Rating (A)	Switching type	padlockable	External IP[1]	Reference
63 … 125	I - 0 - II	1 Position	IP55	1411 **2113**
63 … 125	I - 0 - II	1 Position	IP65	1413 **2113**
63 … 125	I - 0 - II	3 Positions	IP65	1413 **2813**
63 … 125	I - I+II - II	1 Position	IP65	1413 **2114**
63 … 125	I - I+II - II	3 Positions	IP65	1413 **2814**

(1) IP: Degree of protection according to standard IEC 60529.

Alternative S-type handle cover colours



Use
For single lever type S1 handles.

Other colours: Consult us.

Color	To be ordered by multiple	Reference
Light grey	50	1401 **0001**
Dark grey	50	1401 **0011**

S type handle adapter



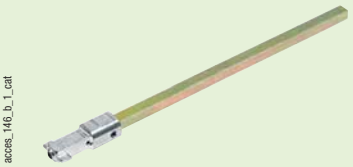
Use
Enables S type handles to be fitted in place of existing older style Socomec handles. Adapter can also be utilised as a spacer to increase the distance between the panel door and the handle lever.

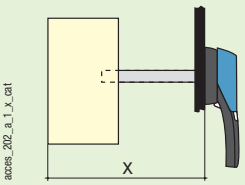
Dimensions
Adds 12 mm to the depth.

Color	To be ordered in multiples of	External IP(1)	Reference
Black	10	IP65	1493 **0000**

(1) IP: Degree of protection according to standard IEC 60529.

Shaft for external handle





Use
Standard lengths:
- 200 mm,
- 320 mm.

Other lengths: Consult us.

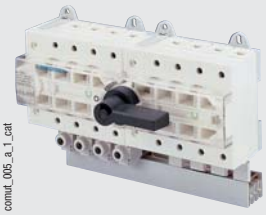
In position I - 0 - II

Rating (A)	Dimension X (mm)	Shaft length (mm)	Reference
63 … 125	128 … 290	200 mm	1402 **0820**
63 … 125	128 … 410	320 mm	1402 **0832**

In position I - I+II - II

Rating (A)	Dimension X (mm)	Shaft length (mm)	Reference
63 … 125	128 … 290	200 mm	1403 **0820**
63 … 125	128 … 410	320 mm	1403 **0832**

IP20 bridging bar



Use
Connects to the standard switch terminals in order to provide common bridging point.

Can be fitted to either top or bottom side of the switch.

Rating (A)	No. of poles	Reference
63 … 125	3 P	4499 **3006**
63 … 125	4 P	4499 **4006**

NO/NC changeover auxiliary contacts

Use
Pre-break and signalling of positions I and II: 1 NO/NC auxiliary contact for each position.

Characteristics
- Snaps on and is locked by a screw.
- Connector block with a capacity max. of 2 x 1.5 mm² per terminal.

Rating (A)	Switching type	Contact(s)	Reference
63 … 125	I - 0 - II	1	4439 **0001**(1)

(1) Not available for the make before break changeover switch (I-I+II-II).

Characteristics according to IEC 60947-3

63 to 125 A

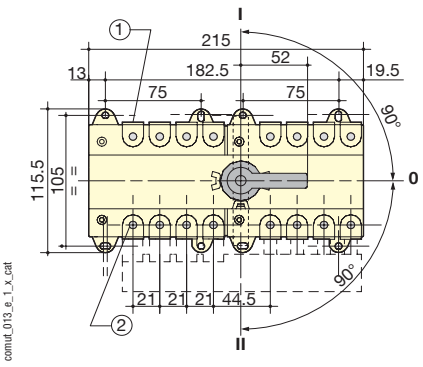
Thermal current I_{th} (40°C)		63 A	80 A	100 A	125 A
Rated insulation voltage U_i (V)		800	800	800	800
Rated impulse withstand voltage U_{imp} (kV)		8	8	8	8
Rated operational currents I_e (A)					
Rated voltage	Load duty category	A/B(1)	A/B(1)	A/B(1)	A/B(1)
400 VAC	AC-21 A / AC-21 B	63/63	80/80	100/100	125/125
400 VAC	AC-22 A / AC-22 B	63/63	80/80	100/100	125/125
400 VAC	AC-23 A / AC-23 B	63/63	63/63	63/63	63/63
690 VAC(2)	AC-20 A / AC-20 B	63/63	80/80	100/100	125/125
690 VAC(2)	AC-21 A / AC-21 B	63/63	80/80	80/80	80/80
690 VAC(2)	AC-22 A / AC-22 B	40/40	40/40	40/40	40/40
690 VAC(2)	AC-23 A / AC-23 B	25/25	25/25	25/25	25/25
220 VDC(3)	DC-20 A / DC-20 B	63/63	80/80	100/100	125/125
220 VDC(3)	DC-21 A / DC-21 B	63/63	80/80	100/100	125/125
220 VDC(3)	DC-22 A / DC-22 B	63/63	80/80	100/100	100/100
220 VDC(3)	DC-23 A / DC-23 B	63/63	63/63	63/63	63/63
Operational power(kW)					
At 400 VAC without pre-break in AC-23 (4)		30/30	30/30	30/30	30/30
At 690 VAC without pre-break in AC-23 (4)		22/22	22/22	22/22	22/22
At 400 VAC with pre-break AC (4)		30/30	40/40	51/51	63/63
At 400 VAC with pre-break AC (4)		33/33	33/33	33/33	33/33
Reactive power (kvar)					
At 400 VAC (4)		28	37	45	55
Fuse protected short-circuit withstand (kA rms prospective)					
Prospective short-circuit current (kA rms)(5)		100	100	100	50
Associated fuse rating (A)(5)		63	80	100	125
Overload capacity					
Rated short-time withstand current 0.3 s. I_{cw} (kA eff.)		4.5	4.5	4.5	4.5
Short-circuit making capacity (kA peak)(5)		12	12	12	12
Connection					
Minimum Cu cable section (mm^2)		4	4	4	4
Maximum Cu cable section (mm^2)		50	50	50	50
Tightening torque min (Nm)		6	6	6	6
Mechanical characteristics					
Durability (number of operating cycles)(6)		10 000	10 000	10 000	10 000
Weight of 3 P switch (kg)		1.2	1.2	1.4	1.4
Weight of 4 P switch (kg)		1.4	1.4	1.6	1.6

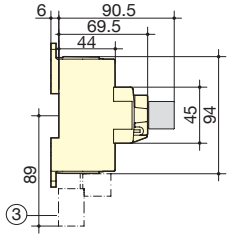
(1) Category with index A = frequent operations - Category with index B = infrequent operation.
(2) With terminal shrouds or phase barriers.
(3) 4-poles device with 2 poles in series by polarity.
(4) The power value is given for information only, the current values vary from one manufacturer to another.
(5) For a rated operational voltage U_e = 400 VAC.
(6) Increased endurances: please consult us.

Dimensions

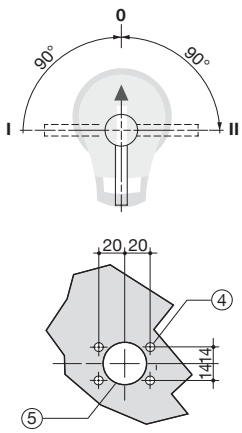
63 to 125 A

Direct front operation

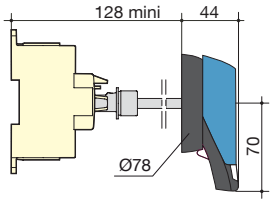




External front operation



1. *Max connection:*
   - Rigid: 50 mm^2.
   - Flexible: 35 mm^2
2. *6 -sided 5 - Pozidrive no. 1 slot 4.5 mm.*
3. *Bridging bar*
4. *Mounting by 2 or 4 screws Ø 7 mm.*



SIRCOVER and SIRCOVER BY-PASS



Changeover switches with fully visualised breaking from 125 to 3200 A

➲ Function

SIRCOVER products are manually operated multipolar changeover switches. They provide changeover, source inversion or switching under load between two low voltage power circuits, as well as their safety isolation.

SIRCOVER BY-PASS are manually operated changeover switches.
They are a combination of three interlocked switches enabling the use with 3 + 6 pole or 4 + 8 pole. They insulate by providing simultaneous safety isolation top and bottom and by passing loads of low voltage circuits mainly during maintenance operations.

➲ General characteristics

- 3 stable positions, (I, 0, II) or overlapping contacts (I, I+II, II), and on load changeover switching (AC-22 and AC-23).
- Fully visualized breaking.
- IP20 devices and accessories.

➲ Available on request

- Devices 6 or 8 pole
- Devices with over-sized neutral ex.: 3 x 250 A + N 400 A.
- Devices with advanced neutral.

➲ Conformity to standards

- IEC 60947-3
- IS 14947-3
- EN 60947-3
- VDE 0660-107 (1992)
- NBN EN 60947-3
- BS EN 60947-3

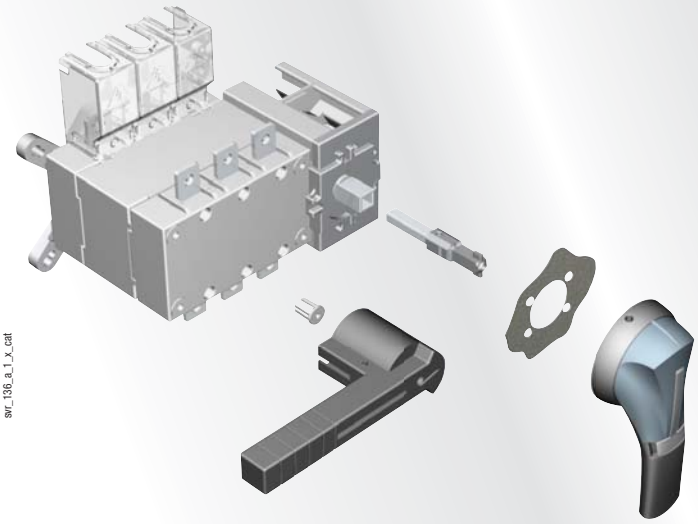
➲ Approvals and certifications(1)

- Bureau Véritas
- BBJ Poland (Attestaion of verification)

(1) Product reference on request.

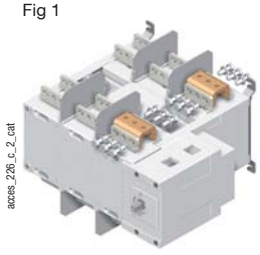
What you need to know

- **SIRCOVER** with 3 stable positions (I, O, II) are 3 or 4 pole devices from 125 A to 3200 A. They are available enclosed in a steel or polyester enclosure from 125 to 1600 A.
- **SIRCOVER** with overlapping contacts (I-I+II-II) are 3 or 4 pole devices available from 125 to 1800A. They are available enclosed in a steel enclosure from 125 to 1600 A.
- **SIRCOVER BY-PASS** with 3 stable positions (I, O, II) are a combination of three interlocked switches enabling the use with 3+6 poles or 4+8 poles from 125 to 1600 A. They are available in steel enclosure from 125 to 1600 A and with overlapping contacts (I, I+II, II).
- **SIRCOVER** and **SIRCOVER BY-PASS** can be used with a direct or external handle.



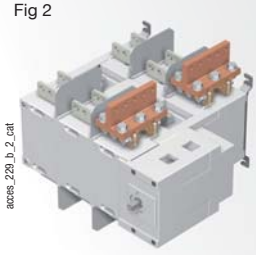
- A connection kit for copper bars allows the link between the 2 connection terminals of one pole (fig 1 and 2) and the bridging of the upstream and downstream link for ratings 2000, 2500 and 3200A (fig 3).

Fig 1



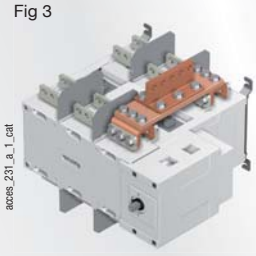
Top or bottom flat connection

Fig 2



Edgewise connection
Top or bottom

Fig 3



Top or bottom bridging connection



➲ SIRCOVER and SIRCOVER BY-PASS - References



sw_051_a_1_cat

SIRCOVER I-0-II

Rating (A)	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Bridging bar*	Auxiliary contacts	Terminal shrouds	Terminals protection screen
125 A	3 P	4100 **3013**(1)	Black 4199 **5012**(2)	Type S2 Black IP55 1421 **2113** Black IP65 1423 **2113**(2)	200 mm 1400 **1020** 320 mm 1400 **1032**(2)	4109 **0019**	1st/2nd contact NO/NC 4109 **0021**(4)	3 P 2694 **3014**(5)(6) 4 P 2694 **4014**(5)(6)	3 P 1509 **3012**(7) 4 P 1509 **4012**(7)
	4 P	4100 **4013**(1)							
160 A	3 P	4100 **3016**(1)							
	4 P	4100 **4016**(1)							
200 A	3 P	4100 **3019**							
	4 P	4100 **4019**							
250 A	3 P	4100 **3025**(1)				4109 **0025**		3 P 2694 **3021**(5)(6) 4 P 2694 **4021**(5)(6)	3 P 1509 **3025**(7) 4 P 1509 **4025**(7)
	4 P	4100 **4025**(1)							
400 A	3 P	4100 **3039**(1)				4109 **0039**			
	4 P	4100 **4039**(1)							
500 A	3 P	4100 **3050**(1)				4109 **0050**		3 P 2694 **3051**(5)(6) 4 P 2694 **4051**(5)(6)	3 P 1509 **3063**(7) 4 P 1509 **4063**(7)
	4 P	4100 **4050**(1)							
630 A	3 P	4100 **3063**(1)				4109 **0063**			
	4 P	4100 **4063**(1)							
800 A	3 P	4100 **3080**(1)	Black 2799 **7052**(2)	S4 type Black IP65 1443 **3113**(2)	200 mm 1401 **1520** 320 mm 1401 **1532**(2)	4109 **0080**			3 P 1509 **3080**(7) 4 P 1509 **4080**(7)
	4 P	4100 **4080**(1)							
1 250 A	3 P	4100 **3120**(1)				4109 **0120**			
	4 P	4100 **4120**(1)							
1 600 A	3 P	4100 **3160**(1)				4109 **0160**			3 P 1509 **3160**(7) 4 P 1509 **4160**(7)
	4 P	4100 **4160**(1)							
1 800 A	3 P	4100 **3180**							
	4 P	4100 **4180**							
2 000 A	3 P	4100 **3200**	Black 2799 **7012**(2)	Black IP65 2799 **7146**(2)	320 mm 2799 **3018**(2)	(3)	1st contact NO/NC included 2nd contact NO/NC 4409 **0022**(4)		included
	4 P	4100 **4200**							
2 500 A	3 P	4100 **3250**							
	4 P	4100 **4250**							
3 200 A	3 P	4100 **3320**							
	4 P	4100 **4320**							

** 1 piece required per pole.*
(1) Available enclosed (see pages 498 and 500 "Enclosed changeover switches").
(2) Standard.
(3) See page 281 "Copper bars connection kits".
(4) 2 pieces: one for position I and one for position II.
(5) To shroud front switch top and bottom 2 references required.
(6) To fully shroud front, rear, top and bottom 4 references required.
(7) 2 pieces: one for top side and another for bottom side.



svr_051_a_1_cat

SIRCOVER I - I+II - II

Rating (A)	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Bridging bar*	Auxiliary contacts	Terminal shrouds	Terminal screens
125 A	3 P	4190 **3013**(1)	Black 4199 **5012**(2)	S2 type Black IP65 1423 **2114**(2)	200 mm 1400 **1020** 320 mm 1400 **1032**(2)	4109 **0019**	1st/2nd contact NO/NC 4109 **0021**(3)	3 P 2694 **3014**(4)(5) 4 P 2694 **4014**(4)(5)	3 P 1509 **3012**(6) 4 P 1509 **4012**(6)
	4 P	4190 **4013**(1)							
160 A	3 P	4190 **3016**(1)							
	4 P	4190 **4016**(1)							
200 A	3 P	4190 **3019**							
	4 P	4190 **4019**							
250 A	3 P	4190 **3025**(1)				4109 **0025**		3 P 2694 **3021**(4)(5) 4 P 2694 **4021**(4)(5)	3 P 1509 **3025**(6) 4 P 1509 **4025**(6)
	4 P	4190 **4025**(1)							
400 A	3 P	4190 **3039**(1)				4109 **0039**			
	4 P	4190 **4039**(1)							
500 A	3 P	4190 **3050**(1)				4109 **0050**		3 P 2694 **3051**(4)(5) 4 P 2694 **4051**(4)(5)	3 P 1509 **3063**(6) 4 P 1509 **4063**(6)
	4 P	4190 **4050**(1)							
630 A	3 P	4190 **3063**(1)				4109 **0063**			
	4 P	4190 **4063**(1)							
800 A	3 P	4190 **3080**(1)	Black 2799 **7052**(2)	S4 type Black IP65 1443 **3114**(2)	200 mm 1401 **1520** 320 mm 1401 **1532**(2)	4109 **0080**			3 P 1509 **3080**(6) 4 P 1509 **4080**(6)
	4 P	4190 **4080**(1)							
1 250 A	3 P	4190 **3120**(1)				4109 **0120**			
	4 P	4190 **4120**(1)							
1 600 A	3 P	4190 **3160**(1)				4109 **0160**			3 P 1509 **3160**(6) 4 P 1509 **4160**(6)
	4 P	4190 **4160**(1)							
1 800 A	3 P	4190 **3180**							
	4 P	4190 **4180**							

** 1 piece required per pole.*
(1) Available enclosed (see pages 498 and 500 "Enclosed changeover switches").
(2) Standard.
(3) 2 pieces: one for position I and one for position II.
(4) To fully shroud front, rear, top and bottom 4 references required.
(5) To shroud front switch top and bottom 2 references required.
(6) 2 pieces: one for top side and another for bottom side.



svr_059_a_4_cat

SIRCOVER BY-PASS

Rating (A)	No. of poles	Switch body I-0-II	Direct handle	External handle	Shaft for external handle	Bridging bar	Auxiliary contacts	Terminal shrouds	Terminal screens
125 A	3 + 6 P	4100 **7013**(1)	Black 4199 **5012**(2)	S2 type Black IP55 1421 **2113**(2) Black IP65 1423 **2113**	200 mm 1400 **1020** 320 mm 1400 **1032**(2)	4109 **0019**	1st/2nd contact NO/NC 4109 **0021**(3)	3 P 2694 **3014**(4)(5) 4 P 2694 **4014**(4)(5)	3 P 1509 **3012**(6) 4 P 1509 **4012**(6)
	4 + 8 P	4100 **9013**(1)							
160 A	3 + 6 P	4100 **7016**(1)							
	4 + 8 P	4100 **9016**(1)							
200 A	3 + 6 P	4100 **7019**							
	4 + 8 P	4100 **9019**							
250 A	3 + 6 P	4100 **7025**(1)	Black 2799 **7052**(2)	S3 type Black IP65 1433 **3113**(2)	200 mm 1401 **1520** 320 mm 1401 **1532**(2)	4109 **0025**		3 P 2694 **3021**(4)(5) 4 P 2694 **4021**(4)(5)	3 P 1509 **3025**(6) 4 P 1509 **4025**(6)
	4 + 8 P	4100 **9025**(1)							
400 A	3 + 6 P	4100 **7039**(1)				4109 **0039**			
	4 + 8 P	4100 **9039**(1)							
500 A	3 + 6 P	4100 **7050**(1)				4109 **0050**		3 P 2694 **3051**(4)(5) 4 P 2694 **4051**(4)(5)	3 P 1509 **3063**(6) 4 P 1509 **4063**(6)
	4 + 8 P	4100 **9050**(1)							
630 A	3 + 6 P	4100 **7063**(1)				4109 **0063**			
	4 + 8 P	4100 **9063**(1)							
800 A	3 + 6 P	4100 **7080**(1)	Black 2799 **7012**(2)	Black IP65 4199 **7146**(2)	200 mm 2799 **3015** 450 mm 2799 **3019**(2)	4109 **0080**			3 P 1509 **3080**(6) 4 P 1509 **4080**(6)
	4 + 8 P	4100 **9080**(1)							
1 250 A	3 + 6 P	4100 **7120**(1)				4109 **0120**			
	4 + 8 P	4100 **9120**(1)							
1 600 A	3 + 6 P	4100 **7160**				4109 **0160**			3 P 1509 **3160**(6)
	4 + 8 P	4100 **9160**							4 P 1509 **4160**(6)

** For By-Pass 2 pieces are required per pole.*
(1) Available enclosed (see pages 498 and 500 "Enclosed changeover switches").
(2) Standard.
(3) 2 pieces: one for position I and one for position II.
(4) To shroud front switch top and bottom 3 references required.
(5) To fully shroud front, rear, top and bottom 6 references required.
(6) 2 pieces: one for top side and another for bottom side.

Accessories

Direct handle





SIRCOVER

Rating (A)	Handle color	Handle type	Reference
125 … 630	Black	Single lever	4199 **5012**
800 … 1800	Black	Single lever	2799 **7052**
2000 … 3200	Black	Double lever	2799 **7012**

SIRCOVER BY-PASS

Rating (A)	Handle color	Handle type	Reference
125 … 200	Black	Single lever	4199 **5012**
250 … 630	Black	Single lever	2799 **7052**
800 … 1600	Black	Double lever	2799 **7012**

External operation handle

S2 type handle



S3 type handle



S4 type handle



Use
The door interlocked external operation handle includes one padlockable handle, one escutcheon and must be utilised with a shaft extension.

SIRCOVER

Rating (A)	Switching type	External IP(1)	Handle	Reference
125 … 630	I - 0 - II	IP55	S2 type	1421 **2113**
125 … 630	I - 0 - II	IP65	S2 type	1423 **2113**
125 … 630	I - I+II - II	IP65	S2 type	1423 **2114**
800 … 1800	I - 0 - II	IP65	S4 type	1443 **3113**(2)
800 … 1800	I - I+II - II	IP65	S4 type	1443 **3114**(2)
2000 … 3200	I - 0 - II	IP65		2799 **7146**(2)

(1) IP: Degree of protection according to standard IEC 60529.
(2) Double lever handle.

SIRCOVER BY-PASS

Rating (A)	Switching type	External IP(1)	Handle	Reference
125 … 200	I - 0 - II	IP55	S2 type	1421 **2113**
125 … 200	I - 0 - II	IP65	S2 type	1423 **2113**
250 ... 630	I - 0 - II	IP65	S3 type	1433 **3113**
800 … 1600	I - 0 - II	IP65		4199 **7146**

(1) IP: Degree of protection according to standard IEC 60529.

Alternative S-type handle cover colours



Use
For single lever handles S1, S2, S3 type and for double lever handle S4 type.
Other colours: Consult us.

Color	To be ordered in multiples of	Handle	Reference
Light grey	50	S2, S3 type	1401 **0001**
Dark grey	50	S2, S3 type	1401 **0011**
Light grey	50	S4 type	1401 **0031**
Dark grey	50	S4 type	1401 **0041**

S type handle adapter



Use
Enables S type handles to be fitted in place of existing older style Socomec handles. Adapter can also be utilised as a spacer to increase the distance between the panel door and the handle lever.

Dimensions
Adds 12 mm to the depth.

Color	To be ordered in multiples of	External IP(1)	Reference
Black	10	IP65	1493 **0000**

(1) IP: Degree of protection according to standard IEC 60529.

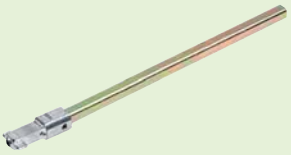
Shaft guide for external operation



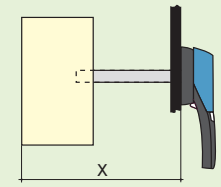
Use
To guide the shaft extension into the external handle.
This accessory enables handle to engage extension shaft with a misalignment of up to 15 mm.
Required for a shaft lenght over 320 mm.

Description	Reference
Shaft guide	1429 **0000**

Shaft for external handle







Use
Standard lengths:
- 200 mm,
- 320 mm,
- 450 mm.

Other lengths: Consult us.

SIRCOVER

Rating (A)	Shaft length (mm)	Dimension X (mm)	Reference
125 … 400	200 mm	210 … 310	1400 **1020**
125 … 400	320 mm	210 … 430	1400 **1032**
500 … 630	200 mm	280 … 390	1400 **1020**
500 … 630	320 mm	280 … 510	1400 **1032**
800 … 1800	200 mm	425 … 577	1401 **1520**
800 … 1800	320 mm	425 … 697	1401 **1532**
2000 … 3200	320 mm	653 … 923	2799 **3018**(1)

(1) Extension shaft.

SIRCOVER BY-PASS

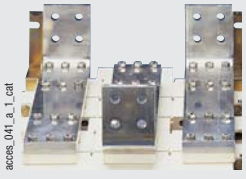
Rating (A)	Shaft length (mm)	Dimension X (mm)	Reference
125 … 200	200 mm	320 … 450	1400 **1020**
125 … 200	320 mm	320 … 570	1400 **1032**
250 … 400	200 mm	298 … 420	1401 **1520**
250 … 400	320 mm	298 … 540	1401 **1532**
500 … 630	200 mm	417 … 539	1401 **1520**
500 … 630	320 mm	417 … 659	1401 **1532**
800 … 1600	200 mm	550 … 680	2799 **3015**(1)
800 … 1600	450 mm	550 … 800	2799 **3019**(1)

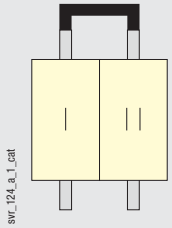
(1) Extension shaft.

Bridging bars

SIRCOVER

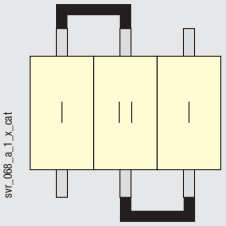






SIRCOVER BY-PASS





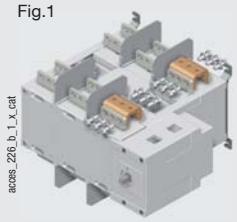
Use
Creation of a common link, on the top or bottom side of the switch, in order to feed load with either power supply I or/and II. For SIRCOVER BY-PASS, two sets of bridging bars are needed as the switch is composed of three basic switch frames.

Position I: 6 or 8 poles
Position II: 3 or 4 poles

Rating (A)	Section (mm)	Reference
125 … 200	20 x 2.5	4109 **0019**
250	25 x 2.5	4109 **0025**
400	32 x 5	4109 **0039**
500	32 x 5	4109 **0050**
630	50 x 5	4109 **0063**
800	50 x 6	4109 **0080**
1250	60 x 8	4109 **0120**
1600 ... 1800	90 x 10	4109 **0160**

Copper bars connection kits for 2000 to 3200 A SIRCOVER

Fig.1



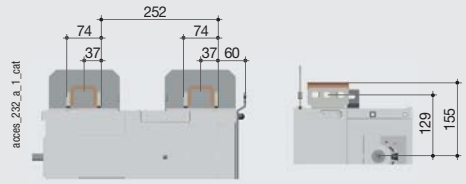
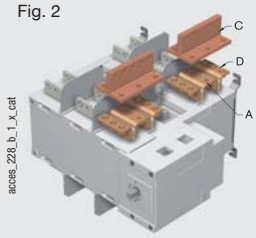


Fig. 2



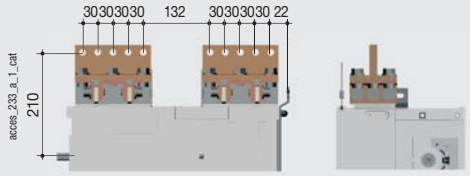
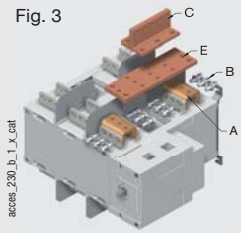
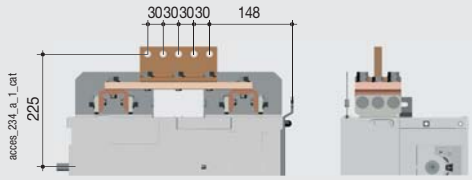


Fig. 3





Use

Enables:

- To allow connection between the two power terminals from a same pole for 2000 to 3200A ratings (Fig. 1 and Fig 2).
- Top or bottom bridging connection (Fig. 3).

For 3200 A rating, the connection pieces (part A) are delivered bridged from factory. Bolt sets must be ordered separately.

Technical notice for these specific accessories is downloadable from www.socomec.com

Top or bottom flat connection - Fig. 1

Rating (A)	Piece	Quantity to order per pole(1)	Reference
2 000 … 2 500	Connection - part A	2	2619 **1200**
2 000 … 2 500	Bolt set - part B	2	2699 **1200**
3 200	Connection - part A		included
3 200	Bolt set - part B	2	2699 **1200**

(1) Example for 3 pole device equipped upstream only: order 3 times the indicated quantities.

Top or bottom edgewise connection - Fig. 2

Rating (A)	Piece	Quantity to order per pole(1)	Reference
2 000 … 2 500	Connection - part A	2	2619 **1200**
2 000 … 2 500	T piece - part C	2	2629 **1200**(2)
2 000 … 2 500	Right angle - part D	2	2639 **1200**(2)
3 200	Connection - part A		included
3 200	T piece - part C	2	2629 **1200**(2)
3 200	Right angle - part D	2	2639 **1200**(2)

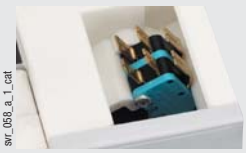
(1) Example for 3 pole device equipped upstream only: order 3 times the indicated quantities.
(2) Bolt set is provided with the accessories.

Top or bottom bridging connection -Fig. 3

Rating (A)	Piece	Quantity to order per pole(1)	Reference
2 000 … 2 500	Connection - part A	2	2619 **1200**
2 000 … 2 500	Bolt set - part B	2	2699 **1200**
2 000 … 2 500	Bar - piece E	1	4109 **0250**(2)
2 000 … 2 500	T piece - part C	1	2629 **1200**(2)
3 200	Connection - part A		included
3 200	Bolt set - part B	2	2699 **1200**
3 200	Bar - piece E	1	4109 **0320**(2)
3 200	T piece - part C	1	2629 **1200**(2)

(1) Example for 3 pole device equipped upstream only: order 3 times the indicated quantities.
(2) Bolt set is provided with the accessories.

Auxiliary contacts





Use

Pre breaking and positions I and II signalling: 1 or 2 NO/NC auxiliary contacts in each position.
Low level auxiliary contacts: Consult us.

Connection to the control circuit

By 6.35 mm fast-on terminal.

Electrical characteristics

30 000 operations.

NO/NC changeover contact

Rating (A)	Contact(s)	Reference
125 … 1800	1st/2nd	4109 **0021**
2000 … 3200	1st	included
2000 … 3200	2nd	4409 **0022**

Characteristics

		Operating current I_e (A)			
Rating (A)	Nominal current (A)	A - 250 -13VAC	400 VAC AC-13	24 VDC DC-13	48 VDC DC-13
125 … 3200	16	12	8	14	6

Terminal shrouds



acces_206_a_2_cat

Use
Protection against direct contact with terminals or connecting parts.

Advantage
Perforations allowing remote thermographic inspection without removal.

Rating (A)	No. of poles	Position	Reference
125 … 200	3 P	top / bottom / front (I) / rear (II)	2694 **3014**(1)(2)
125 … 200	4 P	top / bottom / front (I) / rear (II)	2694 **4014**(1)(2)
250 … 400	3 P	top / bottom / front (I) / rear (II)	2694 **3021**(1)(2)
250 … 400	4 P	top / bottom / front (I) / rear (II)	2694 **4021**(1)(2)
500 … 630	3 P	top / bottom / front (I) / rear (II)	2694 **3051**(1)(2)
500 … 630	4 P	top / bottom / front (I) / rear (II)	2694 **4051**(1)(2)

(1) To shroud front switch top and bottom 4 references required for a SIRCOVER and 6 references for a SIRCOVER BY-PASS.
(2) To shroud front switch top and bottom 2 references required for a SIRCOVER and a SIRCOVER BY-PASS.

Terminal screens



acces_207_a_2_cat

Use
Top or bottom protection against direct contact with terminals or connection parts.

Rating (A)	No. of poles	Position	Reference
125 ... 200	3 P	top / bottom	1509 **3012**
125 ... 200	4 P	top / bottom	1509 **4012**
250 ... 400	3 P	top / bottom	1509 **3025**
250 ... 400	4 P	top / bottom	1509 **4025**
500 ... 630	3 P	top / bottom	1509 **3063**
500 ... 630	4 P	top / bottom	1509 **4063**
800 ... 1 250	3 P	top / bottom	1509 **3080**
800 ... 1 250	4 P	top / bottom	1509 **4080**
1 600 ... 1 800	3 P	top / bottom	1509 **3160**
1 600 ... 1 800	4 P	top / bottom	1509 **4160**
2 000 ... 3 200	3 / 4 P	top / bottom	included

Inter phase barriers



acces_036_a_1_cat

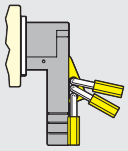
Use
Safety isolating separation between the terminals, essential for use at 690 VAC or in a polluted or dusty atmosphere.
The terminal shrouds also provide phase separation from 125 to 630 A.

Rating (A)	No. of poles	Reference
125 … 200	3 P	2998 **0033**(1)
125 … 200	4 P	2998 **0034**(1)
250 ... 400	3 P	2998 **0023**(1)
250 ... 400	4 P	2998 **0024**(1)
500 ... 630	3 P	2998 **0013**(1)
500 ... 630	4 P	2998 **0014**(1)
800 ... 3200	3 / 4 P	included

(1) Use 2 sets per side.

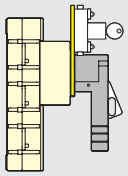
Handle key interlocking accessories

Fig. 1



acces_061_a_1_x_cat

Fig. 2



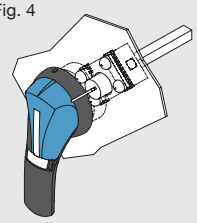
acces_001_a_1_x_cat

Fig. 3



acces_132_a_1_x_cat

Fig. 4



acces_150_a_1_x_cat

Use

- using padlock (not supplied), this device is factory mounted in the direct or external operation handle and allows using up to 3 padlocks (Fig.1).
- Locking:
  - using lock (not supplied)
  - using undervoltage coil.

The interlocking positions are either determined as standard or configured by the user, removing pre-formed tabs.
Padlocking and locking can be combined.

Lockable in position I, 0 or II

Rating (A) SIRCOVER	Rating (A) SIRCOVER BY-PASS	Operation	Figure	Reference
125 … 630	125 … 200	external	1	1423 **2813**

Locking using RONIS EL11AP lock in position 0 (not included)

Rating (A) SIRCOVER	Rating (A) SIRCOVER BY-PASS	Operation	Figure	Reference
125 … 630	125 … 200	direct	2	4109 **1006**(1)
	250 ... 630	direct	3	consult us
800 … 1800	800 … 1600	direct	3	4109 **1004**(2)
2000 … 3200		direct	3	4109 **2007**
125 … 1800	125 … 630	external	4	1499 **7701**
2000 … 3200	800 … 1600	external	4	2799 **7002**

(1) Specific handle included.
(2) This locking facility can be configured by the user in the 3 positions.

Locking using RONIS EL11AP lock in position I, 0, II (not included)

Rating (A) SIRCOVER	Rating (A) SIRCOVER BY-PASS	Operation	Figure	Reference
125 … 630	125 … 200	direct	2	4109 **1002**(1)
	250 … 630	direct	3	consult us
800 … 1800	800 … 1600	direct	3	4109 **1004**(2)
2000 … 3200		direct	3	4109 **2007**
125 … 1800	125 … 630	external	4	1499 **7701**
	800 … 1600	external	4	2799 **7002**

(1) Specific handle included.
(2) This locking facility can be configured by the user in the 3 positions.

Locking using 230 VAC undervoltage coil in position 0 (factory fitted)

Rating (A) SIRCOVER	Rating (A) SIRCOVER BY-PASS	Operation	Figure	Reference
800 … 3200	800 … 1600	direct	3	consult us

Locking using CASTELL type K lock (not included)

Rating (A) SIRCOVER	Rating (A) SIRCOVER BY-PASS	Operation	Figure	Reference
125 … 1800	125 … 630	external	4	1499 **7702**
2000 … 3200	800 … 1600	external	4	2799 **7003**

Other specific accessories



bd_03_04_01

- Customised protection screens (for specific dimensions or high ambiant temperatures).
- Inter phase barrier.
- Connection accessories.
- Low level auxiliary contacts.

125 to 500 A

Thermal current I_{th} (40°C)		125 A	160 A	200 A	250 A	400 A	500 A
Rated insulation voltage U_i (V)		800	800	800	800	800	1000
Rated impulse withstand voltage U_{imp} (kV)		8	8	8	8	8	12
Rated operational currents Ie (A)							
Rated voltage	Load duty category	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]
400 VAC	AC-21 A / AC-21 B	125/125	160/160	200/200	250/250	400/400	500/500
400 VAC	AC-22 A / AC-22 B	125/125	160/160	200/200	250/250	400/400	500/500
400 VAC	AC-23 A / AC-23 B	125/125	160/160	160/160	250/250	250/250	500/500
690 VAC[2]	AC-20 A / AC-20 B	125/125	160/160	200/200	250/250	400/400	500/500
690 VAC[2]	AC-21 A / AC-21 B	125/125	160/160	160/160	200/250	200/250	400/400
690 VAC[2]	AC-22 A / AC-22 B	125/125	125/125	125/125	125/160	125/160	250/315
690 VAC[2]	AC-23 A / AC-23 B	63/80	63/80	63/80	100/125	100/125	160/200
220 VDC	DC-20 A / DC-20 B	125/125	160/160	200/200	250/250	400/400	500/500
220 VDC	DC-21 A / DC-21 B	125/125	160/160	160/160	250/250	250/250	500/500
220 VDC	DC-22 A / DC-22 B	125/125	160/160	160/160	250/250	250/250	400/500
220 VDC	DC-23 A / DC-23 B	125/125	125/125	125/125	200/200	200/200	400/400
440 VDC	DC-20 A / DC-20 B	125/125	160/160	200/200	250/250	400/400	500/500
440 VDC	DC-21 A / DC-21 B	125[3]/125[3]	125[3]/125[3]	125[3]/125[3]	200[3]/200[3]	200[3]/200[3]	400[3]/400[3]
440 VDC	DC-22 A / DC-22 B	125[3]/125[3]	125[3]/125[3]	125[3]/125[3]	200[3]/200[3]	200[3]/200[3]	315[3]/400[3]
440 VDC	DC-23 A / DC-23 B	125[4]/125[4]	125[4]/125[4]	125[4]/125[4]	200[4]/200[4]	200[4]/200[4]	400[4]/400[4]
Operational power in AC-23 (kW)							
At 400 VAC without pre-break in AC[1][5]		63/63	80/80	80/80	132/132	132/132	280/280
At 690 VAC without pre-break in AC[1][5]		55/75	55/75	55/75	90/110	90/110	150/185
Reactive power (kvar)							
At 400 VAC [5]		55	75	90	115	185	230
Fuse protected short-circuit withstand (kA rms prospective)							
Prospective short-circuit (kA rms)[6]		100	100	50	50	18	100
Associated fuse rating (A) [6]		125	160	200	250	400	500
Overload capacity							
Rated short-time withstand current 0.3 s. I_{cw} (kA eff.)		15	15	15	17	17	25
Rated peak withstand current (kA peak) [6]		20	20	20	30	30	45
Connection							
Minimum Cu cable section (mm^2)		35	50	50	95	185	240
Minimum Cu busbar section (mm^2)							
Maximum Cu cable section (mm^2)		50	95	95	150	240	240
Maximum Cu busbar width (mm)		25	25	25	32	32	40
Tightening torque min (Nm)		9	9	9	20	20	20
Mechanical characteristics							
Durability (number of operating cycles)[7]		10 000	10 000	10 000	10 000	10 000	5 000
Weight of 3 P switch (kg)		1.5	1.6	1.8	2	3	3.5
Weight of 4 P switch (kg)		1.6	1.7	1.9	2.1	3.5	4

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) With terminal shrouds or phase barrier.
(3) 3-pole device with 2 pole in series for the "+" and 1 pole for the "-".
(4) 4-pole device with 2 pole in series by polarity.
(5) The power value is given for information only, the current values vary from one manufacturer to another.
(6) For a rated operational voltage U_e = 400 VAC.
(7) Increased endurances: please consult us.

630 to 3200 A

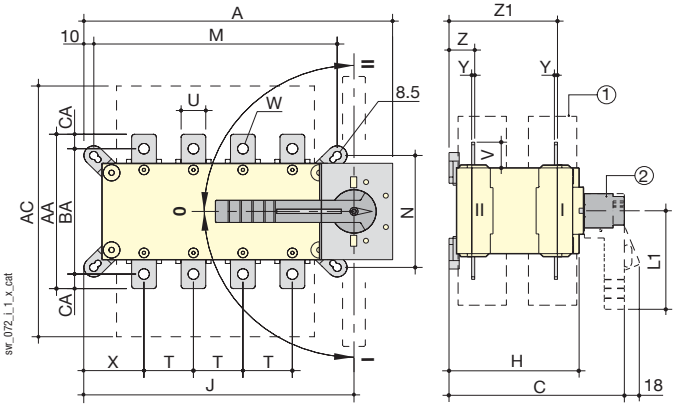
Thermal current I_{th} (40°C)		630 A	800 A	1250 A	1600 A	1800 A	2000 A	2500 A	3200 A
Rated insulation voltage U_i (V)		1000	1000	1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)		12	12	12	12	12	12	12	12
Rated operational currents Ie (A)									
Rated voltage	Load duty category	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]
400 VAC	AC-21 A / AC-21 B	630/630	800/800	1250/1250	1600/1600	1800/1800	2000/2000	2500/2500	3200/3200
400 VAC	AC-22 A / AC-22 B	630/630	800/800	1250/1250	1600/1600	1800/1800	2000/2000	2000/2500	2500/3200
400 VAC	AC-23 A / AC-23 B	500/500	800/800	1250/1250	1250/1250	1250/1250	1600/1600	1600/1600	1600/1600
690 VAC[2]	AC-20 A / AC-20 B	630/630	800/800	1250/1250	1600/1600	1800/1800	2000/2000	2500/2500	3200/3200
690 VAC[2]	AC-21 A / AC-21 B	500/500	800/800	800/800	1000/1000	1000/1000	2000/2000	2000/2500	2000/2500
690 VAC[2]	AC-22 A / AC-22 B	315/315	800/800	800/800	1000/1000	1000/1000	1000/1000	1000/1000	1000/1000
690 VAC[2]	AC-23 A / AC-23 B	160/200	200/250	200/250	500/500	500/500	800/800	800/800	800/800
220 VDC	DC-20 A / DC-20 B	630/630	800/800	1250/1250	1600/1600	1800/1800	2000/2000	2500/2500	3200/3200
220 VDC	DC-21 A / DC-21 B	630/630	800/800	1250/1250	1250/1250	1250/1250	2000/2000	2000/2500	2000/2500
220 VDC	DC-22 A / DC-22 B	500/500	800/800	1250/1250	1250/1250	1250/1250	1250/1600	1250/1600	1250/1600
220 VDC	DC-23 A / DC-23 B	500/500	800/800	1250/1250	1250/1250	1250/1250	1250[3]/1250[3]	1250[3]/1250[3]	1250[3]/1250[3]
440 VDC	DC-20 A / DC-20 B	630/630	800/800	1250/1250	1600/1600	1800/1800	2000/2000	2500/2500	3200/3200
440 VDC	DC-21 A / DC-21 B	500[3]/500[3]	800[3]/800[3]	1250[3]/1250[3]	1250[3]/1250[3]	1250[3]/1250[3]	2000/2000	2000/2000	2000/2000
440 VDC	DC-22 A / DC-22 B	500[3]/500[3]	800[3]/800[3]	1250[3]/1250[3]	1250[3]/1250[3]	1250[3]/1250[3]	1250[3]/1250[3]	1250[3]/1250[3]	1250[3]/1250[3]
440 VDC	DC-23 A / DC-23 B	500[4]/500[4]	800[3]/800[3]	1250[3]/1250[3]	1250[3]/1250[3]	1250[3]/1250[3]	1000[3]/1000[3]	1000[3]/ 1000[3]	1000[3]/1000[3]
Operational power in AC-23 (kW)									
At 400 VAC without pre-break in AC[1][5]		280/280	450/450	710/710	710/710	710/710	710/710	710/710	710/710
At 690 VAC without pre-break in AC[1][5]		150/185	185/220	185/220	475/475	475/475	750/750	750/750	750/750
Reactive power (kvar)									
At 400 VAC [5]		290	365	575					
Fuse protected short-circuit withstand (kA rms prospective)									
Prospective short-circuit (kA rms)[6]		70	50	100	100	100	100	100	
Associated fuse rating (A) [6]		630	800	1250	2 x 800	2 x 800	2 x 1000	2 x 1250	
Overload capacity									
Rated short-time withstand current 0.3 s. I_{cw} (kA eff.)		25	50	65	100	100	100	100	110
Rated peak withstand current (kA peak) [6]		45	55	80	110	110	110	110	120
Connection									
Minimum Cu cable section (mm^2)		2 x 150	2 x 185						
Minimum Cu busbar section (mm^2)		2 x 30 x 5	2 x 40 x 5	2 X 60 X 5	2 x 80 x 5	2 x 80 x 5	3 x 100 x 5	4 x 100 x 5	4 x 100 x 5
Maximum Cu cable section (mm^2)		2 x 300	2 x 300	4 X 185	6 x 185	6 x 185			
Maximum Cu busbar width (mm)		50	63	63	100	100	125	125	125
Tightening torque min (Nm)		20		20	40	40	40	40	40
Mechanical characteristics									
Durability (number of operating cycles)[7]		5 000	3 000	3 000	4 000	4 000	3 000	3 000	3 000
Weight of 3 P switch (kg)		3.5	17.5	22.5	34	34	50	50	50
Weight of 4 P switch (kg)		4	21	27.5	42	42	60	60	60

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) With terminal shrouds or phase barrier.
(3) 3-pole device with 3 pole in series for the "+" and 1 pole for the "-".
(4) 4-pole device with 2 pole in series per polarity.
(5) The power value is given for information only, the current values vary from one manufacturer to another.
(6) For a rated operational voltage U_e = 400 VAC.
(7) Increased endurances: please consult us.

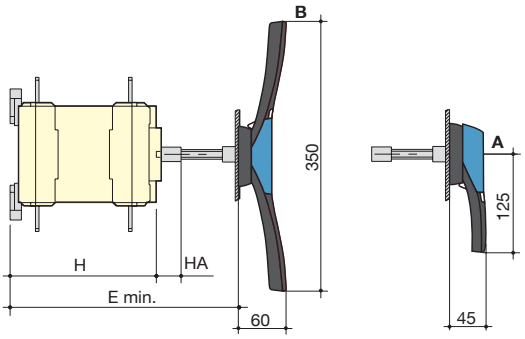
➲ SIRCOVER and SIRCOVER BY-PASS - Dimensions

SIRCOVER 125 to1800 A

Direct front operation



External front operation



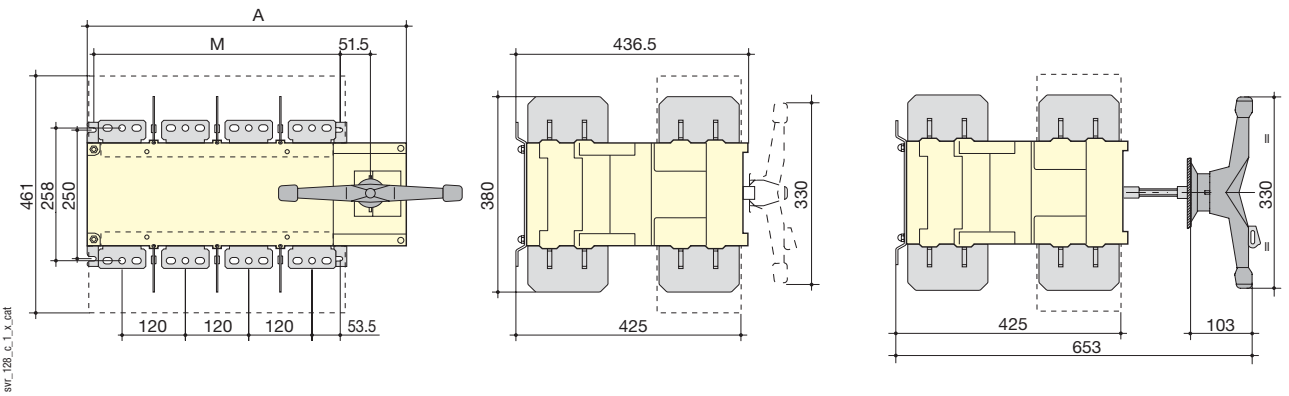
A. S2 type handle for external operation: 125 to 630 A
B. S4 type handle for external operation: 800 to 1800 A

1. Terminal shrouds
2. Direct handle operation:
- 125 to 630 A: L1 = 140 mm,
- 800 to 1800 A: L1 = 210 mm.

Rating	Overall dimensions A	A	C	E min	Terminal shrouds	Switch body H	HA	J	J	Switch mounting M	M	N	Connection T	U	V	W	X	X	Y	Z	Z1	AA	BA	AC
(A)	3p.	4p.			AC			3p.	4p.	3p.	4p.						3p.	4p.						
125	221	251	218	208 ... 436	235	148	25	182	212	156	186	101	36	20	25	8.5	56	50	3,5	28	124	135	115	10
160	221	251	218	208 ... 436	235	148	25	182	212	156	186	101	36	20	25	8.5	56	50	3,5	28	124	135	115	10
200	221	251	218	208 ... 436	235	148	25	182	212	156	186	101	36	20	25	8.5	56	50	3,5	28	124	135	115	10
250	262	312	218	208 ... 436	280	148	25	223	273	196	246	116	50	25	30	11	61	61	3,5	30	124	160	130	15
400	262	312	218	208 ... 436	280	148	25	223	273	196	246	116	50	35	35	11	61	61	3,5	30	124	170	140	15
500	319	379	295	285 ... 513	401	225	25	272	332	246	306	176	65	32	37	13	70.5	65.5	5	43	180	235	205	15
630	319	379	295	285 ... 513	400	225	25	272	332	246	306	176	65	45	50	13	70.5	65.5	5	43	180	260	220	20
800	386	466	375	425 ... 577	459	298	29	306.5	386.5	255	336	250	80	50	60.5	15	48	48	7	66.5	253.5	321		26.5
1250	386	466	375	425 ... 577	459	298	29	306.5	386.5	255	336	250	80	60	65	16x11	48	48	7	66.5	255.5	330		29.5
1600	478	598	375	425 ... 577	461	298	29	306.5	388.5	347	467	250	120	90	43.5	12.5x5	54	54	8	66.5	255.5	288		15
1800	478	598	375	425 ... 577	461	298	29	388.5	518.5	347	467	250	120	90	43.5	12.5x5	54	54	8	66.5	255.5	288		15

SIRCOVER 2000 to 3200 A

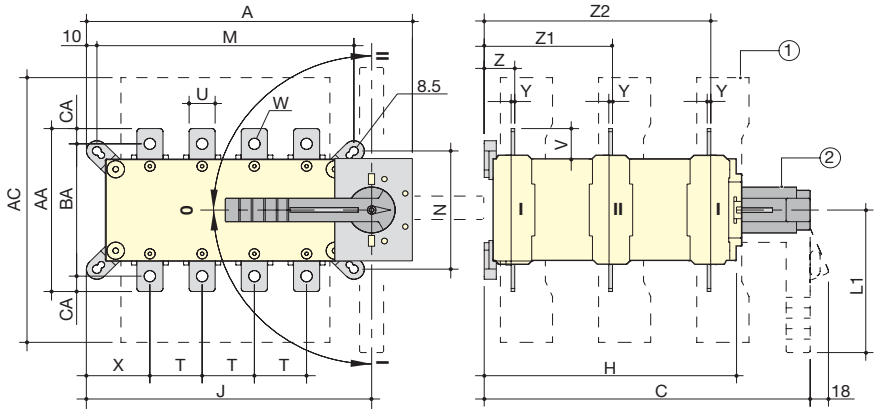
Direct front operation



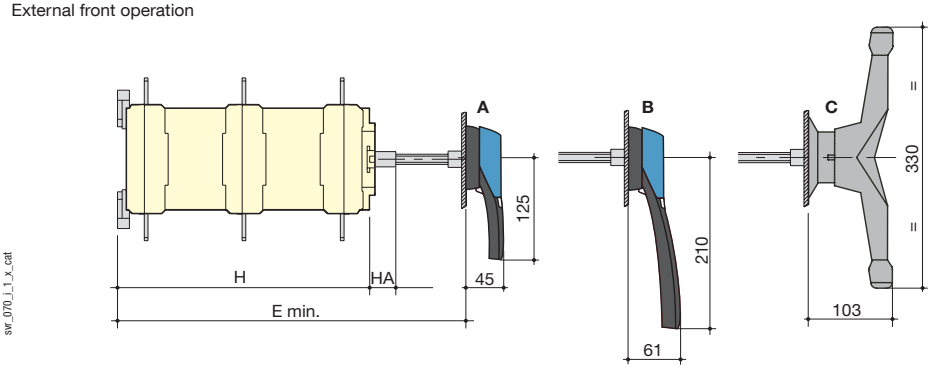
Rating (A)	Overall dimensions A 3p.	A 4p.	Switch mounting M 3p.	M 4p.
2000 … 3200	478	598	347	467

SIRCOVER BY-PASS 125 to 1600 A

Direct front operation



External front operation



swr_070_i_1_x_cat

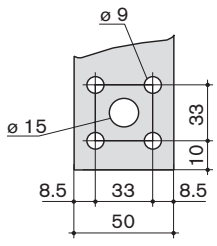
A. S2 type handle for external operation: 125 to 200 A
B. S3 type handle for external operation: 250 to 630 A
C. External double lever handle: 800 to 1600 A

1. Terminal shrouds
2. Direct handle operation:
- 125 to 200 A: L1 = 140 mm,
- 250 to 630 A: L1 = 210 mm,
- 800 to 1600 A: L1 = Ø 330 mm.

	Overall dimensions				Terminal shrouds	Switch body				Switch mounting			Connection											
Rating (A)	A 3+6p.	A 4+8p.	C	E min	AC	H	HA	J 3+6 p.	J 4+8 p.	M 3+6 p.	M 4+8 p.	N	T	U	V	W	X 3+6p.	X 4+8p.	Y	Z	Z1	Z2	AA	BA	AC
125	221	251	313	320	235	243	25	182	212	156	186	101	36	20	25	8,5	56	50	3.5	28	124	219	135	115	10
160	221	251	313	320	235	243	25	182	212	156	186	101	36	20	25	8,5	56	50	3.5	28	124	219	135	115	10
200	221	251	313	320	235	243	25	182	212	156	186	101	36	20	25	8,5	56	50	3.5	28	124	219	135	115	10
250	262	312	313	298	280	243	25	223	273	196	246	116	50	25	30	11	61	61	3.5	30	124	219	160	130	10
400	262	312	313	298	280	243	25	223	273	196	246	116	50	35	35	11	61	61	3.5	30	124	219	170	140	15
500	319	379	432	417	401	362	25	272	332	246	306	176	65	32	37	13	70.5	65.5	5	43	180	317	235	205	15
630	319	379	432	417	400	362	25	272	332	246	306	176	65	45	50	13	70.5	65.5	5	43	180	317	260	220	20
800	386	466	560	550	459	479	29	306.5	386.5	255	335	250	80	50	60.5	15	48	48	7	66.5	253.5	439.5	321		26.5
1250	386	466	560	550	459	479	29	306.5	386.5	255	335	250	80	60	65	16x11	48	48	7	66.5	253.5	439.5	320		29.25
1600	478	598	560	550	461	479	29	388.5	518.5	347	467	250	120	90	43.5	12.5x5	54	54	8	66.5	253.5	439.5	288		15

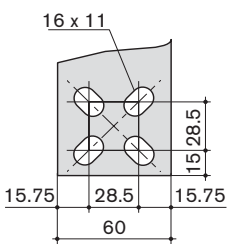
Connection terminals

SIRCOVER and SIRCOVER BY-PASS 800 A



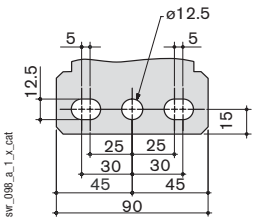
swr_077_a_1_x_cat

SIRCOVER and SIRCOVER BY-PASS 1250 A



swr_078_b_1_x_cat

SIRCOVER 1600 to 3200 A
SIRCOVER BY-PASS 1600 A

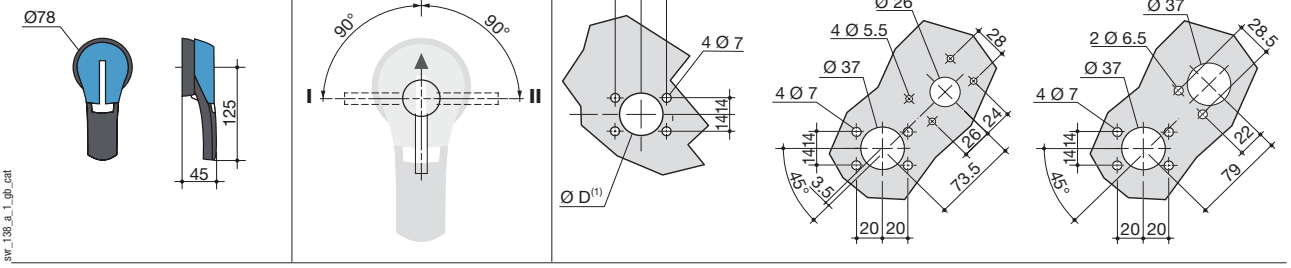


swr_098_a_1_x_cat

➲ Dimensions for external handles

SIRCOVER 125 to 630 A

Handle type	Direction of operation	Front operation Door drilling	
		With lock RONIS EL11AP	With lock CASTELL K
S2 type	**0** **o** **I+II**		

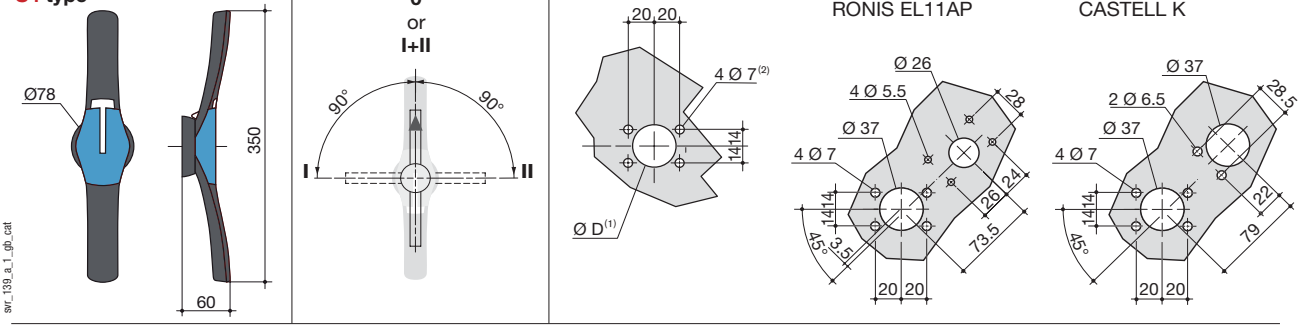


swr_138_a_1_gb_cat

(1) Ø31 to Ø37: rear screw mounting
Ø37: front clip mounting.

SIRCOVER 800 to1800 A

Handle type	Direction of operation	Front operation Door drilling	
		With lock RONIS EL11AP	With lock CASTELL K
S4 type	**0** **or** **I+II**		

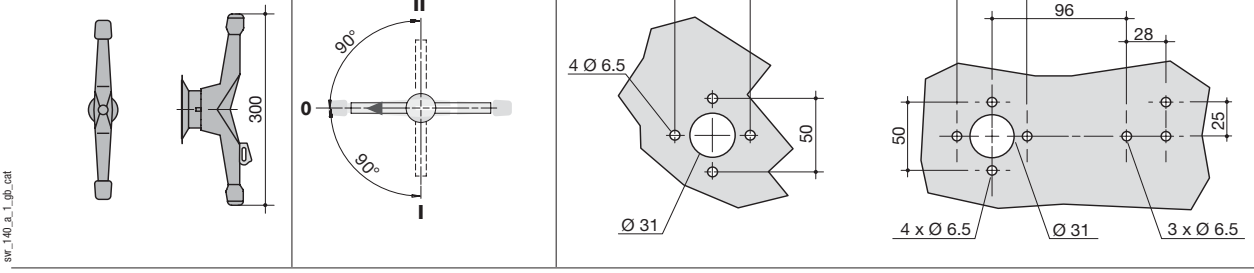


swr_139_a_1_gb_cat

(1) Ø31 to Ø37: rear screw mounting
Ø37: front clip mounting.
(2) Ø6 to Ø7: fast fixing.

SIRCOVER 2000 to 3200 A

Handle type	Direction of operation	Front operation Door drilling	
			With lock CASTELL K
C type			



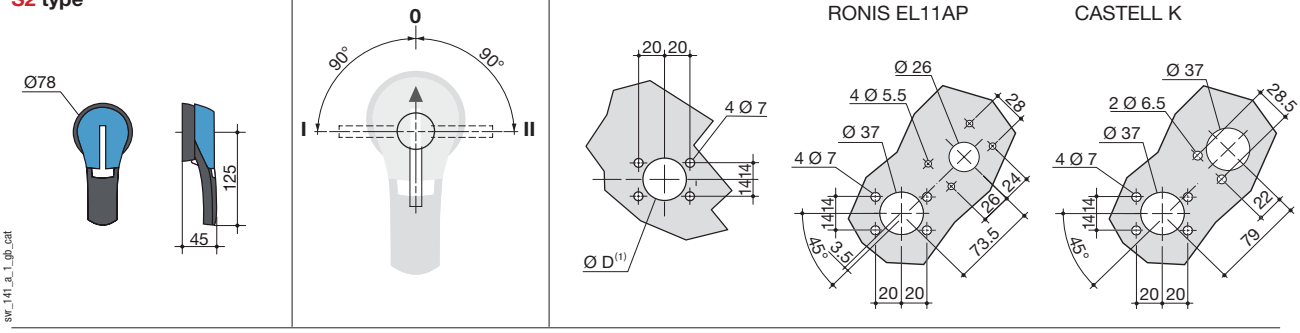
swr_140_a_1_gb_cat

SIRCOVER BY-PASS 125 to 200 A

Front operation

Handle type	Direction of operation	Door drilling	
		With lock RONIS EL11AP	With lock CASTELL K

S2 type



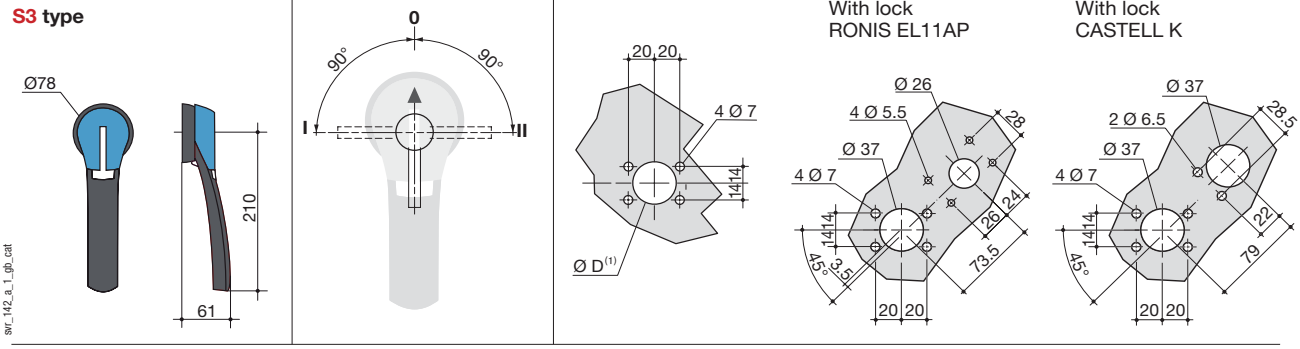
(1) Ø31 to Ø37: rear screw mounting Ø37: front clip mounting.

SIRCOVER BY-PASS 250 to 630 A

Front operation

Handle type	Direction of operation	Door drilling	
		With lock RONIS EL11AP	With lock CASTELL K

S3 type



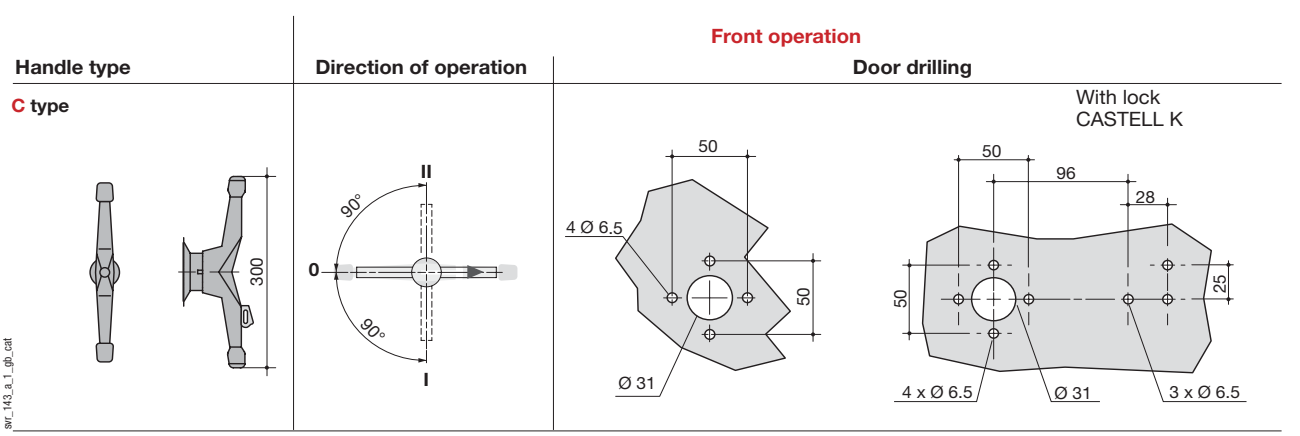
(1) Ø31 to Ø37: rear screw mounting Ø37: front clip mounting.

SIRCOVER BY-PASS 800 to 1600 A

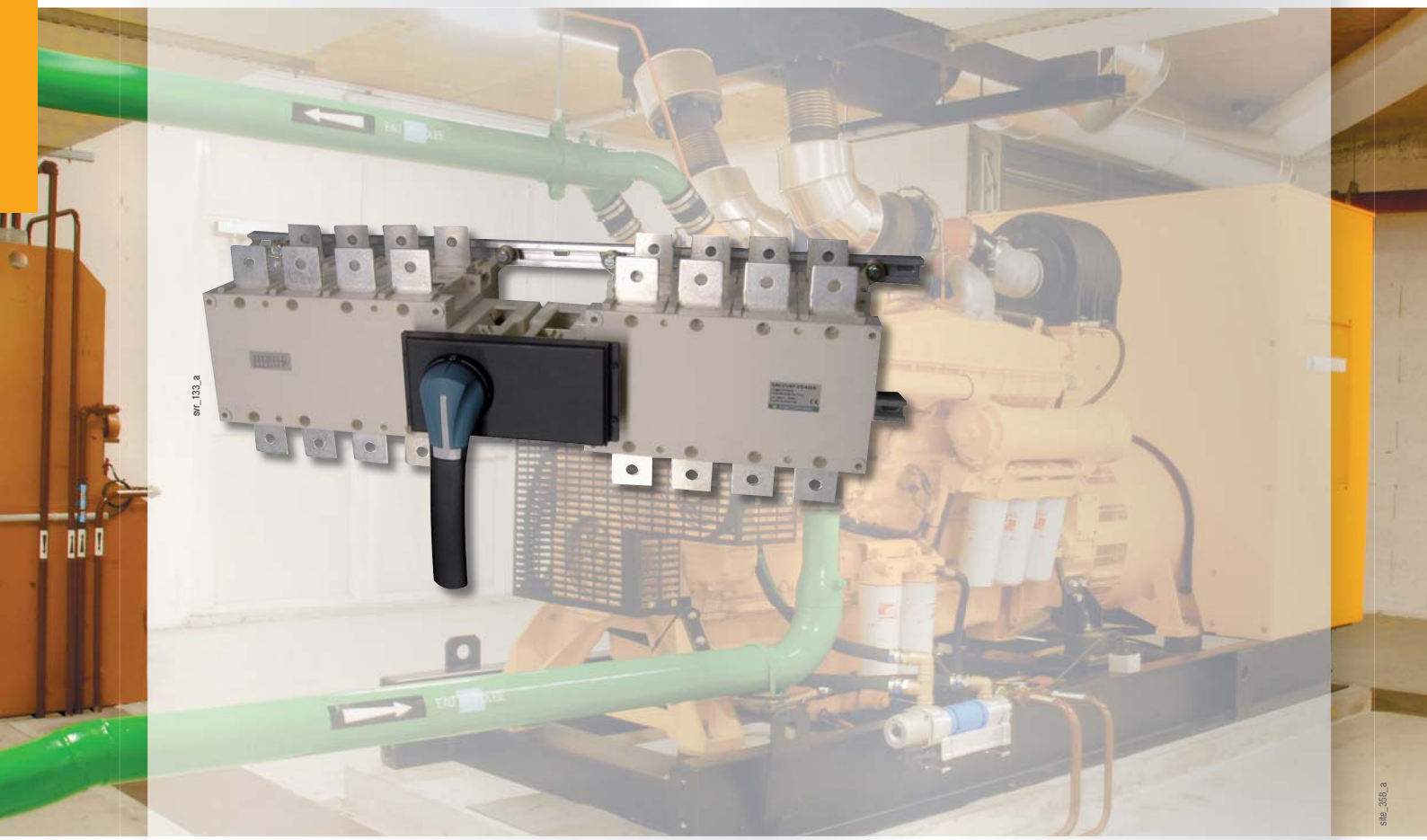
Front operation

Handle type	Direction of operation	Door drilling
		With lock CASTELL K

C type



ATS BY-PASS



From 125 to 1600 A

➲ Function

ATS BY-PASS are designed to isolate ATS type electrical equipment (automatic transfer switch) without interrupting the load supply.
With the SOCOMEC **ATS BY-PASS** system, top and bottom isolation is achieved simultaneously.
Integrating a SOCOMEC changeover switch into the installation allows the source used for bypassing to be selected.

➲ General characteristics

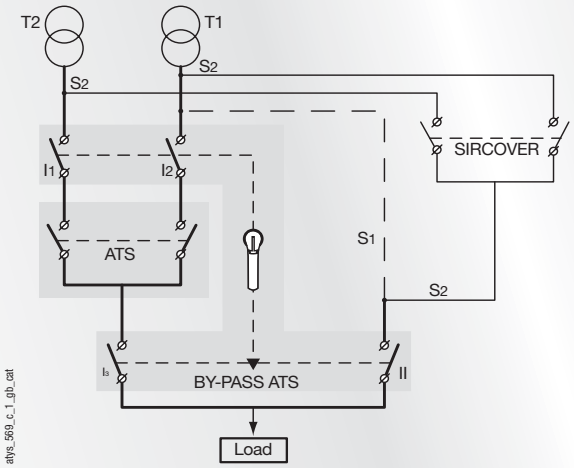
- From 125 to 1600 A.
- Available with 4 poles only.
- Manual operation.
- 3 stable positions (I, 0, II) and ease to switch from one to the other under load (AC-22).
- Fully visualized breaking.
- Mechanical interlocking.
- IP20 devices and accessories.
- Direct and external operation.

➲ Accessories

- Bridging bar.
- Auxiliary contact.
- Terminals protection screen.
- Terminal shrouds.
- Key handle interlocking system
- Different optional accessories are available.

➲ Conformity to standards

- IEC 60947-3
- S 14947-3
- EN 60947-3
- VDE 0660-107 (1992)
- NBN EN 60947-3
- BS EN 60947-3



Operating principle

- Without SIRCOVER: load is supplied by one of the two power sources (transformer T1 for example).
- With a SIRCOVER: the source to be used for the supply during BYPASS can be selected.

References



Rating (A)	No. of poles	Switch body	Direct handle	External handle	Shaft extensions for external handle	Bridging bars	Auxiliary contacts (1 per position)	Terminal shrouds (1 set)	Terminal screens (1 per position)
125 A	12 + 4 P	4100 **9813**	Type S3 Black IP65 I - 0 - II 1433 **3113**	Type S3 Black IP65 I - 0 - II 1433 **3113**	200 mm 1401 **1520** 320 mm 1401 **1532** 400 mm 1401 **1540**	1 P 4109 **0019**	1st contact NO/NF included 2nd contact NO/NC 4109 **0021**	4 P 2694 **4014**(1)(2)	4 P 1509 **4012**(3)
160 A	12 + 4 P	4100 **9816**							
250 A	12 + 4 P	4100 **9825**				1 P 4109 **0025**			
400 A	12 + 4 P	4100 **9840**				1 P 4109 **0039**		4 P 2694 **4021**(1)(2)	4 P 1509 **4025**(3)
630 A	12 + 4 P	4100 **9863**				1 P 4109 **0063**		4 P 2694 **4051**(1)(2)	4 P 1509 **4063**(3)
800 A	12 + 4 P	4100 **9880**	Black 2799 **7062**	Black IP65 I - 0 - II 2799 **7147**(4)		1 P 4109 **0080**	included	consult us	4 P 1509 **4080**(3)
1000 A	12 + 4 P	4100 **9881**							
1250 A	12 + 4 P	4100 **9882**				1 P 4109 **0160**			
1600 A	12 + 4 P	4100 **9886**							

(1) To fully shroud front, rear, top and bottom 8 references required.
(2) To shroud front switch top and bottom 4 references required.
(3) Top/bottom.
(4) Shaft extension for external handle included.

Accessories

Key handle interlocking system

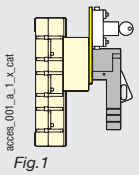


Fig.1

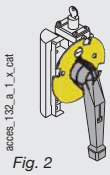


Fig. 2

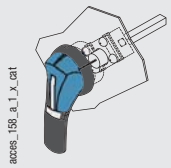


Fig. 3

Locking using RONIS EL11AP lock in position 0 (not included)

Rating (A)	Operation	Figure	Reference
125 ... 630	direct	1	4109 **1006** (1)
125 ... 630	external	3	1499 **7701**
800 ... 1600	direct and external	2	consult us

(1) Specific handle included.

Locking using RONIS EL11AP lock in positions I, 0, II (not supplied)

Rating (A)	Operation	Figure	Reference
125 ... 630	direct	1	4109 **1002**(1)
800 ... 1600	direct	2	consult us

(1) Specific handle included.

Locking using CASTELL type K lock (not included)

Rating (A)	Operation	Figure	Reference
125 ... 630	external	3	1499 **7702**
800 ... 1600	external		consult us

➲ ATS BY-PASS - Characteristics according to IEC 60947-3

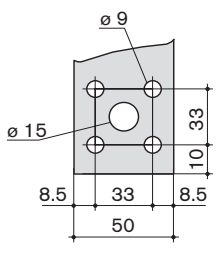
125 to 1600 A

Thermal current I_{th} (40°C)		**125 A**	**160 A**	**250 A**	**400 A**	**630 A**	**800 A**	**1000 A**	**1250 A**	**1600 A**
Rated insulation voltage U_i (V)		800	800	800	800	1000	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)		8	8	8	8	12	12	12	12	12
Rated operational currents I_e (A)										
Rated voltage	Load duty category	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)
400 VAC	AC-21 A / AC-21 B	125/125	160/160	250/250	400/400	630/630	800/800	1000/1000	1250/1250	1600/1600
400 VAC	AC-22 A / AC-22 B	125/125	160/160	250/250	400/400	630/630	800/800	1000/1000	1250/1250	1600/1600
400 VAC	AC-23 A / AC-23 B	125/125	160/160	250/250	250/250	500/500	800/800	1000/1000	1250/1250	1250/1250
690 VAC(2)	AC-20 A / AC-20 B	125/125	160/160	250/250	400/400	630/630	800/800	1000/1000	1250/1250	1600/1600
690 VAC(2)	AC-21 A / AC-21 B	125/125	160/160	200/250	200/250	500/500	800/800	800/800	800/800	1000/1000
690 VAC(2)	AC-22 A / AC-22 B	125/125	125/125	125/160	125/160	315/315	800/800	800/800	800/800	1000/1000
690 VAC(2)	AC-23 A / AC-23 B	63/80	63/80	100/125	100/125	160/200	200/250	200/250	200/250	500/500
220 VDC	DC-20 A / DC-20 B	125/125	160/160	250/250	400/400	630/630	800/800	1000/1000	1250/1250	1600/1600
220 VDC	DC-21 A / DC-21 B	125/125	160/160	250/250	250/250	630/630	800/800	1000/1000	1250/1250	1250/1250
220 VDC	DC-22 A / DC-22 B	125/125	160/160	250/250	250/250	500/500	800/800	1000/1000	1250/1250	1250/1250
220 VDC	DC-23 A / DC-23 B	125/125	125/125	200/200	200/200	500/500	800/800	1000/1000	1250/1250	1250/1250
440 VDC	DC-20 A / DC-20 B	125/125	160/160	250/250	400/400	630/630	800/800	1000(4)/1000(4)	1250/1250	1600/1600
440 VDC	DC-21 A / DC-21 B	125(3)/125(3)	125(3)/125(3)	200(3)/200(3)	200(3)/200(3)	500(3)/500(3)	800(4)/800(4)	1000(4)/1000(4)	1250(4)/1250(4)	1250(4)/1250(4)
440 VDC	DC-22 A / DC-22 B	125(3)/125(3)	125(3)/125(3)	200(3)/200(3)	200(3)/200(3)	500(3)/500(3)	800(4)/800(4)	1000(4)/1000(4)	1250(4)/1250(4)	1250(4)/1250(4)
440 VDC	DC-23 A / DC-23 B	125(4)/125(4)	125(4)/125(4)	200(4)/200(4)	200(4)/200(4)	500(4)/500(4)	800(4)/800(4)	1000(4)/1000(4)	1250(4)/1250(4)	1250(4)/1250(4)
Operational power in AC-23 (kW)										
At 400 VAC without pre-break in AC(1)(5)		63/63	80/80	132/132	132/132	280/280	450/450	560/560	560/560	710/710
At 690 VAC without pre-break in AC(1)(5)		55/75	55/75	90/110	90/110	150/185	185/220	185/220	185/220	475/475
Reactive power (kvar)										
At 400 VAC (5)		55	75	115	185	290	365	575	575	
Fuse protected short-circuit withstand (kA rms prospective)										
Prospective short-circuit (kA rms)(6)		100	100	50	18	70	50	100	100	100
Associated fuse rating (A) (6)		125	160	250	400	630	800	1000	1250	2 x 800
Overload capacity										
Rated short-time withstand current 1 s. I_{cw} (kA eff.)		7	7	9	9	13	26	35	35	50
Closing capacity on short-circuit (kA peak) (6)		20	20	30	30	45	55	80	80	110
Connection										
Minimum Cu cable section (mm^2)		35	50	95	185	2 x 150	2 x 185	2 x 240		
Minimum Cu busbar section (mm^2)						2 x 30 x 5	2 x 40 x 5	2 x 50 x 5	2 x 60 x 5	2 x 80 x 5
Maximum Cu cable section (mm^2)		50	95	150	240	2 x 300	2 x 300	4 x 185	4 x 185	6 x 185
Maximum Cu busbar width (mm)		25	25	32	32	50	63	63	63	100
Tightening torque min (Nm)		9	9	20	20	20			20	40
Mechanical characteristics										
Durability (number of operating cycles)(7)		10 000	10 000	10 000	10 000	5 000	3 000	3000	3 000	4 000
Weight of 3 P switch (kg)		1.5	1.6	2	3	3,5	17.5		22.5	34
Weight of 4 P switch (kg)		1.6	1.7	2.1	3.5	4	21		27.5	42

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) With terminal shrouds or phase barrier.
(3) 3-pole device with 2 pole in series for the "+" and 1 pole for the "-".
(4) 4-pole device with 2 pole in series by polarity.
(5) The power value is given for information only, the current values vary from one manufacturer to another.v
(6) For a rated operational voltage U_e = 400 VAC.
(7) Increased endurances: please consult us.

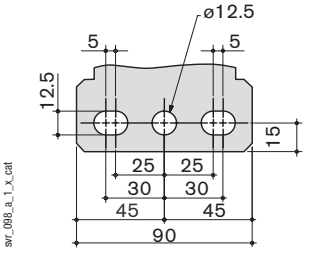
➲ Connection terminals

ATS BY-PASS 800 to 1000 A



svr_077_a_1_x_cat

ATS BY-PASS 1250 to 1600 A

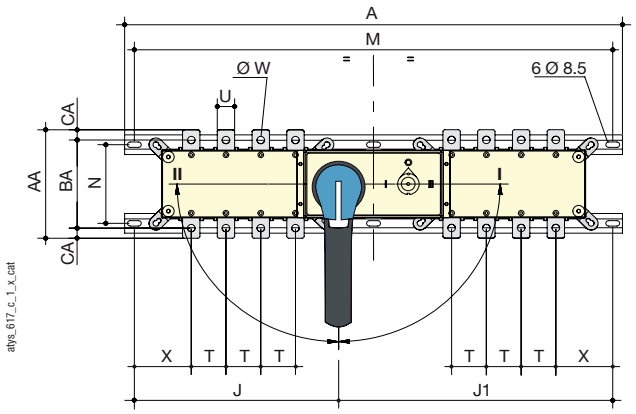


svr_098_a_1_x_cat

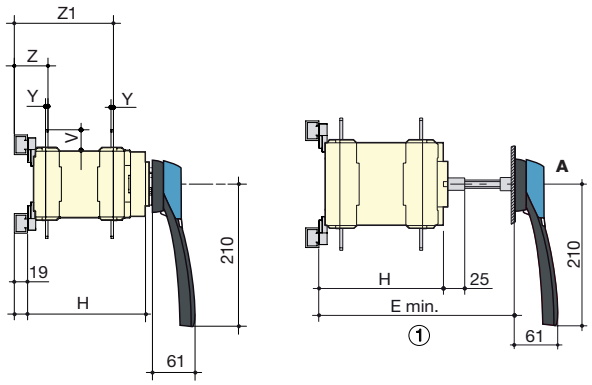
Dimensions

ATS BY-PASS 125 to 630 A

Direct front operation



External front operation

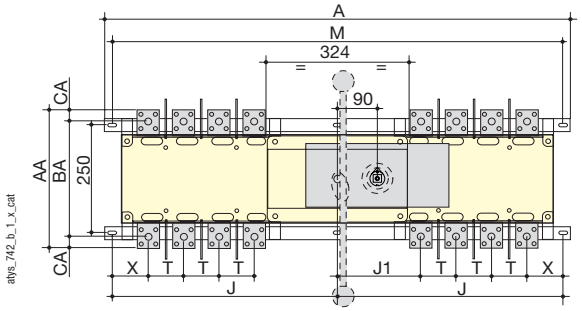


A. S3 type handle for external front operation: 125 to 630 A.
1. Minimum length with shaft extension: E min + 50 mm.

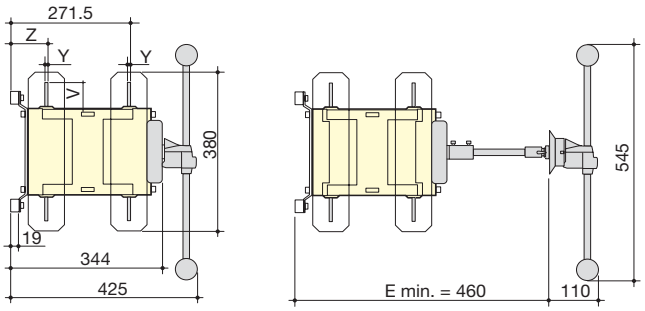
Rating (A)	Overall dimensions A 8p.	E min	Switch body H	J 8p.	J1 8p.	Switch mounting M 8p.	N	Connection T	U	V	W	X 8p.	Y	Z	Z1	AA	BA	AC
125	610	260±1	193	238	338	576	101	36	20	25	8.5	76	3.5	47	143	135	115	10
160	610	260±1	193	238	338	576	101	36	20	25	8.5	76	3.5	47	143	135	115	10
250	725	260±1	193	295	396	691	116	50	25	30	11	83.5	3.5	49	143	160	130	10
400	725	260±1	193	295	396	691	116	50	35	35	11	83.5	3.5	49	143	170	140	15
630	850	337±1	270	358	458	816	176	65	45	50	13	91.5	5	62	199	235	220	20

ATS BY-PASS 800 to 1600 A

Direct front operation



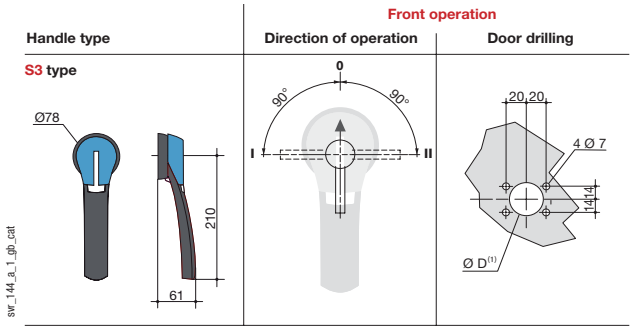
External front operation



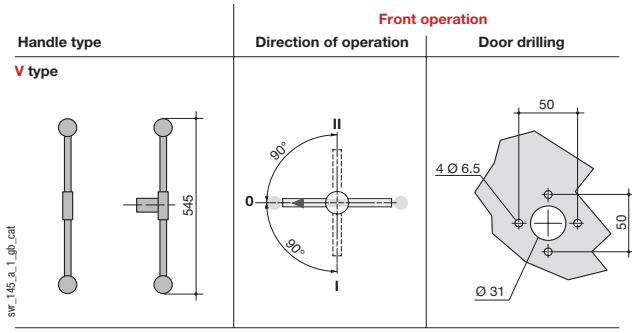
Rating (A)	Overall dimensions A 8p.	Switch body J 8p.	J1 8p.	Switch mounting M 8p.	Connection T	V	X 8p.	Y	Z	AA	BA	AC
800	1 055	510.5	189	1 021	80	60.5	81.5	7	84.5	321	268	26.5
1000	1 055	510.5	189	1 021	80	60.5	81.5	7	84.5	321	268	26.5
1250	1 320	643	195	1 286	120	44	88	8	85.5	288	258	15
1600	1 320	643	195	1 286	120	44	88	8	85.5	288	258	15

Dimensions for external handles

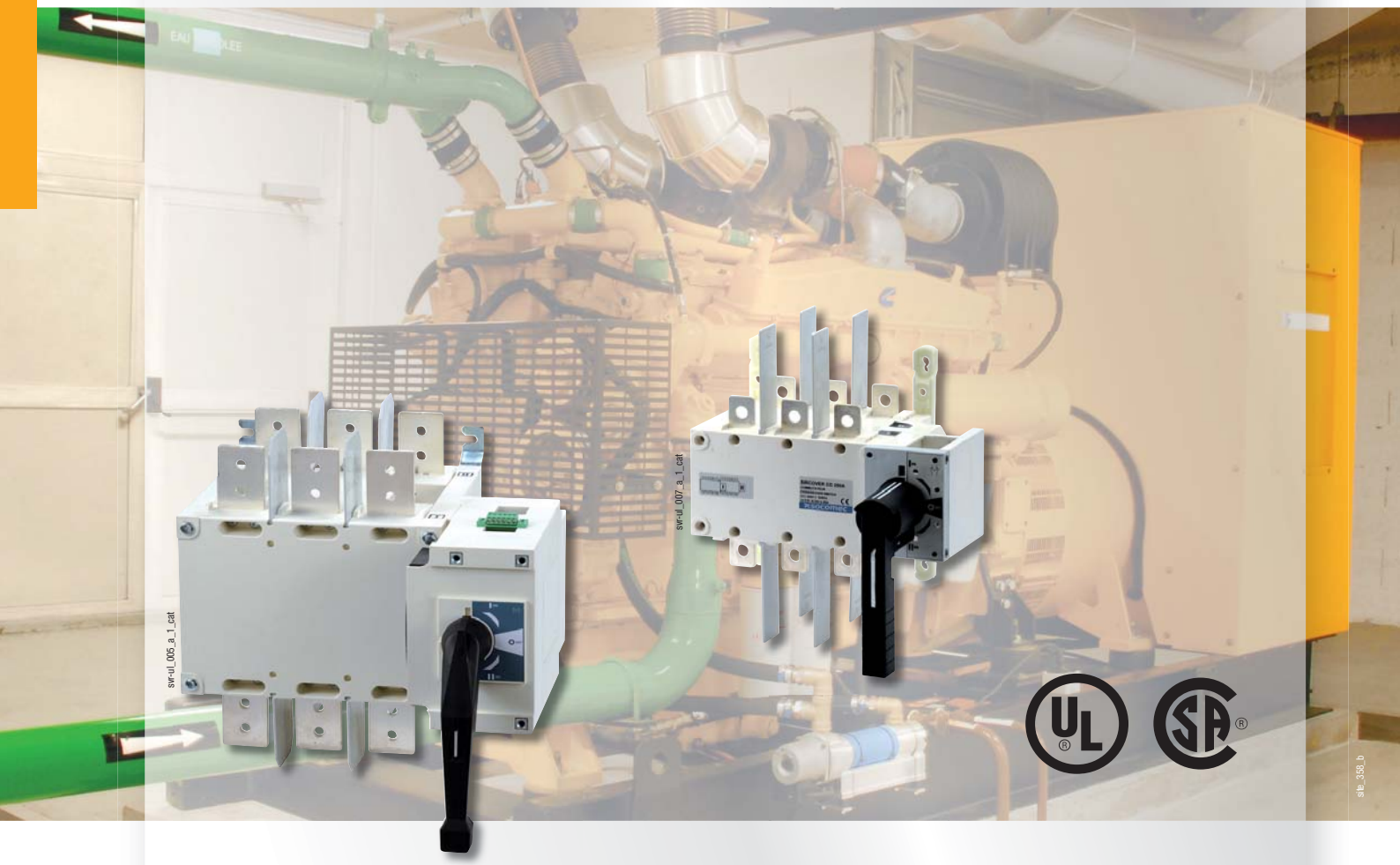
ATS BY-PASS 125 to 630 A



ATS BY-PASS 800 to 1600 A



SIRCOVER UL



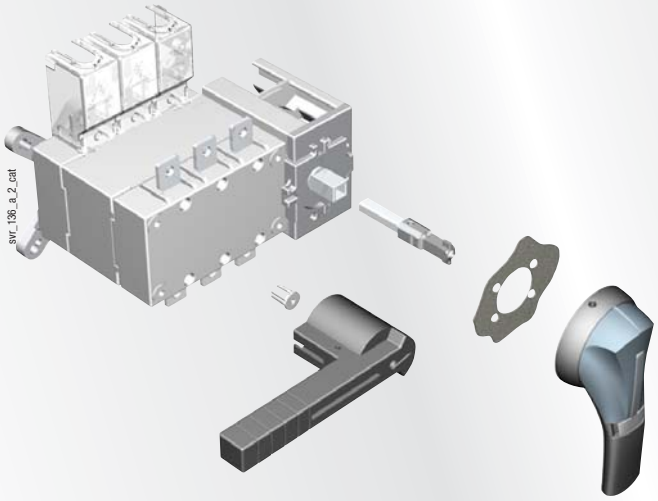
100 to 1200 A

➲ Function

SIRCOVER are heavy duty manual transfer switches. They ensure switching transfer of sources or transfer of two low voltage circuits on load as well as their safety disconnection.
These switches are extremely durable and are tested and approved for use in the most demanding applications as resitive load or total system applications.

➲ General characteristics

- 3 stable positions (I, 0, II).
- On load switching.
- Direct or external handle.
- 480VAC total system.
- 600VAC resistive load.
- Back to back construction compact foot print



➲ Conformity to standards

- UL98, Guide WHTY, file 201138
- UL1008, Guide WPYV, file 317092
- CSA 22.2#4, Class 4651-02
- IEC 60947-3

➲ References


swr-ul_007_a_1_cat

UL 1008 and UL98

Rating (A)	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Bridging bars	Auxiliary contacts	Terminal screens
100 A	3 P	4150 **3011**(1)	Black 4199 **4012**	S2 type Black I - 0 - II 4, 4X 142D **2113**	200 mm 7.9 inches 1400 **1020**	3P 4159 **3021** 4P 4159 **4021**	Contact NO/NC 4159 **0021** Low level 4159 **0022**	3P 4158 **3021** 4P 4158 **4021**
	4 P	4150 **4011**(1)						
200 A	3 P	4150 **3021**(1)			320 mm 12.6 inches 1400 **1032**			
	4 P	4150 **4021**(1)		S2 type Black I - 0 - II 4, 4X 142D **2813**(2)	400 mm 15.7 inches 1400 **1040**			
400 A	3 P	4150 **3041**(1)		S3 type Black I - 0 - II 4, 4X 143D **3113**	S3, S4 type 200 mm 7.9 inches 1401 **1520** 320 mm 12.6 Inches 1401 **1532** 400 mm 15.7 Inches 1401 **1540**	3P 4159 **3041** 4P 4159 **4041**		3P 4158 **3041** 4P 4158 **4041**
	4 P	4150 **4041**(1)						
600 A	3 P	4150 **3060**	Black 4199 **7012**			3 P 4159 **3063** 4 P 4159 **4063**	Contact NO/NC as standard	3 P 1609 **3063** 4 P 1609 **4063**
	4 P	4150 **4060**						
800 A	3 P	4150 **3080**	Black 4199 **7062**	S4 type Black I - 0 - II 4, 4X 144D **3813**(2)		3 P 4159 **3080** 4 P 4159 **4080**		3 P 1609 **3080** 4 P 1609 **4080**
	4 P	4150 **4080**						
1200 A	3 P	4150 **3120**						
	4 P	4150 **4120**						

(1) New range, all ratings are UL98 certified, ratings 100A, 200A and 400A will by UL 1008 certified from January 2011.
For MTS, from 100A to 400A UL 1008 certified, see our website.
(2) Padlockable in all 3 positions.

Direct handle



Rating (A)	Colour	Handle type	Reference
100 ... 400	Black	1 lever	4199 **4012**
600	Black	2 lever	4199 **7012**
800 ... 1250	Black	2 lever	4199 **7062**

External handle



Use

The handle interlocking function prevents the user from opening the door of the enclosure when the switch is in the "ON" position.
Opening the door when the switch is in the "ON" position is possible by defeating the interlocking function with the use of a tool (authorized persons only).
The interlocking function is restored when the door is re-closed.

Rating (A)	Handle type	Colour	Nema type	Lockable in 3 positions	Reference
100 ... 200	S2	Black	4, 4X	no	142D **2113**
100 ... 200	S2	Red/Yellow	4, 4X	no	142E **2113**
100 ... 200	S2	Black	1, 3R, 12	no	142F **2113**
100 ... 200	S2	Red/Yellow	1, 3R, 12	no	142G **2113**
100 ... 200	S2	Black	4, 4X	yes	142D **2813**
100 ... 200	S2	Red/Yellow	4, 4X	yes	142E **2813**
100 ... 200	S2	Black	1, 3R, 12	yes	142F **2813**
100 ... 200	S2	Red/Yellow	1, 3R, 12	yes	142G **2813**
400 ... 600	S3	Black	4, 4X	no	143D **3113**
400 ... 600	S3	Red/Yellow	4, 4X	no	143E **3113**
400 ... 600	S3	Black	1, 3R, 12	no	143F **3113**
400 ... 600	S3	Red/Yellow	1, 3R, 12	no	143G **3113**
400 ... 600	S3	Black	4, 4X	yes	143D **3813**
400 ... 600	S3	Red/Yellow	4, 4X	yes	143E **3813**
400 ... 600	S3	Black	1, 3R, 12	yes	143F **3813**
400 ... 600	S3	Red/Yellow	1, 3R, 12	yes	143G **3813**
800 ... 1200	S4	Black	4, 4X	no	144D **3113**
800 ... 1200	S4	Black	1, 3R, 12	no	144E **3113**
800 ... 1200	S4	Black	1, 3R, 12	no	144E **3113**
800 ... 1200	S4	Red/Yellow	1, 3R, 12	no	144G **3113**
800 ... 1200	S4	Black	4, 4X	yes	144D **3813**
800 ... 1200	S4	Red/Yellow	4, 4X	yes	144E **3813**
800 ... 1200	S4	Black	1, 3R, 12	yes	144F **3813**
800 ... 1200	S4	Red/Yellow	1, 3R, 12	yes	144G **3813**
800 ... 1200	V1	Black	1	no	4199 **7149**

Shaft for external handle



Rating (A)	Handle type	Length (in)	Length (mm)	Cote X (in)	Cote X (mm)	Reference
100 ... 200	S2 type	7.9	200	5.31 ... 10.43	135 ... 265	1400 **1020**
100 ... 200	S2 type	12.6	320	3.74 ... 20.87	95 ... 530	1400 **1032**
100 ... 200	S2 type	15.7	400	4.92 ... 17.72	125 ... 450	1400 **1040**
400 ... 600	S3 type	7.9	200	8.70 ... 13.50	221 ... 343	1401 **1520**
400 ... 600	S3 type	12.6	320	8.70 ... 18.23	221 ... 463	1401 **1532**
400 ... 600	S3 type	15.7	400	11.61 ... 29.72	295 ... 755	1401 **1540**
800 ... 1200	S4 type	7.9	200	8.70 ... 13.50	221 ... 343	1401 **1520**
800 ... 1200	S4 type	12.6	320	8.70 ... 18.23	221 ... 463	1401 **1532**
800 ... 1200	S4 type	15.7	400	11.61 ... 29.72	295 ... 755	1401 **1540**
800 ... 1200	V1	12.6	320			4199 **3018**
800 ... 1200	V1	15.7	400			4199 **3019**

Bridging bars



acces_205_a_1_cat

Use
Creation of a common point, above or below the switch, between positions I and II.

Rating (A)	No. bridging bar	Reference
100 ... 200	3	4159 **3021**
100 ... 200	4	4159 **4021**
400	3	4159 **3041**
400	4	4159 **4041**
600	3	4159 **3063**
600	4	4159 **4063**
800 ... 1200	3	4159 **3080**
800 ... 1200	4	4159 **4080**

Terminal protection screen



acces_207_a_1_cat

Use
Top or bottom protection against direct contact with terminals or connecting parts.

Rating (A)	No. of poles	Reference
100 ... 200	3 P	4158 **3021**
100 ... 200	4 P	4158 **4021**
400	3 P	4158 **3041**
400	4 P	4158 **4041**
600	6 P	1609 **3063**
600	4 P	1609 **4063**
800 ... 1200	3 P	1609 **3080**
800 ... 1200	4 P	1609 **4080**

Auxiliary contacts


acces_065_a_1_cat

Use
Pre-break and signalisation of positions .
For low level ACs and other ACs contact us.

Electrical characteristics
A300.

NO/NC auxiliary contact

Rating (A)	Contact (s)	Reference
100 ... 400	NO/NC on position 1 and 2	4159 **0021**
100 ... 400	Low level NO/NC on position 1 and 2	4159 **0121**
600 ... 1200	NO/NC on position 1 and 2	as Standard

Terminal lugs

Use
Connection of bare copper cables onto the terminals (without lugs).


ul_032_a

Rating (A)	Wires range	No wires per lug	Lugs per kit	Wires	Reference
100 ... 200	6 - 300MCM	1	2	Cu / Al	3954 **2020**
100 ... 200	6 - 300MCM	1	3	Cu / Al	3954 **3020**
100 ... 200	6 - 300MCM	1	4	Cu / Al	3954 **4020**
400	4 - 600MCM	1	2	Cu / Al	3954 **2040**
400	4 - 600MCM	1	3	Cu / Al	3954 **3040**
400	4 - 600MCM	1	4	Cu / Al	3954 **4040**
400	2x (#6 - 350MCM)	2	2	Cu / Al	3954 **2041**
400	2x (#6 - 350MCM)	2	3	Cu / Al	3954 **3041**
400	2x (#6 - 350MCM)	2	4	Cu / Al	3954 **4041**
600	2x (#2 - 600MCM)	1	2	Cu / Al	3954 **2060**
600	2x (#2 - 600MCM)	2	3	Cu / Al	3954 **3060**
600	2x (#2 - 600MCM)	2	4	Cu / Al	3954 **4060**

➲ SIRCOVER UL - Characteristics according to UL1008

100 to 1200 A

General use rating (A)	100 A	200 A	400 A	600 A	800 A	1200 A
Operation voltage	600	600	600	600	600	600
Short circuit rating at 600 VAC (kA)	100	100	65	100	100	100
Type of fuse	J	J	J	L	L	L
Max. fuse rating (A)	200	400	600	800	1000	1600
Short circuit rating with circuit breaker (kA/ms)	10 / 25	10 / 25	14 / 50	35 / 50	35 / 50	35 / 50
Operational power / current max Operational 3 ph						
240 VAC Total System (A)	100	100	250	400	700	700
240 VAC Resistive load (A)	100	200	400	600	800	1200
480 VAC Total System (A)	100	100	125	350	600	600
480 VAC Resistive load (A)	100	200	400	600	800	1200
600 VAC Resistive load (A)	100	200	400	400	800	1200
Mechanical endurance						
Endurance (number of operating cycles)	6050	6050	6050	6050	3550	3550
Connection terminals						
Min. connection section / AWG	#6	#6	#4 / 2 x #6	2x #2	4x #2	4x #2
Max. connection section / AWG	300MCM	300MCM	600MCM / 2x 350MCM	2x 600MCM	4x 600MCM	4x 600MCM

➲ Characteristics according to UL98/CSA22.2#4

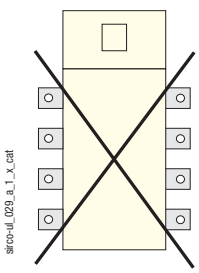
100 to 1200 A

General use rating (A)	100 A(1)	200 A(1)	400A(1)	600 A	800 A	1200 A
Short circuit rating at 600 VAC (kA)	200	200	200	200	100	100
Type of fuse	J	J	J	J	L	L
Max. fuse rating (A)	100	200	400	600	800	1200
Max. motor, hp / FLA 3 ph motor max.						
220-240 VAC	30 / 80	75 / 196	125 / 312	200 / 480	200 / 480	200 / 480
440-480 VAC	60 / 77	125 / 156	250 / 302	400 / 477	500 / 590	500 / 590
600 VAC	100 / 99	200 / 192	350 / 336	350 / 336	500 / 472	500 / 472
Max. motor power, hp / DC FLA motor max.						
125 VDC(1)	10 / 76	15 / 112	20 / 148	20 / 148		
250 VDC(2)	15 / 55	15 / 55	50 / 173	50 / 173		
Mechanical characteristics						
Endurance (number of operating cycles)	10000	8000	6000	6000	3500	3500
Operating torque (lbs.in/Nm)	88.5/10	88.5/10	128.3/14.5	327.5/37	442.5/50	442.5/50
Auxiliary contacts						
Electrical characteristics	A300	A300	A300	A300	A300	A300

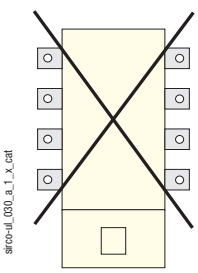
(1) Only UL98 listed, availability see our Website.

➲ Mounting orientation

SIRCOVER - 100 to 400 A

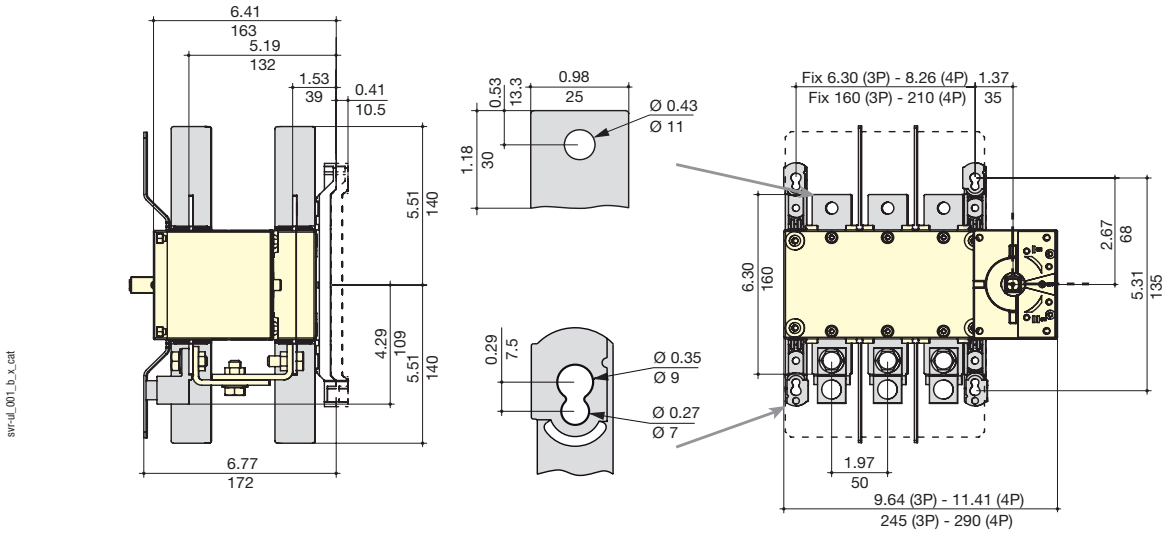


SIRCOVER - 600 to 1200 A

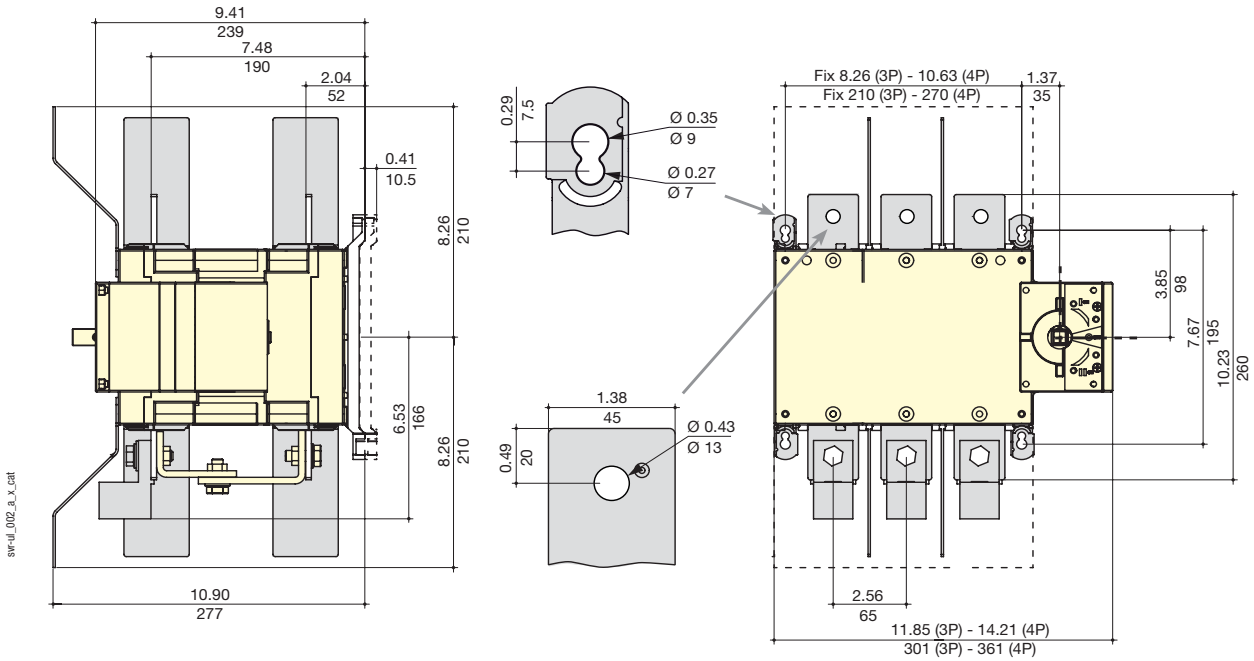


Dimensions (in / mm)

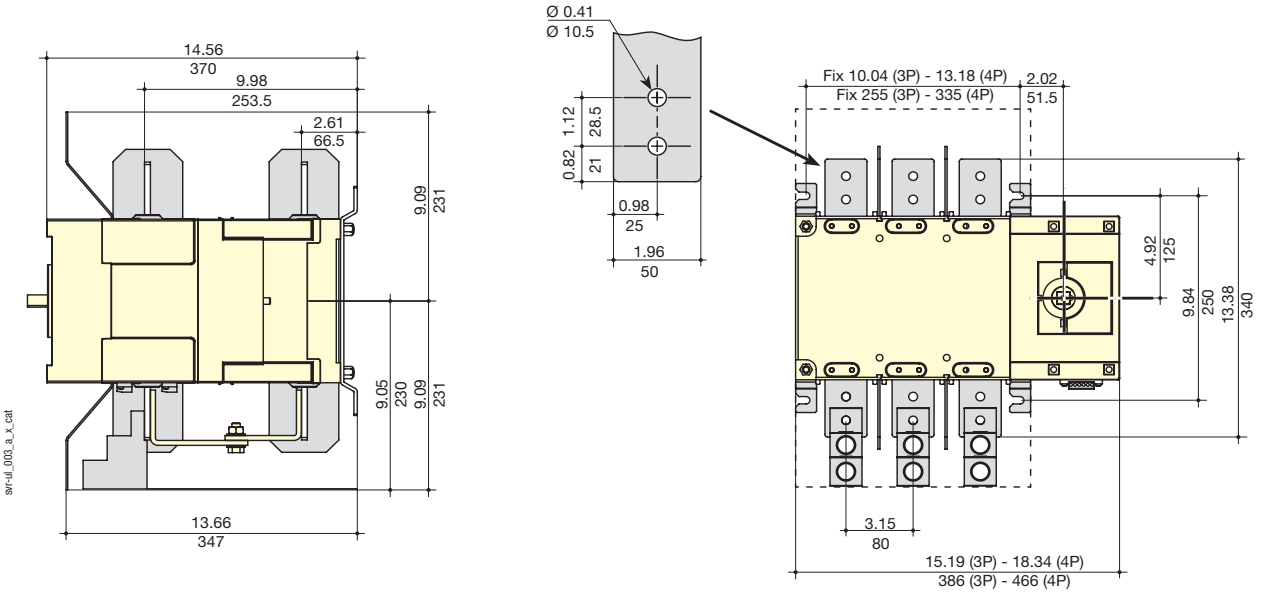
100 to 200 A



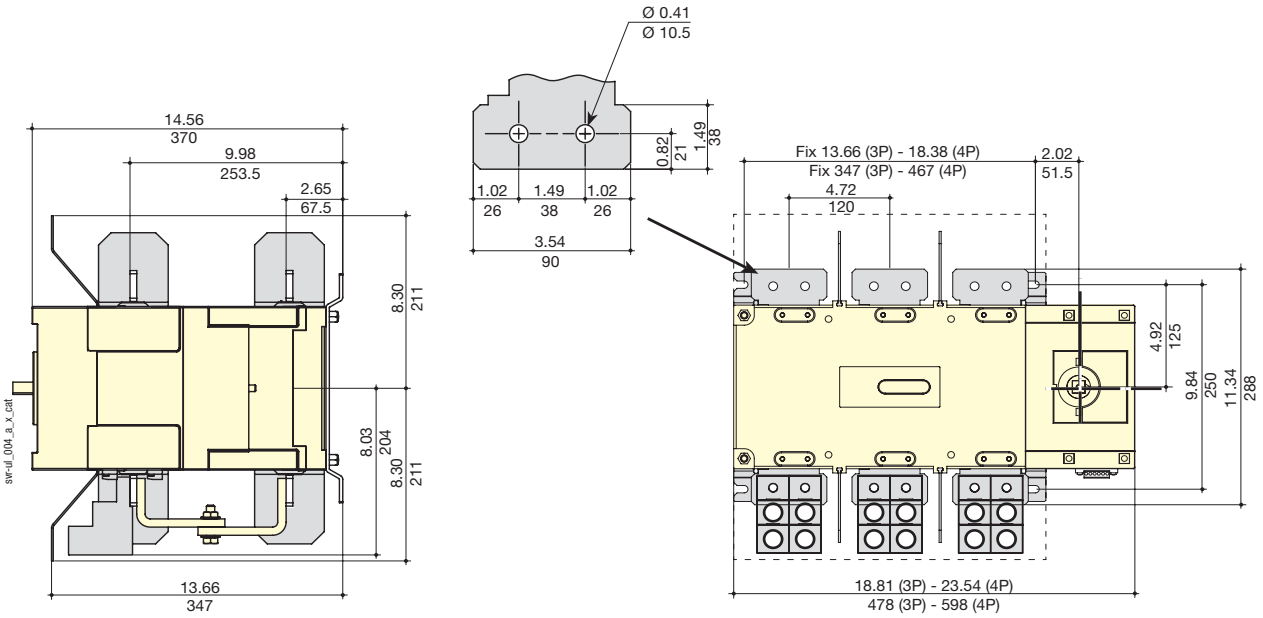
400 A



600 A

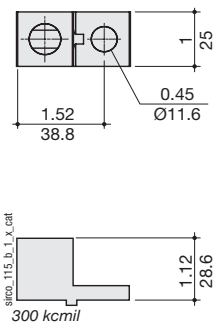


800 to 1200 A

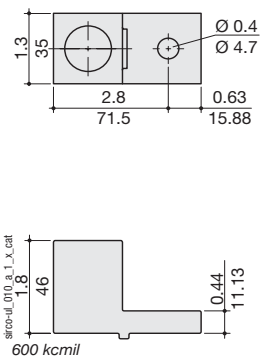


➲ Terminal lugs (in / mm)

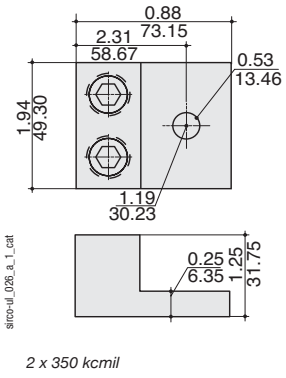
SIRCOVER 100 to 200 A



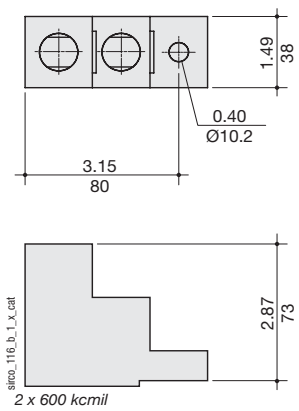
SIRCOVER 400 A



SIRCOVER 400 A



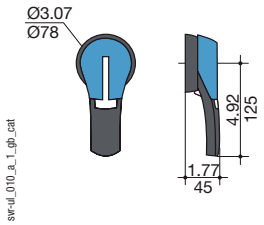
SIRCOVER 600 to 1200 A

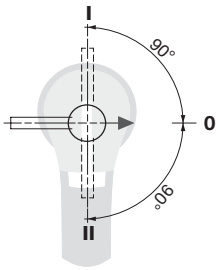


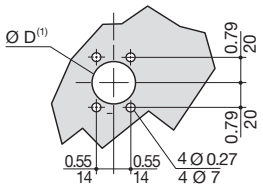
External handles dimensions (in / mm)

SIRCOVER 100 and 200 A

Handle type	Front operation Direction of operation	Door drilling
S2 type		



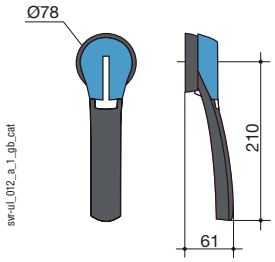


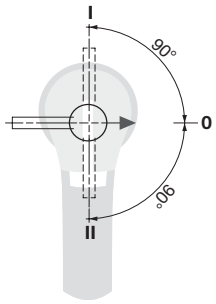


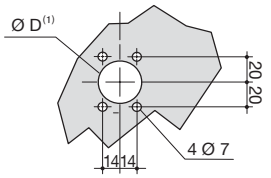
svr-ul_010_a_1_gb_cat

SIRCOVER 400A

Handle type	Front operation Direction of operation	Door drilling
S3 type		



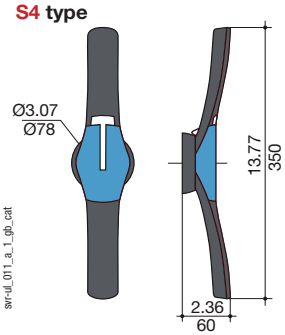


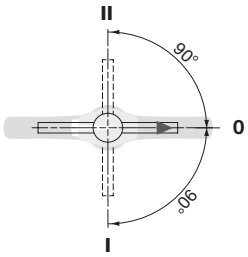


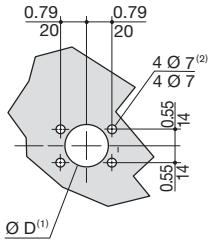
svr-ul_012_a_1_gb_cat

SIRCOVER 600 to 1200 A

Handle type	Front operation Direction of operation	Door drilling
S4 type		



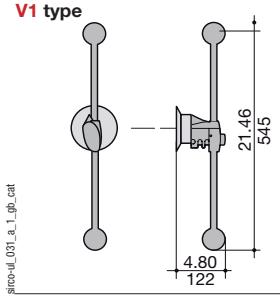


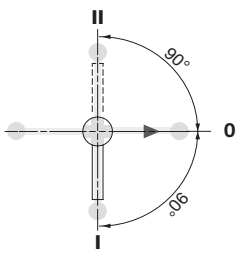


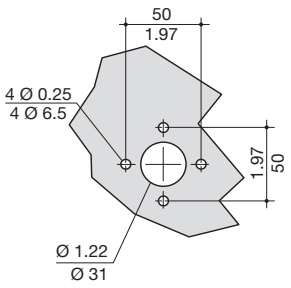
svr-ul_011_a_1_gb_cat

SIRCOVER 600 A - 6/8 poles

Handle type	Front operation Direction of operation	Door drilling
V1 type		







sirco-ul_031_a_1_gb_cat



From 40 to 160 A

➲ Function

The **ATyS M**, dedicated to applications below 160A, enables the switching On Load of single or three phase sources in remote or automatic mode.
This Transfer Switching Equipment (TSE) is designed to be used in low voltage power systems for Open Transition Transfer applications.
This Transfer Switching Equipment (TSE) is composed of two mechanically and electrically interlocked switches.

- The **ATyS M 3** (RTSE) is driven by volt-free dry contacts allowing switching operation between position I, 0, II, from an external control logic or a PLC (control relay type ATyS C30).
- The **ATyS M 6** (ATSE) is dedicated to break before make automatic transfer applications. The ATyS M 6 integrates control relays, timers and test functions to manage a Normal/Backup switching operation between two networks or between a generator set and a network.

➲ General characteristics

- Isolation with positive break indication.
- On load switching.
- Manual emergency operation.
- 3 stable positions.(I, 0, II).
- Padlocking in 0 or in all three positions (I, 0, II).
- AUTO / MANU selector.
- Command of the device in 0 position thanks to the energy storage device (ATyS M 6e).
- Single phase or three phase control on networks I and II (ATyS M 6s and M 6e).
- Electrical measurements (ATyS M 6e).

➲ Conformity to standards

- IEC 60947-3
- IS 14947-3
- EN 60947-3
- NBN EN 60947-3
- BS EN 60947-3
- GB 14048
- IEC 60947-6-1
- EN 60947-6-1
- NBN EN 60947-6-1
- BS EN 60947-6-1
- VDE 0660-107



Emergency manual operation



Padlocking facility



AUT/ MAN sealable cover

What you need to know

• On ATyS M 3s model

Power supply

Single-phase interface Three-phase interface



ATyS M 3s is equipped with two independent 230 VAC (176-288 VAC), 50/60 Hz (45/65-65 Hz) power inputs.

These two supplies can be connected individually to switch I and switch II:
- Power supply I must be available to reach position I,
- Power supply II must be available to reach position II.

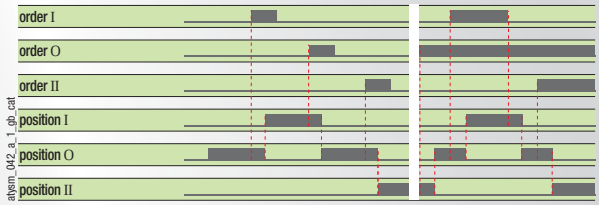
The 0 position is a stable transition position.
The use of a double power supply module (DPS) or an external supply enables the full security of the 3 position commands in all circumstances (from the available source). In this case, both supply inputs of the ATyS M 3s must be connected in parallel in order for them both to be supplied from the output of the DPS.

Electrical control

The switching operation can be driven by an external volt free contact coming from an external control relay (ATyS C30 for example).The positions are stable in case of loss of supply. There are two types of command logic to chose from: impulse or contactor.

• Impulse logic
- A switching command of at least 60 ms is necessary to initiate operation.
- Orders I and II have priority over order 0.
- Order 0 must be maintained (joint connection 317).

• Contactor logic
- If command I or II disappears, the device returns to zero position, if power supply is available.
- The first command (order) received (I or II) has priority as long as it remains present.



• On ATyS M 6s and 6e models

Power supply

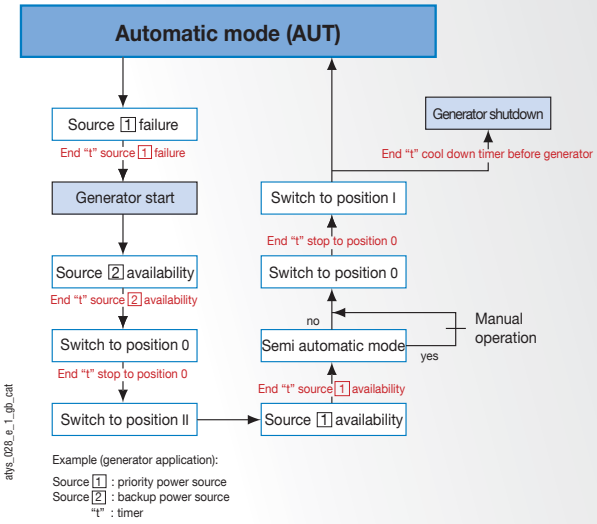
ATyS M 6 products are self power supplied from incoming supplies: 230 VAC (176-288 VAC for the ATyS M 6s and 160-305 VAC for the ATyS M 6e), 50/60 Hz (45-65 Hz).
For three phase products: two different versions are available:
- 230 / 400 VAC with neutral conductor distributed: product is power supplied between phase and neutral,
- 127 / 230 VAC with or without neutral conductor distributed: product is power supplied between 2 phases.

For single phase products: one version is available:
- 230 VAC networks: product is power supplied between phase and neutral,

The neutral conductor can be connected to the left or right side of the switch.

Automatic control

The ATyS M 6e and M 6s are equipped with a sequence logic.



Configuration

ATyS M 6s

Single-phase interface Three phase interface



Common points between the three-phase and single-phase versions:
- 2 potentiometers (Sector loss and return time delays)
- 2 dip-switches (Pause for 2 seconds in position 0 during the transitions I<->II ; Network-Network Application or Network-Genset).
- 4 LED's (Supplies status; Automatic mode; Fault)
- 3 inputs for external control (Inhibition of the automatic mode; Remote Test on load; Manual retransfer from standby supply to normal supply).
- 1 NO bi-stable output relay for generator start /stop command (30 VDC / 2 A).
- 1 NC relay for product availability (250 VAC / 0.5 A).

Three phase ATyS M specificities:
- 2 potentiometers (Nominal voltage; Voltage thresholds)
- 2 dip switches (50 or 60 Hz; Network)

Specificity of the single phase ATyS M:
- PRG button: automatic voltage and nominal frequency programmation.

ATyS M 6e

Three phase interface



- 4 applications: Network/Genset, Network/Network, With or without priority.
- Adjustable thresholds and hysteresis.
- Display + keyboard (Programming of the values; Visualization of the electrical readings; Test and control positions function; Visualization of the availability of supplies).
- LED's (Product Power On; Supplies status; Position of the switch status; Automatic mode TEST/CONTROL Mode; Fault)
- 3 configurable inputs for external control (Automatic mode inhibition; Test on load and off load; Manual retransfer; Electrical control of the switch in positions I, 0 or II; Change of priority network...).
- 3 NO output relays (250 VAC / 3 A) , configurable (Availability of the supplies; Auxiliary position contacts; Load shedding control; Operational product...)
- 1 configurable bi-stable output relay for generator start /stop command (30 VDC / 2 A).
- Connection of a remote interface ATyS D10 or D20.
- A version with RS485 Communication, JBUS/Modbus protocol, is available.

➲ References



ATyS M 3s

Rating (A)	No. of poles	Power-supply voltage	ATyS M 3s	Bridging bars	Voltage sensing and power supply tap	Terminal shrouds	Auxiliary contacts unit
40 A	2 P	230 VAC	1323 **2004**	2 P 1309 **2006** 4 P 1309 **4006**	2 pieces 1399 **4006**	2 pieces 2294 **4016**(1)	1st unit as standard 2nd unit 1309 **0001**(2)
	4 P	230 VAC	1323 **4004**				
63 A	2 P	230 VAC	1323 **2006**				
	4 P	230 VAC	1323 **4006**				
80A	2 P	230 VAC	1323 **2008**				
	4 P	230 VAC	1323 **4008**				
100 A	2 P	230 VAC	1323 **2010**				
	4 P	230 VAC	1323 **4010**				
125 A	2 P	230 VAC	1323 **2012**				
	4 P	230 VAC	1323 **4012**				
160 A	2 P	230 VAC	1323 **2016**	1309 **2016**			
	4 P	230 VAC	1323 **4016**	1309 **4016**			

(1) In the three-phase version, in order to ensure complete upstream and downstream protection, order the reference twice, for the single-phase version, order the reference once.
(2) 1 contact block for I, 0 and II positions.



ATyS M 6s

Rating (A)	No. of poles	Network (VAC)	ATyS M 6s	Bridging bars	Voltage sensing and power supply tap	Terminal shrouds	Auxiliary contacts unit	Sealable cover
40 A	2 P	230	1353 **2004**	2 P 1309 **2006** 4 P 1309 **4006**	2 pieces 1399 **4006**	2 pieces 2294 **4016**(1)	1 piece 1309 **0001**(2)	2 P 1359 **2000** 4 P 1359 **0000**
	4 P	127/230	1353 **4004**					
	4 P	230/400	1354 **4004**					
63 A	2 P	230	1353 **2006**					
	4 P	127 / 230	1353 **4006**					
	4 P	230 / 400	1354 **4006**					
80 A	2 P	230	1353 **2008**					
	4 P	127 / 230	1353 **4008**					
	4 P	230 / 400	1354 **4008**					
100 A	2 P	230	1353 **2010**					
	4 P	127 / 230	1353 **4010**					
	4 P	230 / 400	1354 **4010**					
125 A	2 P	230	1353 **2012**					
	4 P	127 / 230	1353 **4012**					
	4 P	230 / 400	1354 **4012**					
160 A	2 P	230	1353 **2016**	2 P 1309 **2016** 4 P 1309 **4016**				
	4 P	127 / 230	1353 **4016**					
	4 P	230 / 400	1354 **4016**					

(1) In the three-phase version, in order to ensure complete upstream and downstream protection, order the reference twice.
(2) 1 contact block for I, 0 and II positions.


atysm_007_a_2_cat

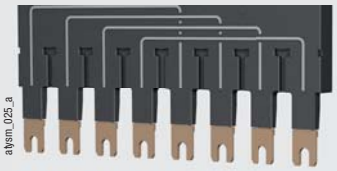
ATyS M 6e

Rating (A)	No. of poles	Network (VAC)	ATyS M 6e	ATyS M 6e + COM	Bridging bars	Voltage sensing and power supply tap	Terminal shrouds	Auxiliary contacts unit	Remote Human/ Machine Interface
40 A	4 P	127 / 230	1363 **4004**	1383 **4004**	4 P 1309 **4006**	2 pieces 1399 **4006**	2 pieces 2294 **4016**(1)	1 piece 1309 **0001**(2)	ATyS D10 1599 **2010** ATyS D20 1599 **2020**
	4 P	230 / 400	1364 **4004**	1384 **4004**					
63 A	4 P	127 / 230	1363 **4006**	1383 **4006**					
	4 P	230 / 400	1364 **4006**	1384 **4006**					
80 A	4 P	127 / 230	1363 **4008**	1383 **4008**					
	4 P	230 / 400	1364 **4008**	1384 **4008**					
100 A	4 P	127 / 230	1363 **4010**	1383 **4010**					
	4 P	230 / 400	1364 **4010**	1384 **4010**					
125 A	4 P	127 / 230	1363 **4012**	1383 **4012**					
	4 P	230 / 400	1364 **4012**	1384 **4012**					
160 A	4 P	127 / 230	1363 **4016**	1383 **4016**	4 P 1309 **4016**				
	4 P	230 / 400	1364 **4016**	1384 **4016**					

(1) In order to ensure complete upstream and downstream protection, order the reference twice.
(2) 1 contact block for I, 0 and II positions.

Accessories

Bridging bars


atysm_025_a

Use
To provide common point on either incoming or outgoing terminals.

Rating (A)	No. of poles	Reference
40 … 125	2 P	1309 **2006**
160	2 P	1309 **2016**
40 … 125	4 P	1309 **4006**
160	4 P	1309 **4016**

Voltage sensing and power supply tap


atysm_026_a

Use
To allow connection of 2 x ≤1.5 mm² voltage sensing or power cables.
The voltage sensing tap can be mounted in all the terminals without reducing their connecting capacity.

Rating (A)	Lot de	Reference
40 ... 160	2 pieces	1399 **4006**

Terminal shrouds


atysm_027_a

Use
To have a full protection against direct contact with the connection terminals or parts.
Terminal shrouds advantages
Perforations enabling remote thermographic verification without dismantling.
Possibility of sealing.

Mounting
In three-phase version, for upstream and downstream protection, order the reference twice, in single phase version order the reference just once.

Rating (A)	Position	Reference
40 ... 160	Top and bottom	2294 **4016**(1)

(1) Reference made of 2 pieces.

Auxiliary contact

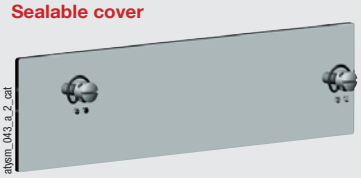

atysm_028_a_1_cat

Use
Up to 2 auxiliary contacts accessory per product.
Each accessory integrates 1 NOC auxiliary contact (for each position I, 0 and II).
The ATyS M 3s is delivered in standard with 1 unit.

Characteristics
250 VAC / 5 A maximum.

Rating (A)	Reference
40 … 160	1309 **0001**

Sealable cover


atysm_043_a_2_cat

Use
Prevents access to the configuration panel of the ATyS M 6s.

Rating (A)	No. of poles	Reference
40 …160	2 P	1359 **2000**
40 …160	4 P	1359 **0000**

Residential enclosure


atysm_196_a_1_cat

Use
Dedicated to the implementation of a single phase ATyS M, it enables easy access to an IP41 compact supply switching solution.

Rating (A)	H x W x D (mm)	Reference
40 ... 160	410 x 305 x 150	1309 **9056**

Auto transformer

Use
The 400/230 Vac 400 VA auto transformer is used with the ATyS M 6 in case of three-phase network without neutral.

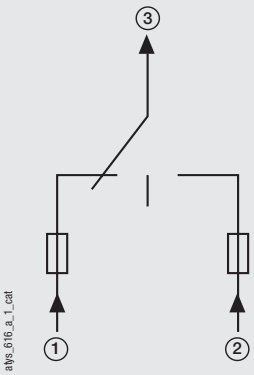
To use it with the ATyS M 6e version 230/400 Vac, the position of the neutral (right or left) and the product network type (3NBL) have to be configured in the programming mode.

Rating (A)	Reference
40 … 160	4359 **4315**

Double power supply - DPS



atys_612_a_2_cat



atys_616_a_1_cat

1 and 2. In
3. Output

Use
Allows an ATyS M 3s to be supplied by two 230 VAC 50/60Hz networks.

Input
- The input is considered as "active" from 200 VAC.
- Maximum voltage: 288 VAC.
- Internal protection: fuse protected 3.15 A
- Terminal connections: max. 6 mm².
- Modular device: 4 modules width.

Input 1	Input 2	Output
230 VAC	0 VAC	230 VAC (Input 1)
0 VAC	230 VAC	230 VAC (Input 2)
230 VAC	230 VAC	230 VAC (Input 1)
0 VAC	0 VAC	0 VAC

Description of accessories	Reference
DPS	1599 **4001**

Connecting cable for remote interfaces


acces_209_a_2_cat

Use
To connect between a remote interface (D10 or D20) and a control product (ATyS M 6e).
Characteristics: RJ45 8 straight non insulated cables, 3 m length.

Type	Length	Reference
RJ45 cable	3 m	1599 **2009**

Power connection terminals

Use
The power connection terminals allow conversion of the ATyS M cage terminals into bolt-on type connection terminals, allowing the connection of up to two 70mm² cables.
Each power connection terminal is provided with separation screens.

Rating (A)	Reference
40 ... 160	1399 **4017**

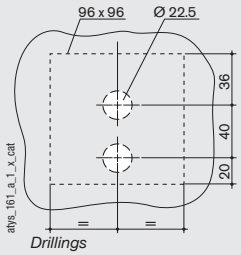
Remote interfaces for ATyS M 6e







Interfaces are self powered from the ATyS M 6e



Drillings

Use
To display source availability and changeover state on the front of a panel.
Interfaces are self powered from the ATyS M 6e.
Maximum connection distance of 3 m.

ATyS D10
To display source availability and changeover state on the cabinet front panel.
Protection degree: IP21

ATyS D20
In addition to the ATyS D10, it allows displays, operation; tests and configuration on the cabinet front panel.
Protection degree: IP21

Door mounting
2 holes Ø 22.5.
ATyS connection via RJ45 cable, not isolated.

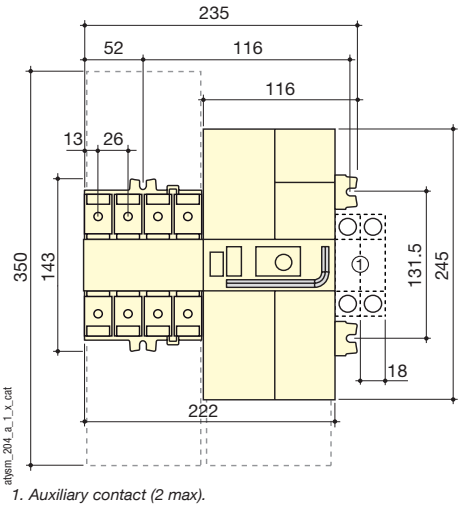
Cable not provided

Description of accessories	Reference
ATyS D10	1599 **2010**
ATyS D20	1599 **2020**

Dimensions

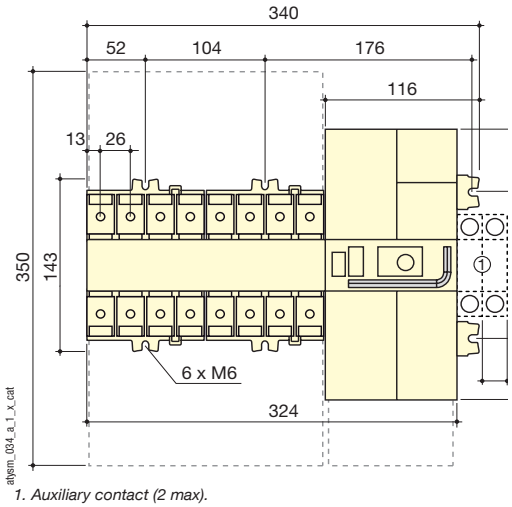
ATyS M 40 to 160 A

Single phase ATyS M



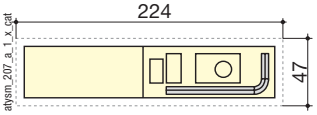
1. Auxiliary contact (2 max).

Three-phases ATyS M

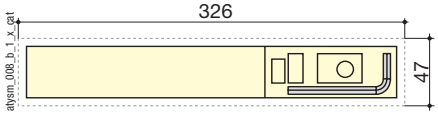


1. Auxiliary contact (2 max).

Single phase ATyS M - Door cutout

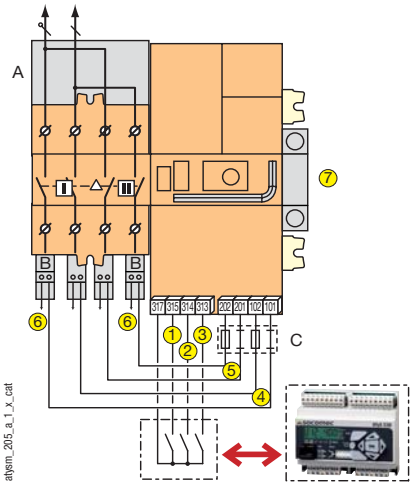


Three-phases ATyS M - Door cutout

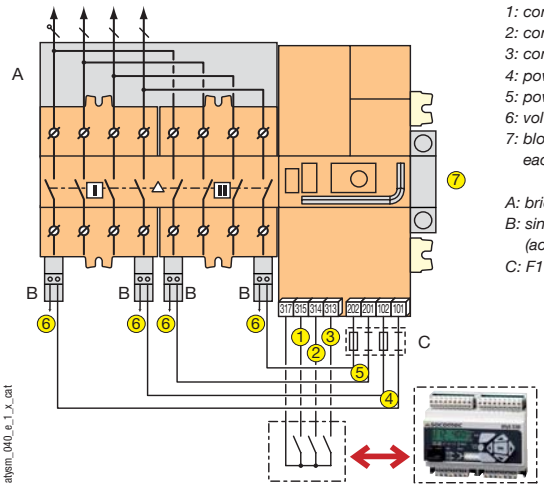


➲ Terminals and connections

Single phase ATyS M 3s



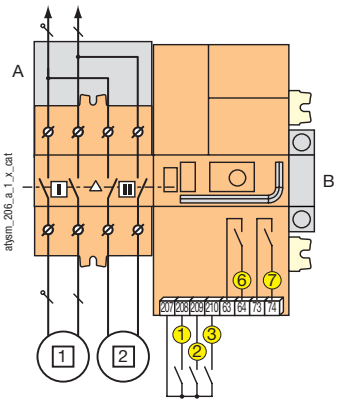
Three-phases ATyS M 3s



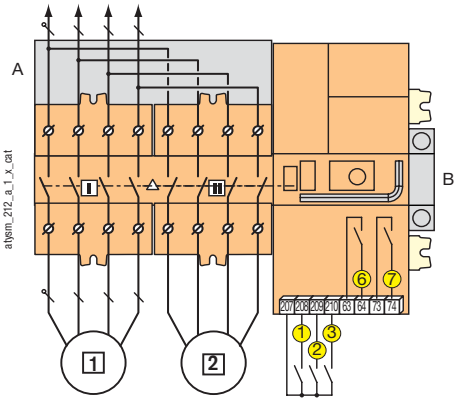
1: control position I
2: control position II
3: control position 0 / C
4: power supply I (230 VAC)
5: power supply II (230 VAC)
6: voltage tap
7: block auxiliary contacts - 1 NO/NC each position I , 0, II (factory fitted)

A: bridging bar (accessories)
B: single phase voltage sensing tap (accessories)
C: F1 / F2 = fuse 10 A gG

Single phase ATyS M 6s



Three-phases ATyS M 6s

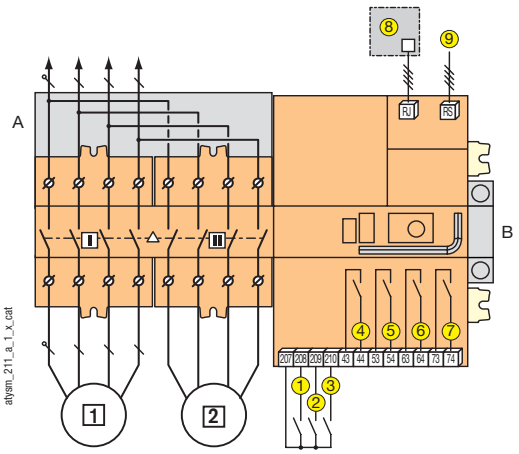


1 preferred source
2 alternate source

1: manual retransfer / priority change
2: charge test
3: automatic mode inhibition
6: relay for product availability
7: genset start / stop relay generating set

A: bridging bar (accessories)
B: block auxiliary contacts - 1 NO/NC each position I, 0, II (factory fitted)

Three-phases ATyS M 6s



1 preferred source
2 alternate source

1: manual retransfer / priority change
2: charge test
3: automatic mode inhibition
6: relay for product availability
7: genset start / stop relay generating set

A: bridging bar (accessories)
B: auxiliary contacts unit - 1 AC per position I, 0, II (accessory)

➲ Characteristics according to IEC 60947-3 and IEC 60947-6-1

40 to 160 A

Thermal current I_{th} (40°C)		40 A	63 A	80 A	100 A	125 A	160 A
Rated insulation voltage U_i (V) (power circuit)		800	800	800	800	800	800
Rated impulse withstand voltage U_{imp} (kV) (power circuit)		6	6	6	6	6	6
Rated insulation voltage U_i (V) (operation circuit)		300	300	300	300	300	300
Rated impulse withstand voltage U_{imp} (kV) (operation circuit)		4	4	4	4	4	4
Rated operational currents I_e (A) (IEC 60947-3)							
Rated voltage	Load duty category	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)
415 VAC	AC-21 A / AC-21 B	40/40	63/63	80/80	100/100	125/125	160/160
415 VAC	AC-22 A / AC-22 B	40/40	63/63	80/80	100/100	125/125	160/160
415 VAC	AC-23 A / AC-23 B	40/40	63/63	80/80	100/100	125/125	125/160
690 VAC	AC-21 A / AC-21 B	40/40	63/63	80/80	100/100	125/125	160/160
690 VAC	AC-22 A / AC-22 B	40/40	63/63	80/80	80/80	100/125	100/125
690 VAC	AC-23 A / AC-23 B	40/40	63/63	63/63	80/80	80/80	80/80
Rated operational currents I_e (A) (IEC 60947-6)-1							
Rated voltage	Load duty category	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)
415 VAC	AC-31 A / AC-31 B	40/40	63/63	80/80	100/100	100/125	100/160
415 VAC	AC-32 A / AC-32 B	40/40	63/63	80/80	100/100	100/125	100/160
415 VAC	AC-33 A / AC-33 B	-/40	-/63	-/80	-/80	-/80	-/80
Overload capacity							
Rated short-time withstand current 1 s. I_{cw} (kA rms)		4	4	4	4	4	4
Rated short-circuit making capacity Icm (kA peak)(2)		17	17	17	17	17	17
Prospective short-circuit current (kA rms)(2)		50	50	50	50	50	50
Rating of the associated fuse (A)(2)		40	63	80	100	125	160
Connection							
Minimum connection section		6	6	6	6	6	6
Maximum Cu cable section (mm^2)		70	70	70	70	70	70
Tightening torque (Nm)		5	5	5	5	5	5
Switching time (Standard setting)							
I - 0 or II - 0 (ms)(3)		50	50	50	50	50	50
I - II or II - I (ms)(3)		180	180	180	180	180	180
Duration of "electrical blackout" I - II (ms) minimum (ATyS M 3s)		60	60	60	60	60	60
Duration of "electrical blackout" I - II (ms) minimum (ATyS M 6s or 6e)		90	90	90	90	90	90
Power supply							
Supply 230 VAC mini / maxi (VAC) (ATyS M 3s and ATyS M 6s)		176/288	176/288	176/288	176/288	176/288	176/288
Supply 230 VAC mini / maxi (VAC) (ATyS M 6e)		160/305	160/305	160/305	160/305	160/305	160/305
Control supply power demand							
Nominal power (VA)		6	6	6	6	6	6
Max current under 230 VAC (A) - ATyS M 3s and M 6s		30	30	30	30	30	30
Max current under 230 VAC (A) - ATyS M 6e		20	20	20	20	20	20
Mechanical characteristics							
Endurance (number of operating cycles)		10 000	10 000	10 000	10 000	10 000	10 000
Weight (kg)		3.5	3.5	3.5	3.5	3.5	3.5

(1) A/B: Category with index A = frequent operation - Category with index B = infrequent operation.
(2) For a rated operating voltage U_e = 400 VAC.
(3) Between the order given and reaching of position at U_n (under nominal conditions).

➲ Services & Technical Assistance

Our expertise extends to a complete offer of services like commissioning installation audit, training, maintenance and project engineering.





From 125 to 3200 A

➲ Function

The **ATyS** dedicated to applications from 125A, enables the switching On Load three phase sources in remote or automatic mode.
This Transfer Switching Equipment (TSE) is designed to be used in low voltage power systems for Open Transition Transfer applications.
This Transfer Switching Equipment (TSE) is composed of two mechanically and electrically interlocked switches.

- The **ATyS 3 (RTSE)** is driven by volt-free dry contacts allowing switching operation between position I, 0, II, from an external control logic or a PLC (control relays type ATyS C30).
- The **ATyS 6 (ATSE)** is dedicated to break before make automatic transfer applications. The ATyS 6 integrates control relays, timers and test functions to manage a Normal/ Backup switching operation between two networks or between a generator set and a network.

➲ General characteristics

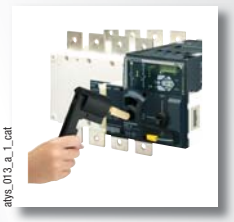
- Fully visible breaking.
- On load switching.
- Manual emergency operation.
- 3 stable positions (I, 0, II), overlapping contacts on request (I, I+II, II).
- Padlocking in 0 position (I and II optional).
- AUTO / MANU selector.
- Single phase or three phase control on networks I and II (ATyS 6e and 6m).
- Electrical measurements (ATyS 6e and 6m).
- Measure of I, P, Q, S and PF (ATyS 6m).
- Configurable Control Logic.
- Possibility of inhibition of the electrical control (ATyS 3e).
- Optional communication and inputs/outputs modules (ATyS 3e and ATyS 6).

➲ Conformity to standards

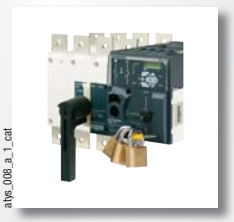
- IEC 60947-3
- IS 14947-3
- EN 60947-3
- NBN EN 60947-3
- BS EN 60947-3
- GB 14048
- IEC 60947-6-1
- EN 60947-6-1
- NBN EN 60947-6-1
- BS EN 60947-6-1
- VDE 0660-107



AUT/MAN command



Emergency manual operation



Padlocking facility

What you need to know

• On ATyS 3s and 3e models

Operation

ATyS 3s



ATyS M 3s is equipped with one 230VAC power input (176-288 VAC), 50/60 Hz (45/65 Hz).

ATyS 3e

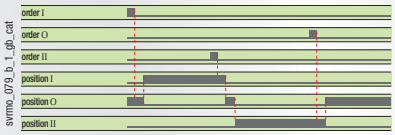


ATyS 3e is equipped with 2 power inputs: one for power source 1 & the other one as backup power source 2.
It allows the product to be electrically controlled in the 3 positions with only one of the supplies present.

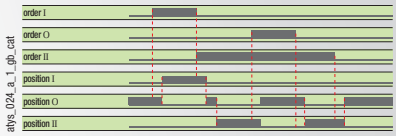
Electrical control

• General
- The switching operation can be driven by an external dry contact.
- On ATyS 3e, it is possible to inhibit the electrical control (dry contact closed between terminal n° 313 and 317).
- The first order received has priority as long as it is present. A zero command has always priority, excepted in case of controls inhibition.

• Pulse logic
- The switching command is a pulsed dry contact (100ms minimum).
- When the order disappears, the product remains in position. The impulse can be of infinite duration without causing any disturbance.



• Contactor logic
- The transfer command is a maintained dry contact.
- If command I or II disappears, the device returns to zero position, if power supply is available.
- A 0 command drives the device into zero position, irrespective of the status of the I and II commands.



• On ATyS 6e and 6m models

Operation

ATyS 6e



ATyS 6m



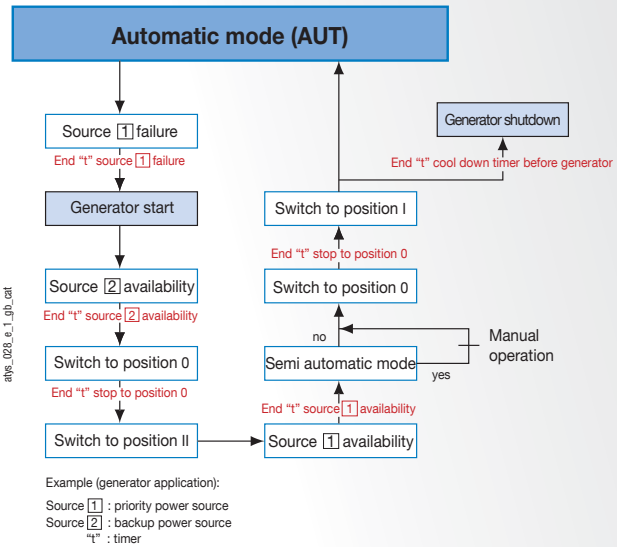
ATyS 6e and 6m are equipped with 2 power inputs (same as ATyS 3e): one for power source 1 & the other one as backup power source 2.
It allows the product to be electrically controlled in the 3 positions with only one of the supplies present.

Characteristics

- Single phase or three phase control on networks I and II.
- Independent adjustable over/undervoltage and over/underfrequency thresholds: +/- 20 % of the nominal value.
- Adjustable hysteresis thresholds linked to the threshold values.
- Control of phase rotation
- Measure (3U and frequency on network 1 and 2 ; ATyS 6e and 6m N/E cycle delay; 3I, In, P, Q, S, PF - 3 phases only on ATyS 6m).
- Display + keyboard (adjustment of all threshold parameters; adjustment of MFT, DTT, OMF, MRT, OMR and CDT Visualization of electrical values; Test functions and position control functions;
- LED's (Product Power On; Status of the electrical sources; Position of the switch status; "/AUT" mode; TEST/CONTROL mode and default.
- 1 configurable bistable output relay for generator start/stop command.(30 VDC, 5 A, AC1).
- 1NO fault relay activated in case of changeover position ordered and not reached (30 VDC, 5 A, AC1).

Automatic Control

The ATyS 6e and 6m are equipped with a sequence logic.



• Control modes
- Test On Load: This test simulates a loss of priority source. The complete automatic sequence is then followed.
Can be activated from the keypad of the product or remotely from an external dry contact.
- Test Off-Load: This test will start and stop the generator without load transfer. Can be activated from the keypad of the product.
- Control of position I, 0, II: Allows the selection of the position of the product; the Automatic mode is inhibited. Can be activated from the keypad of the product or remotely from a external dry contact.
- Manual retransfer (Semi automatic): When this parameter is programmed, the switching back to the main must be acknowledge on the keypad of the product or through the contact of an optional Input/output module.

➲ ATyS - References



atys_003_a_1_cat

ATyS 3

Rating (A)	No. of poles	ATyS 3s	ATyS 3e	Bridging bars*	Terminal shrouds	Terminal screens	Optional modules	Auxiliary contacts	Voltage transformer 400/230 VAC
125 A	3 P	1523 **3012**	1533 **3012**	4109 **0019**	3 P 2694 **3014**(3)(4)	3 P 1509 **3012**(5)	RS485 MODBUS 1599 **2000**(6) 2 inputs / 2 outputs 1599 **2001**(6)	ATyS 3s 1599 **1002**(7) ATyS 3e 1599 **0002**(7)	1599 **4063**
	4 P	1523 **4012**(1)	1533 **4012**						
160 A	3 P	1523 **3016**	1533 **3016**		4 P 2694 **4014**(3)(4)	4 P 1509 **4012**(5)			
	4 P	1523 **4016**(1)	1533 **4016**						
250 A	3 P	1523 **3025**	1533 **3025**	4109 **0025**	3 P 2694 **3021**(3)(4)	3 P 1509 **3025**(5)			
	4 P	1523 **4025**(1)	1533 **4025**						
400 A	3 P	1523 **3040**	1533 **3040**	4109 **0039**	4 P 2694 **4021**(3)(4)	4 P 1509 **4025**(5)			
	4 P	1523 **4040**(1)	1533 **4040**						
630 A	3 P	1523 **3063**	1533 **3063**	4109 **0063**	2694 **3051**(3)(4)	1509 **3063**(5)			
	4 P	1523 **4063**(1)	1533 **4063**		2694 **4051**(3)(4)	1509 **4063**(5)			
800 A	3 P	1523 **3080**	1533 **3080**	4109 **0080**		3 P 1509 **3080**(5)		ATyS 3s 1599 **1032**(7) ATyS 3e 1599 **0032**(7)	1599 **4120**
	4 P	1523 **4080**(1)	1533 **4080**						
1000 A	3 P	1523 **3100**	1533 **3100**			4 P 1509 **4080**(5)			
	4 P	1523 **4100**(1)	1533 **4100**						
1250 A	3 P	1523 **3120**	1533 **3120**	4109 **0120**					
	4 P	1523 **4120**(1)	1533 **4120**						
1600 A	3 P	1523 **3160**	1533 **3160**	4109 **0160**		3 P 1509 **3160**(5)			
	4 P	1523 **4160**(1)	1533 **4160**						
1800 A	3 P	1523 **3180**				4 P 1509 **4160**(5)		ATyS 3s 1599 **1032**(7)	
	4 P	1523 **4180**							
2000 A	3 P		1533 **3200**	(2)		3 P 1509 **3200**(5)		included	1599 **4200**
	4 P		1533 **4200**						
2500 A	3 P		1533 **3250**						
	4 P		1533 **4250**			4 P 1509 **4200**(5)			
3200 A	3 P		1533 **3320**						
	4 P		1533 **4320**						

** 1 required per pole.*
(1) Available enclosed (see pages 503 "Enclosed changeover switches").
(2) See page 317 "Copper bars connection kits".
(3) To shroud front switch top and bottom 2 references required.
(4) To fully shroud front, rear, top and bottom 4 references required.
(5) To shroud the front switch top and bottom, 1 reference is required.
(6) On ATyS 3e only.
(7) Factory fitted.

ATyS 3 (continued)

Rating (A)	No. of poles	ATyS 3s	ATyS 3e	DC power supply	Padlockable handle	Key handle interlocking system	Door protective surround	Mounting spacers	DPS - Dual power supply
125 A	3 P	1523 **3012**	1533 **3012**	12VDC/230 VAC 1599 **5012**	1599 **0003**(2)	1509 **1006**(2)	ATyS 3s 1529 **0012** ATyS 3e 1539 **0012**	1509 **0001**	1599 **4001**(3)
	4 P	1523 **4012**(1)	1533 **4012**						
160 A	3 P	1523 **3016**	1533 **3016**						
	4 P	1523 **4016**(1)	1533 **4016**						
250 A	3 P	1523 **3025**	1533 **3025**						
	4 P	1523 **4025**(1)	1533 **4025**						
400 A	3 P	1523 **3040**	1533 **3040**						
	4 P	1523 **4040**(1)	1533 **4040**						
630 A	3 P	1523 **3063**	1533 **3063**						
	4 P	1523 **4063**(1)	1533 **4063**						
800 A	3 P	1523 **3080**	1533 **3080**	24VDC/230 VAC 1599 **5112**	1599 **0004**(2)	1509 **1004**(2)	ATyS 3s 1529 **0080** ATyS 3e 1539 **0080**		
	4 P	1523 **4080**(1)	1533 **4080**						
1000 A	3 P	1523 **3100**	1533 **3100**						
	4 P	1523 **4100**(1)	1533 **4100**						
1250 A	3 P	1523 **3120**	1533 **3120**						
	4 P	1523 **4120**(1)	1533 **4120**						
1600 A	3 P	1523 **3160**	1533 **3160**						
	4 P	1523 **4160**(1)	1533 **4160**						
1800 A	3 P	1523 **3180**					ATyS 3s 1529 **0080**		
	4 P	1523 **4180**							
2000 A	3 P		1533 **3200**				ATyS 3e 1539 **0080**		
	4 P		1533 **4200**						
2500 A	3 P		1533 **3250**						
	4 P		1533 **4250**						
3200 A	3 P		1533 **3320**						
	4 P		1533 **4320**						

(1) Available enclosed (see pages 503 "Enclosed changeover switches").
(2) Factory fitted.
(3) On ATyS 3e only.



ATyS 6*

Rating (A)	No. of poles	ATyS 6e	ATyS 6m	Bridging bars**	Voltage sensing kit	Terminal shrouds	Terminal screens	Optional modules	Human interface / Offset Machine	RJ45 connecting cable
125 A	3 P	1563 **3012**	1573 **3012**	4109 **0019**	3 P 1559 **3012** 4 P 1559 **4013**(3)	3 P 2694 **3014**(4)(5) 4 P 2694 **4014**(4)(5)	3 P 1509 **3012**(6) 4 P 1509 **4012**(6)	RS485 MODBUS 1599 **2000** 2 inputs/ 2 outputs 1599 **2001**	ATyS D10 1599 **2010** ATyS D20 1599 **2020**	1599 **2009**
	4 P	1563 **4012**(1)	1573 **4012**							
160 A	3 P	1563 **3016**	1573 **3016**							
	4 P	1563 **4016**(1)	1573 **4016**							
250 A	3 P	1563 **3025**	1573 **3025**	4109 **0025**	3 P 1559 **3025** 4 P 1559 **4026**(3)	3 P 2694 **3021**(4)(5) 4 P 2694 **4021**(4)(5)	3 P 1509 **3025**(6) 4 P 1509 **4025**(6)			
	4 P	1563 **4025**(1)	1573 **4025**							
400 A	3 P	1563 **3040**	1573 **3040**	4109 **0039**	3 P 1559 **3040** 4 P 1559 **4041**(3)					
	4 P	1563 **4040**(1)	1573 **4040**							
630 A	3 P	1563 **3063**	1573 **3063**	4109 **0063**	3 P 1559 **3063** 4 P 1559 **4064**(3)	2694 **3051**(4)(5)	1509 **3063**(6)			
	4 P	1563 **4063**(1)	1573 **4063**			2694 **4051**(4)(5)	1509 **4063**(6)			
800 A	3 P	1563 **3080**	1573 **3080**	4109 **0080**	3 P 1559 **3080** 4 P **1559 4081**(3)		3 P 1509 **3080**(6) 4 P 1509 **4080**(6)			
	4 P	1563 **4080**(1)	1573 **4080**							
1000 A	3 P	1563 **3100**	1573 **3100**							
	4 P	1563 **4100**(1)	1573 **4100**							
1250 A	3 P	1563 **3120**	1573 **3120**	4109 **0120**	3 P 1559 **3120** 4 P 1559 **4121**(3)					
	4 P	1563 **4120**(1)	1573 **4120**							
1600 A	3 P	1563 **3160**	1573 **3160**	4109 **0160**	3 P 1559 **3160** 4 P 1559 **4161**(3)		1509 **3160**(6)			
	4 P	1563 **4160**(1)	1573 **4160**				1509 **4160**(6)			
2000 A	3 P	1563 **3200**	1573 **3200**	(2)	3 P 1559 **3200** 4 P 1559 **4201**(3)		3 P 1509 **3200**(6) 4 P 1509 **4200**(6)			
	4 P	1563 **4200**	1573 **4200**							
2500 A	3 P	1563 **3250**	1573 **3250**							
	4 P	1563 **4250**	1573 **4250**							
3200 A	3 P	1563 **3320**	1573 **3320**							
	4 P	1563 **4320**	1573 **4320**							

** (ATS) Enclosed Automatic Transfer Switch.*
*** 1 required per pole.*
(1) Available enclosed (see pages 504 "Enclosed changeover switches").
(2) See page 317 "Copper bars connection kits".
(3) Neutral on the left (on the right, see page 318).
(4) To shroud front switch top and bottom 2 references required.
(5) To fully shroud front, rear, top and bottom 4 references required.
(6) To shroud front switch top and bottom 1 references required.

ATyS 6* (continued)

Rating (A)	No. of poles	ATyS 6e	ATyS 6m	Auxiliary contacts	Voltage transformer 400/230 VAC	DC power supply	Padlockable handle	Key handle interlocking system	Door protective surround	Mounting spacers
125 A	3 P	1563 **3012**	1573 **3012**	1599 **0002**(2)	1599 **4063**	12 VDC / 230 VAC 1599 **5012** 24 VDC / 230 VAC 1599 **5112**	1599 **0003**(2)	1509 **1006**(2)	1539 **0012**	1509 **0001**
	4 P	1563 **4012**(1)	1573 **4012**							
160 A	3 P	1563 **3016**	1573 **3016**							
	4 P	1563 **4016**(1)	1573 **4016**							
250 A	3 P	1563 **3025**	1573 **3025**							
	4 P	1563 **4025**(1)	1573 **4025**							
400 A	3 P	1563 **3040**	1573 **3040**							
	4 P	1563 **4040**(1)	1573 **4040**							
630 A	3 P	1563 **3063**	1573 **3063**							
	4 P	1563 **4063**(1)	1573 **4063**							
800 A	3 P	1563 **3080**	1573 **3080**	1599 **0032**(2)	1599 **4120**		1599 **0004**(2)	1509 **1004**(2)	1539 **0080**	
	4 P	1563 **4080**(1)	1573 **4080**							
1000 A	3 P	1563 **3100**	1573 **3100**							
	4 P	1563 **4100**(1)	1573 **4100**							
1250 A	3 P	1563 **3120**	1573 **3120**							
	4 P	1563 **4120**(1)	1573 **4120**							
1600 A	3 P	1563 **3160**	1573 **3160**							
	4 P	1563 **4160**(1)	1573 **4160**							
2000 A	3 P	1563 **3200**	1573 **3200**	included	1599 **4200**					
	4 P	1563 **4200**	1573 **4200**							
2500 A	3 P	1563 **3250**	1573 **3250**							
	4 P	1563 **4250**	1573 **4250**							
3200 A	3 P	1563 **3320**	1573 **3320**							
	4 P	1563 **4320**	1573 **4320**							

** (ATS) Enclosed Automatic Transfer Switch.*
(1) Available enclosed (see pages 504 "Enclosed changeover switches").
(2) Factory fitted.

Other products

Make before break motorised changeover switch (overlapping contact).



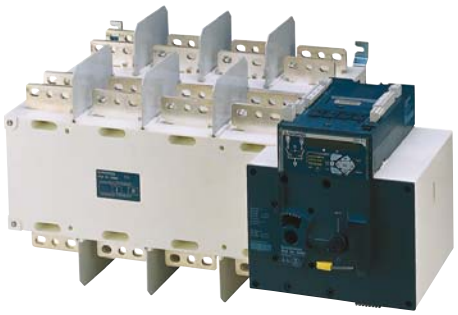
ats_003_a_1_cat

Function
They provide switching, uninterrupted low voltage source inversion and safety isolation. They are intended to be coupled with a UPS (I, I+II, II).

General characteristics
- For ratings from 125 to 1800 A, 3 and 4 pole.
- 3 stable positions (I - I+II - II).
- Automatic on-load switching and source changeover without interruption with a UPS.
- Manual emergency operation.
- Padlocking in 3 positions.

Consult us

Motorised mixed pole changeover switches



ats_725_a_1_cat

Function
They provide switching and source inversion for low voltage sources of different power ratings.

General characteristics
1250 to 3200 A ratings, 3 and 4 pole.

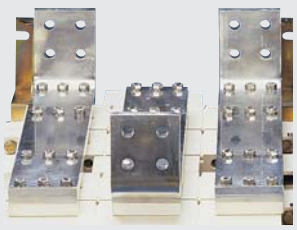
Consult us

➲ Accessories

Bridging bars



acces_205_a_2_cat



acces_041_a_1_cat

Use
To provide common point on either incoming or outgoing terminals.

Rating (A)	Section (mm)	Reference
125 … 160	20 x 2.5	4109 **0019**
250	25 x 2.5	4109 **0025**
400	32 x 5	4109 **0039**
630	50 x 5	4109 **0063**
800 … 1000	50 x 6	4109 **0080**
1250	60 x 8	4109 **0120**
1600 ... 1800	90 x 10	4109 **0160**

Copper bars connection kits

Fig.1

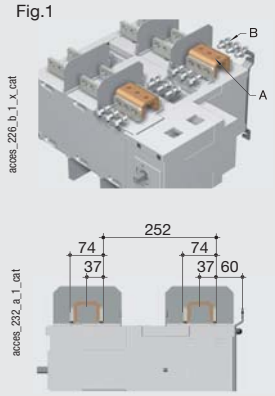


Fig. 2

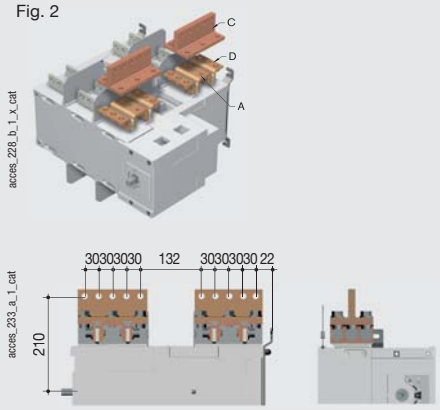
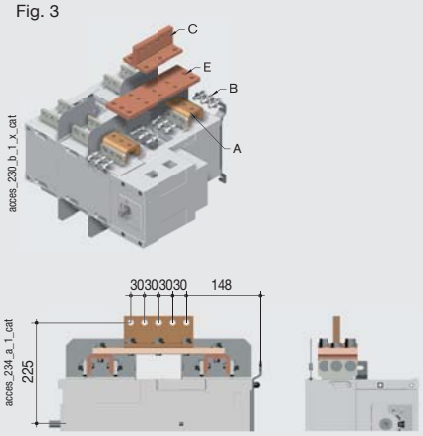


Fig. 3



Use

Enables:
- Connection between the two power terminals from the same pole for 2000 to 3200 A ratings (Fig. 1 and Fig 2).
- Top or bottom bridging connection (Fig. 3).

For 3200 A rating, the connection piece (part A) are delivered bridged from factory.
Bolt sets must be ordered separately.
Technical notice for these specific accessories can be download from www.socomec.com

Top or bottom flat connection - Fig. 1

Rating (A)	Piece	Quantity to order per pole(1)	Reference
2 000 … 2 500	Connection - part A	2	2619 **1200**
2 000 … 2 500	Bolt set - part B	2	2699 **1200**
3 200	Connection - part A		included
3 200	Bolt set - part B	2	2699 **1200**

Top or bottom edgewise connection - Fig. 2

Rating (A)	Piece	Quantity to order per pole(1)	Reference
2 000 … 2 500	Connection - part A	2	2619 **1200**
2 000 … 2 500	T piece - part C	2	2629 **1200**(2)
2 000 … 2 500	Right angle - part D	2	2639 **1200**(2)
3 200	Connection - part A		included
3 200	T piece - part C	2	2629 **1200**(2)
3 200	Right angle - part D	2	2639 **1200**(2)

Top or bottom bridging connection - Fig. 3

Rating (A)	Piece	Quantity to order per pole(1)	Reference
2 000 … 2 500	Connection - part A	2	2619 **1200**
2 000 … 2 500	Bolt set - part B	2	2699 **1200**
2 000 … 2 500	Bar - piece E	1	4109 **0250**(2)
2 000 … 2 500	T piece - part C	1	2629 **1200**(2)
3 200	Connection - part A		included
3 200	Bolt set - part B	2	2699 **1200**
3 200	Bar - piece E	1	4109 **0320**(2)
3 200	T piece - part C	1	2629 **1200**(2)

(1) Example for 3 pole device equipped upstream only: order 3 times the indicated quantities.
(2) Bolt set is provided with the accessories.

Control voltage transformer

Use

Enables a 230 VAC device to be supplied with 400 VAC.

Rating (A)	Reference
125 … 630	1599 **4063**
800 … 1800	1599 **4120**
2000 … 3200	1599 **4200**

DC power supply

Use

Allows standard ATyS 3 or ATyS 6 to be DC power supplied.
To be positioned as close as possible to DC power supply source.

Rating (A)	Operating voltage	Reference
125 … 1800	12 VDC / 230 VAC	1599 **5012**
125 … 1800	24 VDC / 230 VAC	1599 **5112**

Mounting spacers



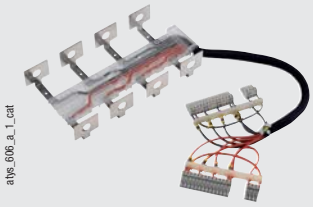
Use
Raises the device's terminals 10mm away from the bottom of the enclosure or frame on which the device is mounted.

This may also be used to replace the original mounting spacers.

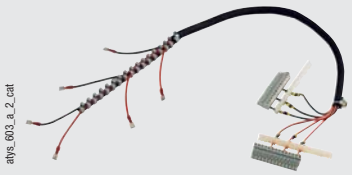
Rating (A)	Description of accessories	Reference
125 … 630	1 set of 2 spacers	1509 **0001**

Voltage sensing and power supply kit

From 125 to 630 A.



From 800 to 3200 A.



Use
For ATyS 6 power supply and voltage measurement (4 wires, three phase). Routing of the conductors is controlled, which means that no specific protective device is necessary for these connections.

The kit can be fitted on the top or bottom of the switch.
Note: the 3-pole version does not integrate the power supply.

From ATyS 6 - 3 pole

Rating (A)	Reference
125 … 160	1559 **3012**
250	1559 **3025**
400	1559 **3040**
630	1559 **3063**
800 … 1000	1559 **3080**
1250	1559 **3120**
1600	1559 **3160**
2000 … 3200	1559 **3200**

From ATyS 6 - 4 pole

	Neutral on the right	Neutral on the left
Rating (A)	Reference	Reference
125 … 160	1559 **4012**	1559 **4013**
250	1559 **4025**	1559 **4026**
400	1559 **4040**	1559 **4041**
630	1559 **4063**	1559 **4064**
800 … 1000	1559 **4080**	1559 **4081**
1250	1559 **4120**	1559 **4121**
1600	1559 **4160**	1559 **4161**
2000 … 3200	1559 **4200**	1559 **4201**

Plug-in optional modules



Use

N°1 - communication module
Control and state feedback of the changeover switch via a 2 or 3-wire RS485 link with JBUS/MODBUS protocol® and transmission speed up to 38 400 baud.

No. 2 - module with 2 inputs / 2 outputs
- On ATyS 3e
  - 2 inputs: changeover control + backup network availability;
  - 2 outputs:a load shedder relay + fault relay.
- On ATyS 6e and 6m, 2 inputs / 2 programmable outputs.

Description of accessories	Reference
RS485 MODBUS (N°1)	1599 **2000**
2 inputs/2 outputs (N°2)	1599 **2001**

Terminal shrouds



Use
Protection IP2X against direct contact with terminals or connecting parts.

Advantages
Perforations allowing remote thermographic inspection without removal.

Rating (A)	No. of poles	Position	Reference
125 … 160	3 P	top / bottom / front (I) / rear (II)	2694 **3014**(1)(2)
125 … 160	4 P	top / bottom / front (I) / rear (II)	2694 **4014**(1)(2)
250 … 400	3 P	top / bottom / front (I) / rear (II)	2694 **3021**(1)(2)
250 … 400	4 P	top / bottom / front (I) / rear (II)	2694 **4021**(1)(2)
630	3 P	top / bottom / front (I) / rear (II)	2694 **3051**(1)(2)
630	4 P	top / bottom / front (I) / rear (II)	2694 **4051**(1)(2)

(1) To shroud front switch top and bottom 2 references required.
(2) To fully shroud front, rear, top and bottom 4 references required.

Terminal screens



acces_207_a_2_cat

Use
Top or bottom protection against direct contact with terminals or connection parts.

Rating (A)	No. of poles	Position	Reference
125 … 160	3 P	top / bottom	1509 **3012**
125 … 160	4 P	top / bottom	1509 **4012**
250 … 400	3 P	top / bottom	1509 **3025**
250 … 400	4 P	top / bottom	1509 **4025**
630	3 P	top / bottom	1509 **3063**
630	4 P	top / bottom	1509 **4063**
800 … 1 250	3 P	top / bottom	1509 **3080**
800 … 1 250	4 P	top / bottom	1509 **4080**
1600 ... 1800	3 P	top / bottom	1509 **3160**
1600 ... 1800	4 P	top / bottom	1509 **4160**
2000 … 3200	3 P	top / bottom	1509 **3200**
2000 … 3200	4 P	top / bottom	1509 **4200**

Auxiliary contacts



acces_065_a_1_cat

Use
Pre breaking and signalling of positions I and II: 1 extra NO / NC auxiliary contact in each position (factory fitted).
Low level auxiliary contacts : Consult us.

For ATyS 3s

Rating (A)	Reference
125 … 630	1599 **1002**
800 … 1800	1599 **1032**

For ATyS 3e, 6e and 6m

Rating (A)	Reference
125 … 630	1599 **0002**
800 … 1600	1599 **0032**
2000 … 3200	included

Padlocking in the 3 positions I-0-II



atys_125_a_1_cat

Use
Allows padlocking of the operation in the 3 positions I, 0 and II (factory fitted).

Rating (A)	Reference
125 … 630	1599 **0003**
800 … 3200	1599 **0004**

Key handle interlocking accessories



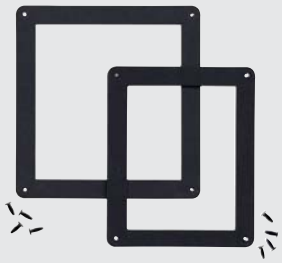
atys_101_a_1_cat

Use
Locking the electrical control and the backup control in position 0 using a RONIS EL11AP lock (factory fitted).

As standard, locking in position 0.
Optional padlocking in 3 positions: Locking in position I, 0 or II

Rating (A)	Reference
125 … 630	1509 **1006**
800 … 3200	1509 **1004**

Door protective surround



Use
Door finishing surround for protecting ATyS application.

For ATyS 3s

Rating (A)	Reference
125 … 630	1529 **0012**
800 … 1800	1529 **0080**

For ATyS 3e, 6e and 6m

Rating (A)	Reference
125 … 630	1539 **0012**
800 … 3200	1539 **0080**

Remote control interfaces for ATyS 6e, 6m and C30

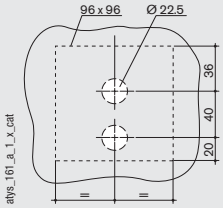




Interfaces are self powered from the ATyS.



Drillings



Use
To display source availability and changeover state on the front of a panel. Interfaces are self powered from the ATyS.
Maximum connection distance: 3 m.

ATyS D10
To display source availability and changeover state on the cabinet front panel.
Protection degree: IP21.

ATyS D20
In addition to the ATyS D10 allows displays, operation and configuration on the cabinet front panel.
Protection degree: IP21.

Door mounting
2 holes Ø 22.5. ATyS connection via RJ45 cable, not isolated.

Cable not provided.

Description of accessories	Reference
ATyS D10	1599 **2010**
ATyS D20	1599 **2020**

Connecting cable for remote interfaces



Use
To connect between a remote interface (D10 or D20) and a control product (C30 or ATyS 6e or 6m).

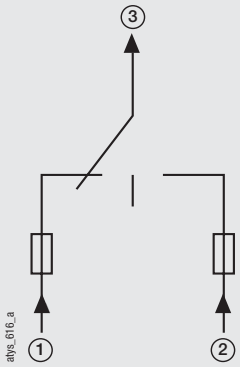
Characteristics
RJ45 8 straight non insulated wires, length 3m.

For ATyS 6e, 6m and C30

Type	Length	Reference
RJ45 cable	3 m	1599 **2009**

Double power supply - DPS





1 and 2. Input
3. Output

Use
Allows an ATyS 3s to be supplied by two 230 VAC 50/60Hz networks.

Input
- The input is considered as “active” from 200 VAC.
- Maximum voltage: 288 VAC.
- Internal protection: fuse protected 3.15 A
- Terminal connections: max. 6 mm².
- Modular device: 4 modules width.

Input 1	Input 2	Output
230 VAC	0 VAC	230 VAC (Input 1)
0 VAC	230 VAC	230 VAC (Input 2)
230 VAC	230 VAC	230 VAC (Input 1)
0 VAC	0 VAC	0 VAC

Description of accessories	Reference
	1599 **4001**

➲ Characteristics according to IEC 60947-3 and IEC 60947-6-1

125 to 1000 A

Thermal current I_{th} (40°C)		125 A	160 A	250 A	400 A	630 A	800 A	1 000 A
Rated insulation voltage U_i (V)		800	800	800	800	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)		8	8	8	8	12	12	12
Rated operational currents Ie (A) according to IEC 60947-3								
Rated voltage	Load duty category	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)	A/B(1)
415 VAC	AC-21 A / AC-21 B	125/125	160/160	250/250	400/400	630/630	800/800	1000/1000
415 VAC	AC-22 A / AC-22 B	125/125	160/160	250/250	400/400	630/630	800/800	1000/1000
415 VAC	AC-23 A / AC-23 B	125/125	160/160	250/250	250/250	500/500	800/800	1000/1000
690 VAC(2)	AC-20 A / AC-20 B	125/125	160/160	250/250	400/400	630/630	800/800	1000/1000
690 VAC(2)	AC-21 A / AC-21 B	125/125	160/160	200/250	200/250	500/500	800/800	800/800
690 VAC(2)	AC-22 A / AC-22 B	125/125	125/125	125/160	125/160	315/315	800/800	800/800
690 VAC(2)	AC-23 A / AC-23 B	63/80	63/80	100/125	100/125	160/200	200/250	200/250
220 VDC	DC-20 A / DC-20 B	125/125	160/160	250/250	400/400	630/630	800/800	1000/1000
220 VDC	DC-21 A / DC-21 B	125/125	160/160	250/250	250/250	630/630	800/800	1000/1000
220 VDC	DC-22 A / DC-22 B	125/125	160/160	250/250	250/250	500/500	800/800	1000/1000
220 VDC	DC-23 A / DC-23 B	125/125	125/125	200/200	200/200	500/500	800/800	1000/1000
440 VDC	DC-20 A / DC-20 B	125/125	160/160	250/250	400/400	630/630	800/800	1000/1000
440 VDC	DC-21 A / DC-21 B	125(3)/125(3)	125(3)/125(3)	200(3)/200(3)	200(3)/200(3)	500(3)/500(3)	800(4)/800(4)	1000(4)/1000(4)
440 VDC	DC-22 A / DC-22 B	125(3)/125(3)	125(3)/125(3)	200(3)/200(3)	200(3)/200(3)	500(3)/500(3)	800(4)/800(4)	1000(4)/1000(4)
440 VDC	DC-23 A / DC-23 B	125(4)/125(4)	125(4)/125(4)	200(4)/200(4)	200(4)/200(4)	500(4)/500(4)	800(4)/800(4)	1000(4)/1000(4)
Rated operational currents I_e (A) according to IEC 60947-6-1								
415 VAC	AC - 31 B	125	160	250	400	630	800	1 000
Overload capacity								
Rated short-time withstand current 1 s. I_{cw} (kA eff.)		7	7	9	9	13	26	35
Short-circuit making capacity (kA peak) (5)		20	20	30	30	45	55	80
Prospective short-circuit (kA rms)(5)		100	100	50	18	70	50	100
Associated fuse rating (A)(5)		125	160	250	400	630	800	1000
Connection								
Minimum Cu cable section (mm^2)		35	50	95	185	2 x 150	2 x 185	2 x 240
Minimum Cu busbar section (mm^2)						2 x 30 x 5	2 x 40 x 5	2 x 50 x 5
Maximum Cu cable section (mm^2)		50	95	150	240	2 x 300	2 x 300	4 x 185
Maximum Cu busbar width (mm)		25	25	32	32	50	63	63
Tightening torque min / max (Nm)		9/13	9/13	20/26	20/26	20/26		
Switching time (Standard setting)								
I - II or II - I (s) (6)		0.75	0.75	1.3	1.3	1.3	2.6	2.6
I - 0 or II - 0 (s) (6)		0.45	0.45	0.85	0.85	0.85	1.6	1.6
Duration of "electrical blackout" I - II (s)		0.3	0.3	0.6	0.6	0.6	1.5	1.5
Power supply								
Power supply 230 VAC min / max (VAC)		176/288	176/288	176/288	176/288	176/288	176/288	176/288
Control supply power demand								
Supply 230 VAC inrush / nominal (VA)		420/80	420/80	420/100	420/100	420/110	450/120	450/120
Mechanical characteristics								
Durability (number of operating cycles)		10 000	10 000	8 000	8 000	5 000	4 000	4 000
Weight of 3 P switch (ATyS 3) (kg)		3.2	3.3	3.7	4.7	5.2	19.6	23.1
Weight of 4 P switch (ATyS 3) (kg)		3.3	3.4	3.8	5.2	5.7	23.1	24.6
Weight of 3 P switch (ATyS 6) (kg)		4	4.1	4.5	5.5	6	20.4	23.9
Weight of 4 P switch (ATyS 6) (kg)		4.1	4.2	4.6	6	6.5	23.9	25.4

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) With terminal shrouds or phase barrier.
(3) 3-pole device with 2 poles in series for the "+" and 1 pole for the "-".
(4) 4-pole device with 2 poles in series by polarity.
(5) For a rated operational voltage U_e = 400 VAC.
(6) Between the command given and arrival in position at U_n (under nominal conditions).

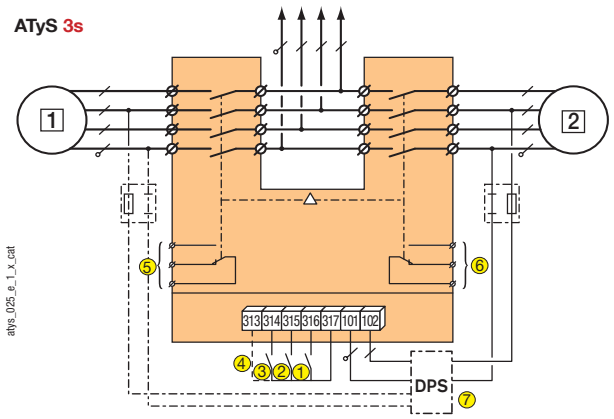
1 250 to 3 200 A

Thermal current I_{th} (40°C)		**1 250 A**	**1 600 A**	**1 800 A**	**2 000 A**	**2 500 A**	**3 200 A**
Rated insulation voltage U_i (V)		1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)		12	12	12	12	12	12
Rated operational currents Ie (A) according to IEC 60947-3							
Rated voltage	Load duty category	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]	A/B[1]
415 VAC	AC-21 A / AC-21 B	1250/1250	1600/1600	1800/1800	-/2000	-/2500	-/3200
415 VAC	AC-22 A / AC-22 B	1250/1250	1600/1600	1800/1800	-/2000	-/2500	-/3200
415 VAC	AC-23 A / AC-23 B	1250/1250	1250/1250	1250/1250	-/1600	-/1600	-/1600
690 VAC[2]	AC-20 A / AC-20 B	1250/1250	1600/1600	1800/1800			
690 VAC[2]	AC-21 A / AC-21 B	800/800	1000/1000	1000/1000			
690 VAC[2]	AC-22 A / AC-22 B	800/800	1000/1000	1000/1000			
690 VAC[2]	AC-23 A / AC-23 B	200/250	500/500	500/500			
220 VDC	DC-20 A / DC-20 B	1250/1250	1600/1600	1800/1800			
220 VDC	DC-21 A / DC-21 B	1250/1250	1250/1250	1250/1250			
220 VDC	DC-22 A / DC-22 B	1250/1250	1250/1250	1250/1250			
220 VDC	DC-23 A / DC-23 B	1250/1250	1250/1250	1250/1250			
440 VDC	DC-20 A / DC-20 B	1250/1250	1600/1600	1800/1800			
440 VDC	DC-21 A / DC-21 B	1250[3]/1250[3]	1250[3]/1250[3]	1250[3]/1250[3]			
440 VDC	DC-22 A / DC-22 B	1250[3]/1250[3]	1250[3]/1250[3]	1250[3]/1250[3]			
440 VDC	DC-23 A / DC-23 B	1250[3]/1250[3]	1250[3]/1250[3]	1250[3]/1250[3]			
Rated operational currents I_e (A) according to IEC 60947-6-1							
415 VAC	AC - 31 B	1 250	1 600	1800	2 000	2 500	3 200
Overload capacity							
Rated short-time withstand current 1 s. I_{cw} (kA eff.)		35	50	50	55	55	55
Rated peak withstand current (kA peak) [4]		80	110	110	120	120	120
Prospective short-circuit (kA rms)[4]		100	100	100			
Associated fuse rating (A)[4]		1250	1600	1800			
Connection							
Minimum Cu busbar section (mm^2)		2 x 60 x 5	2 x 80 x 5	3 x 100 x 5	2 x 100 x 10	2 x 100 x 10	2 x 100 x 10
Maximum Cu cable section (mm^2)		4 x 185	6 x 185	6 x 185			
Maximum Cu busbar width (mm)		63	100	100	100	100	100
Tightening torque min / max (Nm)		20/26	40/45	40/45	40/45	40/45	40/45
Switching time (Standard setting)							
I - II or II - I (s) [5]		2.6	2.6	2.6	2	2	2
I - 0 or II - 0 (s) [5]		1.6	1.6	1.6	1	1	1
Duration of "electrical blackout" I - II (s)		1.5	1.6	1.6	1	1	1
Power supply							
Power supply 230 VAC min / max (VAC)		176/288	176/288	176/288	176/288	176/288	176/288
Control supply power demand							
Supply 230 VAC inrush / nominal (VA)		450/120	450/120	450/120	550/390	550/390	550/390
Mechanical characteristics							
Durability (number of operating cycles)		4 000	3 000	3 000	3 000	3 000	3 000
Weight of 3 P switch (ATyS 3) (kg)		24.6	36.1	36.1	47	51	59
Weight of 4 P switch (ATyS 3) (kg)		29.6	42.1	42.1	57	61	69
Weight of 3 P switch (ATyS 6) (kg)		25.4	36.9		47	51	59
Weight of 4 P switch (ATyS 6) (kg)		30.4	42.9		57	61	69

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) With terminal shrouds or phase barrier.
(3) 4-pole device with 2 poles in series by polarity.
(4) For a rated operational voltage U_e = 400 VAC.
(5) Between the command given and arrival in position at U_n (under nominal conditions).

Terminals and connections

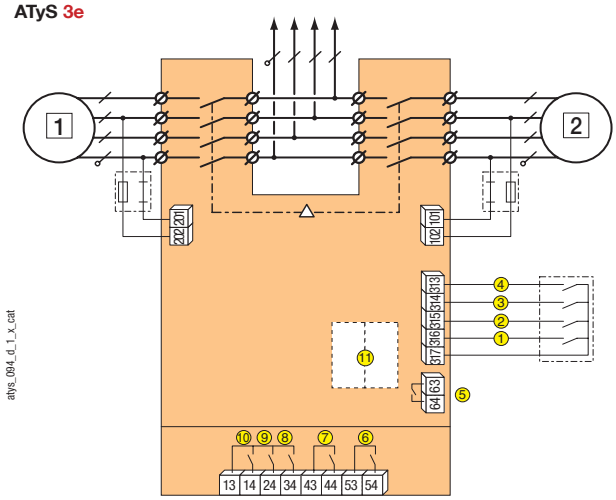
ATyS 3s



1 preferred source
2 alternate source

1: control position 0
2: control position I
3: control position II
4: configuration of the control logic
5: NO/NC position and prebreaking contact for position I
6: NO/NC position and prebreaking contact for position II
7: Double Power Supply (accessory)

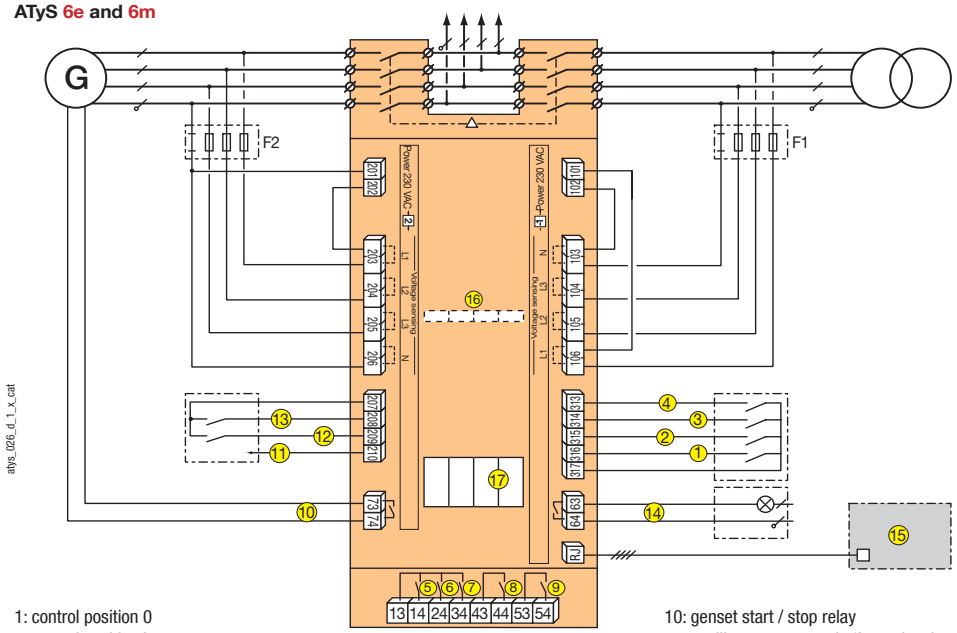
ATyS 3e



1 preferred source
2 alternate source

1: control position 0
2: control position I
3: control position II
4: inhibition of the control position
5: fault relays
6: auxiliary contact, closed when the switch is padlocked
7: auxiliary contact, closed when the switch is in “AUT” mode
8: auxiliary contact, closed when the switch is in position 0
9: auxiliary contact, closed when the switch is in position II
10: auxiliary contact, closed when the switch is in position I
11: slots for optional modules

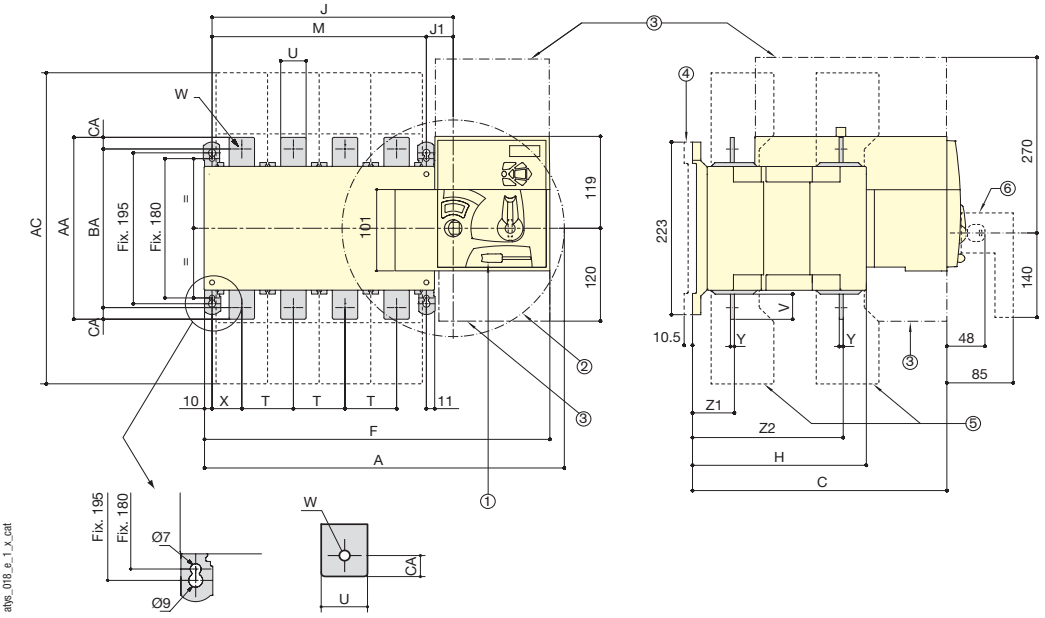
ATyS 6e and 6m



1: control position 0
2: control position I
3: control position II
4: remote command
5: auxiliary contact, closed when the switch is in position I
6: auxiliary contact, closed when the switch is in position II
7: auxiliary contact, closed when the switch is in position 0
8: auxiliary contact, closed when the switch is in “AUT” mode
9: auxiliary contact, closed when the switch is padlocked
10: genset start / stop relay
11: auxiliary power supply (for optional modules control)
12: remote “test on-load ”input
13: DTT inhibit input. Transfer initiated as soon as the input is closed when DTT = max. value.
14: fault relay
15: remote control interface
16: current transformers (ATyS 6m only
17: slots for optional modules

➲ ATyS - Dimensions

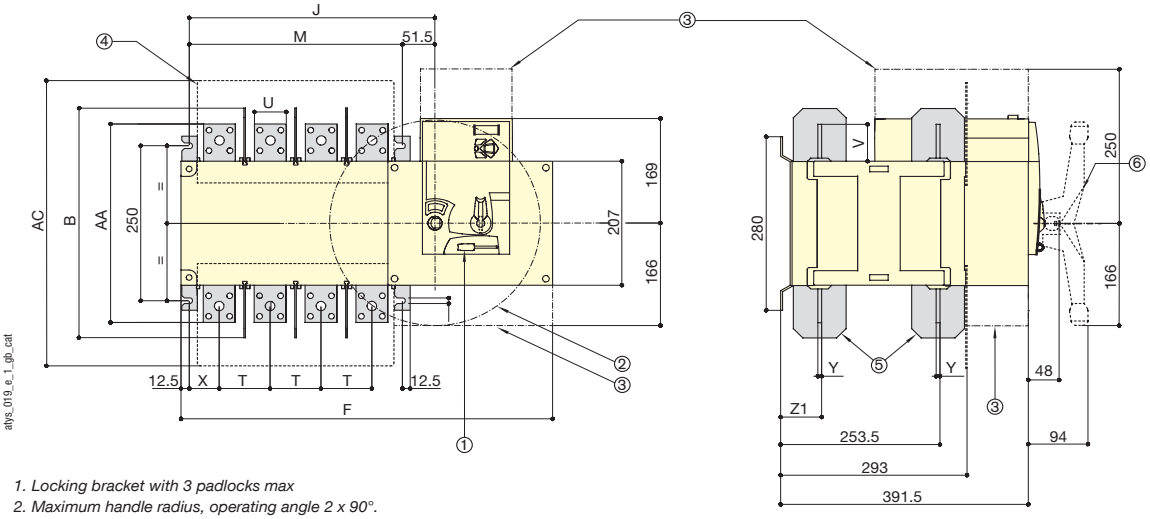
ATyS 125 to 630 A



1. *Locking bracket with 3 padlocks max*
2. *Maximum handle radius, operating angle 2 x 90°.*
3. *Connection and disconnection area*
4. *Mounting spacers.*
5. *Terminal shrouds*
6. *Handle*

Rating (A)	Overall dimensions A 3p.	A 4p.	C	Terminal shrouds AC	Switch body F 3p.	F 4p.	H	J 3p.	J 4p.	J1	Switch mounting M 3p.	M 4p.	Connection T	U	V	W	X 3p.	X 4p.	Y	Z1	Z2	AA	BA	AC
125	304	340	244	235	286.5	322.5	151	154	184	34	120	150	36	20	25	9	28	22	3.5	38	134	135	115	10
160	304	340	244	235	286.5	322.5	151	154	184	34	120	150	36	20	25	9	28	22	3.5	38	134	135	115	10
250	345	395	244.5	280	328	378	153	195	245	35	160	210	50	25	30	11	33	33	3.5	39.5	134.5	160	130	15
400	345	395	244.5	280	328	378	153	195	245	35	160	210	50	35	35	11	33	33	3.5	39.5	134.5	170	140	15
630	394	459	320.5	400	377	437	221	244	304	34	210	270	65	45	50	13	42.5	37.5	5	53	190	260	220	20

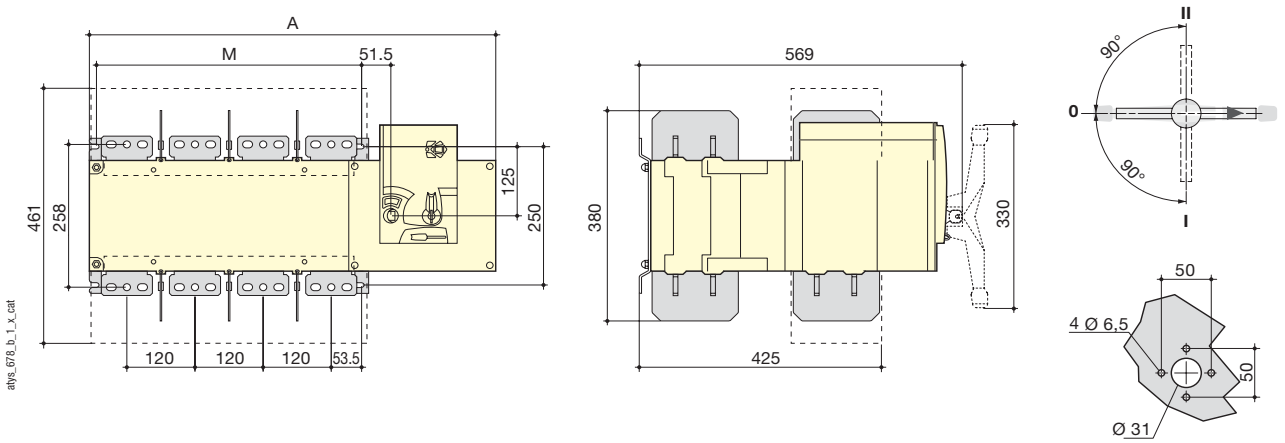
ATyS 800 to 1800 A



1. *Locking bracket with 3 padlocks max*
2. *Maximum handle radius, operating angle 2 x 90°.*
3. *Connection and disconnection area*
4. *Terminals protection screen*
5. *Inter phase barrier.*
6. *Handle*

Rating (A)	Overall dimensions B	Terminal shrouds AC	Switch body F 3p.	F 4p.	J 3p.	J 4p.	Switch mounting M 3p.	M 4p.	Connection T	U	V	X	Y	Z1	AA
800	370	461	504	584	306.5	386.5	255	335	80	50	60.5	60	7	66.5	321
1000	370	461	504	584	306.5	386.5	255	335	80	50	60.5	60	7	66.5	321
1250	370	461	504	584	306.5	386.5	255	335	80	60	65	60	7	66.5	330
1600	380	481	596	716	398.5	518.5	347	467	120	90	44	66	8	67.5	288
1800	380	481	596	716	398.5	518.5	347	467	120	90	44	66	8	67.5	288

ATyS 2000 to 3200 A

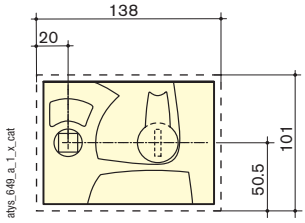


Rating (A)	Overall dimensions A 3p.	A 4p.	Switch mounting M 3p.	M 4p.
2 000 … 3 200	596	716	347	467

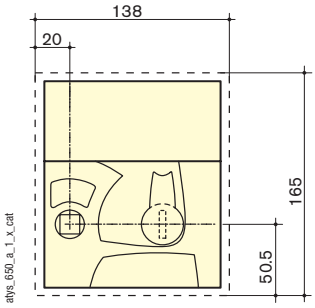
➲ Cut of dimensions

ATyS 125 to 630 A

ATyS 3s

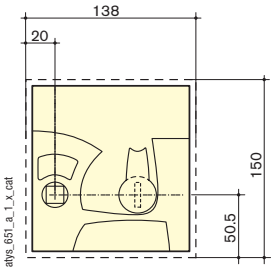


ATyS 3e, 6e, 6m

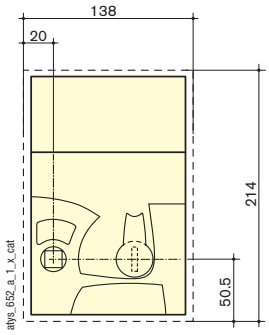


ATyS 800 to 1800 A

ATyS 3s

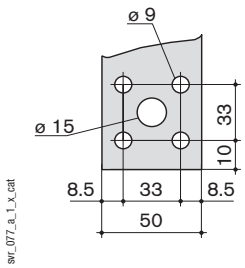


ATyS 3e, 6e, 6m

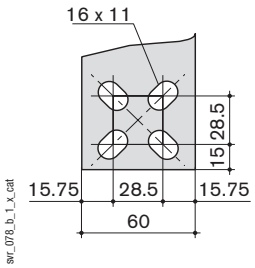


➲ Connection terminals

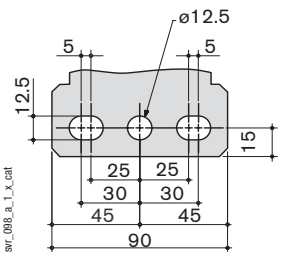
ATyS 800 to 1000 A



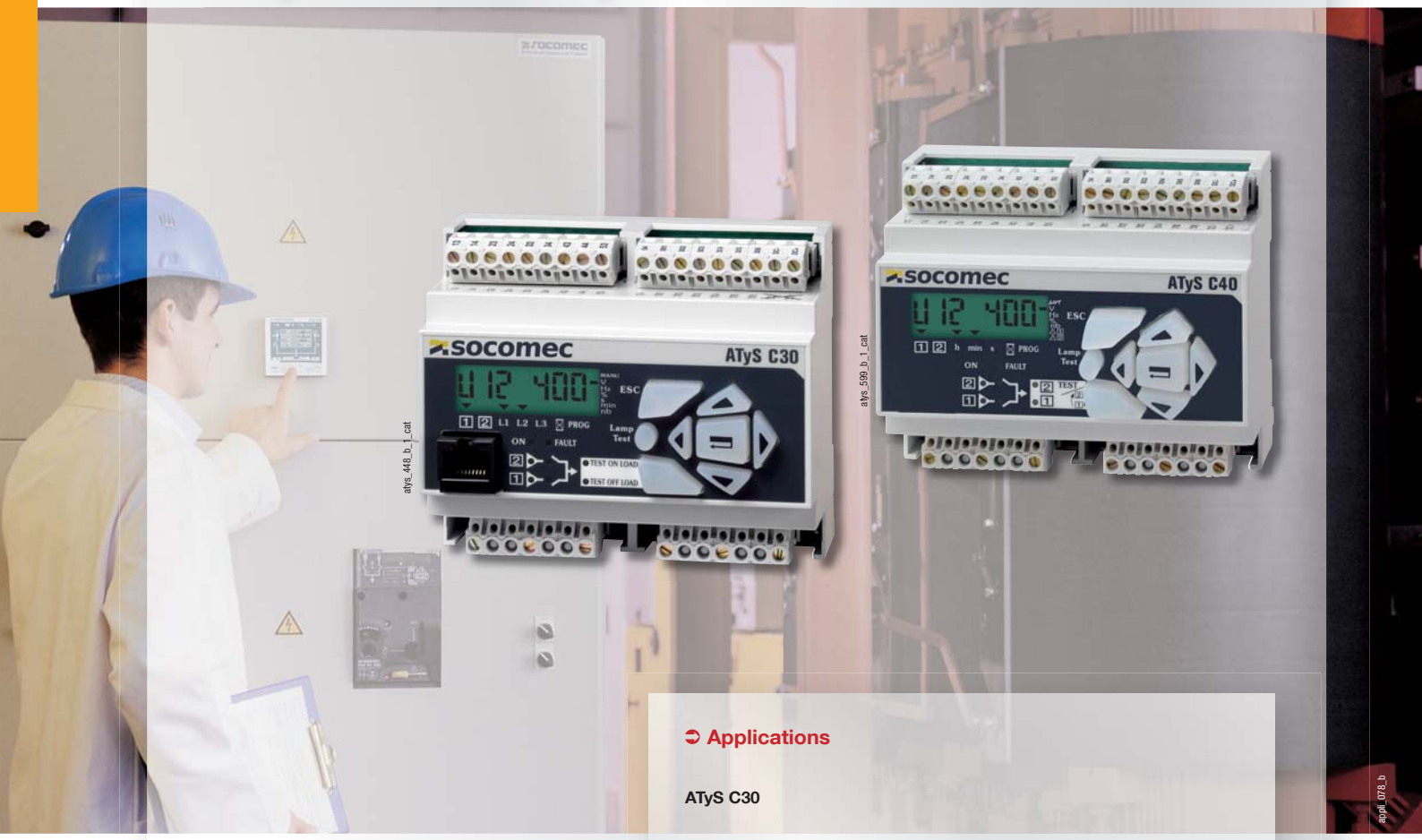
ATyS 1250 A



ATyS 1600 to 3200 A



ATyS C30 / ATyS C40



➲ Function

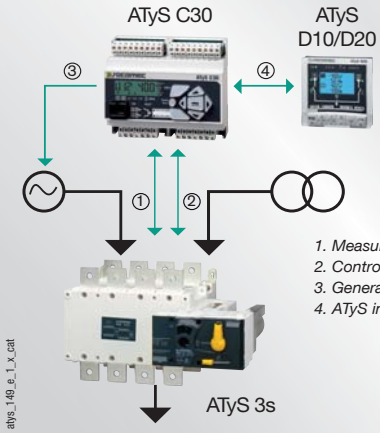
ATyS C30 / C40 allows any type of motorized changeover control: ATyS and ATyS M, contactors, circuit breakers or other motorised switches.

➲ Conformity to standards

- IEC 61010-1
- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5
- IEC 61000-4-6
- IEC 61000-4-8
- IEC 61000-4-11
- IEC 60068-2-6
- IEC 60068-2-11
- IEC 60068-2-30

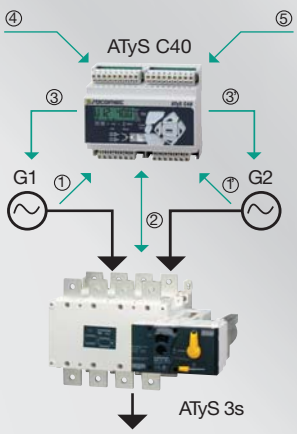
➲ Applications

ATyS C30



1. Measurement and power supply
2. Control and position information feedback
3. Generating set "start/stop"
4. ATyS interface connection

ATyS C40



1 and 1'. U+F metering for each group
2. Control and position information feedback
3 and 3'. Generating set "start/stop" control
4. External "start/stop" command for basic cycle
5. DC power supply

General characteristics

- Modular design (6 modules).
- DIN rail mounting.
- 2 output relays for changeover control.

ATyS C30

- ATyS D10 or D20 connection.
- Inputs for auxiliary position contacts.
- Metering 3U on network 1.
- Metering 1U on network 2.
- 2 programmable inputs for the following functions: test, loss of a network, remote starting/stopping.
- 2 programmable inputs for the following functions: information transfer, circuit breaker control.

ATyS C40

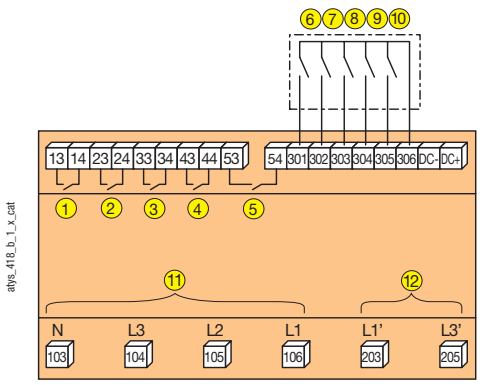
- Dual gensets controller with a redundant genset application cycle (basic cycle).
- Single phase sensing on Gen1 & Gen 2.
- 3 programmable inputs for the following functions: test, loss of a network, remote starting/stopping.
- 1 programmable input for the following functions: information transfer, circuit breaker control.
- 2 start Gen contacts (Gen1 & Gen2).

Electrical characteristics

Supplied from measurement circuit	110 … 400 VAC
DC power supply	< 9 … 30 VDC
Measurement range	110 … 400 VAC / ± 10 %
Frequency	50/60 Hz
Accuracy	± 1 %

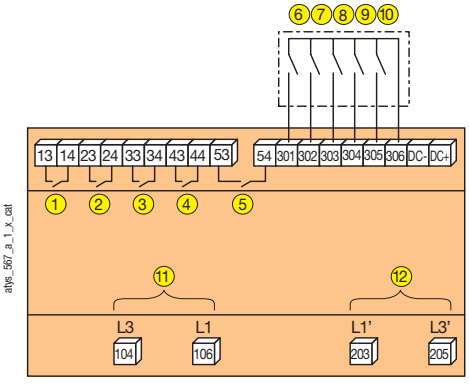
Terminals

ATyS C30



1. Generator 1 start / stop control
2. Pos 1: power component control
3. Pos 2: power component control
4. O1: programmable output
5. O2: programmable output
6. 1: auxiliary contact position 1
7. 0: auxiliary contact position 0
8. AC 2: auxiliary contact position 2
9. I1: programmable input
10. I2: programmable input
11. Source 1: 3 U network measurement and power supply
12. Source 2: 1 U network measurement and power supply

ATyS C40



1. Generator 1 start / stop control
2. Pos 1: power component control
3. Pos 2: power component control
4. O1: programmable output
5. Generator 2 start / stop control
6. AC 1: auxiliary contact position 1
7. I3: programmable input
8. AC 2: auxiliary contact position 2
9. I1: programmable input
10. I2: programmable input
11. Metering 1U + frequency generator G1
12. Metering 1U + frequency generator G2

References





Type	ATyS C30 Reference	ATyS C40 Reference
Supplied from measurement circuit	1599 **3030**	
DC power supply	1599 **3031**	1599 **3040**

Energy management, measurement and analysis





News

Energy efficiency

From sensors to supervision: complete solutions for monitoring power distribution

➲ **You want to design and put in place a system for…**

- **monitoring an electrical installation**
  SOCOMEC offers a complete solution from the measuring sensor to the monitoring software. We offer a wide range of digital and analogue indicators (single or multifunction) to meet all your needs.
  See our selection guide p. 330

- **energy management**
  More than 15 years ago, SOCOMEC developed DIRIS, a complete system designed to run high and low voltage electrical networks, whilst ensuring the measurement and monitoring of electrical values, the metering and management of energy (electricity, water, gas, etc.), the remote control and checking of devices and the protection of networks.
  See our selection guide p. 331

- **Power quality management**
  The DIRIS N300 and N600 are 2 high-precision products (class 0.2) which provide quality measurement functions.
  See our selection guide p. 331

➲ **Services & Technical Assistance: second nature!**
When different parts of a supply system interconnect, it brings together technical areas which don't always see things the same. SOCOMEC's multidisciplinary expertise guarantees optimal commissioning and use of the proposed solutions ***(see following pages)***.

COUNTIS energy meters

63 A

E10/E11/E12
p. 354

63 A

E20/E21
p. 356

100 A

E30/E31/E32/E33
p. 358

6000 A

E40/E41/E42/E44
p. 360


E50/E53
p. 362

DIRIS multifunction meters


A10
p. 366


A20
p. 370


A40/A41
p. 374


A60
p. 380

Electrical network analysis system

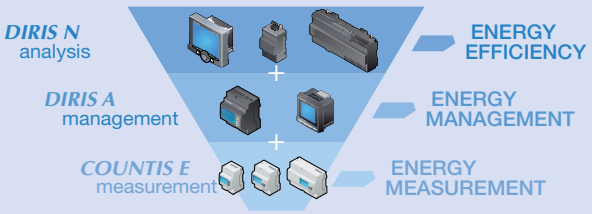

DIRIS N300/N600
p. 386

Range overview

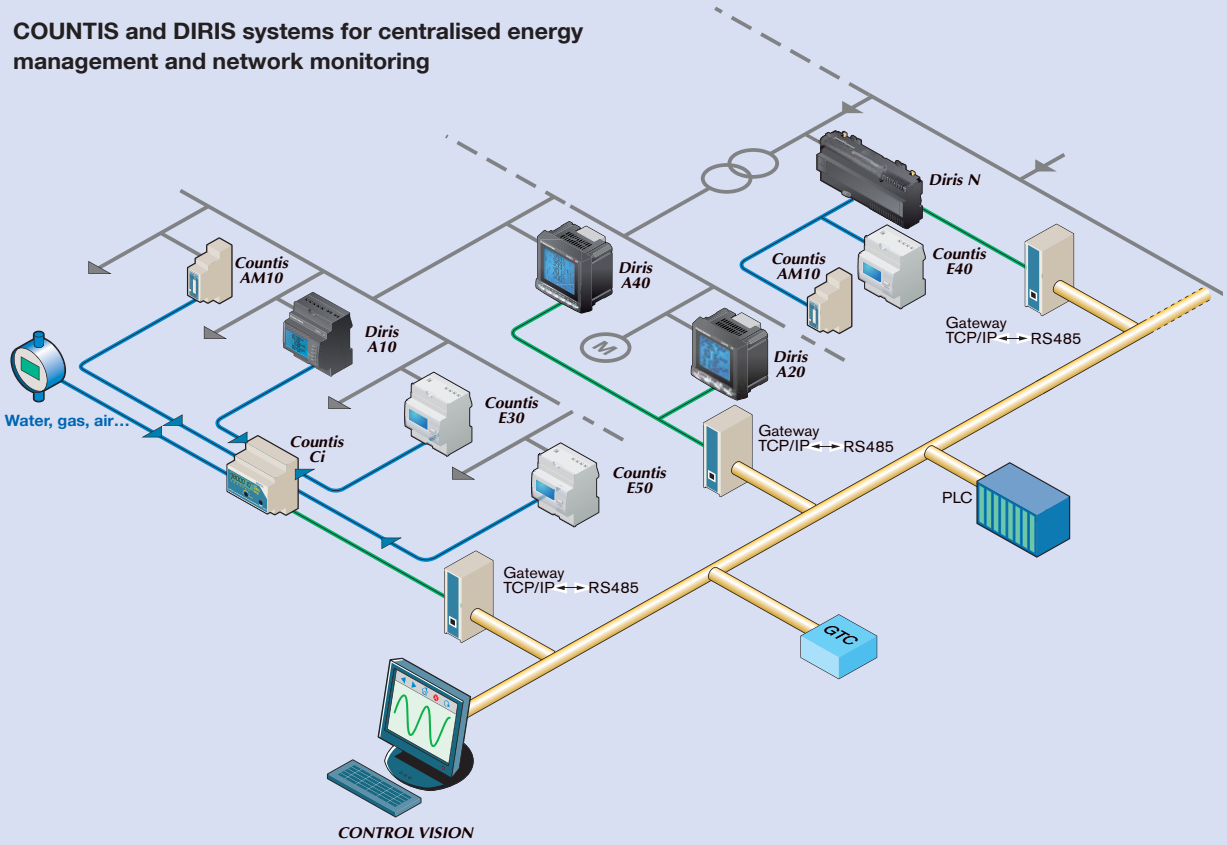
The "Energy measurement & management" section covers the devices and components used to measure energy and display, centralise and process data. A detailed presentation is given below.

Selection guide

Our solutions based on your application:
See the next page.



COUNTIS and DIRIS systems for centralised energy management and network monitoring



The COUNTIS energy metering offer consists of several meters suited to all type of electrical networks. These meters are all equipped with a pulse output allowing data to be exported to a concentrator, RS485 communication facility is also available as an option.

The DIRIS range multifunction meters can be adapted to any electrical network. These devices take measurements and monitor electrical values, meter energy or pulses (water, air, etc.). They also manage energy using average power values for 10 minute periods, and carry out control and command of installations.

The pulse concentrator and measurement units communicate with a PC or PLC via a suitable communications interface.
Monitoring can be performed by:

- a technical building management system (BMS) or a centralised technical management system (CTM)
- SOCOMEC software (CONTROL VISION and BILLING APPLICATION).

Monitoring and communications interfaces

Manage



CONTROL VISION
p. 396

Sub-billing



BILLING APPLICATION
p. 400



Interfaces
p. 394

Electrical network analysis system

LV/HV



N300/N600
p. 386

DIRIS multifunction meters

LV



A10
p. 366

LV



A20
p. 370

LV/HV



A40/A41
p. 374

LV/HV



A60
p. 380

Active energy meters and concentrator COUNTIS

32 A



AM10
p. 352

63 A



E10/E11/E12
p. 354

63 A



E20/E21
p. 356

100 A



E30/E31/E32/E33
p. 358

6000 A



E40/E41/E42/E44
p. 360

6000 A



E50/E53
p. 362

Concentrator



Ci
p. 364

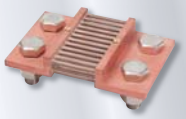
Measurement sensors

5 A ▶ 6000 A



Current transformers
p. 334

1 A ▶ 6000 A



Measurement shunt
p. 346



Other products
p. 348

Electrical measurement devices



Measurement transducers
p. 350

Made to measure...

Our adaptation laboratory can develop indicators to your specifications.

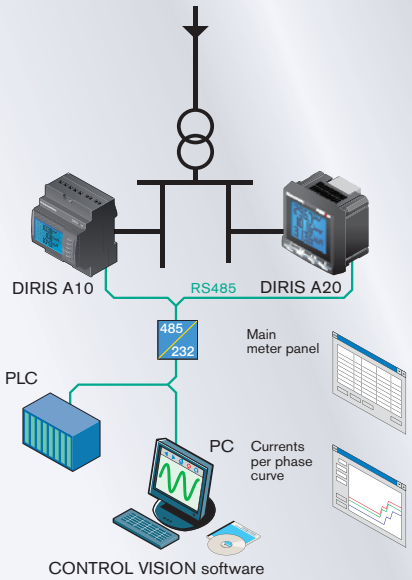


Your applications - our solutions

Monitor your electrical installation

By efficiently monitoring your distribution network, you are helping to ensure continuity of service and optimise the operation of your installation. You can quickly identify overloaded equipment and available power reserves. It also helps you better distribute and balance loads.

➲ SOCOMEC solutions



The DIRIS A10 and A20 allow all the parameters of an LV installation to be used. These can be centralised on a PC or PLC. The complete solution offered by SOCOMEC includes:

- sensors installed on the network (measurement shunts and current transformers),
- DIRIS A20 or A10 Multifunction meters,
- communication interfaces,
- and the CONTROL VISION monitoring software.

➲ DIRIS A: compliant with IEC 61557-12

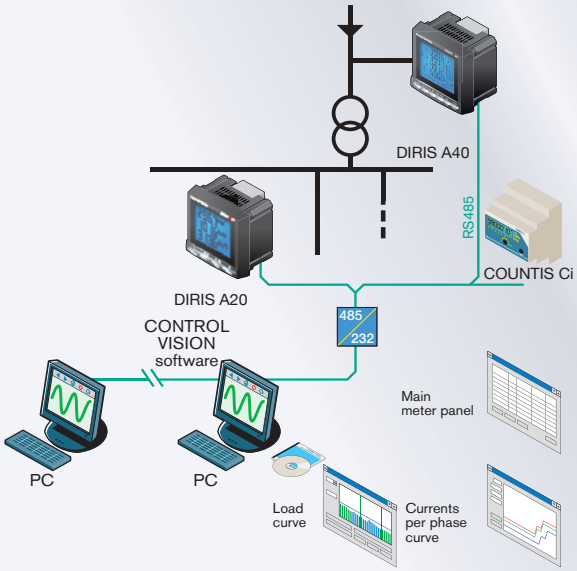
DIRIS A conforms to this new standard, which has been specifically created to govern Performance Measuring and monitoring Devices (PMD). IEC 61557-12 guarantees the user that the product meets all the metrological, mechanical and environmental requirements of an electrical distribution network (EMC, temperature, etc.).

Manage and optimise energy consumption

By measuring the energy consumption of the various sub-assemblies in your building, you can identify the main consumers. By correctly managing the peaks in consumption, you can avoid high costs and even optimise your energy contract. Thanks to submetering, you can also distribute your energy costs between the various users.

In addition to offering savings, energy management enables your company to make better use of energy resources and therefore minimise the impact on the environment.

➲ SOCOMEC solutions



The CONTROL VISION software displays all the electrical values measured and reads the energy consumption of an item of equipment or a production line.
BILLING APPLICATION, is used to charge energy consumption on the price of parts manufactured or even to reinvoice this consumption to those hiring equipment or service users.
The complete solution offered by SOCOMEC includes:

- sensors installed on the network (measurement shunts and current transformers),
- the DIRIS A20, A40, A60 multifunction meters and the COUNTIS Ci concentrator connected to COUNTIS meters,
- communication interfaces,
- and the CONTROL VISION and BILLING APPLICATION monitoring software.







Energy efficiency





All information available at:
www.socomec.com/diris/fr

➲ Services & Technical Assistance: second nature!

When different parts of a supply system interconnect, it brings together technical areas which don't always see things the same. SOCOMEC's multidisciplinary expertise guarantees optimal commissioning and use of the proposed solutions.

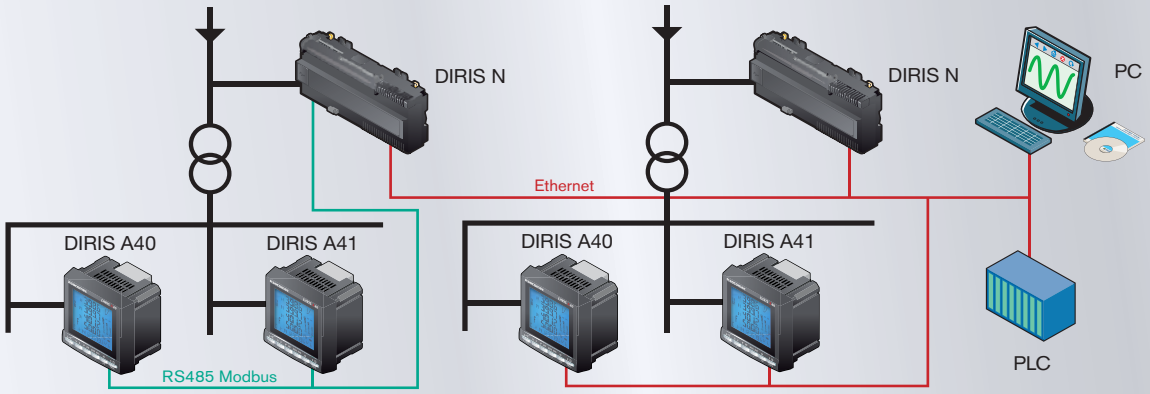
Our **Services & Technical Assistance** department will audit your installation, commission selected equipment and train personnel responsible for its use. This service provision corresponds to level 2 or 3 of the "Service Categories" reference by GIMELEC.
For further information, please contact your SOCOMEC agency.

* *Group of industries supplying electrical equipment, control-command systems and associated services.*

Power quality management

By monitoring energy quality, you can identify any problems in the electrical supply, for example due to the installation of a new element on the network. By preventing equipment malfunctions and premature wear, you can optimise your installation and make long-term savings.

➲ SOCOMEC solutions



DIRIS N records events and their waveforms in case of disturbance or failure. It also provides the user with a complete diagnostic of the electrical supply quality (EN50160 report).
DIRIS N300 and N600 are stand-alone acquisition, processing and memory modules. They are installed at the back of the cabinet on a DIN rail or plate. Both have Ethernet, RS 485 and USB communication ports. They can communicate with each other, with other equipment or with a supervision unit. In particular, they can be interconnected with COUNTIS and DIRIS A, from which they can retrieve and transmit information.

Current transformers



trafo_008_a_1_cat

trafo_077_b_1_cat

trafo_010_a_1_cat

trafo_012_a_1_cat

apdi_294_a

Measurement devices

➲ Function

SOCOMEC **current transformers** deliver to the secondary a standard current proportional to the primary current and adapted to the rating of the associated device. They are equipped as standard with removable terminal covers, double terminals allowing the secondary to be short-circuited without any risk.
They are mounted using two screw-on metal brackets or, in certain cases, by a clip-on DIN rail fastening. The connections are made by screws or by fast-on terminals.

- Accuracy class: 0.5.
- Accuracy class: 1 or 3 for higher required powers.
- Dielectric quality: 3 kV - 50 Hz 1 mn.
- Usage frequency: 50 - 60 Hz.
- Permanent overload 1.2 I_n.

➲ Abbreviated description

- **Primary wound moulded case transformer: TRB xxx** (xxx = CT width)
- **Cable-through transformer: TCA xx** (xx = cable diameter)
- **Bar or cable-through transformer: TCB xx-yy** (xx = cable diameter, yy = bar width)
- **Bar-through transformer: TBA yy** (yy = bar width)
- **Split-core transformer: TO xx-yy** (xx = inside width, yy = inside height).

➲ Conformity to standards

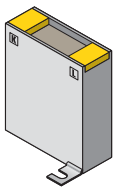
- IEC 185 (IEC 44-1)
- VDE 0414

➲ Other products

- Accuracy class: 0.2 S.
- 1 A secondary.
- Frequency 400 Hz.
- Double or triple primary ratio.
- Summation.
- Voltage transformer.

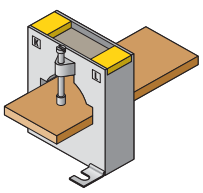
➲ Composition of the range

Primary wound moulded case



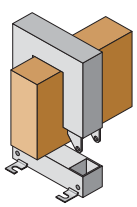
trafo_013_b_1_cat

Bar or cable-through



trafo_014_b_1_cat

Split-core transformer



trafo_015_b_1_cat

References

Primary wound moulded case CT





		TRB 60	TRB 70	TRB 135
Primary	Secondary	Reference	Reference	Reference
5 A	5 A	192T **0505**	192T **0521**	
10 A	5 A	192T **0510**	192T **0522**	
15 A	5 A	192T **0515**	192T **0523**	
20 A	5 A	192T **0520**	192T **0524**	
25 A	5 A		192T **0525**	192T **0603**
30 A	5 A		192T **0530**	192T **0607**
40 A	5 A		192T **0540**	192T **0604**
50 A	5 A			192T **0605**
60 A	5 A			192T **0606**
75 A	5 A			192T **0608**
100 A	5 A			192T **0610**
125 A	5 A			192T **0612**
150 A	5 A			192T **0615**

Accessories

	Reference	Reference	Reference
DIN rail mounting	192T **0003**	192T **0005**	
Sealable cover	192T **0105**	192T **0103**	192T **0101**

Cable-through CT



		TCA 21	TCA 22
Primary	Secondary(1)	Reference	Reference
50 A	5 A	192T **2005**	
60 A	5 A	192T **2006**	
75 A	5 A	192T **2007**	
100 A	5 A	192T **2010**	192T **2022**
125 A	5 A	192T **2012**	192T **2026**
150 A	5 A	192T **2015**	192T **2023**
160 A	5 A	192T **2060**	
200 A	5 A	192T **2020**	192T **2024**
250 A	5 A	192T **2016**	192T **2025**
300 A	5 A	192T **2017**	192T **2030**
400 A	5 A		192T **2034**
500 A	5 A		192T **2035**
600 A	5 A		192T **2036**

(1): Secondary 1 A: on request

Accessories

	Reference	Reference
DIN rail mounting	192T **0006**	192T **0007**

CT Plug-in transducer





		CE-VA for TRB 60	CE-VA for TRB 70
Power supply	Output	Reference	Reference
230 VAC	4-20 mA / 0-10 VDC	192T **0255**	192T **0265**
24 VDC	4-20 mA / 0-10 VDC	192Y **0155**	192Y **0165**

Power supply	Output	Reference	Reference
Self supplied	0-20 mA / 0-10 VDC	192Y **0015**	192Y **0025**
230 VAC	0-20 mA / 0-10 VDC	192Y **0215**	192Y **0225**
24 VDC	0-20 mA / 0-10 VDC	192Y **0115**	192Y **0125**

Bar or cable-through CT









Primary	Secondary[1]	TCB 17-20 Reference	TCB 26-30 Reference	TCB 28-30 Reference	TCB 26-40 Reference	TCB 32-40 Reference
50 A	5 A		192T **2305**	192T **2405**		192T **4005**
60 A	5 A	192T **2106**	192T **2306**	192T **2406**		192T **4006**
75 A	5 A	192T **2107**	192T **2307**	192T **2407**		192T **4007**
100 A	5 A	192T **2110**	192T **2310**	192T **2410**	192T **3210**	192T **4010**
125 A	5 A	192T **2112**	192T **2312**	192T **2412**	192T **3212**	192T **4012**
150 A	5 A	192T **2115**	192T **2315**	192T **2415**	192T **3215**	192T **4015**
160 A	5 A	192T **2116**			192T **3216**	
200 A	5 A	192T **2120**	192T **2320**	192T **2420**	192T **3220**	192T **4020**
250 A	5 A	192T **2125**	192T **2325**	192T **2425**	192T **3225**	192T **4025**
300 A	5 A	192T **2130**	192T **2330**	192T **2430**	192T **3230**	192T **4030**
400 A	5 A	192T **2140**	192T **2340**	192T **2440**	192T **3240**	192T **4040**
500 A	5 A		192T **2350**	192T **2450**	192T **3250**	192T **4050**
600 A	5 A		192T **2360**	192T **2460**	192T **3260**	192T **4060**
750 A	5 A		192T **2375**		192T **3275**	192T **4075**
800 A	5 A				192T **3280**	192T **4080**
1000 A	5 A					192T **4090**

(1) Secondary 1 A: on request

Accessories

	TCB 17-20 Reference	TCB 26-30 Reference	TCB 26-40 Reference	TCB 32-40 Reference
DIN rail mounting	192T **0007**	192T **0003**	192T **0003**	192T **0005**
Sealable cover		192T **0105**	192T **0105**	192T **0103**

Plug-in transducer to CT (CEA-VA4)

Power supply	Output	TCB 26-30 Reference	TCB 26-40 Reference	TCB 32-40 Reference
Self supplied	0-20 mA / 0-10 VDC	192Y **0015**	192Y **0015**	192Y **0035**
230 VAC	0-20 mA / 0-10 VDC	192Y **0215**	192Y **0215**	192Y **0235**
24 VDC	0-20 mA / 0-10 VDC	192Y **0115**	192Y **0115**	192Y **0135**

Plug-in transducer to CT (CEA-VA4)

Power supply	Output	TCB 26-30 Reference	TCB 26-40 Reference	TCB 32-40 Reference
230 VAC	4-20 mA / 0-10 VDC	192T **0255**	192T **0255**	192Y **0275**
24 VDC	4-20 mA / 0-10 VDC	192Y **0155**	192Y **0155**	192Y **0175**

Bar or cable-through CT









Primary	Secondary[1]	TCB 44-50 Reference	TCB 44-63 Reference	TCB 55-80 Reference	TCB 85-100 Reference	TCB 100-125 Reference
100 A	5 A	192T **5010**				
150 A	5 A	192T **5015**				
200 A	5 A	192T **5020**	192T **6420**			
250 A	5 A	192T **5025**	192T **6425**			
300 A	5 A	192T **5030**	192T **6430**			
400 A	5 A	192T **5040**	192T **6440**	192T **8140**		
500 A	5 A	192T **5050**	192T **6450**	192T **8150**		
600 A	5 A	192T **5060**	192T **6460**	192T **8160**		
750 A	5 A	192T **5075**	192T **6475**	192T **8175**	192T **9675**	
800 A	5 A	192T **5080**	192T **6480**	192T **8180**	192T **9680**	
1000 A	5 A	192T **5090**	192T **6490**	192T **8190**	192T **9690**	192T **9590**
1200 A	5 A	192T **5092**	192T **6492**	192T **8192**	192T **9692**	192T **9592**
1250 A	5 A	192T **5095**	192T **6493**	192T **8193**	192T **9693**	192T **9593**
1500 A	5 A		192T **6495**	192T **8195**	192T **9695**	192T **9595**
1600 A	5 A		192T **6494**	192T **8194**	192T **9694**	
2000 A	5 A			192T **8196**	192T **9696**	192T **9596**
2500 A	5 A				192T **9697**	192T **9597**
3000 A	5 A				192T **9698**	192T **9598**
4000 A	5 A					192T **9599**

(1) Secondary 1 A: on request

Accessories

	TCB 44-50 Reference	TCB 44-63 Reference	TCB 55-80 Reference	TCB 85-100 Reference	TCB 100-125 Reference
Sealable cover	192T **0102**	192T **0102**	192T **0102**	2 x 192T **0105**	2 x 192T **0105**

Plug-in transducer to CT (CEA-VA4)

Power supply	Output	TCB 44-63 Reference	TCB 55-80 Reference
Self supplied	0-20 mA / 0-10 VDC	192Y **0045**	192Y **0045**
230 VAC	0-20 mA / 0-10 VDC	192Y **0245**	192Y **0245**
24 VDC	0-20 mA / 0-10 VDC	192Y **0145**	192Y **0145**

Plug-in transducer to CT (CEA-VA4)

Input	Output	TCB 44-63 Reference	TCB 55-80 Reference
230 VAC	4-20 mA / 0-10 VDC	192Y **0285**	192Y **0285**
24 VDC	4-20 mA / 0-10 VDC	192Y **0185**	192Y **0185**

Bar-through CT







		TBA 60	TBA 100	TBA 103	TBA 127
Primary	**Secondary**	**Reference**	**Reference**	**Reference**	**Reference**
200 A	5 A	192T **7020**			
250 A	5 A	192T **7025**			
300 A	5 A	192T **7030**			
400 A	5 A	192T **7040**		192T **9340**	192T **9740**
500 A	5 A	192T **7050**		192T **9350**	192T **9750**
600 A	5 A	192T **7060**	192T **8060**	192T **9360**	192T **9760**
750 A	5 A	192T **7075**	192T **8075**	192T **9375**	192T **9775**
800 A	5 A	192T **7080**	192T **8080**	192T **9380**	192T **9780**
1000 A	5 A	192T **7090**	192T **8090**	192T **9390**	192T **9790**
1200 A	5 A	192T **7092**	192T **8092**	192T **9392**	192T **9792**
1250 A	5 A	192T **7093**	192T **8093**	192T **9393**	192T **9793**
1500 A	5 A	192T **7095**	192T **8095**	192T **9395**	192T **9795**
1600 A	5 A	192T **7094**	192T **8094**	192T **9394**	
2000 A	5 A	192T **7096**	192T **8096**	192T **9396**	192T **9796**
2500 A	5 A		192T **8097**		192T **9797**
3000 A	5 A		192T **8098**		182T **9798**(1)
4000 A	5 A		192T **8099**(2)		182T **9799**(1)

(1) Replacement model TRA 127 for this rating.
(2) TBA 100 with 4000 A primary, different dimensions.

Accessories

	Reference	Reference	Reference	Reference
Sealable cover	192T **0102**	192T **0102**	192T **0102**	192T **0102**

Summation CT



		BSA 02	BSA 03	BSA 04
Primary	**Secondary**	**Reference**	**Reference**	**Reference**
5 + 5 / 5 A	5 A	192T **0802**		
5 + 5 + 5 / 5 A	5 A		192T **0803**	
5 + 5 + 5 + 5 / 5 A	5 A			192T **0904**

Three-phase CT DIN rail mounted



TCA 13 - 3P

Primary	Secondary (A)[1]	Frequency	VA	Class	Max. operating voltage	Number of modules	Reference
3 x 50 A	5 A	50 - 60 Hz	1	1	720 VAC	6	192T **1905**
3 x 60 A	5 A	50 - 60 Hz	1.25	1	720 VAC	6	192T **1906**
3 x 75 A	5 A	50 - 60 Hz	1.5	1	720 VAC	6	192T **1907**
3 x 80 A	5 A	50 - 60 Hz	1.5	1	720 VAC	6	192T **1908**
3 x 100 A	5 A	50 - 60 Hz	2.5	0.5	720 VAC	6	192T **1910**
3 x 125 A	5 A	50 - 60 Hz	2.5	0.5	720 VAC	6	192T **1912**
3 x 150 A	5 A	50 - 60 Hz	2.5	0.5	720 VAC	6	192T **1915**
3 x 160 A	5 A	50 - 60 Hz	2.5	0.5	720 VAC	6	192T **1916**

(1) Secondary 1 A: on request.

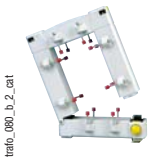
Split-core CT



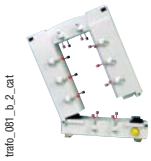
TO 23



TO 58



TO 812



TO 816

Primary	Secondary (A)	Reference	Reference	Reference	Reference
100 A	5 A	192T **4601**			
150 A	5 A	192T **4602**			
200 A	5 A	192T **4603**			
250 A	5 A	192T **4604**	192T **4625**	192T **4725**	
300 A	5 A	192T **4605**	192T **4630**	192T **4730**	
400 A	5 A	192T **4606**	192T **4640**	192T **4740**	
500 A	5 A		192T **4650**	192T **4750**	
600 A	5 A		192T **4660**	192T **4760**	
750 A	5 A		192T **4675**	192T **4775**	
800 A	5 A		192T **4680**	192T **4780**	
1000 A	5 A		192T **4610**	192T **4710**	192T **4810**
1250 A	5 A			192T **4712**	192T **4812**
1500 A	5 A			192T **4715**	192T **4815**
2000 A	5 A				192T **4820**
2500 A	5 A				192T **4825**
3000 A	5 A				192T **4830**
4000 A	5 A				192T **4840**
5000 A	5 A				192T **4850**

➲ Current transformers - Characteristics

Primary wound moulded case CT

Primary (VA)	TRB 60 Class 0.5	Class 1	Class 3	TRB 70 Class 0.5	Class 1	Class 3	TRB 135 Class 0.5	Class 1	Class 3
5 A	2.5	5	7.5	10	15	20			
10 A	2.5	5	7.5	10	15	20			
15 A	2.5	5	7.5	10	15	20			
20 A	2.5	5	7.5	10	15	20			
25 A				10	15	20	10	15	30
30 A				5	10	20	10	15	30
40 A				5	10	20	10	15	30
50 A							10	15	30
60 A							10	15	30
75 A							10	15	30
100 A							10	15	30

Transducer

Type	1	2	
DIN rail mounting	yes	yes	
H x W x D (mm)	78.5 x 61 x 35	88.5 x 71 x 45	85 x 135 x 60

Cable-through CT

Primary (VA)	TCA 21 Class 0.5	Class 1	Class 3	TCA 22 Class 0.5	Class 1	Class 3
50 A		1	2			
60 A		1.2	2.5			
75 A		1.5	3			
100 A	1.5	2.5	5		1	2
125 A	2.5	3.7	7.5		1	3
150 A	2.5	3.7	7.5		1.5	3
160 A	1.5	2.5	3.75			
200 A	2.5	5	10		2.5	5
250 A	5	7.5	15		5	10
300 A	5	7.5	15		5	10
400 A					10	20
500 A					10	20
600 A					10	20

Transducer

DIN rail mounting	yes	yes
Ø cable (mm)	21	22.5
H x W x D (mm)	65 x 45 x 30	65 x 49.5 x 35

Bar or cable-through CT

	TCB 17-20 Class			TCB 26-30 Class			TCB 28-30 Class			TCB 26-40 Class			TCB 32-40 Class			TCB 44-50 Class			TCB 44-63 Class		
Primary (VA)	**0.5**	**1**	**3**	**0.5**	**1**	**3**	**0.5**	**1**	**3**	**0.5**	**1**	**3**	**0.5**	**1**	**3**	**0.5**	**1**	**3**	**0.5**	**1**	**3**
50 A					1	2	1	1.5	2					1.5	3						
60 A		1	2		1	2	1.25	2	3					1.5	3						
75 A		1	2		1.5	3	2.5	3.7	5					2.5	5						
100 A		1.5	3	1.5	2.5	5	2.5	3.7	5		1.5	3	2.5	3.7	7.5		1.5	3			
125 A		1.5	3	1.5	2.5	5	5	7.5	10		2.5	4	2.5	3.7	7.5						
150 A		2.5	5	1.5	2.5	5	5	2.5	10		2.5	5	2.5	5	10	2.5	5	10			
160 A		2.5	3.75							1.5	2.5	3.75									
200 A		2.5	5	2.5	5	10	5	10	15		2.5	5	5	10	15	5	10	15			
250 A		5	7.5	5	10	15	5	10	15		5	10	5	10	20	5	10	15	1.5	2.5	5
300 A		5	10	5	10	15	5	10	15		5	10	10	15	30	5	10	20	1.5	2.5	5
400 A		10	15	5	10	15	10	15	20		5	10	10	15	30	10	15	30	2.5	5	10
500 A				5	10	15	10	15	20		10	20	10	15	30	10	15	30	5	10	20
600 A				5	10	15	10	15	20		10	20	10	15	30	10	15	30	10	15	30
750 A											15	30	10	15	30	15	30	45	10	15	30
800 A											15	30	15	30	45	15	30	45	10	15	30
1000 A													15	30	45	15	30	45	10	15	30
1200 A																15	30	45	15	30	45
1250 A																			15	30	45
1500 A																			15	30	45

Transducer

Type		1		1	2		3
DIN rail mounting	yes	yes		yes	yes		
Bar (mm)	20 x 5	30 x 10	30 x 10	40 x 10	40 x 10	50 x 12	63 x 10
Ø cable (mm)	17.5	26	28	26	32	44	44
H x W x D (mm)	65 x 49.5 x 50	78.5 x 61 x 48	70 x 49.9 x 68	78.5 x 61 x 48	88.5 x 71 x 58	101.5 x 86 x 58	108.5 x 96 x 58

Through-bar or through-cable CT

	TCB 55-80 Class			TCB 85-100 Class			TCB 100-125 Class		
Primary (VA)	**0.5**	**1**	**3**	**0.5**	**1 VA**	**3 VA**	**0.5**	**1**	**3**
400 A	2.5	5	10						
500 A	5	10	20						
600 A	5	10	20						
750 A	10	15	30	2.5	5	10			
800 A	10	20	30	5	10	20			
1000 A	15	30	45	10	15	30	5	10	20
1200 A	15	30	45	10	15	30	10	15	30
1250 A	15	30	45	15	30	45	10	15	30
1500 A	15	30	45	15	30	45	15	30	45
1600 A	15	30	45	15	30	45			
2000 A	15	30	45	30	45	60	30	45	60
2500 A				30	45	60	30	45	60
3000 A				30	45	60	30	45	60
4000 A							30	45	60

Transducer

Type	3		
DIN rail mounting			
Bar (mm)	80 x 10	2 x 100 x 10	2 x 120 x 10
Ø cable (mm)			
H x W x D (mm)	126.5 x 120 x 58	187.5 x 172 x 52	187.5 x 172 x 52

Bar-through CT

	TBA 60			TBA 100			TBA 103			TBA 127		
Primary (VA)	Class 0.5	Class 1	Class 3	Class 0.5	Class 1	Class 3	Class 0.5	Class 1	Class 3	Class 0.5	Class 1	Class 3
200 A		2.5	5									
250 A	2.5	2.5	5									
300 A	2.5	5	10									
400 A	5	10	20				2.5	5	10	2.5	5	7.5
500 A	5	10	20				2.5	5	10	2.5	5	7.5
600 A	10	15	30	5	10	20	2.5	5	10	2.5	5	10
750 A	10	15	30	5	10	20	2.5	5	10	2.5	5	10
800 A	10	15	30	5	10	20	5	10	15	5	10	15
1000 A	15	30	45	5	10	20	10	15	20	10	15	20
1200 A	15	30	45	10	15	30	10	15	20	10	15	20
1250 A	15	30	45	10	15	30	10	15	20	10	15	20
1500 A	15	30	45	15	30	45	10	15	20	15	30	45
1600 A	15	30	45	15	30	45	10	15	30			
2000 A	15	30	45	15	30	45	15	15	20	15	30	45
2500 A				30	45	60				15	30	45
3000 A				30	45	60				15	30	45
4000 A				30	45	60						

Dimensions

Bar (mm)	60 x 30	100 x 30	100 x 35	125 x 35
H x W x D (mm)	132 x 88 x 78	170 x 129 x 78[1]	150 x 99 x 55	175 x 100 x 55

(1) TBA 100 to 4000A primary: 217 x 129 x 78 mm.

Split-core CT

	TO 23			TO 58			TO 812			TO 816		
Primary (VA)	Class 0.5	Class 1	Class 3	Class 0.5	Class 1	Class 3	Class 0.5	Class 1	Class 3	Class 0.5	Class 1	Class 3
100 A		1.25	1.5									
150 A		1.5	2.5									
200 A		1.5	2.5									
250 A		1.5	2.5	1	2	4	1	2	4			
300 A	1.5	4	6	1.5	3	6	1.5	3	6			
400 A	2.5	6	10	1.5	3	10	1.5	3	6			
500 A				2.5	5	15	2.5	5	10			
600 A				2.5	5	15	2.5	5	10			
750 A				2.5	5	15	2.5	5	10			
800 A				2.5	5	15	2.5	5	10			
1000 A				5	10	20	5	10	20	10	15	20
1250 A							7.5	15	25	10	15	20
1500 A							7.5	15	25	10	15	20
2000 A										10	15	20
2500 A										10	15	20
3000 A										15	25	35
4000 A										15	25	35
5000 A										15	25	35

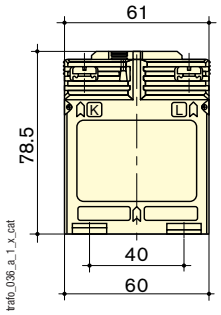
Dimensions

H x W x D (mm)	106 x 93 x 58	152 x 125 x 58	198 x 155 x 58	246 x 195 x 79

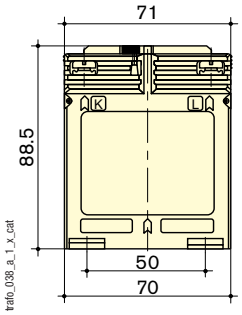
Dimensions

Primary wound moulded case CT

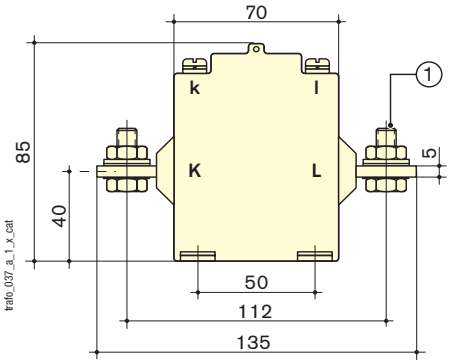
TRB 60



TRB 70



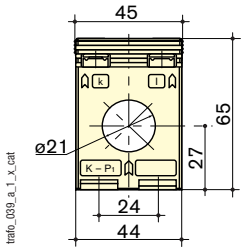
TRB 135



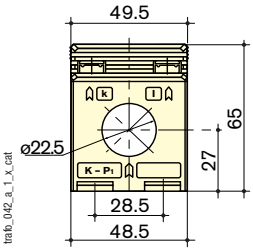
1. 25 to 100 A: M8 x 25

Cable-through CT

TCA 21

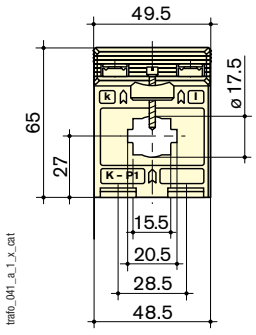


TCA 22

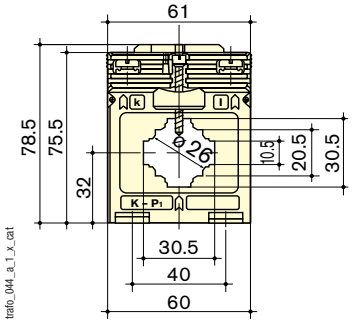


Bar or cable-through CT

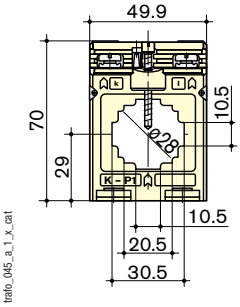
TCB 17-20



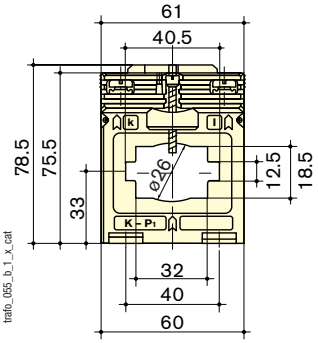
TCB 26-30



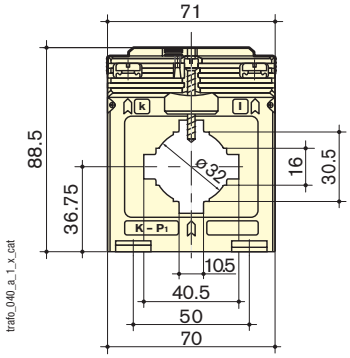
TCB 28-30



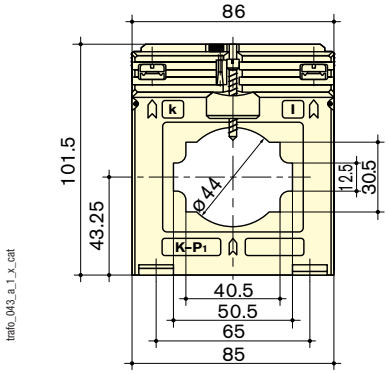
TCB 26-40



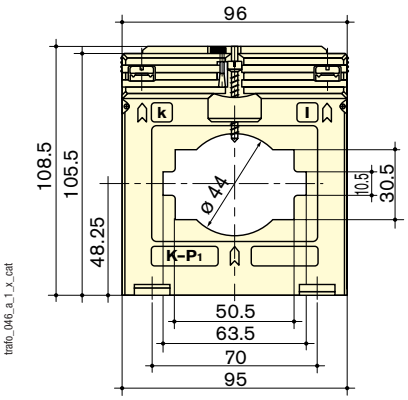
TCB 32-40



TCB 44-50

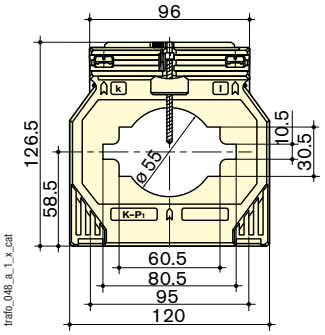


TCB 44-63

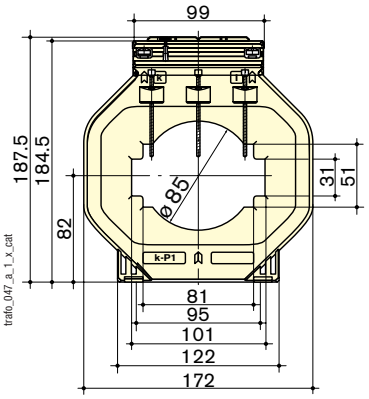


Bar or cable-through CT

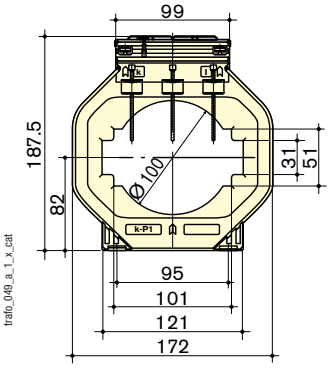
TCB 55-80



TCB 85-100

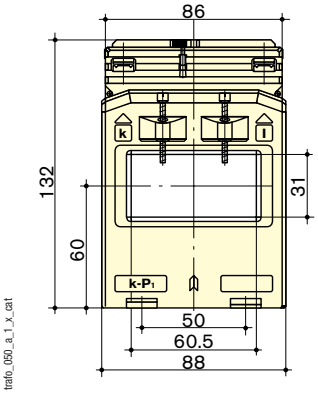


TCB 100-125

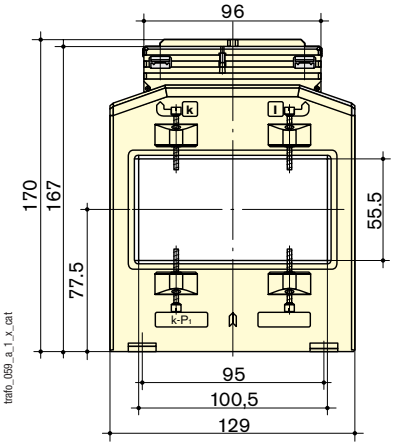


Bar-through CT

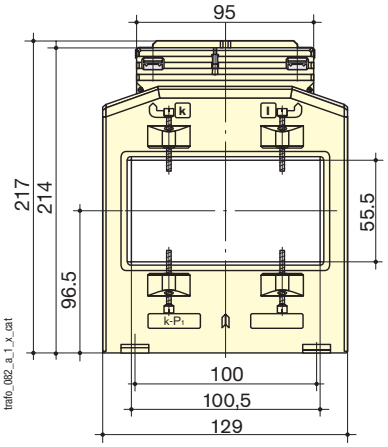
TBA 60



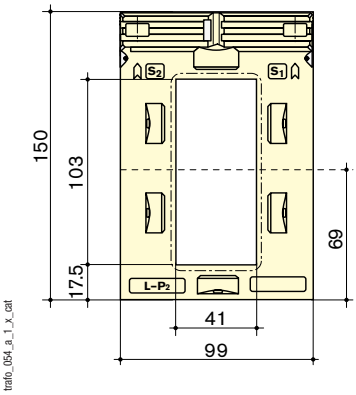
TBA 100 - 600 to 3000 A



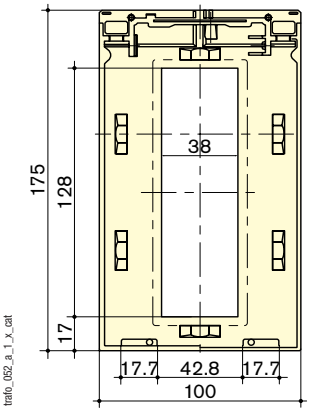
TBA 100 - 4000 A



TBA 103



TBA 127

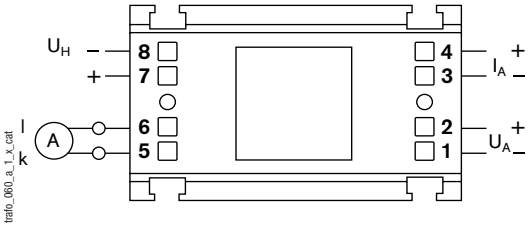


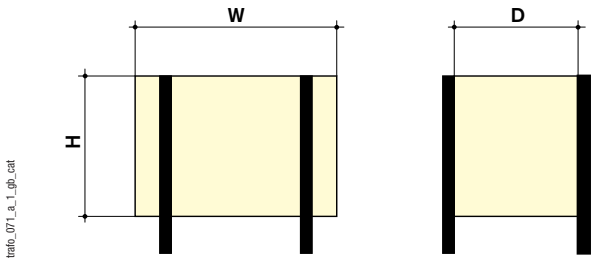
Transducers to be associated



Transducer to be associated with adapted current transformers:

- input: 1 or 5 A,
- output:
  - 0-20 mA, 0-10 V (model CEA-VA),
  - 4-20 mA, 0-10 V (model CEA-VA4),
- self-supplied or auxiliary power supply 24 VDC or 230 VAC.
- 3 sizes according to the CT: type 1, 2 or 3.





TRB 60 to 70

Transducer	Type	Height (mm)	Width (mm)	Depth (mm)
Type 1	TRB 60	50.5	60	32.5
Type 2	TRB 70	50	70	43

TCB 26-30 / 26-40 / 32-40

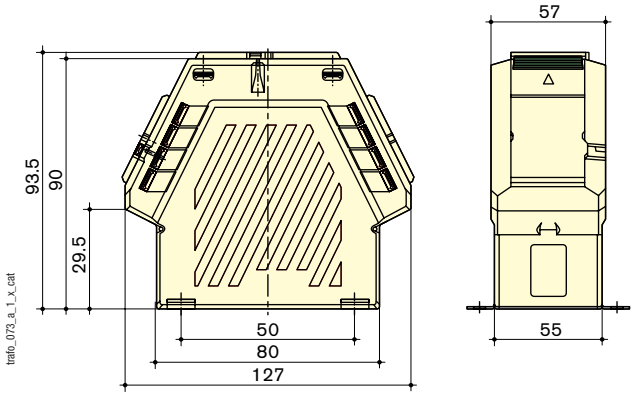
Transducer	Type	Height (mm)	Width (mm)	Depth (mm)
Type 1	TCB 26-30	50.5	60	32.5
Type 1	TCB 26-40	50.5	60	32.5
Type 2	TCB 32-40	50	70	43

TCB 44-63 / 55-80

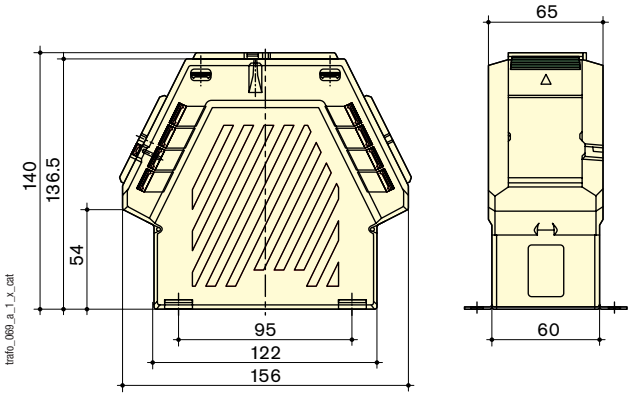
Transducer	Type	Height (mm)	Length (mm)	Depth (mm)
Type 3	TCB 44-63	50.5	95	43
Type 3	TCB 55-80	50.5	95	43

Summation CT

BSA 02 to 03

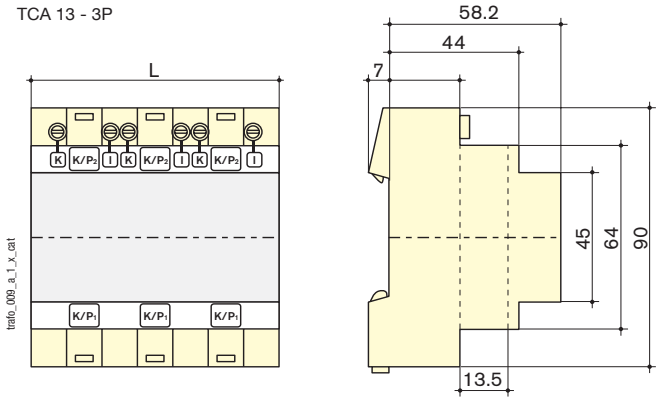


BTA 04



Three-phase CT DIN rail mounted

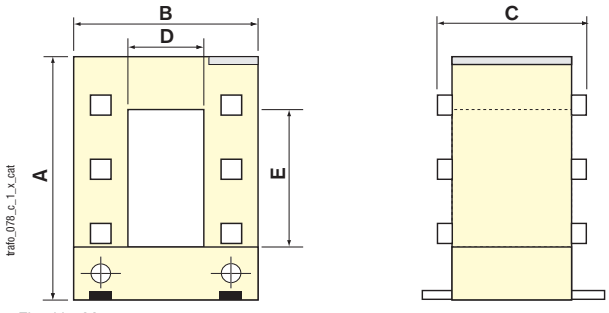
TCA 13 - 3P



Number of optional modules	Front protection rating	Terminal block protection rating	W (mm)	Mounting
6	IP65	IP20	105	35 mm DIN-rail

Split core CT

TO 23 to 816



Fixed by M5 new

Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
TO 23	106	93	58	20	30
TO 58	152	125	58	50	80
TO 812	198	155	58	80	120
TO 816	246	195	79	80	160

Measurement shunts



➲ Function

SOCOMEC **shunts** provide indirect measurement of direct current by creating a standardised voltage drop.

➲ Composition of the range

- 20 ratings available from 1 to 6000A, in 100 mV.
- 2 models:
  - ECONOMIC, 10 to 600 A,
  - DIN, 1 to 6000 A.

➲ Characteristics

- Voltage drop: 100 mV for nominal rating.
- Accuracy class: 0.5.
- Permanent overload 1.2 In.
- 10 I_n / 5 s rating ≤ 250 A
  5 I_n / 5 s rating 300 to 2000 A
  2 I_n / 5 s rating 300 to 10 kA.

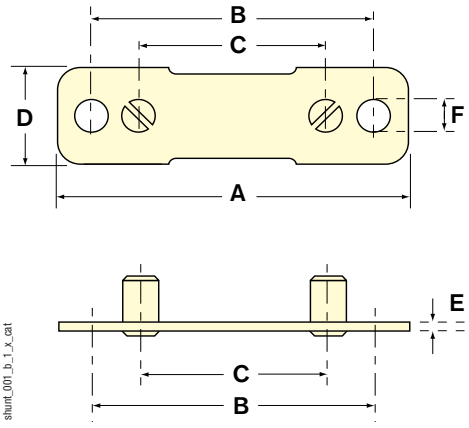
➲ Other products (1)

- 60 or 150 mV voltage drop.

(1) Please consult us.

➲ Dimensions

Economic Series 10 to 600 A

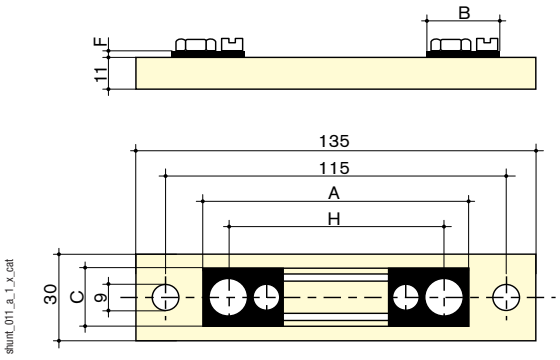


Rating(1)	A	B	C	D	E	F
10 A	136	116	82	25	2	8.5
15 A	136	116	82	25	2	8.5
25 A	136	116	82	25	2	8.5
40 A	136	116	82	25	2	8.5
60 A	136	116	82	25	2	8.5
100 A	136	116	82	25	2	8.5
150 A	136	116	82	25	2	8.5
200 A	150	125	82	25	3.5	12.5
250 A	150	125	82	25	3.5	12.5
300 A	177	137	82	50	4	17
400 A	177	137	82	50	4	17
600 A	177	137	82	50	4	17

(1) Connection: 2 M5 screws x 6 and 2 washers Ø 5.3 mm.

DIN Series 1 to 25 A

Fig. 1

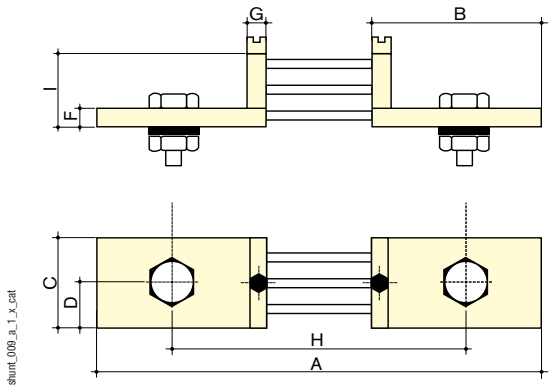


Rating(1)	Figure	A	B	C	D	E	F	G	H	I
1 A	1	90	28	20			8		78	
4 A	1	90	28	20			8		78	
6 A	1	90	28	20			8		78	
10 A	1	90	28	20			8		78	
15 A	1	90	28	20			8		78	
25 A	1	90	28	20			8		78	
40 A	2	123	33	20			8		103	
60 A	2	123	33	20			8		103	
100 A	2	123	33	20			8		103	
150 A	2	123	33	20			8		103	
200 A	2	168	55	30	15		10	10	128	30
250 A	2	168	55	30	15		10	10	128	30
300 A	2	168	55	40	20		10	10	128	30
400 A	2	168	55	40	20		10	10	128	30
600 A	2	168	55	40	20		10	10	128	30
1000 A	2	188	65	60	30		10	10	138	30
1500 A	3	188	65	90	21	48	10	10	138	30
2500 A	3	188	65	120	30	60	10	10	138	30
4000 A	3	188	65	120	30	60	15	10	138	60
6000 A	3	188	65	180	30	60	15	10	138	60

(1) Connection: 2 M5 screws x 8 and 2 washers Ø 5.3 mm.

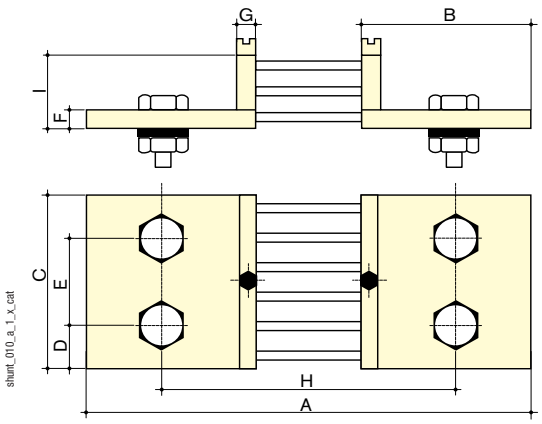
DIN Series 40 to 1000 A

Fig. 2



DIN Series 1500 to 6000 A

Fig. 3



References





Rating(1)	Secondary voltage drop	Economic series Reference	DIN series Reference
1 A	100 mV		192S **2101**
4 A	100 mV		192S **2104**
6 A	100 mV		192S **2106**
10 A	100 mV	192S **2410**	192S **2110**
15 A	100 mV	192S **2412**	192S **2112**
25 A	100 mV	192S **2414**	192S **2114**
40 A	100 mV	192S **2416**	192S **2116**
60 A	100 mV	192S **2418**	192S **2118**
100 A	100 mV	192S **2420**	192S **2120**
150 A	100 mV	192S **2425**	192S **2125**
200 A	100 mV	192S **2428**	192S **2220**
250 A	100 mV	192S **2429**	192S **2235**
300 A	100 mV		192S **2230**
400 A	100 mV		192S **2240**
600 A	100 mV		192S **2250**
1000 A	100 mV		192S **2255**
1500 A	100 mV		192S **2260**
2500 A	100 mV		192S **2165**
4000 A	100 mV		192S **2170**
6000 A	100 mV		192S **2175**

(1) Other rating: Please consult us



PTI : CT automatic short-circuit device



pti_005_a_2_cat

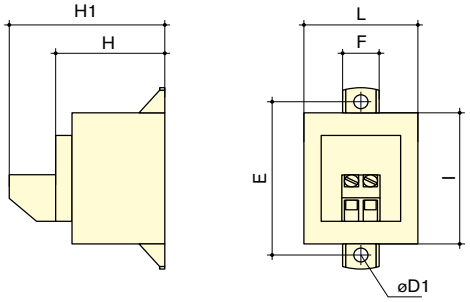
➲ Use

This device provides automatic short-circuiting of the CT secondary if the measuring circuit is opened.

➲ Conformity to standards

- Decree n° 88-1056 from 14-11-88: protection of workers.
- NF C 15-100 article 473.1.4-556.3.
- Complies with the Mines and Quarries decree n° 91-986.
- GAM EG 13.C (military standard).

➲ Dimensions



pti_003_a_1_x_cat

Rating	D1	E	F	H	H1	I	L
5 A	4.2	47	9.6	32	44	41	34.7

➲ References

Rating	Voltage limit peak	Operating frequency	Max. differential voltage	Reference
5 A	21 VAC	45 … 400 Hz	600 VAC	4990 **0521**
5 A	25 VAC	45 … 400 Hz	600 VAC	4990 **0525**(1)

(1) DCN approved (French State Naval Construction Company).

Characteristics

Switch body protection degree	IP55
Terminal protection degree	IP20
Connection wire range	2.5 mm²
Weight	82 g

Bar or cable-through saturation current transformer



trafo_056_a_1_cat

➲ Use

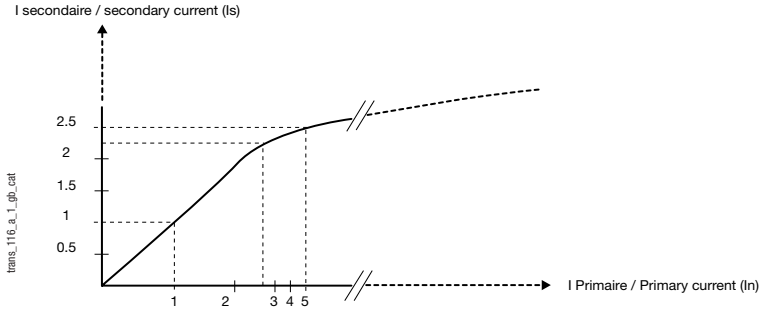
The protection transformers are used for thermal relays. The TCS 30 - 40 are transformers for cables and busbars. They protect the low power terminal relays against from the engine starting intensity.

Avaible in primary wound version for current between 1 to 75 A (1 A secondary, 2 VA, Cl. 1). Please consult us.

➲ References

Rating	Secondary (A)	Burden - Cl. 1	Reference
100 A	1 A	2	192T **0710**
150 A	1 A	2	192T **0715**
200 A	1 A	2	192T **0720**
250 A	1 A	2	192T **0725**
300 A	1 A	2	192T **0730**
400 A	1 A	2	192T **0740**
500 A	1 A	2	192T **0750**

Saturation curve



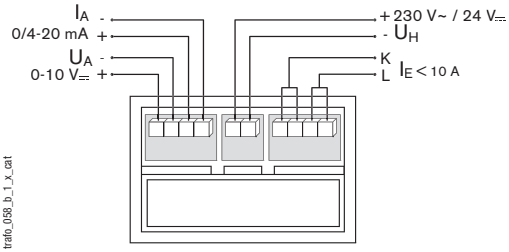
trans_116_a_1_gb_cat

Transformer with integrated transducer


trafo_057_a_1_cat

Compact cable-through current transformer with integrated measurement transducer (Ø 27 mm) or bar transformer (40 x 10 mm).

- Input:
  - Direct Connection 0 to 10 A,
  - CT primary of 40 to 800 A (self-supplied)
  - CT primary of 15 to 800 A (auxiliary supply)
- Output:
  - 0-20 mA, 0-10 V (type CTA-VA)
  - 4-20 mA and 0-10 V (type CTA-VA4)
- Self-supplied or auxiliary power supply 24 VDC or 230 VAC.
- Dimension: 135 x 80 x 50 mm.



trafo_058_b_1_x_cat

References

Primary	0-20 mA / 0-10 VDC Self supplied Reference	0-20 mA / 0-10 VDC 230 VAC Reference	0-20 mA / 0-10 VDC 24 VDC Reference	4-20 mA / 0-10 VDC 230 VAC Reference	4-20 mA / 0-10 VDC 24 VDC Reference
1 A	192Y **0401**	192Y **0501**	192Y **0801**	192Y **0601**	on request
5 A	192Y **0402**	192Y **0502**	192Y **0802**	192Y **0602**	192Y **0902**
10 A		192Y **0503**	192Y **0803**	192Y **0603**	on request
15 A		192Y **0504**	192Y **0804**	192Y **0604**	192Y **0904**
20 A		192Y **0505**	on request	192Y **0605**	192Y **0905**
25 A		192Y **0506**	on request	192Y **0606**	192Y **0906**
30 A		192Y **0507**	192Y **0807**	192Y **0607**	192Y **0907**
40 A	192Y **0408**	192Y **0508**	192Y **0808**	192Y **0608**	192Y **0908**
50 A	192Y **0409**	192Y **0509**	192Y **0809**	192Y **0609**	192Y **0909**
60 A	192Y **0410**	192Y **0510**	192Y **0810**	192Y **0610**	192Y **0910**
75 A	192Y **0411**	192Y **0511**	192Y **0811**	192Y **0611**	192Y **0911**
100 A	192Y **0412**	192Y **0512**	192Y **0812**	192Y **0612**	192Y **0912**
150 A	192Y **0415**	192Y **0515**	192Y **0815**	192Y **0615**	on request
200 A	192Y **0420**	192Y **0520**	192Y **0820**	192Y **0620**	on request
250 A	192Y **0425**	192Y **0525**	192Y **0825**	192Y **0625**	192Y **0925**
300 A	192Y **0430**	192Y **0530**	192Y **0830**	192Y **0630**	192Y **0930**
400 A	192Y **0440**	192Y **0540**	192Y **0840**	192Y **0640**	192Y **0940**
500 A	192Y **0450**	192Y **0550**	192Y **0850**	192Y **0650**	on request
600 A	192Y **0460**	192Y **0560**	192Y **0860**	on request	192Y **0960**
750 A	192Y **0475**	192Y **0575**	192Y **0875**	192Y **0675**	192Y **0975**
800 A	192Y **0480**	192Y **0580**	192Y **0880**	192Y **0680**	192Y **0980**

Voltage transformer BTV 25


trafo_062_a_1_cat

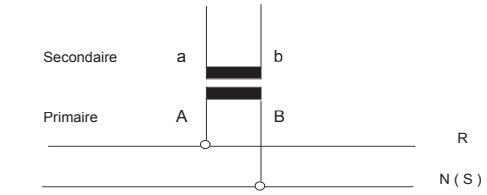
Applications

Measurement and conversion of the input value read at the primary of a transformer in a directly proportional voltage signal.
BTV 25s are voltage transformers.

Recommendation

Voltage transformers are used specifically for supplying measurement equipment, therefore it is not recommended to connect other components which could affect accuracy. This is due to the effect of the dephasing error.
If the consumption is greater than 25 VA, another transformer must be added.

Connection



trafo_072_a_1_gb_cat

A and B : primary connection *a and b : secondary connection*

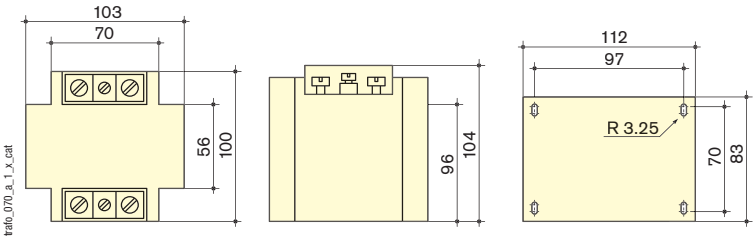
References

Primary	Secondary (A)	Power	Reference
230 VAC	100 VAC	25 VA	192M **2020**
400 VAC	100 VAC	25 VA	192M **2030**
440 VAC	100 VAC	25 VA	192M **2044**
500 VAC	100 VAC	25 VA	192M **2050**
600 VAC	100 VAC	25 VA	192M **2060**
660 VAC	100 VAC	25 VA	192M **2066**
800 VAC	100 VAC	25 VA	consult us

Characteristics

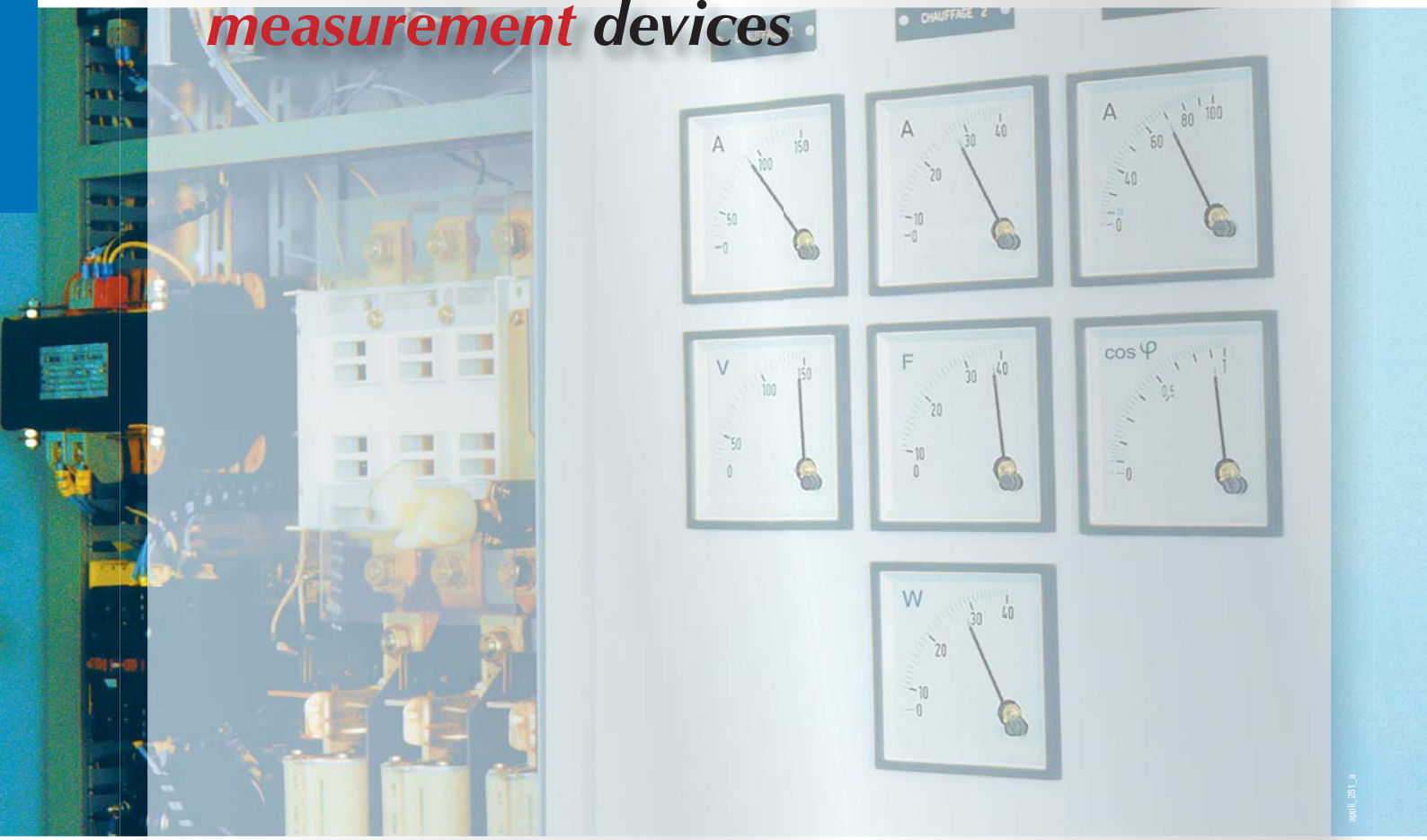
Accuracy class	1 %
Dielectric quality	3 kV for 1 min.
Operating frequency	50 - 60 Hz
Sustained overload	1.2 U_n

Dimensions



trafo_070_a_1_x_cat

Other electrical measurement devices



appli_281_a

Transducers



trans_071_a_2_cat

They provide conversion of an AC electrical quantity (A, V, Hz, Cos phi, W, Var) into a DC signal, with standardized current or voltage. They are available in surface-mounting casings (CS range).
These devices are designed for DIN rail or back plate mounting.
Type CS transducers in surface-mounted casings come in two dimensions:
- 75 mm for current, voltage and frequency converters,
- 150 mm for power or three-phase converters.

Consult us.

Modular transducers



trans_076_a_2_cat

Available in:
- 3-DIN module housings (52.5 mm) for current, voltage and frequency converters,
- 6-DIN module housings (105 mm) for current (output 4-20 mA), voltage (output 4-20 mA) converters,
- 9-DIN module housings (157.5 mm) for power or three-phase converters.

Consult us.

Analogue meters

freq_003_a_1_cat
freq_002_a_1_cat
phase_002_b_1_cat
amper_027_a_1_cat
amper_033_a_2_cat



SOCOMEC ferromagnetic ammeters and voltmeters measure the AC current voltage of any electrical circuit. SOCOMEC vibrating reed or needle type frequency meters have a converter either integrated or in a separate casing and measure the frequency of any electrical circuit. The wattmeters, varmeters and phase-meters consist of an analogue meter and a separate converter. They exist in 3 types of casing: Rotex round barrel model in 72 or 96, in a DIN 48 to 144 body or a modular casing (3 modules). With pointer deflections of 90° and 240°, they can be flush-mounted into cubicles, enclosures or other equipments.
Consult us.

Changeover switches

comut_015_b_2_cat



Voltmeter and ammeter switches allow the phase changeover for a three-phase circuit for voltage and current measurement.
They are available in three different casings:
- for screw mounting,
- with a central Ø 22 mm mounting,
- for DIN rail mounting.

Consult us.

Digital meters

cosph_001_a_2_cat
amper_032_a_2_cat
freq_004_a_2_cat
volm_019_a_2_cat



They measure all types of electrical measurement values (A, V, Hz, Cos phi, P, Q...).
The range:
- 2 different types of casing: rectangular or square:
  - 2 sizes of rectangular casing,
  - 2 sizes of square casing.
- direct measurement indicators or connected to a current or voltage transformer,
- 2000-point (3.5 digits) or 20000-point (4.5 digits) display,
- possibility of having 2 or 3 different types of measurement in the same square casing (AAA-VVV-AVF...),
- multi-indicators version,
- RMS-value.

Consult us.

Hour counters

compt_001_a_2_cat



Often combined with analogue meters in an electrical panel, hour counters count the total operating time of machines or electrical equipment.
Consult us.

COUNTIS AM10

Active energy meter and concentrator



count_174_b_1_cat

site_415_a

Single phase - Direct 32 A

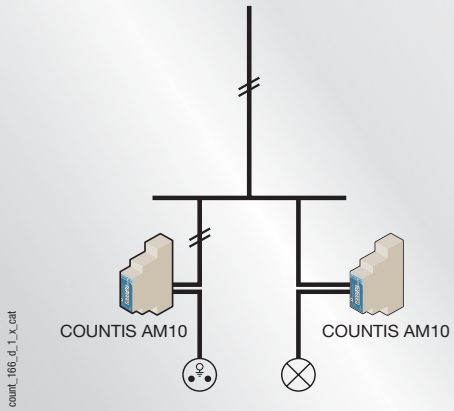
➲ Function

The **COUNTIS AM10** is a modular active energy meter designed for single phase load metering.
This product is used for direct connections up to 32 A.

➲ Conformity to standards

- IEC 62053-21 class 1
- IEC 61010-1
- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5
- IEC 61000-4-6
- IEC 61000-4-8
- IEC 61000-4-11
- IEC 60068-2-6
- IEC 60068-2-11
- IEC 60068-2-30

➲ Applications

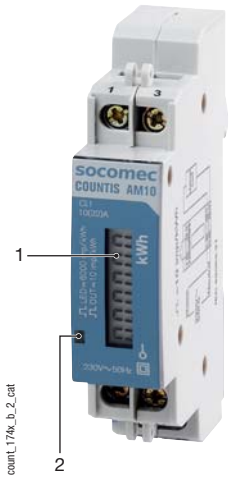


count_166_d_1_x_cat

The **COUNTIS AM10** is a 32 A active energy meter. Its LCD display shows the kWh consumed by, for example, a machine, a motor or a boat in a marina.

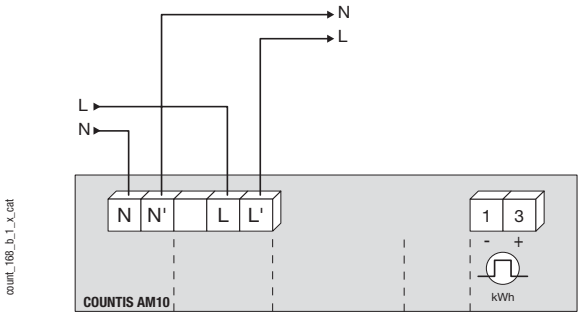
The pulse output enables the kWh consumption to be gathered / uploaded to a PC in order to be analysed for billing, energy saving or energy cost management purposes.

Front panel



1. kWh display.
2. Metrological LED (6000 pulses/kWh)

Terminals and connections



N - L: Network voltage inputs.
N' - L': Network voltage outputs.
1 - 3: Pulse outputs.

Characteristics

Current measurement (TRMS)	
Type	32 A direct input
Input consumption	1 VA
Permanent overload	40 A
Overload	20 I_{max} for 500 ms
Minimum current measured	15 mA

Voltage measurements (TRMS)	
Range of measurement	184 … 276 VAC
Input consumption	≤ 8 VA
Sustained overload	276 VAC

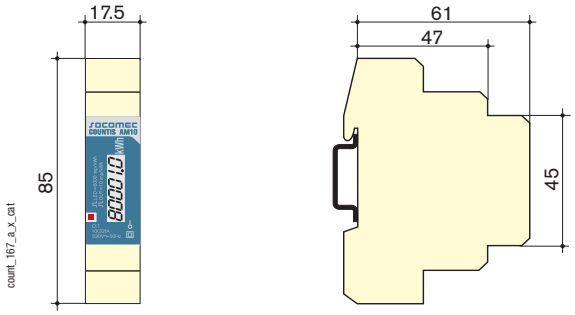
Energy accuracy	
Active (according to IEC 62053-21)	class 1

Power supply	
Self supplied	yes

Output (pulsed)	
Number	1
Type phototransistor	10 ... 35 VDC
Fixed weight of impulses	100 Wh
Impulse duration	100 ms

Operating conditions	
Operating temperature	- 20 … + 45 °C
Storage temperature	- 25 … + 70 °C
Relative humidity	85 %

Case



Type	Modular
Number of optional modules	1
Dimensions W x H x D	17.5 x 85 x 61
Case protection index	IP 20
Front protection rating	IP 50
Display type	LCD 5+1 digits
Rigid cable connection section	10 mm²
Flexible cable connection section	6 mm²
Weight	150 g

References

Connection	COUNTIS AM10 Reference
Direct 32 A	4850 **AM10**

Services and Technical assistance

Our expertise extends to a complete offer of services like commissioning installation audit, training, maintenance and project engineering.



COUNTIS E10 / E11 / E12

Active energy meter and concentrator



Single phase - Direct 63 A

➲ Function

The **COUNTIS E1x** is an active electrical energy meter designed for single phase load metering. It is used for direct connections up to 63 A.

➲ Applications

The **COUNTIS E10** displays the total energy consumed and allows remote access through pulse output.
Metering over specific period can be managed though a partial counter.

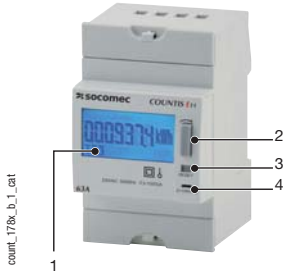
The **COUNTIS E11** is a double tariff meter meant for dual tariff invoicing. For each tariff a partial counter is available.

The **COUNTIS E12** features MID certification.
MID certified meters feature:
- Extra thefts protection : meter can not be reset, sealed casing.
- Extra accuracy : MID specifications on accuracy according to temperature, humidity, and other external factors are extended.

➲ Conformity to standards

- IEC 62053-21 class 1
- IEC 62053-31
- IEC 62053-11
- EN 50470-1
- EN 50470-3

Front panel



1. LCD display.
2. Navigation key.
3. Reset key.
4. Metrological LED.

Electrical characteristics

Current measurement

Type	Single phase - Direct 63 A
Input consumption	0.8 VA max.
Startup current (I_{st})	40 mA
Minimum current (I_{min})	0.5 A(1)
Transition current (I_{tr})	1 A(2)
Reference current (I_{ref})	10 A(3)
Permanent overload (I_{max})	63 A
Short-time over-current	1890 A max for 10 ms

Voltage measurement

Range of measurement	230 ... 400 V +/- 20 %
Consumption (VA)	0.5 VA max.
Sustained overload	280 V phase-neutral

Energy accuracy

Active (according to IEC 62053-21)	Class 1

Power supply

Self supplied	Yes
Frequency	50/60 Hz

Output (pulsed)

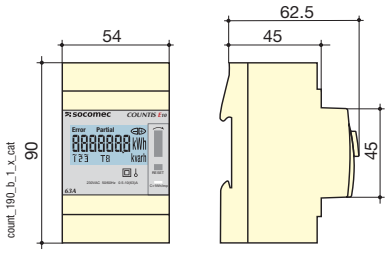
Type of optocoupler	IEC 62053-31 Class A (20 ... 30 VDC)
Number	1
Fixed weight of impulses	100 Wh
Impulse duration	100 ms

Operating conditions

Operating temperature	-10 to 55 °C
Storage temperature	-20 to 70 °C
Relative humidity	85 %

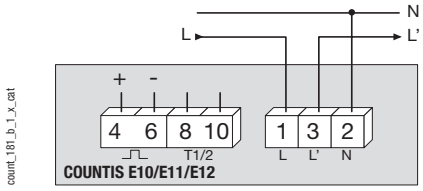
(1) $I_{(min)} \leq 0.5 * I_{tr}$
(2) The accuracy class is guaranteed between I_{tr} et I_{max}.
*(3) $I_{(ref)} = I_{(b)}$ (base current) = 10 * $I_{(tr)}$ for direct connection COUNTIS.*

Case



Type	Modular
Number of optional modules	3
Dimensions W x H x D	54 x 90 x 62.5 mm
Case protection index	IP 20
Front protection rating	IP 51
Display type	Backlit LCD display
Rigid cable connection section	1.5 to 16 mm²
Flexible cable connection section	1 to 16 mm²
Weight	170 g

Connection



References

Type	COUNTIS E10 Reference	COUNTIS E11 Reference	COUNTIS E12 Reference
63 A direct	4850 **3000**		
63 A direct - Dual tariff		4850 **3001**	
63 A direct - Dual tariff and MID			4850 **3002**

Certification MID

The Measuring Instruments Directive (MID) authorises the use of MID Countis in applications for which sub-billing of the electrical energy consumed is necessary (apartments, commercial units, etc.). It guarantees each user that meters meets a high level of accuracy, quality design and manufacturing through a 3rd party verification.



COUNTIS E20 / E21

Active energy meter and concentrator



3-phase - 63 A direct

➲ Function

The **COUNTIS E2x** is an active electrical energy meter designed for three-phase networks. It is used for direct connections up to 63 A.

➲ Applications

The **COUNTIS E20** displays the total energy consumed and allows remote access through pulse output.
Metering over specific period can be managed though a partial counter.

The **COUNTIS E21** is a double tariff meter meant for dual tariff invoicing. For each tariff a partial counter is available.

➲ Conformity to standards

- IEC 62053-21 class 1

Front panel



1. LCD display.
2. Navigation key.
3. Reset key.
4. Metrological LED.

Electrical characteristics

Current measurement

Type	63 A direct - 3-phase
Input consumption	0.8 VA max. per phase
Startup current (I_{st})	40 mA
Minimum current (I_{min})	0.5 A(1)
Transition current (I_{tr})	1 A(2)
Reference current (I_{ref})	10 A(3)
Permanent overload (I_{max})	63 A
Short-time over-current	1890 A max for 10 ms

Voltage measurement

Range of measurement	230 ... 400 V +/- 20 %
Consumption (VA)	2 VA max.
Sustained overload	280 V phase-neutral / 480 V phase-phase

Energy accuracy

Active (according to IEC 62053-21)	Class 1

Power supply

Self supplied	Yes
Frequency	50/60 Hz

Output (pulsed)

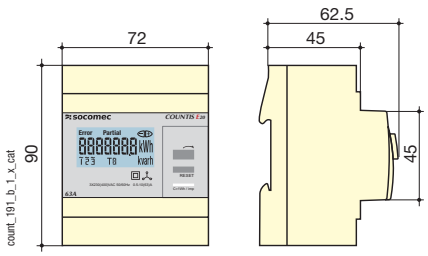
Number	1
Type of optocoupler	IEC 62053-31 Class A (20 ... 30 VDC)
Fixed weight of impulses	100 Wh
Impulse duration	100 ms

Operating conditions

Operating temperature	-10 to 55 °C
Storage temperature	-20 to 70 °C
Relative humidity	85 %

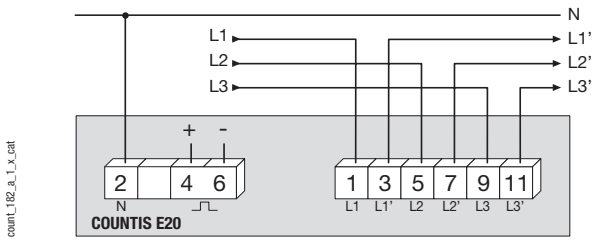
(1) $I_{t(min)} \leq 0.5 * I_{tr}$
(2) The accuracy class is guaranteed between I_{tr} et I_{max}.
*(3) $I_{(ref)} = I_{(b)}$ (base current) = 10 * $I_{(tr)}$ for direct connection COUNTIS.*

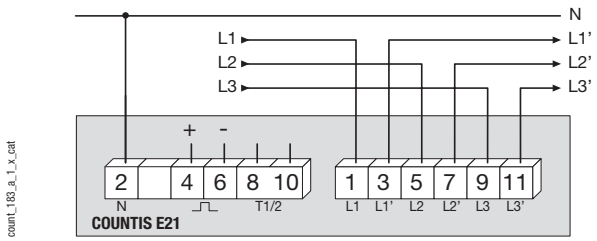
Case



Type	Modular
Number of optional modules	4
Dimensions W x H x D	72 x 90 x 62.5 mm
Case protection index	IP20
Front protection rating	IP51
Display type	Backlit LCD display
Rigid cable connection section	1.5 to 16 mm²
Flexible cable connection section	1 to 16 mm²
Weight	245 g

Connection





References

Type	COUNTIS E20 Reference	COUNTIS E21 Reference
63 A direct - 3-phase	4850 **3003**	
63 A direct - 3-phase - Dual tariff		4850 **3004**

COUNTIS

E30 / E31 / E32 / E33 / E34

Active energy meter and concentrator

NEW



3-phase - Direct 100 A

➲ Function

The **COUNTIS E3x** is an active electrical energy meter designed for three-phase networks. It is used for direct connections up to 100 A.

➲ Applications

The **COUNTIS E30** displays the total energy consumed and allows remote access through pulse output.
Metering over specific period can be managed though a partial counter.

The **COUNTIS E31** is a double tariff meter meant for dual tariff invoicing. For each tariff a partial counter is available.

In addition to the COUNTIS E31 functions, the **COUNTIS E32** also offers MID certification.

In addition to the COUNTIS E30 functions, the **COUNTIS E33** also offers JBUS/ MODBUS RTU communication via RS485.

In addition to the COUNTIS E33 functions, the **COUNTIS E34** also offers MID certification.

COUNTIS E32 and **E34** cannot be reset.

The **COUNTIS E33** is bi-directional (import and export).

➲ Conformity to standards

- IEC 62053-21 class 1
- IEC 62053-23 class 2
- EN 50470-1
- EN 50470-3

Front panel



1. *LCD display*
2. *Navigation key*
3. *Reset key*
4. *Metrological LED*

Electrical characteristics

Current measurement	
Type	3-phase - Direct 100 A
Input consumption	0.5 VA max. per phase
Startup current (I_{st})	80 mA
Minimum current (I_{min})	0.5 A(1)
Transition current (I_{tr})	2 A(2)
Reference current (I_{ref})	20 A(3)
Permanent overload (I_{max})	100 A
Short-time over-current	3000 A max for 10 ms

Voltage measurement	
Range of measurement	230 ... 400 V +/- 20 %
Consumption on inrush (VA)	2
Permanente overload	280 V phase-neutral / 480 V phase-phase

Energy accuracy	
Active (according to IEC 62053-21)	Class 1
Active (according to EN 50470)	Class B

Power supply	
Self supplied	Yes
Frequency	50 / 60 Hz

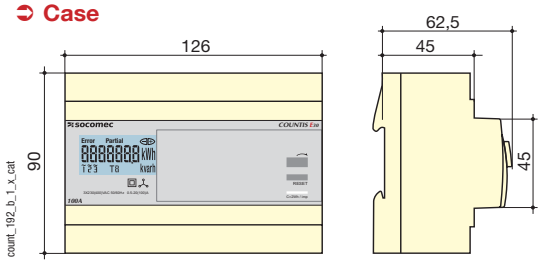
Output (pulsed)	
Number	1
Type of optocoupler	IEC 62053-31 class A (20 ... 30 VDC)
Fixed weight of impulses	100 Wh
Impulse duration	100 ms

Operating conditions	
Operating temperature	-10 to 55 °C
Storage temperature	-20 to 70 °C
Relative humidity	85 %

Communication	
Link	RS485
Type	2 … 3 half duplex wires
Protocol	JBUS/MODBUS® en mode RTU
JBUS/MODBUS® speed	3800 … 38400 bauds

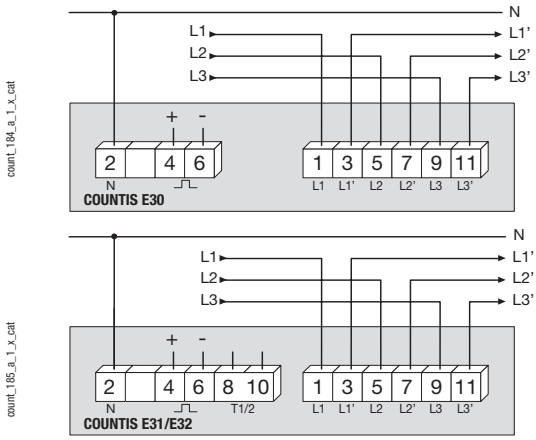
(1) $I_{(min)} \leq 0.5 * I_{tr}$
(2) The accuracy class is guaranteed between Itr et Imax.
*(3) $I_{(ref)} = I_{(b)}$ (base current) = 10 * $I_{(tr)}$ for direct connection COUNTIS.*

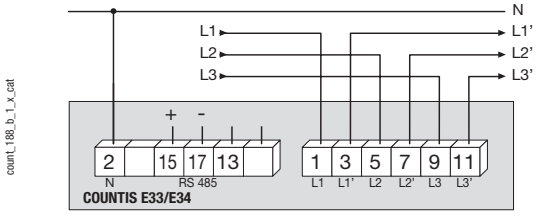
Case



Type	Modular
Number of optional modules	7
Dimensions W x H x D	126 x 90 x 62.5 mm
Case protection index	IP20
Front protection rating	IP51
Display type	Backlit LCD display
Rigid cable connection section	2.5 to 35 mm²
Flexible cable connection section	2.5 to 35 mm²
Weight	490 g

Connection





References

Type	COUNTIS E30 Reference	COUNTIS E31 Reference	COUNTIS E32 Reference	COUNTIS E33 Reference	COUNTIS E34 Reference
3-phase - Direct 100 A	4850 **3005**				
100 A direct - 3-phase - Dual tariff		4850 **3006**			
100 A direct - 3-phase - Dual tariff - MID			4850 **3007**		
100 A direct with JBUS/MODBUS communication via RS485				4850 **3012**	
100 A direct with JBUS/MODBUS communication via RS485 - MID					4850 **3013**

MID certification

The Measuring Instruments Directive (MID) authorises the use of MID Countis in applications for which sub-billing of the electrical energy consumed is necessary (apartments, commercial units, etc.).
It guarantees each user that meters meets a high level of accuracy, quality design and manufacturing through a 3rd party verification.



COUNTIS
E40 / E41 / E42 / E43 / E44

Active energy meter and concentrator

NEW



3-phase - Via CT up to 6000 A

➲ Function

The **COUNTIS E4x** is an active and reactive electrical energy meter designed for three-phase networks. It is used for connection via CT up to 6000 A.

➲ Applications

The **COUNTIS E40** displays the total energy consumed and allows remote access through pulse output.
Metering over specific period can be managed though a partial counter.

The **COUNTIS E41** is a double tariff meter meant for dual tariff invoicing. For each tariff a partial counter is available.

In addition to the COUNTIS E41 functions, the **COUNTIS E42** also offers MID certification.

In addition to the COUNTIS E40 functions, the **COUNTIS E43** also offers JBUS/ MODBUS RTU communication via RS485.

In addition to the COUNTIS E43 functions, the **COUNTIS E44** also offers MID certification.

COUNTIS E42 and **E44** cannot be reset.

The **COUNTIS E43** is bi-directional (import and export).

➲ Conformity to standards

- IEC 62053-21 class 1
- IEC 62053-23 class 2
- EN 50470-1
- EN 50470-3

Front panel



1. *LCD display*
2. *Navigation key*
3. *Reset key*
4. *Metrological LED*
5. *Programming key*

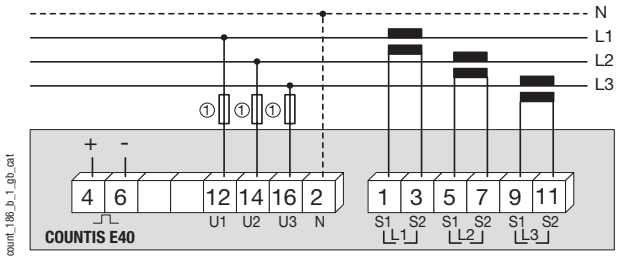
Electrical characteristics

Current measurement	
Type	Three-phase on CT/5A up to 6000 A
Input consumption	0.2 VA per phase
Startup current (I_{st})	10 mA
Minimum current (I_{min})	50 mA(1)
Transition current (I_{tr})	250 mA(2)
Reference current (I_{ref})	5 A(3)
Permanent overload (I_{max})	6 A
Short-time over-current	120 A for 0.5 s
Voltage measurement	
Range of measurement	230 ... 400 V +/- 20 %
Consumption (VA)	2 VA
Sustained overload	280 V phase-neutral / 480 V phase-phase
Energy accuracy	
Active (according to IEC 62053-21)	Class 1
Active (according to EN 50470)	Class B
Power supply	
Self supplied	Yes
Frequency	50 / 60 Hz
Output (pulsed)	
Number	1 (except E43)
Type of optocoupler	IEC 62053-31 Class A (20 ... 30 VDC)
Fixed weight of impulses	100 Wh, 1 KWh, 10 KWh, 100 KWh
Pulse duration	50 ms, 100 ms, 200 ms, 400 ms, 800 ms, 1000 ms, 1500 ms
Operating conditions	
Operating temperature	-10 to 55 °C
Storage temperature	-20 to 70 °C
Relative humidity	85 %
Communication	
Link	RS485
Type	2 … 3 half duplex wires
Protocol	JBUS/MODBUS® en mode RTU
JBUS/MODBUS® speed	1400 … 38400 bauds

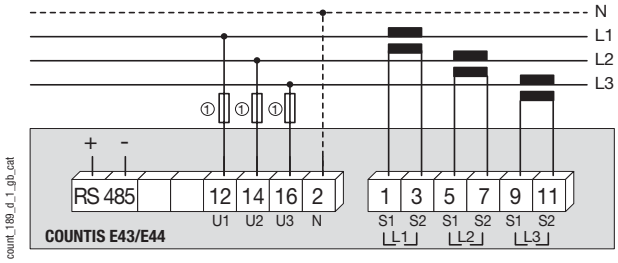
(1) $I_{(min)} \leq 0.5 * I_{tr}$
(2) The accuracy class is guaranteed between Itr et Imax.
*(3) $I_{(ref)} = I_{(b)}$ (base current) = 10 * $I_{(tr)}$ for direct connection COUNTIS.*

Connection

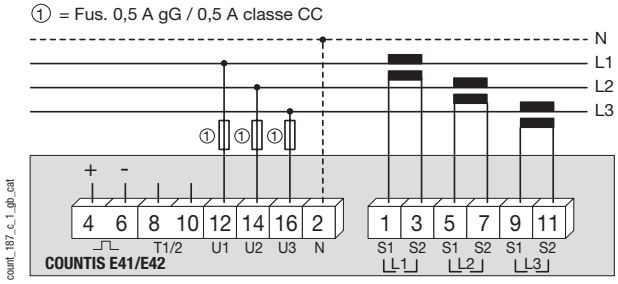
① = Fus. 0,5 A gG / 0,5 A classe CC



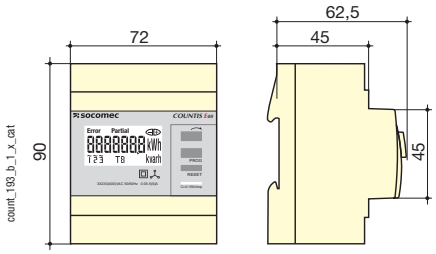
① = Fus. 0,5 A gG / 0,5 A classe CC



① = Fus. 0,5 A gG / 0,5 A classe CC



Case



Type	Modular
Number of optional modules	4
Dimensions W x H x D	73 x 90 x 62.5 mm
Case protection index	IP20
Front protection rating	IP51
Display type	Backlit LCD display
Rigid cable connection section	1.5 to 10 mm²
Flexible cable connection section	1 to 6 mm²
Weight	230 g

References

Type	COUNTIS E40 Reference	COUNTIS E41 Reference	COUNTIS E42 Reference	COUNTIS E43 Reference	COUNTIS E44 Reference
Via CT	4850 **3008**				
Via CT - Dual tariff		4850 **3009**			
Via CT - Dual tariff - MID			4850 **3015**		
Via CT with JBUS MODBUS communication via RS485				4850 **3017**	
Via CT with JBUS MODBUS communication via RS485 - MID					4850 **3014**

MID certification

The Measuring Instruments Directive (MID) authorises the use of MID Countis in applications for which sub-billing of the electrical energy consumed is necessary (apartments, commercial units, etc.).
It guarantees each user that meters meets a high level of accuracy, quality design and manufacturing through a 3rd party verification.



COUNTIS E50 / E53

Active energy meter and concentrator



Three-phase
Via CT up to 6000 A

➲ Function

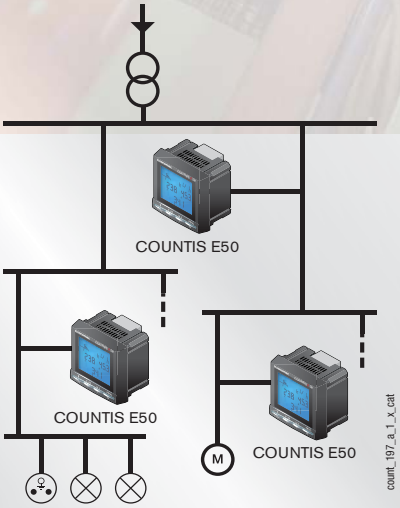
COUNTIS E5x are active and reactive energy meters.
The **COUNTIS E50** is a totalising meter allowing direct reading of the power consumed, using a pulse output.
Two partial meters with reset allow the energy to be metered over a specific period.
The **COUNTIS E53** provides additional JBUS/MODBUS communication via RS485.

➲ Conformity to standards

- IEC 62053-23 class 2
- IEC 62053-21 class 1
- IEC 61557-12

➲ Applications

COUNTIS E50 and **E53** are equipped as per standards with a totalising meter which allows direct reading in kWh and a pulse output.
The CT ratio can be configured by the user via the keypad and the display.
In addition, once they are associated with COUNTiS Ci, it is possible to centralise consumption with an automaton or a PC equipped with CONTROL VISION.



Multi-function meter

- Current
  - instantaneous: I1, I2, I3
- Voltages & frequency
  - instantaneous: U1, U2, U3, U12, U23, U13
- Power
  - instantaneous: 3P, 3Q, 3S
  - mean maximum: 3P
- Power factor
  - instantaneous: 3PF

Metering

- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Apparent energy: kVAh

➲ References

Type	COUNTIS E50 Reference	COUNTIS E53 Reference
Outputs (Pulse)	4850 **3010**	
MODBUS RS485 communication		4850 **3011**

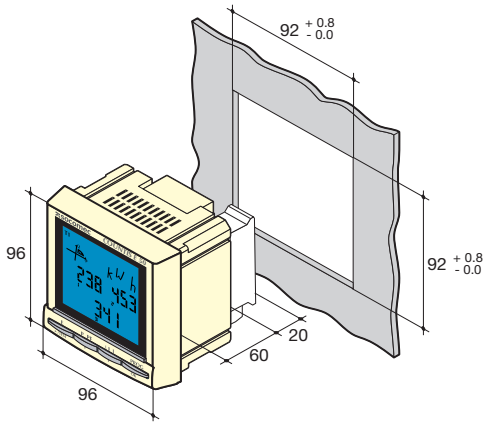
Front panel



count_196x_a_2_cat

1. Backlit LCD display
2. Energy display and test function key
3. Power and power factor display key
4. Current and voltage display key
5. Enter key in programming mode

Case



count_194_b_1_x_cat

Characteristics

Current measurement	
Type	Three-phase on CT/5A up to 6000 A
Input consumption	< 0.6 VA
Startup current (I_{st})	40 mA
Minimum current (I_{min})	50 mA(1)
Transition current (I_{tr})	250 mA(2)
Reference current (I_{ref})	5 A(3)
Permanent overload (I_{max})	6 A
Short-time over-current	50 A for 1 s
Voltage measurement	
Range of measurement	86 … 520 VAC
Input consumption	< 0.1 VA
Permanent overload	800 VAC
Energy accuracy	
Reactive (according to IEC 61268)	Class 2
Active (according to IEC 62053-21)	Class 0.5 S
Power supply	
Self supplied	No
Auxiliary power supply Us	110 400 VAC / ±10 %
Frequency	45 … 65 Hz
Output (pulsed)	
Number	1
Type	100 VDC - 0.5 A - 10 VA
Max. number of operations	≤ 10^8
Operating conditions	
Operating temperature	-10 … 55 °C
Storage temperature	-20 … 85 °C
Relative humidity	95 %

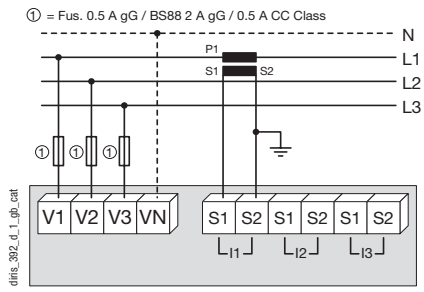
(1) $I_{(min)} \leq 0.5 * I_{tr}$
(2) The accuracy class is guaranteed between I_{tr} et I_{max}.
*(3) $I_{(ref)} = I_{(b)}$ (base current) = 10 * $I_{(tr)}$ for direct connection COUNTIS.*

Type	panel mounting
Dimensions W x H x D	96 x 96 x 80 mm
Case protection index	IP30
Front protection rating	IP52
Display type	Blue backlit LCD display
Voltage and other connection section	0.5 … 2.5 mm²
Current connection section	1.5 … 6 mm²
Weight	370 g

Connection

Recommendation:
- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- While disconnecting the COUNTIS, the secondaries of each current transformer must be short-circuited. This operation can be carried out automatically via a SOCOMEC product, the PTI, can be found in the SOCOMEC catalogue page 348.

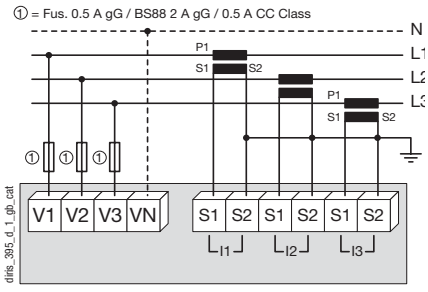
Low voltage balanced network
3/4 wires with 1 CT



diris_392_d_1_gb_cat

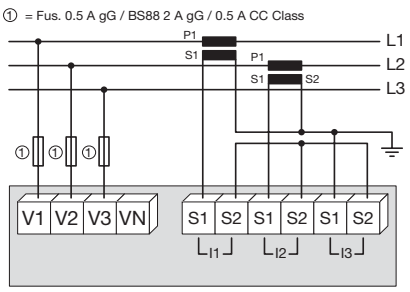
Use of 1 CT reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

Low voltage unbalanced network
3/4 wires with 3 CTs



diris_395_d_1_gb_cat

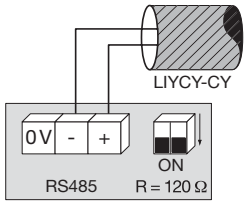
3 wires with 2 CTs



diris_397_d_1_gb_cat

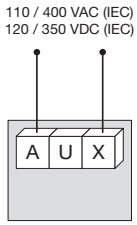
Use of 2 CT reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

Additional information
Communication via RS485 link



diris_398_c_1_x_cat

AC & DC auxiliary power supply



diris_501_d_1_gb_cat

It is recommended that the auxiliary power supply be protected by 500mA gG fuses.



Pulse concentrator

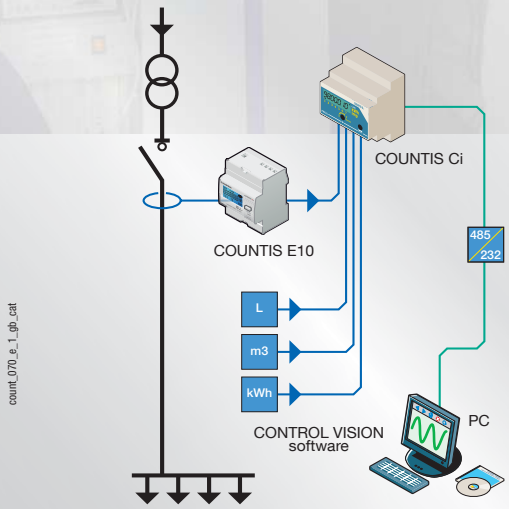
➲ Function

The **COUNTIS Ci** is a pulse concentrator communicating via an RS485 link using JBUS/MODBUS protocol.
Through 7 insulated on/off inputs, it counts the number of pulses from different energy meters (water, air, gas, electricity...) and transmits this information to a PC equipped with CONTROL VISION software or a PLC.

➲ Conformity to standards

- IEC 61010-1
- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5
- IEC 61000-4-6
- IEC 61000-4-8
- IEC 61000-4-11
- IEC 60068-2-6
- IEC 60068-2-11
- IEC 60068-2-30

➲ Applications



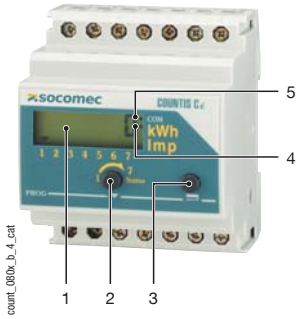
As electricity is not the only energy consumption source, COUNTIS allows collection of other energies such as water, air or gas.

CONTROL VISION software, via the COUNTIS Ci concentrator and its RS485 link JBUS/MODBUS® protocol allows centralization of all consumptions whilst guaranteeing an optimal accuracy and ease of use (Windows™ environment).

The **COUNTIS Ci** provides:

- 7 total counters to count kWh or a number of pulses.
- Time-dated memory for kWh consumed over one month for each input. This record is carried out once a month for 12 successive months. Values are accessible through JBUS/MODBUS communication facility.
- 4 out of 7 inputs can store load curves over a period of 8, 10, 15, 20 or 30 minutes. Example: load curves over 8 days if average power values are stored every 10-minutes.
- Status of the 7 inputs.

Front panel



1. Displays consumption per input (▼).
2. *Pushbutton to display consumption and status per input.*
3. *Validation pushbutton in programming mode.*
4. *Unit indicator (kWh or Imp)*
5. *Communication status indicator (COM).*

Characteristics

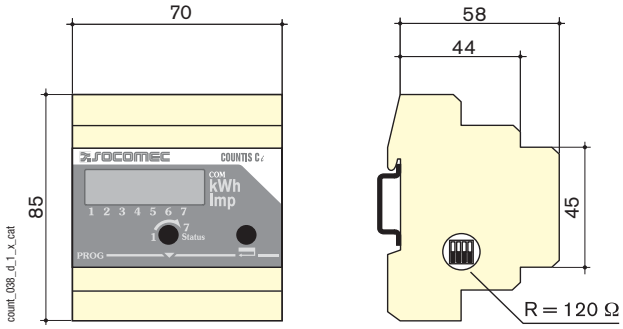
Auxiliary power supply	
Self supplied	no
Alternating voltage	230 / 400 VAC
Tolerance	± 15 %
Frequency	50 / 60 Hz
Consumption	< 5 VA
Insulation voltage	2.5 kV

Communication	
Link	RS-485
Type	2 … 3 half duplex wires
Protocol	JBUS/MODBUS® in RTU mode
JBUS/MODBUS® speed	4800 … 38400 bauds

Inputs	
Number	7
Control voltage (integrated)	10 … 30 VDC
Minimal signal width	10 ms
Maximum signal width	2 s
Minimum length between 2 impulses	18 ms
Edge triggering	rising
Type	ON - OFF switch

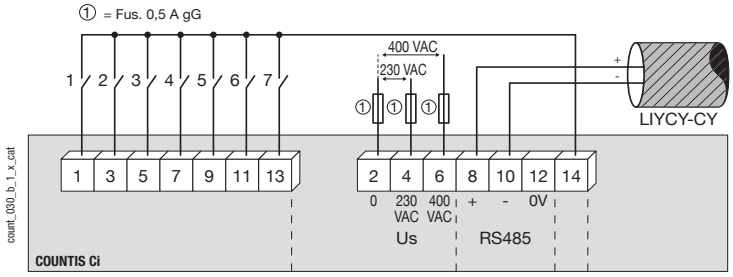
Operating conditions	
Operating temperature	-5 … +45 °C
Storage temperature	-20 … +70 °C
Relative humidity	85 %

Case



Type	Modular
Number of optional modules	4
Dimensions W x H x D	70 x 85 x 58 mm
Case protection index	IP20
Front protection rating	IP40
Display type	LCD
Terminal blocks type	Fixed
Rigid cable connection section	1 … 10 mm²
Flexible cable connection section	0.5 … 6 mm²
Weight	500 g

Terminals and connections



1: on/off switch input n°1
3: on/off switch input n°2
5: on/off switch switch input n°3
7: on/off switch input n°4
9: on/off switch input n°5
11: on/off switch input n°6
13: on/off switch input n°7

2 - 4 - 6: auxiliary power supply U_s
8 - 10 - 12: RS485 link
14: internal direct source to supply the 7 inputs

References

	COUNTIS Ci
Auxiliary power supply U_s	**Reference**
230 / 400 VAC	4852 **0000**

Description of accessories	**Reference**
Panel mounting kit	192J **8015**

DIRIS A10

NEW



Modular multi function meter

➲ Function

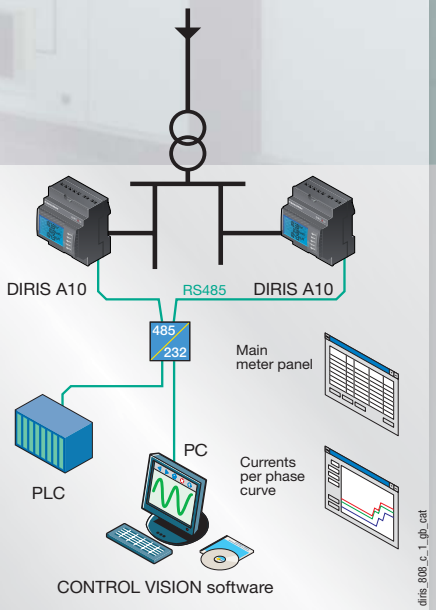
The **DIRIS A10** is a multi function meter for measuring electrical values in low voltage networks in modular format. It allows all electrical parameters to be displayed and the measurement, energy metering and communication functions to be used.
In addition, the DIRIS A10 has a function for correcting errors in CT connections. It also allows variations in temperature to be detected thanks to its internal temperature measurement function.

➲ Conformity to standards

- IEC 62053-22 class 0.5S
- IEC 62053-23 class 2
- IEC 61557-12

➲ Applications

Multi-function meter
- Current
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: U1, U2, U3, U12, U23, U31, F
- Power
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - maximum average: ΣP, ΣQ, ΣS
- Power factor
  - instantaneous: 3PF, ΣPF
- Internal temperature



Metering
- Active energy: + kWh
- Reactive energy: + kvarh
- Hours:

Harmonic analysis
- Total harmonic distortion (level 51)
  - Currents: thd I1, thd I2, thd I3
  - Phase-to-neutral voltage: thd U1, thd U2, thd U3
  - Phase to phase voltage: thd U12, thd U23, thd U31

Dual tariff function
Selection of one out of 2 billing tariffs

Events
Alarms on all electrical values

Communications (1)
RS485 (JBUS/MODBUS) digital

Output
- Remote comand of apparatus
- Alarm report
- Pulse report

Input
- Remote control

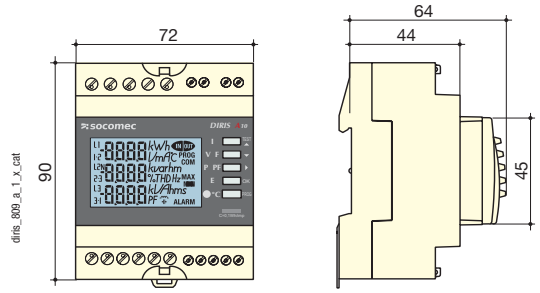
(1) Available as an option (see the following pages).

Front panel



1. Backlit LCD screen.
2. Direct access key for currents (instant and maximum) and current THD.
3. Direct access key for voltages, frequency and voltage THD.
4. Direct access key for active, reactive and apparent power (instantaneous and max. values) and power factor.
5. Direct access key for energies and hour meter.
6. Pushbutton for currents, temperatures and CT setup wiring correction.
7. Metrological LED.

Case



Type	Modular
Number of optional modules	4
Dimensions W x H x D	72 x 90 x 64 mm
Case protection index	30
Front protection rating	52
Display type	LCD
Voltage and other connection section	4 mm²
Connection cross-section of others	2.5 mm²
Weight	205 g (4825 0010) - 215 g (4825 0011)

Electrical characteristics

Current measurement on high-impedance inputs (TRMS)	
Via CT primary	9 999 A
Via CT secondary	5 A
Measurement range	0 … 11 kA
Input consumption	0.6 VA
Measurement updating period	1 s
Accuracy	0.2 %
Sustained overload	6 A
intermittent overload	10 I_n for 1 s

Voltage measurements (TRMS)	
Direct measurement between phases	50 … 500 VAC
Direct measurement between phase and neutral	28 … 289 VAC
Input consumption	≤ 0.1 VA
Measurement updating period	1 s
Accuracy	0.2 %
Sustained overload	800 VAC

Power measurement	
Measurement updating period	1 s
Accuracy	0.5 %

Power factor measurement	
Measurement updating period	1 s
Accuracy	0.5 %

Frequency measurement	
Measurement range	45 … 65 Hz
Measurement updating period	1 s
Accuracy	0.1 %

Energy accuracy	
Active (according to IEC 62053-22)	class 0.5 S
Reactive (according to IEC 62053-23)	class 2

Auxiliary power supply	
Alternating voltage	220 … 277 VAC
AC tolerance	± 15 %
Frequency	50 / 60 Hz
Consumption	< 3 VA

Digital output (pulses or on/off)	
Number	1
Type	20 / 30 VDC - 0.5 A - 10 VA
Max. number of operations	≤ 10^8

Communication	
Link	RS485
Type	2 … 3 half duplex wires
Protocol	JBUS/MODBUS® in RTU mode
JBUS/MODBUS® speed	1400 … 38400 bauds

Operating conditions	
Operating temperature	- 10 … + 55 °C
Storage temperature	- 20 … + 70 °C
Relative humidity	85 %

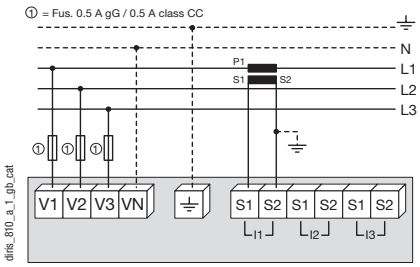
➲ DIRIS A10 - Connection

Low voltage balanced network

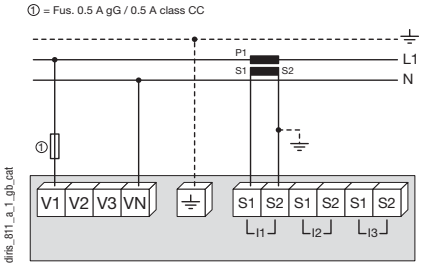
Recommandation:

- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondaries of each current transformer must be short-circuited. This operation can be carried out automatically from a product in the SOCOMEC catalogue, PTI: consult us.
- It is recommended that the earthing point for the DIRIS A10 and the current transformer secondaries should not earthed at the same time.

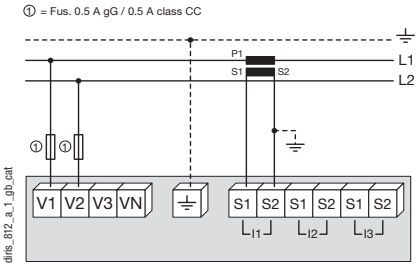
3/4 wires with 1 CT



Single phase

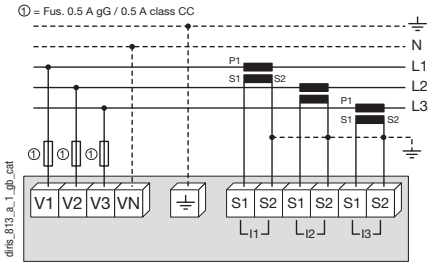


Two phase

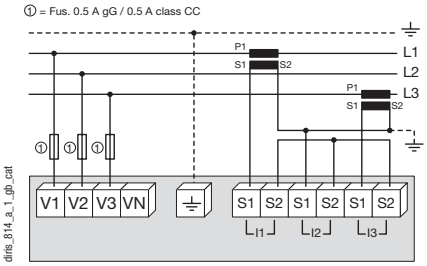


Low voltage unbalanced network

3/4 wires with 3 CTs

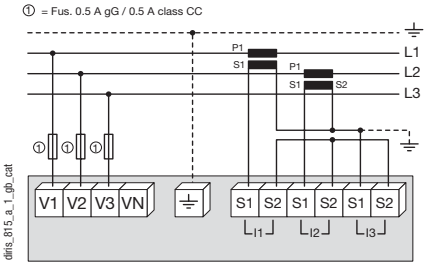


3 wires with 2 CTs



Use of 2 CTs reduces by 0.5% the accuracy of the phase, whose current is worked out by vector calculation.

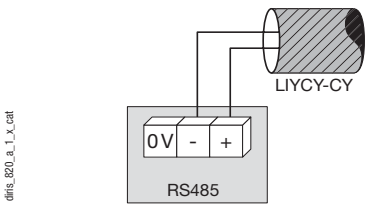
3 wires with 2 CTs



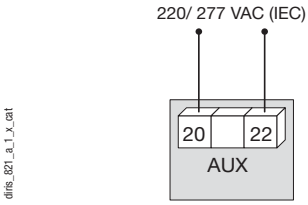
Use of 2 CTs reduces by 0.5% the accuracy of the phase, whose current is worked out by vector calculation.

Additional information

Communication via RS485 link

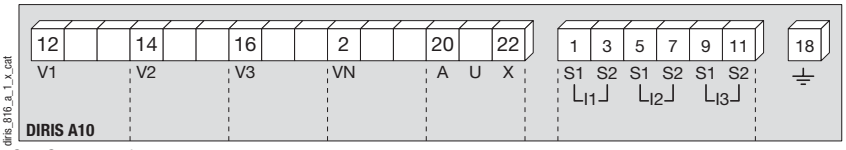


AC & DC auxiliary power supply



It is recommended that the auxiliary power supply be protected by the use of 500 mA gG fuses.

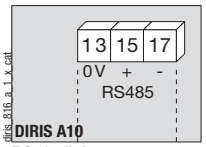
Terminals



S1 - S2: current inputs.

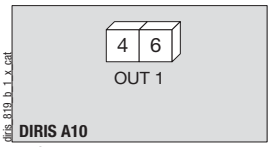
AUX: auxiliary power supply Us.
V1, V2, V3 & VN: voltage inputs.

Communication (option)



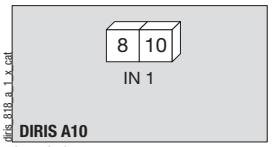
RS485 link.

Output



4 - 6: *output n°1*

Input



8 - 10*: input n°1*

References



Basic device Description	DIRIS A10 Reference
DIRIS A10 (grey colour available on request)	4825 **0010**
DIRIS A10 with JBUS/MODBUS communication via RS485 (grey colour available on request)	4825 **0011**

Description of accessories	To be ordered by multiple	Reference
Fuse combination switches for the protection of voltage inputs (type RM) 3 poles	4	5601 **0018**
Fuse combination switches for the protection of the auxiliary supply (type RM) 1 pole + neutral	6	5601 **0017**
Fuses type gG 10x38 0.5 A	10	6012 **0000**
Current transformers range		See page 334

Services and Technical assistance

Our expertise extends to a complete offer of services like commissioning installation audit, training, maintenance and project engineering.



DIRIS A20



Monitoring and managing energy for low voltage electrical installations

➲ Function

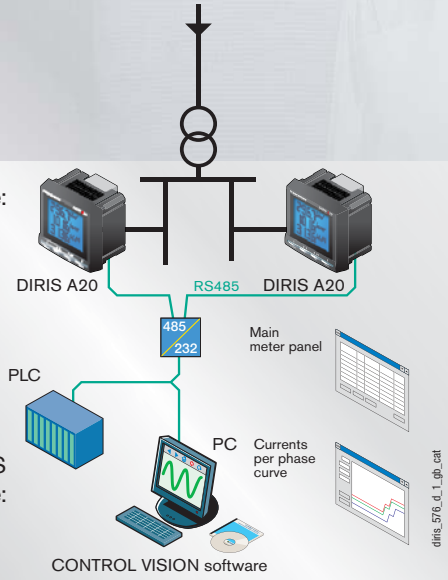
DIRIS A20 are measurement units which ensure the user has access to all the measurements required for successfully carrying out energy efficiency projects and ensuring the electrical distribution is monitored.
All this information can be used and analysed remotely using the CONTROL VISION software.

➲ Conformity to standards

- IEC 61557-12
- IEC 62053-22 class 0.5S
- IEC 62053-23 class 2

➲ Applications

Multi-function meter
- Current
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: U1, U2, U3, U12, U23, U31, F
- Power
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - maximum average: ΣP, ΣQ, ΣS
- Power factor
  - instantaneous: 3PF, ΣPF



Metering
- Active energy: + kWh
- Reactive energy: + kvarh
- Hours:

Harmonic analysis
- Total harmonic distortion (level 51)
  - Currents: thd I1, thd I2, thd I3
  - Phase-to-neutral voltage: thd U1, thd U2, thd U3
  - Phase to phase voltage: thd U12, thd U23, thd U31

Events[1]
Alarms on all electrical values

Communications[1]
RS485 (JBUS/MODBUS) digital

Output[1]
- Remote comand of apparatus
- Alarm report
- Pulse report

(1) Available as an option (see the following pages).

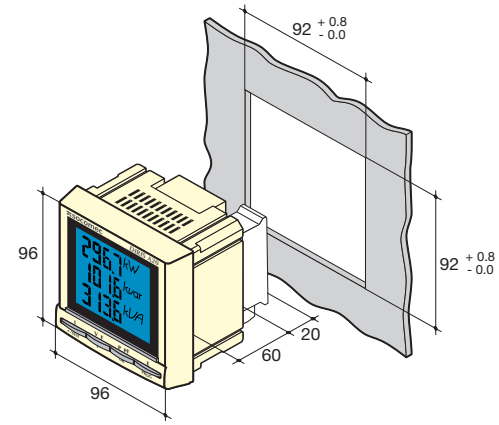
Front panel



diris_743x_a_2_cat

1. Backlit LCD screen.
2. Direct access key for currents (instantaneous and max. values), current THD and set up wiring correction.
3. Direct access key for voltages, frequency and voltage THD.
4. Pushbutton for active, reactive, and apparent power (instantaneous and max. values) and power factor.
5. Direct access key for energies and hour meter.

Case



diris_577_c_1_x_cat

Type	Panel mounting
Dimensions W x H x D	96 x 96 x 60 mm
Case protection index	IP30
Front protection rating	IP52
Display type	LCD
Terminal blocks type	fixed or pull-out
Voltage and other connection section	0.2 … 2.5 mm²
Current connection section	0.5 … 6 mm²
Weight	400 g

Plug-in modules



diris_773_a_1_cat



diris_445_a_1_cat

1 Output

1 output assignable to:
- Pulses: configurable (type, weight, time) in kWh or kvarh
- Monitoring: 3I, In, 3V, 3U, F, ΣP, ΣQ, ΣS, ΣPFL/C, THD 3I, THD 3V, THD 3U and timer
- Control of apparatus



diris_447_a_1_cat

Communication

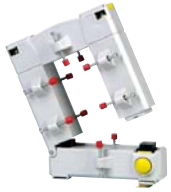
RS485 link with JBUS / MODBUS protocol (speed up to 38400 bauds)

Accessories

Current transformer (see page 334)



trafo_024_a_2_cat



trafo_077_b_2_cat

IP65 protection



diris_720_a_2_cat

Mounting kit for 144 x 96 mm cut out plate



diris_718_b_1_cat

➲ DIRIS A20 - Electrical characteristics

Current measurement on high-impedance inputs (TRMS)	
Via CT primary	9 999 A
Via CT secondary	5 A
Measurement range	0 … 11 kA
Input consumption	0.6 VA
Measurement updating period	1 s
Accuracy	0.2 %
Sustained overload	6 A
Intermittent overload	10 I_n for 1 s

Voltage measurements (TRMS)	
Direct measurement between phases	50 … 500 VAC
Direct measurement between phase and neutral	28 … 289 VAC
Input consumption	≤ 0.1 VA
Measurement updating period	1 s
Accuracy	0.2 %
Sustained overload	800 VAC

Power measurement	
Measurement updating period	1 s
Accuracy	0.5 %

Power factor measurement	
Measurement updating period	1 s
Accuracy	0.5 %

Frequency measurement	
Measurement range	45 … 65 Hz
Measurement updating period	1 s
Accuracy	0.1 %

Energy accuracy	
Active (according to IEC 62053-22)	class 0.5 S
Reactive (according to IEC 62053-23)	class 2

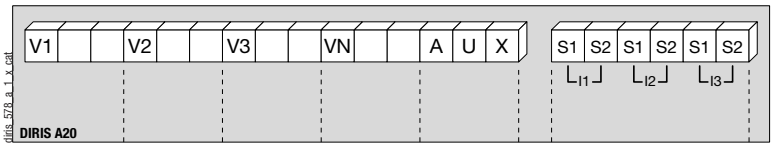
Auxiliary power supply	
Alternating voltage	110 … 400 VAC
AC tolerance	± 10 %
Direct voltage	120 … 350 VDC
DC tolerance	± 20 %
Frequency	50 / 60 Hz
Consumption	10 VA

Pulse or alarm output	
Number	1
Type	100 VDC - 0.5 A - 10 VA
Max. number of operations	≤ 10^8

Communication	
Link	RS485
Type	2 … 3 half duplex wires
Protocol	JBUS/MODBUS® in RTU mode
JBUS/MODBUS® speed	1400 … 38400 bauds

Operating conditions	
Operating temperature	- 10 … + 55 °C
Storage temperature	- 20 … + 85 °C
Relative humidity	95 %

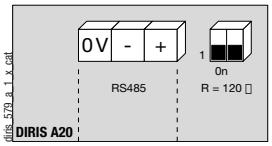
➲ Terminals



S1 - S2: current inputs.

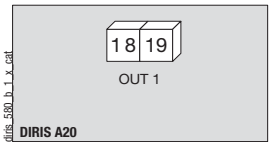
AUX: auxiliary power supply Us.
V1, V2, V3 & VN: voltage inputs.

Communication module



RS485 link.
R = 120 Ω: internal resistance for the RS485 link.

Output or alarm module



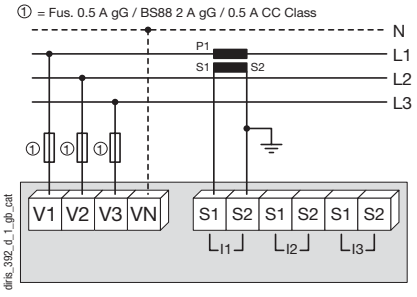
18 - 19: output n°1

➲ Connection

Recommendation:
- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondaries of each current transformer must be short-circuited. This operation can be carried out automatically from a product in the SOCOMEC catalogue, PTI: consult us.

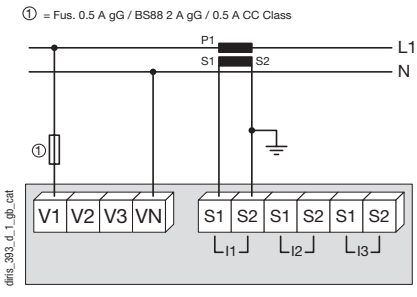
Low voltage balanced network

3/4 wires with 1 CT

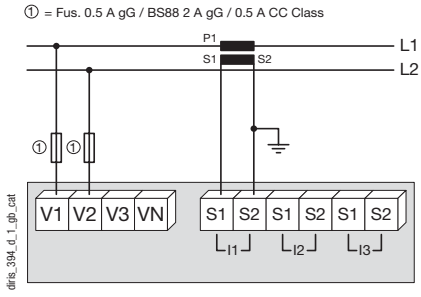


Use of 1 CT reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

Single phase

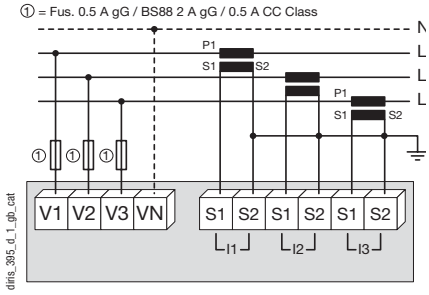


Two phase

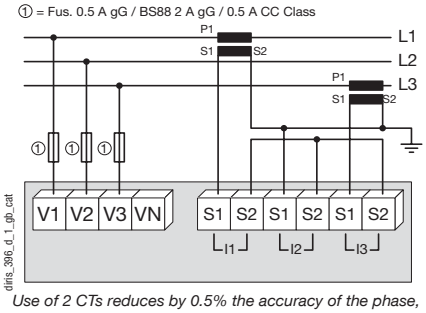


Low voltage unbalanced network

3/4 wires with 3 CTs

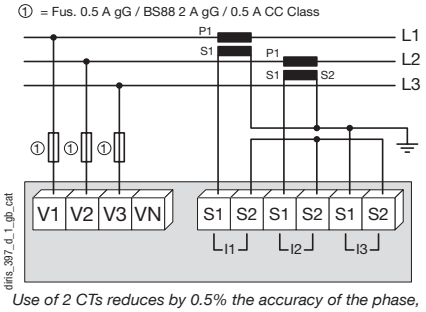


3 wires with 2 CTs



Use of 2 CTs reduces by 0.5% the accuracy of the phase, whose current is worked out by vector calculation.

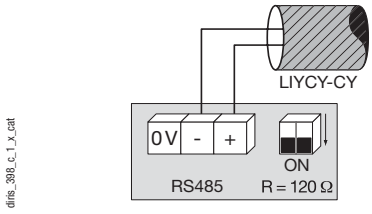
3 wires with 2 CTs



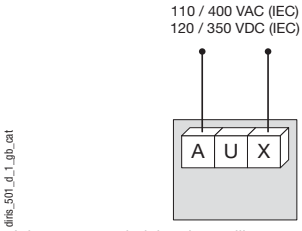
Use of 2 CTs reduces by 0.5% the accuracy of the phase, whose current is worked out by vector calculation.

Additional information

Communication via RS485 link



AC & DC auxiliary power supply



It is recommended that the auxiliary power supply be protected by the use of 500 mA gG fuses.

References



Basic device	DIRIS A20
Auxiliary power supply Us	**Reference**
110 … 400 VAC / 180 … 350 VDC	4825 **0200**

Options

Plug-in modules	Reference
1 output	4825 **0080**
RS485 JBUS / MODBUS® communication	4825 **0082**

Accessories

Description of accessories	To be ordered by multiple	Reference
IP65 protection	1	4825 **0089**
Panel mounting kit for a 144 x 96 mm cutout	1	4825 **0088**
Fuse combination switches for the protection of voltage inputs (type RM) 3 poles	4	5601 **0018**
Fuse combination switches for the protection of the auxiliary supply (type RM) 1 pole + neutral	6	5601 **0017**
Fuses type gG 10x38 0.5 A	10	6012 **0000**
Current transformers range		See page 334

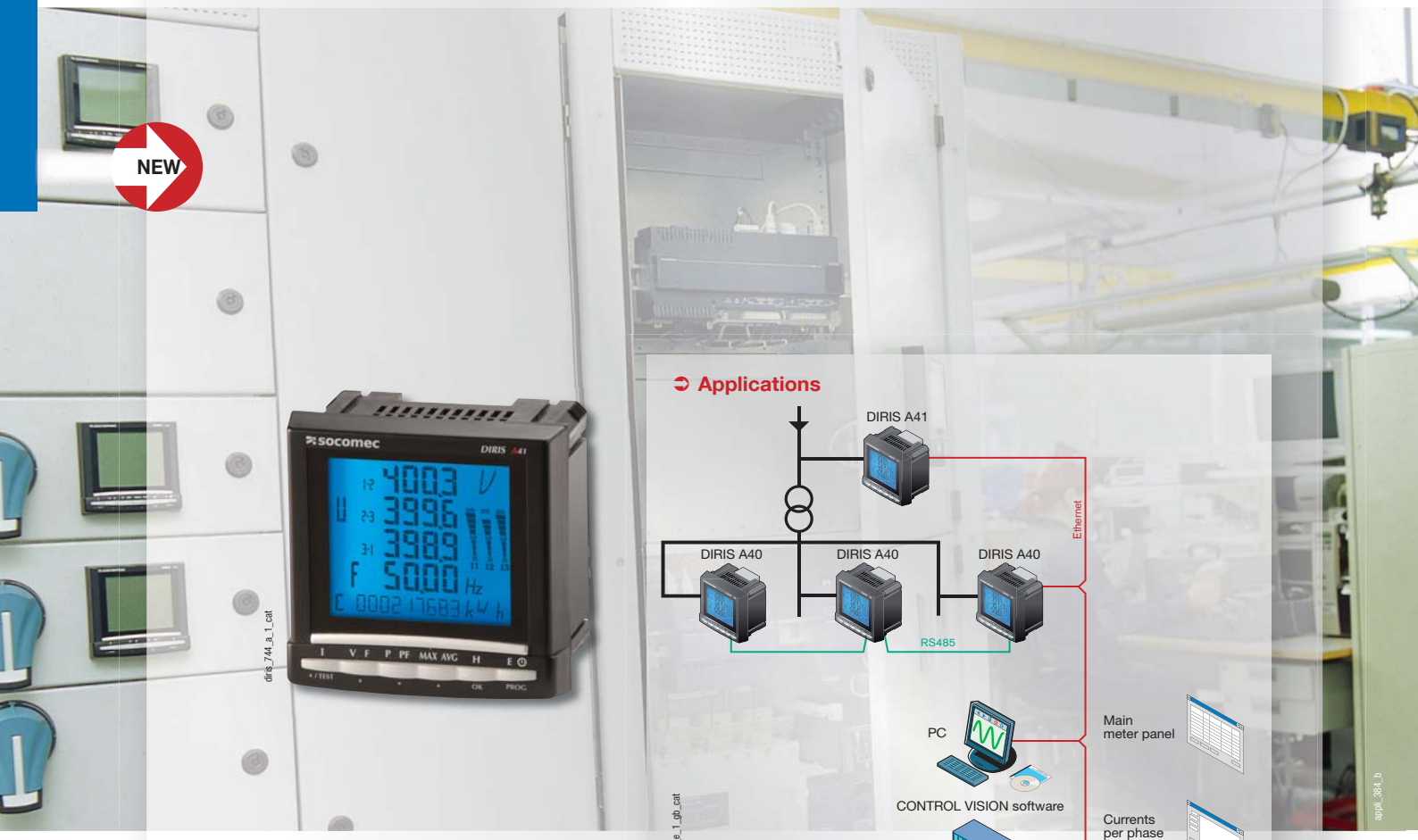
Services and Technical assistance

Our expertise extends to a complete offer of services like commissioning installation audit, training, maintenance and project engineering.

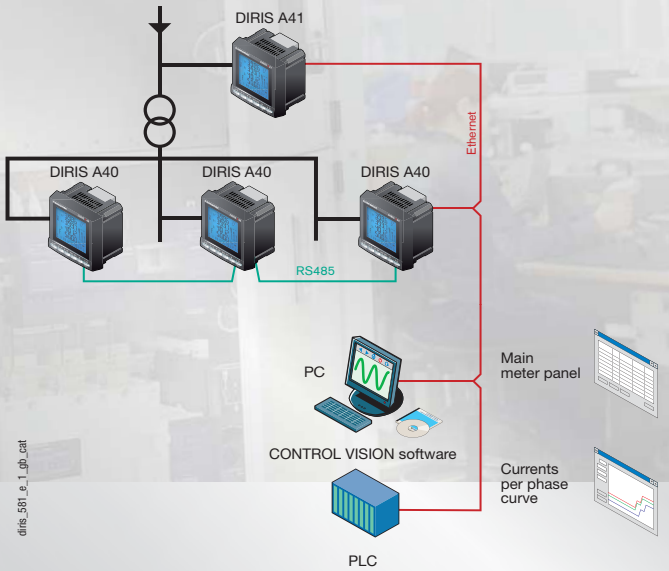


DIRIS A40 / A41

NEW



Applications



Monitoring and managing energy for high/low voltage electrical installations

Function

The **DIRIS A40** and **A41** are multifunction meters which ensure the user has access to all the measurements required for energy efficiency projects and monitoring of electrical distribution.
All this information can be used and analysed remotely using the CONTROL VISION software.

Conformity to standards

- IEC 61557-12
- IEC 62053-22 class 0.5S
- IEC 62053-23 class 2

Multi measurement
- Current
  - instantaneous: I1, I2, I3, In, Isystem
  - average/maximum average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: U1, U2, U3, U12, U23, U31, F, Vsystem, Usystem
  - average/maximum average: U1, U2, U3, U12, U23, U31, F
- Power
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - average/maximum average: ΣP, ΣQ, ΣS
  - predictive: (ΣP), (ΣQ), (ΣS)
- Power factor
  - instantaneous: 3PF, ΣPF
  - average/maximum average: ΣPF
- Temperatures(1)
  - internal
  - external via 3 PT100 sensors

Metering
- Active energy:+/- kWh
- Reactive energy:+/- kvarh
- Apparent energy:kVAh
- Hours:

Harmonic analysis
- Harmonic distortion rate
  - Currents: thd I1, thd I2, thd I3, thd In
  - Phase-to-neutral voltage: thd U1, thd U2, thd U3
  - Phase to phase voltage: thd U12, thd U23, thd U31
- Individual up to level 63
  - Currents: HI1, HI2, HI3, HIn
  - Phase-to-neutral voltage: HU1, HU2, HU3,
  - Phase to phase voltage: HU12, HU23, HU31

Load curves(1)
- Active and reactive power: ΣP+/-; ΣQ+/-
- Voltages & frequency: U1, U2, U3, U12, U23, U31, F

Events(1)
- Alarms on all electrical values.

Communications(1)
- Analogues 0/4- 20 mA
- Digital RS485 (Jbus/Modbus & Profibus-DP)
- Ethernet (modbus/TCP or Jbus/Modbus RTU over TCP and Web server)
- Ethernet with RS485 gateway Jbus/Modbus RTU over TCP

Inputs / Outputs(1)
- Pulse metering
- Remote control/command
- Alarm report
- Pulse report

(1) Available as an option (see the following pages).

Front panel



1. Backlit LCD screen.
2. Pushbutton for currents and setup wiring correction
3. Pushbutton for voltages and frequency.
4. Pushbutton for active, reactive, and apparent power and power factor.
5. Pushbutton for maximum and average current and power values.
6. Pushbutton for harmonics values.
7. Pushbutton for pulse, hours and electrical energy meters.

Plug-in modules

DIRIS® A40



DIRIS® A41





Pulse outputs

2 configurable pulse outputs (type, weight and run) on ± kWh, ±kvarh and kVAh



JBUS / MODBUS® communication

RS485 link with JBUS / MODBUS® protocol (speed up to 38400 bauds).



PROFIBUS® DP communication

SUB-D9 link with PROFIBUS® DP protocol (speed up to 12 Mbauds).



Ethernet communication

- Ethernet link with MODBUS/TCP or JBUS/MODBUS RTU over TCP

Ethernet communication with RS485 JBUS/MODBUS gateway

- Ethernet link with MODBUS/TCP or JBUS/MODBUS RTU over TCP
- Connection of 1 to 247 RS485 JBUS/MODBUS slaves



Analogue outputs

A maximum of 2 modules may be connected, that is 4 analogue outputs.
2 outputs assignable to:
3I, In, 3V, 3U, F, ±ΣP, ±ΣQ, ΣS, ΣPFL/C, I sys, Vsys, Usys, Ppred, Q pred, Spred, internal T°C, T°C 1, T°C 2, T°C 3 and to 17 VDC power supply



2 inputs - 2 outputs

A maximum of 3 modules may be connected, giving 6 inputs.
2 outputs assignable to:
- monitoring: 3I, In, 3V, 3U, F, ±ΣP, ±ΣQ, SS, ΣPFL/C, THD 3I, THD In, THD 3V, THD 3U, Ppred, Qpred, Spred, internal T°C, T°C 1, T°C2, T°C3 and hour meter,
- remote control,
- timed remote control.



Memory

- Storing up to a maximum of 62 days of P+, P-, Q+, Q- with an internal or external synchronisation signal of 5, 8, 10, 15, 20, 30 and 60 minutes.
- Storing of 10 hour-dated last alarms.
- Storing of the last minimum and maximum instantaneous values for 3U, 3V, 3I, In, F, ΣP±, ΣQ±, ΣS, THD 3U, THD 3V, THD, 3U, THD, 3V, THD, 3I, THD In.
- Storing of 3U, 3V and F average values based on synchronisation function (maximum 60 days).



Temperature

Temperature indication
- Internal
- External sensor PT 100 (T°C 1)
- External sensor PT 100 (T°C 2)
- External sensor PT 100 (T°C 3)

➲ DIRIS A40 / A41 - Accessories

Current transformer
(see page 334)


trafo_024_a_2_cat


trafo_077_b_2_cat

IP65 protection

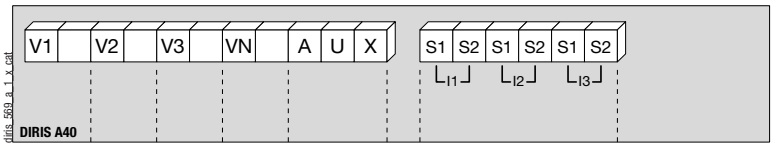

diris_720_a_2_cat

Mounting kit for 144 x 96 mm cut out plate


diris_718_b_1_cat

➲ Terminals

DIRIS A40

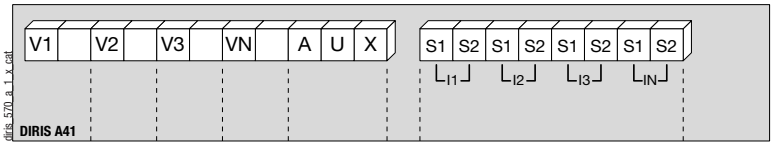


diris_663_a_1_x_cat

S1 - S2: current inputs

AUX: auxiliary power supply U_s
V1- V2 - V3 - VN: voltage inputs

DIRIS A41

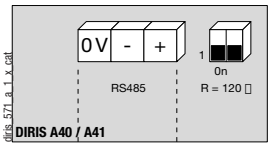


diris_670_a_1_x_cat

S1 - S2: current inputs

AUX: auxiliary power supply U_s
V1- V2 - V3 - VN: voltage inputs

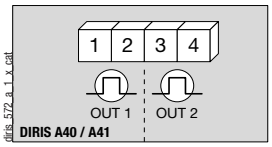
Communication module



diris_671_a_1_x_cat

RS485 link.
R = 120 Ω: internal resistance for the RS485 link.

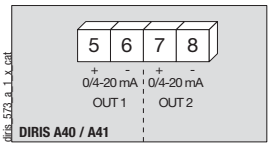
Pulse output module



diris_672_a_1_x_cat

1 - 2: pulse output n°1.
3 - 4: pulse output n°2.

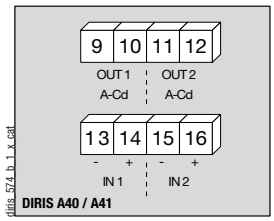
Analogue output module



diris_672_a_1_x_cat

5 - 6: analogue output n°1.
7 - 8: analogue output n°2.

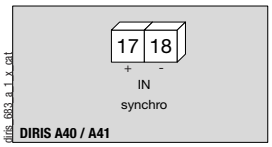
2 inputs / 2 outputs module



diris_674_b_1_x_cat

9 - 10: relay output n°1.
11 - 12: relay output n°2.
13 - 14: opto input n°1.
15 - 16: opto input n°2.

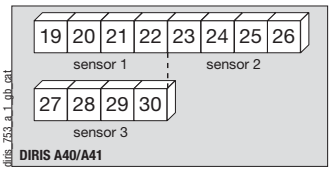
Memory module



diris_683_a_1_x_cat

17 - 18: synchronisation input.

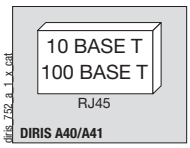
Temperature module



diris_753_a_1_gb_cat

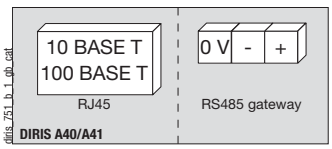
Sensor 1	Sensor 2	Sensor 3
19: Red	**23:** Red	**27:** Red
20: Red	**24:** Red	**28:** Red
21: White	**25:** White	**29:** White
22: White	**26:** White	**30:** White

Ethernet Module



diris_752_a_1_x_cat

Ethernet module + RS485 JBUS / MODBUS gateway



diris_751_b_1_gb_cat

Electrical characteristics

Current measurement on insulated inputs (TRMS)	
Via CT primary	10 000 A
Via CT secondary	1 or 5 A
Measurement range	0 … 11 kA
Input consumption	≤ 0.1 VA
Measurement updating period	1 s
Accuracy	0.2 %
Sustained overload	6 A
intermittent overload	10 I_n for 1 s

Voltage measurements (TRMS)	
Direct measurement between phases	50 … 700 VAC
Direct measurement between phase and neutral	28 … 404 VAC
VT primary	500 000 VAC
VT secondary	60, 100, 110, 173, 190 VAC
Frequency	50 / 60 Hz
Input consumption	≤ 0.1 VA
Measurement updating period	1 s
Accuracy	0.2 %
Sustained overload	760 VAC

Current-voltage product	
Limitation for 1A CT	10 000 000
Limitation for 5A CT	10 000 000

Power measurement	
Measurement updating period	1 s
Accuracy	0.5 %

Power factor measurement	
Measurement updating period	1 s
Accuracy	0.5 %

Frequency measurement	
Measurement range	45 … 65 Hz
Measurement updating period	1 s
Accuracy	0.1 %

Energy accuracy	
Active (according to IEC 62053-22)	class 0.5 S
Reactive (according to IEC 62053-23)	class 2

Auxiliary power supply	
Alternating voltage	110 … 400 VAC
AC tolerance	± 10 %
Direct voltage	120 … 350 VDC / 12 … 48 VDC
DC tolerance	± 20 % / - 6 … + 20 %
Frequency	50 / 60 Hz
Consumption	≤ 10 VA

2 inputs / 2 outputs module: Outputs (alarms / control)	
Number of relays	2(1)
Type	250 VAC - 5 A - 1150 VA

2 inputs / 2 outputs module: Phototransistor inputs	
Number	2(1)
Power supply	10 … 17 VDC
Minimal signal width	10 ms
Minimum length between 2 impulses	18 ms
Type	phototransistor

Pulse outputs module	
Number of relays	2
Type	100 VDC - 0.5 A - 10 VA
Max. number of operations	≤ 10^8

Analogue output module	
Number of outputs	2(2)
Type	insulated
Scale	0 / 4 … 20 mA
Load resistance	600 Ω
Maximum current	30 mA

JBUS/MODBUS communication module	
Link	RS485
Type	2 … 3 half duplex wires
Protocol	JBUS/MODBUS® in RTU mode
JBUS/MODBUS® speed	1400 … 38400 bauds

PROFIBUS-DP communication module	
Link	SUB-D9
Protocol	PROFIBUS® DP
PROFIBUS® speed	9.8 kbauds … 12 Mbauds

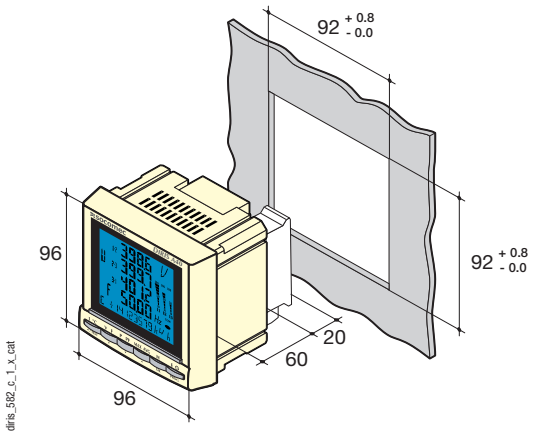
Ethernet Communication Module	
Connectique	RJ45
Speed	10 base T / 100 base T
Protocol	MODBUS TCP or JBUS/MODBUS RTU over TCP

Module temperature (inputs)	
Type	PT100
Connection	2, 3 or 4 wires
Dynamic	- 20°C ... 150°C
Accuracy	+/- 1 digit
Maximum length	300 cm

Operating conditions	
Operating temperature	- 10 … + 55 °C
Storage temperature	- 20 … + 85 °C
Relative humidity	95 %

(1) Max. 3 modules / DIRIS.
(2) Max. 2 modules / DIRIS.

Case



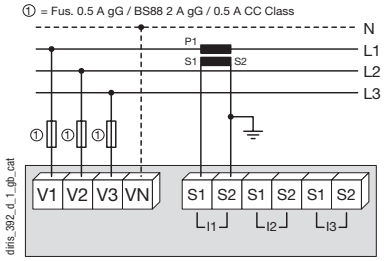
Type	Panel mounting
Dimensions W x H x D	96 x 96 x 60 mm
Case protection index	IP30
Front protection rating	IP52
Display type	LCD
Terminal blocks type	fixed or pull-out
Voltage and other connection section	0.2 … 2.5 mm²
Current connection section	0.5 … 6 mm²
Weight	400 g

➲ DIRIS A40 / A41 - Connections

Recommendation: when disconnecting the DIRIS, the secondaries of each current transformer must be short-circuited. This operation can be carried out automatically by a product in the SOCOMEC catalogue, PTI: consult us.
In TNC neutral system it is recommanded to use functional earth module.

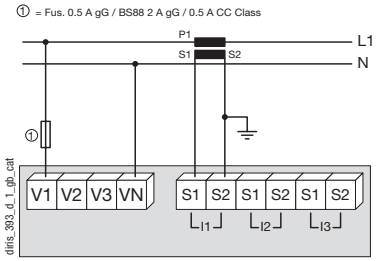
Low voltage balanced network for DIRIS A40

3/4 wires with 1 CT

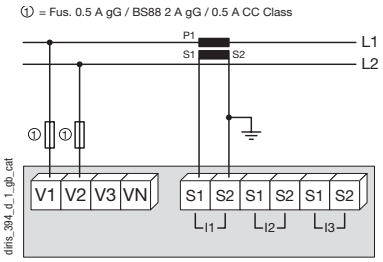


Use of 1 CT reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

Single phase

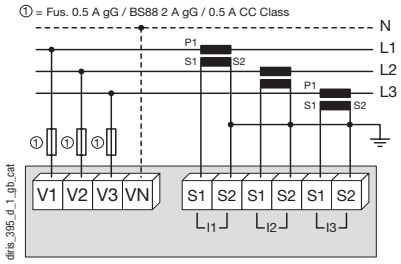


Two phase

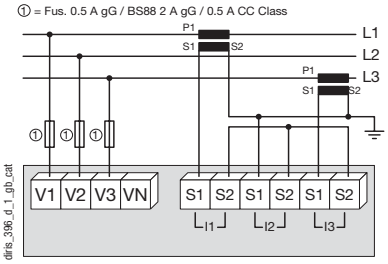


Low voltage unbalanced network for DIRIS A40

3/4 wires with 3 CTs

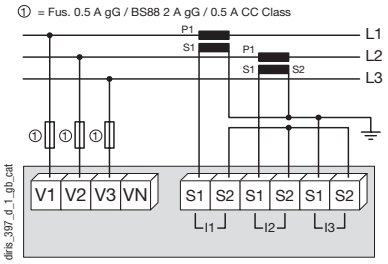


3 wires with 2 CTs



Use of 2 CTs reduces by 0.5% the accuracy of the phase, whose current is worked out by vector calculation.

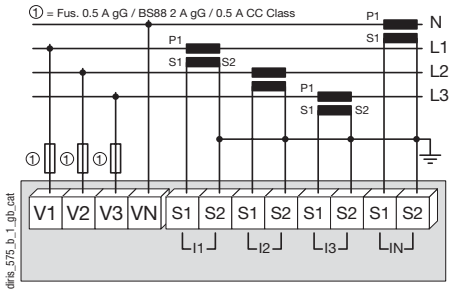
3 wires with 2 CTs



Use of 2 CTs reduces by 0.5% the accuracy of the phase, whose current is worked out by vector calculation.

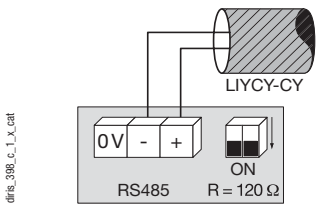
Low voltage unbalanced network for DIRIS A41

4 wires with 4 CTs

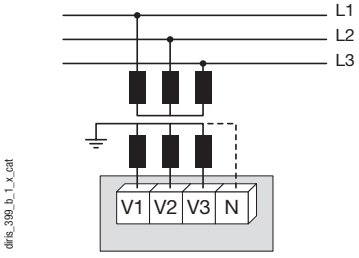


Additional information

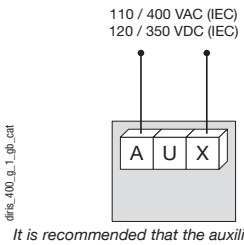
Communication via RS485 link



Voltage transformer for HV networks



AC & DC auxiliary power supply



It is recommended that the auxiliary power supply be protected by the use of 500 mA gG fuses.

References



Basic device	DIRIS A40		DIRIS A41 with CT on the neutral
Auxiliary power supply U_s	**Reference**		**Reference**
110 ... 400 VAC / 120 ... 350 VDC	4825 **0201**		4825 **0202**
12 ... 48 VDC	4825 **1201**		4825 **1202**

Options

Plug-in modules[1]	Reference		Reference
Pulse outputs	4825 **0090**		4825 **0090**
Sub D9 JBUS/MODBUS® communication	4825 **0092**		4825 **0092**
Analogue outputs	4825 **0093**		4825 **0093**
2 inputs / 2 outputs	4825 **0094**		4825 **0094**
RS485 PROFIBUS®DP communication	4825 **0205**		4825 **0205**
Memory	4825 **0097**		4825 **0097**
Ethernet communication	4825 **0203**		4825 **0203**
Ethernet communication + RS485 gateway JBUS/MODBUS	4825 **0204**		4825 **0204**
Temperature inputs	4825 **0206**		4825 **0206**
Functional Earth	4825 **0087**		4825 **0087**

Accessories

Description of accessories	To be ordered in multiples of	Reference	To be ordered in multiples of	Reference
IP65 protection	1	4825 **0089**	1	4825 **0089**
Panel mounting kit for a 144 x 96 mm cutout	1	4825 **0088**	1	4825 **0088**
Fuse combination switches for the protection of voltage inputs (type RM) 3 poles	4	5601 **0018**	4	5601 **0018**
Fuse combination switches for the protection of the auxiliary supply (type RM) 1 pole + neutral	6	5601 **0017**	6	5601 **0017**
Fuses type gG 10x38 0.5 A	10	6012 **0000**	10	6012 **0000**
Current transformers range		See page 334		See page 334

(1) Ease of integration for additional functions (maximum 4 on A40 and 3 on A41).

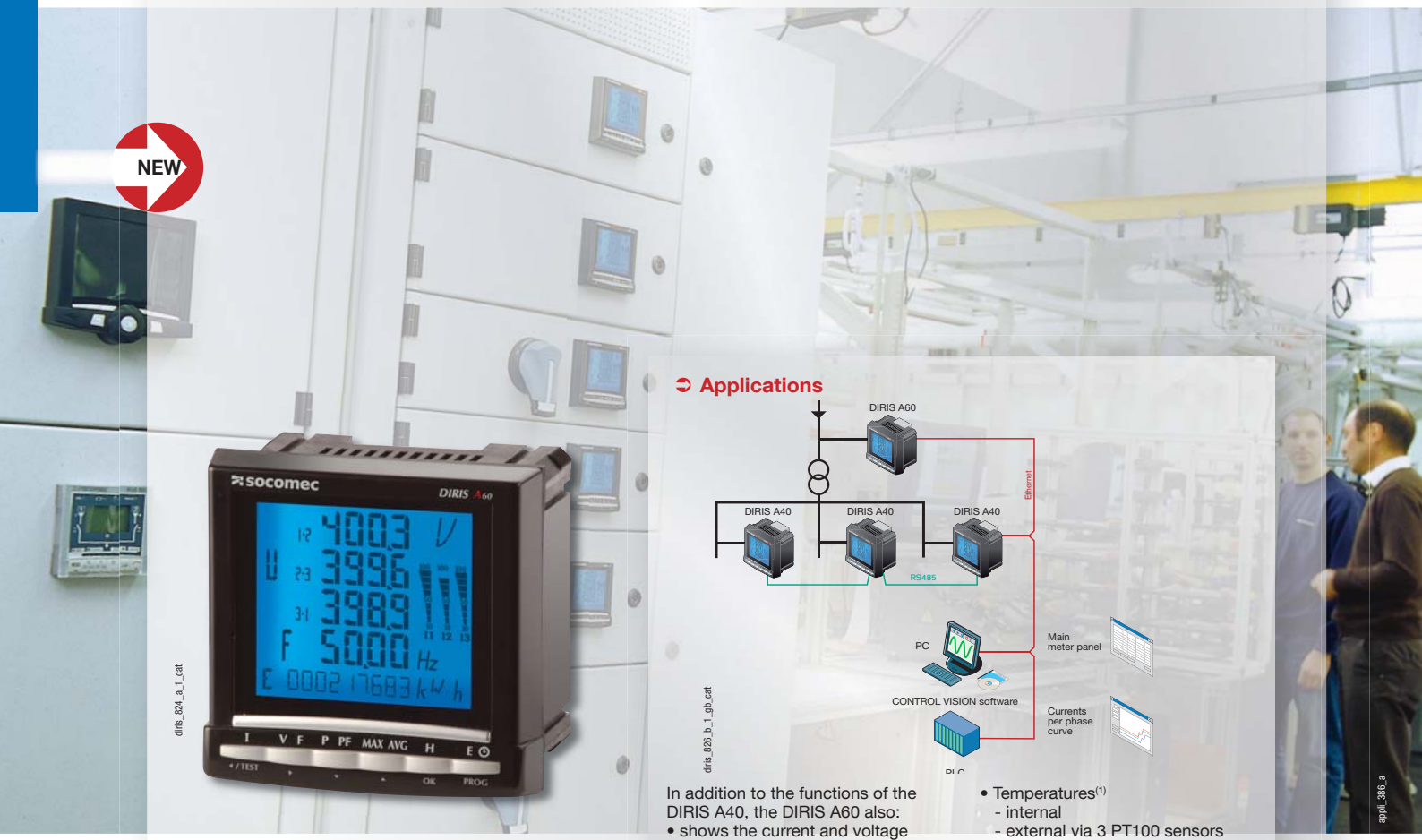
Services and Technical assistance

Our expertise extends to a complete offer of services like commissioning installation audit, training, maintenance and project engineering.



DIRIS A60

NEW



Applications

Events monitoring and managing energy for high/low voltage electrical installations

Function

DIRIS A60 is a measurement station which takes over all the functions of DIRIS A40 and which is enhanced by a history of harmful events for installation. A graphic representation of these harmful events is associated and provided to the user.
All this information can be used and analysed remotely using free quality measurement software that can be downloaded on the site www.socomec.com.

Conformity to standards

- IEC 61557-12
- IEC 62053-22 class 0.5 S
- IEC 62053-23 class 2

In addition to the functions of the DIRIS A40, the DIRIS A60 also:
- shows the current and voltage unbalance
- shows the tangent phi
- stores the load curves (50 days ith an interval of 10 minutes) for:
  - Active, reactive and apparent power: ΣP+/-; ΣQ+/-, ΣS
- detects and stores the last 40 events concerning:
  - overvoltage
  - voltage dips
  - cut-offs
  - overcurrent

For each stored event, the DIRIS A60 records the relevant RMS 1/2 interval curves for the voltages V1, V2, V3, U12, U23, U31 and the currents I1, I2, I3, In, giving a total of 400 curves.

Other functions:

Multi-function meter
- Current
  - instantaneous: I1, I2, I3, In, Isystem,
  - average/maximum average: I1, I2, I3, In,
  - unbalance: I unb.
- Voltages & frequency
  - instantaneous: U1, U2, U3, U12, U23, U31, F, Vsystem, Usystem
  - average/maximum average: U1, U2, U3, U12, U23, U31, F
  - unbalance: U unb.
- Power
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - maximum average: ΣP, ΣQ, ΣS
  - predictive: ΣP, ΣQ, ΣS.
- Power factor
  - FP, ΣFP
- Instantaneous total tangent phi
- Instantaneous, averaged, max averaged disbalance
- Temperatures(1)
  - internal
  - external via 3 PT100 sensors

Metering
- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Apparent energy: kVAh
- Hours:

Harmonic analysis (level 63)
- Harmonic distortion rate
  - Currents: thd I1, thd I2, thd I3, thd In
  - Phase-to-neutral voltage: thd U1, thd U2, thd U3
  - Phase to phase voltage: thd U12, thd U23, thd U31
- Individual
  - Currents: HI1, HI2, HI3, HIn
  - Phase-to-neutral voltage: HU1, HU2, HU3,
  - Phase to phase voltage: HU12, HU23, HU31

Events(1)
- Alarms on all electrical values

Communications(1)
- Analogues 0/4- 20 mA
- Digital RS485 (Jbus/Modbus & Profibus-DP)
- Ethernet (modbus/TCP or Jbus/Modbus RTU over TCP and Web server)
- Ethernet with RS485 gateway Jbus/Modbus RTU over TCP

Inputs / Outputs(1)
- Pulse metering
- Remote control/command
- Alarm report
- Pulse report

(1) Available as an option (see the following pages).

Front panel



1. Backlit LCD screen.
2. Pushbutton for currents, temperatures and CT setup wiring correction.
3. Pushbutton for voltages and frequency.
4. Pushbutton for active, reactive, and apparent power and power factor.
5. Pushbutton for maximum and average current and power values.
6. Pushbutton for harmonics values.
7. Pushbutton for energies and hour run meter.

Plug-in modules

DIRIS® A60





Pulse outputs

- 2 configurable pulse outputs (type, weight and run) on ± kWh, ±kvarh and kVAh



JBUS / MODBUS® communication

- RS485 link with JBUS / MODBUS® protocol (speed up to 38400 bauds).



PROFIBUS® DP communication

- RS485 link with PROFIBUS® DP protocol (speed up to 12 Mbauds).



Ethernet communication

- Ethernet link with MODBUS/TCP or JBUS/MODBUS RTU over TCP



Ethernet communication with RS485 JBUS/MODBUS gateway

- Ethernet link with MODBUS/TCP or JBUS/MODBUS RTU over TCP
- Connection of 1 to 247 RS485 JBUS/MODBUS slaves



Analogue outputs

- A maximum of 2 modules may be connected, that is 4 analogue outputs.
  2 outputs assignable to:
  3I, In, 3V, 3U, F, ± ΣP, ± ΣQ, ΣS, ΣPFL/C, I sys, Vsys, Usys, Ppred, Q pred, Spred, T°C internal, T°C 1, T°C 2, T°C3 and to 17 VDC power supply.



2 inputs - 2 outputs

- A maximum of 3 modules may be connected, giving 6 inputs.
  2 outputs assignable to:
  - monitoring: 3I, In, 3V, 3U, F, ± ΣP, ± ΣQ, ΣS, ΣPFL/C, THD 3I, THD In, THD 3V, THD 3U, Ppred, Qpred, Spred, T°C internal, T°C 1, T°C2, T°C3 and hour meter,
  - remote control,
  - timed remote control,
  - 2 inputs for pulses metering.



Temperature

- Temperature indication:
  - Internal
  - External sensor PT 100 (T°C 1)
  - External sensor PT 100 (T°C 2)
  - External sensor PT 100 (T°C 3)

➲ DIRIS A60 - Accessories

Current transformer
(see page 334)


trafo_024_a_2_cat

Current transformer


trafo_077_b_2_cat

IP65 protection

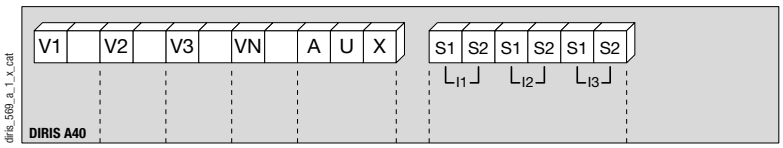

diris_720_a_2_cat

Mounting kit for kit 144 x 96 mm cut out plate


diris_718_b_1_cat

➲ Terminals

DIRIS A60

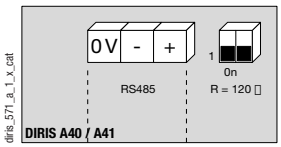


diris_569_a_1_x_cat

S1 - S2: current inputs

AUX: auxiliary power supply U_s
V1- V2 - V3 - VN: voltage inputs

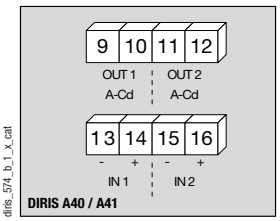
Communication module



diris_571_a_1_x_cat

RS485 link.
R = 120 Ω: internal resistance for the RS485 link.

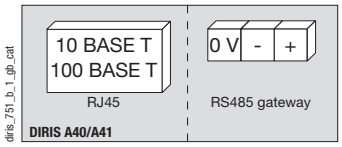
2 inputs / 2 outputs module



diris_574_b_1_x_cat

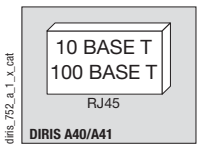
9 - 10: *relay output n°1.*
11 - 12: *relay output n°2.*
13 - 14: *opto input n°1.*
15 - 16: *opto input n°2.*

Ethernet module + RS485 JBUS / MODBUS gateway



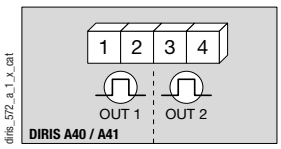
diris_751_b_1_gb_cat

Ethernet Module



diris_752_a_1_x_cat

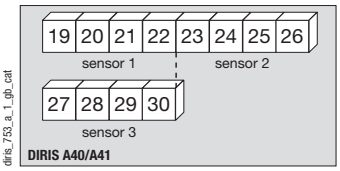
Pulse output module



diris_572_a_1_x_cat

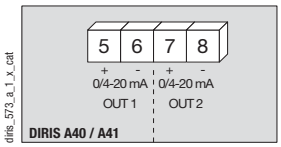
1 - 2: *pulse output n°1.*
3 - 4: *pulse output n°2.*

Temperature module



diris_753_a_1_gb_cat

Analogue output module



diris_573_a_1_x_cat

5 - 6: *analogue output n°1.*
7 - 8: *analogue output n°2.*

Electrical characteristics

Current measurement on insulated inputs (TRMS)	
Via CT primary	10 000 A
Via CT secondary	1 or 5
Measurement range	0 … 11 kA
Input consumption	≤ 0.1 VA
Measurement updating period	1 s
Accuracy	0.2 %
Sustained overload	6 A
intermittent overload	10 I_n for 1 s

Voltage measurements (TRMS)	
Direct measurement between phases	50 … 700 VAC
Direct measurement between phase and neutral	28 … 404 VAC
VT primary	500 000 VAC
VT secondary	60, 100, 110, 173, 190 VAC
Frequency	50 / 60 Hz
Input consumption	≤ 0.1 VA
Measurement updating period	1 s
Accuracy	0.2 %
Sustained overload	760 VAC

Current-voltage product	
Limitation for 1A CT	10 000 000
Limitation for 5A CT	10 000 000

Power measurement	
Measurement updating period	1 s
Accuracy	0.5 %

Power factor measurement	
Measurement updating period	1 s
Accuracy	0.5 %

Frequency measurement	
Measurement range	45 … 65 Hz
Measurement updating period	1 s
Accuracy	0.1 %

Energy accuracy	
Active (according to IEC 62053-22)	class 0.5 S
Reactive (according to IEC 62053-23)	class 2

Auxiliary power supply	
Alternating voltage	110 … 400 VAC
AC tolerance	± 10 %
Direct voltage	120 … 350 VDC
DC tolerance	± 20 %
Frequency	50 / 60 Hz
Consumption	≤ 10 VA

2 inputs / 2 outputs module: Outputs (alarms / control)	
Number of relays	2(1)
Type	250 VAC - 5 A - 1150 VA

2 inputs / 2 outputs module: Phototransistor inputs	
Number	2(1)
Power supply	10 … 30 VDC
Minimal signal width	10 ms
Minimum length between 2 impulses	18 ms
Type	phototransistor

Pulse outputs module	
Number of relays	2
Type	100 VDC - 0.5 A - 10 VA
Max. number of operations	≤ 10^8

Analogue output module	
Number of outputs	2(2)
Type	insulated
Scale	0 / 4 … 20 mA
Load resistance	600 Ω
Maximum current	30 mA

JBUS/MODBUS communication module	
Link	RS485
Type	2 … 3 half duplex wires
Protocol	JBUS/MODBUS® in RTU mode
JBUS/MODBUS® speed	1400 … 38400 bauds

PROFIBUS-DP communication module	
Link	SUB-D9
Protocol	PROFIBUS® DP
PROFIBUS® speed	9.8 kbauds … 12 Mbauds

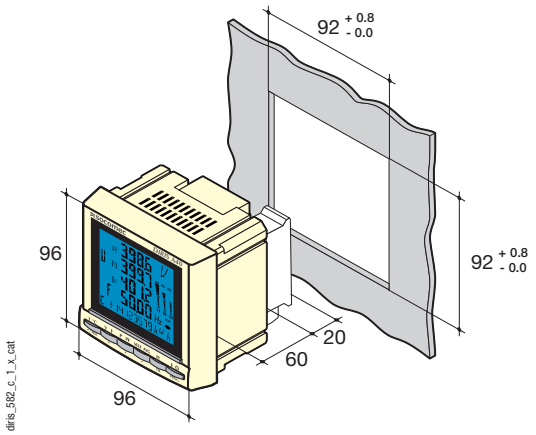
Ethernet Communication Module	
Connectique	RJ45
Speed	10 base T / 100 base T
Protocol	MODBUS TCP or JBUS/MODBUS RTU over TCP

Temperature inputs	
Type	PT100
Connection	2, 3 or 4 wires
Dynamic	- 20°C ... 150°C
Accuracy	+/- 1 digit
Maximum length	300 cm

Operating conditions	
Operating temperature	- 10 … + 55 °C
Storage temperature	- 20 … + 85 °C
Relative humidity	95 %

(1) Max. 3 modules / DIRIS.
(2) Max. 2 modules / DIRIS.

Case



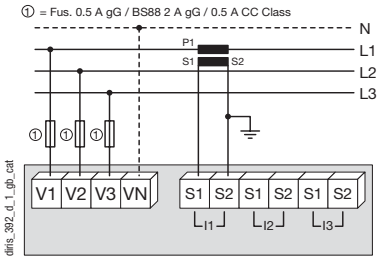
Type	Panel mounting
Dimensions W x H x D	96 x 96 x 60 mm
Case protection index	IP30
Front protection rating	IP52
Display type	LCD
Terminal blocks type	fixed or pull-out
Voltage and other connection section	0.2 … 2.5 mm²
Current connection section	0.5 … 6 mm²
Weight	400 g

➲ DIRIS A60 - Connection

Recommandation: when disconnecting the DIRIS, the secondaries of each current transformer must be short-circuited. This operation can be carried out automatically by a product in the SOCOMEC catalogue, PTI: consult us.

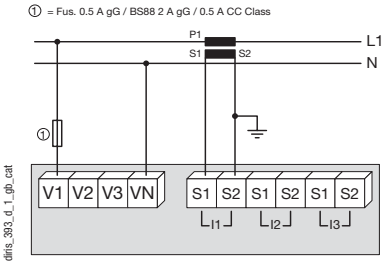
Low voltage balanced network for DIRIS A60

3/4 wires with 1 CT

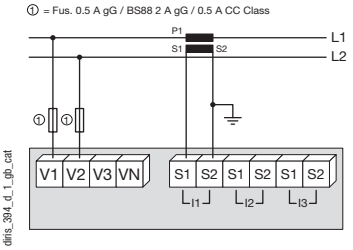


Use of 1 CT reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

Single phase

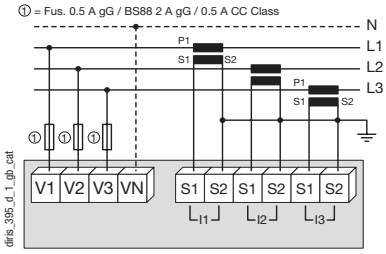


Two phase

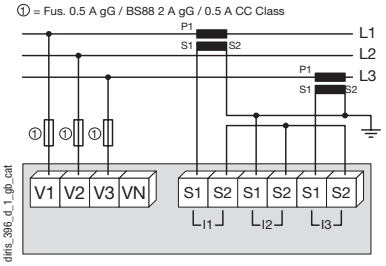


Low voltage unbalanced network for DIRIS A60

3/4 wires with 3 CTs

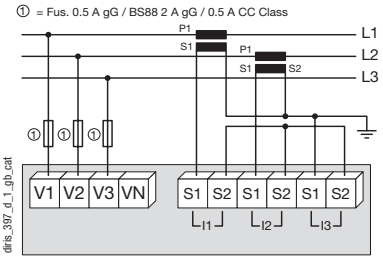


3 wires with 2 CTs



Use of 2 CTs reduces by 0.5% the accuracy of the phase, whose current is worked out by vector calculation.

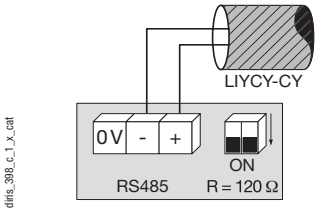
3 wires with 2 CTs



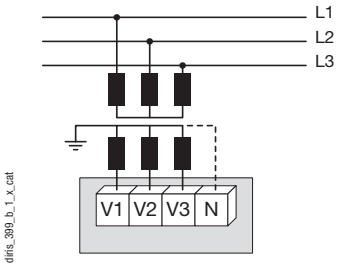
Use of 2 CTs reduces by 0.5% the accuracy of the phase, whose current is worked out by vector calculation.

Additional information

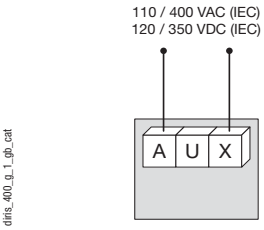
Communication via RS485 link



Connection of voltage transformer for HV networks



AC & DC auxiliary power supply



It is recommended that the auxiliary power supply be protected by the use of 500 mA gG fuses.

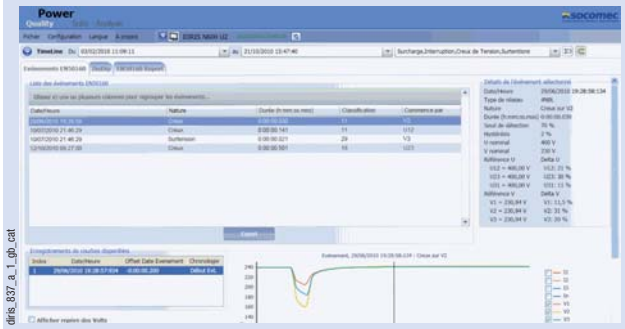
Software

Visualize the SAG, SWELL, CUT-OFF and Over current curves

This software allows the DIRIS A60 event monitoring system to help you improve the reliability of your electrical installation,
by detecting and allowing the analysis of the events through graphic display.
It provides the following functions:
- List of voltage dips, cuts, and surges, and over current
- Display of the 10 curves (3V, 3U, 3I, In) related to the event with advanced zoom in functions
- Classification of the events according to EN50160
- Export pictures or XLM files of curves.

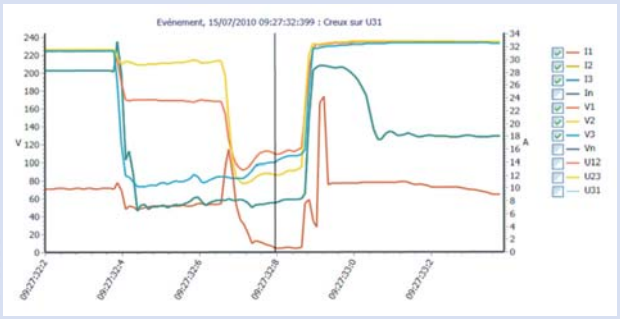
Software can be connected to the DIRIS either in Modbus TCP / Modbus RTU over TCP or Modbus RTU over RS485.
Software can be downloaded on the SOCOMEC website : www.socomec.com

Event log: Display



diris_837_a_1_gb_cat

Curve display



diris_845_a_1_fr_cat

References


diris_824_a_1_cat

Basic device Auxiliary power supply Us	DIRIS A60 Reference
110 ... 400 VAC / 120 ... 350 VDC	4825 **0207**

Options

Plug-in-modules(1)	Reference
Pulse outputs	4825 **0090**
RS485 JBUS/MODBUS® communication	4825 **0092**
Analogue outputs	4825 **0093**
2 inputs / 2 outputs	4825 **0094**
RS485 PROFIBUS®DP communication	4825 **0205**
Ethernet communication	4825 **0203**
Ethernet communication + RS485 gateway JBUS/MODBUS	4825 **0204**
Temperature inputs	4825 **0206**

(1) Ease of integration for additional functions (maximum 3).

Accessories

Description of accessories	To be ordered by multiple	Reference
IP65 protection	1	4825 **0089**
Panel mounting kit for a 144 x 96 mm cutout	1	4825 **0088**
Fuse combination switches for the protection of voltage inputs (type RM) 3 poles	4	5601 **0018**
Fuse combination switches for the protection of the auxiliary supply (type RM) 1 pole + neutral	6	5601 **0017**
Fuses type gG 10x38 0.5 A	10	6012 **0000**
Current transformers range		See page 334

Services and Technical assistance

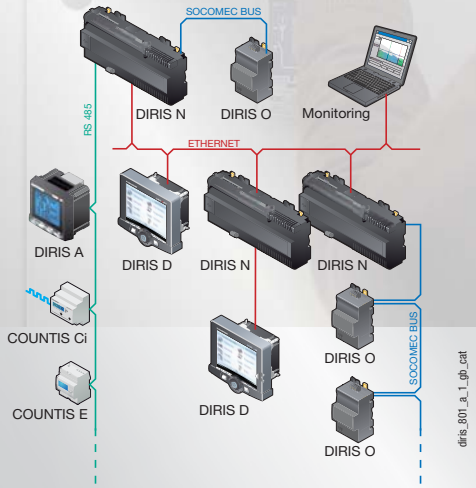
Our expertise extends to a complete offer of services like commissioning installation audit, training, maintenance and project engineering.



DIRIS N300 / N600



Application



A modular and open system

The **DIRIS N** is a true system made up of "functional blocks":

- data acquisition and processing: DIRIS N300/N600
- graphic colour display: DIRIS D (option of using a single DIRIS D for several DIRIS N)
- remote input / output modules: DIRIS O.

In addition, the **DIRIS N** can provide an interface between products communicating via Modbus, such as DIRIS A or COUNTIS Ci, for example, using an Ethernet network via an RS485 port to centralise information for monitoring.

Network quality control and analysis system

Function

DIRIS N300 / N600 are multifunction network analysers designed for all energy efficiency projects. They actively contribute to procedures for optimising the operation of your electrical networks and give the user a solution which helps to:

- improve the efficiency of the facility,
- reduce production costs,
- optimise operating costs,
- reduce maintenance costs.

To ensure these aims are achieved, the **DIRIS N** assures the following functions:

- measurement of electrical values and temperatures,
- management of energy and allocation of other fluids (water, gas),
- monitoring of all parameters,
- control/command of apparatus,
- analysis of the network quality (waveform, EN50160 report),
- communication.

Its use is made even easier by the additional functions that it offers, from checking the connection to providing a metrological report, and including USB ports and an SD card reader for loading or downloading information (measurements for example). As an option, **DIRIS O** remote input/output modules allow the control/command function to be moved close to the components concerned. Besides being user friendly, the **DIRIS D600's** colour graphic display, gives the user access to all the parameters.

Conformity to standards

- IEC 61557-12
- EN 50160
- IEC 61000-4-30

➲ General characteristics of the DIRIS N300 and N600

The vast majority of the functions below are available as numbers (instant, average, minimum and maximum values), graphs (wave captures and 1/2 period RMS) and logs.

Measurements:
- Currents, voltages, frequency (instant, average, minimum and maximum)
- Direct, inverse and homopolar voltages
- Voltage unbalance
- Active, reactive, apparent and predictive power
- Power factor
- Fresnel diagram
- Temperatures.

Energy management:
- Active, reactive and apparent energy meters
- Impulse meters (up to 20 meters)
- Timestamped meters (up to 8 meters)
- Load curves.

Monitoring:
- Display of an alarm and status log
- Indication of the parameter concerned, the status at time T, the duration and date/time of the start and end of the event.

Control/Command (only with the DIRIS O):
- Controls and commands the position of the remote devices
- Programmes the logical functions to create automatic processes.

Network and event quality analysis:
- Dips, surges and voltage cut-offs
- Crest factor
- Voltage and current harmonics
- Mains signalling voltages.

Communication:
- RS485 using Modbus
- 10BaseT and 100BaseT Ethernet (Modbus/TCP)
- 2 USB ports (host/device)
- Open CAN (internal bus for DIRIS O modules).

DIRIS N600:
the user also has the following functions:
- Flicker (Pst and Plt)
- EN50160 report
- Voltage transients (sampling 1.33 µs)
- Voltage and current interharmonics.



➲ A hub of innovation

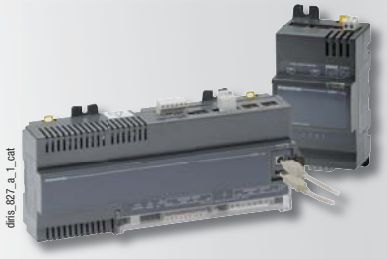
The DIRIS N, developed using innovative technology, has enabled some functions to cross a new frontier.

• Measurements
Optimal calculation functions and sampling in the range of 1.33 µs ensuring a very high level of precision when measuring as shown below:
- Voltages and currents in class 0.1
- Active energy in class 0.2 as per IEC 62053-22
- Harmonics in class 1.

• Operating
A DIRIS D colour LCD display module gives the user access to all the installation's parameters with the greatest of ease. They will be able to access both numerical values and graphs.
The DIRIS N offers the option of downloading all the data in its internal memory onto a USB key or SD card.

• Installation
The DIRIS N, D and O have been designed to be located as close as possible to the function and its operation so as to reduce the number of cables needed.
Using a remote display module avoids having lots of cables across the door; only an RJ45 cable is required. In the same way, power is supplied to the additional DIRIS O modules directly via the communication bus, thus avoiding the use of yet more cables.





➲ DIRIS N300 / N600 - Software suite

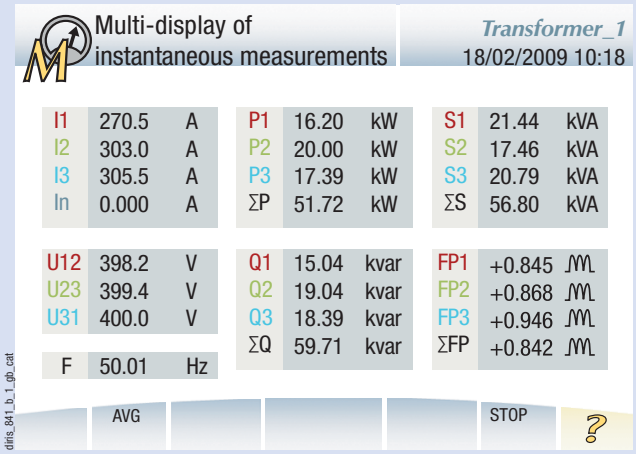
The DIRIS N300/N600 network analyser is delivered with the software package which allows to manage remotely all features. Friendly and intuitive, these software tools insure the functions of:

SOFTWARE 1: Real time remote monitoring installation

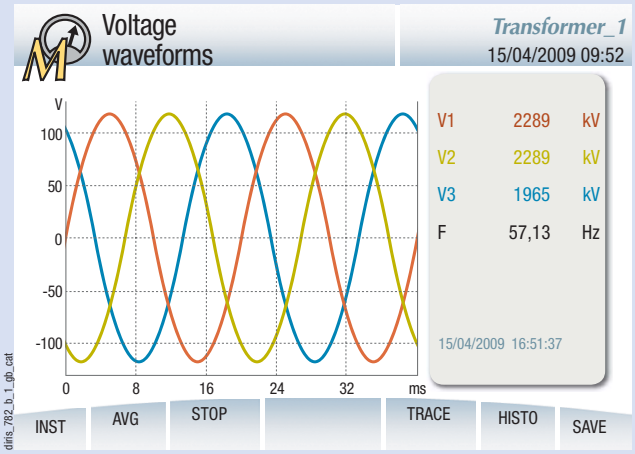
This software reproduces the screens of the DIRIS D600 identically on a PC. Any user can therefore access all the data to save time and increase readability:
- Measurements
- Energies
- Events
- Quality Parameters
- Diagnosis
- Configuration.

Communication between the PC and the DIRIS N units is via Ethernet. A simultaneous display of several DIRIS N is possible.

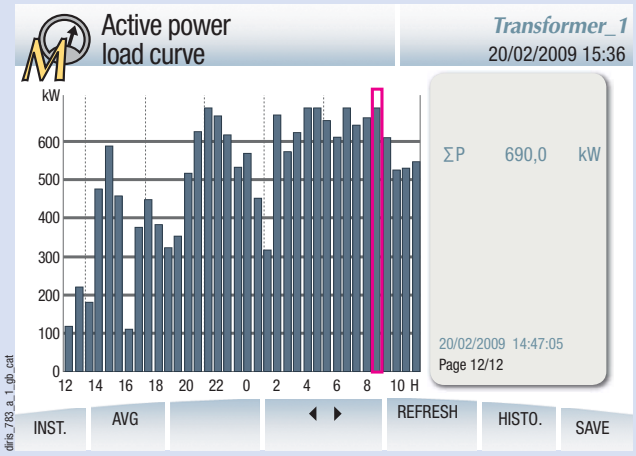
All measurements displayed on a single screen



Voltage waveforms displayed



Load curve displayed



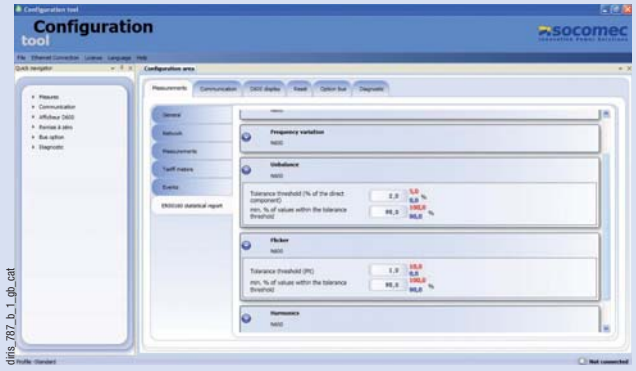
Total and partial consumption displayed per time slot



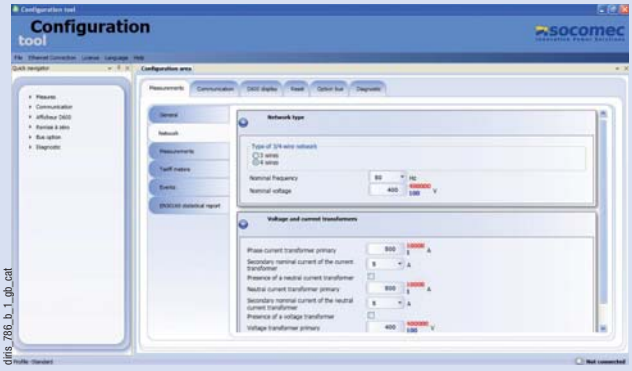
SOFTWARE 2: Configuration for a simple and fast parameter setting

This configurator allows to modify and to adapt quickly the parameters of regulation of the network analyser. The following parameters are available:
- Networks
- Events
- EN50160 report thresholds
- Tariff meters
- Histories and load curves
- Control/command functions linked to DIRIS O remote modules.

A maintenance function allows the connection and operation of the DIRIS Ns to be checked after they have been configured.



diris_787_b_1_gb_cat



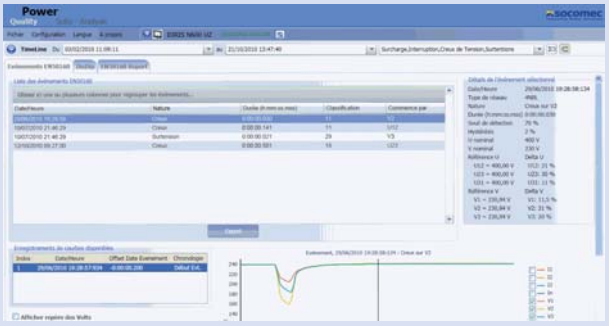
diris_786_b_1_gb_cat

SOFTWARE 3: Operation to analyze the quality parameters

This software allows access to the DIRIS N300/N600 quality parameters so that you may improve the efficiency of your electrical installation.
It provides the following functions:
- Classification of voltage dips, cuts and surges (Disdip table)
- EN50160 automatic reports (voltages, frequencies, harmonics, flickers...)
- Automatic detection of out of limits event
- Timestamp EN50160 events list (surges, dips, cut-offs...)

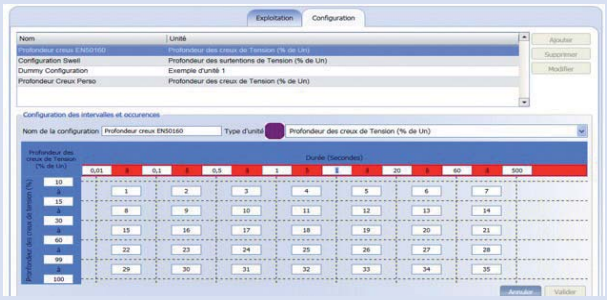
The application enables reports to be issued for periods which can be customised by the user.
The temporal display screen allows rapid access to information relating to the desired period.

Event log: Display



diris_837_a_1_gb_cat

DisDip table template: Configuration



diris_838_a_1_fr_cat

EN50160 report Configuration



diris_839_a_1_fr_cat

EN50160 report Display



diris_840_a_1_fr_cat

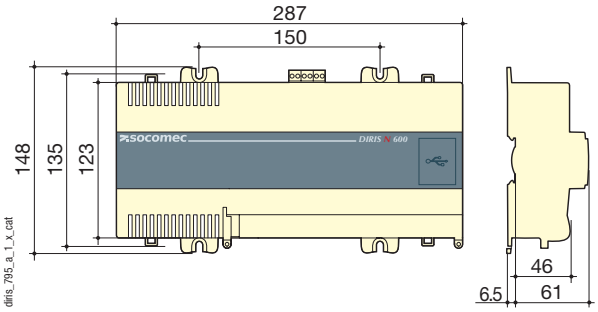
➲ Mounting and dimensions

DIRIS N300 / N600

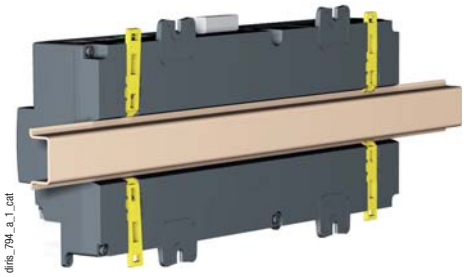
Base-mounted



Overall dimensions

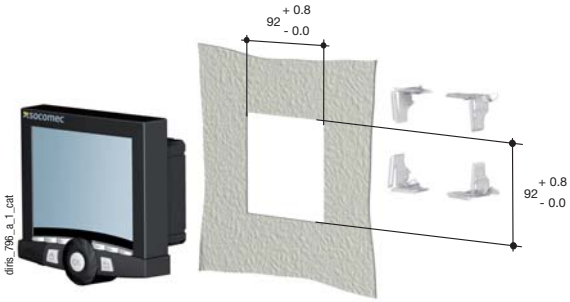


DIN-rail mounting

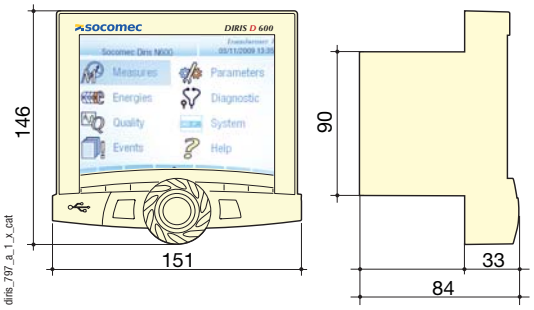


DIRIS D600

Remote display



Overall dimensions



DIRIS O

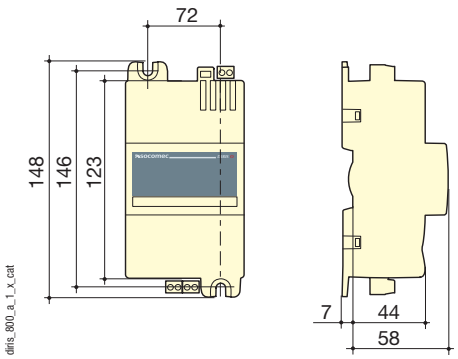
Base-mounted



DIN-rail mounting



Overall dimensions

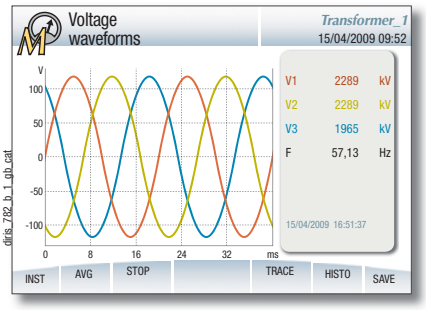


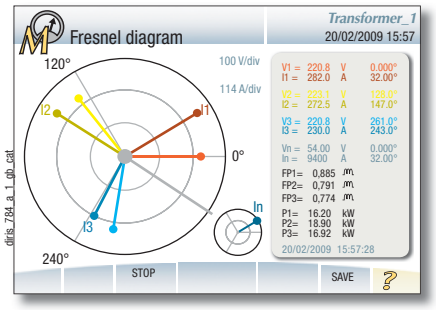
Options

DIRIS D: the ergonomic remote graphic display



1. High-definition colour display.
2. Direct access buttons.
3. Control by rotating wheel.





The **DIRIS D600** is a high-definition colour display which allows adaptable, local or remote viewing of the functions of the DIRIS N300 and N600.

A single DIRIS D600 display can show information coming from several DIRIS N using windows on the screen dedicated to measurement, analysis of consumption and energy quality, along with their associated events and curves.

DIRIS O: for extended control-command functions

DIRIS O are optional analogue and/or digital input/output modules which can extend the system's functions by taking into account all information relevant to facility supervision (fluids, alarms, etc.).
They communicate with the DIRIS N via a SOCOMEC bus.
They enable you to:

- acquire and apply the positions of breaker components, contactors, sensors, etc.
- centralise pulses from water, gas and electricity meters.
- apply information from analogue sensors (temperature, flow, humidity level, pressure, etc.).
- actuate breaker components, perform load shedding actions upon alarms. The inputs/outputs can be activated via logic equations.



DIRIS N / O / D - Characteristics

	DIRIS N300/N600	DIRIS D600 remote display	DIRIS O 4 inputs - 2 outputs	DIRIS O: 2 analogue inputs 0/4…20 mA	DIRIS O: 2 analogue outputs 0/4…20 mA
Auxiliary power supply					
Alternating voltage	110 … 240 VAC				
AC tolerance	± 10 %				
Frequency	50 / 60 Hz				
Direct voltage	48 … 250 VDC	48 VDC(1)	48 VDC(1)	48 VDC(1)	48 VDC(1)
DC tolerance	± 10 %	± 10 %	± 10 %	± 10 %	± 10 %
Connection	2.5 mm² pull-out 2 point terminal block	2.5 mm² pull-out 2 point terminal block	2.5 mm² pull-out 2 point terminal block	2.5 mm² pull-out 2 point terminal block	2.5 mm² pull-out 2 point terminal block
Mechanical					
Consumption		10 W	1.5 W	1.3 W	2.5 W
Type	Modular		Modular	Modular	Modular
Number of DIN modules	16		4	4	4
Dimensions W x H x D	287 x 123 x 67.5	151 x 146 x 84	72 x 148 x 65	72 x 148 x 65	72 x 148 x 65
Cutout		92 x 92			
Vibrations	IEC 60068-2-6 compliant	IEC 60068-2-6 compliant	IEC 60068-2-6 compliant	IEC 60068-2-6 compliant	IEC 60068-2-6 compliant
Protection degree	IP 40 (nose), IP 20 (unit)	IP 52	IP 52 (front panel), IP 20 (unit)	IP 40 (nose), IP 20 (unit)	IP 40 (nose), IP 20 (unit)
Weight	1200 g	600 g	200 g	210 g	220 g

(1) Auxiliary supply or via DIRIS N300/N600 limited to 15 W or Power over Ethernet or Power over CAN.

	DIRIS N300/N600		DIRIS D600 remote display	DIRIS O 4 inputs - 2 outputs	DIRIS O - 2 analogue inputs 0/4…20 mA	DIRIS O - 2 analogue inputs 0/4…20 mA
Communication						
Link	RS485	ETHERNET	ETHERNET	BUS OPTION	BUS OPTION	BUS OPTION
Type	2 half duplex wires	2 half duplex wires				
Protocol	JBUS/MODBUS® in RTU mode	MODBUS® TCP or proprietary	Proprietary in TCP mode	Proprietary in CAN mode	Proprietary in CAN mode	Proprietary in CAN mode
JBUS/MODBUS® speed	9.6 … 115.2 kbauds					
Address	000 … 256					
Connection	2.5 mm² pull-out 3 point terminal block	1 RJ 45 8 point straight cable	1 RJ 45 8 point straight cable	2 RJ 45 8 point straight cables	2 RJ 45 8 point straight cables	2 RJ 45 8 point straight cables

➲ DIRIS N300 / N600 - Characteristics

Characteristics of the PMD (IEC 61557-12)

Evaluation of the power supply quality (future function)	White
PMD classification	SD
Temperature	K55
Humidity + Altitude	White
Operating performance class of active power or active energy (if possible function)	0.2
Startup duration	50 seconds

Characteristics of the functions/Evaluation of the power supply quality (IEC 61557-12)

P (Total active power) - class 0.2	5 % I_n to 2 I_n
Qa, Qv (reactive power) - class 1	5 % I_n to 2 I_n
Sa, Sv - class 0.2	5 % I_n to 2 I_n
Ea - class 0.2	5 % I_n to 2 I_n
Era, Erv - class 1	5 % I_n to 2 I_n
Eapa, Eapv - class 0.2	5 % I_n to 2 I_n
f - class 0.02 / class B complies IEC 61000 = 4-30	Fnom ±15 %
I - class 0.1	0.1 I_n to 2 I_n
In / Inc - class 0.1	0.1 I_n to 2 I_n
U - class 0.1	
PFa / PFv - class 0.5	PF = 0.5 lag to 0.5 lead
Pst / Pit - class 5 (complies IEC 61000-4-15)	0 … 20
Udip - class 0.2	5 % U_n to U_n
Uswl - class 0.2	U_n to 120 % U_n
Utr	0 … 6 kV
Uint - class 0.2	0 … 5 % U_n
Unba - class 0.2	
Unb - class 0.2	
Uh - class 1	
THDu - class 1	
THD-Ru - class 1	
Ih - class 1	
THDi - class 2	
THD-Ri - class 1	
Msv - class 1	

Measurements

Network type	Three phase without neutral or with neutral
Number of power outlets	3 or 4
Measurement category	600V cat III (IEC 61010-1)
Measurement method class	B (A except for temporal aggregation) (IEC 61000-4-30)
TRMS	up to level 50
Measurement sampling frequency	10240 Hz (at the nominal network frequency)
Transient sampling frequency	750 kHz i.e. 1.33 µs
Instantaneous measurements refresh frequency	1 s
Plot refresh frequency	1 … 60 minutes
History refresh frequency	1 … 60 s

Voltage inputs

Number of voltage inputs	3 Phase + Neutral + Earth
Nominal voltage without VT	346 V AC (phase/Neutral) and 600 >V AC (phase/phase)
Voltage transformer	Primary maximum: 630 kVAC / Secondary: 60/100/110/115/120/173/190 VAC
Sustained overload	800 VAC
Frequency	45 … 65 Hz
Insulation	600 V cat III
Connection	2.5mm² pull-out 4 point terminal block

Current inputs

Number of current inputs	3 Phase + Neutral
Nominal current without CT	5 A
Current transformer	Primary: max 10 000 A / Secondary: 1 or 5 A
Input consumption	< 0.3 VA
Sustained overload	20 A
Intermittent overload	20 I_n / 1s
Insulation	main
Connection	6 mm² 8 point fixed terminal block

USB

Host (low power : 100 mA max)	1
Device	1

Memory

Memory size	128 Mb

SD Card

Compatible size	Up to 1 Gb

Environment

Max. operating temperature	-10 … +55 °C
Max. storage temperature	-25 … 70 °C
Humidity	0 … 75 % RH
Salt spray	EN 60068-2-52
Protection degree	IEC 60259
Sine vibrations	IEC 60068-2-6
Dry heat test (operation and storage)	IEC 60068-2-2
Wet heat cyclic test	IEC 60068-2-30
in-operation and storage cold test	IEC 60068-2-1

Product standards and certification

Product standard	IEC 61557-12 ed. 1
Active energy metering	ICE 62053-22 (class 0.2S or 0.5S)
Reactive energy metering	IEC 62053-23 (class 2)

Measurement standards and certification

Harmonics and interharmonics measurement method	IEC 61000-4-7
Flicker measurement method	IEC 61000-4-15
Supply power quality measurement method	IEC 61000-4-30
Characteristics of the voltage supplied by public distribution networks	EN 50160

Communication standards and certification

RS485	TIA-485A
	TSB-89-B
	IEE 802-3AF
Ethernet	802-1.3-2005_Section1
	802-1.3-2005_Section2

Protocol standards and certification

RS485	JBUS
Ethernet	MODBUS
USB	USB 2.0
CAN	ISO11898-2

DIRIS D600 screen

Technology	TFT
Format	640 x 480 pixels
Dimension	115.2 x 86.4 mm

DIRIS O 4i2o-d inputs (4 inputs/2 outputs)

Number	4
Type	phototransistor
Power supply	10 … 30 VDC
Minimum current	1 mA
Main insulation for < 300 VAC Ph/N network	2.5 kVAC rms 1 minute
Leakage path	> 3 mm
Number of switchings	108 operations

DIRIS O 4i2o-d outputs (4 inputs/2 outputs)

Number of switchings	≥ 10^5 operations
Type	230 VAC - 250 VDC - 0.2 A - 1500 VA - 50 W
Number of relays	2
Leakage path	> 3 mm
Main insulation for < 300 VAC Ph/N network	2.5 kVAC rms 1 minute

DIRIS O 2i-a inputs (2 analogue inputs)

Number	2
Scale	0 / 4 … 20 mA
Accuracy	≤ 1 % of full scale (which is ≤ 0.2 mA)
Max. impedance of inputs	200 Ω
Main insulation for < 300 VAC Ph/N network	2.5 kVAC rms 1 minute
Leakage path	> 3 mm

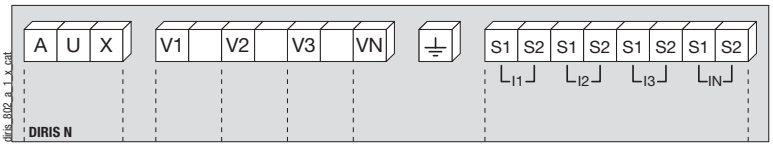
DIRIS O 2o-a outputs (2 analogue outputs)

Number of outputs	2
Scale	0 / 4 … 20 mA
Load resistance	600 Ω
Accuracy	≤ 0.5 % of full scale (which is ≤ 0.1 mA)
Maximum current	25 mA
Main insulation for < 300 VAC Ph/N network	2.5 kVAC rms 1 minute
Leakage path	> 3 mm

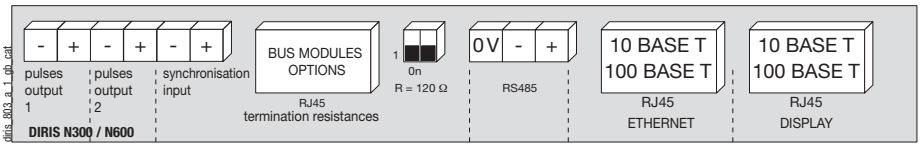
Terminals

DIRIS N300 / N600

Lower terminal blocks

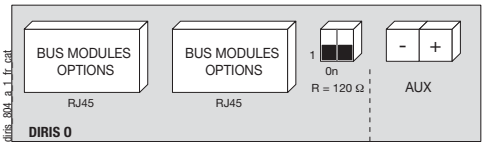


Upper terminal blocks

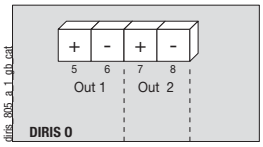


DIRIS O

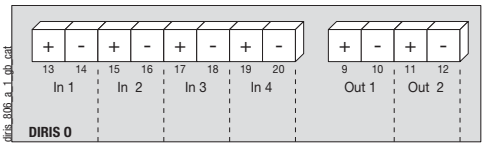
Upper terminal blocks (shared by all modules)



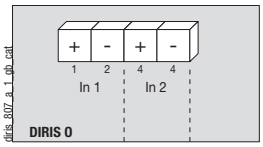
2 analogue outputs, 0/4-20 mA



4 inputs/2 outputs digital



2 analogue inputs, 0/4-20 mA



References



DIRIS N300/N600

Description	Reference
DIRIS N300	4826 **0001**
DIRIS N600	4826 **0002**

optional

DIRIS D600

Description	Reference
DIRIS D600 (remote display)	4826 **0003**

DIRIS O

Description	Reference
DIRIS O 4i2o-d (4 digital inputs/2 digital outputs)	4826 **0071**
DIRIS O 2i-a (2 analogue inputs)	4826 **0072**
DIRIS O 2o-a (2 analogue outputs)	4826 **0073**

Accessories

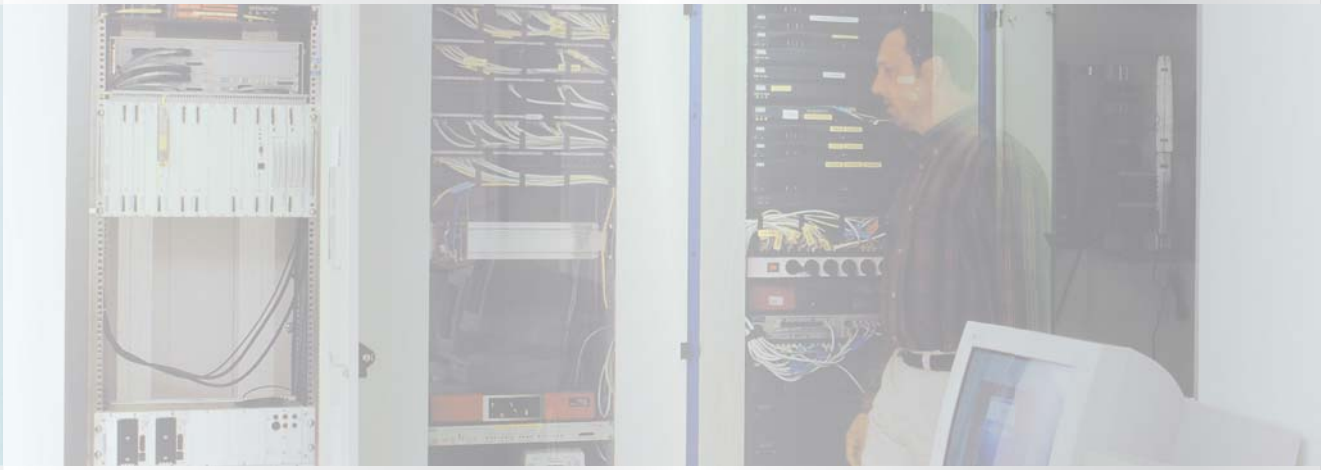
Description of accessories	To be ordered by multiple	Reference
Fuse combination switches for the protection of voltage inputs (type RM) 3 poles	4	5601 **0018**
Fuse combination switches for the protection of the auxiliary supply (type RM) 1 pole + neutral	6	5601 **0017**
Fuses type gG 10x38 0.5 A	10	6012 **0000**
Current transformers range		See page 334

Services and Technical assistance

Our expertise extends to a complete offer of services like commissioning installation audit, training, maintenance and project engineering.



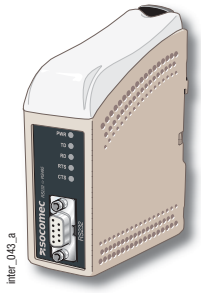
Communication accessories



appli_223_b

Connecting the RS485 link

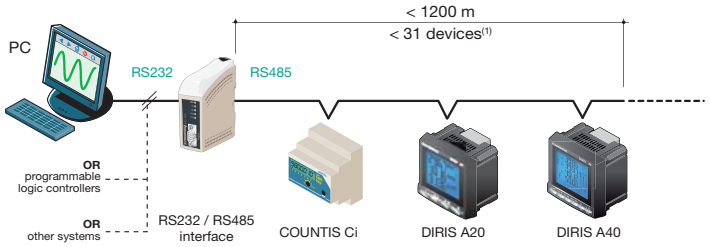
RS232 / RS485 interface



inter_043_a

Function

If the PC is equipped with an RS232 port, the interface will convert RS232 signal into RS485. 31 devices can be connected to the interface over a distance of 1200 m at 9600 bauds.



diris_141_g_1_gb_cat

References

(1) Beyond these characteristics, use an " RS422 / RS485 repeater".

Auxiliary power supply Us	Frequency	Reference
95 … 240 VAC / 110 … 250 VDC	50 Hz	4899 **0100**

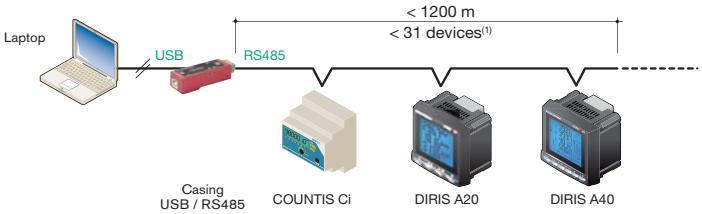
USB / RS485 interface



inter_002_a_2_cat

Function

If the PC is not equipped with a serial port, the interface will connect via the USB port to obtain an RS485 communication port.
This product is recommended for local, non-permanent use.



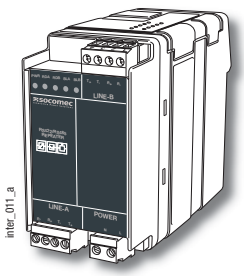
inter_142_f_1_gb_cat

(1) Beyond these characteristics, use an " RS422 / RS485 repeater".

References

Description of accessories	Reference
External USB / RS485 interface unit	4899 **0110**

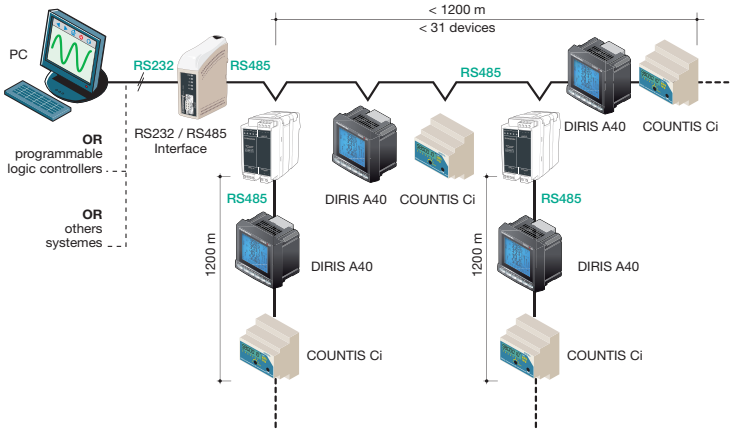
RS422 / RS485 repeater



inter_011_a

Function

In some applications the maximum distance and/or the maximum number of devices can be exceeded. One solution to this technical restriction is to install an interface which amplifies the signal over a further 1200 m (at 9600 bauds) for 31 devices.
In addition, it allows you to create a new branch on the network thereby making it possible to reduce the length of cable required to connect the devices by avoiding back and forth cabling.



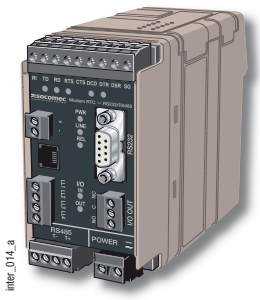
inter_143_g_1_gb_cat

References

Auxiliary power supply Us	Frequency	Reference
95 … 240 VAC / 110 … 250 VDC	50 Hz	4899 **0120**

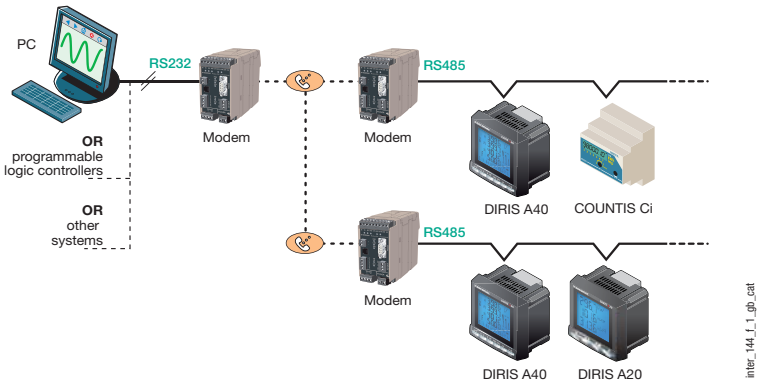
Using the telephone network

RTC / RS232 - RS485 modem



Function

On some sites, it is impossible to connect all the DIRIS's using a single cable. Indeed, the distances may be such that the investment would be too costly. In this case, a modem may be used.
This modem can be configured as a master (RS232: connected directly to PC) or slave (RS485: connected to slave devices, via network).

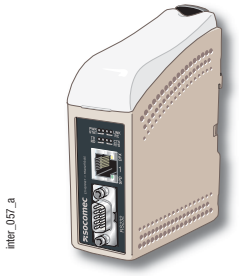


References

Auxiliary power supply Us	Frequency	Reference
22 … 240 VAC / 12 … 48 VDC	50 Hz	4899 **0200**

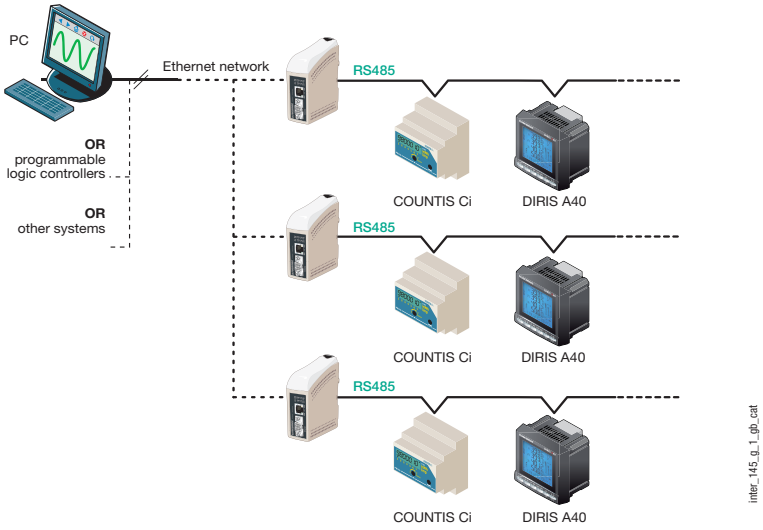
Using the Ethernet network

Ethernet / RS232-RS485 interface



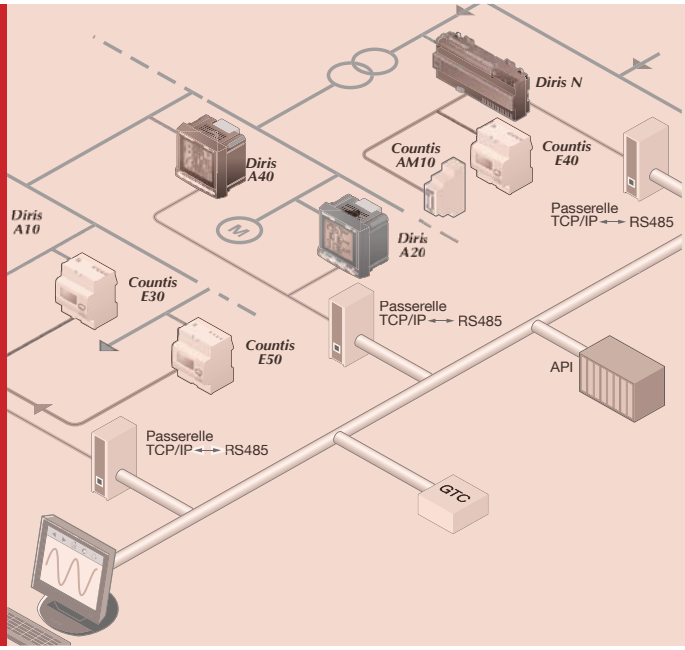
Function

This interface enables RS485 slave devices to be connected to an Ethernet network.
These interfaces can be configured differently to suit other architectures.



References

Auxiliary power supply Us	Frequency	Reference
230 VAC / 12 … 48 VDC	50 Hz	4899 **0300**

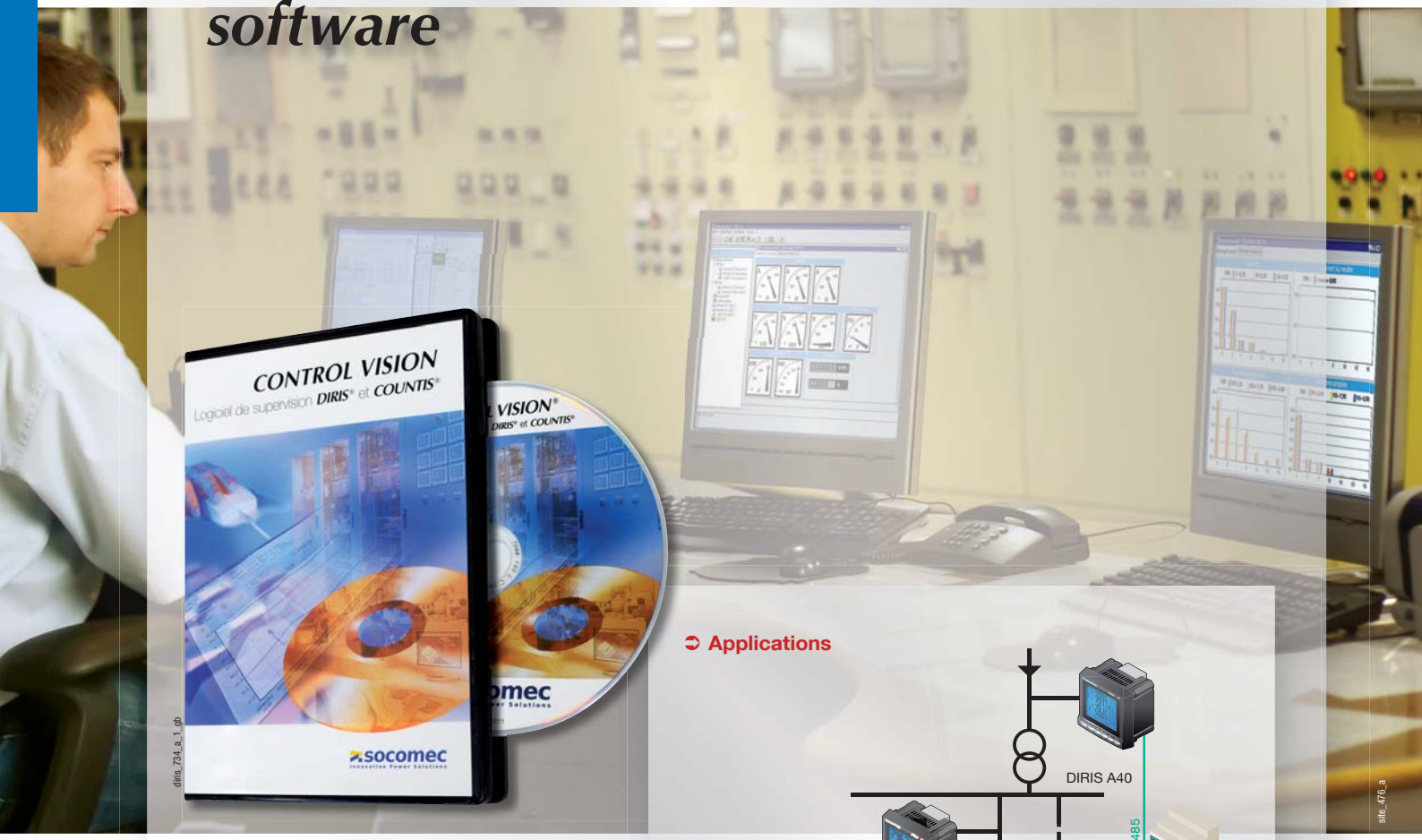


Other solutions and services

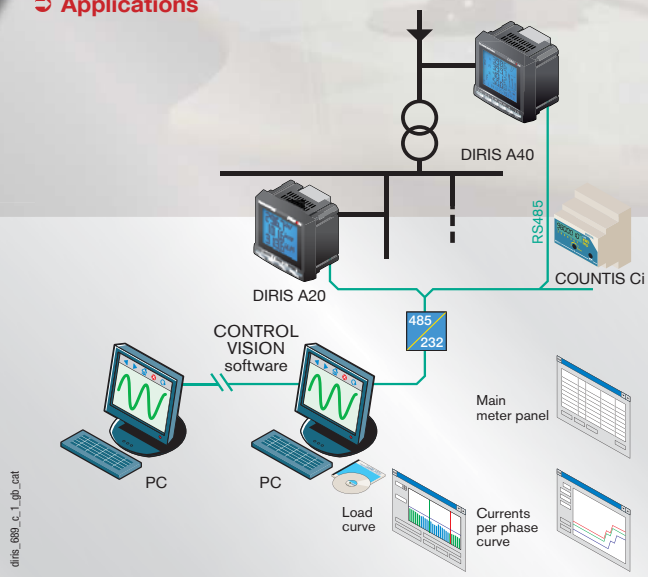
The accessories listed in these pages represent a selection from our range.
We can supply many other solutions upon request, such as SHDSL interfaces, fibre optics/RS485, GSM/GPRS and protocol converter interfaces.

Need something integrating into your network?
No problem with **SERVICES & TECHNICAL ASSISTANCE**. This department will fully integrate all your SOCOMEC devices, audit your installation, commission selected equipment and train personnel in charge of their use.
For further information, please contact your SOCOMEC agency.

CONTROL VISION software



➲ Applications



To configure, display and monitor DIRIS / COUNTIS

➲ Function

CONTROL VISION is a metering and monitoring software for DIRIS Am, A10, A20, A40, A41, A60, Ap, M, Mh, C, CC, CM, CMv2, N300/N600 and COUNTIS Ci devices.
It operates in a Windows XP Service Pack 3 or Vista environment.
Minimum PC requirement: 1.0GHz processor with 512MB of RAM, 500MB of available hard drive space and a monitor with a minimum resolution of 1024x768.
Communication with the devices is either directly via the Ethernet network, a serial port or the computer's USB connection.

The **CONTROL VISION** software is designed to communicate with all devices in the installation and create logs based on manual and automatic scanning.
CONTROL VISION will display all the electrical values measured and read the total energy consumption.
The user can also create logs of several electrical values over a selected time period.
All these functions can be performed in relation to a DIRIS (corresponding to one output) or a predefined group of DIRIS (all outputs relating to a workshop, for example).

The user will also be able to import or export the configuration parameters with EXCEL. The ease of integration and modification of the number of products on this RS485 link makes this a long-lasting solution.

General characteristics

The **CONTROL VISION software** allows:
- remote configuration of DIRIS and COUNTIS Ci devices,
- displaying all electrical parameters measured, energies, indices, alarms, harmonics and the configuration of all the devices,
- creating readings, backups and automatic print-outs,
- displaying, of DIRIS CM/CMv2/A40/A60 and COUNTIS Ci inputs:
  - table of min. 10P, corresponding load curve,
- displaying historical data for each DIRIS in tabular or graphical format:
  - immediate measurements,
  - harmonics values,
  - status changing of inputs / outputs.

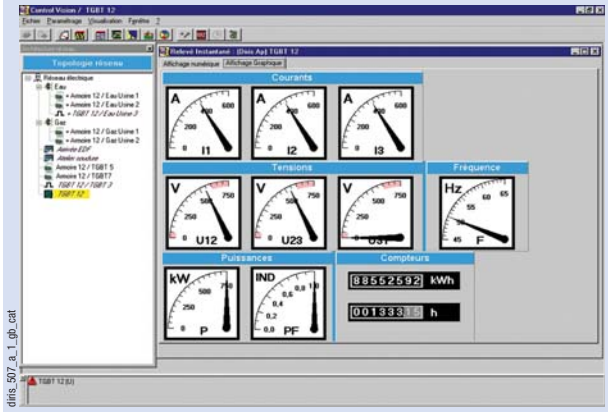
The **CONTROL VISION software** is available in a multilingual version comprising the following languages: english, french, german, italian, spanish.

References

Type	CONTROL VISION software Reference
CONTROL VISION software	4805 **0000**
CONTROL VISION software + INTRANET option (multi user)	4805 **0001**

Functions

Instantaneous measurement display

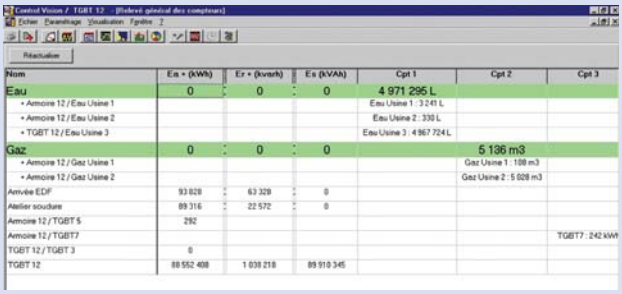


diris_507_a_1_gb_cat

All electrical values displayed either with digital values or analogue indicators, depending on the tab selected:
- currents,
- phase to phase voltage,
- powers,
- frequency,
- active energy and time meter (according to DIRIS) of the selected DIRIS.

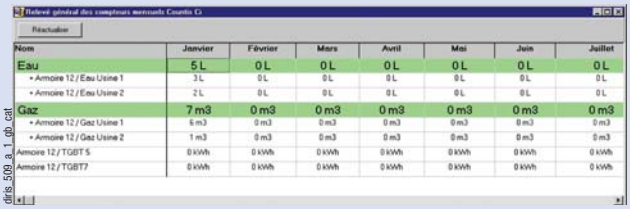
Alarm levels (programmed in the device) are indicated in red.
The parameters to be displayed can be customised.
All screens are refreshed automatically.

General reading of measurements


diris_508_a_1_gb_cat

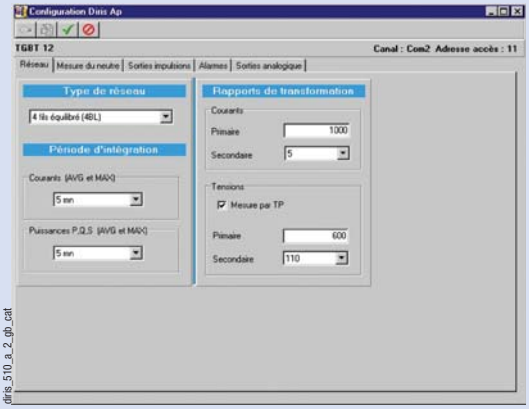
Energy consumption table or metered pulses of all the DIRIS / COUNTIS Ci present on the network. This readout comprises (depending on the type of DIRIS) positive and negative active energy (kWh), positive and negative reactive energy (kVArh), apparent power (kVA) and pulses metered by the devices' on/off inputs. These pulses are configurable (name, weight and unit).
These values can be added (or subtracted) in groups, allowing them to be grouped by type (electricity, water, gas, etc.).
They can be printed and saved (Excel file) automatically (one file per day created at a set time, for example).
This screen may be printed and extracted manually by clicking on the respective pushbuttons.

Monthly general reading of COUNTIS Ci


diris_509_a_1_gb_cat

Monthly meter readings of all COUNTIS Ci present on the network.
COUNTIS Ci memorises monthly consumption (energy or pulse), via each of their 7 inputs, the software retrieves the values and allocates them into the allocated “group”.
This screen may be printed and extracted manually by clicking on the respective pushbuttons.

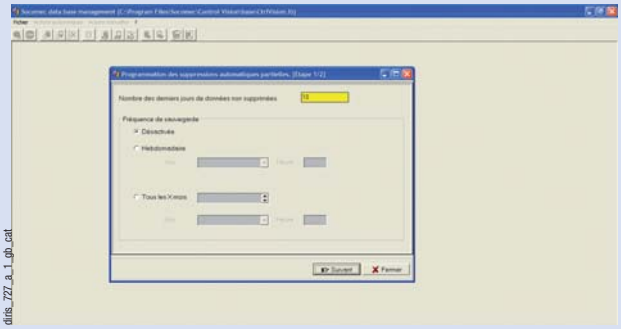
Configuration of the devices



diris_510_a_2_gb_cat

Display window for viewing and configuring the parameters entered in DIRIS/COUNTIS
Each device's settings can be checked in a single window (divided into tabs depending on the options).
Modification of the following parameters are possible from this window using a password (depending on the options):
- type of network,
- CT and VT ratio,
- weight of pulse outputs,
- levels and assignment of the alarms,
- assignment of the 4/20 mA outputs and parameters,
- assignment and weight of the TOR inputs.

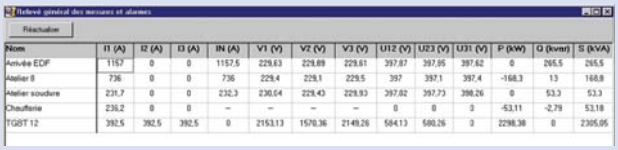
Managing the database (DMT)



diris_727_a_1_gb_cat

The DMT software (supplied with CONTROL VISION) is a database management tool.
It helps ensure by automatic or manual action (complete or partial database backup and partial database deletion), thereby providing a database suitable for the efficient operation of CONTROL VISION.

General reading of the instantaneous measurement

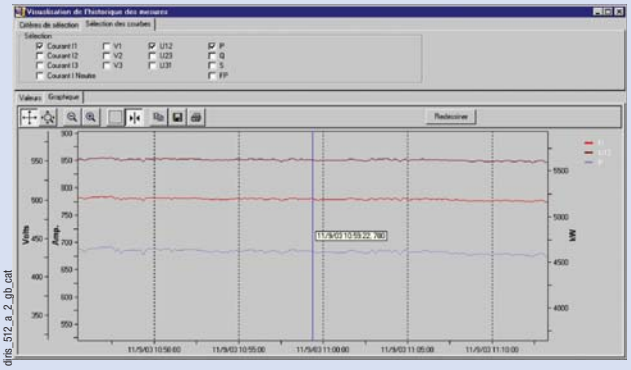


diris_511_a_2_gb_cat

Displayed in numerical format:
- currents,
- voltages,
- powers,
- frequency,
- power factor,
- electrical value in the alarm.

This screen may be printed and extracted manually by clicking on the respective pushbuttons.

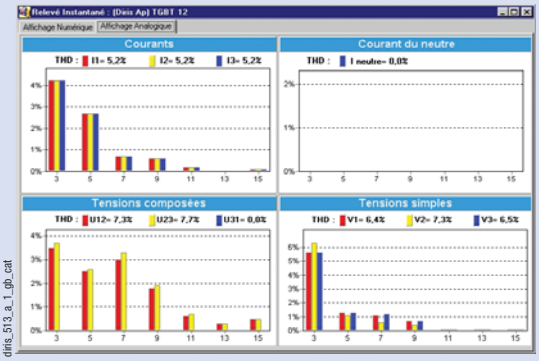
History of device measurements



diris_512_a_2_gb_cat

CONTROL VISION records the electrical parameters of the devices defined under "permanent scanning" into a central database.
The scale of the graphical display can be selected and specific areas enlarged.
The cursor allows obtaining the value / date time of an exact point where it is placed.
All colours may be customized in order to complement the Windows environment.
This screen may be printed and extracted manually by clicking on the respective pushbuttons.

General harmonics readings

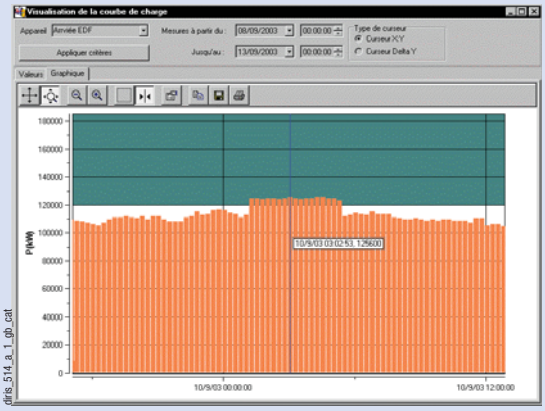


diris_513_a_1_gb_cat

Table or bar graph showing harmonics for the selected device (DIRIS A40/A60) row by row for:
- the 3 currents and neutral (on the basis of the network type)
- the simple and Ph-Ph and Ph-N voltages (on the basis of the network type).

All colours may be customized in order to complement the Windows environment.
All screens are refreshed automatically.

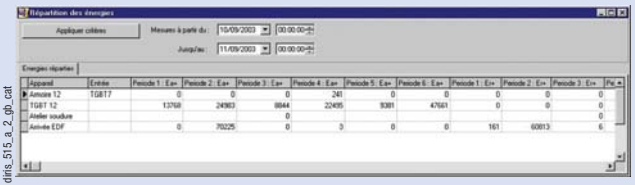
Load curve



diris_514_a_1_gb_cat

The load curve gives a graphic image of the load on the network according to the selected period
DIRIS CM / CMv2 / A60 (A40 fitted with memory module) and COUNTIS Ci (via 4 inputs) records the average values for a period (for example, 10 minutes); CONTROL VISION regularly retrieves and records the results in the database in order to format the load data in a table of all devices within CONTROL VISION.
The concerned devices are those configured in CONTROL VISION.
On the graph, the orange section represents the average value of the power consumed during this period (10 minutes in this case), the green section represents the power zone outside the procured power (which the user has defined per product). This allows the user to quickly see (and zoom in on) the zone where the load has exceeded the value procured from the electricity supplier.
The cursor allows obtaining the value / date time of an exact point where it is placed.
All colours may be customized in order to complement the Windows environment.
This screen may be printed and extracted manually by clicking on the respective pushbuttons.

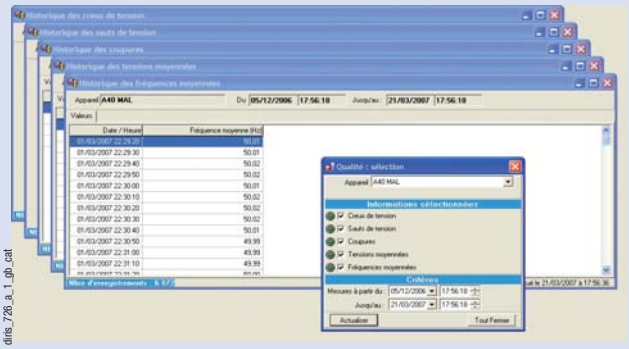
Power distribution



diris_515_a_2_gb_cat

Display of the active and reactive energy consumption by period and by device.
Each period is defined by a name, a time of starting and of ending.
The concerned devices are those configured in CONTROL VISION.
This screen may be printed and extracted manually by clicking on the respective pushbuttons.

Quality



diris_726_a_1_gb_cat

Allows display of events (voltage dips, voltage surges, cut-offs, average voltages, average frequencies) in table form.
It requires a DIRIS A60 or DIRIS A40 with a memory module.

➲ Services and Technical assistance

Our expertise extends to a complete offer of services like commissioning installation audit, training, maintenance and project engineering.



BILLING APPLICATION
software



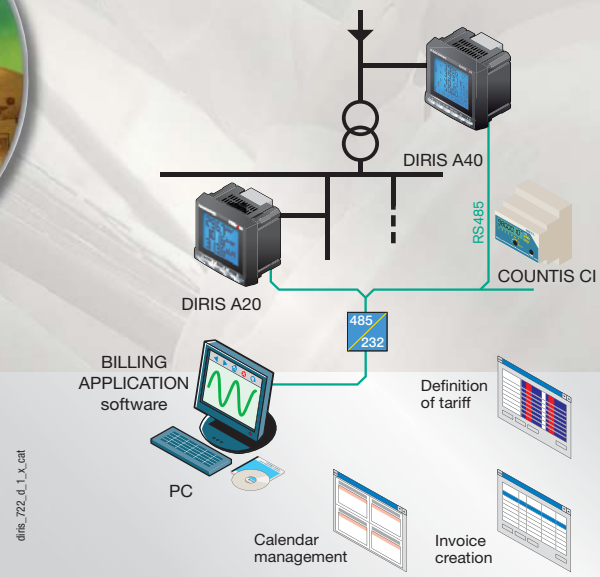
Sub-billing of energy consumption by time slot

➲ Function

BILLING APPLICATION is an energy consumption management software package. Using a defined tariff system, it allows underbilling and simulation of consumption invoices.
CONTROL VISION is required for the software to operate.

The software operates in a Windows XP Service Pack 3 or VISTA environment. Minimum PC requirement: 1.0GHz processor with 512MB of RAM, 500MB of available hard drive space and a monitor with a minimum resolution of 1024x768.

➲ Applications



The **BILLING APPLICATION** software uses information gathered from the COUNTIS Ci, DIRIS CMv2 and DIRIS A40 linked to a memory module, or from a DIRIS A60, to enable internal invoicing or tariff simulation to optimally define the requirements.

BILLING APPLICATION enables the consumption of a production line to be refined in order for the costs to be allocated in relation to the production.
Users can also distribute the energy consumption according to the various departments within a company (e.g. a hospital with a geriatrics department, surgery and restaurant, etc.).

Using load curves, **BILLING APPLICATION** also enables users to define the most appropriate tariff for their application in order to reduce their energy bill.

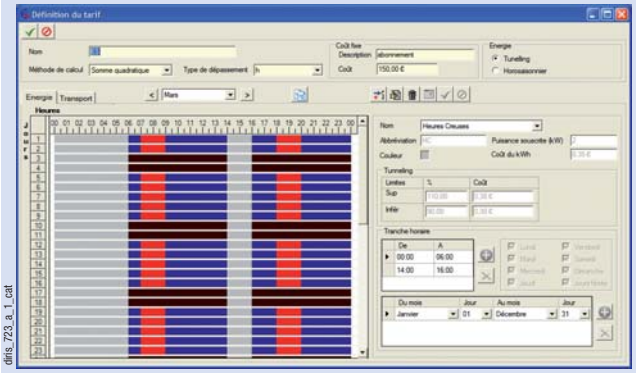
General characteristics

BILLING APPLICATION allows:
- calendar management (bank holidays…),
- price creation (periods, cost, fixed, premium…),
- pricing calculation management,
- device group creation,
- bill edition according to period and consumer,
- load curves visualisation,
- consumption comparison.

The **BILLING APPLICATION software** is available in a multilingual version comprising the following languages:
- french,
- english,
- spanish,
- german,
- italian.

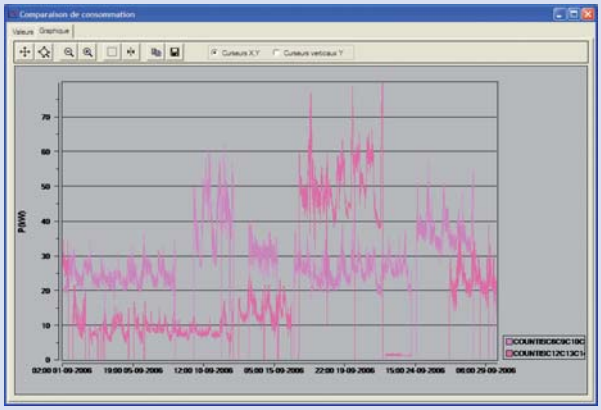
Functions

Definition of tariff


diris_723_a_1_cat

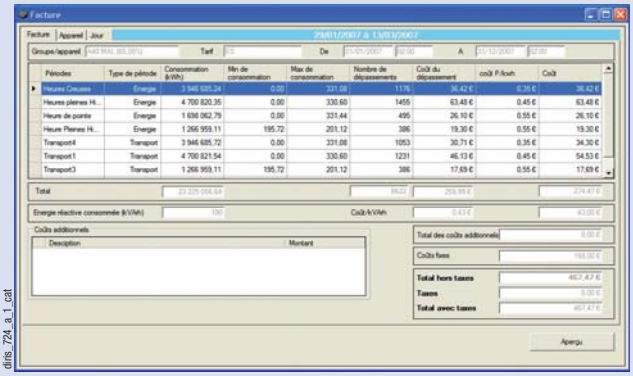
Tariff definition window for power consumption and transmission:
- KWh price definition,
- tariff name,
- calculation method,
- type of overrun,
- additional fixed costs (subscription, service…),
- consumption and transmission periods list,
- seasonal or transport use.

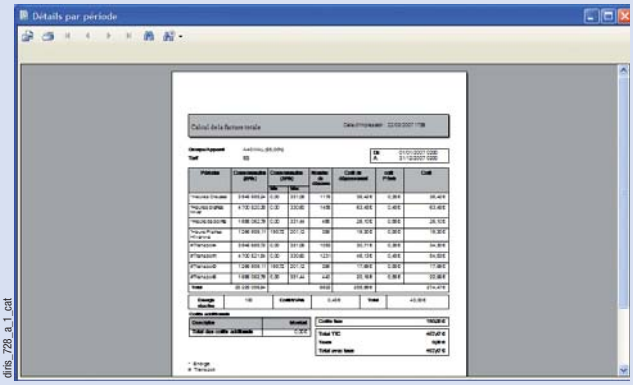
Comparison of 2 load curves


diris_725_a_1_cat

Visualisation of several devices or device groups for defined period.
Table form or curve display.

Invoice creation


diris_724_a_1_cat


diris_728_a_1_cat

Print an invoice or export data into EXCEL for one device or a group of products.
Software enables user to select tariff and billing period.

References

Type	BILLING APPLICATION software Reference
BILLING APPLICATION software	4805 **0002**

Services and technical assistance

Our expertise extends to a complete offer of services like commissioning installation audit, training, maintenance and project engineering.



Electronic protection





Differential protection - voltage surge protection - overcurrent protection

All electrical installations - particularly those which incorporate sensitive receivers must be appropriately protected or monitored against indirect contact, earth leakage currents, short circuits or even temporary voltage surges.

➲ In the section entitled 'Electronic protection', we have grouped together all the devices which protect your installation against these various hazards:

- RESYS differential protection
  See our selection guide "Earth leakage protection" **p. 404**
- SURGYS surge protection devices
  See our selection guide "Protection against voltage surges" **p. 416**

➲ **Warning: sound knowledge of your electrical network is essential to ensure the successful outcome of your protection project.** In fact, the choice of electronic protection products and their place of installation depend on the type of supply source, the length of the conductors and the type and nature of the electrical receivers connected to the network.

With long-term experience in industry and perfect knowledge of installation standards, **SOCOMEC guarantees** much more than the supply of high-performance products. We carry out an audit of your LV installation, define the protection requirements and integrate the products perfectly into your electrical distribution system; we also perform commissioning, offer training in the use of the installation and the standards governing it and provide turnkey supervision solutions. **Contact us now to see how we can help with your project!**

The essential

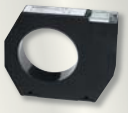
Earth leakage



RESYS M40
p. 406



RESYS P40
p. 408



Core balance transformers
p. 410

SURGYS surge protection devices



SURGYS G40-FE
p. 420



SURGYS D40
p. 424



Services & Technical Assistance: Take advantage of our expertise!

We will help you design your protection solution, guaranteeing perfect integration of the products in your environment.
For further information, please contact your SOCOMEC agency.

RESYS M20



Earth leakage relays type A "protection of people"

➲ Function

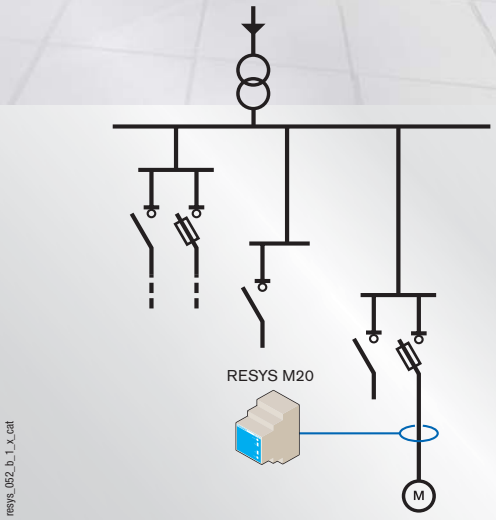
RESYS M20 earth leakage relays are associated with a remote trip breaking device (automatic power breaking), thus providing the following functions:
- protection against indirect contacts,
- limitation of leakage currents.

The relay also monitors electrical installations when used directly as signalling relay.

➲ Conformity to standards

- IEC 60755
- IEC 60947-2
- IEC 62020
- IEC 60364

➲ Applications



Rapid recognition of an insulation fault increases the availability of the distribution network by preventing accidental power cuts and the resulting loss of production.

Examples of conventional applications

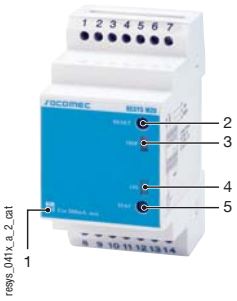
AC LV networks: IT, TT, TNS.

Monitoring pure AC differential currents (type AC) and pulsed (type A) to provide the following functions:
- Protection:
  - against direct contact,
  - against fire risk,
  - earth and protection conductors.
- Preventive signalling.
- Used with SOCOMEC “Core balance transformers” (see page 410).

General characteristics

- M20 with 1 alarm relay.
- Sensitivity: 30 or 300mA depending on the version.
- Time delay: 0 (instantaneous) or 60ms depending on the version.
- Tripping accuracy by TRMS measurement.
- Automatic permanent relay-toroid connection test.

Front panel



1. *Threshold value and time delay indication.*
2. *"RESET" pushbutton*
3. *"TRIP" alarm LED.*
4. *"ON" LED.*
5. *"TEST" pushbutton*

Characteristics

Auxiliary power supply Us	
Frequency	47 … 63 Hz
Operating zone	0,85 … 1,15 U_s
Max. consumption	6 VA

Insulation (according to IEC 60664-1 standard)	
Rated insulation voltage	250 VAC
Rated impulse voltage	2.5 kV (115 VAC) / 4 kV (230 VAC)
Degree of pollution	Class 3

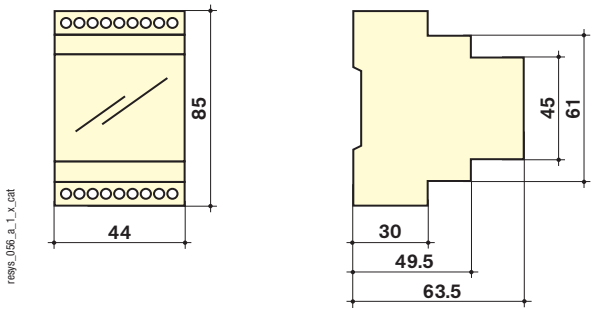
Threshold values	
IΔn setting	30 / 300 mA
Accuracy of tripping	- 20 … - 10 % IΔn
Network frequency range	15 … 400 Hz

Alarm	
Alarm configuration mode	save
Reset	Manual by pushbutton / using terminal

Output contacts	
Number of contacts	1
Type of ALARM contact	250 VAC - 8 A - 2000 VA
ALARM operating mode	negative security

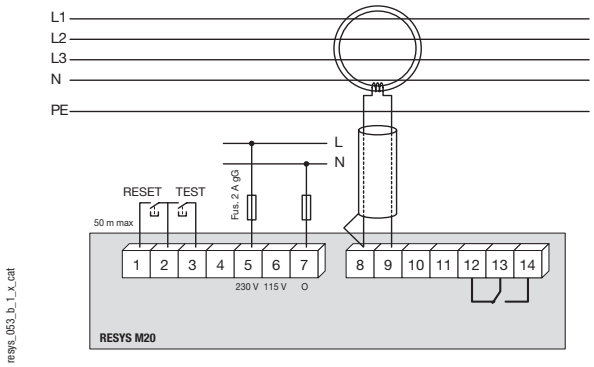
Operating conditions	
Operating temperature	- 20 … + 55 °C
Storage temperature	- 30 … + 70 °C

Case



Type	Modular
Number of modules	2.5
Dimensions W x H x D	44 x 85 x 63.5
Case degree of protection	IP40
Terminal block degree of protection	IP20
Rigid cable connection section	0.2 … 4 mm²
Flexible cable connection section	0.2 … 2.5 mm²
Weight	190 g

Terminals and connections



1 - 2 - 3: external pushbuttons
5 - 6 - 7: auxiliary power supplies U_s
8 - 9: SOCOMEC differential toroid connections
12 - 13 - 14: alarm relay outputs

NOTE The earthing must not pass through the C.T. For single phase applications, only the live and neutral need to be passed through the C.T.
Cabling: for distances > 1 m, use twisted pair cable between the unit and C.T.
Do not connect the shield to earth.

References

			RESYS M20
Auxiliary power supply Us	**IΔn delay**	**Time setting**	**Reference**
115 / 230 VAC	30 mA	0 s	4941 **4723**(1)
115 / 230 VAC	300 mA	0 s	4941 **5723**(1)
115 / 230 VAC	300 mA	60 ms	4941 **6723**(1)

(1) References and characteristics of closed, split core and rectangular toroids: see page 410 "Core balance transformers type A and type B".



Earth leakage relays type A "Motor feeder"

➲ Function

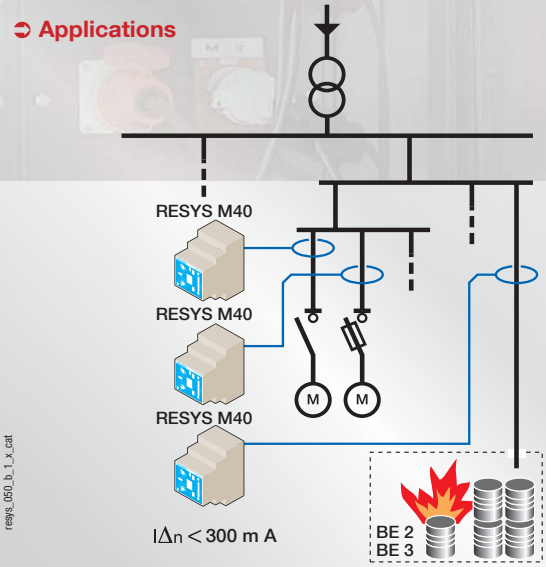
RESYS M40 earth leakage relays are associated with a remote trip breaking device (automatic power breaking), thus providing the following functions:
- protection against indirect contact,
- limitation of leakage currents.

They also preventively monitor electrical installations via their (configurable) pre-alarm function or when used as signalling relays.

➲ Conformity to standards

- IEC 60755
- IEC 60947-2
- IEC 62020
- IEC 60364

➲ Applications



Rapid recognition of an insulation fault increases the availability of the distribution network by preventing accidental power cuts and the resulting loss of production. TRMS measurement avoids repeated random tripping and the bargraph allows the display of permanent leakage current.

Examples of conventional applications

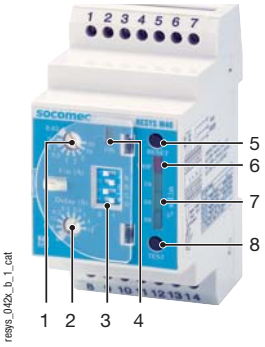
AC LV networks: IT, TT, TNS.

Monitoring pure AC differential currents (type AC) and pulsed (type A) to provide the following functions:
- protection
  - against indirect contact,
  - against fire or explosion risk, (classified sites BE2 and BE3 depending NF C 15-100),
  - of earth and protection conductors.
- preventive signalling,
- monitoring installations where periodic insulation measurement with power off is impossible.

General characteristics

- RESYS M40 with 2 configurable relays:
  - either 2 alarm relays,
  - or 1 alarm relay and 1 pre-alarm relay (50 % IΔn).
- Adjustment sensitivity from 30 mA to 30 A.
- Time delay 0 to 10 s.
- Tripping accuracy by TRMS measurement.
- Automatic instantaneous tripping at 30 mA.
- Positive or negative security configurable by the user.
- Selection of toroid ratio.
- Automatic permanent relay-toroid connection test
- Sealable cover.

Front panel



1. *IΔn setting.*
2. *Time delay setting*
3. *Configuration micro-switches (x4).*
4. *"ON" LED.*
5. *"RESET" pushbutton*
6. *"TRIP" alarm LED.*
7. *LED bargraph (% x IΔn).*
8. *"TEST" pushbutton*

Characteristics

Auxiliary power supply Us	
Frequency	47 … 63 Hz
AC operating zone	0.8 … 1.15 U_s
DC operating zone	0.8 … 1.05 U_s
Max. consumption	6 VA (AC) / 5 W (DC)
Insulation (according to IEC 60664-1 standard)	
Rated insulation voltage	250 VAC
Rated impulse voltage	2.5 kV (115 VAC) / 4 kV (230/400 VAC)
Degree of pollution	Class 3
Threshold values	
IΔn setting	0.03 - 0.1 - 0.3 - 0.5 - 1 - 3 - 5 - 10 - 30 A
Accuracy of tripping	- 20 … - 10 % IΔn
Domain of network frequency	15 … 400 Hz
Time delay setting	0 - 0.06 - 0.15 - 0.30 - 0.50 - 0.80 - 1 - 4 - 10 s
PRE-ALARM relay tripping	50 % IΔn
Hysteresis of the PRE-ALARM relay	20 % IΔn

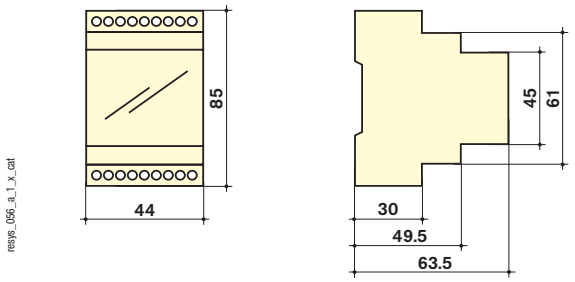
Alarm	
Alarm configuration mode	storage / automatic reset
Alarm factory setting	storage
Reset	Manual by pushbutton / contact on terminals

Output contacts	
Number of contacts	2
Type of ALARM 1 contact	250 VAC - 8 A - 2000 VA
Type of ALARM 2 or PRE-ALARM contact	250 VAC - 6 A - 1500 VA
ALARM 1 operating mode	positive / negative security
ALARM 2 or PRE-ALARM operating mode	positive / negative security(1)
Factory setting of ALARM 1 operating mode	negative security
Factory setting of ALARM 2 operating mode	positive security

(1) According to configuration.

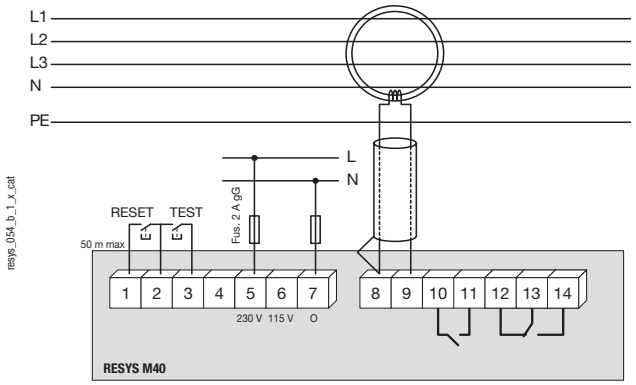
Operating conditions	
Operating temperature	- 20 … + 55 °C
Storage temperature	- 30 … + 70 °C

Case



Type	Modular
Number of modules	2.5
Dimensions W x H x D	44 x 85 x 63.5
Case degree of protection	IP40
Terminal block degree of protection	IP20
Rigid cable connection section	0.2 … 4 mm^2
Flexible cable connection section	0.2 … 2.5 mm^2
Weight	190 g

Terminals and connections



1 - 2 - 3: external pushbuttons
5 - 6 - 7: auxiliary power supplies U_s
8 - 9: SOCOMEC differential toroid connections
10 - 11: alarm relay 2 or pre-alarm outputs
12 - 13 - 14: alarm relay 1 output

NOTE: The earthing must not pass through the C.T.
For single phase applications, only the live and neutral need to be passed through the C.T.

Cabling: for distances > 1 m, use twisted pair cable between the unit and C.T.
Do not connect the shield to earth.

References

Auxiliary power supply U_s(1)	**RESYS M40 Reference**
115 / 230 VAC	4941 **2723**(2)
400 VAC	4941 **2740**(2)
12 … 125 VDC	4941 **2602**(2)

(1) Other rating: please consult us.
(2) References and characteristics of closed, split core and rectangular toroids: see page 410 "Core balance transformers type A and type B".



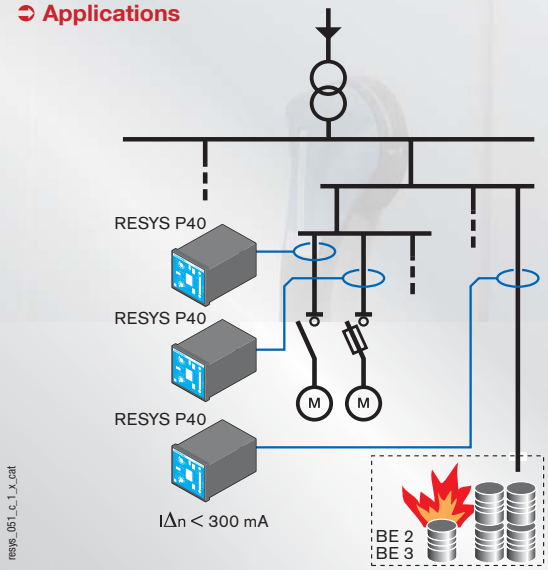
Earth leakage relays type A "Motor output"

➲ Function

RESYS P40 earth leakage relays are associated with a remote trip breaking device (automatic power breaking), thus providing the following functions:
- protection against indirect contact,
- limitation of leakage currents.

They also preventively monitor electrical installations via their (configurable) pre-alarm function or when used as signalling relays.

➲ Applications



TRMS measurement avoids repeated random tripping and the bargraph allows the display of permanent leakage current.
Rapid recognition of an insulation fault increases the availability of the distribution network by preventing accidental power cuts and the resulting loss of production.
RESYS P40 are particularly suitable for insertion in electricity control panels with withdrawable compartments.

Examples of conventional applications
AC LV networks: IT, TT, TNS.
Monitoring pure AC differential currents (type AC) and pulsed (type A) to provide the following functions:
- protection
  - against indirect contact,
  - against fire or explosion risk, (classified sites BE2 and BE3 depending NF C 15100),
  - of earth and protection conductors,
  - motor, equipment and hardware protection;
- preventive signalling,
- monitoring installations where periodic insulation measurement with power off is impossible.

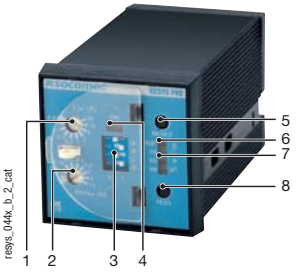
➲ Conformity to standards

- IEC 60755
- IEC 60947-2
- IEC 62020
- IEC 60364

General characteristics

- Compact.
- RESYS P40 relay with 2 configurable relays:
  - either 2 alarm relays,
  - or 1 alarm relay and 1 pre-alarm relay (50 % IΔn).
- Adjustment sensitivity from 30 mA to 30 A.
- Time delay 0 to 10 s.
- Tripping accuracy by TRMS measurement.
- Automatic instantaneous tripping at 30 mA.
- Positive or negative security configurable by the user.
- Selection of toroid ratio.
- Automatic permanent relay-toroid connection test
- Sealable cover.

Front panel



1. *IΔn setting.*
2. *Time delay setting*
3. *Configuration micro-switches (x4).*
4. *"ON" LED.*
5. *"RESET" pushbutton*
6. *"TRIP" alarm LED.*
7. *LED bargraph (% x IΔn).*
8. *"TEST" pushbutton*

Characteristics

Auxiliary power supply Us	
Frequency	47 … 63 Hz
AC operating zone	0.8 … 1.15 U_s
DC operating zone	0.8 … 1.05 U_s
Consumption	6 VA (AC) / 5 W (DC)
Insulation (according to IEC 60664-1 standard)	
Rated insulation voltage	250 VAC
Rated impulse voltage	2.5 kV (115 VAC) / 4 kV (230/400 VAC)
Degree of pollution	Class 3
Threshold values	
IΔn setting	0.03 - 0.1 - 0.3 - 0.5 - 1 - 3 - 5 - 10 - 30 A
Accuracy of tripping	- 20 … - 10 % IΔn
Domain of network frequency	15 … 400 Hz
Time delay setting	0 - 0.06 - 0.15 - 0.30 - 0.50 - 0.80 - 1 4 - 10 s
PRE-ALARM relay tripping	50 % IΔn
Hysteresis of the PRE-ALARM relay	20 % IΔn

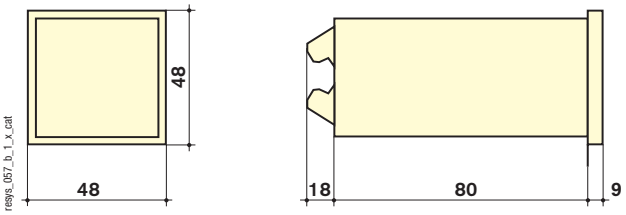
Alarm	
Alarm configuration mode	storage / automatic reset
Alarm factory setting	storage
Reset	manual by pushbutton / using terminal

Output contacts	
Number of contacts	2
Type of ALARM 1 contact	250 VAC - 8 A - 2000 VA
Type of ALARM 2 or PRE-ALARM contact	250 VAC - 6 A - 1500 VA
ALARM 1 operating mode	positive / negative security
ALARM 2 or PRE-ALARM operating mode	positive / negative security(1)
Factory setting of ALARM 1 operating mode	negative security
Factory setting of ALARM 2 operating mode	positive security

(1) According to configuration.

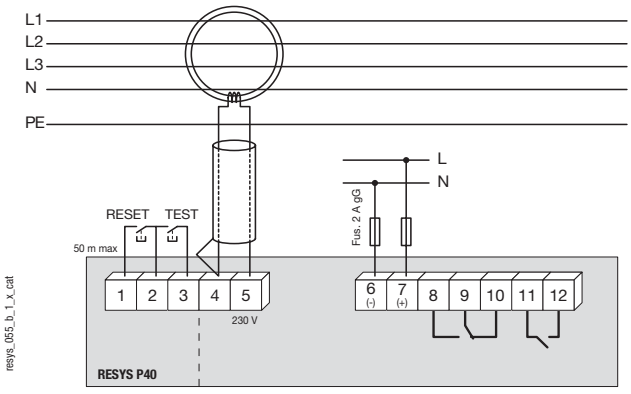
Operating conditions	
Operating temperature	- 20 … + 55 °C
Storage temperature	- 30 … + 70 °C

Case



Type	panel mounting
Dimensions W x H x D	48 x 48 x 107
Case degree of protection	IP40
Terminal block degree of protection	IP20
Rigid cable connection section	0.2 … 4 mm²
Flexible cable connection section	0.2 … 2.5 mm²
Weight	190 g
Cutout	45 x 45 mm

Terminals and connections



1 - 2 - 3: external pushbuttons
4 - 5: SOCOMEC differential toroid connections
6 - 7: Auxiliary power supply U_s
8 - 9 - 10: alarm relay 1 outputs
11 - 12: alarm relay 2 or pre-alarm outputs

NOTE: The earthing must not pass through the C.T.
For single phase applications, only the live and neutral need to be passed through the C.T.
Cabling: For distances > 1 m, use twisted pair cable between the unit and C.T.
Do not connect the shield to earth.

References

	RESYS P40
Auxiliary power supply U_s(1)	**Reference**
115 VAC	4942 **2711**(2)
230 VAC	4942 **2723**(2)
12 … 125 VDC	4942 **2602**(2)

(1) Other rating: please consult us.
(2) References and characteristics of closed, split core and rectangular toroids: see page 410 "Core balance transformers type A and type B".

Description of accessories	**Reference**
Soft protection cover IP65	4942 **0000**

Core balance transformers type A and B



➲ Function

The installation of protection or signalling resources such as earth leakage protection relays involves the use of core balance transformers.
These enclose active conductors, providing the differential summation of vector currents and revealing leakage current.
The DLD core balance transformers proposed by SOCOMEC meet the requirements for measurement sensitivity and are adapted to the RESYS M20/M40/P40 differential relays.
Closed (series W, WR and TFR) or split core (series WS) types, suit all wiring configurations.
A special range is proposed for RESYS B470/B 471 and B 420 relays.

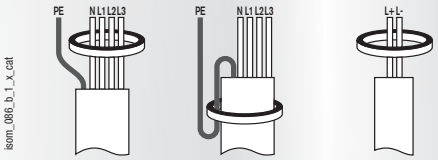
➲ Conformity to standards

- IEC 60044-1

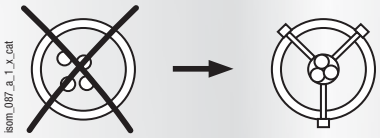
➲ Installation of toroids

All of the active conductors must be passed through the detection toroid's aperture.
The protective conductor must pass on the outside of the toroid or pass once for each direction.

Installation of the detection toroids



Installation limiting distortions during heavy load switching

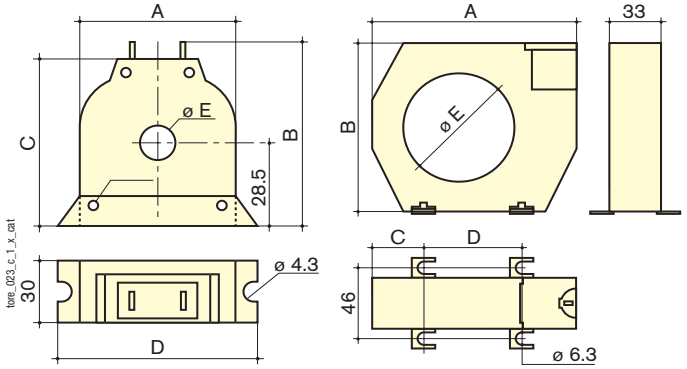


Characteristics

Insulation coordination	according to IEC 664-1
Rated insulation voltage	690 VAC
Dielectric quality	6 kV
Degree of pollution	3
Test voltage according to IEC 255	3 kVAC
Transformation ratio	600 / 1
Resistance of winding	≈ 7 Ω
Rated primary current (W/WR/TFR/WS toroids)	10 A
Rated primary current (Specific toroids for RESYS B470/B471)	3 A
Permanent current withstand	20 A
Associated thermal short-circuit current	14 kA / 1s
Nominal power	50 mVA
Max. accuracy class	5
Operating temperature	-10 … +55°C
Flammability class	UL94V-0

Dimensions

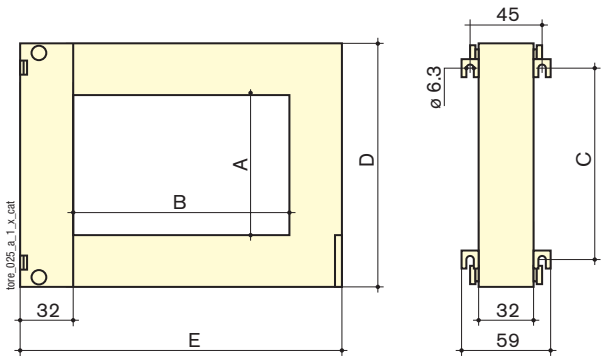
W series - Closed toroids



1. W0
2. W1 to W5

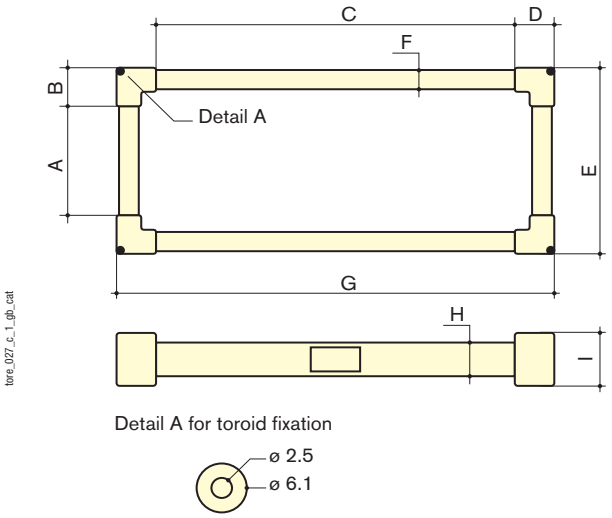
Type	A	B	C	D	E	Weight (kg)
W0-S15	55.5	71	62	75	14.5	0.09
W1-S35	100	79	26	48.5	35	0.25
W2-S70	130	110	32	66	70	0.38
W3-S105	170	146	38	94	105	0.70
W4-S140	220	196	48.5	123	140	1.50
W5-S210	229	284	69	161	210	2.50

Split core toroids WS series



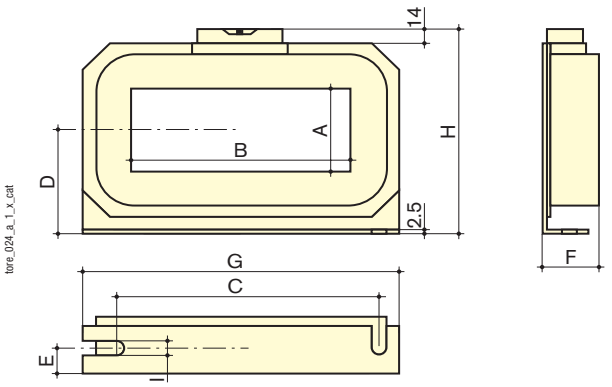
Type	A	B	C	D	E
WS 50 x 80	50	80	78	114	145
WS 80 x 80	80	80	108	144	145
WS 80 x 120	80	120	108	144	185
WS 80 x 160	80	160	108	144	225

Rectangular closed toroids TFR series



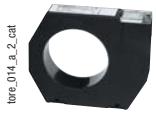
Type	A	B	C	D	E	F	G	H	I	Weight (kg)
TFR 200 x 500	159	48	460	48	239	26	540	40	76	7.2

Rectangular closed toroids WS series



Type	A	B	C	D	E	F	G	H	I
WR 70 x 175	70	175	225	85	22	46	261	176	7.5
WR 115 x 305	115	305	360	116	25	55	402	240	8
WR 150 x 350	150	350	415	140	28	55	460	285	8

References



Closed toroids series W

Type	Toroid diameter (mm)	Reference
W0-S15	15	4793 **2001**(1)
W1-S35	35	4793 **2003**(1)
W2-S70	70	4793 **2007**(1)
W3-S105	105	4793 **2010**(1)
W4-S140	140	4793 **2014**(1)
W5-S210	210	4793 **2020**(1)

(1) Toroids for RESYS M20 / M40 / P40 relays.



Rectangular closed toroids WR and TFR series

Type	Toroid diameter (mm)	Reference
WR 70 x 175	70 x 175	4795 **0717**(1)
WR 115 x 305	115 x 305	4795 **1130**(1)
WR 150 x 350	150 x 350	4795 **1535**(1)
TFR 200 x 500	200 x 500	4795 **2050**(1)

(1) Toroids for RESYS M20 / M40 / P40 relays.



Split core toroids WS series

Type	Toroid diameter (mm)	Reference
WS 50 x 80	50 x 80	4795 **0508**(1)
WS 80 x 80	80 x 80	4795 **0808**(1)
WS 80 x 120	80 x 120	4795 **0812**(1)
WS 80 x 160	80 x 160	4795 **0816**(1)

(1) Toroids for RESYS M20 / M40 / P40 relays.

Protection against overvoltages



SOCOMEC's SURGYS surge protection devices ensures the protection of electrical recievers againts transient overvoltages from various sources:

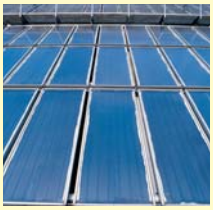
- indirect effects of a lightning strike,
- Switching operations on an industrial network,
- disruptive loads (switched-mode power supplies, inductive loads, etc.).

The SURGYS range covers both strong and weak currents.



Selection guide

➲ PV surge protection devices
Photovoltaic installation



Photovoltaic supply networks



SURGYS G50-PV
p. 416

➲ Surge protection devices - Type 1
Installations with lightning rods



Industrial buildings,
sites classed as at risk

Head of installation



SURGYS G140-F
p. 418



Head of installation
equipped with sensitive equipment



SURGYS G40-FE
p. 420

➲ Surge protection devices - Type 2
Installation with frequent lightning strikes or industrial networks subject to operational voltage surges



Head of installation



SURGYS G70
p. 422

Coordination inductance



Distribution panel



SURGYS D40
p. 424



SURGYS L1
p. 430

➲ Surge protection devices - Type 3
Sensitive electrical receivers or loads



Distribution panel
or sub-distribution panel/load



SURGYS E10
p. 426

➲ Strategic installations subject to lightning strikes



IT centres, telephone exchanges, industrial control networks, public buildings,

Surge protectors for extra low voltage

For serial, 4-20 mA and RTC telephone networks



SURGYS RS-2, mA-2, TEL-2 p. 428

For telecommunication networks



SURGYS COAX
p. 428

SURGYS® G50-PV

NEW



Surge arrester PV - Type 2 "photovoltaic panels"

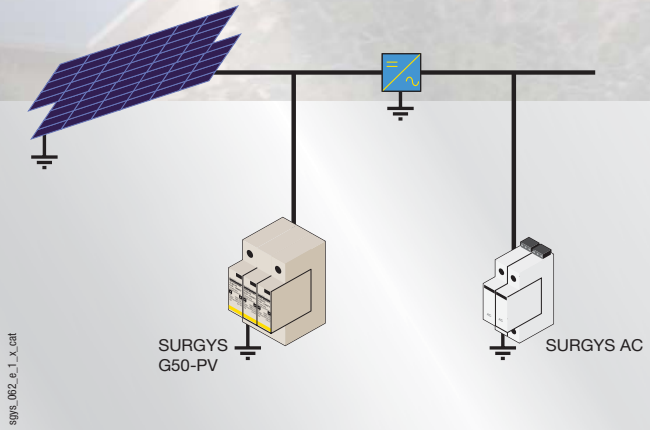
➲ Function

SURGYS® G50-PV Surge Protective Device is designed to ensure protection of photovoltaic supply networks against transient overvoltages.

➲ General characteristics

- Type 2 Surge Protective Device.
- Available with protection from 500 V d.c. to 1000 V d.c.
- Monobloc design.
- Common mode / differential mode protection.
- Remote signalling contact (depending on reference).
- End of service life indicator.
- Plug-in protection module.

➲ Applications

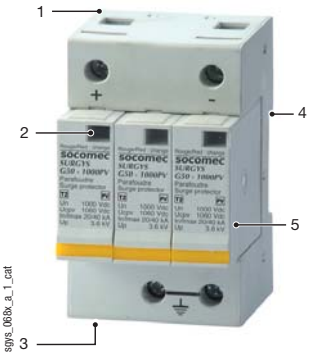


Main incoming protection in a photovoltaic network:
- SURGYS G50-PV is installed in the d.c. side, in the combiner box, close to the solar cell strings, for protecting the downstream d.c. equipment from the effects of lightning…
- SURGYS a.c. is installed in the a.c. side close to the inverter for protecting the downstream a.c. equipment from the effects of lightning.

➲ Conformity to standards

- EN 61643-11 class 2 tests
- IEC 61643-1 class 2
- IEC 60364-7-712

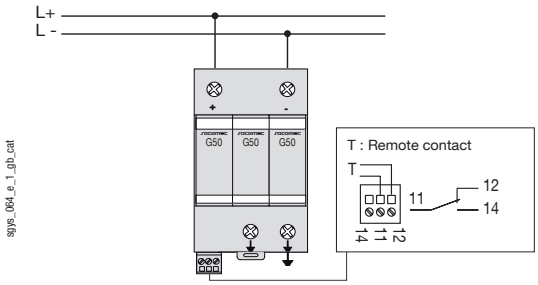
Front panel



1. Monobloc base.
2. End of service life indicator.
3. Remote signalling contact.
4. DIN rail mounting.
5. Plug-in module.

Connections

Common mode / differential mode protection



Characteristics

Mains

Network type	500 V d.c. / 600 V d.c. / 800 V d.c. / 1000 V d.c.
Nominal voltage U_n	500 V d.c. / 600 V d.c. / 800 V d.c. / 1000 V d.c.
Nominal voltage U_{cpv}	530 V d.c. (500V version) / 680 V d.c. (600 V version) / 840 V d.c. (800 V version) / 1060 V d.c. (1000 V version)

Protection characteristics

Level of protection U_p	1,8 kV (500 V) / 2,5 kV (600 V) / 3 kV (800 V) / 3.6 kV (1000 V)
Maximum discharge current (1 shock 8/20 µs) I_{max}	40 kA
Nominal discharge current (15 shocks 8/20 µs) I_n	20 kA
Mode of protection	common and differential

Associated characteristics

Residual current I_c	< 0,1 mA
Response time t_r	< 25 ns
Follow current I_f	none
Rated conditional short-circuit current I_{cc}	25 kA
Type of disconnection indicator	mechanical
Number of disconnection indicators	1

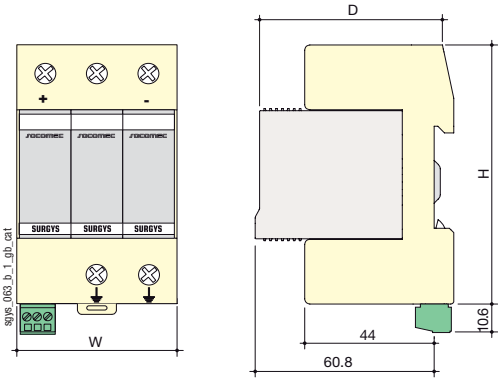
Remote signalling contact

Contact type	inverter
a.c. making capacity	0,5 A
d.c. making capacity	2 A
a.c. nominal voltage	250 V a.c.
d.c. nominal voltage	30 V d.c.
Sustained current	2 A
Connection type	Terminal block
Max. section of terminal connections	1.5 mm²

Operating conditions

Operating temperature	-40 … +85 °C
Storage temperature	-40 … +85 °C

Case



Type	Modular monobloc design
Dimensions W x H x D in 2 poles	36 x 90 x 67 mm
Dimensions W x H x D in 3 poles	54 x 90 x 67 mm
Case degree of protection	IP20
Terminal block protection degree	IP20
Case material	UL94-V0 thermoplastic
Network connection section	4 ... 25 mm²
Earth connection section	4 ... 25 mm²

References

					SURGYS® G50-PV
Network d.c. voltage	**Description**	**No. of pole**	**Mode of protection**	**Number of side by side modules**	**References**
500	without remote signal	2	MC(1)	2	4982 **1500**
500	with remote signal	2	MC(1)	2	4982 **1501**
600	without remote signal	2	MC(1)	2	4982 **1530**
600	with remote signal	2	MC(1)	2	4982 **1531**
800	without remote signal	2	MC(1) / MD(2)	3	4982 **1510**
800	with remote signal	2	MC(1) / MD(2)	3	4982 **1511**
1000	without remote signal	2	MC(1) / MD(2)	3	4982 **1520**
1000	with remote signal	2	MC(1) / MD(2)	3	4982 **1521**

Accessories	**Mode of protection**	**References**
Spare plug-in module m-G50-500PV	MC(1)	4982 **0509**
Spare plug-in module m-G50-600PV	MC(1)	4982 **0539**
Spare plug-in module m-G50-800PV	MC(1) / MD(2)	4982 **0519**
Spare plug-in module m-G50-1000PV	MC(1) / MD(2)	4982 **0529**

(1) Common mode.
(2) Differential mode.

SURGYS® G140-F



Surge arresters - Type 1 "presence of lightning rod and classified installations"

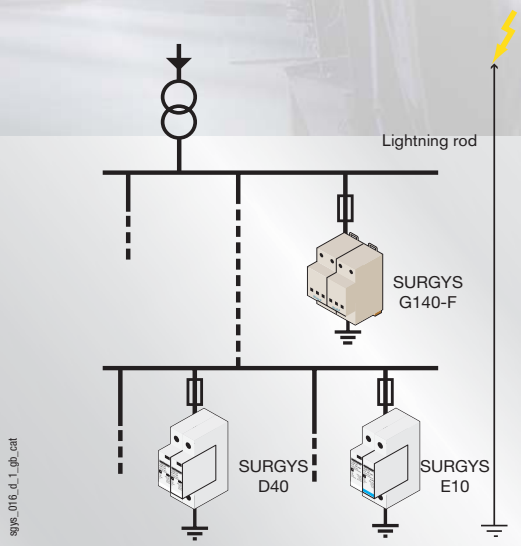
➲ Function

The **SURGYS® G140-F** surge arrester is designed to ensure the protection of your low voltage distribution installations and your electrical equipment. It acts against industrial operation overvoltages and overvoltages owing to lightning.
This type of Surge Protective Device is particularly recommended in case of risk of direct impact of high energy level lightning strikes.
NEW: impulse current (limp) of 25 kA per pole.

➲ Conformity to standards

- EN 61643-11 class 1 tests
- IEC 61643-1 class 1 and 2
- UL1449 ed. 2

➲ Applications



- Upstream location of the distribution surge arresters.
- Main switchboard + building protected against lightning either:
  - through lightning conductors,
  - through mesh cages.
- Main switchboard in buildings subjected to high level risk of lightning strikes such as classified installations, installations located in areas prone to high density of lightning strikes, high-rise buildings, presence of antenna towers, chimneys.
- Sites located at high altitudes.
- Distribution board of a building with presence of Lightning Protection Systems.

General characteristics

- Type 1 surge arrestor.
- Designed to resist discharge linked to direct lightning strike.
- Max. discharge current 140 kA.
- Protection in common mode.
- Thermal disconnection device.
- End of service life indicator.
- Remote signalling contact.
- Absence of follow current.
- Possibility of parallel or series arrangement.
- Fuse combination switch recommended: FUSERBLOC (see page 142).

Front panel



1. End of life indicator.
2. Earthing comb connection.
3. Remote signallling contact.
4. DIN rail mounting.

Characteristics

Network

Network type	230 / 400 VAC
Neutral systems	TT-TN-IT
Nominal voltage U_n	400 VAC
Maximum voltage U_c	400 VAC
Temporary surge in power line frequency U_T	400 VAC

Protection characteristics

Level of protection U_p	2.5 kV
Maximum discharge current (1 shock 8/20 µs) I_{max}	140 kA
Nominal discharge current (15 shocks 8/20 µs) I_n	50 kA
Residual voltage at I_{imp}	1.5 kV
Shock current (1 shock 10/350 µs) I_{imp}	25 kA
Mode of protection	common

Associated characteristics

Residual current I_c	< 2 mA
Response time t_r	< 25 ns
Follow current I_f	None
Rated conditional short-circuit current I_{cc}	25 kA
Recommended disconnectors	125 A fuses gG(1)
Type of disconnection indicator	mechanical
Number of disconnector indicators	3

Remote signalling contact

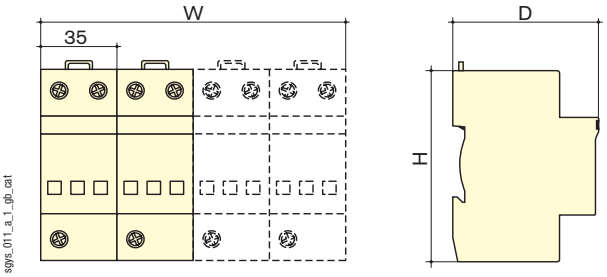
Number of contacts per pole	1
Contact type	terminal connections
a.c. making capacity	3 A
d.c. making capacity	2 A
a.c. nominal voltage	125 VAC
d.c. nominal voltage	30 VDC
Sustained current	2 A
Connection type	screw block
Max. section of terminal connections	1.5 mm²

Operating conditions

Operating temperature	-40 … +85 °C
Storage temperature	-40 … +85 °C

(1) Value in accordance with article 534.1.5.3 of NF C 15100: higher ranges can however be used in case reinforced service continuity of the surge arrestor line is desired.

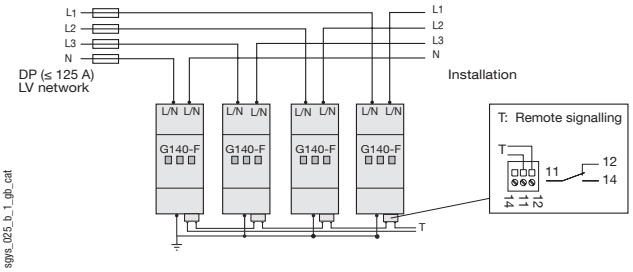
Case



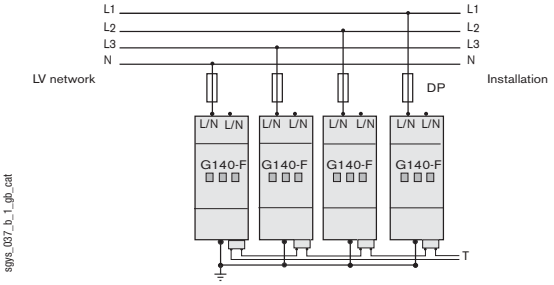
Type	Modular
Dimensions W x H x D in 2 poles	70 x 90 x 67 mm
Dimensions W x H x D in 3 poles	105 x 90 x 67 mm
Dimensions W x H x D in 4 poles	140 x 90 x 67 mm
Case degree of protection	IP20
Terminal block degree of protection	IP20
Case material	polycarbonate UL94-5VA
Network connection section	10 … 50 mm²
Earth connection section	10 … 50 mm²

Connection

Series arrangement



Parallel arrangement



References

No. of poles	Number of side by side modules	SURGYS® G140-F Reference
2	2	4981 **1521**
3	3	4981 **1531**
4	4	4981 **1541**

SURGYS® G40-FE



sgys_052_b_1_cat

appli_288_a

Surge arresters - Type 1 and 2 "presence of lightning conductors and classified installations with sensitive receivers"

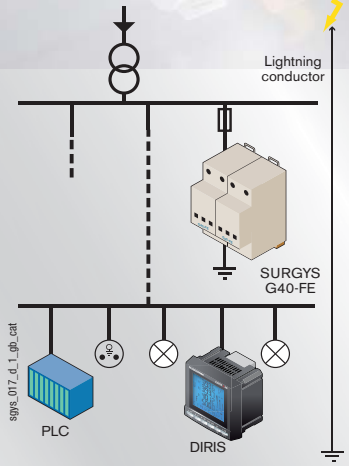
➲ Function

The **SURGYS® G40-FE** surge arrester is designed to ensure the protection of your low voltage distribution installations and your electrical equipment. It acts against industrial operation overvoltages and overvoltages owing to lightning.
This type of Surge Protective Device is particularly recommended in case of risk of direct impact of lightning strikes, at the main switchboard level containing electronic devices sensitive to overvoltages.

➲ Conformity to standards

- EN 61643-11 class 1 and 2 tests
- IEC 61643-1 class 1 and 2
- UL1449 ed. 2

➲ Applications



- Main switchboard or main distribution panel of a building, equipped with electronic devices (multi-function measurement devices, PLC, etc.) with presence of lightning conductors or protection through meshed cages.
- Main switchboard equipped with electronics in buildings subjected to high level risk of lightning strikes such as classified installations, installations located in areas prone to high density of lightning strikes, high-rise buildings.
- Main switchboard equipped with PLC, BMS or CTM, remote monitoring, technical alarms, modems...
- High-rise buildings safety main switchboard.
- Lift machinery unit located in the higher part of the building.
- Safety inverter units.
- Main switchboard of remote sites containing electronics.

➲ General characteristics

- Type 1 and 2 Surge Protective Device.
- Designed to resist discharge linked to direct lightning strike.
- Up protection level optimized at 1.5 kV.
- Protection in common mode.
- End of service life indicator.
- Remote signalling contact.
- Absence of follow current.
- Fuse combination switch recommended: FUSERBLOC (see page 142).

Front panel



1. *End of life indicator.*
2. *Earthing comb connection.*
3. *Remote signalling contact.*
4. *DIN rail mounting.*

Characteristics

Network

Network type	230 / 400 VAC
Neutral systems	TT-TN
Nominal voltage U_n	400 VAC
Maximum voltage U_c	255 VAC
Temporary surge in power line frequency U_T	400 VAC

Protection characteristics

Level of protection U_p (EN 61643-11)	1,5 kV
Maximum discharge current (1 shock 8/20 µs) I_{max}	40 kA
Nominal discharge current (15 shocks 8/20 µs) I_n	20 kA
Residual voltage at I_{imp}	800 V
Shock current (1 shock 10/350 µs) I_{imp}	15 kA
Mode of protection	common

Associated characteristics

Residual current I_c	< 10 µA
Response time t_r	< 100 ns
Follow current I_f	None
Rated conditional short-circuit current I_{cc}	25 kA
Recommended disconnectors	125 A fuses gG(1)
Type of disconnection indicator	mechanical
Number of disconnector indicators	1

Remote signalling device

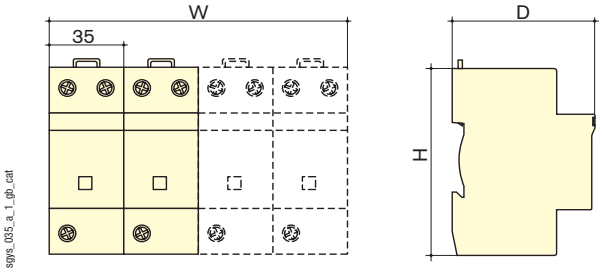
Number of contacts per pole	1
Contact type	inverter
Alternating making capacity	3 A
Direct making capacity	2 A
Alternating nominal voltage	125 VAC
Direct nominal voltage	30 VDC
Continuous current	2 A
Connection type	screw block
Max. section of terminal connections	1.5 mm²

Operating conditions

Operating temperature	-40 … +85 °C
Storage temperature	-40 … +85 °C

(1) Value in accordance with article 534.1.5.3 of NF C 15100: higher ranges can however be used in case reinforced service continuity of the surge arrestor branch is desired.

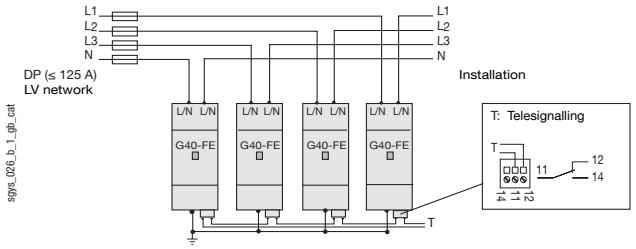
Case



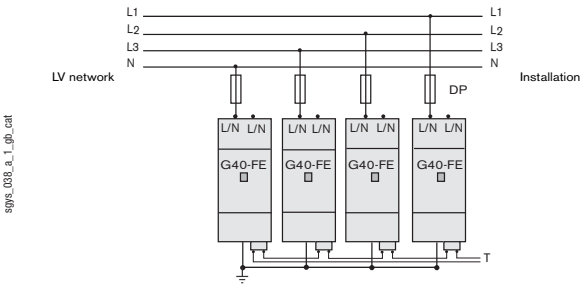
Type	Modular
Dimensions W x H x D in 2 poles	70 x 90 x 67 mm
Dimensions W x H x D in 3 poles	105 x 90 x 67 mm
Dimensions W x H x D in 4 poles	140 x 90 x 67 mm
Case degree of protection	IP20
Terminal block degree of protection	IP20
Case material	polycarbonate UL94-5VA
Network connection section	10 … 50 mm²
Earth connection section	10 … 50 mm²

Connections

Series arrangement



Parallel arrangement



References

No. of poles	Number of side by side modules	SURGYS® G40-FE Reference
2	2	4981 **0420**
3	3	4981 **0430**
4	4	4981 **0440**

SURGYS® G70

NEW



Surge arrester - Type 2 "sites frequently struck by lightning"

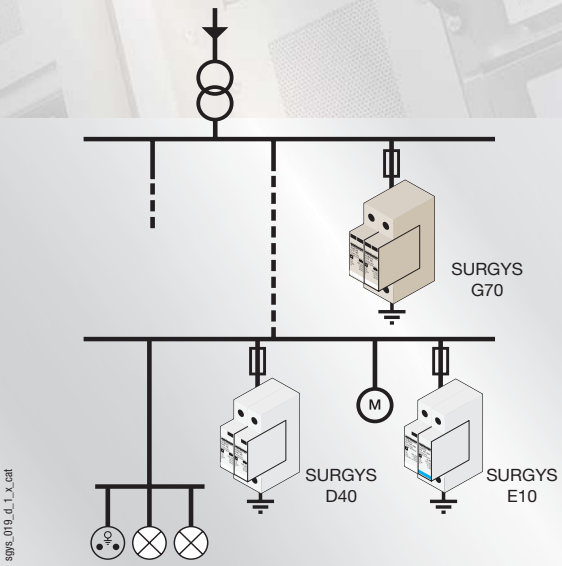
➲ Function

The **SURGYS® G70** surge arrester is designed to ensure reinforced protection of single-phase and three-phase networks. It acts against industrial operation overvoltages and overvoltages owing to lightning.
This type of Surge Protective Device is particularly recommended in case of heightened risk of nearby lightning strikes.

➲ General characteristics

- Type 2 Surge Protective Device.
- Max. discharge current 70 kA.
- Protection in common mode.
- Monobloc body.
- Plug-in modules for each active conductor (PH or N).
- Possibility of live replacement under voltage.
- Redundant functioning of protection.
- Plug-in remote signalling contact.
- End of service life indicator.
- Fuse combination switch recommended: FUSERBLOC (see page 142).

➲ Applications

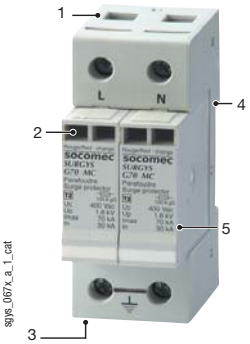


- Safety main switchboard.
- Main switchboard of high power inverters.
- Distribution boards of remote sites.
- Protection of electrotechnical equipment such as motors, switching devices, control devices…

➲ Conformity to standards

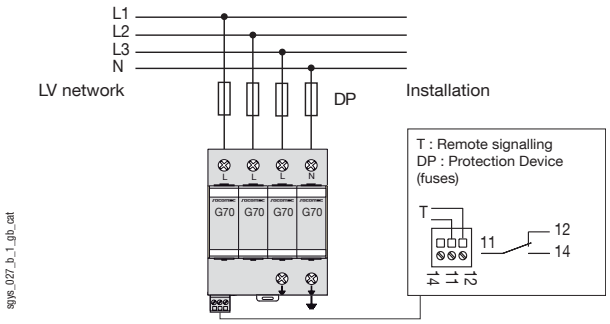
- EN 61643-11 class 2 tests
- IEC 61643-1 class 2

Front panel



1. *Monobloc base.*
2. *End of service life indicator.*
3. *Remote signallling contact.*
4. *DIN rail mounting.*
5. *Plug-in module.*

Connections



Characteristics

Network

Network type	230 / 400 VAC
Neutral systems	TT-TN-IT
Nominal voltage U_n	400 VAC
Maximum voltage U_c	400 VAC
Temporary surge in power line frequency U_T	400 VAC

Protection characteristics

Level of protection U_p	1.8 kV
Maximum discharge current (1 shock 8/20 µs) I_{max}	70 kA
Nominal discharge current (15 shocks 8/20 µs) I_n	30 kA
Mode of protection	common

Associated characteristics

Residual current I_c	< 1 mA
Response time t_r	< 25 ns
Follow current I_f	None
Rated conditional short-circuit current I_{cc}	25 kA
Recommended disconnectors	100 A fuses gG(1)
Type of disconnection indicator	mechanical
Number of disconnector indicators	2

Remote signalling contact

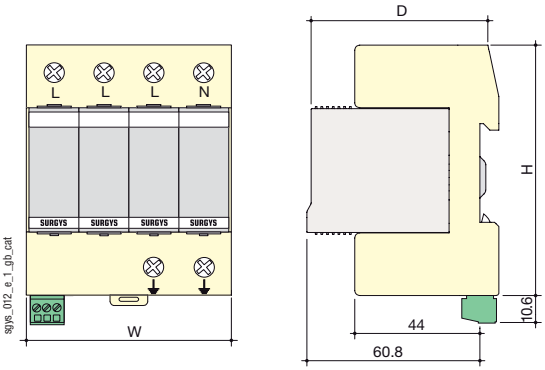
Contact type	inverter
a.c. making capacity	0.5 A
d.c. making capacity	2 A
a.c. nominal voltage	250 VAC
d.c. nominal voltage	30 VDC
Sustained current	2 A
Connection type	through screw block
Max. section of terminal connections	1.5 mm²

Operating conditions

Operating temperature	-40 … +85 °C
Storage temperature	-40 … +85 °C

(1) Value in accordance with article 534.1.5.3 of NF C 15100: higher ranges can however be used in case reinforced service continuity of the surge arrestor branch is desired.

Case



Type	Modular monobloc design
Dimensions W x H x D in 2 poles	36 x 90 x 67 mm
Dimensions W x H x D in 3 poles	54 x 90 x 67 mm
Dimensions W x H x D in 4 poles	72 x 90 x 67 mm
Case degree of protection	IP20
Terminal block degree of protection	IP20
Case material	polycarbonate UL94-V0
Network connection section	4 … 25 mm²
Earth connection section	4 … 25 mm²(1)

(1) Minimum 10 mm² section in presence of lightning rod.

References

		SURGYS® G70
No. of poles	**Number of side by side modules**	**Reference**
2	2	4982 **1720**
3	3	4982 **1730**
4	4	4982 **1740**

Description of accessories	**Reference**
Spare plug-in module m-G70	4982 **0719**

SURGYS® D40

NEW



Surge arrester - Type 2 "distribution boards"

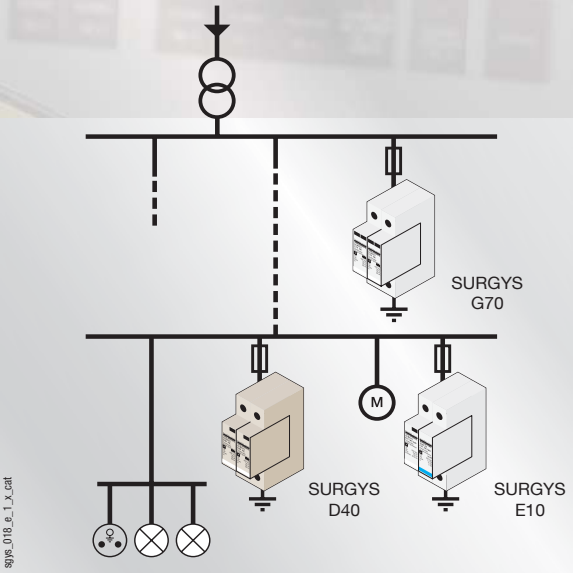
➲ Function

The **SURGYS® D40** surge arrester is designed to ensure protection of LV distribution circuits and equipment against transient overvoltages. It acts against industrial operation overvoltages and overvoltages owing to lightning.

➲ General characteristics

- Type 2 Surge Protective Device.
- Max. discharge current 40 kA.
- Common mode / differential mode protection.
- Monobloc body.
- Plug-in remote signalling contact.
- End of service life indicator.
- Plug-in module.
- Differential mode versions (only TT and TN conditions).
- Fuse holder recommended: RMS (see page 218).

➲ Applications

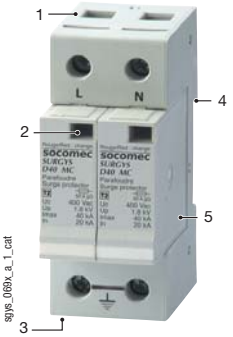


- Power distribution unit (downstream of a main switchboard).
- Autonomous power supply units such as generator sets, medium power UPS.
- Machine equipment unit.

➲ Conformity to standards

- EN 61643-11 class 2 tests
- IEC 61643-1 class 2

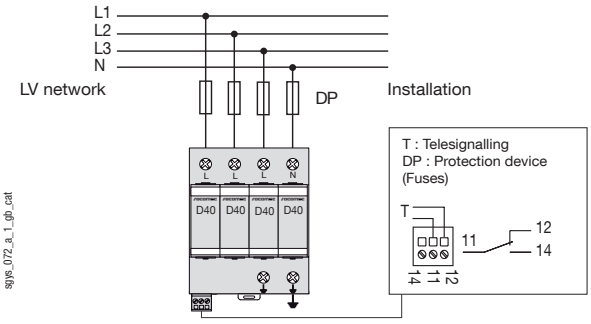
Front panel



1. *Monobloc base.*
2. *End of service life indicator.*
3. *Remote signalling contact.*
4. *DIN rail mounting.*
5. *Plug-in module.*

Connection

Common mode (MC) and differential mode (MC/MD) protection



Characteristics

Network

Network type	230 / 400 VAC
Neutral systems	TT-TN-IT (MC) TT-TN (MC/MD)
Nominal voltage U_n	400 VAC
Maximum voltage U_c	400 VAC (MC) 255 VAC (MC/MD)
Temporary surge in power line frequency U_T	400 VAC

Protection characteristics

Level of protection U_p	1.8 kV (MC) 1.5 kV/1.25 kV (MC/MD)
Maximum discharge current (1 shock 8/20 µs) I_{max}	40 kA
Nominal discharge current (15 shocks 8/20 µs) I_n	20 kA
Mode of protection	common and differential

Associated characteristics

Residual current I_c	< 1 mA
Response time t_r	< 25 ns
Follow current I_f	None
Permissible short-circuit current I_{cc}	25 kA
Recommended disconnectors	50 A fuses gG(1)
Type of disconnection indicator	mechanical
Number of disconnector indicators	1

Remote signalling contact

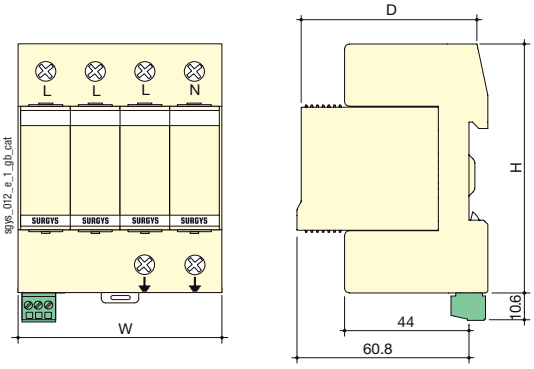
Contact type	inverter
a.c. making capacity	0.5 A
d.c. making capacity	2 A
a.c. nominal voltage	250 VAC
d.c. nominal voltage	30 VDC
Sustained current	2 A
Connection type	screw block
Max. section of terminal connections	1.5 mm²

Operating conditions

Operating temperature	-40 … +85 °C
Storage temperature	-40 … +85 °C

(1) Value in accordance with article 534.1.5.3 of NF C 15100: higher ranges can however be used in case reinforced service continuity of the surge arrestor branch is desired.

Case



Type	Modular monobloc design
Dimensions W x H x D in 2 poles	36 x 90 x 67 mm
Dimensions W x H x D in 3 poles	54 x 90 x 67 mm
Dimensions W x H x D in 4 poles	72 x 90 x 67 mm
Case degree of protection	IP20
Terminal block degree of protection	IP20
Case material	polycarbonate UL94-V0
Earth connection section	4 … 25 mm²
Network connection section	4 … 25 mm²

References

				SURGYS® D40
No. of poles	**Neutral systems**	**Mode of protection**	**Number of side by side modules**	**Reference**
2	TT, TN, IT	MC(1)	2	4982 **1422**
3	TT, TN, IT	MC(1)	3	4982 **1432**
4	TT, TN, IT	MC(1)	4	4982 **1442**
2	TT, TN	MC / MD(2)(1)	2	4982 **1424**
4	TT, TN	MC / MD(2)(1)	4	4982 **1444**

(1) Common mode.
(2) Differential mode.

Description of accessories	**Mode of protection**	**Reference**
Spare plug-in module m-D40	MC(1)	4982 **0419**
Spare plug-in module m-D40	MC / MD(2)(1)	4982 **0418**

(1) Common mode.
(2) Differential mode.

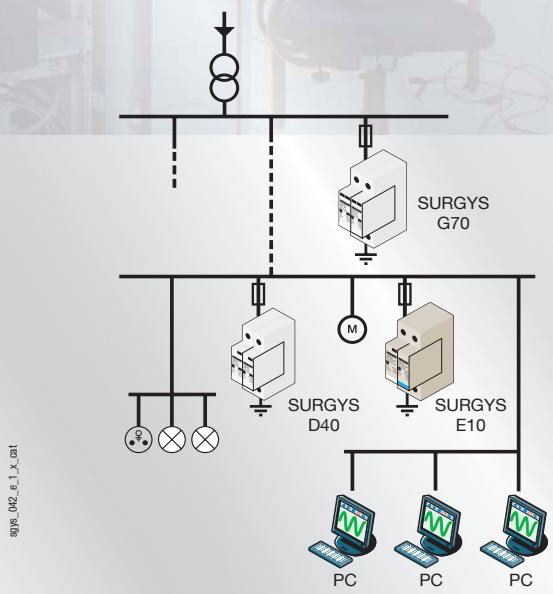


Surge arrester - Type 2 and 3 "terminal receivers and sensitive loads"

➲ Function

The **SURGYS® E10** surge arresters are designed to ensure protection of installations connected to single-phase, three-phase or d.c. networks against industrial operation overvoltages. They act against transient overvoltages owing to lightning.

➲ Applications



- AC or DC power distribution unit (downstream of a main switchboard).
- Protection of electrotechnical equipment such as motors, switching devices, control devices…

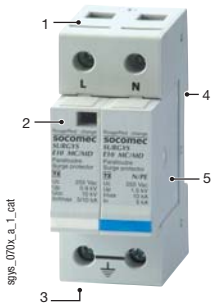
➲ Conformity to standards

- EN 61643-11 class 2 and 3 tests
- IEC 61643-1 class 2 and 3

➲ General characteristics

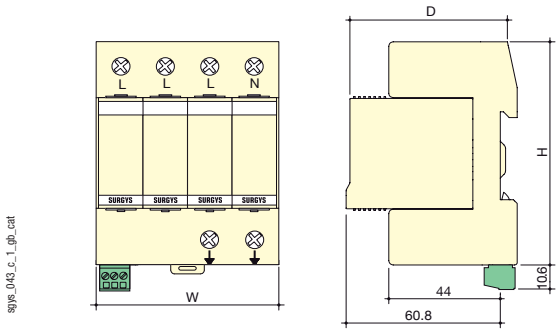
- Type 2 and 3 Surge Protective Device.
- Max. discharge current 10 kA.
- Common mode / differential mode protection.
- Monobloc design.
- Compact DC network version.
- Plug-in remote signalling contact.
- End of service life indicator.
- Plug-in module for each active conductor.
- Possibility of live replacement.
- Fuse holder recommended: RMS (see page 218).

Front panel



1. Monobloc base.
2. End of service life indicator.
3. Remote signallling contact.
4. DIN rail mounting.
5. Plug-in module.

Case



Type	Modular monobloc design
Dimensions W x H x D (DC versions)	17.5 x 90 x 67 mm
Dimensions W x H x D in 2 poles (AC version)	36 x 90 x 67 mm
Dimensions W x H x D in 3 poles (AC version)	54 x 90 x 67 mm
Dimensions W x H x D in 4 poles (AC version)	72 x 90 x 67 mm
Case degree of protection	IP20
Terminal block degree of protection	IP20
Case material	polycarbonate UL 94-V0
Network connection section	1.5 … 10 mm² (E10 2p.) / 1.5 … 16 mm² (E10 4p.)
Earth connection section	4 … 25 mm² (E10 2p.) / 4 … 16 mm² (E10 4p.)

Characteristics

Network

Network type	single-phase, three-phase (E10-AC) / direct (E10-DC)
Nominal voltage U_n	230 / 400 VAC
Maximum voltage U_c	400 VAC (MC) 255 VAC (MC/MD)
Temporary surge in power line frequency U_T	400 VAC

Protection characteristics

Level of protection (MC/MD) U_p(1)	1.3 kV (MC) 1.5 / 0.9 kV (MC/MD)
Maximum discharge current (1 shock 8/20 µs) I_{max}	10 kA
Nominal discharge current (15 shocks 8/20 µs) I_n	5 kA
Voltage U_{oc}	10 kV
Mode of protection	common and differential

Associated characteristics

Residual current I_c	< 1 mA
Response time t_r	< 25 ns
Follow current I_f	None
Permissible short-circuit current I_{cc}	25 kA
Recommended disconnectors	20 A fuses gG(1)
Type of disconnection indicator	mechanical
Number of disconnector indicators	1

Remote signalling contact

Contact type	inverter
a.c. making capacity	0.5 A
d.c. making capacity	2 A
a.c. nominal voltage	250 VAC
d.c. nominal voltage	30 VDC
Sustained current	2 A
Connection type	par bornier vis
Max. section of terminal connections	1.5 mm²

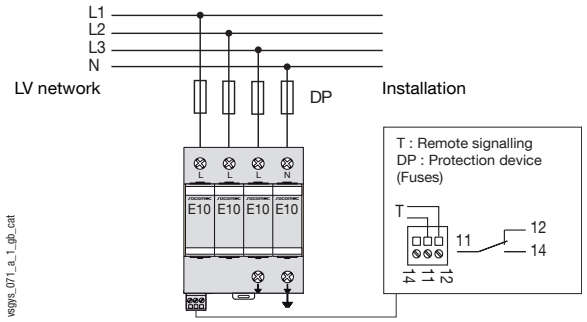
Operating conditions

Operating temperature	-40 … +85 °C
Storage temperature	-40 … +85 °C

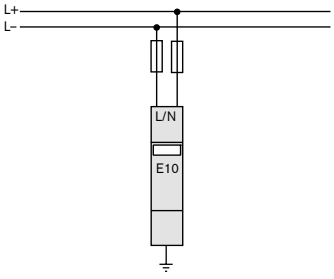
(1) MC / MD: Common mode / Differential mode.
(2) Value in accordance with article 534.1.5.3 of NF C 15100: higher ranges can however be used in case reinforced service continuity of the surge arrestor branch is desired.

Connection

AC version - Common mode (MC) and differential mode (MC/MD) protection



DC version



References

AC applications			SURGYS® E10-AC
No. of poles	**Neutral systems**	**Mode of protection**	**Reference**
2	TT, TN, IT	MC(1)	4983 **1125**
3	TT, TN, IT	MC(1)	4983 **1135**
4	TT, TN, IT	MC(1)	4983 **1145**
2	TT, TN	MC / MD(2)(1)	4983 **1126**
4	TT, TN	MC / MD(2)(1)	4983 **1146**

Spare plug-in module for AC application	SURGYS® E10-AC
Mode of protection	**Reference**
MC / MD(1)(2)	4983 **0198**
MC(1)	4983 **0199**

(1) Common mode.
(2) Differential mode.

DC Applications		SURGYS® E10-DC
No. of poles	**Network voltage**	**Reference**
2	12 VDC	4983 **2601**
2	24 VDC	4983 **2602**
2	48 VDC	4983 **2604**

Spare module for DC application	SURGYS® E10-DC
Network voltage	**Reference**
12 VDC	4983 **9901**
24 VDC	4983 **9902**
48 VDC	4983 **9904**

SURGYS® Low current



Surge arrester - Extra low voltage "communication network"

➲ Function

For protection against transient overvoltages of equipment connected to telecommunication and data transmission networks, the **SURGYS®** range includes 4 surge arrester models:
- **SURGYS® RS-2,**
- **SURGYS® mA-2,**
- **SURGYS® TEL-2,**
- **SURGYS® COAX.**

➲ General characteristics

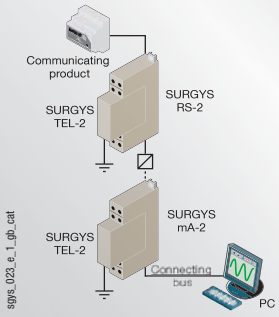
- Max. discharge current 20 kA.
- Common and differential protection mode.
- End-of-life signalling by interruption of transmission.
- Serial connection on the very-low-voltage line.

➲ Conformity to standards

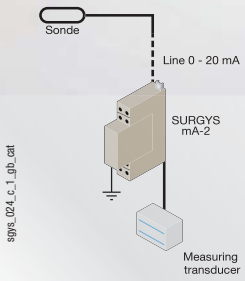
- EN 61643-21

➲ Applications

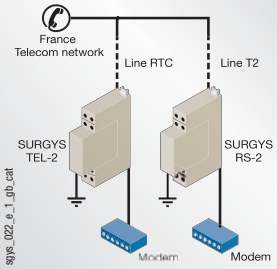
SURGYS® RS-2
- Protection of the RS422/RS485 connections.
- Digital telephone line T2.
- ETHERNET connection (10 baseT).



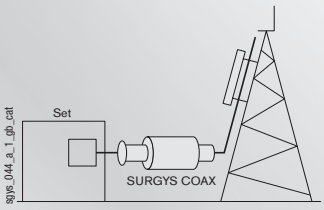
SURGYS® mA-2
- Field bus:
  - Profibus (DP, PA, FMS...),
  - Fieldbus (H1, H2),
  - Wordbus,
  - Fipway,
  - LONworks,
  - Interbus,
  - Batibus,
- Measurement loops, measurement acquisition cards:
  - current loops 0 / 4-20 mA,
  - analog signals 0 to 10 V.
- Regulation, control loops.
- RS232 connections.
- Numeris network (RNIS-T0).
- Specialized telephone connections.



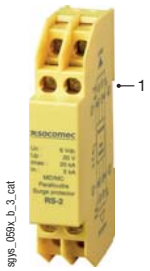
SURGYS® TEL-2
- Analog telephone line:
  - modem,
  - automatic switch,
  - telephone alarm,
  - DSL.



SURGYS® COAX
- Protection of radiocommunication equipment.



Front panel



sgys_059x_b_3_cat

1. Mounting on DIN rail ensuring earthing.

Characteristics

	SURGYS® RS-2	SURGYS® mA-2	SURGYS® TEL-2	SURGYS® COAX
Use	RS422/RS485/Telecom T2	4-20mA, field bus	via land line	telecommunication network
Maximum voltage U_c	6 V	48 V	170 V	6 V
Maximum usage frequency	20 MHz	20 MHz	2 kHz	70 MHz
Level of protection U_p	25 V	75 V	220 V	25 V
Line impedance	50-150 Ω	50-150 Ω	600 Ω	50-75 Ω

Characteristics

Protected configuration	2 wires
Maximum line intensity	200 mA(1)
Maximum discharge current (1 shock 8/20 µs) I_{max}	20 kA
Nominal discharge current (20 shocks 8/20 µs) I_n	5 kA
Type of protection	spark-gaps / clamping diode
End of life	Earthing

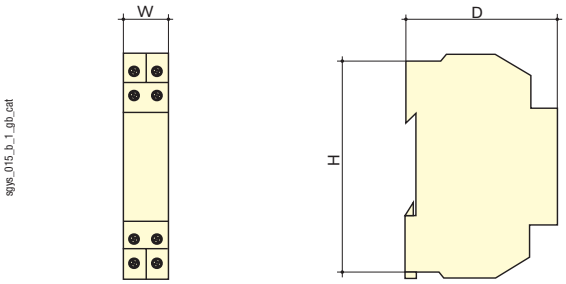
Operating conditions

Operating temperature	-40 … +85 °C
Storage temperature	-40 … +85 °C

(1) Line current of the equipment to be protected greater than 200 mA or other direct current applications: please consult us.

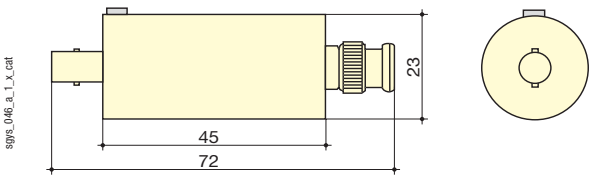
Case

Modular design



sgys_015_b_1_gb_cat

Coaxial design

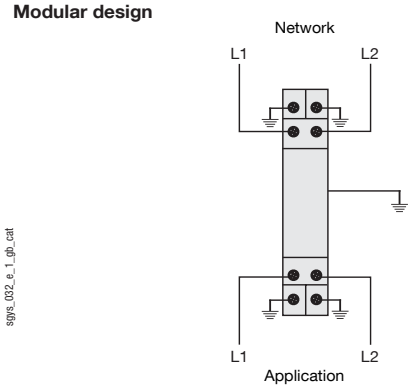


sgys_046_a_1_x_cat

Type	Modular
Dimensions W x H x D	18 x 90 x 58 mm
Case degree of protection	IP20
Terminal block degree of protection	IP20
Case material	polycarbonate UL94-V0
Connection section	0,2 … 4 mm²
Earth connection section	1,5 … 4 mm²

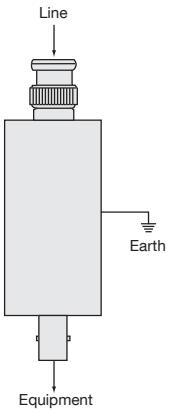
Connections

Modular design



sgys_032_e_1_gb_cat

Coaxial design



sgys_045_d_1_gb_cat

References



sgys_056_b_2_cat



sgys_047_a_2_cat

Type of protection	SURGYS® RS-2 Reference	SURGYS® mA-2 Reference	SURGYS® TEL-2 Reference	SURGYS® COAX Reference
Protection of high speed data and telephone networks	4986 **2020**			
Protection of measurement-control-regulation circuits and field bus		4987 **2420**		
Protection of telephone networks			4985 **2170**	
Protection of radio-communication networks				4984 **0111**

SURGYS® L1



sgys_055_a_1_cat

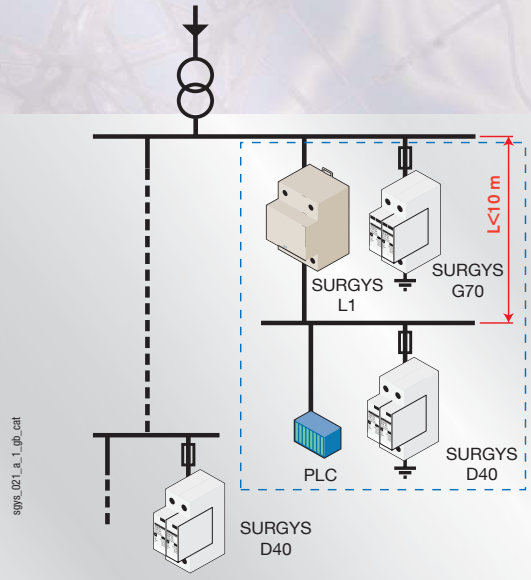
➲ Function

The **SURGYS® L1** inductance coordination unit is designed to ensure the implementation of head and distribution low voltage surge arresters of the SOCOMEC range. This inductance is necessary for carrying out a coordination or "cascading" of surge arresters when the "natural" inductance of the wiring is insufficient (length < 10 m).

➲ General characteristics

- Maximum current of 100 A per conductor.
- Line inductance of 15 µH.

➲ Applications



sgys_021_a_1_gb_cat

Coordination between head surge arresters:
- **SURGYS® G140-F**
- **SURGYS® G40 FE**
- **SURGYS® G70.**

and distribution surge arresters:
- **SURGYS® D40**
- **SURGYS® E10.**

located in immediate proximity.

site_221_a

Characteristics

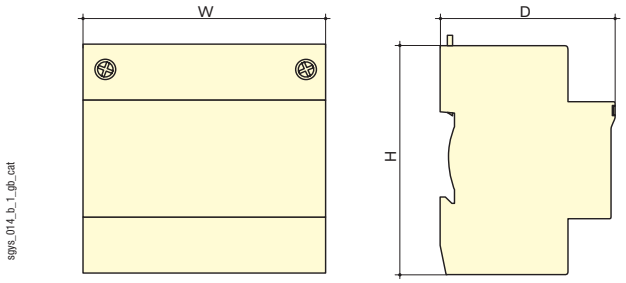
Network

Network type	230/400 VAC
Nominal voltage U_n	400 VAC
Maximum voltage U_c	500 VAC
Maximum line current	100 A
Line inductance L	15 µH

Operating conditions

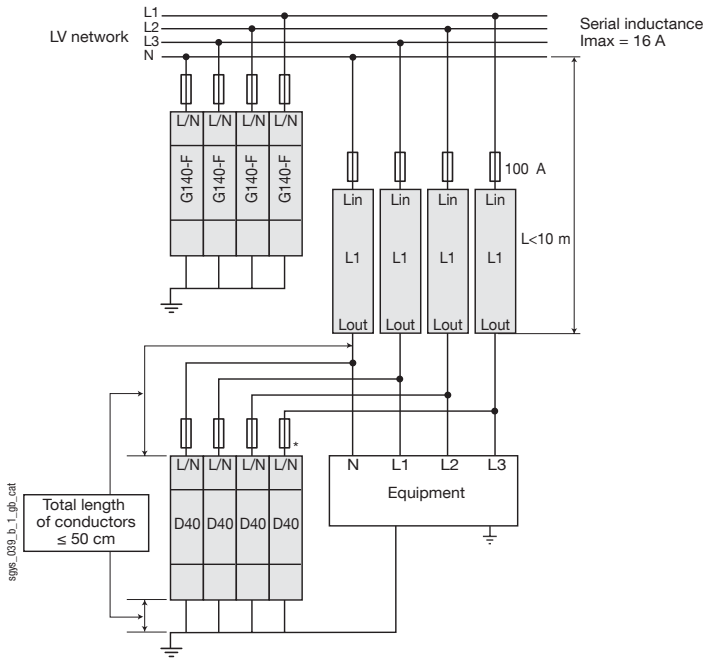
Operating temperature	-40 … +85 °C
Storage temperature	-40 … +85 °C

Case



Type	Modular
Dimensions W x H x D	106 x 90 x 59 mm
Case degree of protection	IP20
Terminal block degree of protection	IP20
Mounting	35 mm symmetric rail
Case material	polycarbonate UL94- 5VA
Network connection section	4 … 50 mm²

Connection



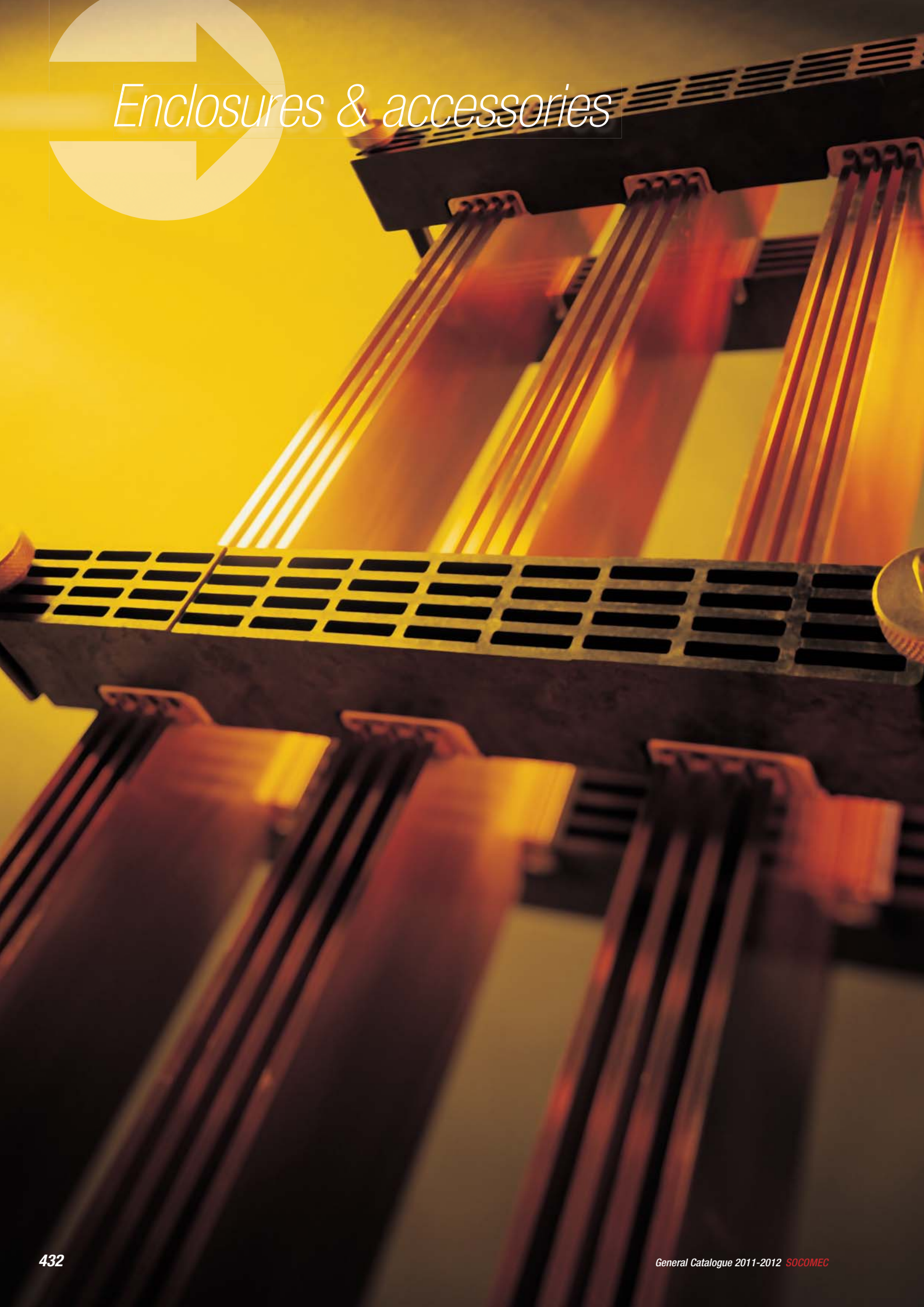
References

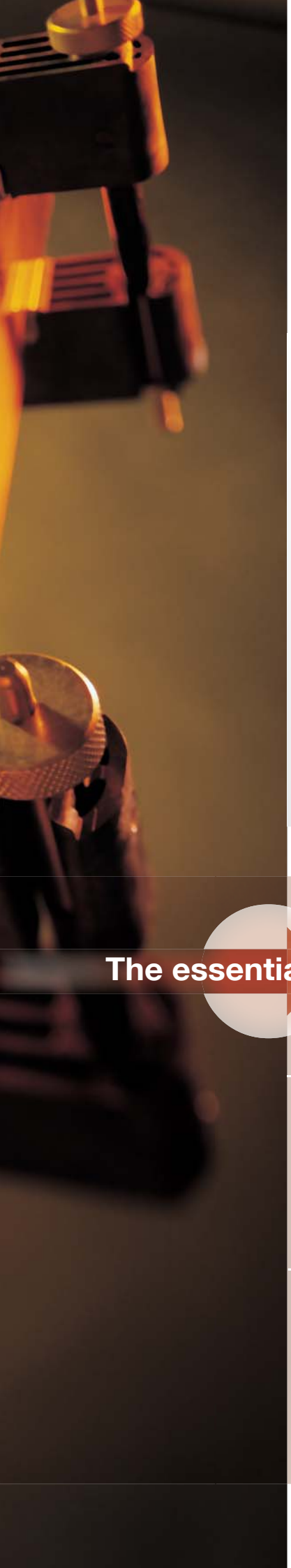


SURGYS® L1

Device	Reference
Coordination inductance L1	4988 **9100**

Enclosures & accessories





All the components to facilitate the use of your electrical equipment

This section brings together the complete SOCOMEC range of components for building units and cabinets designed for electrical distribution. Wishing, as always, to facilitate your work, we have set out these pages so as to fit most closely with your process for designing a cabinet *(see below and the next page).*

➲ SOCOMEC works with your Design Office

- **Sizing a cabinet**
  Please do not hesitate to contact us if you need help with thermal dimensioning of your enclosure based on your specifications. Contact your SOCOMEC office.

- **Sizing busbar**
  In addition to the practical guide given in the following pages, the Mechanical Systems software allows you to size the busbar for your panel with the greatest of ease: It defines the best bar section and distance between each support for the electrical characteristics of the panel.
  See page 444

- **Assistance with construction**
  You can also entrust us with your projects with particular construction requirements.
  See the section on "Built-in products"

- **Integration of electric functions**
  In this catalogue, you will find solutions for a great number of your requirements in terms of LV distribution.
  Take a look at the overview

The essential

Enclosures



COMBIESTER *p. 434*



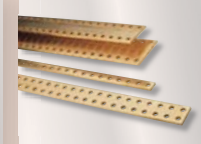
CADRYS DELTA *p. 435*

➲ Think about it… SOCOMEC offers a wide range of pre-equipped units for breaking, protection and switching; these units perfectly fulfil the requirements in terms of secure usage and installation conditions *(see our section on "Built-in products").*

Busbar



Busbar supports and Insulators *p. 444*



Rigid copper bars *p. 440*



Flexible copper bars *p. 442*

Distribution



Power terminals *p. 464*

630 A



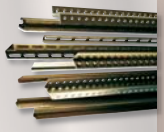
Cable champs and cage terminals *p. 466*

630 A



Distribution blocks *p. 468*

Mounting accessories



Mounting rails and profiles *p. 474*

COMBIESTER



➲ Function

COMBIESTERs are modular insulated enclosures.
They protect all low voltage electrical equipment against direct contact.

➲ Conformity to standards

- IEC 60439-1
- IEC 60529
- NF C 20010
- NF C 20455
- DIN 40050

➲ General characteristics (1)

These enclosures provide:
- an electrical safety with:
  - double insulation,
  - good resistance to creepage current distance.
- an IP66, IK9 degree of protection,
- an excellent withstanding to climatic conditions,
- a good withstanding to chemical agents,
- a 960°C self-extinguishable ability (polyester glasswool loaded),
- a 850°C self-extinguishable ability (for polycarbonate),
- a 650°C self-extinguishable (for polyamide),
- case and cover with opaque colour RAL 7035.

(1) Please consult us.

Monobloc enclosures
- 4 modules with sizes: 125 x 75 mm to 250 x 175 x mm
- 2 types of covers in polycarbonate:
  - transparent,
  - opaque,
- Solid casing in polycarbonate (with cover on request).

Constructible enclosures
- 17 constructible modules every 90 mm for sizes 180 x 135 mm and 720 x 540 mm
- 2 types of sealable covers:
  - transparent (polycarbonate),
  - opaque (polycarbonate or polyester).
- Solid casing or with openings:
  - in polyamide for sizes 180 x 135 mm and 270 x 135 mm,
  - in polyester for sizes 270 x 180 mm to 720 x 540 mm.

➲ Available on request

- Pre-drilled casing and cover.
- Pres-assembled enclosures.
- Pre-mounted accessories.
- Construction of support frames.

CADRYS enclosures



➲ Function

CADRYS ST, SH, SP and **SI** wall-mounted enclosures are intended to include automatic or control equipment.
They provide:

- Degree of protection IP65 (except double-leaf door enclosure, IP55).
- Perfect sealing:
  - casing edge in channel form,
  - robot positioning polyurethane joint.
- High rigidity provided by a folded and welded casing.
- Good resistance to chemical agents:
  - carbon steel FE 40 + polyester epoxy paint 70 µ,
  - stainless steel 304 L brushed and polished.
- High and low closing plates for ST and SP enclosures.

➲ General characteristics (1)

CADRYS ST enclosures, steel

- 51 models, heights from 300 to 1200 mm, widths from 200 to 1000 mm and depths from 150 to 400 mm.
- 1 or 2 solid doors opening to 120°.

CADRYS SP enclosures, steel

- 17 models, heights from 500 to 1200 mm, widths from 400 to 800 mm and depths from 250 and 400 mm.
- Casing with polyester paint RAL 7035.
- Transparent door with frame with polyester epoxy paint RAL 7035.

The basic CADRYS ST and SP enclosures are equipped with:

- double bar locking,
- bottom closing plate with pressed neoprene seal,
- concealed hinges,
- earthing screw,
- door profiles perforated every 25 mm,
- casing and solid door, steel, polyester epoxy paint RAL 7035,
- reversible doors.

CADRYS SI enclosures, brushed stainless steel

- 9 models, heights from 200 to 1000 mm, widths from 200 to 800 mm and depths from 150 to 300 mm.
- Solid door, double bar locking, concealed hinges, without closing plate.

(1) Please consult us.

➲ Conformity to standards

- IEC 60439-1
- EN 60439-1
- NF C 15-100

➲ Available on request

- Special paint,
- Specific cutouts (enclosures, plates...)
- Specific dimensions.

CADRYS DELTA
modular





➲ Function

CADRYS DELTA enclosures are modular steel enclosures.
They are intended to include automation or electrical equipment.
They can be placed side by side, back to back and side to back.
They can be delivered pre-assembled or, on request, in kit form.

➲ Approvals and certifications

- PSA E03.15.605.G
- RENAULT EB03.15.613

➲ Equipment

- Drilled plate
- Perforated plate
- Mounting frame
- Modular casing

➲ Preassembly

- We can preassemble your cabinet configuration on request.

➲ Composition of the range (1)

- 4 heights 1600, 1800, 2000, 2200 mm.
- 7 widths 300, 400, 600, 800, 1000, 1200 and 1600 mm.
- 4 depths 400, 500, 600 and 800 mm.
- 96 models available in the following standard presentations:
  - enclosure with transparent front door, dismountable rear panel,
  - enclosure with solid front and rear doors.
- In its basic version, the enclosure is equipped with framework, front door, ear panel (or door) and the top panel.
- It is supplied on a handling pallet H 100 mm.

(1) Please consult us.

➲ Conformity to standards

- IEC 60529
- IEC 60439-1
- NF C 15-100
- NF C 20010
- Protection rating IP 55, IK 10

➲ Available on request

- Canopies.
- Drillings.
- Special colours and paints.
- Doors, panels of 2 mm.
- Specific dimensions.
- Adaptations as per drawings.
- Aluminium or painted stainless steel doors and panels.

kdrys_471_b_2_x_cat



1. *Framework in welded 17.5/10 mm steel with double perforation every 25 mm.*
2. *Casing in folded, welded 12/10 mm steel. Structured finish powders polyester, colours RAL 7035.*
3. *Solid or transparent door in 15/10 mm steel with single or double wings depending on the width of the enclosure. Single-wing enclosures have left/right reversible doors requiring no tools.*
4. *CNOMO (option) automatic locking handle with standard interchangeable double bar key lock.*
5. *Bottom plate of enclosure in 1.5 mm steel with central opening.*
6. *Removable roof made of 12/10 mm steel with possibility of a bus bar set box.*
7. *The frame elements are assembled by screwing onto a tripod.*

kdrys_508_a_1_x_cat

Coupling side by side

kdrys_509_a_1_x_cat

Coupling back to back

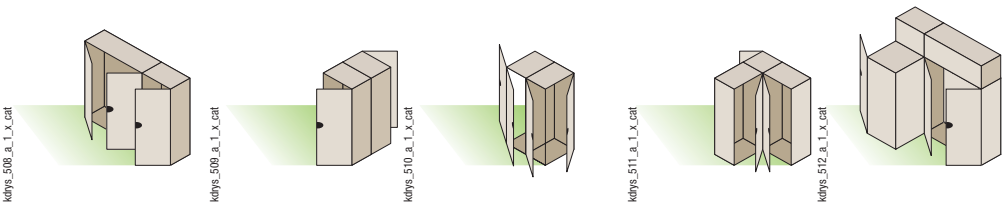
kdrys_510_a_1_x_cat

Coupling back to back + side doors

kdrys_511_a_1_x_cat

Juxtaposition

kdrys_512_a_1_x_cat



Juxtaposition in an L with busbar housings

kdrys_513_a_1_x_cat

Juxtaposition in an L with front and rear doors

Tripod

The frame elements are assembled by screwing onto a tripod.



Back panel

The back panel can be replaced by a door without the addition or removal of any accessories.



Door

The door can be reversed without removing the handle or hinges in 3 easy steps:

1. Remove the hinge pins.
2. Reversing of the door.
3. Replace the hinge pins.



1 2 3

Bases

- The bases have 4 removable sides made of folded 1.2 mm steel. The angle pieces are 3 mm steel reinforced by welding.
- They are designed to allow several bases to be stacked so as to obtain the height required.



Busbar housing

- Fits in between the top panel and the top of the cubicle.
- Takes bars up to 160 mm high.



Side panels

- Thanks to a special anchoring system, the side and back panels are easily mounted.
- The side panel can be replaced by a door without the addition or removal of any accessories.



Handle

- An ergonomic automatic locking handle that does not require the use of a key.
  This handle cannot be locked with the door open (CNOMO system).
- When the door is reversed, it is not necessary to remove the handle.



Juxtaposition

The juxtaposition of cubicles side or back to back is achieved using a kit that guarantees IP55 sealing.



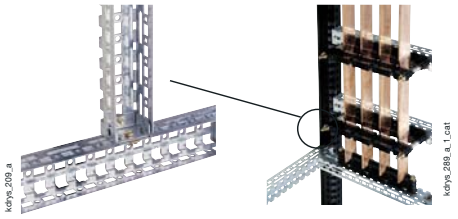
Internal options

Perforated plate
- The placing of the plates is facilitated by an anchoring system.
- No intermediate pieces are needed to fix them in place.





Mounting profiles
The perforations in these profiles allow the positioning of the nuts every 25 mm or continuously.

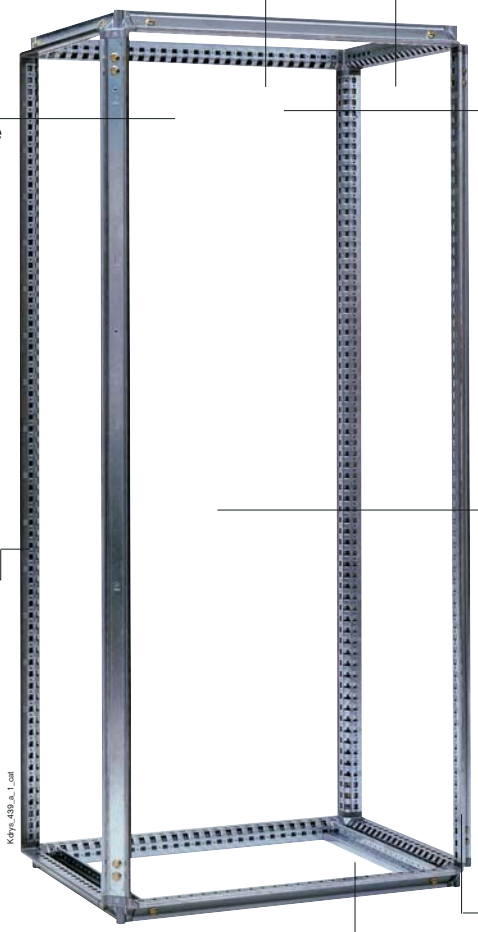


Solid plate
A system of slides and clips facilitate the positioning of the plates and holds them in place during assembly.



Notched mounting profiles
- These facilitate the positioning of the nuts and provide support during assembly.
- These provide good slip resistance, particularly in the event of vibration during transport.





Internal door
- This allows the mounting of control auxiliaries and measuring devices protected by a solid or transparent front door.
- It is fixed onto the frame and can be depth-adjusted at a pitch of 25 mm.

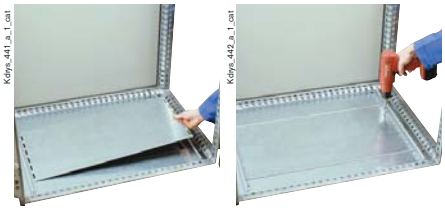


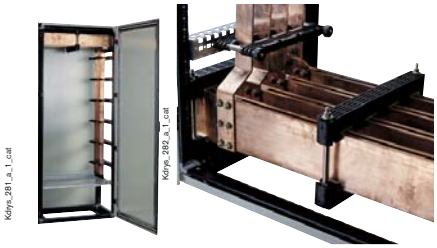
Nuts
The clip-on nuts fit onto the mounting profiles and perforated plates whilst also providing earthing.



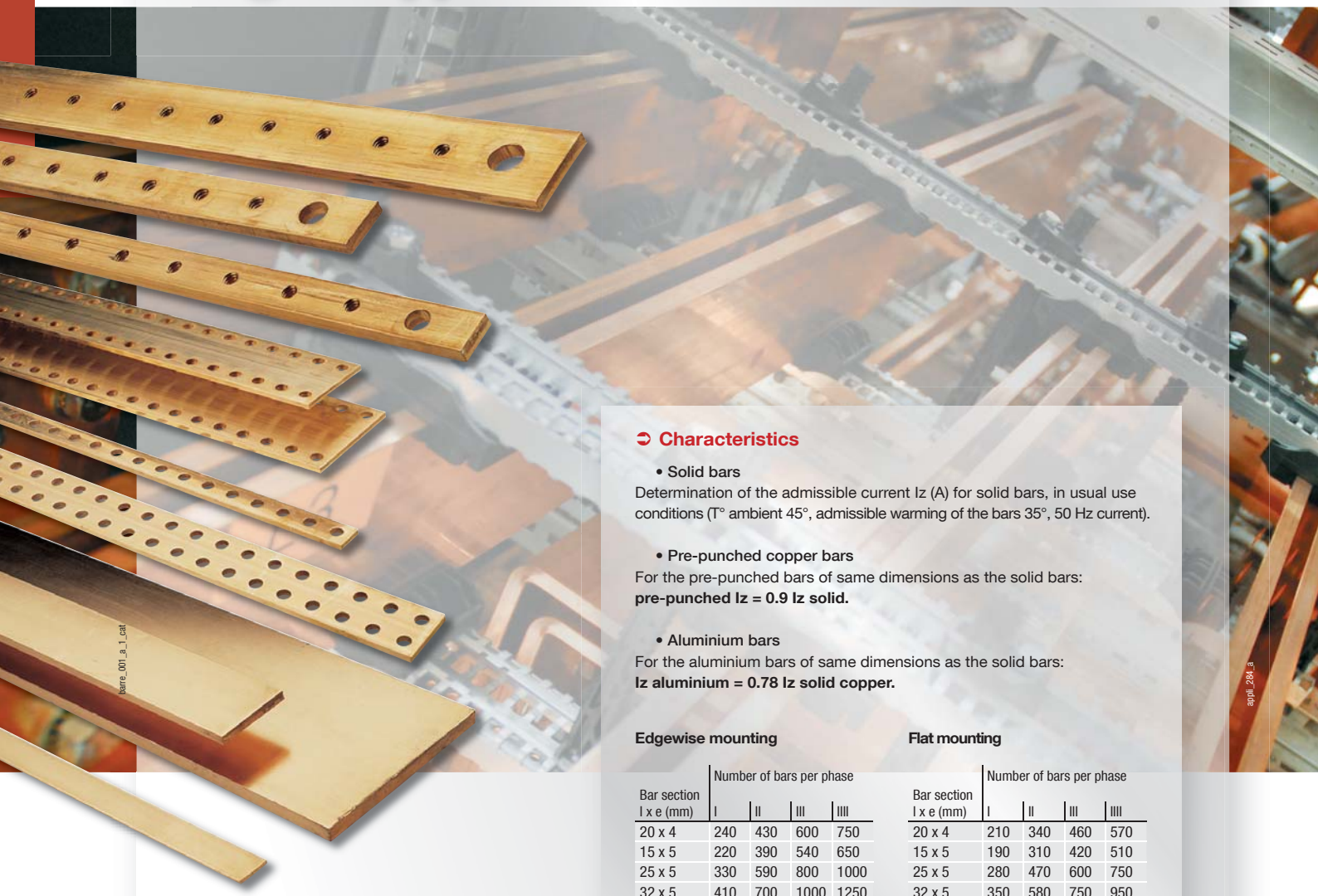
Structural profiles
- In 1.75 mm steel double perforated every 25 mm so as to allow made-to-measure dimensions.
- These profiles allow the direct mounting of SOCOMEC SBC 10 and 20 bar supports.

Gland plate
- The closing plate is fixed in place by a knurled nut.
- It is tightened manually with no tools required.





Rigid copper bars



➲ Characteristics

• Solid bars

Determination of the admissible current Iz (A) for solid bars, in usual use conditions (T° ambient 45°, admissible warming of the bars 35°, 50 Hz current).

• Pre-punched copper bars

For the pre-punched bars of same dimensions as the solid bars:
pre-punched Iz = 0.9 Iz solid.

• Aluminium bars

For the aluminium bars of same dimensions as the solid bars:
Iz aluminium = 0.78 Iz solid copper.

Edgewise mounting

Bar section I x e (mm)	Number of bars per phase			
	I	II	III	IIII
20 x 4	240	430	600	750
15 x 5	220	390	540	650
25 x 5	330	590	800	1000
32 x 5	410	700	1000	1250
40 x 5	500	850	1200	1500
50 x 5	600	1050	1450	1850
63 x 5	700	1250	1800	2250
80 x 5	900	1550	2200	2750
100 x 5	1100	1900	2650	3350
125 x 5	1300	2350	3250	4100
30 x 10	600	1050	1450	1800
50 x 10	850	1550	2150	2700
60 x 10	1000	1800	2400	3150
80 x 10	1300	2300	3200	4000
100 x 10	1550	2750	3850	4850
125 x 10	1900	3350	4650	5900
160 x 10	2350	4150	5800	7300

Flat mounting

Bar section I x e (mm)	Number of bars per phase			
	I	II	III	IIII
20 x 4	210	340	460	570
15 x 5	190	310	420	510
25 x 5	280	470	600	750
32 x 5	350	580	750	950
40 x 5	420	700	900	1150
50 x 5	510	850	1100	1400
63 x 5	620	1000	1350	1700
80 x 5	750	1250	1700	2100
100 x 5	900	1500	2050	2550
125 x 5	1100	1850	2500	3050
30 x 10	490	800	1100	1350
50 x 10	750	1200	1650	2050
60 x 10	850	1400	1900	2350
80 x 10	1100	1800	2450	3000
100 x 10	1350	2200	2950	3650
125 x 10	1600	2700	3600	4400
160 x 10	2000	3300	4450	5500

➲ Function

The SOCOMEC **rigid copper bars** are suitable for providing main or distribution connections.

➲ General characteristics of copper

- Material: electrolytic copper Cu-ETP (Cu/A1).
- State: hammer-hardened 1/2 hard (H12).
- Maximum resistivity: 0.017241 Ωmm²/m at 20°C.

➲ Composition of the range

Solid bars
- Thickness: 4.5 and 10 mm.
- Width: 20 to 160 mm.
- Length: 1750, 2900, 5800 mm.

Pre-punched bars
- Thickness: 5 and 10 mm.
- Width: 25 to 125 mm.
- Length: 1750 mm.

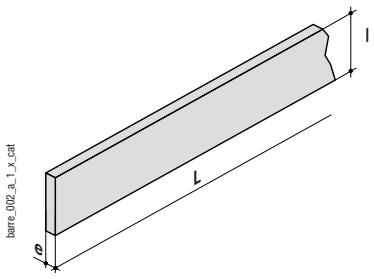
Pre-punched and threaded bars
- Thickness: 5 mm.
- Width: 15 to 32 mm.
- Length: 990 mm.

Connector for drill-free connection on the busbar
- Cable for 2.5 to 185 mm².
- Bars for thickness 5 or 10 mm.

Connection Earth / Neutral
- Corner piece for Earth / Neutral connection, L = 1750 mm.
- Earth bar, L = 470 mm and L = 120 mm

References

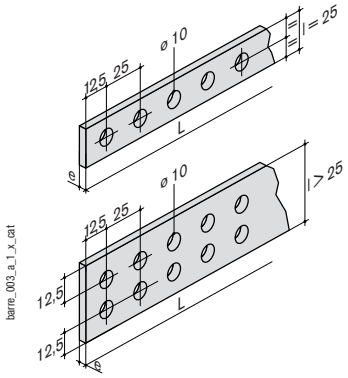
Solid bars



l x e (mm)	Weight (kg/ml)	L = 1750 To be ordered by multiple 1 bar Reference	L = 2900 To be ordered by multiple 1 bar Reference	L = 5800 To be ordered by multiple 5 or 10 bars Reference
20 x 4	0.71	4510 **2004**	4513 **2004**	4514 **2004**(1)
25 x 5	1.11	4510 **2505**	4513 **2505**	4514 **2505**(1)
32 x 5	1.42	4510 **3205**	4513 **3205**	4514 **3205**(1)
40 x 5	1.78	4510 **4005**	4513 **4005**	4514 **4005**(1)
50 x 5	2.22	4510 **5005**	4513 **5005**	4514 **5005**(1)
63 x 5	2.80	4510 **6305**	4513 **6305**	4514 **6305**(1)
80 x 5	3.56	4510 **8005**	4513 **8005**	4514 **8005**(2)
100 x 5	4.45	4510 **9005**	4513 **9005**	4514 **9005**(2)
125 x 5	5.56	4510 **9205**	4513 **9205**	4514 **9205**(2)
30 x 10	2.67	4510 **3010**	4513 **3010**	4514 **3010**(2)
50 x 10	4.45	4510 **5010**	4513 **5010**	4514 **5010**(2)
60 x 10	5.33	4510 **6010**	4513 **3010**	4514 **9205**(2)
80 x 10	7.11	4510 **8010**	4513 **8010**	4514 **8010**(2)
100 x 10	8.89	4510 **9010**	4513 **9010**	4514 **9010**(2)
125 x 10	11.11	4510 **9210**	4513 **9210**	4514 **9210**(2)
160 x 10	14.22	4510 **9610**	4513 **9610**	4514 **9610**(2)

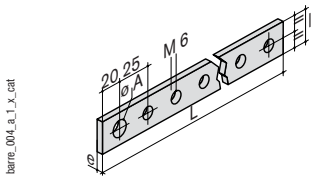
(1) To be ordered by multiple 10 bars
(2) To be ordered by multiple 5 bars

Pre-punched bars



l x e (mm)	L (mm)	Weight (kg/ml)	Nb de rows	Pack qty	Reference
25 x 5	1750	1.11	1	5	4511 **2505**
50 x 5	1750	2.22	2	5	4511 **5005**
63 x 5	1750	2.80	2	5	4511 **6305**
80 x 5	1750	3.56	2	5	4511 **8005**
100 x 5	1750	4.45	2	5	4511 **9005**
125 x 5	1750	5.56	2	5	4511 **9205**
50 x 10	1750	4.45	2	5	4511 **5010**
60 x 10	1750	5.33	2	5	4511 **6010**
80 x 10	1750	7.11	2	5	4511 **8010**
100 x 10	1750	8.89	2	5	4511 **9010**
125 x 10	1750	10.70	2	5	4511 **9210**

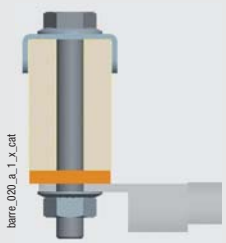
Pre-punched and threaded bars



l x e (mm)	L (mm)	Weight (kg/ml)	Ø A (mm)	To be ordered by multiple	Reference
15 x 5	990	0.67 kg	8.2	5	4512 **1505**
20 x 5	990	0.89 kg	10.2	5	4512 **2005**
32 x 5	990	1.42 kg	12.2	5	4512 **3205**

Accessories

Drill-free connection accessories



Use

- Allows the drill-free connection of flexible bars or cables onto a busbar
- Connection across 2 bars, 10 mm thick, placed side by side, 10 mm apart.
- Compatible with busbar supports in the SBC range.
- For terminals or flexible bars with widths greater than 40 mm, use 2 connection accessories.
- Secured with M10 screws, tightening torque 45Nm.
- To make a connection: 1 securing clamp and 1 screw adapted to the height of the bars are required.

Type	Bar (mm)	To be ordered by multiple	Reference
Securing clamp M10	all	12	5119 **4423**
Screw M10	30	100	5119 **4503**
Screw M10	50	100	5119 **4505**
Screw M10	60	100	5119 **4506**
Screw M10	80	100	5119 **4508**
Screw M10	100	100	5119 **4510**
Screw M10	125	100	5119 **4512**

Insulated flexible copper bars



➲ Function

SOCOMEC **flexible copper bars** are mainly used to make the links between series of distribution bus bars and the disconnection devices.

➲ General characteristics

- Width of 9 to 100 mm
- Thickness of 0.8 to 1 mm
- Length of 2 m

Ease of positioning

- Compact
- Wide flexibility of the bus bar
- Time saving by the elimination of terminal lugs and their crimping.

Increased safety by the elimination of crimped connections

- Better behaviour in short-circuits.
- Decrease of heating points.
- Better protection of people.

➲ Conformity to standards

- VDE 207 Y16
- BS 6746
- NF A 51-050
- VDE 207 YM4
- DIN 40050

➲ Available on request

- Other lengths: consult us.
- Bars in tin-plated copper or aluminium
- Halogen-free insulation.

➲ Technical characteristics

Conductor
Strips of electrolytic copper Cu/ETP, FINAL ANNEALING state.

Insulated flexible busbar

- Operating temperature: from -40°C to +105°C.
- Maximum operating voltage: 1000 V AC / 1500 V DC.
- Alternative voltage withstand (10-min test):
  - between core and insulation: 16.5 kV,
  - between two insulating elements in contact: 33 kV,
  - Conductivity: 100 IACS,
  - HV < 50,
  - Resistance to traction Rm > 200 N/cm^2
  - Strech following break 35 %
  - Resistivity: 1.724 micro Ω/cm to 20°C.

Insulator
High temperature co-extruded vinyl compound on the copper strips (insulation thickness: 1.5 to 2 mm)

- Self-extinguisher: NFC 32200.
- Continuous temperature withstand: 105°C.
- Shore hardness A: 89 +/- 2.
- Module 100 % elongation: 16 Mpa.
- Resistance to elongation: < 15 % mini.
- Breaking stress: 20 Mpa.
- Transversal volume resistivity: 6.10^{15} Ω.
- Oxygen index: 29.5 %.
- Scratch and tear resistant.

References

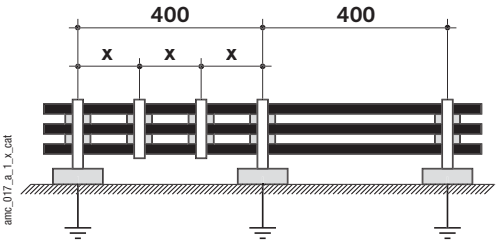
Flexible copper bars



I x N x e (mm)	L (mm)	Permissible amperage for ΔT (°C) [1]			To be ordered in multiples of	Reference
		40°C (A)	50°C (A)	60°C (A)		
9 x 2 x 0.8	2000	113	129	143	4	4518 **0902**
9 x 3 x 0.8	2000	140	160	178	4	4518 **0903**
9 x 4 x 0.8	2000	165	188	209	4	4518 **0904**
9 x 5 x 0.8	2000	187	214	238	4	4518 **0905**
9 x 6 x 0.8	2000	208	238	264	4	4518 **0906**
13 x 3 x 0.5	2000	142	162	180	4	4518 **1303**
13 x 4 x 0.5	2000	165	189	210	4	4518 **1304**
13 x 5 x 0.5	2000	186	213	237	4	4518 **1305**
13 x 6 x 0.5	2000	206	235	261	4	4518 **1306**
15.5 x 2 x 0.8	2000	167	191	212	4	4518 **1502**
15.5 x 3 x 0.8	2000	207	237	263	4	4518 **1503**
15.5 x 4 x 0.8	2000	242	277	308	4	4518 **1504**
15.5 x 6 x 0.8	2000	304	347	386	4	4518 **1506**
15.5 x 8 x 0.8	2000	358	409	455	4	4518 **1508**
15.5 x 10 x 0.8	2000	408	466	519	4	4518 **1510**
20 x 2 x 1	2000	228	261	290	4	4518 **2002**
20 x 3 x 1	2000	283	324	360	4	4518 **2003**
20 x 4 x 1	2000	331	378	421	4	4518 **2004**
20 x 5 x 1	2000	374	428	476	4	4518 **2005**
20 x 6 x 1	2000	415	474	527	4	4518 **2006**
20 x 8 x 1	2000	488	558	621	4	4518 **2008**
20 x 10 x 1	2000	556	635	705	4	4518 **2010**
24 x 2 x 1	2000	263	301	335	4	4518 **2402**
24 x 3 x 1	2000	326	373	414	4	4518 **2403**
24 x 4 x 1	2000	380	435	483	4	4518 **2404**
24 x 5 x 1	2000	429	491	546	4	4518 **2405**
24 x 6 x 1	2000	475	542	603	4	4518 **2406**
24 x 8 x 1	2000	557	636	708	4	4518 **2408**
24 x 10 x 1	2000	632	722	803	4	4518 **2410**
32 x 2 x 1	2000	331	379	421	4	4518 **3202**
32 x 3 x 1	2000	409	468	520	4	4518 **3203**
32 x 4 x 1	2000	476	544	605	4	4518 **3204**
32 x 5 x 1	2000	536	612	681	4	4518 **3205**
32 x 6 x 1	2000	591	675	751	4	4518 **3206**
32 x 8 x 1	2000	689	787	876	4	4518 **3208**
32 x 10 x 1	2000	777	887	987[1]	4	4518 **3210**
40 x 2 x 1	2000	398	455	506	2	4518 **4002**
40 x 3 x 1	2000	490	560	623	2	4518 **4003**
40 x 4 x 1	2000	569	650	723	2	4518 **4004**
40 x 5 x 1	2000	639	730	812	2	4518 **4005**
40 x 6 x 1	2000	703	803	893	2	4518 **4006**
40 x 8 x 1	2000	815	932	1036	2	4518 **4008**
40 x 10 x 1	2000	915	1045	1163	2	4518 **4010**
50 x 3 x 1	2000	589	673	749	2	4518 **5003**
50 x 4 x 1	2000	682	780	867	2	4518 **5004**
50 x 5 x 1	2000	764	873	971	2	4518 **5005**
50 x 6 x 1	2000	838	957	1062	2	4518 **5006**
50 x 8 x 1	2000	967	1105	1229	2	4518 **5008**
50 x 10 x 1	2000	1080	1234	1373	2	4518 **5010**
63 x 3 x 1	2000	715	816	908	2	4518 **6303**
63 x 4 x 1	2000	825	943	1048	2	4518 **6304**
63 x 5 x 1	2000	921	1052	1171	2	4518 **6305**
63 x 6 x 1	2000	1041	1187	1324	2	4518 **6306**
63 x 8 x 1	2000	1157	1321	1470	2	4518 **6308**
63 x 10 x 1	2000	1286	1469	1634	2	4518 **6310**
80 x 3 x 1	2000	874	998	1110	2	4518 **8003**
80 x 4 x 1	2000	1006	1149	1278	2	4518 **8004**
80 x 5 x 1	2000	1119	1279	1422	2	4518 **8005**
80 x 6 x 1	2000	1220	1393	1550	2	4518 **8006**
80 x 8 x 1	2000	1393	1592	1771	2	4518 **8008**
80 x 10 x 1	2000	1543	1763	1961	2	4518 **8010**
100 x 4 x 1	2000	1211	1383	1538	2	4518 **9004**
100 x 5 x 1	2000	1343	1534	1707	2	4518 **9005**
100 x 6 x 1	2000	1460	1668	1855	2	4518 **9006**
100 x 8 x 1	2000	1660	1897	2110	2	4518 **9008**
100 x 10 x 1	2000	1833	2094	2329	2	4518 **9010**
100 x 12 x 1	2000	1993	2277	2531	2	4518 **9012**

(1) For ambient air temperature of 40°C - Important : max. busbar temperature = 105° C.
L: length of bar in metres.
I: width of bare busbar in mm.
N: number of strips.
e: strip thickness in mm.

Assembly instructions

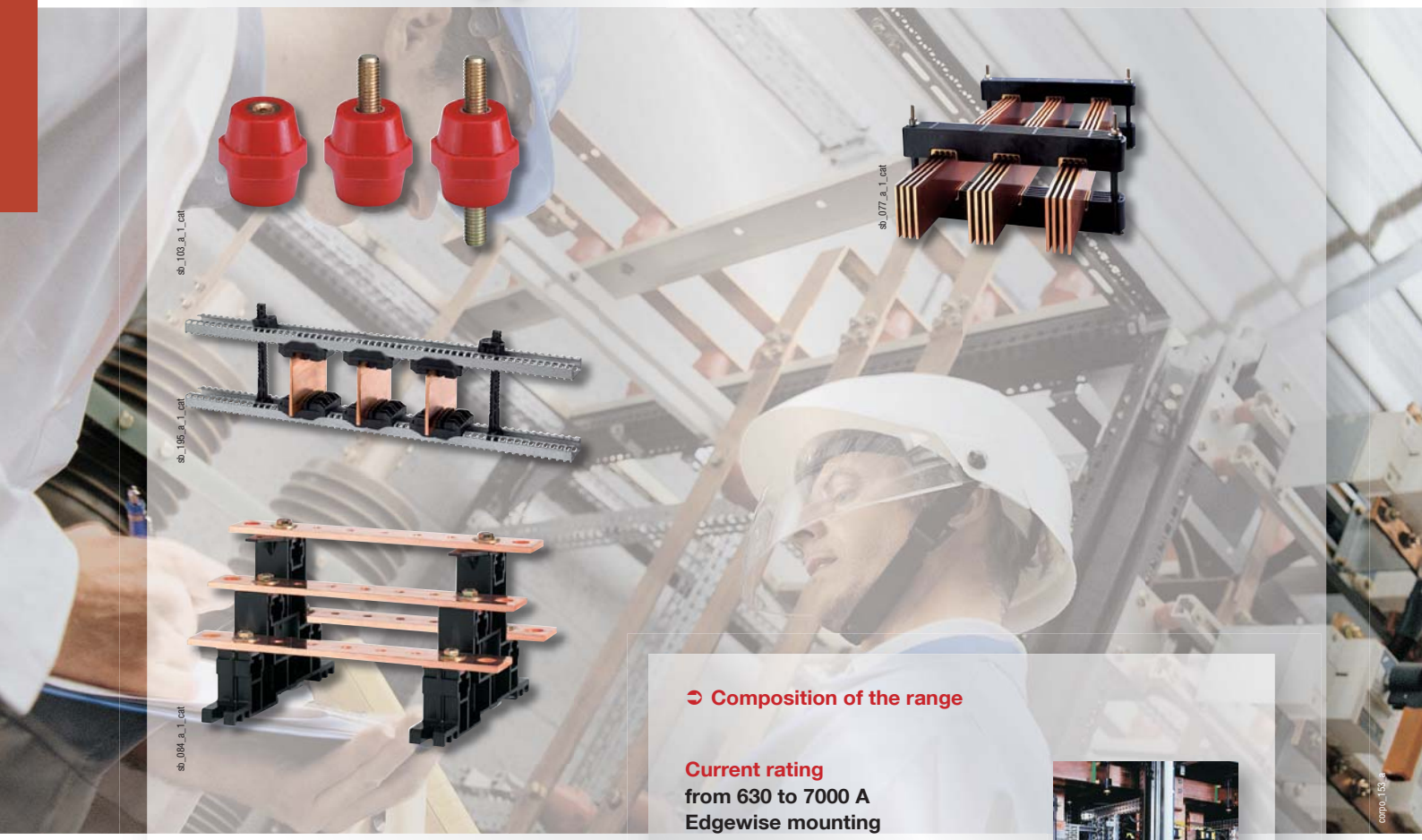


Flexible bars should be mounted on insulated supports with a maximum distance of 400 mm. Bars should also be held together with straps, as shown in the above diagram. The distance between successive straps depends on the electro-dynamic constraints in the event of a short-circuit. The table below gives the recommended distances between straps.

Icc maxi (kA rms)	Distance x between straps (mm)[1]
20	350
25	200
35	100
45	70

(1) 9 mm straps, load 80 kg.

Busbar supports



➲ Function

SOCOMEC insulating **busbar supports** allow the fixation of a copper or aluminium bar or busbar.

➲ General characteristics

Insulators

- Polyester without halogene.
- UL94 VO self extinguishable.
- Colour red RAL 3002.
- Operating temperature from - 40°C to + 130°C.
- Deformation under load temperature (ASTM D643): >200°C.
- Dielectric constant (ASTM D150): 4/5.
- Arc resistance (ASTM D495): > 180 s.
- Water absorption (ASTM D570): 0.3%.

Busbar supports

- High dielectric strength.
- High mechanical strength.
- High resistance to humidity (supplied "tropicalised").

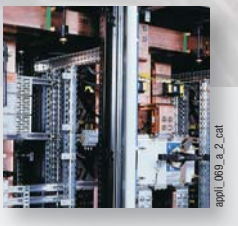
Stair type supports

- Thermoplastic material.
- VO self extinguishable.
- Insulating voltage: 1000 V.

➲ Composition of the range

Current rating
from 630 to 7000 A
Edgewise mounting

- SB C 10, SB C 20, SB C 30 with fixed distance between phases.
- SBC ER, SBC ER Power with adjustable distance between phases.



Current rating
from 630 to 5800 A
Flat mounting

- SB 205 and SB 306 unipolar mounting busbar supports.
- SB 7500 and SB P 30 multipolar mounting busbar supports.



Current rating
up to 630 A

- Hexagonal insulators, SB 1 SB 2 and SB 3 unipolar busbar supports.
- SB E 44, SB P 10 and SB P 44 multipolar busbar supports.



➲ Conformity to standards

- IEC 60439-1
- IEC 60865-1

➲ Approvals and certifications(1)

- KEMA
- Lloyd's Register of Shipping
- ASEFA/LCIE

(1) Product reference on request.

What you need to know

Mechanical systems is a software which is used to size bar sets. It defines the best bar section and distance between each support for the electrical characteristics of the panel compliant with standard IEC 60439-1.
It runs in a Windows® 95, 98, 2000, NT or XP environment.



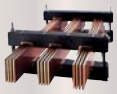
Selection guide: Edgewise mounting

Busbar supports with fixed interphase

Icc up to 120 kA (short circuit current)

Icc up to 50 kA


SB C 20 (p. 448)

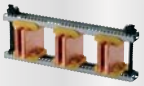

SB C 30 (p. 450)


SB C 10 (p. 446)


SB C 10 (p. 446)

100 A | 400 A | 500 A | 630 A | 1000 A | 1600 A | 2500 A | 4000 A | 5800 A | 7000 A

Nominal current


SBC ER (p. 452)

Icc up to 40 kA

SB C ER Power (p. 453)

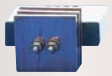


Icc up to 80 kA

Busbar supports with variable interphase

Selection guide: Flat mounting

Busbar supports


SB 205 (p. 454)


SB 306 (p. 454)

Icc up to 80 kA

100 A | 400 A | 500 A | 630 A | 1000 A | 1600 A | 2500 A | 4000 A | 5800 A | 7000 A

Nominal current


SB 7500 (p. 455)

Icc up to 50 kA


SB P 30 (p. 456)

Icc up to 80 kA

Multipolar busbar supports

Selection guide: Other supports

Busbar supports


(1)


(2)


(3)

Icc up to 50 kA

1. *Hexagonal insulators* (p. 457)
2. *SB 1* and *SB 2* (p. 460)
3. *SB 3* (p. 461)

100 A | 400 A | 500 A | 630 A | 1000 A | 1600 A | 2500 A | 4000 A | 5800 A | 7000 A

Nominal current


(4)


(5)

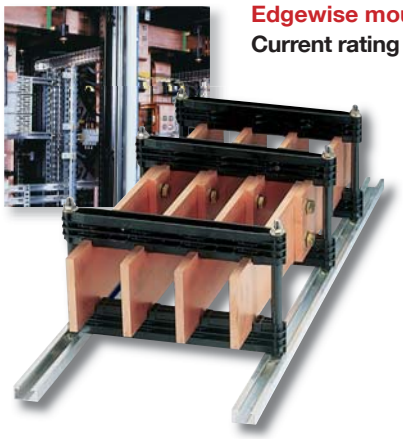
4. *SB E 44* (p. 462)
5. *SB P 10* (p. 463)
6. *SB P 44* (p. 463)

Icc up to 30 kA


(6)

Icc up to 40 kA

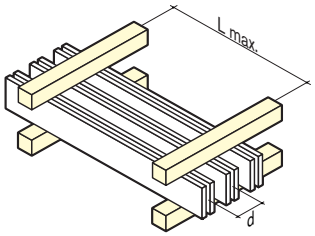
Tetrapolar busbar supports



SB C 10

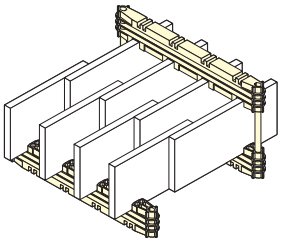
Multipolar edgewise mounting busbar supports with fixed interphase

➲ Characteristics



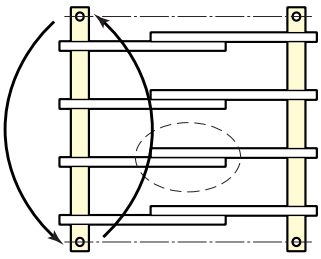
sb_021_b_1_x_cat

Adhering to the maximum distances between two supports ensures the busbar supports are able to withstand the given short circuit current values. At these values, deformation of the copper bars may occur. These deformations are permitted by standard IEC 60439-1 as long as they adhere to the insulation distances.



sb_094_b_1_x_cat

Mounting of one or two bars per pole



sb_045_b_1_x_cat

Bars joined by reversing a support

Characteristics of 3 and 4 poles with 5 mm for SB C 10

	Max. L (distance between centers of supports in mm) for						
peak Isc	30 kA	42 kA	52 kA	63 kA	110 kA		
rms Isc	15 kA	20 kA	25 kA	30 kA	50 kA		
Bar x no.						d (mm)	Iz (A)(1)
32 x 5 x 1	425	300	250	200	120	60	410
32 x 5 x 2	400	275	225	175	110	60	700
40 x 5 x 1	500	350	275	225	135	60	500
40 x 5 x 2	475	325	250	225	125	60	850
50 x 5 x 1	550	400	325	250	140	60	600
50 x 5 x 2	550	375	300	250	150	60	1050
60 x 5 x 1	650	450	735	300	140	60	700
60 x 5 x 2	650	450	375	300	175	60	1250
80 x 5 x 1	750	525	425	350	135	60	900
80 x 5 x 2	775	550	450	375	200	60	1250
100 x 5 x 1	875	625	500	400	135	60	1100
100 x 5 x 2	925	650	525	425	250	60	1900
125 x 5 x 1	1000	725	575	400	135	60	1300
125 x 5 x 2	1000	775	625	525	300	60	2350

(1) Admissible nominal current for a temperature in the enclosure of 45°C and 80°C for the bars.
Other assembly configurations: consult us.

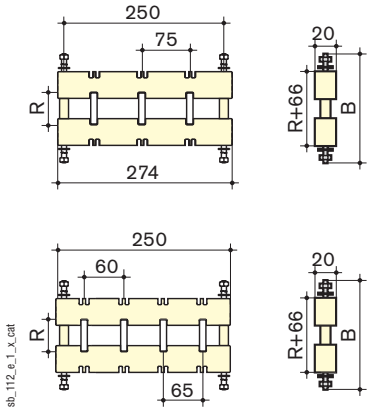
Characteristics of 3 and 4 poles with 10 mm for SB C 10

	Max. L (distance between centers of supports in mm) for						
peak Isc	30 kA	42 kA	52 kA	63 kA	110 kA		
rms Isc	15 kA	20 kA	25 kA	30 kA	50 kA		
Bar x no.						d (mm)	Iz (A)(1)
25 x 10 x 1	925	650	525	425		62	330
25 x 10 x 2	950	675	550	450	250	90	590
25 x 10 x 2	900	625	500	425	225	62	590
32 x 10 x 1	1000	750	600	500	275	65	610
32 x 10 x 2	1000	800	650	525	300	90	1050
32 x 10 x 2	1000	725	575	475	275	65	1050
40 x 10 x 1	1000	850	675	550	325	65	700
40 x 10 x 2	1000	925	725	600	350	90	1250
40 x 10 x 2	1000	850	675	550	325	65	1250
50 x 10 x 1	1000	950	775	625	350	65	850
50 x 10 x 2	1000	1000	850	700	400	90	1550
50 x 10 x 2	1000	975	775	650	375	65	1550
63 x 10 x 1	1000	1000	900	725	425	65	1050
63 x 10 x 1	1000	1000	1000	850	475	90	1850
63 x 10 x 2	1000	1000	1000	825	475	90	1850
63 x 10 x 2	1000	1000	1000	775	425	65	1850
80 x 10 x 1	1000	1000	1000	850	450	65	1300
80 x 10 x 1	1000	1000	1000	975	550	90	1300
80 x 10 x 2	1000	1000	1000	975	550	90	2300
80 x 10 x 2	1000	1000	1000	900	425	65	2300
100 x 10 x 1	1000	1000	1000	975	450	65	1550
100 x 10 x 1	1000	1000	1000	1000	550	90	1550
100 x 10 x 2	1000	1000	1000	1000	550	90	2750
100 x 10 x 2	1000	1000	1000	1000	425	62	2750
125 x 10 x 1	1000	1000	1000	1000	450	65	1900
125 x 10 x 2	1000	1000	1000	1000	550	90	3350
125 x 10 x 2	1000	1000	1000	1000	450	65	3350
160 x 10 x 1	1000	1000	1000	1000	450	65	2350
160 x 10 x 1	1000	1000	1000	1000	550	90	2350
160 x 10 x 2	1000	1000	1000	1000	550	90	4150
160 x 10 x 2	1000	1000	1000	1000	450	65	4150

(1) Admissible nominal current for a temperature in the enclosure of 45°C and 80°C for the bars.
Other assembly configurations: consult us.

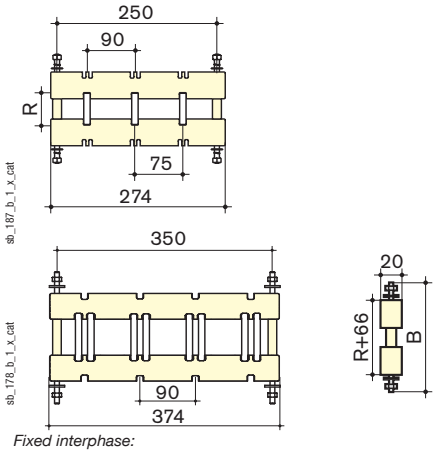
SB C 10 - Dimensions

2 bars of 5 mm or 1 bar of 10 mm



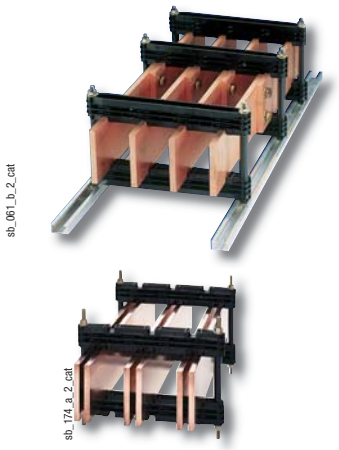
Fixed interphase:
- *3 poles 2 x 5, 1 x 10: 75 mm*
- *4 poles thickness bars. 5 mm: 60 poles*
  thickness bars. 10 mm: 65 mm.

1 or 2 bars of 10 mm



Fixed interphase:
- *3 poles 1 bar of 10 mm: 75 mm*
  2 bars of 10 mm per pole: 90 mm
- *4 poles 1 or 2 bars of 10 mm 90 mm.*

References

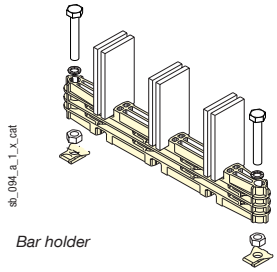


Supports without nuts and bolts (1)

No. of poles	Isolation voltage (VAC)	Number of bars max x bar thickness (mm)	R bar height (mm)	B (mm)	Pack qty	Type	Reference
3	1000	2 x 5 / 1 x 10	75	250	1	1	5024 **6300**
4	1000	2 x 5	60	250	1	1	5024 **6500**
4	1000	1 x 10	65	250	1	1	5024 **6500**
3	800	1 x 10	65	250	1	1	5024 **6400**
3	800	2 x 10	90	250	1	1	5024 **6400**(2)
4	800	2 x 10	65	250	1	1	5024 **6700**
4	1000	2 x 10 / 2 x 10	90	350	1	2	5024 **6600**
4	1000	1 x 6.35	65	253	1	3	5024 **1500**
4	1000	1 x 10	65	253	1	3	5024 **2500**
4	1000	1 x 6.35	60	253	1	3	5024 **4500**

(1) Content: one support per reference.
(2) For interconnection details: please consult us.

Accessories

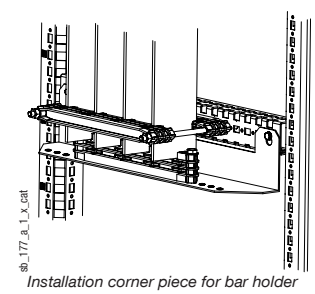


Bar holder

Accessories

R bar height (mm)(1)	Pack qty	Mounting accessories (2)	Pack qty	Insulating spacers
25 / 25.4	1	5020 **2025**	50	5020 **4025**
30	1	5020 **2030**	50	5020 **4030**
32	1	5020 **2032**	50	5020 **4032**
38.1	1	5020 **2038**	50	5020 **4038**
40	1	5020 **2040**	50	5020 **4040**
50 / 50.8	1	5020 **2050**	50	5020 **4050**
60	1	5020 **2060**	50	5020 **4060**
53 / 63.5	1	5020 **2063**	50	5020 **4063**
70	1	5020 **2070**	50	5020 **4070**
76.2	1	5020 **2076**	50	5020 **4076**
80	1	5020 **2080**	50	5020 **4080**
100 / 101.6	1	5020 **2100**	50	5020 **4100**
120	1	5020 **2120**	50	5020 **4120**
125	1	5020 **2125**	50	5020 **4125**
127	1	5020 **2127**		
152.4	1	5020 **2152**	50	5020 **4152**
160	1	5020 **2160**	50	5020 **4160**
200	1	5020 **2200**	50	5020 **4200**

(1) Other dimensions: please consult us.
(2) Mounting accessories: 2 M8 threaded studs + 2 black insulating spacers + 4 nuts + mounting instructions.



Installation corner piece for bar holder

Diamond nuts (1)

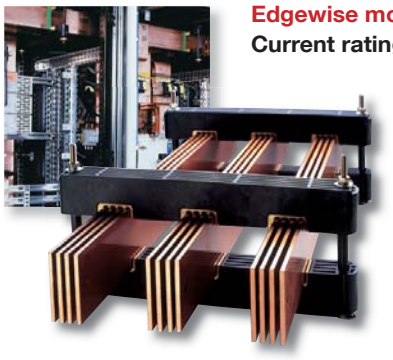
H x W (mm)	Insert M	Pack qty	Reference
34 x 20	M8	100	5000 **0038**

(1) Required when mounting on C profile rail.

Bar holder (1)

No. of poles	Number of bars max x bar thickness (mm)	Pack qty	Reference
3	2 x 5 / 1 x 10	1	5024 **9031**
4	2 x 5 / 1 x 10	1	5024 **9041**
3	1 x 10 / 2 x 10	1	5024 **9034**
4	1 x 10 / 2 x 10	1	5024 **9044**

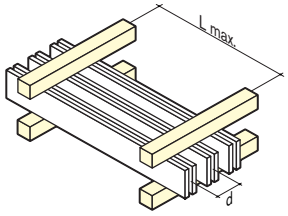
(1) Bar holder: 1 support + 2 M8 screws + 2 nuts.



Edgewise mounting busbar supports
Current rating from 630 to 7000 A

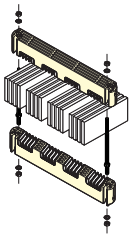
SB C 20
Multipolar busbar supports with fixed interphase

➲ Characteristics



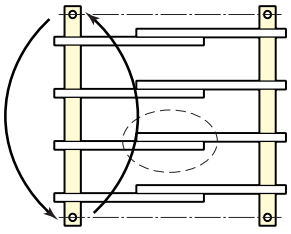
sb_021_b_1_x_cat

Adhering to the maximum distances between two supports ensures the busbar supports are able to withstand the given short circuit current values. At these values, deformation of the copper bars may occur. These deformations are permitted by standard IEC 60439-1 as long as they adhere to the insulation distances.



sb_063_a_1_x_cat

Mounting of one to four bars per pole



sb_045_b_1_x_cat

Bars joined by reversing a support

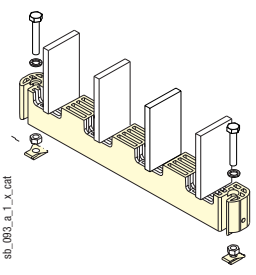
Characteristics of 3 and 4 poles with 10 mm bars

peak Icc rms Icc	Max. L (distance between centres of supports in mm) for 63 kA 30 kA	84 kA 40 kA	110 kA 50 kA	143 kA 65 kA	165 kA 75 kA	187 kA 85 kA	220 kA 100 kA	264 kA 120 kA	
Bar x no.									d (mm)
50 x 10 x 1	1000	925	700	525	450	400	350	275	90
50 x 10 x 2	1000	850	625	475	400	350	300	250	90
60 x 10 x 1	1000	1000	750	575	500	450	375	300	90
60 x 10 x 2	1000	925	700	525	450	400	350	275	90
70 x 10 x 1	1000	1000	775	600	525	450	375	325	90
70 x 10 x 2	1000	950	700	550	475	400	350	275	90
80 x 10 x 1	1000	1000	875	675	575	525	425	350	90
80 x 10 x 2	1000	1000	800	600	525	475	400	325	90
100 x 10 x 1	1000	1000	975	750	650	575	475	400	90
100 x 10 x 2	1000	1000	875	675	575	525	425	350	90
125 x 10 x 1	1000	1000	1000	850	725	650	550	450	90
125 x 10 x 2	1000	1000	950	725	625	550	475	400	90
160 x 10 x 1	1000	1000	1000	950	825	725	625	500	90
160 x 10 x 2	1000	1000	975	750	650	575	475	400	90
200 x 10 x 1	1000	1000	1000	1000	900	800	675	525	90
200 x 10 x 2	1000	1000	900	675	600	525	450	375	90

Characteristics of 3 and 4 poles with 5 mm bars

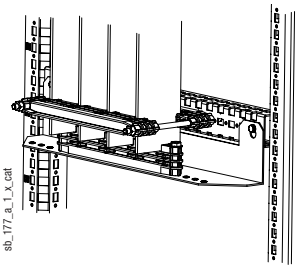
peak Icc rms Icc	Max. L (distance between centres of supports in mm) for 63 kA 30 kA	84 kA 40 kA	110 kA 50 kA	143 kA 65 kA	165 kA 75 kA	187 kA 85 kA	220 kA 100 kA	264 kA 120 kA	
Bar x no.									d (mm)
50 x 5 x 1	625	475	350	275	225	200	175	150	90
50 x 5 x 2	525	400	300	225	200	175	155	130	90
50 x 5 x 3	600	450	350	250	225	200	175	145	90
50 x 5 x 4	675	525	375	300	250	225	175	160	90
60 x 5 x 1	675	525	400	300	250	225	200	165	90
60 x 5 x 2	600	450	350	250	225	200	175	145	90
60 x 5 x 3	675	525	375	300	250	225	175	165	90
60 x 5 x 4	750	575	425	325	275	250	200	175	90
63 x 5 x 1	700	550	400	300	250	225	200	170	90
63 x 5 x 2	625	475	350	275	225	200	175	150	90
63 x 5 x 3	700	525	400	300	250	225	200	170	90
63 x 5 x 4	775	600	425	325	275	250	200	175	90
80 x 5 x 1	800	625	450	350	300	250	225	175	90
80 x 5 x 2	725	550	425	325	275	250	200	175	90
80 x 5 x 3	800	625	450	350	300	275	225	175	90
80 x 5 x 4	875	675	500	375	325	300	250	200	90
100 x 5 x 1	900	700	525	400	350	300	250	200	90
100 x 5 x 2	850	650	475	375	325	275	225	200	90
100 x 5 x 3	925	700	525	400	350	300	250	200	90
100 x 5 x 4	975	750	550	425	375	325	275	225	90
125 x 5 x 1	1000	800	600	450	400	350	300	250	90
125 x 5 x 2	975	750	550	425	375	325	275	225	90
125 x 5 x 3	1000	800	600	450	400	350	300	250	90
125 x 5 x 4	1000	825	600	450	400	350	300	250	90

➲ Accessories



sb_093_a_1_x_cat

Bar holder

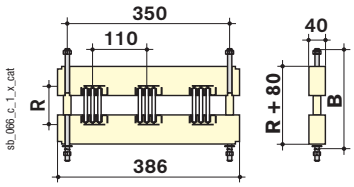


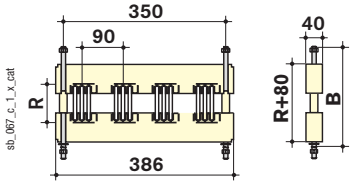
sb_177_a_1_x_cat

Installation corner piece for bar holder

SB C 20 - Dimensions

Fixed interphase:
- *3 poles: 110 mm*
- *4 poles: 90 mm*





References



Supports without nuts and bolts (1)

No. of poles	Isolation voltage (VAC)	Number of bars (mm)	R bar height (mm)	B (mm)	Pack qty	Reference
3	1000	1 … 4	5	110	1	5024 **8300**
4	1000	1 … 4	5	90	1	5024 **8400**
3	1000	1 … 2	10	110	1	5024 **7300**
4	1000	1 … 2	10	90	1	5024 **7400**

(1) Content: two supports per reference complete with inserts.

Accessories

R bar height (mm)(1)	Pack qty	Mounting accessories (2)	Pack qty	Insulating spacers
25 / 25.4	1	5020 **2025**	50	5020 **4025**
30	1	5020 **2030**	50	5020 **4030**
32	1	5020 **2032**	50	5020 **4032**
38.1	1	5020 **2038**	50	5020 **4038**
40	1	5020 **2040**	50	5020 **4040**
50 / 50.8	1	5020 **2050**	50	5020 **4050**
60	1	5020 **2060**	50	5020 **4060**
53 / 63.5	1	5020 **2063**	50	5020 **4063**
70	1	5020 **2070**	50	5020 **4070**
76.2	1	5020 **2076**	50	5020 **4076**
80	1	5020 **2080**	50	5020 **4080**
100 / 101.6	1	5020 **2100**	50	5020 **4100**
120	1	5020 **2120**	50	5020 **4120**
125	1	5020 **2125**	50	5020 **4125**
127	1	5020 **2127**		
152.4	1	5020 **2152**	50	5020 **4152**
160	1	5020 **2160**	50	5020 **4160**
200	1	5020 **2200**	50	5020 **4200**

(1) Other dimensions: please consult us.
(2) Mounting accessories: 2 M8 threaded studs + 2 black insulating spacers + 4 nuts + mounting instructions.

Diamond nuts (1)

H x W (mm)	Insert M	Pack qty	Reference
34 x 20	M8	100	5000 **0038**

(1) Required when mounting on C profile rail.

No. of poles	Number of bars max x bar thickness (mm)	Pack qty	Reference
3	2 x 5 / 1 x 10	1	5024 **9031**
4	2 x 5 / 1 x 10	1	5024 **9041**
3	1 x 10 / 2 x 10	1	5024 **9034**
4	1 x 10 / 2 x 10	1	5024 **9044**

(1) Bar holder: 1 support + 2 M8 screws + 2 nuts.



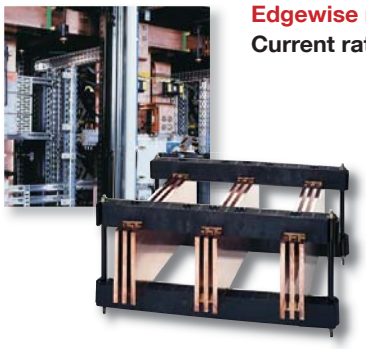
Our advantages



The details which make a difference

SB C 20 busbar supports have threaded holes which allow a protective screen to be attached.
The supports are put in place using threaded rods and M8 nuts.

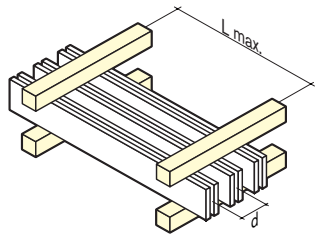




Edgewise mounting busbar supports
Current rating from 630 to 7000 A

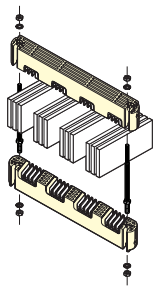
SB C 30
Multipolar busbar supports with fixed interphase

➲ Characteristics



sb_021_b_1_x_cat

Adhering to the maximum distances between two supports ensures the busbar supports are able to withstand the given short circuit current values. At these values, deformation of the copper bars may occur. These deformations are permitted by standard IEC 60439-1 as long as they adhere to the insulation distances.

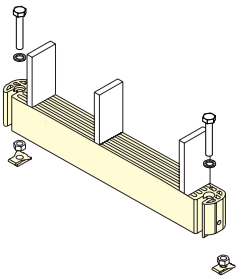

sb_162_a_1_x_cat

Mounting of one to three bars per pole

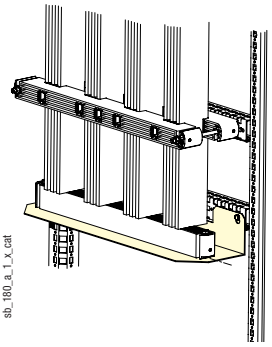
Characteristics of 3 and 4 poles with 10 mm bars

	Max. L (distance between centres of supports in mm) for								
peak Icc	63 kA	84 kA	110 kA	143 kA	165 kA	187 kA	220 kA	264 kA	
rms Icc	30 kA	40 kA	50 kA	65 kA	75 kA	85 kA	100 kA	120 kA	
Bar x no.									d (mm)
50 x 10 x 1	1000	1000	825	625	550	475	400	350	130
50 x 10 x 2	1000	900	675	525	450	400	325	275	130
50 x 10 x 3	725	550	400	300	275	225	200	175	130
60 x 10 x 1	1000	1000	900	700	600	525	450	375	130
60 x 10 x 2	1000	1000	750	575	500	425	375	300	130
60 x 10 x 3	825	625	450	350	300	275	225	175	130
70 x 10 x 1	1000	1000	925	700	600	550	450	375	130
70 x 10 x 2	1000	1000	775	575	500	450	375	300	130
70 x 10 x 3	850	650	475	375	325	275	225	200	130
80 x 10 x 1	1000	1000	1000	800	675	600	500	425	130
80 x 10 x 2	1000	1000	850	650	575	500	425	350	130
80 x 10 x 3	1000	750	575	425	375	325	275	225	130
100 x 10 x 1	1000	1000	1000	875	750	675	575	475	130
100 x 10 x 2	1000	1000	950	725	625	550	475	400	130
100 x 10 x 3	1000	900	650	500	425	375	325	275	130
125 x 10 x 1	1000	1000	1000	975	850	750	625	525	130
125 x 10 x 2	1000	1000	1000	800	675	600	500	425	130
125 x 10 x 3	1000	1000	775	600	525	450	375	325	130
160 x 10 x 1	1000	1000	1000	1000	925	825	700	575	130
160 x 10 x 2	1000	1000	1000	800	700	625	525	425	130
160 x 10 x 3	1000	1000	950	725	625	550	475	375	130
200 x 10 x 1	1000	1000	1000	1000	1000	900	750	625	130
200 x 10 x 2	1000	1000	950	725	625	550	475	400	130
200 x 10 x 3	1000	1000	750	575	500	425	375	300	130

➲ Accessories


sb_122_b_1_x_cat

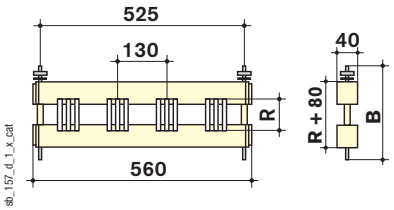
Bar holder

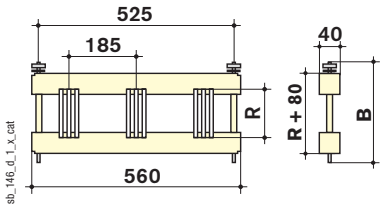

sb_180_a_1_x_cat

Installation corner piece for bar holder

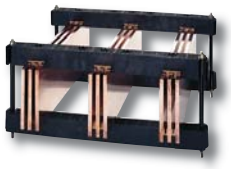
SB C 30 - Dimensions

Fixed interphase:
- *3 poles: 185 mm*
- *4 poles: 130 mm*





References



Supports without nuts and bolts[1]

No. of poles	Insulation voltage (VAC)	No. of bars	Bars thickness (mm)	Interphase (mm)	Pack qty	Reference
3 P	1000	1 ... 3	10	185	1	5024 **5300**
4 P	1000	1 ... 3	10	130	1	5024 **5500**

(1) Content: 2 supports per reference complete with inserts.

Accessories

R bar height (mm)[1]	Pack qty	Mounting accessories[2]	Pack qty	Insulating spacers
25 / 25.4	1	5020 **2025**	50	5020 **4025**
30	1	5020 **2030**	50	5020 **4030**
32	1	5020 **2032**	50	5020 **4032**
38.1	1	5020 **2038**	50	5020 **4038**
40	1	5020 **2040**	50	5020 **4040**
50 / 50.8	1	5020 **2050**	50	5020 **4050**
60	1	5020 **2060**	50	5020 **4060**
63 / 63.5	1	5020 **2063**	50	5020 **4063**
70	1	5020 **2070**	50	5020 **4070**
76.2	1	5020 **2076**	50	5020 **4076**
80	1	5020 **2080**	50	5020 **4080**
100 / 101.6	1	5020 **2100**	50	5020 **4100**
120	1	5020 **2120**	50	5020 **4120**
125	1	5020 **2125**	50	5020 **4125**
127	1	5020 **2127**		
152.4	1	5020 **2152**	50	5020 **4152**
160	1	5020 **2160**	50	5020 **4160**
200	1	5020 **2200**	50	5020 **4200**

(1) Other dimensions: please consult us.
(2) Mounting accessories: 2 M8 threaded studs + 2 back insulating spacers + 4 nuts + mounting instructions.

Diamond nuts[1]

H x W (mm)	Insert M	Pack qty	Insulating spacers
34 x 20	M8	100	5000 **0038**

(1) Required when mounting on C profile rail.

Bar holder[1]

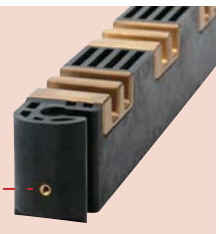
No. of poles	Pack qty	Insulating spacers
3 / 4 P	1	5024 **9033**

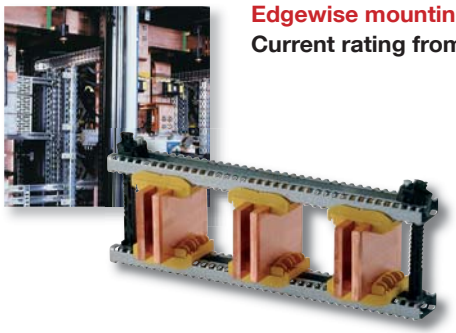
(1) Bar holder: one support + 2 M8 screws + 2 nuts.



Our advantages

The details which make a difference
SB C 30 busbar supports have threaded holes which allow a protective screen to be attached.

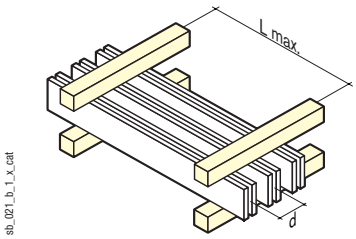




Edgewise mounting busbar supports
Current rating from 630 to 7000 A

SBC ER
Multipolar edgewise mounting busbar supports with adjustable interphase

➲ Characteristics



sb_021_b_1_x_cat

Adhering to the maximum distances between two supports ensures the busbar supports are able to withstand the given short circuit current values. At these values, deformation of the copper bars may occur. These deformations are permitted by standard IEC 60439-1 as long as they adhere to the insulation distances.

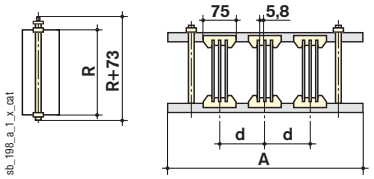
	Max. L (distance between centers of supports in mm) for						
peak Isc	24 kA	48 kA	63 kA	82 kA	114 kA		
rms Isc	12 kA	23 kA	30 kA	39 kA	52 kA		
Bar x no.						d min. (mm)	Iz (A)(1)
50 x 5 x 1	975	475	350	275		75	600
50 x 5 x 2	900	450	325	250	175	75	1 050
50 x 5 x 3	1000	525	400	300	200	75	1 450
63 x 5 x 1	1000	550	425	325	200	75	700
63 x 5 x 2	1000	525	400	300	200	75	1 250
63 x 5 x 3	1000	625	475	350	200	75	1 800
80 x 5 x 1	1000	625	475	375	225	75	900
80 x 5 x 2	1000	625	475	375	225	75	1250
80 x 5 x 3	1000	725	550	425	225	75	2 200
100 x 5 x 1	1000	725	550	425	225	75	1 100
100 x 5 x 2	1000	750	575	425	225	75	1 900
100 x 5 x 3	1000	875	650	450	225	75	2 650
125 x 5 x 1	1000	850	650	500	250	75	1300
125 x 5 x 2	1000	900	675	500	250	75	2350
125 x 5 x 3	1000	1000	800	500	250	75	3250
50 x 10 x 1	1000	975	700	400	200	75	850
50 x 10 x 2	1000	950	675	400	200	75	1550
63 x 10 x 1	1000	1000	725	425	200	75	1050
63 x 10 x 2	1000	1000	700	400	200	75	1850
80 x 10 x 1	1000	1000	750	450	225	75	1300
80 x 10 x 2	1000	1000	750	425	225	75	2300
100 x 10 x 1	1000	1000	800	475	225	75	1550
100 x 10 x 2	1000	1000	800	450	225	75	2750
125 x 10 x 1	1000	1000	850	500	250	75	1900
125 x 10 x 2	1000	1000	850	500	250	75	3350

(1) Admissible nominal current for a temperature in the enclosure of 45°C and 80°C for the bars.
Other assembly configurations: consult us.

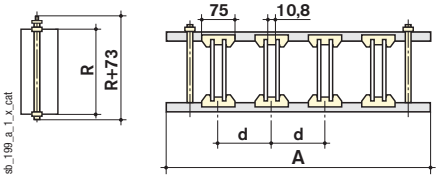
➲ Dimensions

Mounting
- *1 to 3 bars, 5 mm thick, per pole.*
- *1 or 2 bars, 10 mm thick, per pole.*
- *Interphase distance: min 75 mm and max 200 mm.*
- *Use 2 rods positioned symmetrically on the outside of the poles or between the outermost poles.*

A (mm)	Enclosure (mm)
380	400
480	500
580	600
780	800



sb_198_a_1_x_cat



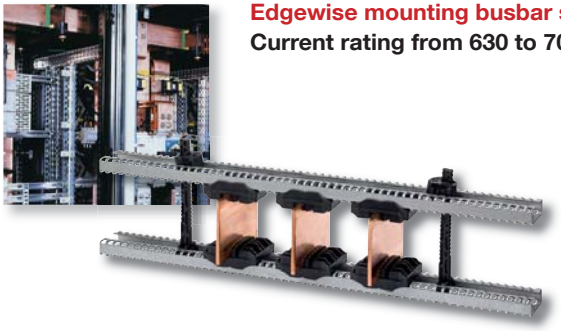
sb_199_a_1_x_cat

➲ References

Order guide
- *With three poles, order: 6 x studs, 2 x rods, 2 x profiles.*
- *With four poles, order: 8 x studs, 2 x rods, 2 x profiles.*

Description of accessories	Thickness of the bar (mm)	No. of poles	Length	Quantity	To be ordered by multiple	Reference
Slot for 5 mm bars	5	3		6(1)	8	5025 **5105**
Slot for 5 mm bars	5	4		8(1)	8	5025 **5105**
Slot for 10 mm bars	10	3		6(1)	8	5025 **5110**
Slot for 10 mm bars	10	4		8(1)	8	5025 **2110**
Rod kit (bar height 25 to 200 mm)				2(1)	4	5025 **5100**
380 mm profile			380	2(1)	4	5025 **5124**
480 mm profile			480	2(1)	4	5025 **5125**
580 mm profile			580	2(1)	4	5025 **5126**
780 mm profile			780	2(1)	4	5025 **5128**
2 m profile			2000		4	5025 **5120**
Profile for Prisma cabinet(2)			525	1(1)	1	5025 **5130**

(1) Quantity necessary to make 1 busbar support
(2) Kit of 2 profiles and 4 square fixings.

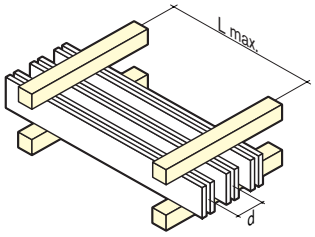


Edgewise mounting busbar supports
Current rating from 630 to 7000 A

SB C ER Power

Multipolar edgewise mounting busbar supports with adjustable interphase for high output

➲ Characteristics



Adhering to the maximum distances between two supports ensures the busbar supports are able to withstand the given short circuit current values. At these values, deformation of the copper bars may occur. These deformations are permitted by standard IEC 60439-1 as long as they adhere to the insulation distances.

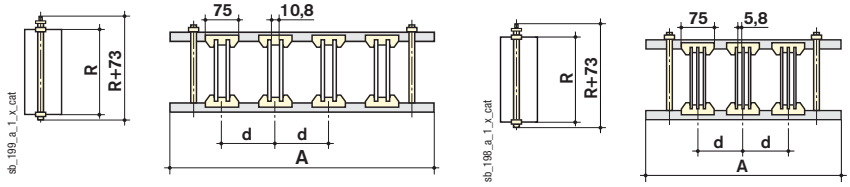
	Max. L (distance between centers of supports in mm) for						
peak Isc	82 kA	114 kA	152 kA	165 kA	187 kA		
rms Isc	39 kA	52 kA	69 kA	75 kA	85 kA		
Bar x no.						d min. (mm)	Iz (A)(1)
50 x 5 x 1	275					75	600
50 x 5 x 2	250	175	140	130	115	75	1050
50 x 5 x 3	300	200	165	150	135	75	1450
63 x 5 x 1	325	225				75	700
63 x 5 x 2	300	225	165	155	135	75	1250
63 x 5 x 3	350	250	175	175	160	75	1800
80 x 5 x 1	375	250	200			75	900
80 x 5 x 2	375	250	200	175	160	75	1550
80 x 5 x 3	425	300	225	200	175	75	2200
100 x 5 x 1	425	300	225	200	175	75	1100
100 x 5 x 2	425	300	225	200	175	75	1900
100 x 5 x 3	500	350	275	250	200	75	2650
125 x 5 x 1	500	350	250	250	200	75	1300
125 x 5 x 2	525	375	275	250	225	75	2350
125 x 5 x 3	600	425	325	275	225	75	3250
80 x 10 x 1	750	525	300	250	200	75	1300
80 x 10 x 2	775	525	300	250	175	75	2300
100 x 10 x 1	850	575	300	250	200	75	1550
100 x 10 x 2	900	550	300	250	200	75	2750
125 x 10 x 1	1000	600	325	275	225	75	1900
125 x 10 x 2	1000	600	325	275	225	75	3350
160 x 10 x 1	1000	675	375	325	250	75	2350
160 x 10 x 2	1000	675	375	325	250	75	4150

(1) Admissible nominal current for a temperature in the enclosure of 45°C and 80°C for the bars.
Other assembly configurations: consult us.

➲ Dimensions

Mounting
- *1 to 3 bars, 5 mm thick, per pole.*
- *1 or 2 bars, 10 mm thick, per pole.*
- *Interphase distance: min 75 mm and max 200 mm.*
- *Use 2 rods positioned symmetrically on the outside of the poles or between the outermost poles.*

A (mm)	Enclosure (mm)
380	400
480	500
580	600
780	800

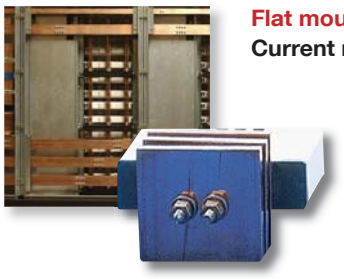


➲ References

Order guide
- *With three poles, order: 6 x studs, 2 x rods, 2 x profiles.*
- *With four poles, order: 8 x studs, 2 x rods, 2 x profiles.*

Description of accessories	Thickness of the bar (mm)	No. of poles	Length	Quantity	To be ordered by multiple	Reference
Slot for 5 mm bars	5	3		6(1)	8	5025 **5205**
Slot for 5 mm bars	5	4		8(1)	8	5025 **5205**
Slot for 10 mm bars	10	3		6(1)	8	5025 **5210**
Slot for 10 mm bars	10	4		8(1)	8	5025 **5210**
Rod kit (bar height 25 to 200 mm)				2(1)	4	5025 **5100**
380 mm profile			380	2(1)	4	5025 **5124**
480 mm profile			480	2(1)	4	5025 **5125**
580 mm profile			580	2(1)	4	5025 **5126**
780 mm profile			780	2(1)	4	5025 **5128**
2 m profile			2000		4	5025 **5120**
Profile for Prisma cabinet(2)			525	1(1)	1	5025 **5130**

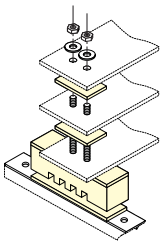
(1) Quantity necessary to make 1 busbar support
(2) Kit of 2 profiles and 4 square fixings.

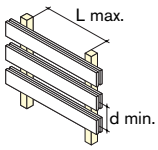


Flat mounting busbar supports
Current rating from 630 to 5800 A

SB 205 - SB 306
Unipolar flat mounting busbar support

➲ Characteristics



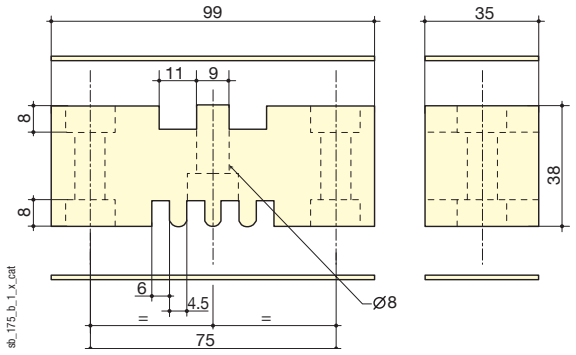


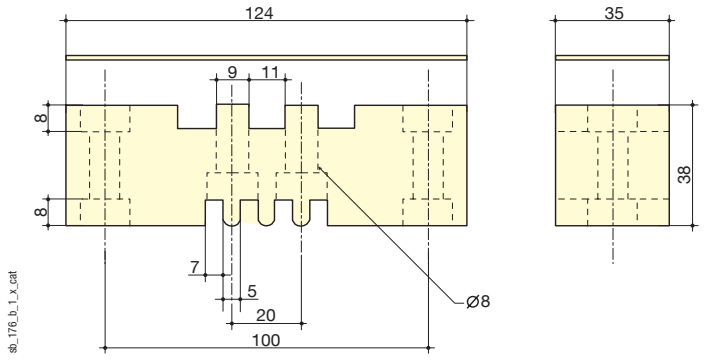
		Max. L (distance between centers of supports in mm) for							
	peak Isc	48 kA	63 kA	82 kA	114 kA	152 kA	165 kA		
	rms Isc	23 kA	30 kA	39 kA	52 kA	69 kA	75 kA		
Support	Bar x no.							d min. (mm)	Iz (A)(1)
SB 205	100 x 10 x 1	1000	1000	1000	1000	1000	1000	125	1550
SB 205	100 x 10 x 2	1000	1000	1000	1000	1000	1000	125	2750
SB 205	100 x 10 x 3	1000	1000	1000	1000	1000	1000	125	3850
SB 306	160 x 10 x 1	1000	1000	1000	1000	1000	1000	175	2350
SB 306	160 x 10 x 2	1000	1000	1000	1000	1000	1000	175	4150
SB 306	160 x 10 x 3	1000	1000	1000	1000	1000	1000	175	5800

(1) Admissible nominal current for a temperature in the enclosure of 45°C and 80°C for the bars.
Other assembly configurations: consult us.

Mounting
- *SB 205: 1 to 3 bars of max. width 100 mm.*
- *SB 306: 1 to 3 bars of max. width 160 mm.*

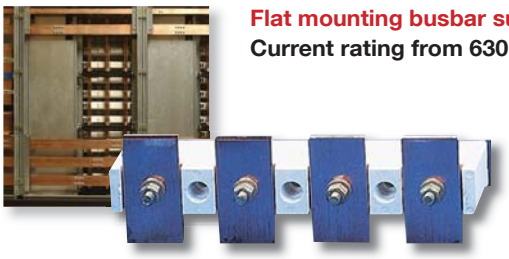
➲ Dimensions





➲ References

Support	Isolation voltage (VAC)	No. of bars	Bar width (mm)	Pack qty	Reference
SB 205	1 000	1 … 3	100	6	5022 **5110**
SB 306	1 000	1 … 3	160	6	5023 **6110**

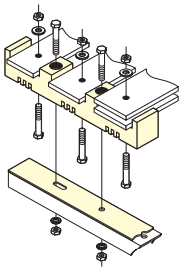


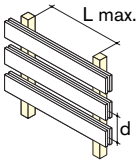
Flat mounting busbar supports
Current rating from 630 to 5800 A

SB 7500

Multipolar flat mounting busbar supports with fixed interphase

➲ Characteristics

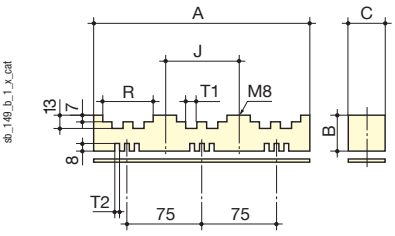




Mounting
SB 7500: 1 to 2 bars of max. width 50 mm per pole. Fixed interphase of 75 mm.

	Max. L (distance between centers of supports in mm) for							
peak Isc	24 kA	48 kA	63 kA	82 kA	114 kA	152 kA		
rms Isc	12 kA	23 kA	30 kA	39 kA	52 kA	69 kA		
Bar x no.							d (mm)	Iz (A)
50 x 5 x 1	1000	1000	950	725	525	450	75	600
50 x 5 x 2	1000	1000	1000	1000	975	850	75	1 050

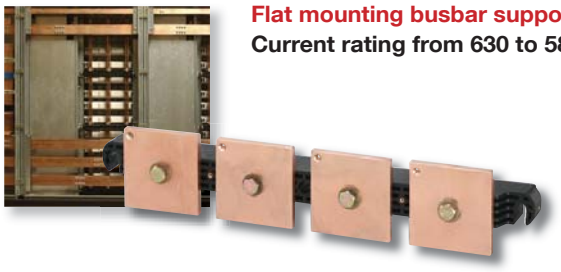
➲ Dimensions



No. of poles	A	B	C	J	R	T_1	T_2
3	220	38	35	75	52.5	11	6
4	295	38	35	75	52.5	11	6

➲ References

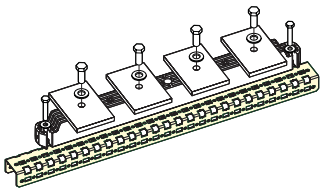
No. of poles	Isolation voltage (VAC)	Bar width (mm)	Pack qty	Reference
3	1 000	40-50	1	5027 **5310**
4	1 000	40-50	1	5027 **5410**

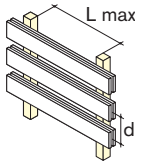


Flat mounting busbar supports
Current rating from 630 to 5800 A

SB P 30
Multipolar flat mounting busbar supports with fixed interphase

➲ Characteristics


sb_160_a_1_x_cat



sb_200_a_1_esp_cat

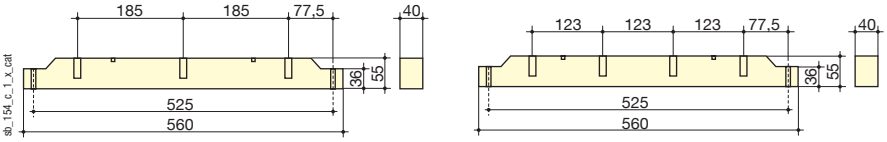
Mounting
- *3 poles: 1 to 3 bars of max. width 100 mm per pole, fixed interphase of 185 mm,*
- *4 poles: 1 to 3 bars of max. width 80 mm per pole, fixed interphase of 123 mm.*

d = 123 mm

	Max. L (distance between centers of supports in mm) for									
peak Isc	63 kA	84 kA	110 kA	143 kA	165 kA	176 kA	187 kA	220 kA		
rms Isc	30 kA	40 kA	50 kA	65 kA	75 kA	80 kA	85 kA	100 kA		
Bar x no.									d (mm)	Iz (A)
50 x 5 x 1	1000	950	525	300	225	200	175	130	123	600
63 x 5 x 1	1000	925	525	300	225	200	175	130	123	700
80 x 5 x 1	1000	900	500	300	225	175	175	125	123	900
80 x 5 x 2	1000	900	500	300	225	175	175	125	123	1 550
50 x 10 x 1	1000	950	525	300	225	200	175	130	123	850
50 x 10 x 2	1000	975	525	300	225	200	175	135	123	1 550
63 x 10 x 1	1000	925	525	300	225	200	175	130	123	1 050
63 x 10 x 2	1000	950	525	300	225	200	175	130	123	1 850
80 x 10 x 1	1000	900	500	300	225	175	175	125	123	1 300
80 x 10 x 2	1000	925	500	300	225	200	175	125	123	2 300
80 x 10 x 3	1000	950	525	300	225	200	175	130	123	3 200

	Max. L (distance between centers of supports in mm) for									
peak Isc	63 kA	84 kA	110 kA	143 kA	165 kA	176 kA	187 kA	220 kA		
rms Isc	30 kA	40 kA	50 kA	65 kA	75 kA	80 kA	85 kA	100 kA		
Bar x no.									d (mm)	Iz (A)
50 x 5 x 1	1000	1000	800	475	350	300	275	200	185	
63 x 5 x 1	1000	1000	800	475	350	300	275	200	185	
80 x 5 x 1	1000	1000	800	475	350	300	275	200	185	
80 x 5 x 2	1000	1000	800	475	350	300	275	200	185	
100 x 5 x 1	1000	1000	775	450	325	300	250	175	185	1100
100 x 5 x 2	1000	1000	775	450	325	300	250	175	185	1900
100 x 5 x 3	1000	1000	775	450	350	300	250	175	185	2650
50 x 10 x 1	1000	1000	800	475	350	300	275	200	185	
50 x 10 x 2	1000	1000	800	475	350	300	275	200	185	
63 x 10 x 1	1000	1000	800	475	350	300	275	200	185	
63 x 10 x 2	1000	1000	800	475	350	300	275	200	185	
80 x 10 x 1	1000	1000	800	475	350	300	275	200	185	
80 x 10 x 2	1000	1000	800	475	350	300	275	200	185	
80 x 10 x 3	1000	1000	800	475	350	300	275	200	185	
100 x 10 x 1	1000	1000	775	450	325	300	250	175	185	1550
100 x 10 x 2	1000	1000	775	450	350	300	250	175	185	2750
100 x 10 x 3	1000	1000	775	450	350	300	275	175	185	3850

➲ Dimensions



sb_154_c_1_x_cat

➲ References

No. of poles	Isolation voltage (VAC)	Bar width (mm)	Pack qty	Reference
3	1000	50-100	1	5023 **0310**
4	1000	50-80	1	5023 **0410**


sb_211_a_1_cat

Mounting brackets

Description of accessories	To be ordered by multiple	Reference
2 mounting brackets for SB P 30	1	5024 **9002**


sb_210_a_1_cat

Bar fixing screws

Description of accessories	To be ordered by multiple	Reference
Headless screw for attaching 1 thickness of bar	25	5119 **4601**
Headless screw for attaching 2 thicknesses of bar	25	5119 **4602**
Headless screw for attaching 3 thicknesses of bar	25	5119 **4603**

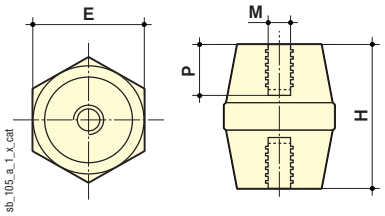


Hexagonal insulators

Unipolar flat mounting busbar support

Characteristics

Female to female hexagonal insulator



sb_105_a_1_x_cat

Height H (mm)	Insert M	Nominal voltage (V) AC/DC	Isolation voltage (VAC) 50 Hz 1 min	Isolation voltage (VAC) Peak	Mechanical characteristics (daN) Flexion	Mechanical characteristics (daN) Tention	Tightening torque max (Nm)
20(1)	M4	500	3000	5500	70	170	9
20	M6	500	3000	5500	100	190	8
25	M6	500	3000	5500	170	370	12
30	M6	1000	6000	11000	200	650	22
30	M8	1000	6000	11000	360	800	40
35	M6	1400	9000	16000	230	720	25
35	M8	1400	9000	16000	380	900	42
35	M10	1400	9000	16000	320	800	44
40	M8	2000	12000	21500	620	1200	50
40	M10	2000	12000	21500	620	1100	60
45	M8	2000	12000	21500	550	1200	55
45	M10	2000	12000	21500	550	1100	65
50	M8	2000	12000	21500	650	1800	60
50	M10	2000	12000	21500	650	1700	70
50	M12	2000	12000	21500	660	13000	130
60	M10	2400	12000	27000	560	1600	85
65	M10	2400	12000	27000	750	1600	90
70	M12	2400	12000	27000	750	1500	135

(1) Admissible nominal current for a temperature in the enclosure of 45°C and 80°C for the bars.
Other assembly configurations: consult us.

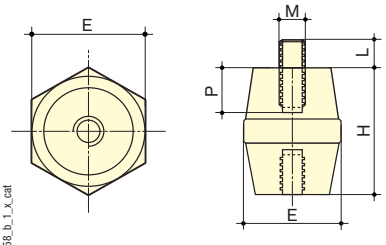


sb_104_a_2_cat

Height H (mm)	Insert M	Depth P (mm)	Diameter E (mm)	Pack qty	Reference
20	M4	4	19	1	5031 **2004**
20	M6	4	19	1	5031 **2006**
25	M6	5	21	1	5031 **2506**
30	M6	6	33	1	5031 **3006**
30	M8	8	33	1	5031 **3008**
35	M6	8	33	1	5031 **3506**
35	M8	8	33	1	5031 **3508**
35	M10	8	33	1	5031 **3510**
40	M8	10	40	1	5031 **4008**
40	M10	10	40	1	5031 **4010**
45	M8	10	41	1	5031 **4508**
45	M10	10	41	1	5031 **4510**
50	M8	14	46	1	5031 **5008**
50	M10	14	46	1	5031 **5010**
50	M12	14	46	1	5031 **5012**
60	M10	14	50	1	5031 **6010**
65	M10	18	55	1	5031 **6510**
70	M12	25	55	1	5031 **7012**

➲ Busbar supports- References

Hexagonal insulator male to female and male to male



sb_058_b_1_x_cat

Height H (mm)	Insert M	Nominal voltage (V) AC/DC	Insulation voltage (VAC) 50 Hz 1 min	Insulation voltage (VAC) Peak	Mechanical characteristics (daN) Flexion	Mechanical characteristics (daN) Tention	Tightening torque max (Nm)
16	M4	500	3000	5500	100	150	3
16	M5	500	3000	5500	100	150	6
25	M5	500	3000	11000	180	400	6
25	M6	500	3000	11000	180	400	12
35	M8	1400	9000	16000	380	900	42
35	M10	1400	9000	16000	320	800	44
50	M8	2000	12000	21500	650	1800	60
50	M10	2000	12000	21500	650	1700	70
60	M10	2400	12000	27000	560	1600	85

Male to female high withstand insulator



sb_106_a_2_cat

Height H (mm)	Insert M	Depth P (mm)	Diameter E (mm)	Length L (mm)	Pack qty	Reference
16	M4	5	14	10	1	5038 **1604**
16	M5	5	14	10	1	5038 **1605**
25	M5	5	20	10	1	5038 **2505**
25	M6	5	20	10	1	5038 **2506**
35	M8	10	30	15	1	5036 **3508**
35	M10	8	32	30	1	5038 **3510**
50	M8	14	46	25	1	5038 **5008**
50	M10	14	46	30	1	5038 **6010**

Male to male high withstand insulator



sb_107_a_2_cat

Height H (mm)	Insert M	Diameter E (mm)	Length L (mm)	Pack qty	Reference
16	M4	14	10	1	5039 **1604**
16	M5	14	10	1	5039 **1605**
25	M5	14	10	1	5039 **2505**
25	M6	16	10	1	5039 **2506**
35	M8	30	15	1	5037 **3508**
35	M10	26	30	1	5039 **3510**
50	M8	37	25	1	5039 **5008**
50	M10	37	30	1	5039 **6010**

Headless screw

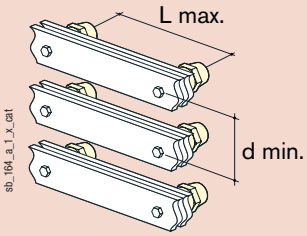


sb_121_a_2_cat

Length (mm)	Thread	Pack qty	Reference
20	M6	20	5032 **2006**
20	M8	20	5032 **2008**
25	M6	20	5032 **2506**
25	M8	20	5032 **2508**
30	M6	20	5032 **3006**
30	M8	20	5032 **3008**
40	M8	20	5032 **4008**
40	M10	20	5032 **4010**
50	M12	20	5032 **5012**



Ensure the busbar is defined



So that your busbar equipped with hexagonal insulators can mechanically withstand the short circuit, it must correspond to the table below.
Values according to IEC 60439-1.

General characteristics

			Max. L (distance between centers of supports in mm) for						
		peak Isc	24 kA	48 kA	63 kA	82 kA	114 kA		
Height		rms Isc	12 kA	23 kA	30 kA	39 kA	52 kA		
H (mm)	Insert M	Bar x no.						d min. (mm)	Iz (A)(1)
20	M4	15 x 5 x 1	400	100				45	220
20	M4	20 x 5 x 1	400	100				45	280
25	M6	15 x 5 x 1	550	135				45	220
25	M6	20 x 5 x 1	525	135				45	280
25	M6	25 x 5 x 1	575	145				50	330
30	M6	15 x 5 x 1	675	165				45	220
30	M6	20 x 5 x 1	650	165				45	280
30	M6	25 x 5 x 1	725	175	105			50	330
30	M8	15 x 5 x1	850	250	155			45	220
30	M8	20 x 5 x 1	1000	250	155			45	280
30	M8	25 x 5 x 1	1000	275	170	100		50	330
35	M6	15 x 5 x 1	700	175	100			45	220
35	M6	20 x 5 x 1	675	170	100			45	280
35	M6	25 x 5 x 1	750	175	110			50	330
35	M8	15 x 5 x 1	850	275	160			45	220
35	M8	20 x 5 x 1	1000	275	160			45	280
35	M8	25 x 5 x 1	1000	300	175	105		50	330
35	M8	32 x 5 x 1	1000	325	175	110		55	410
35	M10	20 x 5 x 1	850	200	125			45	280
35	M10	25 x 5 x 1	950	225	135			50	330
35	M10	32 x 5 x 1	1000	250	150			55	410
40	M8	20 x 5 x 1	1000	325	175	110		45	280
40	M8	25 x 5 x 1	1000	350	200	125		50	330
40	M8	32 x 5 x 1	1000	375	225	135		55	410
40	M10	20 x 5 x 1	1000	325	175	110		45	280
40	M10	25 x 5 x 1	1000	350	200	125		50	330
40	M10	32 x 5 x 1	1000	375	225	135		55	410
45	M8	25 x 5 x 1	1000	425	250	150		50	330
45	M8	32 x 5 x 1	1000	475	175	160		55	410
45	M8	50 x 5 x 1	1000	625	350	200	110	75	600
45	M10	25 x 5 x 1	1000	425	250	145		50	330
45	M10	32 x 5 x 1	1000	450	250	160		55	410
45	M10	50 x 5 x 1	1000	600	350	200	110	75	600
50	M8	25 x 5 x 1	1000	450	250	155		50	330
50	M8	32 x 5 x 1	1000	475	275	170		55	410
50	M8	50 x 5 x 1	1000	650	375	225	115	75	600
50	M10	32 x 5 x 1	1000	525	300	175		55	410
50	M10	50 x 5 x 1	1000	700	400	225	125	75	600
60	M10	50 x 5 x 1	1000	700	400	225	125	75	600
65	M10	50 x 5 x 1	1000	775	450	250	135	75	600

(1) Admissible nominal current for a temperature in the enclosure of 45°C and 80°C for the bars.
Other assembly configurations: consult us.

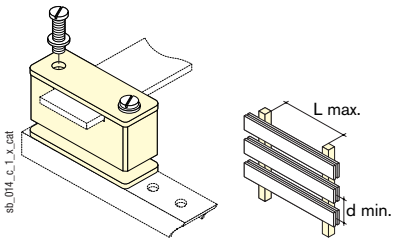




Other supports
Current rating up to 630 A

SB 1 - SB 2
Multipolar flat mounting busbar support

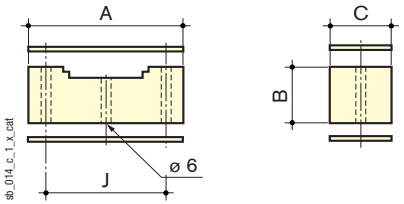
➲ Characteristics



		Max. L (distance between centers of supports in mm) for						
	peak Isc	24 kA	48 kA	63 kA	82 kA	114 kA		
	rms Isc	12 kA	23 kA	30 kA	39 kA	52 kA		
Support	Bar x no.						d min. (mm)	Iz (A)(1)
SB 1	20 x 3 x 1	650	325	250	175	135	50	210
SB 1	20 x 5 x 1	850	425	325	250	175	50	280
SB 1	25 x 5 x 1	1000	525	400	300	200	50	330
SB 2	32 x 5 x 1	1000	750	575	450	300	70	410
SB 2	40 x 5 x 1	1000	950	700	550	400	70	500

(1) Admissible nominal current for a temperature in the enclosure of 45°C and 80°C for the bars.
Other assembly configurations: consult us.

➲ Dimensions (mm)



Support	A	B	C	J
SB 1	50	23	20	34
SB 2	68	23	23.5	50

➲ References

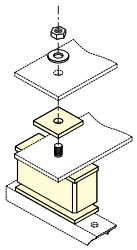
Mounting
SB 1: 1 bar of max. width 25 mm
SB 2: 1 bar of max. width 40 mm

Support	Isolation voltage (VAC)	No. of bars	Bar width (mm)	Pack qty	Reference
SB 1	690	1	20-25	6	5021 **0110**
SB 2	690	1	32-40	6	5022 **0110**

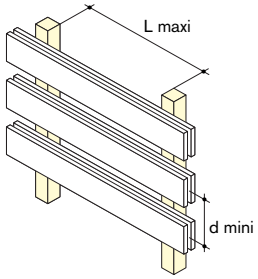


SB 3
Multipolar flat mounting busbar support

Characteristics



sb_089_b_1_x_cat

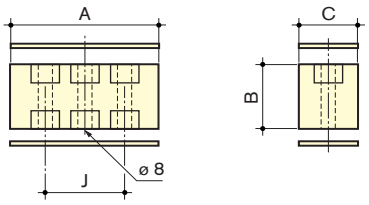


sb_089_b_1_x_cat

	Max. L (distance between centers of supports in mm) for						
peak Isc	24 kA	48 kA	63 kA	82 kA	114 kA		
rms Isc	12 kA	23 kA	30 kA	39 kA	52 kA		
Bar x no.						d min. (mm)	Iz (A)(1)
32 x 5 x 2	1000	1000	925	700	500	70	580
40 x 5 x 2	1000	1000	1000	1000	1000	70	700
50 x 5 x 2	1000	1000	1000	925	675	75	850
63 x 5 x 2	1000	1000	1000	1000	1000	85	1000

(1) Admissible nominal current for a temperature in the enclosure of 45°C and 80°C for the bars.
Other assembly configurations: consult us.

Dimensions



sb_089_b_1_x_cat

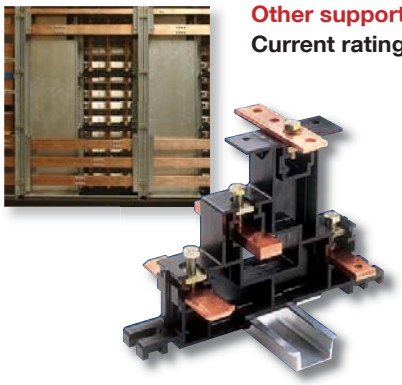
Support	A	B	C	J
SB 3 bare	65	32	28	36
SB 3 pre-equipped	65	32	28	36

References

Mounting
SB 3: 1 to 2 bars of max. width 63 mm.

Support	Isolation voltage (VAC)	No. of bars	Bar width (mm)	Pack qty	Reference
SB 3 bare	690	1 … 2	32-63	6	5023 **0111**
SB 3 pre-equipped(1)	690	1 … 2	32-63	6	5023 **0110**

(1) SB3 bare with screws.



Other supports
Current rating up to 630 A

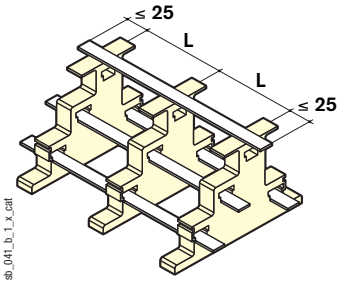
SBE 44
4 pole stair type supports

➲ Characteristics

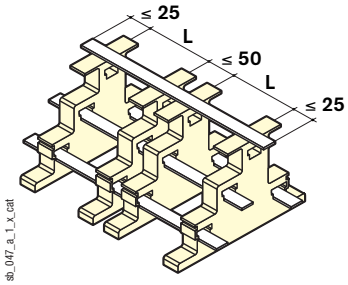
		Max. L (distance between centers of supports in mm) for						
	peak Isc	10 kA	15 kA	24 kA	38 kA	48 kA	63 kA	
	rms Isc	6 kA	9 kA	12 kA	19 kA	23 kA	30 kA	
Support	Bar x no.							Iz (A)(1)
Type 1	15 x 3 x 1	950	625	400	250	175		160
Type 1	15 x 5 x 1	1000	825	500	300	175		220
Type 1	15 x 6 x 1	1000	900	550	300	200		250
Type 1	15 x 8 x 1	1000	1000	650	300	200		290
Type 1	20 x 3 x 1	1000	825	525	300	175		210
Type 1	20 x 5 x 1	1000	1000	675	300	175		280
Type 1	20 x 6 x 1	1000	1000	750	300	175		310
Type 1	20 x 8 x 1	1000	1000	775	300	175		370
Type 1	32 x 5 x 1	1000	1000	675	250	170		410
Type 1	32 x 6 x 1	1000	1000	675	250	170		460
Type 2	15 x 3 x 1	950	625	400	250	200	150	160
Type 2	15 x 5 x 1	1000	825	500	325	250	175	220
Type 2	15 x 6 x 1	1000	900	550	350	275	200	250
Type 2	15 x 8 x 1	1000	1000	650	400	325	225	290
Type 2	20 x 3 x 1	1000	825	525	325	250	200	210
Type 2	20 x 5 x 1	1000	1000	675	425	325	225	280
Type 2	20 x 6 x 1	1000	1000	750	450	375	225	310
Type 2	20 x 8 x 1	1000	1000	850	525	375	225	370
Type 2	32 x 5 x 1	1000	1000	1000	525	325	175	410
Type 2	32 x 6 x 1	1000	1000	1000	525	325	175	460

(1) Admissible nominal current for a temperature in the enclosure of 45°C and 80°C for the bars.
Other assembly configurations: consult us.
Note: *Iz is given for solid bars only.*

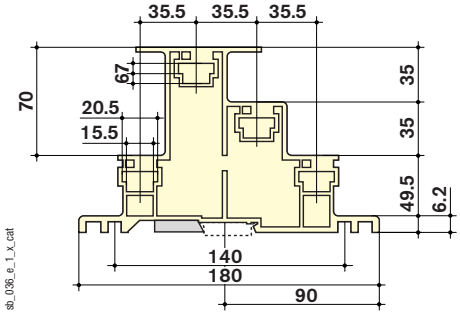
➲ Dimensions



Type 1: set of busbars including 2 (or more) equally spaced SB E 44 supports.



Type 2: set of busbars including 3 (or more) SB E 44 supports with doubled intermediary supports.



Fixation by oblong holes: distance between two holes 150 to 170 mm.

➲ References

No. of poles	Pack qty	Reference
4	1	5028 **0410**

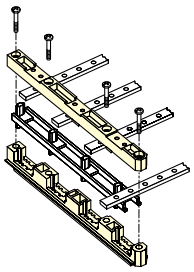
Description of accessories	Pack qty	Reference
270 mm long protection cover kit	1	5028 **0411**
420 mm long protection cover kit	1	5028 **0412**
620 mm long protection cover kit	1	5028 **0413**
Lot of 20 adaption protection cover spacers	1	5028 **0415**



SB P 10

Multipolar flat mounting busbar supports with fixed interphase

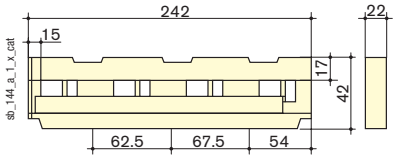
Characteristics



sb_159_a_1_x_cat

	Max. L (distance between centers of supports in mm) for						
peak Isc	10 kA	15 kA	24 kA	48 kA	63 kA		
rms Isc	6 kA	9 kA	12 kA	23 kA	30 kA		
Bar x no.						d min. (mm)	Iz (A)
12 x 5 x 1	1000	475	175			60	180
20 x 5 x 1	1000	1000	650	165		60	280
25 x 5 x 1	1000	1000	650	160		60	338
30 x 5 x 1	1000	1000	850	200	120	60	390
25 x 10 x 1	1000	1000	1000	250	150	60	508
30 x 10 x 1	1000	1000	1000	350	200	60	580

Dimensions



sb_144_a_1_x_cat

SB P 10: 1 bar with a thickness of 5 or 10 mm, width 12, 20, 25 or 30 mm.

Reference

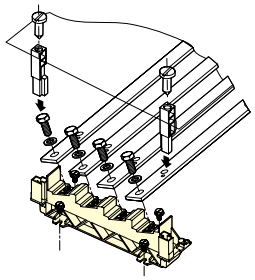
No. of poles	Isolation voltage (VAC)	Bar width (mm)	Pack qty	Reference
4	690	12-30	1	5026 **0460**



SB P 44

4-pole flat mounting busbar support with fixed interphase, for mounting tilted bars

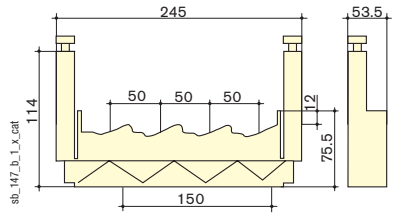
Characteristics



sb_165_b_1_x_cat

	Max. L (distance between centers of supports in mm) for							
peak Isc	10 kA	15 kA	24 kA	48 kA	63 kA	82 kA		
rms Isc	6 kA	9 kA	12 kA	23 kA	30 kA	39 kA		
Bar x no.							d min. (mm)	Iz (A)
20 x 5 x 1	1000	1000	800	350	200	125	50	280
25 x 5 x 1	1000	1000	1000	350	200	125	50	330
32 x 5 x 1	1000	1000	1000	350	200	120	50	390
25 x 10 x 1	1000	1000	1000	350	200	125	50	500
30 x 10 x 1	1000	1000	1000	350	200	120	50	580
32 x 10 x 1	1000	1000	1000	350	200	120	50	610

Dimensions



sb_147_b_1_x_cat

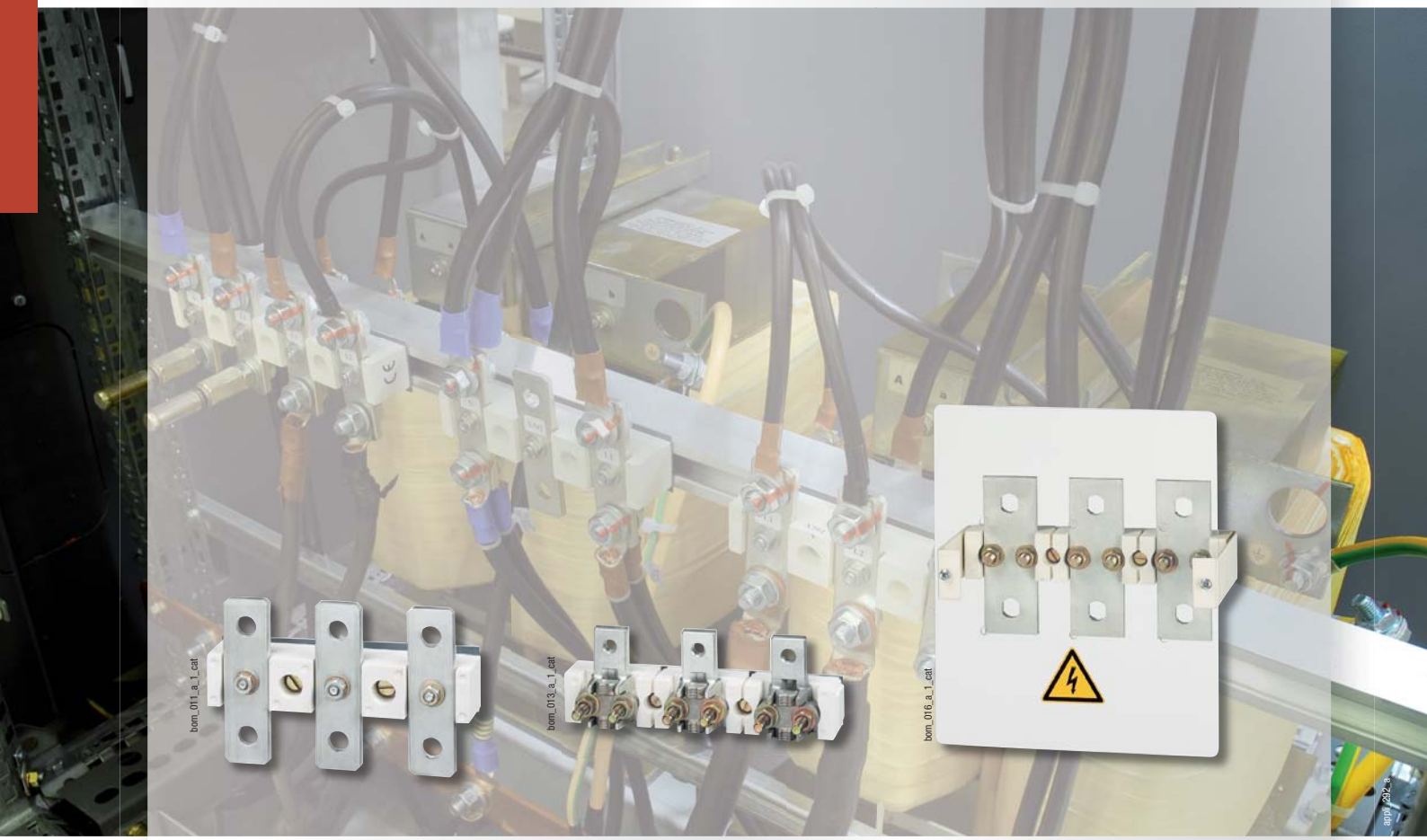
SB P 44: 1 bar with a thickness of 5 or 10 mm, width 20, 25, 30 or 32 mm.

Note: *protection cover not supplied.*

Reference

No. of poles	Isolation voltage (VAC)	Bar width (mm)	Pack qty	Reference
4	1 000	20-32	1	5026 **0450**

Power terminals



➲ Function

SOCOMEC **power terminals** provide connections for power circuits.They consist of connection plates fixed onto insulating brackets.

➲ General characteristics

- Tin-plated aluminium plates
- High dielectric strength.
- High mechanical resistance
- High resistance to humidity (supplied "tropicalised").

➲ The range

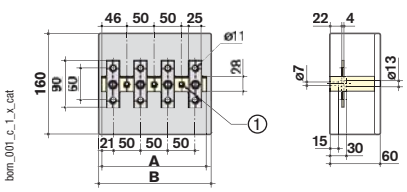
- 5 terminal models from 250 to 630 A, with 3 and 4 poles
- 2 methods of connection:
  - by lugs,
  - by cable clamps.
- Accessories: interphase screen, front cover to protect against unintentional contact.

➲ Conformity to standards

- IEC 60439-1
- DIN 46206



➲ Dimensions



1. M6 screws mounting.

Type 1

➲ References

I_{max} (A)	Top connection by	Bottom connection by	No of poles	A (mm)	B (mm)	Reference
250	lugs	lugs	3 P	142	151	4501 **0003**(1)
250	lugs	lugs	4 P	192	201	4501 **0004**(1)

(1) Terminals supplied without terminal shroud.

Accessories

Type	Reference
Protective cover for 3 pole terminals	4501 **1003**
Protective cover for 4 pole terminals	4501 **1004**



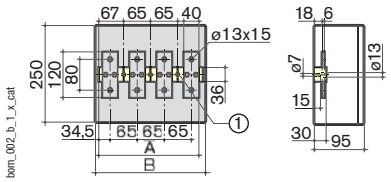
Type 2

References

I_{max} (A)	Top connection by	Bottom connection by	No of poles	A (mm)	B (mm)	Reference
630	lugs	lugs	3 P	197	206	4502 **0003**(1)
630	lugs	lugs	4 P	262	271	4502 **0004**(1)

(1) Terminals supplied without terminal shroud.

Dimensions



1. M6 screws mounting.

Accessories

Type	Reference
Protective cover for 3 pole terminals	4502 **1003**
Protective cover for 4 pole terminals	4502 **1004**
Interphase screen	4500 **0107**



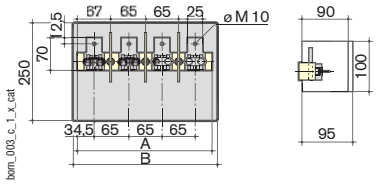
Type 3

References

I_{max} (A)	Top connection by	Bottom connection by	No. of poles	A (mm)	B (mm)	Reference
400	lugs	cable clamps(1)	3 P	197	206	4503 **0003**(2)
400	lugs	cable clamps(1)	4 P	262	271	4503 **0004**(2)

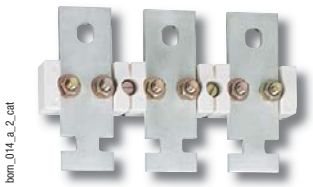
(1) 185 mm² cable clamps included.
(2) Terminals supplied without terminal shroud.

Dimensions



Accessories

Type	Reference
Protective cover for 3 pole terminals	4502 **1003**
Protective cover for 4 pole terminals	4502 **1004**
Interphase screen	4500 **0106**



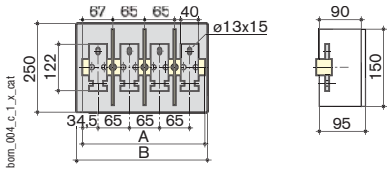
Type 4

References

I_{max} (A)	Top connection by	Bottom connection by	No. of poles	A (mm)	B (mm)	Reference
500	lugs	cable clamps(1)	3 P	197	206	4504 **0003**(2)
500	lugs	cable clamps(1)	4 P	262	271	4504 **0004**(2)

(1) 240 mm² cable clamps non included.
(2) Terminals supplied without terminal shroud.

Dimensions



Accessories

Type	Reference
Protective cover for 3 pole terminals	4502 **1003**
Protective cover for 4 pole terminals	4502 **1004**
Interphase screen	4500 **0107**



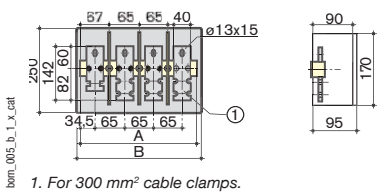
Type 5

References

I_{max} (A)	Top connection by	Bottom connection by	No. of poles	A (mm)	B (mm)	Reference
630	lugs	cable clamps(1)	3 P	197	206	4505 **0003**(2)
630	lugs	cable clamps(1)	4 P	262	271	4505 **0004**(2)

(1) 300 mm² cable clamps non included.
(2) Terminals supplied without terminal shroud.

Dimensions

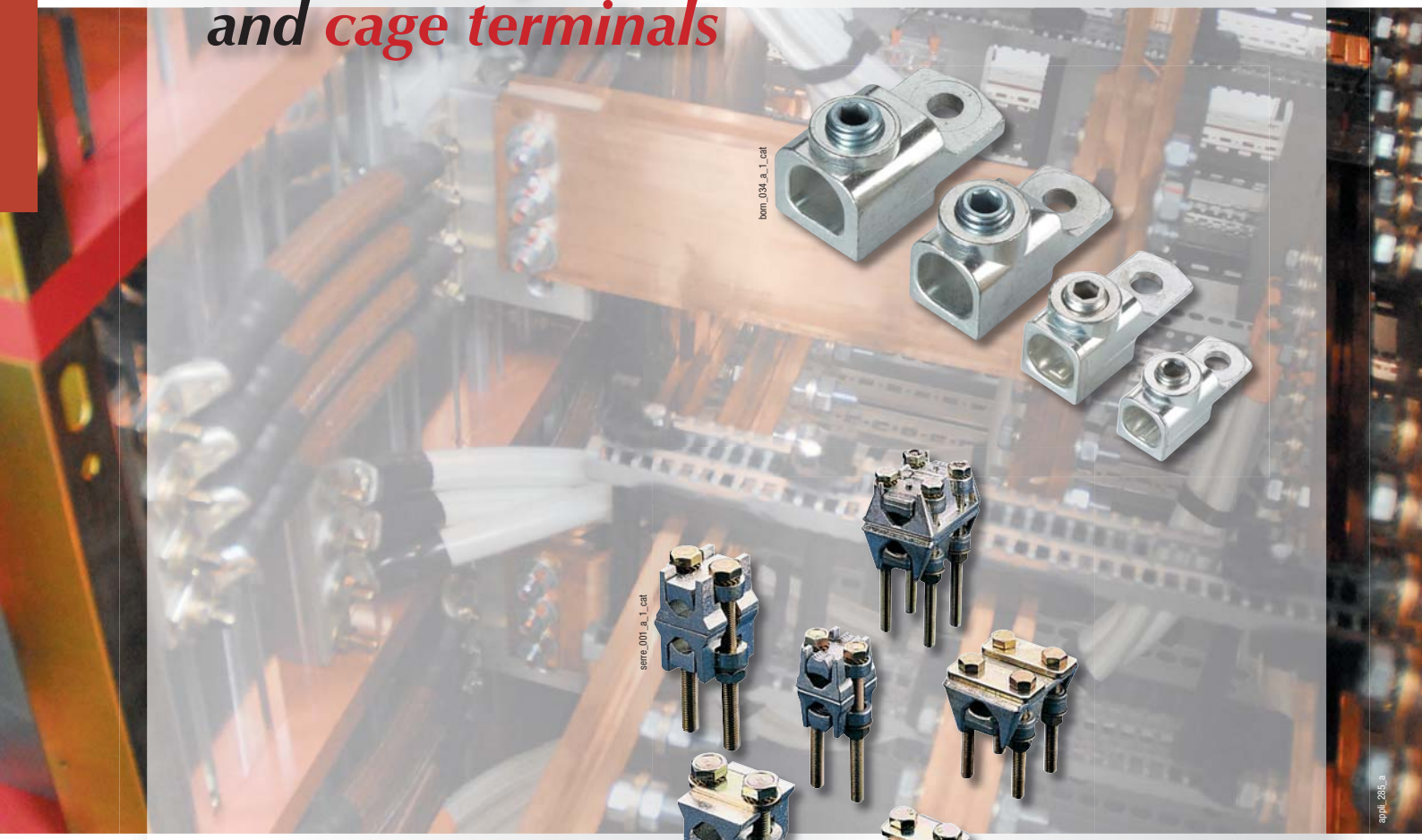


1. For 300 mm² cable clamps.

Accessories

Type	Reference
Protective cover for 3 pole terminals	4502 **1003**
Protective cover for 4 pole terminals	4502 **1004**
Interphase screen	4500 **0108**

Cable clamps and cage terminals



➲ Function

SOCOMEC power **cable clamps** ensure the connection of copper or aluminium cables onto plates or onto bars.
Available in aluminium or tin-plated brass, they provide: increased mechanical resistance and high resistance to humidity (supplied "tropicalised").

SOCOMEC **cage terminals** are connection devices fixed onto the connection plates of SOCOMEC switches, changeover switches and fuse switches. They enable a direct terminal-free connection to the rigid copper and aluminium conductors and integration under the IP2 protective cover.

➲ Composition of the range

Cable clamps

- 3 cross-section ranges from 35 to 300 mm²
- 2 cable clamp models with bracket mounting: single-double.

Cage terminals

- Ratings: From 160 to 630 A.
- Number of poles: 3 and 4.
- Material: tin-plated aluminium.

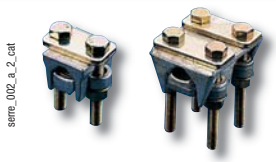
➲ Conformity to standards

Cable clamps

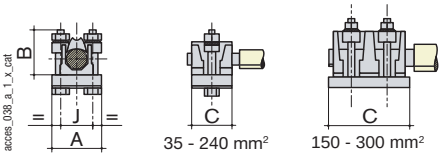
- IEC 60439-1
- DIN 46206

Cage terminals

- IEC 60947-1 (if mounted to SOCOMEC devices)
- NF C 63-060
- NF C 63-062



➲ Dimensions



Single cable clamps

➲ References

Tightening capacity (mm²)	Ø maxi cabling (mm)	Corresponding power terminals	Reference
35 … 185	17	Type 4	4500 **0013**
95 … 240	20	Type 4	4500 **0022**
150 … 300	25	Type 5	4500 **0028**

Tightening capacity (mm²)	A	B	C	J
35 … 185	42	48	35	26
95 … 240	54	50	45	31.5
150 … 300	53	50	60	33

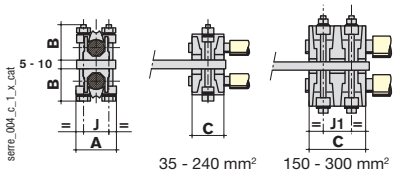


Double cable clamps

References

Tightening capacity (mm²)	Ø maxi cabling (mm)	Corresponding power terminals	Reference
35 … 185	17	Type 4	4500 **0031**
95 … 240	20	Type 4	4500 **0032**
150 … 300	25	Type 5	4500 **0034**

Dimensions



Tightening capacity (mm²)	A	B	C	J	J_1
35 … 185	42	48	35	26	
95 … 240	54	50	45	31.5	
150 … 300	53	50	60	33	33

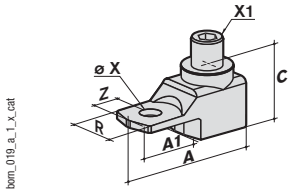


Single cage terminals

References

Tightening capacity (mm²)	Rating of switch (A)	No. of poles	Tightening torque (Nm)	Width flexible bar (mm)	Reference
16 … 95	160	3 P	14	13	5400 **3016**
16 … 95	160	4 P	14	13	5400 **4016**
16 … 185	250	3 P	25	18	5400 **3025**
16 … 185	250	4 P	25	18	5400 **4025**
50 … 240	400	3 P	45	20	5400 **3040**
50 … 240	400	4 P	45	20	5400 **4040**
70 … 300	630	3 P	45	24	5400 **3063**
70 … 300	630	4 P	45	24	5400 **4063**

Dimensions



Rating of switch (A)	A	A_1	C	E	R	T	ØX	X_1	Z
160	47.5	22.5	25	12	20	3.5	8.5	M12	10
250	62	31.5	31.5	16.5	25	2.5	10.5	M16	14
400	71.5	32	38	9	32	5	10.5	M20	15
630	76.5	37	38	9	40	5	12.5	M20	15

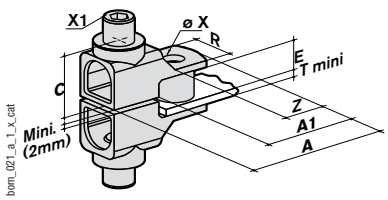


Double cage terminals

References

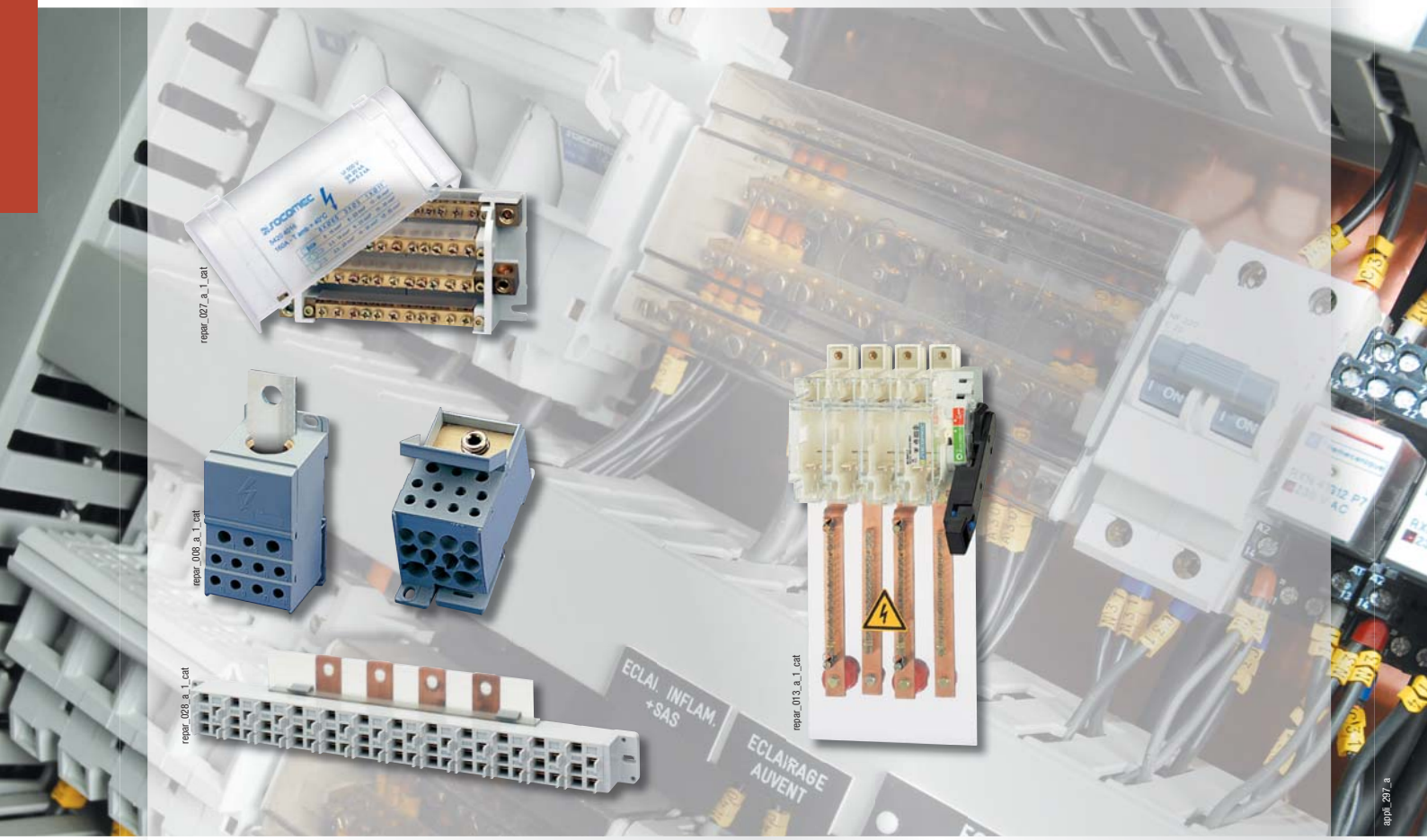
Tightening capacity (mm²)	Rating Switch (A)	No. of poles	Tightening torque (Nm)	Width flexible bar (mm)	Reference
16 … 95	160	3 P	14	13	5400 **3216**
16 … 95	160	4 P	14	13	5400 **4216**
16 … 185	250	3 P	25	18	5400 **3225**
16 … 185	250	4 P	25	18	5400 **4225**
50 … 240	400	3 P	45	20	5400 **3240**
50 … 240	400	4 P	45	20	5400 **4240**
70 … 300	630	3 P	45	24	5400 **3263**
70 … 300	630	4 P	45	24	5400 **4263**

Dimensions



Rating of switch (A)	A	A_1	C	E	R	T	ØX	X_1	Z
160	47.5	22.5	25	12	20	3.5	8.5	M12	10
250	62	31.5	31.5	16.5	25	2.5	10.5	M16	14
400	71.5	32	38	9	32	5	10.5	M20	15
630	76.5	37	38	9	40	5	12.5	M20	15

Distribution blocks



➲ Function

SOCOMEC **distribution blocks** allow easy connection of conductors.
They are installed downstream of a load break switch, a changeover switch or a fuse combination switch.

➲ Composition of the range

- 7 ratings from 80 to 360 A in 1, 2, 3 and 4 poles.
- 2 connection modes:
  - direct or ferrules,
  - cable lugs.

➲ General characteristics

- Insulating voltage:
  - ferrules terminal distribution block: 500 V,
  - modular row terminal distribution block: 690 V,
  - wire-terminal distribution block: 1000 V.
- Impulse voltage:
  - ferrules terminal distribution block: 6 kV,
  - modular row terminal distribution block: 6 kV,
  - wire-terminal distribution block: 8 kV.
- Self-extinguishing: 960°C.

➲ Conformity to standards

- IEC 60439-1
- EN 60439-1
- NF C 20455

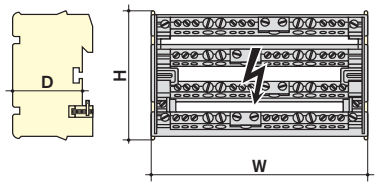
Direct or cable connection

Bridge multipolar distribution block

repar_027_a_2_cat



repar_009_a_1_gb_cat



Direct or cable connection distribution blocks which can be clipped onto a symmetric DIN rail.

References

Rating (A)	No. of poles	No of feeders per section (mm²)	Dimensions H x W x D (mm)	Icc (kA rms)(1)	Reference
125	3/4 P	2x25 + 7x10	85 x 88 x 48	3	5420 **4108**
125	3/4 P	2x25 + 2x16 + 9x10	85 x 129 x 48	4.2	5420 **4112**
160	3/4 P	1x35 + 3x25 + 8x16(2)	90 x 160.5 x 50	6.2	5420 **4016**

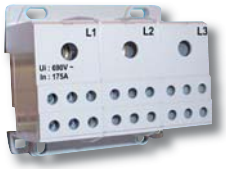
(1) Short circuit withstand (rms value) 1 second.
(2) Maximum section of flexible cable.

Dimensions

Rating (A)	H (mm)	W (mm)	D (mm)
125	98	74.5	45
175	80	71.5	42.5

Monoblock multipolar distribution block

repar_039_a_1_cat



References

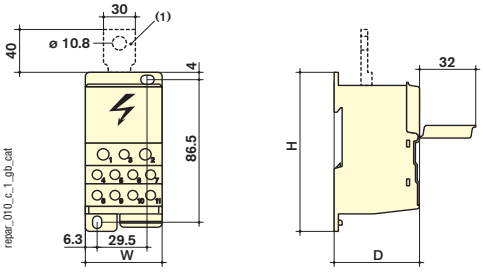
Rating (A)	No. of poles	Dimensions H x W x D (mm)	Reference
125	4 P	98 x 74.5 x 45	5410 **4112**
175	3 P	80 x 71.5 x 42.5	5410 **3017**

Unipolar distribution blocks

repar_008_a_2_cat



repar_010_c_1_gb_cat



Direct or cable connection distribution blocks, IP20 which can be clipped onto a symmetric DIN rail.

References

Rating (A)	Dimensions H x W x D (mm)	Switch mounting N (mm)	Icm (kA rms)	Reference
80	66 x 27 x 47	56.5	1.9	5410 **1008**
125	74.5 x 27 x 46.5	65	4.4	5410 **1012**
175	71 x 45 x 43.5	60.5	11	5410 **1017**
250	96 x 45 x 50	86	21	5410 **1025**
400	96 x 45 x 50	86	21	5410 **1040**

Description of accessories	Reference
Connection for rating 250 A(1)	5410 **0025**
Connection for rating 400 A(1)	5410 **0040**

(1) Linking part enabling direct assembly on the connecting lugs of the switching device.

Dimensions

Rating (A)	Dimensions H x W x D	Icc (kA rms)(1)
80	47 x 66 x 27	1.9
125	46 x 74 x 27	4.4
175	42.5 x 71 x 45	11
250	44.5 x 96 x 50	21
400	44.5 x 96 x 50	21

(1) Short circuit withstand (rms value) 1 second.

Connections

Rating (A)	Power supply section (mm²)	No of phases per section (mm²)
80	< 16	4 x 6 + 2 x 16
125	< 35	6 x 2.5 to 16
175	16 ... 70	10 x 2.5 to 16
250	35 … 120	2 x 25 + 5 x 16 + 4 x 10
400	95 … 185	2 x 25 + 5 x 16 + 4 x 10
125	Phase : 5 x 1 to 6 + 2 x 1.5 to 10 / Neutral: 6 x 1.5 10 + 4 x + 1.5 x 6	
175	6 x 2.5 to 16	

Earth bar

barre_006_a_2_cat

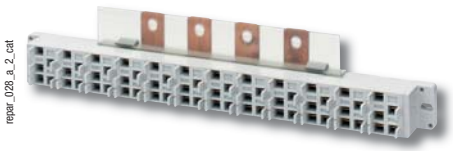


References

Mounting by	No of feeders per section (mm²)	Material	L (mm)	Pack qty	Reference
2 self M4	10 x 16 + 2 x 35	brass	120	10	5414 **0120**
2 self M6	41 x 16 + 2 x 35	brass	470	10	5414 **0470**

Row distribution blocks

Row distribution block with connectors

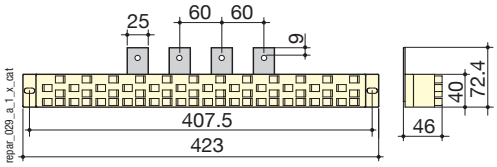


References

Rating (A)	Length	With connector leads[1]	Icm (kA rms)	Reference
250[2]	1 Row	yes	10	5420 **2426**
250[2]	1 Row	no	10	5421 **2426**

(1) Delivered with 6 mm² connector leads, L = 120 mm, 12 black connectors, 12 blue connectors.
(2) Preferably the terminations will be distributed over the entire number or terminals.

Dimensions



Distribution blocks designed to supply power to a row of modular devices. IP20.

Connection
- *12 three pole/four pole connections*
- *24 single phase connections*
- *Maximum current = 63 A*

Cables Rating (A)	Type	Length (mm)	Colour	Pack qty	Reference
40	6 mm² cable	120	Blue	4	5421 **1006**
40	6 mm² cable	120	Black	10	5421 **1016**
40	6 mm² cable	320	Blue	10	5421 **1106**
40	6 mm² cable	320	Black	10	5421 **1116**
63	10 mm² cable	320	Blue	10	5421 **1101**
63	10 mm² cable	320	Black	10	5421 **1111**
40	2.5 mm² connector			20	5421 **0025**
63	6 mm² connector			20	5421 **0125**

Row distribution block with screws



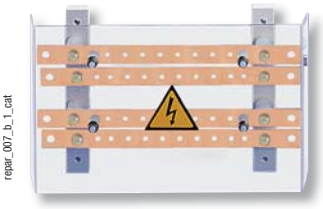
References

Rating (A)	Dimensions H x W x D (mm)	No of connections Phase	Neutral	Reference
80	50 x 24 modules x 40	3 x 8	2 x 8	5420 **2408**
80	50 x 36 modules x 40	3 x 12	2 x 12	5420 **3608**

Adapter for cable up to 35 mm² Section (mm²)	Pack qty	Reference
35	4	5420 **0001**

Terminal connections

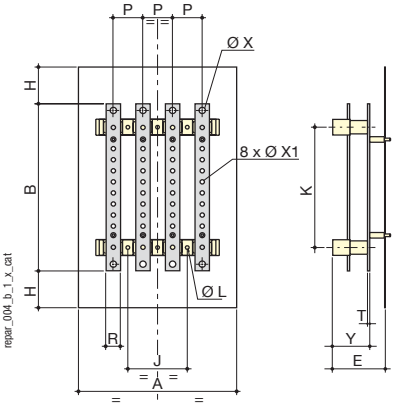
Multipolar distribution blocks



References

Rating (A)	No. of poles	Icm (kA rms)	No of feeders per section (mm²)	Reference
160	3 P	10	2 x 95 + 8 x 25	5412 **3016**
160	4 P	10	2 x 95 + 8 x 25	5412 **4016**
250	3 P	15	2 x 150 + 8 x 50	5412 **3025**
250	4 P	15	2 x 150 + 8 x 50	5412 **4025**
400	3 P	21	2 x 240 + 8 x 95	5412 **3040**
400	4 P	21	2 x 240 + 8 x 95	5412 **4040**
630	3 P	21	2 x 300 + 8 x 150	5412 **3063**
630	4 P	21	2 x 300 + 8 x 150	5412 **4063**

Dimensions

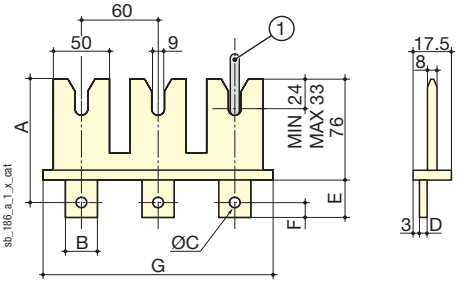


Rating (A)	No. of poles	A	B	E	H	J	K	ØL	P	R	T	ØX	ØX1	Y
160	3 P	154	286	73	46.5	122	207	6.5	36	20	4	9	6	54
160	4 P	190	286	73	46.5	158	207	6.5	36	20	4	9	6	54
250	3 P	210	307	83	57.5	50	222	7	50	25	4	11	8	56
250	4 P	260	307	83	57.5	100	222	7	50	25	4	11	8	56
400	3 P	281	375	116	82.5	65	270	8	65	32	5	14.5	8.5	82
400	4 P	346	375	116	82.5	130	270	8	65	32	5	14.5	8.5	82
630	3 P	271	438	117	90.5	65	333	8	65	40	6	14.5	10.5	83
630	4 P	346	438	117	90.5	130	333	8	65	40	6	14.5	10.5	83

Terminal connections distribution blocks with front protection cover against direct contact.

Plug-in unit for 5 to 6.3 mm bars

Dimensions



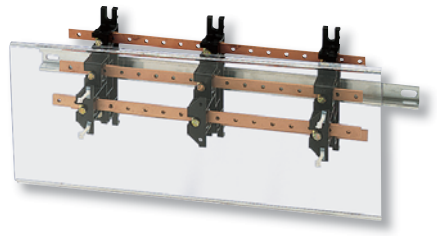
1. Dropper busbar with a thickness of 5 to 6.3 mm.

References

Rating (A)	No. of poles	Reference
125/160	3 P	3699 **3P16**
125/160	4 P	3699 **6P16**
250/400	3 P	3699 **3P39**
250/400	4 P	3699 **6P39**
630/800	3 P	3699 **3P80**
630/800	4 P	3699 **6P80**

Rating (A)	No. of poles	A	B	C	D	E	F	G
125/160	3 P	99	20	M8	3	23	10	186
125/160	4 P	99	20	M8	3	23	10	248
250/400	3 P	101.5	25	M10	4	28	12.5	186
250/400	4 P	101.5	25	M10	4	28	12.5	248
630/800	3 P	101.5	25	M10	4	28	12.5	186
630/800	4 P	101.5	25	M10	4	28	12.5	248

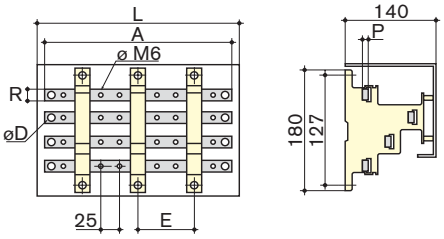
Stair type multipolar distribution blocks


repar_012_b_1_cat

References

Rating (A)	L (mm)	No. of poles	Icc (kA rms)	No. of supports	Distribution block Reference	Protection cover Reference
160	270	4 P	25	2	5028 **0421**	5028 **0411**
160	420	4 P	17	2	5028 **0451**	5028 **0412**
160	620	4 P	20	3	5028 **0471**	5028 **0413**
250	270	4 P	30	2	5028 **0423**	5028 **0411**
250	420	4 P	22	2	5028 **0453**	5028 **0412**
250	620	4 P	18	3	5028 **0473**	5028 **0413**
400	270	4 P	24	2	5028 **0425**	5028 **0411**
400	420	4 P	21	2	5028 **0455**	5028 **0412**
400	620	4 P	13	3	5028 **0475**	5028 **0413**

Dimensions



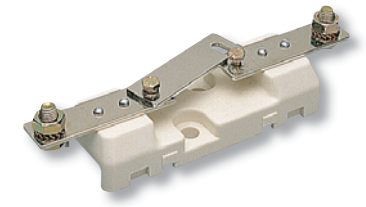
repar_040_a_1_x_cat

Stair type distribution blocks with threaded holes. Can be clipped onto a symmetric DIN rail.
Factory assembled and supplied without protection cover

Type	Pack qty	Reference
Spacer for protection cover	1	5028 **0415**

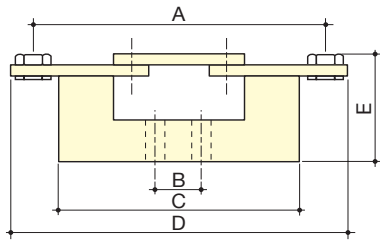
Rating (A)	Nb of terminations	A	ØD	E	L	P	R
160	9	250	8	150	270	5	15
160	15	400	8	300	420	5	15
160	21	600	8	250	620	5	15
250	9	250	10	150	270	5	20
250	15	400	10	300	420	5	20
250	21	600	10	250	620	5	20
400	8	225	12	150	270	5	32
400	14	375	12	300	420	5	32
400	20	620	12	250	620	5	32

Disconnectable solid neutral links


repar_030_a_2_cat

References

Rating (A)	Connection type	Reference
160	Direct or cable connection	NB10 **0000**
160	Terminal connections	NB16 **0000**
250	Terminal connections	NB25 **0000**
400	Terminal connections	NB40 **0000**
800	Terminal connections	NB63 **0000**



shunt_012_a_1_x_cat

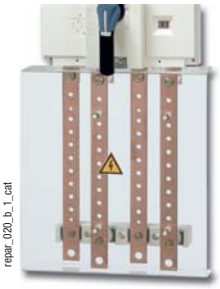
Dimensions

Rating (A)	A	B	C	D	E	Width max. (mm)
160	100	25	86	117	32	32
160	100	25	86	117	44	32
250	150	25	120	172	45	32
400	175	25 (1)	151	200	60	55
800	175	25 (1)	151	200	40	55

(1) Offset fixing holes.

Terminal connections (continued)

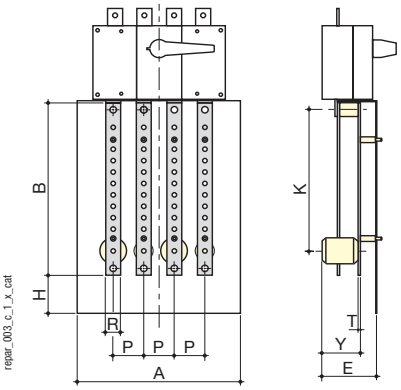
SIRCO multipolar distribution blocks


repar_020_b_1_cat

References

Rating (A)	No. of poles	Icc (kA rms)	No of feeders per section (mm²)	Reference
160	3 P	10	1 x 95 + 8 x 25	5411 **3016**
160	4 P	10	1 x 95 + 8 x 25	5411 **4016**
250	3 P	15	1 x 150 + 8 x 50	5411 **3025**
250	4 P	15	1 x 150 + 8 x 50	5411 **4025**
400	3 P	21	1 x 240 + 8 x 95	5411 **3040**
400	4 P	21	1 x 240 + 8 x 95	5411 **4040**
630	3 P	21	1 x 300 + 8 x 150	5411 **3063**
630	4 P	21	1 x 300 + 8 x 150	5411 **4063**

Dimensions



repar_003_c_1_x_cat

Rating (A)	No. of poles	A	B	E	H	K	P	R	T	Y
160	3 P	154	286	73	46.5	261.5	36	20	4	54
160	4 P	190	286	73	46.5	261.4	36	20	4	54
250	3 P	210	307	83	57.5	279	50	25	4	56
250	4 P	260	307	83	57.5	279	50	25	4	56
400	3 P	281	375	116	82.5	340	65	32	5	82
400	4 P	346	375	116	82.5	340	65	32	5	82
630	3 P	271	438	117	90.5	410.5	65	40	6	83
630	4 P	346	438	117	90.5	410.5	65	40	6	83

Terminal connections distribution blocks with front protection cover against direct contact (breaking device not supplied).

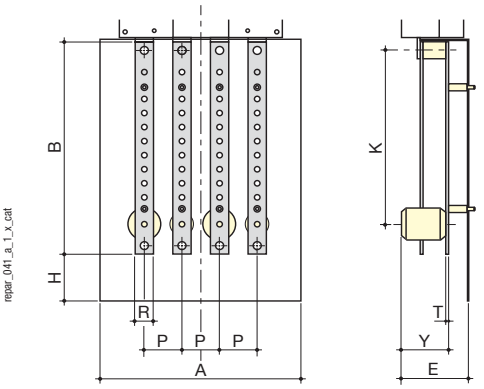
Multipolar distribution blocks for FUSERBLOC and SIRCO VM2


repar_013_a_2_cat

References

Rating (A)	Fuse size	No. of poles	Device	No of feeders per section (mm²)	Reference
100/125/160	22x58/00	3 P	FUSERBLOC	10x16 + 2x35 + 3xM6	5413 **3016**
100/125/160	22x58/00	4 P	FUSERBLOC	10x16 + 2x35 + 3xM6	5413 **4016**
160	0	3 P	FUSERBLOC	10x16 + 2x35 + 3xM6	5413 **3017**
160	0	4 P	FUSERBLOC	10x16 + 2x35 + 3xM6	5413 **4017**
250	1	3 P	FUSERBLOC	11 x M8	5413 **3025**
250	1	4 P	FUSERBLOC	11 x M8	5413 **4025**
400	2	3 P	FUSERBLOC	11 x M8	5413 **3040**
400	2	4 P	FUSERBLOC	11 x M8	5413 **4040**
160/200		3 P	SIRCO VM2	10x16 + 2x35 + 3xM6	5413 **3020**
160/200		4 P	SIRCO VM2	10x16 + 2x35 + 3xM6	5413 **4020**

Dimensions



repar_041_a_1_x_cat

Rating (A)	No. of poles	Device	A	B	E	H	K	P	R	T	Y
100/125/160	3 P	FUSERBLOC	110	260	61	20	233	36	20	4	39
100/125/160	4 P	FUSERBLOC	145	260	61	20	233	36	20	4	39
160	3 P	FUSERBLOC	150	260	61	20	233	50	20	4	39
160	4 P	FUSERBLOC	200	260	61	20	233	50	20	4	39
250	3 P	FUSERBLOC	185	340	67	15	300	60	32	5	45
250	4 P	FUSERBLOC	245	340	67	15	300	60	32	5	45
400	3 P	FUSERBLOC	210	340	67	15	300	66	32	5	45
400	4 P	FUSERBLOC	275	340	67	15	300	66	32	5	45
160/200	3 P	SIRCO VM2	142	260	61	20	233	27.5	20	4	39
160/200	4 P	SIRCO VM2	142	260	61	20	233	27.5	20	4	39

Mounting rails and profiles



➲ Function

SOCOMEC frame parts come in steel, 304 L stainless steel or aluminium (profiles and accessories) and allow the fixing of any electrical equipment.

➲ General characteristics

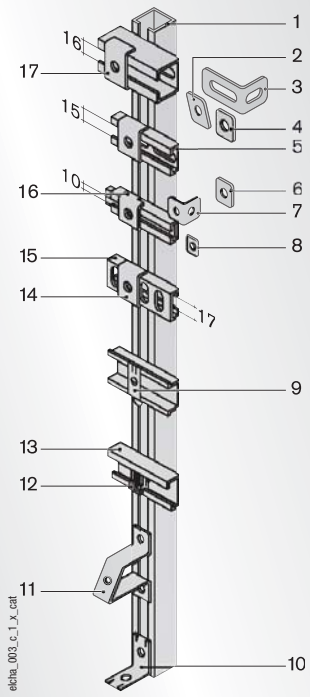
- High dielectric strength.
- Good corrosion resistance (white zinc-coated steel, stainless steel or aluminium).

➲ Conformity to standards

- EN 60715

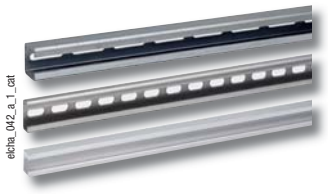
➲ Composition of the range

1. Profile C 20 x 14 - 30 x 15 - 35 x 35
2. Diamond shaped nut 33 x 11 - 34 x 20
3. Bracket 45 x 60 x 25 2 oblong holes: 35 x 9 ou 25 x 9
4. Rectangular nut 28 x 35
5. Profile C 30 x 15
6. Square nut 25 x 25
7. Bracket 25 x 25 x 19
8. Square nut 15.5 x 15.5
9. Fixomega
10. Bracket 36 x 36 x 23
11. Terminal block support
12. Fixocap
13. Asymmetrical profile
14. Straddle bracket 30 x 15
15. Cable support profile
16. Straddle bracket 20 x 14
17. Straddle bracket 35 x 35



References

Profile C

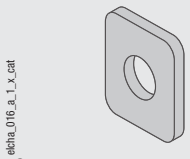

elcha_042_a_1_cat

W x H x e (mm)	Perforations (mm)	Perforation centres (mm)	Material	Profiles length (m)	To be ordered by multiple	Reference
20 x 14 x 1.5	8.2 x 40	50	Steel z-b(1)	3	30 m	5000 **0120**
30 x 15 x 1.5	8.2 x 40	50	Steel z-b(1)	3	30 m	5000 **0121**
35 x 35 x 2	8.2 x 40	50	Steel z-b(1)	2	12 m	5000 **0132**
35 x 35 x 2	8.2 x 40	50	Steel z-b(1)	3	18 m	5000 **0122**
30 x 15 x 1.5	6.3 x 18	50	Stainless steel	2	10 m	5000 **1021**
20 x 15 x 2	without		Aluminium	2	10 m	SA12 **4202**
20 x 15 x 2	without		Aluminium	3	15 m	SA13 **4202**
20 x 15 x 2	without		Aluminium	6	30 m	SA10 **4202**
29 x 19 x 2.5	without		Aluminium	2	10 m	SA12 **4201**
29 x 19 x 2.5	without		Aluminium	3	15 m	SA13 **4201**
29 x 19 x 2.5	without		Aluminium	6	30 m	SA10 **4201**

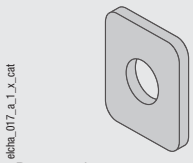
(1) White zinc-coated.

Profile C

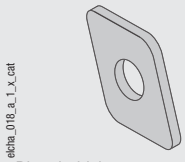
Screws


elcha_016_a_1_x_cat

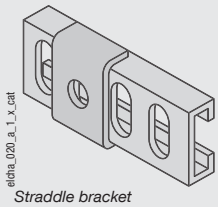
Square nut


elcha_017_a_1_x_cat

Rectangular nut


elcha_018_a_1_x_cat

Rhomboidal nut


elcha_020_a_1_x_cat

Straddle bracket

Type	Insert M	Dimension H x W (mm)	For profiles	To be ordered by multiple	Reference
Square nut	M3	15.5 x 15.5	20 x 14	100	5000 **0023**
Square nut	M4	15.5 x 15.5	20 x 14	100	5000 **0024**
Square nut	M5	15.5 x 15.5	20 x 14	100	5000 **0025**
Square nut	M6	15.5 x 15.5	20 x 14	100	5000 **0026**
Square nut	M8	15.5 x 15.5	20 x 14	100	5000 **0028**
Square nut	M8	25 x 25	30 x 15	100	5000 **0029**
Rectangular	M8	35 x 28	35 x 35	100	5000 **0037**
Rectangular	M18	35 x 28	35 x 35	100	5000 **0039**
Rhomboidal nut	M3	33 x 11	30 x 15	100	5000 **0033**
Rhomboidal nut	M4	33 x 11	30 x 15	100	5000 **0034**
Rhomboidal nut	M5	33 x 11	30 x 15	100	5000 **0035**
Rhomboidal nut	M6	34 x 20	35 x 35	100	5000 **0036**
Rhomboidal nut	M8	34 x 20	35 x 35	100	5000 **0038**
Straddle bracket	Ø 8.2		20 x 14	100	5000 **0010**
Straddle bracket	Ø 8.2		30 x 15	100	5000 **0011**
Straddle bracket	Ø 8.2		35 x 35	100	5000 **0012**

Foam


elcha_029_a_1_cat

Type	l x e (mm)	Pack qty	Reference
Roll of 60 meter foam(1)	20 x 12	1	5000 **0057**
Roll of 60 meter foam(1)	25 x 12	1	5000 **0058**

(1) Allows to maintain the nuts in the symmetrical profiles.

Asymmetrical DIN rail


elcha_040_a_1_cat

W x H x e (mm)	Perforations (mm)	Perforation centres (mm)	Material	Profiles length (m)	To be ordered by multiple	Reference
35 x 7.5 x 1	Without		Steel z-b(1)	2	30 m	5000 **0302**
35 x 7.5 x 1	6.3 x 18	25	Steel z-b(1)	2	30 m	5000 **0042**
35 x 7.5 x 1	Without		Stainless steel	2	10 m	5000 **1302**

(1) White zinc-coated.

Asymmetrical DIN rail


elcha_043_a_1_cat

W x H x e (mm)	Perforations (mm)	Perforation centres (mm)	Material	Profiles length (m)	To be ordered by multiple	Reference
35 x 15 x 1.5	Without		Steel z-b(1)	2	30 m	5000 **0301**
35 x 15 x 1.5	Without		Steel z-b(1)	3	30 m	5000 **0331**
35 x 15 x 2.3	Without		Steel z-b(1)	2	10 m	5000 **0017**
35 x 15 x 2.3	Without		Steel z-b(1)	3	30 m	5000 **0027**
35 x 15 x 1.5	6.3 x 18	25	Steel z-b(1)	2	30 m	5000 **0043**
35 x 15 x 1.5	6.3 x 18	25	Steel z-b(1)	3	30 m	5000 **0343**
35 x 15 x 2.5	Without		Aluminium	2	12 m	SA12 **4217**
35 x 15 x 2.5	Without		Aluminium	3	18 m	SA13 **4217**
35 x 15 x 2.5	Without		Aluminium	6	36 m	SA10 **4217**

(1) White zinc-coated.

Asymmetrical DIN rail

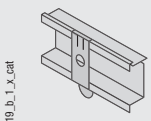

elcha_041_a_1_cat

W x H x e (mm)	Perforations (mm)	Perforation centres (mm)	Material	Profiles length (m)	To be ordered by multiple	Reference
32 x 15 x 1.5	Without		Steel z-b(1)	2	30 m	5000 **0307**
32 x 15 x 1.5	Without		Steel z-b(1)	3	30 m	5000 **0308**
32 x 15 x 1.5	6.3 x 18	25	Steel z-b(1)	2	30 m	5000 **0044**
32 x 15.5 x 1.5	Without		Aluminium	2	8 m	SA12 **4210**
32 x 15.5 x 1.5	Without		Aluminium	3	12 m	SA13 **4210**
32 x 15.5 x 1.5	Without		Aluminium	6	24 m	SA10 **4210**

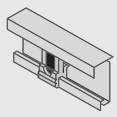
(1) White zinc-coated.

➲ Accessories

Fixomega / Fixocap


elcha_019_b_1_x_cat

Fixomega

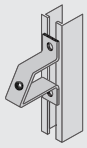


Fixocap

Type	Insert M	To be ordered by multiple	Reference
Fixomega(1)	M4	100	5000 **0041**
Fixomega(1)	M5	100	5000 **0051**
Fixocap(2)	m3/h	100	5800 **0003**
White Fixocap(2)	M4 / M6	100	5800 **0005**
Black Fixocap(2)	m3/h	100	5800 **0004**
Gray Fixocap(2)	M4 / M6	100	5800 **0006**

(1) Nut for symmetrical profile.
(2) Nut for asymmetrical profile.

Support for inclined mounting


elcha_022_a_1_x_cat

Type	Number of holes	Ø hole (mm)	Insert M	To be ordered by multiple	Reference
Support for inclined mounting	2	7	M5	10	5000 **0100**

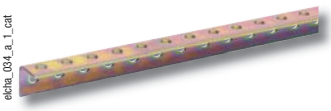
Cable support rail


elcha_033_a_1_cat

W x H x e (mm)	Perforations (mm)	Perforation centres (mm)	Material	Profiles length (m)	To be ordered by multiple	Reference
30 x 15 x 1	8.2 x 14.5	16.7	Galvanised steel	3	15 m	5000 **4325**
50 x 12 x 1	8.2 x 14.5	16.7	Galvanised steel	2	20 m	5000 **4326**

L profile

elcha_034_a_1_cat

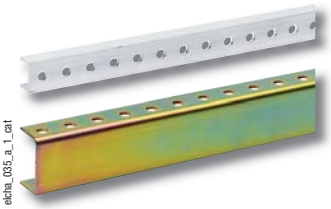


W x H x e (mm)	Ø perforations	Perforation centres (mm)	Material	Profiles length (m)	To be ordered by multiple	Reference
30 x 30 x 2.5	8.2	25	Steel z-b(1)	2	10 m	5254 **6401**
30 x 50 x 2.5	8.2	25	Steel z-b(1)	2	10 m	5254 **6501**
30 x 30 x 2.5	8.5 x 45	55	Steel z-b(1)	2	10 m	5000 **0003**
40 x 40 x 2.5	8.5 x 45	55	Steel z-b(1)	2	10 m	5000 **0004**

(1) White zinc-coated.

U profile

elcha_035_a_1_cat

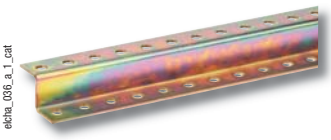


W x H x e (mm)	Ø perforations (mm)	Perforation centres (mm)	Material	Profiles length (m)	To be ordered by multiple	Reference
50 x 30 x 2.5	8.2	25	Steel z-b(1)	2	10 m	5254 **6701**
30 x 20 x 3	9	25	Aluminium	3	3 m	5254 **6901**

(1) White zinc-coated.

Z profile

elcha_036_a_1_cat

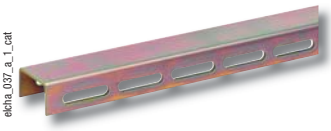


W x H x e (mm)	Ø perforations (mm)	Perforation centres (mm)	Material	Profiles length (m)	To be ordered by multiple	Reference
30 x 30 x 2.5	8.2	25	Steel z-b(1)	2	10 m	5254 **6601**

(1) White zinc-coated.

Rising U

elcha_037_a_1_cat



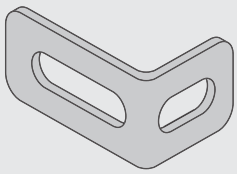
W x H x e (mm)	Ø perforations (mm)	Perforation centres (mm)	Material	Profiles length (m)	To be ordered by multiple	Reference
30 x 50 x 2.5	8.2 x 45	55	Steel z-b(1)	2	8 m	5000 **0005**

(1) White zinc-coated.

Accessories

Bracket

elcha_021_a_1_x_cat



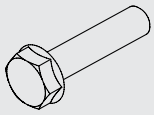
Use
For steel profile.

Characteristics
Bichromate zinc-coated steel.

H x W x D (mm)	Number of holes	Ø hole (mm)	Insert M	To be ordered by multiple	Reference
25 x 25 x 19	2	7		25	5000 **0045**
25 x 25 x 19	1	6	M6	25	5000 **0046**
36 x 36 x 23	2	8		25	5000 **0047**
45 x 60 x 25	2	9x25 / 9x35		25	5254 **6101**
44 x 75 x 32	5	5 / 6		1 (Set of 6)	5119 **5045**

Screws

elcha_038_a_1_x_cat



Use
For steel profile.

Characteristics
Bichromate zinc-coated steel.
Integrated washer

Thread	W (m)	Class	To be ordered by multiple	Reference
M6	10	8.8	100	5000 **0066**
M8	12	8.8	100	5000 **0068**
M8	16	8.8	100	5000 **0069**

Washer

amc_035_a_1_x_cat



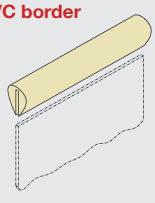
Use
For steel profile.

Characteristics
Bichromate zinc-coated steel.

Ø x e (mm)	Ø hole (mm)	To be ordered by multiple	Reference
16 x 1.5	6.5	100	5000 **0015**
19 x 1.5	6.5	100	5000 **0018**
22 x 1.5	8.5	100	5000 **0016**

PVC border

amc_036_a_1_x_cat



Use
PVC border for sheet metal.

Characteristics
Color Ligth grey

Steel thickness (mm)	To be ordered by multiple	Reference
2	25 m	7739 **0025**

Integrated products



Enclosures and cabinets equipped with breaking or protection functions



When they are not mounted in cabinets, load break switches, changeover switches or fuse combination switches are generally delivered enclosed. Placed as close as possible to the operator, their function is to guarantee his or her safety and to ensure continuity of operation.

For local safety breaking purposes, SOCOMEC - leader in this field - offers the widest range of equipped enclosures on the market. This dual expertise means we can offer you complete systems to meet your specific requirements (normal or explosive atmosphere).

The result of many years building on our experience, our enclosures are quick and easy to fit. These enable personnel who are not electricians to carry out work on the installation without risk of error and in complete safety, whilst adhering to the rules for ensuring safe electrical lockout.

On the next page, you will find our range of safety enclosures and local isolator enclosures.

Our services are regularly sought to create enclosures or boards according to specification. If this is of interest to you, please consult us.

Do not hesitate to make the most of our expertise! To find out more, please contact your SOCOMEC office.

The essential

Safety enclosures

Steel



p. 482

Polyester



p. 482

Local safety enclosures

Steel or polyester



Enclosed SIRCO
p. 492



Specific enclosures
p. 512

Changeover enclosures

Steel or polyester



Enclosed ATyS
p. 503



➲ **Discover our complete selection guide** *(see next page)*

➲ **Need a suggestion?** We will help you find the best solution for your application.

➲ **A special requirement?** SOCOMEC makes specific products. Please feel free to consult us.

Our range of products





➲ Our products meet the specific constraints of each application

- Mining - Cement works - Steel works - Heavy industry - Wood industry:

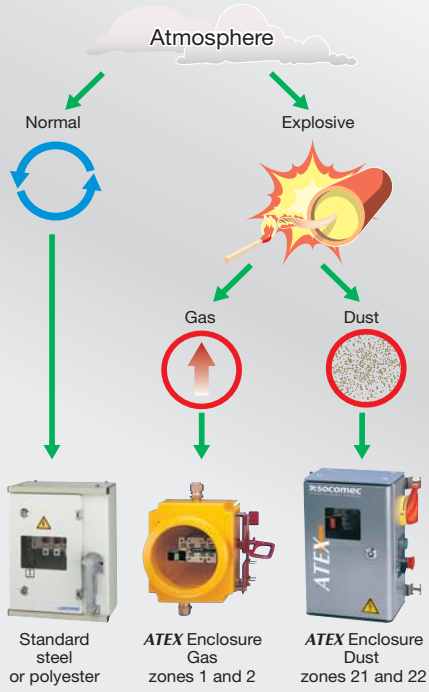
  Robustness - Reliability - Dust-resistance - Corrosion-resistance - Risks of explosion
- food and beverage industry:

  Resistance to humidity, and to dust - Risk of explosion due to dust or gas
- Chemical and petrochemical industries:

  Resistance to humidity and to corrosive atmospheres - Resistance to dust and to gas

➲ Which ambient atmosphere?

The environment is an essential parameter when choosing an enclosure. Our range of enclosures offers you solutions for the most varied of atmospheres, including the most severe.





SOCOMEC has the skills and resources to build enclosures and distribution switchboards to specification.
You will find a guide on page 512 for drawing up your request.

Please do not hesitate to contact us for suggestions or any requirements about your project.



Selection guide

Safety enclosures

Customised solutions
see page 512

For normal atmosphere

Steel



p. 484

Polyester



p. 486



For explosive atmospheres

Steel



p. 490



Local safety enclosures

With load break switches

Steel



Enclosed SIRCO
p. 493

Polyester



Enclosed SIRCO
p. 493



With fuse combination switches

Steel



Enclosed FUSERBLOC
p. 494

Polyester



Enclosed FUSERBLOC
p. 495



With changeover and ATS switches

Steel or polyester



Enclosed ATyS
p. 503

Steel or polyester

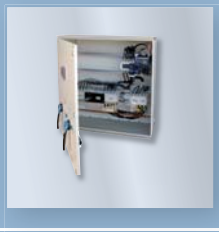


Enclosed ATyS M
p. 501

Steel or polyester



Enclosed SIRCOVER
p. 498



Enclosures and distribution switchboards

See page 512

Safety enclosures

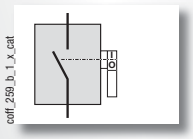


➲ Function

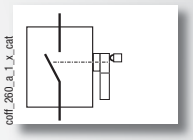
Safety enclosures equipped with SOCOMEC switches provide emergency breaking, breaking for mechanical maintenance and safety isolation in the vicinity of any low voltage final circuit.

➲ Conformity to standards

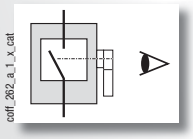
- IEC 60364
- EN 60204-1
- EN 60439
- EN 60695-2-11



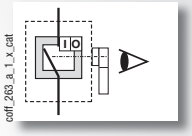
Isolator clearly evident



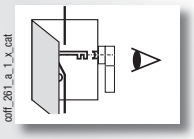
Triple padlocking of the handle



Visible breaking



mechanical flag indicator (Optional)



Double locked door

➲ General characteristics

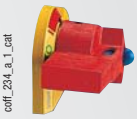
- **Steel enclosure:**
  - FeP01ZE, electrogalvanized, 2 mm thick,
  - 2 earth connection points,
  - IP55, Ik 10 (without window).
- **Polyester enclosure:**
  - good resistance to creepage current distance,
  - high resistance to chemicals,
  - self-extinguishing at 960°C,
  - 2 earth connection points.

Environment	Steel enclosure	Polyester enclosure
Chemical agression		•
Mechanical risk	•	
Dust risk	•	
Contamination risk		•
Atmospheric corrosion		•

Safety functions

Isolation clearly evident

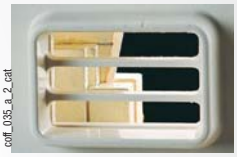

coff_233_a_1_cat


coff_234_a_1_cat

The handle can only indicate the “open” position if the contacts are actually open.
The marking of the label (position 0 or I) and the print stamp marking on the movable bar made in the factory allows fully visible isolation to be achieved.

Visible breaking

In position 1


coff_033_a_2_cat

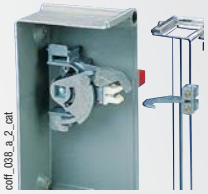
In position 0


coff_036_a_2_cat

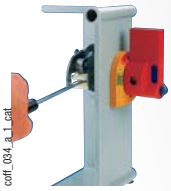
In accordance with NF C 13-100:“an isolating device is considered as having visible breaking if the separation of the contacts is directly visible.”

Double locking


coff_037_a_2_cat


coff_038_a_2_cat

Double locking system of the enclosure prevents the opening of the door when the breaking device is closed and prevents the closure of the breaking device when the door is open (ex: Side operation).


coff_034_a_1_cat

It is possible to close the breaking device when the enclosure door is open by using a tool to inhibit the double lock, thus allowing tests to be carried out by qualified staff.

Padlocking


coff_221_a_2_cat

The ergonomic handle can accommodate up to three locks.

Mechanical flag indicator (Optional)


coff_243_a_1_x_cat



coff_042_a_2_cat



coff_043_a_2_cat

Flush with the viewing glass and integral with the movable bar, it indicates the position of the contacts unambiguously and at a glance.
It provides easier visualisation of the visible breaking.

SIDER steel enclosure

➲ References



coff_156_b_1_cat



coff_159_a_3_cat

Rating (A)	No. of poles	Front operation[1] Connection top/bottom Reference	Front operation[1] Connection bottom/bottom Reference	Side operation[1] Connection top/bottom Reference	Side operation[1] Connection bottom/bottom Reference
50	3 P	3211 **3005**	3221 **3005**	3261 **3005**	3271 **3005**
50	4 P	3211 **4005**	3221 **4005**	3261 **4005**	3271 **4005**
50	6 P			3261 **6005**	3271 **6005**
80	3 P	3211 **3008**	3221 **3008**	3261 **3008**	3271 **3008**
80	4 P	3211 **4008**	3221 **4008**	3261 **4008**	3271 **4008**
80	6 P			3261 **6008**	3271 **6008**
125	3 P	3211 **3012**	3221 **3012**	3261 **3012**	3271 **3012**
125	4 P	3211 **4012**	3221 **4012**	3261 **4012**	3271 **4012**
125	6 P	3211 **6012**	3221 **6012**	3261 **6012**	3271 **6012**
200	3 P	3211 **3020**	3221 **3020**	3261 **3020**	3271 **3020**
200	4 P	3211 **4020**	3221 **4020**	3261 **4020**	3271 **4020**
200	6 P	3211 **6020**	3221 **6020**	3261 **6020**	3271 **6020**
400	3 P	3211 **3040**	3221 **3040**	3261 **3040**	3271 **3040**
400	4 P	3211 **4040**	3221 **4040**	3261 **4040**	3271 **4040**
400	6 P	3211 **6040**	3221 **6040**		
500	3 P	3211 **3050**	3221 **3050**	3261 **3050**	3271 **3050**
500	4 P	3211 **4050**	3221 **4050**	3261 **4050**	3271 **4050**
630	3 P	3211 **3063**	3221 **3063**	3261 **3063**	3271 **3063**
630	4 P	3211 **4063**	3221 **4063**	3261 **4063**	3271 **4063**
800	3 P	3211 **3080**	3221 **3080**	3261 **3080**	3271 **3080**
800	4 P	3211 **4080**	3221 **4080**	3261 **4080**	3271 **4080**
1250	3 P	3211 **3120**	3221 **3120**	3261 **3120**	3271 **3120**
1250	4 P	3211 **4120**	3221 **4120**	3261 **4120**	3271 **4120**
1600	3 P	3211 **3160**	3221 **3160**	3261 **3160**	3271 **3160**
1600	4 P	3211 **4160**	3221 **4160**	3261 **4160**	3271 **4160**

(1) Or the mechanical indicator option, replace the second digit in the enclosure reference number with the letter V. For example: 3V11 3005.

➲ General characteristics

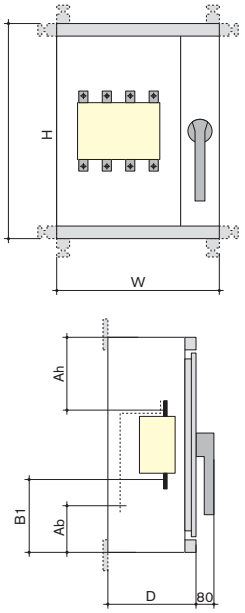
- Load break switch: SIDER visible breaking.
- Handle: aluminium handle (natural colour)
- Protection degree: IP55.
- Colour: RAL 9001; other, RAL 7032; roof and/or closing plates.
- Cable gland plate(s) top and bottom for TB version and bottom only for BB version.
- Material: galvanised steel, thickness 20 / 10 mm.
- Coating: polyester powder
- Wall mounting: 4 fixing lugs supplied, not mounted
- Locking system: 8 mm male square (key supplied).
- Miscellaneous: Bottom-Bottom configuration, connection through busbar system (range > 80 A).

➲ Rated operational currents I_e (A)

Rated voltage	Load duty category	50 A	80 A	125 A	200 A	400 A	500 A	630 A
400 VAC	AC-21	50	80	125	200	400	500	630
400 VAC	AC-22	50	63	125	200	400	500	630
400 VAC	AC-23	50	63	125	200	400	500	630
690 VAC	AC-21	40	63	100	160	400	400	630
690 VAC	AC-22	25	40	63	100	200	200	315
690 VAC	AC-23		10	16		80	80	100
Motor power output (kW)								
400 VAC without pre-break AC		25	30	63	100	220	220	355
690 VAC without pre-break AC			7.5	11		75	75	90
400 VAC without pre-break AC		25	30	63	100	220	220	355
690 VAC without pre-break AC		22	33	55	90	185	185	295

Dimensions

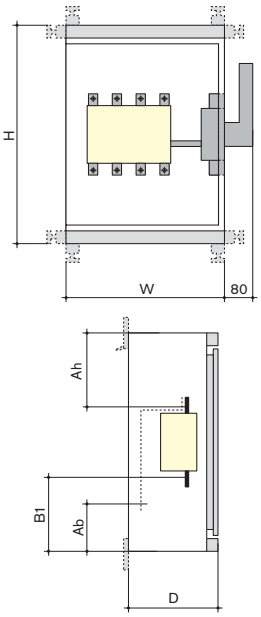
Front operation



coff_115_d_1_gb_cat

Rating (A)	No. of poles	H x W x D (mm)	Max connection section (mm²)	Connection Top/Bottom Ah (mm)	B1 (mm)	Weight (kg)	Connection Bottom/Bottom Ab (mm)	B1 (mm)	Weight (kg)
50	3/4 P	300 x 250 x 130	16	70	160	9	205	155	9
80	3/4 P	300 x 250 x 130	35	70	105	10	225	135	10
125	3/4 P	400 x 300 x 200	50	130	135	15	130	185	16
125	6 P	600 x 500 x 200	50	195	195	18	180	235	21
200	3 P	500 x 300 x 200	95	150	200	17	215	275	18
200	4 P	500 x 400 x 200	95	150	200	17	215	275	18
200	6 P	600 x 500 x 200	95	225	230	22	315	375	24
400	3/4 P	700 x 500 x 250	185	220	245	33	240	305	37
400	6 P	800 x 700 x 400	185	300	300	45	340	405	60
500	3/4 P	700 x 500 x 250	185	215	240	34	240	300	39
630	3/4 P	900 x 500 x 300	2 x 300	380	500	47	320	525	84
800	3/4 P	1200 x 600 x 400	2 x 300	380	500	52	320	525	85
1250	3 P	1200 x 600 x 400	4 x 185	375	495	70			90
1250	4 P	1200 x 700 x 400	4 x 185	375	495	74			94
1600	3 P	1200 x 600 x 400	4 x 300	360	480	80			92
1600	4 P	1200 x 700 x 400	4 x 300	360	480	85			96

Side operation



coff_117_d_1_gb_cat

Rating (A)	No. of poles	H x W x D (mm)	Max connection section (mm²)	Connection Top/Bottom Ah (mm)	B1 (mm)	Weight (kg)	Connection Bottom/Bottom Ab (mm)	B1 (mm)	Weight (Kg)
50	3/4 P	300 x 200 x 150	16	120	130	9	210	160	9
50	6 P	300 x 400 x 200	16	120	130	10	210	160	10
80	3/4 P	300 x 200 x 150	35	100	110	8	230	140	9
80	6 P	300 x 400 x 200	35	100	110	10	230	140	10
125	3/4 P	400 x 300 x 200	50	155	130	16	190	225	17
125	6 P	500 x 400 x 200	50	190	190	17	240	275	21
200	3 P	500 x 300 x 200	95				180	220	21
200	3 P	500 x 300 x 200	95	185	185	18			
200	4 P	500 x 400 x 200	95	185	185	21	250	295	22
200	6 P	600 x 500 x 200	95	235	235	25	300	345	27
400	3/4 P	700 x 400 x 250	185	270	230	30	345	405	35
500	3/4 P	700 x 400 x 250	185	265	225	32	340	400	39
630	3/4 P	900 x 500 x 300	2 x 300	320	320	47	455	540	55
800	3/4 P	900 x 500 x 300	2 x 300	310	310	55	445	530	85
1250	3 P	1200 x 600 x 400	4 x 185	465	465	70	670	770	90
1250	4 P	1200 x 700 x 400	4 x 185	465	465	74	670	770	100
1600	3 P	1200 x 600 x 400	4 x 300	445	445	75	650	790	100
1600	4 P	1200 x 700 x 400	4 x 300	445	445	76	650	790	110

SIDER polyester enclosure

➲ References



coff_219_a_2_cat



coff_163_a_3_cat

		Front operation(1)		Side operation(1)	
		Connection Top/Bottom	Connection bottom/bottom	Connection top/bottom	Connection bottom/bottom
Rating (A)	No. of poles	Reference	Reference	Reference	Reference
50	3 P			3265 **3005**	3265 **3005**
50	4 P			3265 **4005**	3265 **4005**
50	6 P			3265 **6005**	3265 **6005**
80	3 P			3265 **3008**	3265 **3008**
80	4 P			3265 **4008**	3265 **4008**
80	6 P			3265 **6008**	3265 **6008**
125	3 P	3215 **3012**	3225 **3012**	3265 **3012**	3275 **3012**
125	4 P	3215 **4012**	3225 **4012**	3265 **4012**	3275 **4012**
125	6 P	3215 **6012**	3225 **6012**	3265 **6012**	3275 **6012**
200	3 P	3215 **3020**	3225 **3020**	3265 **3020**	3275 **3020**
200	4 P	3215 **4020**	3225 **4020**	3265 **4020**	3275 **4020**
200	6 P	3215 **6020**	3225 **6020**	3265 **6020**	3275 **6020**
400	3 P	3215 **3040**	3225 **3040**	3265 **3040**	3275 **3040**
400	4 P	3215 **4040**	3225 **4040**	3265 **4040**	3275 **4040**
400	6 P	3215 **6040**	3225 **6040**		
500	3 P	3215 **3050**	3225 **3050**	3265 **3050**	3275 **3050**
500	4 P	3215 **4050**	3225 **4050**	3265 **4050**	3275 **4050**
630	3 P	3215 **3063**	3225 **3063**	3265 **3063**	3275 **3063**
630	4 P	3215 **4063**	3225 **4063**	3265 **4063**	3275 **4063**
800	3 P	3215 **3080**	3225 **3080**	3265 **3080**	3275 **3080**
800	4 P	3215 **4080**	3225 **4080**	3265 **4080**	3275 **4080**
1250	3 P	3215 **3120**	3225 **3120**	3265 **3120**	3275 **3120**
1250	4 P	3215 **4120**	3225 **4120**	3265 **4120**	3275 **4120**
1600	3 P	3215 **3160**	3225 **3160**	3265 **3160**	3275 **3160**
1600	4 P	3215 **4160**	3225 **4160**	3265 **4160**	3275 **4160**

(1) For the mechanical indicator option, replace the second digit in the enclosure reference number with the letter V. For example: 3V15 3012.

➲ General characteristics

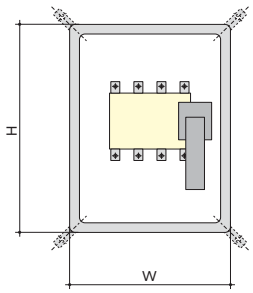
- Load break switch: SIDER visible breaking.
- Handle: red plastic.
- Protection degree: IP55.
- Colour: RAL 7035 (range ≤ 400 A), RAL 7035 (range ≥ 630 A).
- Cable gland plate(s): n/a.
- Material: glass fibre reinforced polyester.
- Coating: n/a.
- Wall mounting: 4 fixing lugs supplied, not mounted
- Locking system: screws (range ≤ 400 A), 3 mm double bar key, key supplied.
- Miscellaneous: Bottom-Bottom configuration, connection through busbar system (range > 80 A).

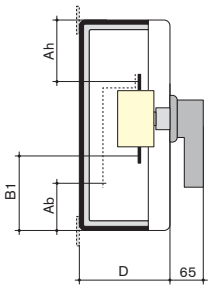
➲ Rated operational currents I_e (A)

Rated voltage	Load duty category	50 A	80 A	125 A	200 A	400 A	500 A	630 A
400 VAC	AC-21	50	80	125	200	400	500	630
400 VAC	AC-22	50	63	125	200	400	500	630
400 VAC	AC-23	50	63	125	200	400	500	630
690 VAC	AC-21	40	63	100	160	400	400	630
690 VAC	AC-22	25	40	63	100	200	200	315
690 VAC	AC-23		10	16		80	80	100
Motor power output (kW)								
400 VAC without pre-break AC		25	30	63	100	220	220	355
690 VAC without pre-break AC			7.5	11		75	75	90
400 VAC without pre-break AC		25	30	63	100	220	220	355
690 VAC without pre-break AC		22	33	55	90	185	185	295

Dimensions

Front operation

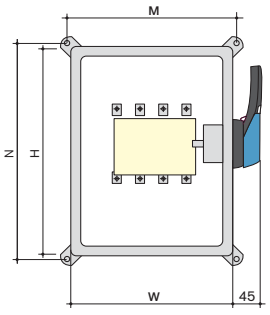


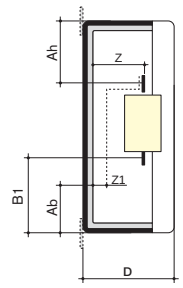


coff_118_d_1_gb_cat

Rating (A)	No. of poles	H x W x D (mm)	Max connection section (mm²)	Connection Top/Bottom Ah (mm)	B1 (mm)	Weight (kg)	Connection Bottom/Bottom Ab (mm)	B1 (mm)	Weight (kg)
125	3/4 P	360 x 270 x 171	50	135	110	6			
125	3/4 P	360 x 270 x 201	50				167	205	6
125	6 P	360 x 540 x 171	50	135	110	8	167	205	9
200	3 P	360 x 270 x 201	95				145	190	8
200	3 P	540 x 270 x 201	95	260	150	7			
200	4 P	360 x 360 x 201	95				145	190	8
200	4 P	540 x 360 x 201	95	257	153	9			
200	6 P	360 x 540 x 201	95	257	153	13	145	190	15
400	3/4 P	720 x 540 x 214	185	258	257	19	330	395	24
500	3/4 P	720 x 540 x 214	185	258	257	20	330	390	26
630	3/4 P	800 x 600 x 300	2 x 300	270	270	26	330	400	36
800	3/4 P	800 x 600 x 300	2 x 300	266	267	27	330	394	40
1250	3/4 P	1000 x 750 x 300	4 x 185	365	365	42	515	594	60
1600	3/4 P	1000 x 750 x 300	4 x 300	360	360	47	500	580	65

Side operation





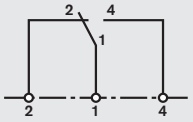
coff_119_e_1_gb_cat

Rating (A)	No. of poles	H x W x D (mm)	Max connection section (mm²)	Connection Top/Bottom Ah (mm)	B1 (mm)	Weight (kg)	Connection Bottom/Bottom Ab (mm)	B1 (mm)	Weight (kg)
50	3/4 P	270 x 180 x 171	16	84	116	3	186	116	3
50	6 P	270 x 360 x 201	16	84	116	5	186	116	5
80	3/4 P	270 x 180 x 171	35	73	106	3	197	106	3
80	6 P	270 x 360 x 201	35	73	106	5	197	106	5
125	3/4 P	360 x 270 x 171	50	135	110	6	167	205	6
125	6 P	360 x 540 x 171	50	135	110	9	167	205	9
200	3 P	360 x 270 x 171	95				145	190	7
200	3 P	540 x 270 x 171	95	260	150	8			
200	4 P	360 x 360 x 171	95				145	190	8
200	4 P	540 x 360 x 171	95	257	153	9			
200	6 P	540 x 540 x 171	95	260	150	12	145	190	11
400	3/4 P	720 x 540 x 201	185	300	215	19	370	437	24
500	3/4 P	720 x 540 x 201	185	300	215	21	230	432	26
630	3/4 P	800 x 600 x 300	2 x 300	270	270	26	390	438	36
800	3/4 P	800 x 600 x 300	2 x 300	266	267	27	370	434	40
1250	3/4 P	1000 x 750 x 300	4 x 185	365	365	42	570	622	60
1600	3/4 P	1000 x 750 x 300	4 x 300	360	360	47	550	608	65

No pre-wired auxiliary contacts

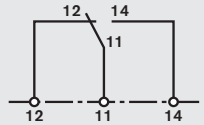

coff_177_a_1_cat

1st NO/NC AC
for pre-break



coff_002_a_1_x_cat

2nd NO / NC AC
for pre-break



coff_003_a_1_x_cat

Use
For pre-breaking or signalling of positions 0 and I of the switch.

Mounting
- On the double locking system.
- Possibility of factory mounting on enclosure (give enclosure reference when ordering).

For front operation

Contact(s)	Reference
2nd NO/NC changeover AC in polyester enclosure ≤ 80A	2999 **0012**
1st NO/NC changeover AC in polyester enclosure ≥ 125 A	2799 **0001**
2nd NO/NC changeover AC in polyester enclosure ≥ 125 A	2799 **0002**

For side operation

Contact(s)	Reference
2 NO/NC changeover AC in polyester enclosure ≤ 80A	2999 **0012**

For front operation (factory fitted)

Contact(s)	Reference
2 NO/NC changeover AC in steel or polyester enclosure	2999 **1012**(1)
1st NO/NC changeover AC in polyester enclosure ≥ 125 A	2799 **1001**(1)
2nd NO/NC changeover AC in polyester enclosure ≥ 125 A	2799 **1002**(1)

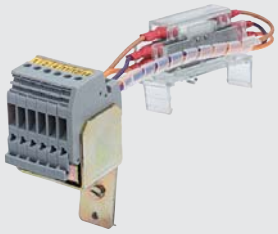
(1) Give the reference number of the enclosure to be equipped.

For side operation (factory fitted)

Contact(s)	Reference
2 NO/NC changeover AC in steel or polyester enclosure	2999 **1012**(1)

(1) Give the reference number of the enclosure to be equipped.

Pre-wired auxiliary contacts


coff_178_a_1_cat

Use
For pre-breaking or signalling of positions 0 and I of the switch.

Mounting
- On the double locking system.
- Possibility of factory mounting on enclosure (give enclosure reference when ordering).

For side operation

Contact(s)	Reference
2 NO/NC changeover AC in steel or polyester enclosure	3290 **6002**

For side operation (factory fitted)

Contact(s)	Reference
2 NO/NC changeover AC in polyester enclosure A	3290 **6012**(1)
2 NO/NC changeover AC in steel or polyester enclosure	3290 **6102**(1)

(1) Give the reference number of the enclosure to be equipped.

Red handle


coff_181_a_1_cat

Use
Red steel handle for load breaking or emergency stop.

For front operation (factory fitted)

Rating (A)	Reference
50 … 80	3211 **0080**(1)
125 … 500	3211 **0500**(1)
630 … 1600	3211 **1250**(1)

(1) Give the reference number of the enclosure to be equipped.

For side operation (factory fitted)

Rating (A)	Reference
50 … 80	3261 **0080**(1)
125 … 500	3211 **0500**(1)
630 … 1600	3211 **1250**(1)

(1) Give the reference number of the enclosure to be equipped.

Key handle interlocking system

coff_205_c_1_cat



Use
Kit allowing a RONIS EL11AP or Serv Trayvou XOP10 lock to be fitted for a SIDER 50 to 1600 A, with side operation within a steel or polyester enclosure.

Locking in position 0

Type	Reference
Locking using RONIS EL11AP lock (not included)	3290 **7005**
Locking using XOP10 lock (not included)	3290 **7015**
Lock RONISEL11AP	4409 **8511**(1)
Serv Trayvou XOP10 lock	4409 **8601**

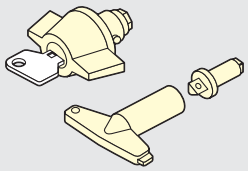
Locking in position 0 (factory fitted)

Type	Reference
Lock mounting kit, factory fitted (lock not included)	3290 **7006**(2)

(1) The key number is a number that the customer cannot choose. If you need a specific key number, please consult us.
(2) Give the reference number of the enclosure to be equipped.

Door closure

coff_110_a_1_x_cat



Use
- On steel safety enclosure: 8 mm square key.
- On polyester enclosure: with screw or double 3 mm bar.

Optional
- 6 to 8 mm square key, 6.5 - 7 - 8 mm triangular key.
- Key locking (no. to specify).

Type	Reference
	Please consult us

Ventilation, humidity evacuation device, cable glands

coff_216_a_1_cat



Use
- Humidity evacuation.
- Ventilation.
- Plastic and brass cable glands Ø 9 to 80 mm.

Type	Reference
	Please consult us

Labelling

coff_215_a_1_cat

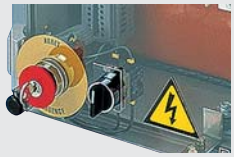


Use
- Engraved dilophane label, fixed by rivets.
- Colour: white, red, black.
- Format:65 x 20, 100 x 40 or 80 x 30 mm.

Type	Reference
	Please consult us

Remote control auxiliary

coff_041_a_2_cat



Use
- Push buttons start/stop, emergency stop.
- Measuring devices.
- Signalling indicators.

Type	Reference
	Please consult us

ATEX enclosures



logo_29_00 logo_115_00

Zone 21 and 22 (dust) as per European Directive ATEX 94/9/CE Category 2

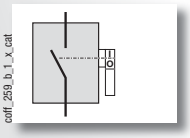
➲ Function

ATEX enclosures equipped with SOCOMEC switches provide emergency breaking, breaking for mechanical maintenance and safety isolation in the vicinity of any low voltage final circuit. Installed in an explosive area.

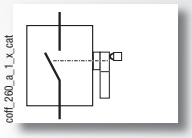
They offer the following features:
- fully visible breaking
- visible breaking
- triple locking of the handle
- double locked door, side operation
- mechanical flag indicator

➲ Conformity to standards

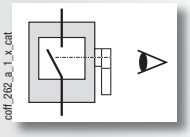
- Directive 94/9/CE
- EN 50 281-1-1
- EN 50 281-1-2
- EN 50014
- EN 60204-1
- EN 60439-1
- EN 60695-2-11
- EN 60947-3
- NF C 15-100
- IEC 60364
- Decree 29.07.92: Machine safety
- Decree n°88-1056 from 14-11-88: protection of workers
- Decree n°96-1010 from 19.11.96
- Decree 11.01.93: particularly for compliance with the machine



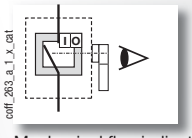
Isolation clearly evident



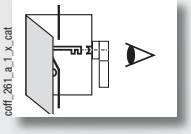
Triple padlocking of the handle



Visible breaking



Mechanical flag indicator (Optional)



Double locked door

SIDER steel enclosure, side operation



coff_280_b_2_cat

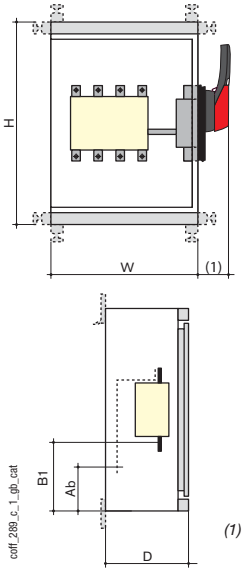
References

Rating (A)	No. of poles	Connection bottom/bottom Reference
50	3 P	3V41 **3005**
50	4 P	3V41 **4005**
80	3 P	3V41 **3008**
80	4 P	3V41 **4008**
80	6 P	3V41 **6008**
125	3 P	3V51 **3012**
125	4 P	3V51 **4012**
160	6 P	3V51 **6020**
200	3 P	3V51 **3020**
200	4 P	3V51 **4020**
400	3 P	3V51 **3040**
400	4 P	3V51 **4040**
630	3 P	3V51 **3063**
630	4 P	3V51 **4063**

General characteristics

- Adapted to mechanical risk and dust hazard.
- Load break switch: SIDER/SIDER ND with visible breaking and mechnical flag indicator.
- Handle: S-type red handle padlockable.
- Protection degree: IP65.
- Colour: metallic grey.
- Cable gland plate: bottom.
- Material: steel, thickness 2 mm.
- Coating: epoxy polyester powder.
- Wall mounting: 4 fixing lugs supplied loose.
- Locking system: 8 mm male square (key supplied). For lock, please consult us.
- Miscellaneous: earthing bolts, 2 internal connection points, top configuration, connection through busbar system (range > 80 A).
- Installation of push-buttons and signaling lights on the right side of the enclosure: consult us.
- Installation of push-buttons and signaling lights on the front door of the enclosure: consult us.
- Polyamide or brass cable glands fitted: consult us.
- Auxilary contact and push-button wired on terminal: consult us.

Dimensions



Rating (A)	No. of poles	H x W x D (mm)	Max. connection section (mm²)	Connection Bottom/Bottom Ab (mm)	B1 (mm)	Weight (kg)
50	3/4 P	350 x 225 x 150	16	288	198	8.2
80	3/4 P	350 x 225 x 150	35	288	198	8.4
80	6 P	500 x 425 x 200	35	288	198	25
125	3/4 P	500 x 425 x 200	120	225		15
160	6 P	500 x 425 x 200	120	242	275	25
200	3/4 P	500 x 425 x 200	120	242	275	21.5
400	3/4 P	700 x 500 x 250	2 x 150	340	385	34.5
630	3/4 P	700 x 500 x 300	2 x 300	262	313	47

(1) 50 … 400 A: 45 mm
630 A: 61 mm

Accessories

Cable gland ATEX



coff_283_a_1_cat



coff_329_a_1_cat

Black polyamide

Diameter (mm)	Min. cable diameter (mm)	Max. cable diameter (mm)	Cable gland Reference	Locknut Reference
12	3.5	6	3240 **1012**	3240 **3012**
16	5	8	3240 **1016**	3240 **3016**
16	6	10	3240 **1017**	
20	8	13	3240 **1020**	3240 **3020**
20	10	15	3240 **1021**	
25	13	19	3240 **1025**	3240 **3025**
32	18	25	3240 **1032**	3240 **3032**
40	24	32	3240 **1040**	3240 **3040**
50	29	38	3240 **1050**	3240 **3050**

Crude brass

Diameter (mm)	Min. cable diameter (mm)	Max. cable diameter (mm)	Cable gland Reference	Locknut Reference
10	1.5	5	3240 **2010**	3240 **4010**
12	4	8	3240 **2012**	3240 **4012**
16	6	11	3240 **2016**	3240 **4016**
20	7.5	13	3240 **2020**	3240 **4020**
25	12.5	18	3240 **2025**	3240 **4025**
32	17.5	25	3240 **2032**	3240 **4032**
40	24.5	33	3240 **2040**	3240 **4040**

Local safety enclosures



Polycarbonate enclosure SIRCO M with front operation



➲ General characteristics

- Equipped with a 3 pole SIRCO M.
- 1 removable neutral terminal and 1 removable earth terminal.
- Possibility of adding 1 additional pole.
- Possibility of adding 1 M type auxiliary contact module.
- Protection IP65.

For enclosure 162 x 99 mm
- 4 pre-drill holes M16 (on the side).
- 4 pre-drill holes M20 / M25 (top and bottom).
- 4 pre-drill holes M20 (rear).

For enclosure 210 x 125.5 mm
- 4 pre-drill holes M16 (on the side).
- 4 pre-drill holes M25 / M32 (top and bottom).
- 2 pre-drill holes M25 / M32 (rear).

➲ Conformity to standards

- IEC 60947-3
- EN 60947-3
- UL 508 - see page 100.

➲ References

Empty enclosures

Rating (A)	No. of poles	Handle colour	Enclosure colour	Reference
16 ... 40	3 P	Black	Grey	2215 **9305**
16 ... 40	3 P	Red	Yellow	2215 **9405**
63 ... 80	3 P	Black	Grey	2215 **9309**
63 ... 80	3 P	Red	Yellow	2215 **9409**

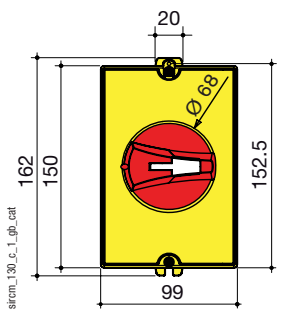
Enclosed switches

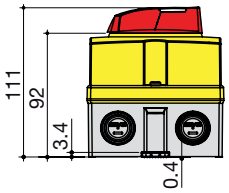
Rating (A)	No. of poles	Handle colour	Enclosure colour	Reference
16	3 P	Black	Grey	2215 **3300**
16	3 P	Red	Yellow	2215 **3400**
20	3 P	Black	Grey	2215 **3301**
20	3 P	Red	Yellow	2215 **3401**
25	3 P	Black	Grey	2215 **3302**
25	3 P	Red	Yellow	2215 **3402**
32	3 P	Black	Grey	2215 **3303**
32	3 P	Red	Yellow	2215 **3403**
40	3 P	Black	Grey	2215 **3304**
40	3 P	Red	Yellow	2215 **3404**
63	3 P	Black	Grey	2215 **3306**
63	3 P	Red	Yellow	2215 **3406**
80	3 P	Black	Grey	2215 **3308**
80	3 P	Red	Yellow	2215 **3408**
100	3 P	Black	Grey	2215 **3309**(1)
100	3 P	Red	Yellow	2215 **3409**(1)

(1) No UL.

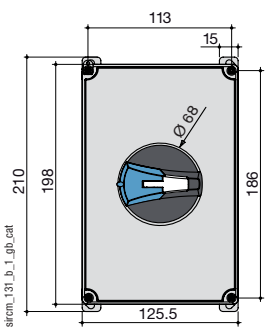
➲ Dimensions

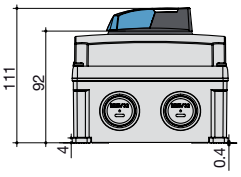
SIRCO M 16 to 40 A





SIRCO M 63 to 100 A





SIRCO steel enclosure with front operation

coff_295_a_1_cat



General characteristics

- Adapted to mechanical risk and dust hazard.
- Handle: S-type black handle padlockable.
- Protection degree: IP55 / Ik 10 (IP65 on request).
- Colour: polyester powder RAL 7032.
- Cable gland plate: top and bottom
- Material: XC steel, thickness 1.5 to 2 mm.
- Coating: epoxy polyester powder.
- Wall mounting: 4 holes in the back of the casing.
- Door: solid with hinges.
- Locking system: 3 mm double-bar key (key supplied).
- Miscellaneous: 2 earth connection points, disconnectable solid neutral link for 3+N, extension boxes for top and/or bottom connections available, IP20 incoming terminal shrouds.
- Please consult us.

SIRCO polyester enclosure with front operation

coff_292_a_2_cat



General characteristics

- Adapted to chemical attack, dust hazard, contamination hazard and atmospheric corrosion.
- Handle: S-type black handle padlockable.
- Protection degree: IP55.
- Colour: RAL 7030.
- Cable gland plate: N/A
- Material: glass fibre reinforced polyester
- Coating: N/A
- Wall mounting: 4 fixing lugs supplied, not mounted
- Locking system: Screw.

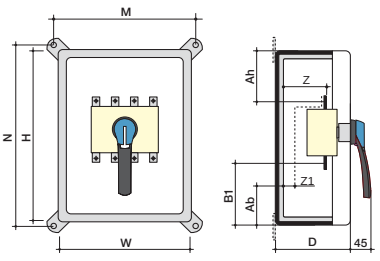
References

Rating (A)	No. of poles	Connection Top/Bottom Reference(1)	Connection Bottom/Bottom Reference(1)
125	3 P	3115 **3012**	3125 **3012**
125	4 P	3115 **4012**	3125 **4012**
160	3 P	3115 **3016**	3125 **3016**
160	4 P	3115 **4016**	3125 **4016**
250	3 P	3115 **3025**	3125 **3025**
250	4 P	3115 **4025**	3125 **4025**
400	3 P	3115 **3040**	3125 **3040**
400	4 P	3115 **4040**	3125 **4040**
500	3 P	3115 **3050**	3125 **3050**
500	4 P	3115 **4050**	3125 **4050**

(1) Combined fuse version: please consult us.

Dimensions

coff_114_d_1_gb_cat



Rating (A)	H x W x D (mm)	Max connection section (mm²)	M (mm)	N (mm)	Z (mm)	Z1 (mm)	Connecting Top/Bottom Ah (mm)	B1 (mm)	Weight (kg)	Connecting Bottom/Bottom Ab (mm)	B1 (mm)	Weight (kg)
125	360 x 270 x 171	50	271	361	33		120	126	5			
125	360 x 270 x 201	50	271	361	62	28				166	205	6
160	360 x 270 x 171	95	271	361	33		120	126	5			
160	360 x 270 x 201	95	271	361	62	28				166	205	6
250	540 x 360 x 171	150	361	541	35		200	210	8			
250	540 x 360 x 201	150	361	541	55	25				279	360	10
400	720 x 540 x 201	240	541	721	42		258	258	18	316	433	23
500	720 x 540 x 201	240	541	721	51	38	258	258	18	316	433	24

Enclosed fuse switches



Function

- Emergency breaking.
- Protection against overcurrents.
- Breaking for mechanical maintenance.
- Safety isolation in the vicinity of any low voltage final circuit.

Conformity to standards

- IEC 60364
- EN 60204-1
- EN 60439
- EN 60695-2

FUSERBLOC steel enclosure with front operation



General characteristics

- Adapted to mechanical risk and dust hazard.
- Handle: S-type black handle padlockable.
- Protection degree: IP55 / Ik 10 (IP65 on request).
- Colour: polyester powder RAL 7035.
- Cable gland plate: bottom (range ≤ 63 A), top and bottom (range > 100 A).
- Material: XC steel, thickness 1.5 or 2 mm.
- Coating: polyester powder.
- Wall mounting: 4 holes in the back of the casing.
- Solid door with hinges.
- Locking system: 3 mm double-bar key (key supplied).
- Miscellaneous: 2 earth connection points, disconnectable solid neutral link for 3+N, extension boxes for top and/or bottom connections available, IP20 incoming terminal shrouds. Fuses not supplied.

Please consult us.

FUSERBLOC polyester enclosure with front operation



General characteristics

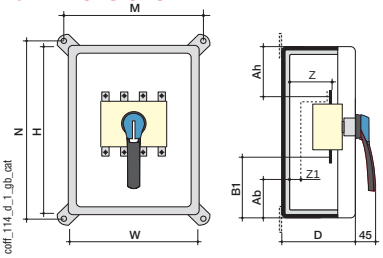
- Adapted to chemical attack, dust hazard, contamination hazard and atmospheric corrosion.
- Handle: S-type black handle padlockable
- Protection degree: IP55 / Ik 10.
- Colour: RAL 7030.
- Cable gland plate: N/A.
- Material: glass fibre reinforced polyester.
- Coating: N/A.
- Wall mounting: 4 fixing lugs supplied, not mounted
- Locking system: screw.
- For fuses, auxiliary contacts and other accessories please consult us.

References

Rating (A)	Fuses NFC and DIN	Connection Top/Bottom Reference	Connection Bottom/Bottom Reference
3 x 50	14 x 51	3117 **3005**	3117 **3005**
4 x 50	14 x 51	3117 **4005**	3117 **4005**
3 x 100	22 x 58	3117 **3010**	3127 **3010**
4 x 100	22 x 58	3117 **4010**	3127 **4010**
3 x 160	0	3117 **3016**	3127 **3016**
4 x 160	0	3117 **4016**	3127 **4016**
3 x 250	1	3117 **3025**	3127 **3025**
4 x 250	1	3117 **4025**	3127 **4025**
3 x 400	2	3117 **3040**	3127 **3040**
4 x 400	2	3117 **4040**	3127 **4040**

FUSERBLOC polyester enclosure with front operation

Dimensions



Rating (A)	H x W x D (mm)	Max. connection section (mm²)	M (mm)	N (mm)	Z (mm)	Z1 (mm)	Connection Top/Bottom Ah (mm)	B1 (mm)	Weight (kg)	Connection Bottom/Bottom Ab (mm)	B1 (mm)	Weight (kg)
3 x 50 / 4 x 50	270 x 270 x 171	25	271	271	24		86	86	(1)	90	90	3
3 x 100 / 4 x 100	360 x 270 x 171	95	271	361	20		108	107	4			
3 x 100 / 4 x 100	540 x 270 x 201	95	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
3 x 160	540 x 270 x 171	95	271	541	20		220	180	6			
3 x 160	540 x 270 x 201	95	271	541	60	25				220	320	8
4 x 160	540 x 360 x 171	95	361	541	20		220	180	7			
4 x 160	540 x 360 x 201	95	361	541	60	25				220	320	10

(1) Please consult us.

FUSERBLOC polyester enclosure with side operation



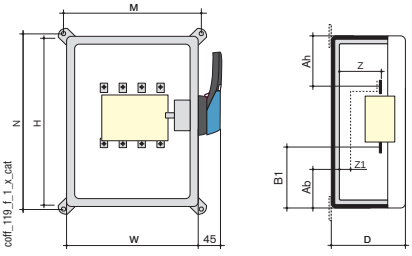
References

Rating (A)	Fuses NFC and DIN	Connection Top/Bottom Reference	Connection Bottom/Bottom Reference
3 x 50	14 x 51	3167 **3005**	3167 **3005**
4 x 50	14 x 51	3167 **4005**	3167 **4005**
3 x 100	22 x 58	3167 **3010**	3167 **3010**
4 x 100	22 x 58	3167 **4010**	3167 **4010**
3 x 160	0	3167 **3016**	3177 **3016**
4 x 160	0	3167 **4016**	3177 **4016**
3 x 250	1	3167 **3025**	3177 **3025**
4 x 250	1	3167 **4025**	3177 **4025**
3 x 400	2	3167 **3040**	3177 **3040**
4 x 400	2	3167 **4040**	3177 **4040**

General characteristics

- Adapted to chemical attack, dust hazard, contamination hazard and atmospheric corrosion.
- Handle: S-type black handle padlockable.
- Protection degree: IP55 / Ik 10.
- Colour: RAL 7030.
- Cable gland plate: N/A.
- Material: glass fibre reinforced polyester
- Coating: N/A.
- Wall mounting:4 fixing lugs supplied, not mounted
- Locking system: screw.
- For fuses, auxiliary contacts and other accessories please consult us.

Dimensions



Rating (A)	H x W x D (mm)	Max connection section (mm²)	M (mm)	N (mm)	Z (mm)	Z1 (mm)	Connection Top/Bottom Ah (mm)	B1 (mm)	Weight (kg)	Connection Bottom/Bottom Ab (mm)	B1 (mm)	Weight (kg)
3 x 50 / 4 x 50	270 x 270 x171	25	271	271	24		84	88	4	84	88	4
3 x 100 / 4 x 100	360 x 270 x 171	95	271	361	20		108	108	5	108	108	5
3 x 160	540 x 270 x 171	95	271	541			260	140	6			
4 x 160	540 x 360 x 171	95	361	541	20		260	140	7			
3 x 160 / 4 x 160	540 x 360 x 201	95	361	541	52	24				200	289	8
3 x 250	720 x 360 x 201	240	361	721	20		328	228	15			
4 x 250	720 x 360 x 201	240	361	721	20		338	218	(1)			
3 x 250 / 4 x 250	720 x 360 x 201	240	361	721	51	29				255	453	18
3 x 400 / 4 x 400	720 x 540 x 201	240	541	721	25		323	223	18			
3 x 400	720 x 540 x 201	240	541	721	25	40				450	403	23
4 x 400	754 x 750 x 312	240	801	618	25	40				436	484	(1)

(1) Please consult us.

Enclosed changeover switches

Other switch enclosure



COMO C polyester enclosure with front operation



➲ Function

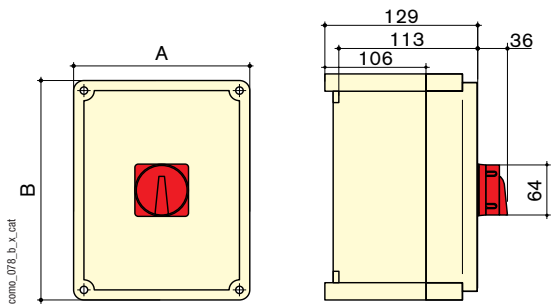
- Emergency breaking.
- Switching and source inversion.
- Switching on load.
- Breaking for mechanical maintenance.
- Safety isolation in the vicinity of any low voltage final circuit.

➲ Conformity to standards

- IEC 60364
- EN 60204-1
- EN 60439
- EN 60695-2-11

➲ General characteristics

- Adapted to chemical attack, dust hazard, contamination hazard and atmospheric corrosion.
- Handle: Red/yellow handle
- Protection degree: IP65.
- Colour: RAL 7030.
- Material: glass fibre reinforced polyester
- Product supplied as a kit, to be self-fitted.
- Locking system: Screw.
- Miscellaneous: the enclosed COMO C 80 A is derated to 70 A in the 4-pole version.



➲ References

Rating (A)	No. of poles	Switching type	A (mm)	B (mm)	Reference
25	3 P	I - II	135	135	4221 **3C02**
25	4 P	I - II	135	135	4221 **4C02**
25	3 P	I - 0 - II	135	135	4231 **3C02**
25	4 P	I - 0 - II	135	180	4231 **4C02**
25	3 P	I - I+II - II	135	135	4241 **3C02**
25	4 P	I - I+II - II	135	135	4241 **4C02**
40	3 P	I - II	135	135	4221 **3C04**
40	4 P	I - II	135	135	4221 **4C04**
40	3 P	I - 0 - II	135	135	4231 **3C04**
40	4 P	I - 0 - II	135	135	4231 **4C04**
40	3 P	I - I+II - II	135	135	4241 **3C04**
40	4 P	I - I+II - II	135	135	4241 **4C04**
63	3 P	I - II	135	180	4221 **3C06**
63	4 P	I - II	135	180	4221 **4C06**
63	3 P	I - 0 - II	135	180	4231 **3C06**
63	4 P	I - 0 - II	135	180	4231 **4C06**
63	3 P	I - I+II - I	135	180	4241 **3C06**
63	4 P	I - I+II - II	135	180	4241 **4C06**
80	3 P	I - II	135	180	4221 **3C08**
80	4 P	I - II	135	180	4221 **4C08**(1)
80	3 P	I - 0 - II	135	180	4231 **3C08**
80	4 P	I - 0 - II	135	180	4231 **4C08**(1)
80	3 P	I - I+II - II	135	180	4241 **3C08**
80	4 P	I - I+II - II	135	180	4241 **4C08**(1)

(1) Derated to 70 A for 4 pole.

SIRCO VM1 changeover steel enclosure with front operation



coff_293_b_1_cat

Function

- Emergency breaking.
- Switching and source inversion.
- Switching on load.
- Breaking for mechanical maintenance.
- Safety isolation in the vicinity of any low voltage final circuit.

Conformity to standards

- IEC 60364
- EN 60204-1
- EN 60439
- EN 60695-2-11

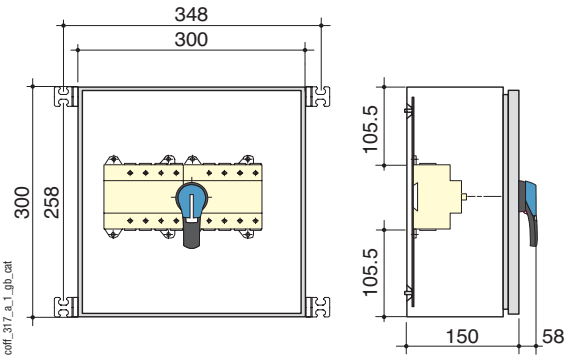
General characteristics

- Adapted to mechanical risk and dust hazard.
- Handle: S-type black handle padlockable.
- Protection degree: IP54 / Ik 9.
- Colour: polyester powder RAL 7032.
- Cable gland plate: top and bottom.
- Material: XC steel, thickness 1.5 mm.
- Coating: epoxy polyester powder.
- Wall mounting: 4 mounting brackets supplied (not mounted).
- Door: solid with hinges.
- Locking system: 3 mm double-bar key (key supplied).
- Miscellaneous: 2 earth connection points, double door locking.

References

Rating (A)	No. of pole	Connection Top/Bottom Reference
63	3 P	4413 **3006**
63	4 P	4413 **4006**
80	3 P	4413 **3008**
80	4 P	4413 **4008**
100	3 P	4413 **3010**
100	4 P	4413 **4010**

Dimensions



coff_317_a_1_gb_cat

Rating (A)	Max connection section (mm²)	Weight (kg)
3 x 63 / 4 x 63	50	9
3 x 80 / 4 x 80	50	10
3 x 100 / 4 x 100	50	16

SIRCOVER steel enclosure with front operation



➲ Function

- Emergency breaking.
- Switching and source inversion.
- Switching on load.
- Breaking for mechanical maintenance.
- Safety isolation in the vicinity of any low voltage final circuit.

➲ Conformity to standards

- IEC 60364
- EN 60204-1
- EN 60439
- EN 60695-2-11

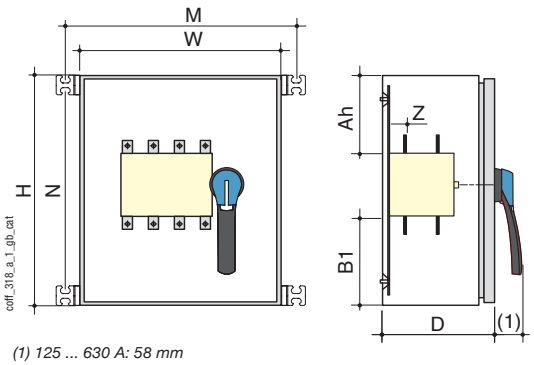
➲ General characteristics

- Adapted to mechanical risk and dust hazard.
- Handle: S-type black handle padlockable in position 0.
- Protection degree: IP54 / Ik 9.
- Colour: RAL 7035 (<630A), other ratings RAL 9001.
- Cable gland plate: top and bottom
- Material: XC steel, thickness 1.5 mm.
- Coating: epoxy polyester powder (ratings < 630 A), polyester powder (ratings ≥ 630 A).
- Wall mounting: 4 mounting brackets supplied (not mounted).
- Door: solid with hinges.
- Locking system: 3 mm double bar key (ratings < 630 A), 8 mm square key (ratings ≥ 630 A), key supplied.
- Miscellaneous: 2 earth connection points, double door locking.

➲ References

Rating (A)	No. of poles	Connection Top/Bottom I - 0 - II Reference	Connection Top/Bottom I - I+II - II Reference
125	3 P	4212 **3012**	4116 **3012**
125	4 P	4212 **4012**	4116 **4012**
160	3 P	4212 **3016**	4116 **3016**
160	4 P	4212 **4016**	4116 **4016**
250	3 P	4212 **3025**	4116 **3025**
250	4 P	4212 **4025**	4116 **4025**
400	3 P	4212 **3040**	4116 **3040**
400	4 P	4212 **4040**	4116 **4040**
500	3 P	4212 **3050**	4116 **3050**
500	4 P	4212 **4050**	4116 **4050**
630	3 P	4212 **3063**	4116 **3063**
630	4 P	4212 **4063**	4116 **4063**
800	3 P	4212 **3080**	4116 **3080**
800	4 P	4212 **4080**	4116 **4080**
1 250	3 P	4212 **3120**	4116 **3120**
1 250	4 P	4212 **4120**	4116 **4120**
1 600	3 P	4212 **3160**	4116 **3160**
1 600	4 P	4212 **4160**	4116 **4160**

➲ Dimensions



(1) 125 ... 630 A: 58 mm
800 ... 1 600 A: 74 mm.

Rating (A)	No. of poles	H x W x D (mm)	Max connection section (mm²)	M (mm)	N (mm)	Z (mm)	Connection Top/Bottom Ah (mm)	Connection Top/Bottom B1 (mm)	Weight (kg)
125	3/4 P	500 x 400 x 250	50	448	458	28	190	190	23
160	3/4 P	500 x 400 x 250	95	448	458	28	190	190	23
250	3/4 P	500 x 400 x 250	150	448	458	29.3	185	185	23
400	3/4 P	800 x 600 x 300	240	758	552	29.3	330	330	45
500	3/4 P	800 x 600 x 300	240	648	658	45	298	298	55
630	3/4 P	800 x 600 x 300	2 x 300	648	658	45	290	290	55
800	3/4 P	1200 x 700 x 500	2 x 300	740	1152	24	465	465	78
1 250	3/4 P	1200 x 700 x 500	4 x 185	740	1152	24	465	465	88
1 600	3/4 P	1200 x 700 x 500	4 x 300	740	1152		470	470	94

SIRCOVER BY-PASS steel enclosure with front operation



Function

- Emergency breaking.
- Switching and source inversion.
- Switching on load.
- Breaking for mechanical maintenance.
- Safety isolation in the vicinity of any low voltage final circuit.

Conformity to standards

- IEC 60364
- EN 60204-1
- EN 60439
- EN 60695-2-11

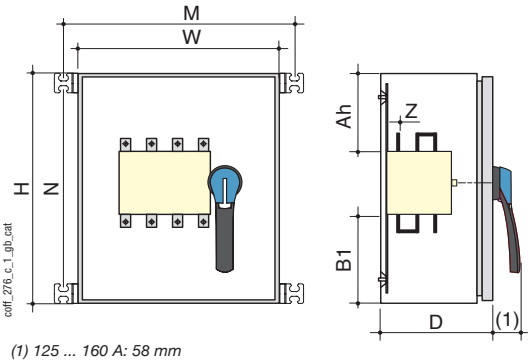
General characteristics

- Adapted to mechanical risk and dust hazard.
- Handle: S-type black handle padlockable in position 0
- Protection degree: IP54 / Ik 9.
- Colour: casing and door RAL 9001, locking plates RAL 7035
- Cable gland plate: top and bottom
- Material: XC steel, 2 mm thick, EZ electrogalvanised steel 25/25.
- Coating: polyester powder
- Wall mounting: 4 mounting brackets supplied (not mounted).
- Door: solid with hinges.
- Locking system: 3 mm double bar key (ratings < 630 A), 8 mm square key (ratings ≥ 630 A), key supplied.
- Miscellaneous: 2 earth connection points, double door locking.

References

Rating (A)	No. of poles	Connection Top/Bottom I - 0 - II Reference
125	3 + 6 P	4119 **7012**
125	4 + 8 P	4119 **9012**
160	3 + 6 P	4119 **7016**
160	4 + 8 P	4119 **9016**
250	3 + 6 P	4119 **7025**
250	4 + 8 P	4119 **9025**
400	3 + 6 P	4119 **7040**
400	4 + 8 P	4119 **9040**
500	3 + 6 P	4119 **7050**
500	4 + 8 P	4119 **9050**
630	3 + 6 P	4119 **7063**
630	4 + 8 P	4119 **9063**
800	3 + 6 P	4119 **7080**
800	4 + 8 P	4119 **9080**
1 250	3 + 6 P	4119 **7120**
1 250	4 + 8 P	4119 **9120**
1 600	3 + 6 P	4119 **7160**
1 600	4 + 8 P	4119 **9160**

Dimensions



(1) 125 ... 160 A: 58 mm
250 ... 630 A: 74 mm
800 ... 1 600 A: 120 mm

Rating (A)	No. of poles	H x W x D (mm)	Max connection section (mm²)	M (mm)	N (mm)	Z (mm)	Connection Top/Bottom Ah (mm)	B1 (mm)	Weight (kg)
125	3+6 / 4+8 P	500 x 400 x 350	50	448	452	47	192	192	(1)
160	3+6 / 4+8 P	500 x 400 x 350	95	448	452	47	192	192	(1)
250	3+6 / 4+8 P	800 x 600 x 500	150	640	752	48	335	335	(1)
400	3+6 / 4+8 P	800 x 600 x 500	240	640	752	48	330	330	(1)
500	3+6 / 4+8 P	800 x 600 x 550	240	640	752	64	297	297	(1)
630	3+6 / 4+8 P	800 x 600 x 550	2 x 300	640	752	64	290	290	(1)
800	3+6 / 4+8 P	1200 x 700 x 700	2 x 300	740	1152	24	466	466	(1)
1 250	3+6 / 4+8 P	1200 x 700 x 700	4 x 185	740	1152	85.5	469	469	(1)
1 600	3+6 / 4+8 P	1200 x 700 x 700	4 x 300						

(1) Please consult us.

SIRCOVER polyester enclosure with front operation



coft_299_a_1_cat

➲ Function

- Emergency breaking.
- Switching and source inversion.
- Switching on load.
- Breaking for mechanical maintenance.
- Safety isolation in the vicinity of any low voltage final circuit.

➲ Conformity to standards

- IEC 60364
- EN 60204-1
- EN 60439
- EN 60695-2-11

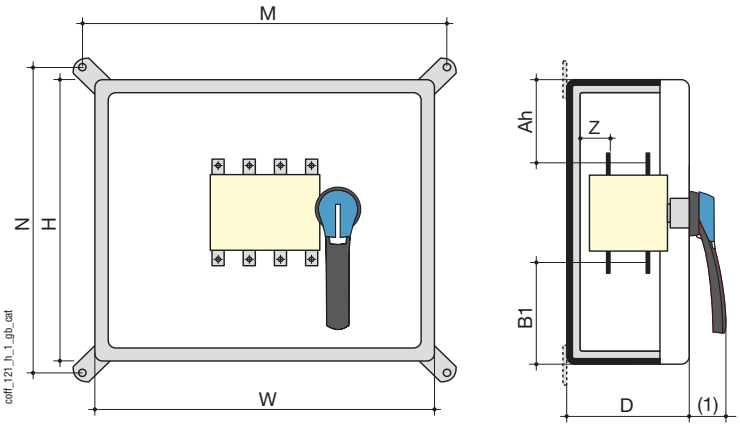
➲ General characteristics

- Adapted to chemical attack, dust hazard, contamination hazard and atmospheric corrosion.
- Handle: S-type black handle padlockable in position 0
- Protection degree: IP55 / Ik 10 (IP65 on request).
- Colour: RAL 7030 (ratings < 400 A), RAL 9002 (ratings ≥ 400 A).
- Cable gland plate: N/A.
- Material: glass fibre reinforced polyester
- Wall mounting: 4 mounting brackets supplied (not mounted).
- Locking system: square key (ratings < 400 A), 3 mm double bar key (ratings ≥ 400 A), key supplied.
- Miscellaneous: high resistance to chemicals, self-extinguishable at 960°C, 2 bolted earth connection points.

➲ References

Rating (A)	No. of poles	Connection Top/Bottom I - 0 - II Reference
125	3 P	4215 **3012**
125	4 P	4215 **4012**
160	3 P	4215 **3016**
160	4 P	4215 **4016**
250	3 P	4215 **3025**
250	4 P	4215 **4025**
400	3 P	4215 **3040**
400	4 P	4215 **4040**
630	3 P	4215 **3063**
630	4 P	4215 **4063**

➲ Dimensions



(1) 125 ... 630 A: 45 mm

Rating (A)	No. of poles	H x W x D (mm)	Max connection section (mm²)	M (mm)	N (mm)	Z (mm)	Connection Top/Bottom Ah (mm)	B1 (mm)	Weight (kg)
125	3 P	540 x 270 x 233	50	272	542	28	210	210	9
125	4 P	540 x 360 x 233	50	362	542	28	210	210	10
160	3 P	540 x 270 x 233	95	272	542	28	210	210	9
160	4 P	540 x 360 x 233	95	362	542	28	210	210	10
250	3 P	540 x 360 x 233	150	362	542	29	205	205	11
250	4 P	540 x 360 x 233	150	362	542	29	205	205	12
400	3 P	800 x 600 x 300	240	620	796	29	330	330	30
400	4 P	800 x 600 x 300	240	620	796	29	330	330	31
630	3 P	800 x 600 x 300	2 x 300	620	796	45	297	297	38
630	4 P	800 x 600 x 300	2 x 300	620	796	45	297	297	40

Single phase ATyS M in polycarbonate enclosure



Function

- Remote control changeover switch, single phase ATyS M 3s version.
- Automatic Transfer changeover Switches (ATS), single phase ATyS M 6s version.
- Modular design.
- No additional wiring is required for the ATyS M 6s version.
- Connection accessories integrated.
- Steel operation handle.
- Optional accessories available.

Conformity to standards

- IEC 60947-6-1
- NF EN 60947-6-1
- NBN EN 60947-6-1
- BS EN 60947-6-1
- IEC 60947-3
- IEC 60439-2

General characteristics

- From 40 to 160 A.
- 230 VAC network
- Protection degree: IP 55, IK08.
- Colour: RAL 7035
- Material: transparent cover, polycarbonate casing.
- Wall mounting: 4 holes on the rear of the enclosure.
- Flame resistant to 650°C.
- Weight: 5.5 kg.
- Connection: recommended cable size (Cu): 25 to 70 mm².

References

Version ATyS M 3s

Rating (A)	No. of poles	Reference
40	2 P	1823 **2004**
63	2 P	1823 **2006**
80	2 P	1823 **2008**
100	2 P	1823 **2010**
125	2 P	1823 **2012**
160	2 P	1823 **2016**

Version ATyS M 6s

Rating (A)	No. of poles	Reference
40	2 P	1854 **2004**
63	2 P	1854 **2006**
80	2 P	1854 **2008**
100	2 P	1854 **2010**
125	2 P	1854 **2012**
160	2 P	1854 **2016**

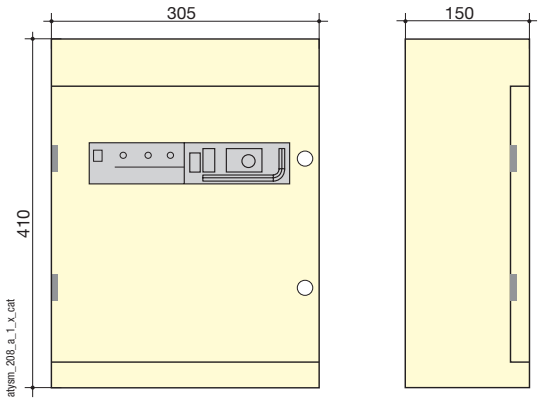
Accessories

- 1 NO/NC added auxiliary contact per position (I, 0, II), max. 1 set per enclosure.
- Voltage sensing and power supply connecting points: allows connections of 2 cables of 1.5 mm² to be connected.
- Sealable cover. It prevents access to the configuration; for the ATyS M 6s only.

Accessories - customer fit

Description	Reference
Auxiliary contacts	1309 **0001**
Voltage sensing and power supply tap	1399 **4006**
Sealable cover	1359 **2000**

Dimensions



ATyS M steel enclosure



coff_366_a_1_cat

Function

- Remote control changeover switch, ATyS M 3s version.
- Automatic Transfer Changeover Switches, versions ATyS M 6s and ATyS M 6e.
- Modular design.
- Optional accessories available.

Conformity to standards

- IEC 60947-6-1
- NF EN 60947-6-1
- NBN EN 60947-6-1
- BS EN 60947-6-1
- IEC 60947-3
- IEC 60439-2

General characteristics

- From 40 to 160 A.
- Network 230/400 VAC +/-20 % in standard
- Network 127/230 VAC on request for ATyS M 6s and ATyS M 6e.
- For 3/4 pole.
- Bridging bar.
- Protection degree: IP3X (standard), IP54 (optional). For a higher degree of protection please consult us.
- Colour RAL 7035.
- Cable gland plate: Top and bottom.
- Materials: steel, thickness 1.2 mm.
- Coating: epoxy polyester powder.
- Wall mounting: 4 wall mounting brackets supplied - not mounted
- Door: with hinges, cut out 327.4 x 47.6 mm.
- Locking system: 3 mm double-bar key (key supplied).
- Weight (without accessories): 15 kg.
- Connection (without power connection terminals): min. Cu 6 mm², max. 70 mm².

Accessories

- 1 NO/NC added auxiliary contact per position (I, 0, II), max. 1 set per enclosure.
- Voltage sensing and power supply connecting points: allows connections of 2 cables of 1.5 mm² to be connected.
- Power connection terminals with maximum connection cross section of 2 x 70 mm².
- Sealable cover.

References

Version ATyS M 3s - Network 230 VAC

Rating (A)	No. of poles	Protection degree	Reference
40	4 P	IP 3X	1823 **4004**
63	4 P	IP 3X	1823 **4006**
80	4 P	IP 3X	1823 **4008**
100	4 P	IP 3X	1823 **4010**
125	4 P	IP 3X	1823 **4012**
160	4 P	IP 3X	1823 **4016**
40	4 P	IP 54	1823 **4005**
63	4 P	IP 54	1823 **4007**
80	4 P	IP 54	1823 **4009**
100	4 P	IP 54	1823 **4011**
125	4 P	IP 54	1823 **4013**
160	4 P	IP 54	1823 **4017**

Version ATyS M 6s (ATS*) - Network 230/400 VAC

Rating (A)	No. of poles	IP	Reference(1)
40	4 P	IP 3X	1854 **4004**
63	4 P	IP 3X	1854 **4006**
80	4 P	IP 3X	1854 **4008**
100	4 P	IP 3X	1854 **4010**
125	4 P	IP 3X	1854 **4012**
160	4 P	IP 3X	1854 **4016**
40	4 P	IP 54	1854 **4005**
63	4 P	IP 54	1854 **4007**
80	4 P	IP 54	1854 **4009**
100	4 P	IP 54	1854 **4011**
125	4 P	IP 54	1854 **4013**
160	4 P	IP 54	1854 **4017**(1)

** (ATS) Enclosed Automatic Transfer Switch.*
(1) Network 127/230 VAC, on request.

Version ATyS M 6e (ATS*) - Network 230/400 VAC

Rating (A)	No. of poles	IP	Reference(1)
40	4 P	IP 3X	1884 **4004**
63	4 P	IP 3X	1884 **4006**
80	4 P	IP 3X	1884 **4008**
100	4 P	IP 3X	1884 **4010**
125	4 P	IP 3X	1884 **4012**
160	4 P	IP 3X	1884 **4016**
40	4 P	IP 54	1884 **4005**
63	4 P	IP 54	1884 **4007**
80	4 P	IP 54	1884 **4009**
100	4 P	IP 54	1884 **4011**
125	4 P	IP 54	1884 **4013**
160	4 P	IP 54	1884 **4017**

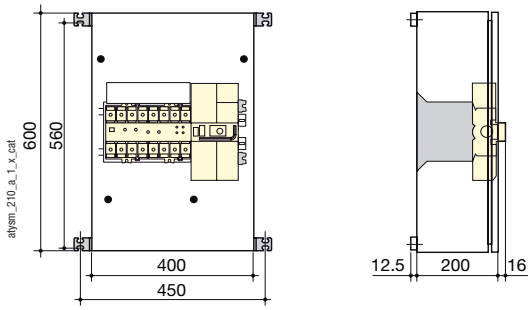
** (ATS) Enclosed Automatic Transfer Switch.*
(1) Network 127/230 VAC, on request.

Accessories - customer fit

Description	Reference
Auxiliary contacts	1309 **0001**(1)
Voltage sensing and power supply tap	1399 **4006**
Conducting neutral	1309 **9008**
Sealable cover	1359 **0000**(2)
Kit IP54	1399 **4016**
Power connection terminals	1399 **4017**(3)

(1)1 AC block as standard for ATyS M 3s.
(2) Only on ATyS M 6s.
(3) For fully equipped product, order the reference 3 times.

Dimensions



atysm_210_a_1_x_cat

ATyS 3s steel enclosure



cotf_305_a_1_cat

Function

- Non-Automatic Motorized Transfer Switch
- Compact Design
- Mechanically interlocked switching
- Connection blocks supplied for external logic control

Conformity to standards

- IEC 60439-1
- IEC 60947-3
- IEC 60947-6-1

General characteristics

- ATyS 3s up to 1600 A.
- ATyS 3e for rating 2000, 2500 and 3200 A.
- Adapted to mechanical risk and dust hazard.
- Protection degree: IP54 (standard device)
- Colour: RAL 7035
- Cable gland plate: top and bottom
- Connection of cables: Top or bottom from 125 to 250 A, top from 400 to 1600 A.
- The auxiliary contacts are wired to a terminal block.
- Material: steel thickness 2 mm
- Coating: epoxy polyester powder
- Wall mounting: 4 wall mounting brackets supplied - not mounted (ratings ≤ 400 A), floor standing feet (ratings > 630 A).
- Door: solid with hinges
- Locking system: 3 mm double bar key (key supplied)
- Miscellaneous: 2 bolted earth connection points, dual power supply, 2nd auxiliary contact, solid neutral to the right, 400/230 VAC transformers (one on each input), padlocking in 3 positions.

Available on request

- Enclosures for specific connections:

References

Standard device - 230 VAC

Rating (A)	No. of poles	Reference
125	4 P	1723 **4012**
160	4 P	1723 **4016**
250	4 P	1723 **4025**
400	4 P	1723 **4040**
630	4 P	1723 **4063**
800	4 P	1723 **4080**
1000	4 P	1723 **4100**
1250	4 P	1723 **4120**
1600	4 P	1723 **4160**
2000	4 P	1723 **4200**
2500	4 P	1723 **4250**
3200	4 P	1723 **4320**

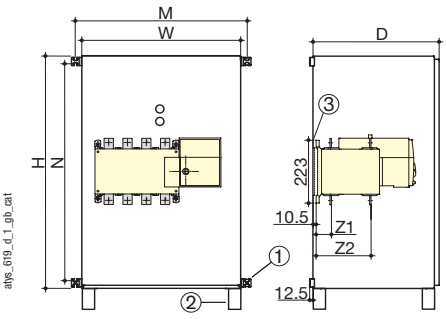
Accessories - factory fitted

Description	Reference
Dual power supply	1599 **9001**
2nd auxiliary contact from 125 to 630 A	1599 **9002**
2nd auxiliary contact from 800 to 1600 A	1599 **9012**
Transformer. 400/230 VAC	consult us
Terminal shrouds	consult us
3 positions padlocking	1599 **9003**

Accessories - customer fit

Solid neutral	Reference
125 … 160 A	1599 **1006**
250 A	1599 **1025**
400 A	1599 **1040**
630 A	1599 **1063**
800 A	1599 **1080**
1000 A	1599 **1100**
1250 A	1599 **1120**
1600 A	1599 **1160**

Dimensions



atys_619_d_1_gb_cat

(1) Wall mounting brackets supplied up to 400 A.
(2) Floor standing feet from 630 A (add 200 mm for feet, to H dimension).
(3) Mounting spacer.

Rating (A)	Connection section (mm²)	Max. connection section (mm²)	H (mm)	W (mm)	D (mm)	M (mm)	N (mm)	Z1 (mm)	Z2 (mm)	Weight (kg)
125		50	650	400	300	448	608	38	134	25
160	70	95	650	400	300	448	608	38	134	25
250	120	150	1000	650	475	698	958	39.5	134.5	45
400	240	240	1000	650	475	698	958	39.5	134.5	50
630	2 x 185	2 x 240	1000	650	475			53	190	70
800	2 x 240	2 x 300	1200	800	660			66.5	253.5	135
1000	4 x 150	2 x 300 / 4 x 240	1200	800	660			66.5	253.5	140
1250	4 x 185	2 x 300 / 4 x 240	1600	1000	830			66.5	253.5	270
1600	4 x 240	6 x 185 / 4 x 300	1600	1000	830			67.5	253.5	375
2000			2000	1000	1000					400
2500			2000	1000	1000					400
3200			2000	1000	1000					400

ATyS 6e* steel enclosure



coff_306_a_1_cat

➲ Function

- Automatic Transfer Switch - ATS.
- Compact Design.
- Mechanically interlocked switching.
- Connection blocks supplied for external logic control.

➲ Conformity to standards

- IEC 60439-1

➲ General characteristics

- Adapted to mechanical risk and dust hazard.
- Protection degree: IP54
- Colour: RAL 7035.
- Connection of cables:Top or bottom flat connection from 125 to 250 A, top from 400 to 1600 A.
- The auxiliary contacts are wired to a terminal block.
- Material: steel thickness 2 mm.
- Coating: epoxy polyester powder.
- Wall mounting: 4 wall mounting brackets supplied - not mounted (range ≤ 400 A), floor standing feet (range > 630 A).
- Door: solid with hinges.
- Locking system: 3 mm double-bar key (key supplied).
- Miscellaneous: 2 bolted earth connection points, 2nd auxiliary contact, solid neutral, 400/230 VAC transformers (one on each input), padlocking in 3 positions.

➲ Available on request

- Enclosures with specific connections: neutral on the left.

** Enclosed Automatic Transfer Switch (ATS)*

➲ References

Standard device - 230 VAC

Rating (A)	No. of poles	Reference
125	4 P	1763 **4012**
160	4 P	1763 **4016**
250	4 P	1763 **4025**
400	4 P	1763 **4040**
630	4 P	1763 **4063**
800	4 P	1763 **4080**
1000	4 P	1763 **4100**
1250	4 P	1763 **4120**
1600	4 P	1763 **4160**
2000	4 P	1763 **4200**
2500	4 P	1763 **4250**
3200	4 P	1763 **4320**

Accessories - factory fitted

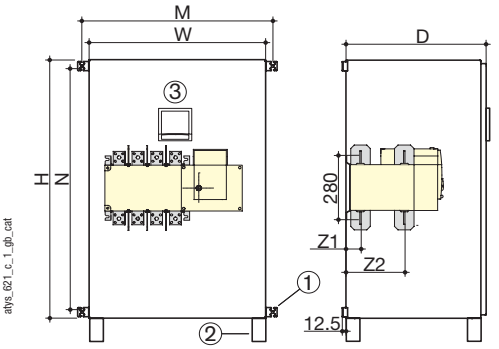
Description	Reference
2nd auxiliary contact from 125 to 630 A	1599 **9022**
2nd auxiliary contact from 800 to 1600 A	1599 **9032**
Transformer 400 / 230 VAC	consult us
Terminal shrouds	consult us
3 positions padlocking	1599 **9003**

Accessories - customer fit

Description	Reference
Solid neutral 125 … 160 A	1599 **1006**
Solid neutral 250 A	1599 **1025**
Solid neutral 400 A	1599 **1040**
Solid neutral 630 A	1599 **1063**
Solid neutral 800 A	1599 **1080**
Solid neutral 1000 A	1599 **1100**
Solid neutral 1250 A	1599 **1120**
Solid neutral 1600 A	1599 **1160**
ATyS D10	1599 **2010**
ATyS D20	1599 **2020**
RJ45 connecting cable	1599 **2009**(1)
JBUS/MODBUS communication module	1599 **2000**
2 inputs / 2 outputs module	1599 **2001**

(1) Necessary to connect an ATyS D10 or D20.

Dimensions



Rating (A)	Connection section (mm²)	Max connection section (mm²)	H (mm)	W (mm)	D (mm)	M (mm)	N (mm)	Z1 (mm)	Z2 (mm)	Weight (kg)
125		50	650	400	300	448	608	38	134	25
160	70	95	650	400	300	448	608	38	134	25
250	120	150	1000	650	475	698	958	39.5	134.5	45
400	240	240	1000	650	475	698	958	39.5	134.5	50
630	2 x 185	2 x 240	1000	650	475			53	190	70
800	2 x 240	2 x 300	1200	800	660			66.5	253.5	135
1000	4 x 150	2x300 / 4x240	1200	800	660			66.5	253.5	140
1250	4 x 185	2x300 / 4x240	1600	1000	830			66.5	253.5	270
1600	4 x 240	6x185 / 4x300	1600	1000	830			67.5	253.5	375
2000			2000	1000	1000					400
2500			2000	1000	1000					400
3200			2000	1000	1000					400

(1) Wall mounting brackets supplied up to 400 A.
(2) Floor standing feet from 630 A (add 200 mm for feet, to H dimension).
(3) Interfaces ATyS D10 or D20 (option).

Services and Technical assistance

Our expertise extends to a complete offer of services like commissioning installation audit, training, maintenance and project engineering.



ATS* By-Pass solution



Enclosed ATS By-Pass from 40 to 3200 A

➲ Function

- Automatic Transfer Switching between 2 sources for reliability of the power supply.
- By-Pass Single Line & Double Line of the Automatic Transfer Switch in order to insure continuity of the supplies during inspection, test and maintenance.
- Complete isolation of the Automatic Transfer Switch for safe exploitation.
- The association of an ATYS 6 along with a remote interface ATyS D20, will enable an easy configuration, exploitation and visualization of the data shown on the front of the equipment (timers settings, hysterisis, start/stop of the genset…).
- Different optional accessories are available.

➲ General characteristics

- From 40 to 3200A, 4 poles (fully rated).
- 230/400 VAC +/- 20%, 50/60 Hz, self supplied from incoming sources.
- Normal/Emergency logic control sequence.
- Three phase voltage and frequency control on source I and II.
- Control of phase rotation.
- 1 configurable contact output relay for generator start/stop command.
- Position I,0,II control by external dry contact.
- Manual emergency operation.
- Auxiliary contacts.
- JBus/Modbus Communication (as standard).
- AUTO / MANU selector.
- Protection degree: IP41 (except with ATyS D20: IP21)
- Hinged door, double bar locking system.
- Wall mounting brackets delivered up to 125 A.
- Floor standing feet from 250 to 3200 A.
- Withdrawable ATS from 250 to 3200 A.
- Phase identification.
- Functional/mimic diagram (indicating LED as an option).
- Complete protection against direct contact on each functional unit.
- Steel enclosure
- Colour: Grey Toyo.

➲ Conformity to standards for equipment

- IEC 60439-1
- IEC 60529

➲ Conformity to standards for integrated products

- IEC 60947-6-1
- GB 14048-11
- IEC 60947-3

** ATS : Automatic Transfer Switch*

➲ Changeover equipment presentation

For economic and safety reasons, the Transfer Switches Equipment (TSE) are used in all types of applications where changeover between 2 sources will secure the continuity & the reliability of the supply.

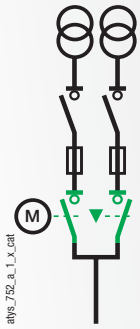
The SOCOMEC ATS range have been designed, developed and approved as per the IEC standards. Our range is fully compliant with the IEC 60947-6-1 and IEC 60947-3.

➲ ATS By-Pass equipment presentation

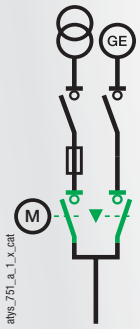
The enclosed ATS By-Pass solution, developed by SOCOMEC enables on a Normal/Emergency installation, to fully isolate the Automatic Transfer Switch during inspection, test and maintenance periods, hence to always secure the continuity and reliability of the installation's power supply.

➲ ATS By-Pass equipment application

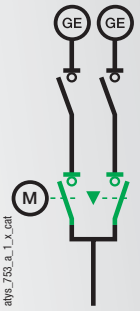
- **Main/Main (standard)**



- **Main/Genset (standard)**



- **Genset/Genset (on request)**



➲ Applications

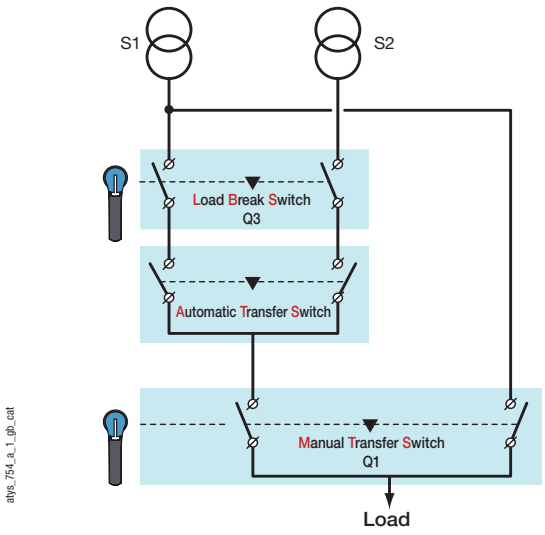
Ranges:

To propose a solution close to customers requests, Socomec have designed 2 versions of enclosed ATS By-Pass solution.

- **ATS By-Pass Single Line**

It consists of 2 functions, an Automatic Transfer Switch and a One-Way By-Pass Isolation Switch connected to the main supply.

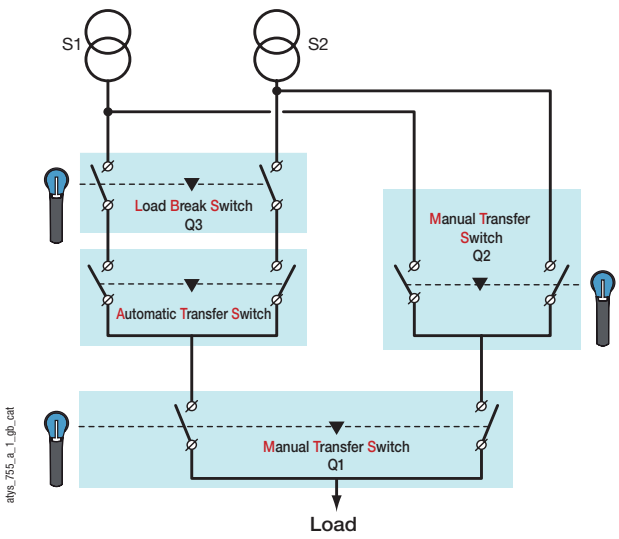
ATS from 40 to 3200 A - SINGLE LINE



- **ATS By-Pass Double Line**

It consists of 2 functions, an Automatic Transfer Switch & a Two-Way By-Pass Isolation Switch which enables the selection of the available source.

ATS from 40 to 3200 A - DOUBLE LINE

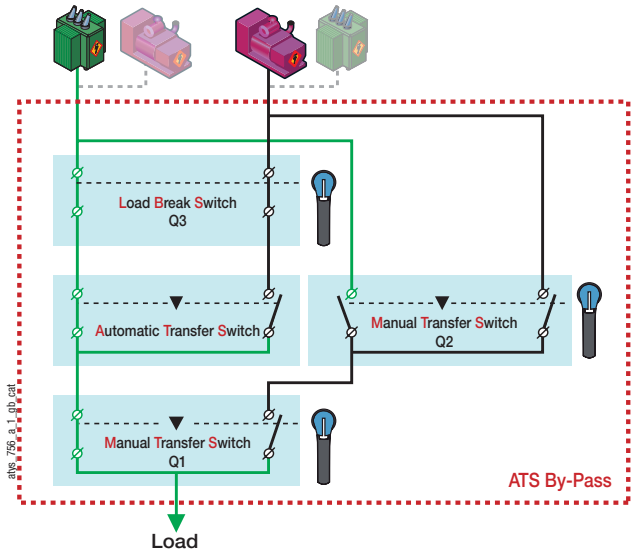


The Markets:

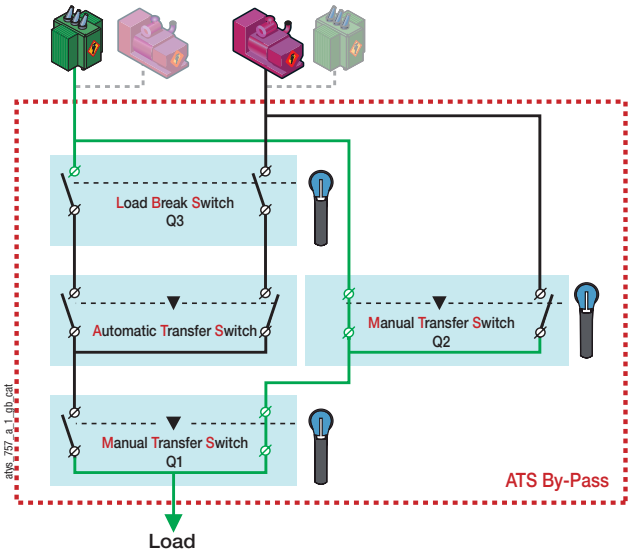
- Data centers
- Hospitals
- High Rise Buildings
- Transportation
-...

➲ Utilisation

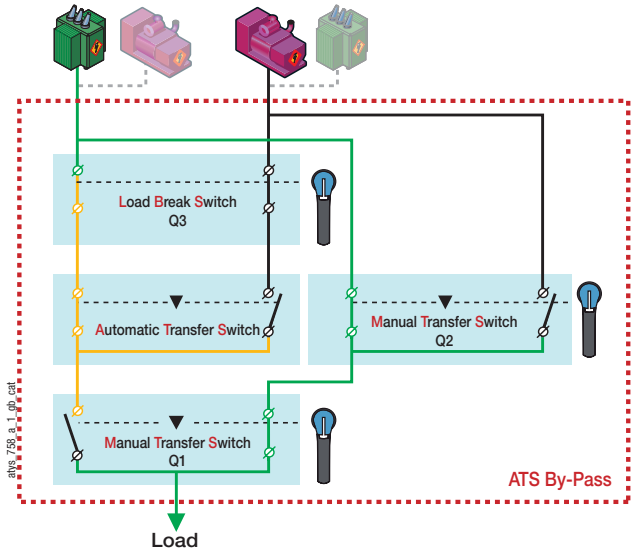
Normal Position:
The load is supplied by Source 1 or Source 2 through the ATS; the LBS (Q3) is closed and the MTS (Q1) is on Normal position.



By-Pass Position:
The ATS is By-passed and fully isolated, the load is supplied by source 1 or Source 2 but through the MTS (Q2); (Q3) and (Q1) isolate the ATS.



Test Position:
The load is not supplied by the ATS but through the MTS (Q2) by closing (Q3). The ATS can be tested without interference to the load side.



References

Standard Product - 230 VAC for ATyS M 6e

Rating (A)	No. of poles	SINGLE LINE Reference (1)	DOUBLE LINE Reference (1)
40	4 P	1783 **4004**	1784 **4004**
63	4 P	1783 **4006**	1784 **4006**
80	4 P	1783 **4008**	1784 **4008**
100	4 P	1783 **4010**	1784 **4010**
125	4 P	1783 **4012**	1784 **4012**
160	4 P	1783 **4016**	1784 **4016**

(1) 127/230 VAC network, on request.

Standard Product - 230 VAC for ATyS 6e

Rating (A)	No. of poles	SINGLE LINE Reference (1)(2)	DOUBLE LINE Reference (1)(2)
250	4 P	1783 **4025**	1784 **4025**
400	4 P	1783 **4040**	1784 **4040**
630	4 P	1783 **4063**	1784 **4063**
800	4 P	1783 **4080**	1784 **4080**
1000	4 P	1783 **4100**	1784 **4100**
1250	4 P	1783 **4120**	1784 **4120**
1600	4 P	1783 **4160**	1784 **4160**
2000	4 P	1783 **4200**	1784 **4200**
2500	4 P	1783 **4250**	1784 **4250**
3200	4 P	1783 **4320**	1784 **4320**

(1) 3P without neutral, on request.
(2) 127/230 VAC network, on request.

Accessories - customer fit

Description	Reference
2 inputs / 2 outputs module	1599 **2001**

Accessories (factory fitted)

Extension cabinet



Use
From 1250A to 3200A, the standard enclosed ATS By-Pass is supplied with connections to allow for Bottom/Bottom or Bottom/Top cable entry.

In order to facilitate the wiring, we propose the use of an extension cabinet, which can be mounted to the side of the standard ATS By-Pass enclosure, when utilising all other types of connections (TT/TB/BT). The extension cabinet also enables any necessary future adaptation.

Rating (A)	Reference
1250 … 2000	1599 **9004**
2500 … 3200	1599 **9005**

Protection against overvoltages



Use
In order to insure the protection against overvoltages of the equipment, Surge protection is available.
For more information, please see pages 412 to 429.

Rating (A)	Reference
40 … 125	1599 **9016**
250 … 400	1599 **9017**
630 … 3200	1599 **9018**

Multi-function meter



Use
Multi-function meters are now available for visualization and monitoring of all the electric parameters.
For more informations, please see pages 366 to 385.

Engine Exerciser

Use

The enclosed ATS By-Pass can be supplied along with a genset exerciser. (Set the Start Time, Time of Day, Day of Week, enable or disable a routine…)

Description	Reference
Engine Exerciser	1599 **9006**

Tinned Busbars

Tinned busbars option for severe environmental conditions.

Rating (A)	Reference
250	1599 **9007**
400	1599 **9008**
630	1599 **9009**
800	1599 **9010**
1000	1599 **9011**
1250 … 1600	1599 **9013**
2000	1599 **9014**
2500 … 3200	1599 **9015**

Remote ATS By-Pass management



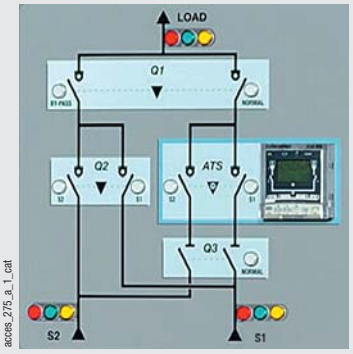
Use

As standard an RS485 JBUS/MODBUS serial communication module is provided.
ATyS Vision Monitoring Software is available for download on the User's Area of our website; www.socomec.com

In order to extend communication facilities, an optional module can be integrated in the enclosed ATS By-Pass to allow communication through Ethernet for the following functions :
· Alarm management (SNMP protocol)
· Data logging.
· Remote control.
· …

Description	Reference
Remote control module	4899 **0400**

Signalling



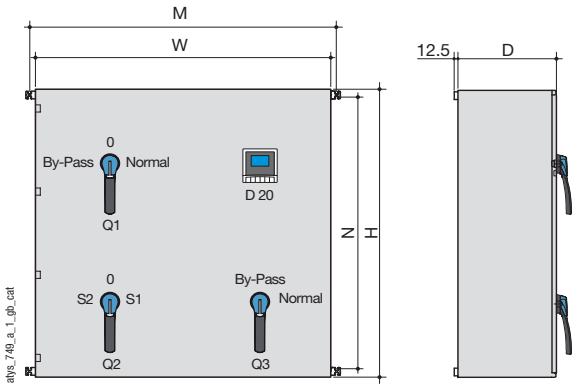
Use

To enable better visualisation of the front panel's functional/mimic diagram, 16 LED indicators (16mm industrial grade) can be provided, factory fitted.

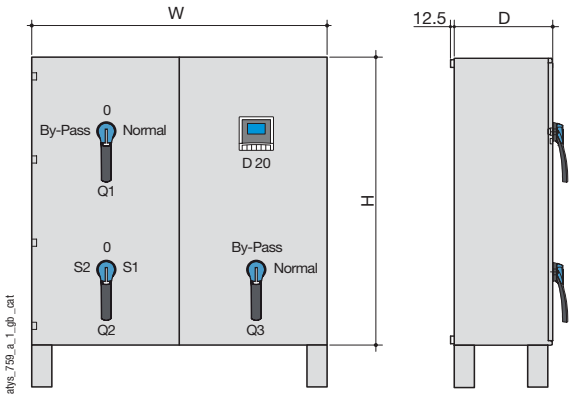
	Signalling	
	Single Line	Double Line
Rating (A)	Reference	Reference
40 … 125	1599 **9023**	1599 **9024**
200 … 400	1599 **9025**	1599 **9026**
630 … 1000	1599 **9027**	1599 **9028**
1250 … 3200	1599 **9029**	1599 **9030**

Dimensions

from 40 to 125 A



≥ 250 A



Wall mounting

Rating (A)	Section racc. (mm²)	Section racc. maxi (mm²)	H (mm)	W (mm)	D (mm)	M (mm)	N (mm)	Weight (Kg)
40	6	70	800	800	300	848	752	80
63	10	70	800	800	300	848	752	80
80	16	70	800	800	300	848	752	80
100	25	70	1000	800	300	848	752	80
125	35	70	1000	800	300	848	752	80

Floor standing

Rating (A)	Section racc. (mm²)	Section racc. maxi (mm²)	H (mm)	W (mm)	D (mm)	Weight (Kg)
250	95	150	1200 (1)	1000	550	180
400	185	240	1200 (1)	1000	550	200
630	2 x 150	2 x 240	1600 (1)	1200	600	600
800	2 x 185	2 x 300	1800 (1)(2)	1600	800	1000
1000	2 x 240	4 x 150	1800 (1)(2)	1600	800	1000
1250	4 x 185	6 x 185	2360	2000	1000	2000
1600	4 x 240	6 x 240	2360	2000	1000	2000
2000	6 x 185	6 x 240	2360	2000	1000	2500
2500	6 x 240	8 x 240	2360	2000	1000	2500
3200	8 x 240	8 x 300	2360	2000	1000	2500

(1) Add 100 mm for feet.
(2) Add 60 mm for lifting system of the equipment.

Environment

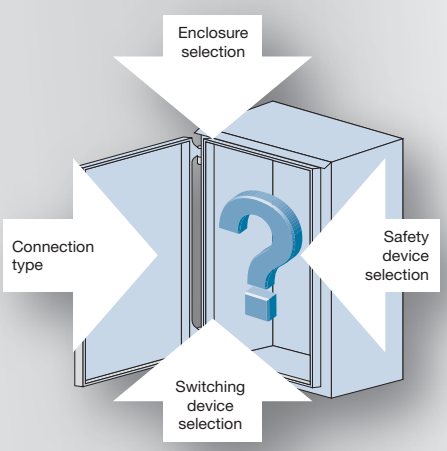
The complete equipment complies to the following requirements:
- Operating temperature: from -20 to +40°C without de-rating,
- Operating temperature: from +40 to +70°C with de-rating,
- 80% humidity non condensing at +55°C,
- 95% humidity non condensing at +40°C,
- Maximum operating altitude: 2000 meters above sea level.



Thanks to the enclosed ATS By-Pass solution, Socomec guarantees you:

- **a reliable solution**
  - Complete ATS redundancy.
  - Optimized MTTR (Mean Time To Repair).
  - Easy Inspections, Test and Maintenance.
- **a safe solution**
  - Intuitive and secured operation.
  - High electrical performance.
  - A French Builder warranty and certification (Made in France).
- **a compact solution**
  - Complete solution according to the standards.
  - New and Retrofit installation.
  - Remote control capabilities.

Customised solutions





Our services are regularly sought to create enclosures or distribution boards to specification.
You will find below a simplified description of the projects we are currently carrying out to meet the specifications of our customers.

For any request of customised products, please contact your SOCOMEC agency.

➲ Safety enclosures

Typical applications:
Enclosed load break switch for the following sites:
- Cement works
- Paper mill
- Aluminium manufacturing
- Chemical industry
- Automotive

Available on request:
- Sheet steel, insulating material, painted (coastal location) or brushed stainless steel version (food processing industry).
- Specific colours (enclosure, handle).
- Specific dimensions (to measure).
- Sloping roof and window protective cover.
- Control auxiliaries (push button, AC, etc.) wired onto the terminal.
- Locking using a specific lock (type EL11AP, etc.).
- Specific marking.
- Specific connection (BB, earthing enclosure, extended copper busbar).
- Multipolar 6-pole or 9 pole load break, side or front operation.
- Interlocking between two switches (horizontally or vertically).

➲ Presenting examples



Of the safety enclosure side operation with, Lock and double interlocking device.



Enclosure with 6-pole switch, special closure, air vent and cable gland







➲ Enclosed load break switches

Typical application:
- Motor cut-off

Available on request:
- Specific devices with or without trip breaking.
- Specific connections (BB, extended ranges, etc.).
- Special colours.
- Control auxiliaries (push button, AC, etc.) wired onto the terminal.
- Specific characteristics (DC, 690 VAC, etc.).

➲ Examples


coff_341_a_1_cat

NATO green enclosure

➲ Enclosed fuse combination switches

Typical applications:
- Battery protection
- Protection transformer
- Application HVAC

Available on request:
- Specific devices with or without trip breaking (FUSERBLOC, SIDERMAT combination unit, FUSOMAT, etc.)
- Specific characteristics DC
- Specific connecting
- Special colours
- SIRCO distributor + fuse bases for protecting the compressors on an air conditioning unit.
- Protection transformer

➲ Examples


coff_045_a_1_cat

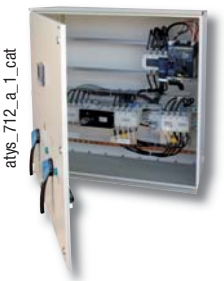
Steel enclosure with visible breaking fuse switch and double locking

➲ Enclosed changeover switches

Typical applications:
- Generators sets
- High-rise buildings

Available on request:
- Manual changeover or motorised
- Option of integrating the customer's control units
- Specific connections
- Enclosure with changeover switch BY-PASS system

➲ Examples


atys_712_a_1_cat

Steel enclosure with changeover switches

➲ Complete integrated equipment.

Typical applications:
- Main distribution boards
- Hospitals
- Public lighting
- Dock cabinet (naval)
- Tramway enclosure (earthing)

Available on request:
The complete solution to your needs: distribution switchboards etc.

➲ Examples


appli_296_a_1_cat

Pre-cabled distribution board







UPS Division

The availability of high quality energy



Equipment and services for your high quality power supply

Teams of specialised designers, highly integrated production and a dedicated commercial network have all helped SOCOMEC to forge the most complete ranges of high quality power supplies, industrial switching and protection components, on the market.
Marketed under the SOCOMEC UPS brand, our range of products and services fulfils all your needs for a quality, continuous electrical power supply. UPS, secure power supplies, static transfer systems, harmonic equalisers, rectifiers, DC/AC converters, covering a very wide range of applications for every sector of the market.
They have gained approval from the most demanding of users: telecoms operators, the nuclear industry, naval industry.

SOCOMEC UPS: the availability of high quality energy

➲ Why an uninterruptible power system?

The distribution of electrical energy is often subject to interference, this can be short lived or for extended periods, caused by both external and internal factors. Atmospheric phenomena or phenomena determined by human action cause incalculable harm every day in terms of the alteration or complete destruction of data-bases and damage to sensitive electronic equipment.

➲ The various levels of protection

	High protection	Total protection	Excellent protection
Black-out			
Current and voltage peaks			
Interference			
Voltage variations			
Microinterruptions			
Frequency variations			
Current harmonics			
Voltage distorsion			

➲ The main phenomena and their causes

Blackout

- **Causes**
  - Storms
  - Accidental causes
  - Short circuit
  - Industrial loads
  - Overload
- **Irregular phenomenon**
  - Loss of data
  - Disk crash
  - Hardware damage
  - Interruption of operations

Electrical impurities

- **Causes**
  - Current and voltage peaks
  - Interference
  - Voltage variations
  - Microinterruptions
  - Frequency variations
  - Current harmonics
  - Voltage distortion
- **Irregular phenomenon**
  - Alteration of data
  - Operating faults
  - Premature wear of electronic parts
  - Irreparable damage to electronic components
  - Excessive current consumption.

➲ What you need to know about uninterruptible power systems

The various types of uninterruptible power systems can be divided into three distinct categories, according to their technology, the degree of protection offered and power rating.

	Offline	Line interactive with AVR	Online dual conversion
Standard IEC62040-3	VFD-SY-311	VI-SS-311	VFI-SS-111
Level of protection	High	Total	Excellent
Normal supply	From mains power	From mains power	From UPS
Emergency supply	With switching < 10 ms	With switching	Without switching
Voltage regulation	No	Yes	Yes
Frequency regulation	No	No	Yes
Power ratings used	Low power	Recommended up to 3 kVA	Medium and high power
Advantages	Low cost	Voltage stabilisation	High protection
	Reduced maintenance	Better use of the batteries	Many options available
	Suitable for small power ratings	Sinusoidal output*	Extended back-up time

** certain models.*

SOCOMEC UPS: the availability of high quality energy (cont.)

➲ Choosing the right one

	NETYS	ITYS	MODULYS stand alone	MASTERYS	Green Power	DELPHYS MP elite	DELPHYS MX elite	DELPHYS MX	STATYS	Flywheel VSS+ DC	SHARYS(2) and SHARYS IP	PHASYS(3)	IT-SWITCH and LUM(4)	ATRYS(5)
Private user	•													
Offices and shops	•	•	•											
Small and medium enterprises	•	•	•	•	•									
Corporate networks and telephony		•	•	•										
Rack 19" IT Networking			•	•	•	•	•	•	•	•			•	•
Datacenters					•	•	•	•	•	•	•	•	•	•
Telecom		•	•	•	•	•	•	•	•	•	•	•	•	•

(1) Rectifier-chargers (2) DC-AC inverters (3) Static Transfer System (4) Harmonic compensator.

SOCOMEC UPS: for a high quality power supply

Innovative power solutions

Marketed under the SOCOMEC UPS trademark, our range of products and services fulfils all needs for a high quality, continuous electrical power supply. Our UPS, as well as our secure power supplies, static transfer systems, harmonic equalizers, rectifiers and DC/AC and AC/DC converters, comprise the most complete ranges in the world and cover a very wide range of applications for every sector of the market.

➲ A key requirement

High quality energy supply at any moment is vital in many fields such as telecommunications, data processing or certain industrial processes. It is even mission-critical for many medical applications. In all these sectors SOCOMEC UPS has over 40 years of experience at your disposal.

➲ Product solutions that meet requirements

Underpinned by significant R&D resources, our product offer continually evolves as a consequence of our contact with customers. Our products have the approval of some of the most stringently demanding users: Telecom companies worldwide, Ministries of Defence, nuclear industry operators… To ensure the highest availability, we provide the latest UPS technology combined either with traditional batteries or with other innovating energy storage system.

➲ Recognised expertise

Having already received the 2004 Award for Customer Service Excellence and the 2006 Award for Product Innovation from Frost & Sullivan, SOCOMEC UPS recently has once again excelled by winning the 2009 Best Practice Award for "European Energy & Power Systems Product Line Strategy". This prestigious accolade was presented in recognition of the company's ability to propose an extensive product range demonstrating the most insight into the needs and product demands of its customers.

➲ Continuing innovation

"The facts speak for themselves: first French manufacturer to offer static power supplies (1968), designer of the first UPS with PWM technology (1980), first to integrate IGBT technology into major power sources (1996), designer of the first UPS in a modular rack system (2000), first to integrate hybrid components (2001), first 200 kVA UPS with IGBT rectifier (2003), new battery charging design (2004), dynamic energy storage system (flywheel) replacing the more traditional battery-based solution (2006), first UPS true online double conversion 120-200 kVA with 96 % efficiency certified (2007), most compact STS 19" rack hot-swapable (2009), most compact UPS true online double conversion 900 kVA (2010).

➲ Always focused on customer needs

Our sales and after-sales network means we are always there for you. Our partner-customers recognise the quality of our products, our availability, our flexibility in meeting requirements and commitment.

➲ An organisation "hard-wired" for customer satisfaction

Design and production in each UPS factory is certified to ISO 9001. Together with quality service and maintenance, the UPS are your guarantee of a fail-safe electrical power supply.

➲ A controlled environmental management

With its ISO 14001 certification, SOCOMEC UPS is committed to continuous improvement of its environmental management system.

VALID FOR FRANCE VALID FOR ITALY

the green grid member

40 YEARS OF UPS SUCCESS

Our commitment to Absolute Green

For maximum availability and true cost savings

ABSOLUTE GREEN
AVAILABILITY & SAVING

➲ Availability

- The system is supplied with top-quality electrical power, minimising the risk of downtime.
- Protection is ensured by the use of on-line double conversion UPS, the most reliable technology on the market.
- The system is fully safeguarded against blackouts and any disturbance caused by the mains power supply and by distorting loads.

➲ Saving

- UPS energy costs cut by up to 40 %.
- The saving is guaranteed by the highest available efficiency performance for online double conversion UPS on the market, certified up to 96 %.
- Optimising the power supply to the system makes it possible to reduce the use of nonrecyclable materials and cut CO_2 emissions.

SOCOMEC UPS can also provide

Commissioning, Inspection & Maintenance



➲ Start-up

With the start-up of your equipment, CIM guarantees the compatibility of the UPS with your environment and checks it is compliant with the various installation standards.

➲ Performance

Recovery from alarm state, replacement of faulty parts, mechanical and electrical checks, suggestions and advice on better use of the equipment.

➲ Training

For the training of users on their UPS systems, SOCOMEC UPS organises courses held at its training centre or at the user's premises, with practical sessions involving "hands-on" use of machines.

➲ Maintenance contracts

We tailor our services around your operating constraints. This means that for each of your contracts, we provide you with adapted solutions to match your expectations.
Our Silver, Gold and Platinum solutions meet your needs by protecting and securing the electrical supply to your sensitive applications (office, automation, servers, data-processing centres, NICT, security…).

➲ Remote surveillance

Thanks to the ***T.Service*** remote monitoring service, our team of technical specialists remains continuously connected to the UPS via the telephone network or the internet.
T.Service:

- checking the parameters required to enable your equipment to function properly,
- identifying potential problems in order to establish a reliable and comprehensive diagnostic function which can provide you with a quick and effective solution,
- supplies regular reports on the status of the UPS

➲ Preventive and predictive maintenance

The ***CIM thermo*** service involves checking the components of your electrical installation using special equipment (thermal imaging cameras). In this way it is possible to perform a preventive diagnosis of breakdown risks by analysing the temperature (thermographic control) of each component.

➲ *CIM rent*

When you require high-quality uninterrupted electrical energy over a limited period (weeks or months), leasing is the most economical answer for your short-term needs. Leasing enables you to draw on the global expertise of SOCOMEC, which not only assures the availability of the UPS system, but also provides an all-in-one service to guarantee you a clean and uninterrupted energy supply.

Reference list

References	Pages
121x **xxxx**	35
122x **xxxx**	35
123x **xxxx**	35
124x **xxxx**	35
126x **xxxx**	34
127x **xxxx**	34
128x **xxxx**	34
1290 **xxxx**	34
1295 **xxxx**	34
1299 **00xx**	34 to 36
1299 **0121**	36
1299 **5001**	34 to 36
1299 **501x**	34, 35
1299 **502x**	35
1299 **503x**	34, 35
1299 **60xx**	34, 36
1299 **61xx**	34
1299 **8xxx**	34, 35
1309 **0001**	304, 305, 501, 502
1309 **2xxx**	304, 305
1309 **4xxx**	304, 305
1309 **9006**	306
1309 **9007**	306
1309 **9008**	502
1309 **9056**	306
132x **xxxx**	304
1353 **xxxx**	304
1354 **xxxx**	304
1359 **0000**	304, 306, 502
1359 **2000**	304, 306, 501
136x **xxxx**	305
138x **xxxx**	305
1399 **4006**	21, 25, 304, 305, 501, 502
1399 **4016**	502
1399 **4017**	306, 502
1400 **1020**	40 to 42, 44, 57, 58, 60, 95, 96, 117, 118, 125, 128, 135, 154, 181, 205, 209, 276 to 278, 280, 295, 296
1400 **1025**	42, 44, 96
1400 **1032**	40 to 42, 44, 57, 60, 95, 96, 117, 118, 125, 128, 135, 144, 145, 148, 149, 154, 179, 181, 183, 205, 209, 276 to 278, 280, 295, 296
1400 **1040**	117, 118, 125, 128, 135, 209, 295, 296
1400 **1050**	40, 44, 57, 60, 95, 96, 154
1400 **1075**	44, 96
1400 **1220**	154, 181, 182, 209
1400 **1232**	145, 149, 154, 181 to 183, 209
1400 **1240**	209
1400 **1250**	154
1401 **000x**	43, 60, 72, 96, 118, 127, 153, 188, 198, 209, 272, 279
1401 **001x**	43, 60, 72, 96, 118, 127, 153, 188, 198, 209, 272, 279
1401 **003x**	43, 60, 118, 127, 153, 188, 209, 279
1401 **004x**	43, 60, 118, 127, 153, 188, 209, 279
1401 **0520**	154, 205, 209
1401 **0532**	144, 148, 154, 205, 209
1401 **0540**	154, 205, 209
1401 **06xx**	21, 23, 89, 90
1401 **1520**	40 to 42, 44, 57, 58, 60, 71, 72, 117, 118, 125, 126, 128, 185, 186, 188, 198, 276 to 278, 280, 291, 295, 296
1401 **1532**	40 to 42, 44, 57, 60, 71, 72, 117, 118, 125, 126, 128, 185, 186, 188, 197, 198, 276 to 278, 280, 291, 295, 296
1401 **1540**	40, 44, 57, 60, 117, 118, 125, 128, 291, 295, 296
1402 **xxxx**	271, 272
1403 **0xxx**	271, 272
1403 **1520**	71, 72, 185, 187, 188
1405 **xxxx**	205, 209
1407 **xxxx**	20, 23, 82, 101, 103, 111, 112, 269
1409 **xxxx**	21, 23, 89, 90
1411 **2111**	21, 22, 89, 144, 148, 152, 153, 179
1411 **2113**	144, 271
1413 **2111**	22, 89, 152
1413 **2113**	271
1413 **2114**	271
1413 **2115**	144, 148, 152
1413 **2311**	152
1413 **28xx**	271
1414 **2111**	21, 22, 89, 144, 148, 152, 153, 179
1414 **2113**	144
1414 **2115**	144, 148, 152
1415 **2111**	21, 22, 89, 144, 148, 152, 179
1415 **2113**	148
1417 **2111**	22, 89, 152
1418 **2111**	21, 22, 89, 144, 148, 152, 179
1418 **2113**	148
1419 **0000**	23, 104, 112, 128, 210
141A **xxxx**	21, 22, 89
141B **xxxx**	21, 22, 89
141D **2111**	135, 205, 208
141D **2115**	205, 208
141D **2911**	153, 208
141D **2915**	208
141E **2111**	135, 208
141E **2115**	208
141E **2911**	153, 208
141E **2915**	208
141F **2111**	135, 205, 208
141G **2111**	135, 208
141H **6111**	205, 208
141H **6911**	208
141I **6111**	205, 208
141I **6911**	208
1421 **2111**	40, 41, 43, 57, 59, 95, 144, 145, 148, 149, 152, 153, 179, 181, 183
1421 **2113**	144, 145, 148, 276, 278, 279
1423 **2111**	40, 43, 57, 59, 95, 152
1423 **2113**	276, 278, 279
1423 **2114**	277, 279
1423 **2115**	144, 145, 148, 149, 152
1423 **2311**	152
1423 **2813**	283
1424 **2111**	40, 41, 43, 57, 59, 95, 144, 145, 148, 149, 152, 153, 179, 181, 183
1424 **2113**	144, 145, 148
1424 **2115**	144, 145, 148, 149, 152
1425 **2111**	42, 43, 58, 59, 144, 145, 148, 149, 152, 179, 181, 183
1425 **2113**	149
1427 **2111**	42, 43, 58, 152
1428 **2111**	42, 43, 58, 59, 144, 145, 148, 149, 152, 179, 181, 183
1428 **2113**	149
1429 **0000**	23, 44, 59, 95, 119, 128, 154, 210, 280
1429 **7xxx**	153
142D **2111**	117, 118, 125, 127, 208
142D **2113**	295, 296
142D **2115**	208
142D **2813**	295, 296
142D **2911**	118, 127, 153, 208
142D **2915**	208
142E **2111**	117, 118, 125, 127, 208
142E **2113**	296
142E **2115**	208
142E **2813**	296
142E **2911**	118, 127, 153, 208
142E **2915**	208
142F **2111**	117, 118, 125, 127, 208
142F **28xx**	296
142G **2111**	117, 118, 125, 127, 208
142G **28xx**	296
142H **xxxx**	208
142I **xxxx**	208
1431 **xxxx**	71, 72, 185, 186, 188, 197, 198
1432 **xxxx**	71, 72, 185, 186, 188, 197, 198
1433 **3111**	145, 149, 152, 181, 183
1433 **3113**	278, 279, 291
1434 **3111**	43, 145, 149, 152, 181, 183
1435 **xxxx**	71, 72, 185, 187, 188
1436 **xxxx**	71, 72, 185, 187, 188
1437 **3111**	42, 43, 58, 59, 145, 149, 152, 181, 183
1437 **7911**	152, 182
1438 **3111**	42, 43, 58, 59, 145, 149, 152, 181, 183
143D **3111**	117, 118, 126, 127, 208
143D **3113**	295, 296
143D **3813**	296
143D **3911**	118, 127, 153, 208

References	Pages
143E **3111**	117, 118, 126, 127, 208
143E **38xx**	296
143E **3911**	118, 127, 153, 208
143F **3111**	208
143F **38xx**	296
143G **3111**	208
143G **38xx**	296
1443 **3111**	40, 41, 43, 57, 59, 145, 149, 152, 182, 183
1443 **3113**	276, 279
1443 **3114**	277, 279
1444 **3111**	40, 41, 43, 57, 59, 149, 152, 182, 183
144D **3111**	118, 125, 127
144D **3113**	296
144D **3813**	295, 296
144D **3911**	118, 153
144E **3111**	118, 125, 127
144E **38xx**	296
144E **3911**	118, 153
144F **xxxx**	296
144G **xxxx**	296
1471 **1111**	20, 22, 82
1471 **1113**	269
1473 **1111**	20, 22, 82, 101, 103, 112
1473 **1113**	20, 22, 103, 269
1473 **1114**	20, 22, 103
1474 **1111**	20, 22, 82, 101, 103, 112
147A **xxxx**	20, 22, 82
147B **xxxx**	20, 22, 82
147D **xxxx**	101, 103, 111, 112
147E **xxxx**	101, 103, 111, 112
1481 **1111**	20, 22
1483 **xxxx**	20, 22, 101, 103, 112
1484 **xxxx**	20, 22, 101, 103, 112
148A **xxxx**	20, 22
148B **xxxx**	20, 22
148D **xxxx**	101, 103, 111, 112
148E **xxxx**	101, 103, 111, 112
1491 **0111**	21, 22, 89
1493 **0000**	44, 59, 72, 96, 118, 127, 153, 188, 209, 272, 279
1493 **0111**	21, 22, 89, 205, 208
1494 **0111**	21, 22, 89, 208
1499 **7701**	48, 63, 75, 97, 159, 191, 200, 283, 291
1499 **7702**	63, 159, 191, 283, 291
1499 **7703**	48, 63, 159
149A **xxxx**	21, 22, 89
149B **xxxx**	21, 22, 89
149D **0111**	205, 208
149E **0111**	208
1509 **0001**	313, 315, 318
1509 **1xxx**	313, 315, 319
1509 **30xx**	41, 46, 276 to 278, 282, 312, 314, 319
1509 **31xx**	41, 46, 276 to 278, 282, 312, 314, 319
1509 **3200**	312, 314, 319
1509 **40xx**	41, 46, 276 to 278, 282, 291, 312, 314, 319
1509 **4160**	41, 46, 276 to 278, 282, 312, 314, 319
1509 **4200**	312, 314, 319
1523 **xxxx**	312, 313
1529 **xxxx**	313, 320
1533 **xxxx**	312, 313
1539 **xxxx**	313, 315, 320
1559 **3xxx**	314, 318
1559 **4012**	318
1559 **4013**	314, 318
1559 **4025**	318
1559 **4026**	314, 318
1559 **4040**	318
1559 **4041**	314, 318
1559 **4063**	318
1559 **4064**	314, 318
1559 **408x**	318
1559 **4120**	318
1559 **4121**	314, 318
1559 **4160**	318
1559 **4161**	314, 318
1559 **4200**	318
1559 **4201**	314, 318
156x **xxxx**	314, 315
157x **xxxx**	314, 315
1599 **0002**	312, 315, 319
1599 **0003**	313, 315, 319
1599 **0004**	313, 315, 319
1599 **0032**	312, 315, 319
1599 **1002**	312, 319
1599 **102x**	503, 504
1599 **1032**	312, 319
1599 **104x**	503, 504
1599 **106x**	503, 504
1599 **108x**	503, 504
1599 **11xx**	503, 504
1599 **2000**	312, 314, 318, 504
1599 **2001**	312, 314, 318, 504, 509
1599 **2009**	306, 314, 320, 504
1599 **201x**	305, 307, 314, 320, 504
1599 **202x**	305, 307, 314, 320, 504
1599 **3xxx**	327
1599 **4001**	306, 313, 320
1599 **41xx**	312, 315, 317
1599 **42xx**	312, 315, 317
1599 **5xxx**	313, 315, 317
1599 **9001**	503
1599 **9002**	503
1599 **9003**	503, 504
1599 **9004**	509
1599 **9005**	509
1599 **9006**	510
1599 **9007**	510
1599 **9008**	510
1599 **9009**	510
1599 **9010**	510
1599 **9011**	510
1599 **9012**	503
1599 **9013**	510
1599 **9014**	510
1599 **9015**	510
1599 **9022**	504
1599 **9023**	510
1599 **9024**	510
1599 **9025**	510
1599 **9026**	510
1599 **9027**	510
1599 **9028**	510
1599 **9029**	510
1599 **9030**	510
1599 **9032**	504
1609 **3063**	126, 128, 295, 297
1609 **3080**	295, 297
1609 **4063**	126, 128, 295, 297
1609 **4080**	295, 297
170A **0632**	251
170A **6080**	229
170H **0069**	250 to 253
170H **0235**	249, 251
170H **0236**	248 to 251
170H **1007**	229, 248, 249
170H **3004**	229, 250, 251
170H **3006**	229, 250 to 253
170L **xxxx**	247
170M **0xxx**	248
170M **1xxx**	248
170M **2xxx**	249
170M **31xx**	250
170M **323x**	252
170M **324x**	252
170M **325x**	250
170M **326x**	250
170M **327x**	250
170M **335x**	250
170M **336x**	250
170M **337x**	250
170M **338x**	252
170M **339x**	252
170M **343x**	252
170M **344x**	252
170M **345x**	250
170M **346x**	250
170M **347x**	250
170M **38xx**	250
170M **41xx**	250
170M **423x**	252
170M **424x**	252
170M **425x**	250
170M **426x**	250
170M **435x**	250
170M **436x**	250
170M **438x**	252
170M **439x**	252
170M **443x**	252
170M **444x**	252
170M **445x**	250
170M **446x**	250
170M **51xx**	251
170M **523x**	253
170M **524x**	253
170M **5250**	253
170M **5258**	251

Reference list

References	Pages
170M **5259**	251
170M **526x**	251
170M **535x**	251
170M **536x**	251
170M **538x**	253
170M **539x**	253
170M **543x**	253
170M **544x**	253
170M **545x**	251
170M **546x**	251
170M **58xx**	251
170M **61xx**	251
170M **623x**	253
170M **624x**	253
170M **6250**	253
170M **6251**	253
170M **6258**	251
170M **6259**	251
170M **626x**	251
170M **627x**	251
170M **633x**	253
170M **634x**	253
170M **635x**	251
170M **636x**	251
170M **64xx**	251
170M **65xx**	253
170M **68xx**	251
170M **7xxx**	249
170N **xxxx**	247
172x **xxxx**	503
176x **xxxx**	504
178x **xxxx**	509
1823 **2xxx**	501
1823 **4xxx**	502
182T **xxxx**	338
1854 **2xxx**	501
1854 **4xxx**	502
188x **xxxx**	502
191x **xxxx**	137
192J **8015**	365
192M **xxxx**	349
192S **xxxx**	347
192T **0003**	335, 336
192T **0005**	335, 336
192T **0006**	335
192T **0007**	335, 336

References	Pages
192T **0101**	335
192T **0102**	337, 338
192T **0103**	335, 336
192T **0105**	335 to 337
192T **0255**	335, 336
192T **05xx**	335
192T **06xx**	335
192T **07xx**	348
192T **08xx**	338
192T **09xx**	338
192T **1xxx**	339
192T **20xx**	335
192T **21xx**	336
192T **23xx**	336
192T **24xx**	336
192T **3xxx**	336
192T **40xx**	336
192T **46xx**	339
192T **47xx**	339
192T **48xx**	339
192T **5xxx**	337
192T **6xxx**	337
192T **7xxx**	338
192T **80xx**	338
192T **81xx**	337
192T **93xx**	338
192T **95xx**	337
192T **96xx**	337
192T **97xx**	338
192Y **0015**	335, 336
192Y **0025**	335
192Y **0035**	336
192Y **0045**	337
192Y **0115**	335, 336
192Y **0125**	335
192Y **0135**	336
192Y **0145**	337
192Y **0155**	335, 336
192Y **0165**	335
192Y **0175**	336
192Y **0185**	337
192Y **0215**	335, 336
192Y **0225**	335
192Y **0235**	336
192Y **0245**	337
192Y **0275**	336

References	Pages
192Y **0285**	337
192Y **04xx**	349
192Y **05xx**	349
192Y **06xx**	349
192Y **08xx**	349
192Y **09xx**	349
2200 **1000**	20, 23, 101, 104
2200 **1001**	20, 23, 101, 104
2200 **1002**	20, 23, 101, 104
2200 **1003**	20, 23, 101, 102, 104
2200 **1004**	20, 23, 101, 104
2200 **1006**	20, 23, 101, 102, 104
2200 **1008**	20, 23, 101, 104
2200 **1010**	20, 23, 111, 113
2200 **1011**	20, 23
2200 **300x**	20, 101
2200 **3010**	20, 111
2200 **3011**	20
2200 **3012**	21
2200 **3016**	21
2200 **31xx**	21
2200 **4xxx**	21
2200 **500x**	20, 23, 102, 104
2200 **5011**	20, 23, 111, 113
2200 **900x**	20, 23, 102, 104
2200 **9011**	20, 23, 111, 113
2201 **1xxx**	111, 113
2201 **3xxx**	111
2205 **xxxx**	20, 101
2209 **0xxx**	89, 90
2209 **2xxx**	89, 90
2209 **6009**	20, 24, 105
2214 **3503**	102
2215 **3xxx**	492
2215 **9xxx**	84, 492
222x **xxxx**	102
223x **xxxx**	269
2269 **6009**	20, 24, 105
2294 **100x**	20, 24, 83, 101, 102, 104, 269
2294 **1011**	20, 24, 111, 113
2294 **3005**	20, 24, 83, 101, 104, 269
2294 **3009**	20, 24, 83, 101, 102, 104, 269
2294 **3016**	20, 21, 24, 90, 111, 113
2294 **4016**	21, 24, 90, 304, 305

References	Pages
2299 **0xxx**	20, 21, 24, 82, 83, 89, 90, 101, 102, 105, 111, 113, 269
2299 **30xx**	269
2299 **3309**	20, 25, 82, 83
2299 **3409**	20, 25, 82, 83, 101, 105
2299 **4xxx**	269
2299 **5012**	20, 21, 82, 101, 103
2299 **5013**	20, 21, 82
2299 **5022**	21, 89
2299 **5032**	20, 21, 111, 112
2299 **5042**	21, 89
2299 **6009**	20, 24, 105
2299 **9409**	25, 83
2299 **9909**	25
22PV **3xxx**	89
22PV **40xx**	82
22PV **41xx**	89
22PV **43xx**	84
22PV **44xx**	84
22PV **6xxx**	82
22PV **8xxx**	82
2600 **xxxx**	40
2601 **xxxx**	41
2605 **xxxx**	42
2609 **xxxx**	95, 97
261x **xxxx**	47, 281, 317
262x **xxxx**	47, 281, 317
263x **xxxx**	47, 281, 317
2694 **3014**	40 to 42, 45, 135, 276 to 278, 282, 312, 314, 318
2694 **302x**	40 to 42, 45, 97, 276 to 278, 282, 312, 314, 318
2694 **305x**	40 to 42, 45, 97, 276 to 278, 282, 312, 314, 318
2694 **4014**	40 to 42, 45, 135, 276 to 278, 282, 291, 312, 314, 318
2694 **402x**	40 to 42, 45, 97, 276 to 278, 282, 291, 312, 314, 318
2694 **405x**	40 to 42, 45, 97, 276 to 278, 282, 291, 312, 314, 318
2698 **3012**	40, 42, 46
2698 **302x**	40, 42, 46, 97
2698 **305x**	40, 42, 46, 97

References	Pages
2698 **308x**	40, 42, 46
2698 **31xx**	40, 42, 46
2698 **3200**	40, 46
2698 **4012**	40, 42, 46
2698 **402x**	40, 42, 46, 97
2698 **405x**	40, 42, 46, 97
2698 **408x**	40, 42, 46
2698 **41xx**	40, 42, 46
2698 **4200**	40, 46
2699 **003x**	40, 42, 45, 95, 96
2699 **006x**	41, 45
2699 **0101**	60
2699 **0122**	119
2699 **014x**	45, 96
2699 **03xx**	45, 96
2699 **1200**	47, 281, 317
2699 **3312**	45
2699 **3420**	45, 96
2699 **4312**	45
2699 **4420**	45, 96
2699 **504x**	40, 43, 135
2699 **5052**	40, 43, 95, 117, 125
2699 **5053**	40, 43, 95
2699 **6008**	48, 97
2699 **6027**	48
2699 **7012**	125
2699 **9063**	48, 97
2699 **9315**	48
26Px **xxxx**	95
2700 **3011**	117
2700 **3017**	135
2700 **302x**	117
2700 **304x**	117
2700 **306x**	117
2700 **308x**	117
2700 **31xx**	117
2700 **4011**	117
2700 **4017**	135
2700 **402x**	117
2700 **404x**	117
2700 **406x**	117
2700 **408x**	117
2700 **41xx**	117
2709 **2021**	125, 129
2709 **204x**	125, 126, 129
2709 **206x**	125, 126, 129

References	Pages
2709 **3021**	125, 129
2709 **304x**	125, 126, 129
2709 **306x**	125, 126, 129
2798 **302x**	117, 119, 125, 128
2798 **304x**	117, 119, 125, 128
2798 **3060**	117, 119
2798 **3061**	125, 128
2798 **3120**	117, 119
2798 **402x**	117, 119, 125, 128
2798 **404x**	117, 119, 125, 128
2798 **4060**	117, 119
2798 **4061**	125, 128
2798 **4120**	117, 119
2798 **8xxx**	117, 119, 125, 128
2799 **0001**	57, 60, 488
2799 **0002**	57, 60, 488
2799 **0005**	60
2799 **001x**	58, 61
2799 **002x**	117, 119, 125, 128
2799 **0111**	61
2799 **0121**	119, 128
2799 **0122**	128
2799 **1xxx**	488
2799 **3015**	40, 44, 278, 280
2799 **3018**	40, 41, 44, 276, 280
2799 **3019**	44, 278, 280
2799 **5012**	126
2799 **7002**	48, 283
2799 **7003**	48, 283
2799 **7007**	63
2799 **7012**	40, 41, 43, 57, 59, 276, 278, 279
2799 **7013**	40, 41, 43, 57, 59
2799 **7052**	41, 43, 58, 59, 276 to 279
2799 **7053**	41, 43, 58, 59
2799 **7062**	291
2799 **7070**	58, 59
2799 **713x**	40, 43
2799 **7145**	41, 43, 126, 127
2799 **7146**	276, 279
2799 **7147**	291
2799 **7155**	40, 43
27DC **3xxx**	125
27DC **4xxx**	125
27DC **6xxx**	126
27DC **8xxx**	126

References	Pages
2900 **xxxx**	57
2905 **xxxx**	58
291x **xxxx**	57, 58
292x **xxxx**	57, 58
2998 **000x**	62, 71, 74, 185 to 187, 190, 197, 200
2998 **001x**	48, 97, 282
2998 **002x**	48, 97, 282
2998 **003x**	48, 282
2998 **3080**	62
2998 **3120**	62, 71, 74, 197, 200
2998 **3180**	197, 200
2998 **4080**	62
2998 **4120**	62, 71, 74, 197, 200
2998 **4180**	197, 200
2999 **0xxx**	488
2999 **1xxx**	488
2999 **8707**	48
3115 **xxxx**	493
3117 **xxxx**	494
3125 **xxxx**	493
3127 **xxxx**	494
316x **xxxx**	495
317x **xxxx**	495
3211 **0xxx**	488
3211 **1xxx**	488
3211 **3xxx**	484
3211 **4xxx**	484
3211 **6xxx**	484
3215 **xxxx**	486
3221 **xxxx**	484
3225 **xxxx**	486
324x **xxxx**	491
3261 **0080**	488
3261 **3xxx**	484
3261 **4xxx**	484
3261 **6xxx**	484
3265 **xxxx**	486
3271 **xxxx**	484
3275 **xxxx**	486
3290 **6xxx**	488
3290 **7xxx**	489
350x **xxxx**	71
352x **xxxx**	197
3615 **2005**	150, 179
3615 **2010**	150
3615 **2011**	150, 179
3615 **2012**	150

References	Pages
3615 **2015**	151, 180
3615 **2016**	151, 180
3615 **202x**	151, 180
3615 **203x**	151, 180
3615 **3005**	150, 179
3615 **3010**	150
3615 **3011**	150, 179
3615 **3012**	150
3615 **3015**	151, 180
3615 **3016**	151, 180
3615 **302x**	151, 180
3615 **303x**	151, 180
3615 **6005**	150, 179
3615 **6010**	150
3615 **6011**	150, 179
3615 **6012**	150
3615 **6015**	151, 180
3615 **6016**	151, 180
3615 **602x**	151, 180
3615 **603x**	151, 180
3625 **200x**	146
3625 **2010**	146
3625 **2014**	146
3625 **2015**	146
3625 **2016**	146
3625 **2019**	147
3625 **202x**	147
3625 **203x**	147
3625 **300x**	146
3625 **3010**	146
3625 **3014**	146
3625 **3015**	146
3625 **3016**	146
3625 **3019**	147
3625 **302x**	147
3625 **303x**	147
3625 **600x**	146
3625 **6010**	146
3625 **6014**	146
3625 **6015**	146
3625 **6016**	146
3625 **6019**	147
3625 **602x**	147
3625 **603x**	147
3629 **4012**	146, 150, 152
3629 **4013**	152

Reference list

References	Pages
3629 **7900**	146, 150, 152, 179
3629 **7901**	57 to 59, 146, 147, 150 to 152, 179, 180, 182
3629 **7903**	146, 150, 159
3629 **7910**	152, 205, 208
3629 **7913**	63, 146, 147, 150, 151, 159
3629 **9xxx**	155
363x **xxxx**	148, 150
364x **xxxx**	144, 146
3650 **xxxx**	186
3655 **xxxx**	187
366x **xxxx**	185
367x **xxxx**	148
3680 **300x**	144
3680 **308x**	182
3680 **31xx**	182
3680 **4xxx**	144
3680 **6xxx**	182
369x **xxxx**	471
36Ux **xxxx**	182
371x **xxxx**	205
3729 **40xx**	205, 208
3729 **45xx**	205, 207
3729 **754x**	205, 207
3729 **755x**	207
3729 **8xxx**	211
3729 **900x**	207
3729 **901x**	211
3729 **902x**	211
3729 **904x**	211
3729 **906x**	211
3729 **908x**	211
3729 **99xx**	207
3799 **6012**	117
3799 **8xxx**	211
3799 **9xxx**	211
3811 **2063**	149, 151, 180, 181
3811 **208x**	149, 151
3811 **21xx**	149, 151
3811 **3063**	149, 151, 180, 181
3811 **308x**	149, 151
3811 **31xx**	149, 151
3811 **6063**	149, 151, 180, 181
3811 **608x**	149, 151
3811 **61xx**	149, 151
3821 **xxxx**	145, 147
3829 **7923**	159
3829 **9308**	145, 149, 155
3829 **9310**	144, 148, 155
3829 **9312**	145, 149, 155
3829 **9320**	144, 145, 155
3829 **933x**	145, 149, 155
3831 **2005**	148, 179
3831 **2010**	148
3831 **2011**	148, 179
3831 **2012**	148
3831 **2015**	149, 181
3831 **2016**	149, 181
3831 **202x**	149, 181
3831 **203x**	149, 181
3831 **3005**	148, 179
3831 **3010**	148
3831 **3011**	148, 179
3831 **3012**	148
3831 **3015**	149, 181
3831 **3016**	149, 181
3831 **302x**	149, 181
3831 **303x**	149, 181
3831 **6005**	148, 179
3831 **6010**	148
3831 **6011**	148, 179
3831 **6012**	148
3831 **6015**	149, 181
3831 **6016**	149, 181
3831 **602x**	149, 181
3831 **603x**	149, 181
3841 **200x**	144
3841 **2010**	144
3841 **2014**	144
3841 **2015**	144
3841 **2016**	144
3841 **2019**	145
3841 **202x**	145
3841 **203x**	145
3841 **300x**	144
3841 **3010**	144
3841 **3014**	144
3841 **3015**	144
3841 **3016**	144
3841 **3019**	145
3841 **302x**	145
3841 **303x**	145
3841 **600x**	144
3841 **6010**	144
3841 **6014**	144
3841 **6015**	144
3841 **6016**	144
3841 **6019**	145
3841 **602x**	145
3841 **603x**	145
3859 **6011**	208
386x **xxxx**	205
3870 **300x**	148
3870 **3010**	148
3870 **3011**	148
3870 **3015**	149
3870 **3016**	149
3870 **302x**	149
3870 **303x**	149
3870 **600x**	148
3870 **6010**	148
3870 **6011**	148
3870 **6015**	149
3870 **6016**	149
3870 **602x**	149
3870 **603x**	149
3880 **300x**	144
3880 **3010**	144
3880 **3014**	144
3880 **3015**	144
3880 **3016**	144
3880 **3019**	145
3880 **302x**	145
3880 **303x**	145
3880 **600x**	144
3880 **6010**	144
3880 **6014**	144
3880 **6015**	144
3880 **6016**	144
3880 **6019**	145
3880 **602x**	145
3880 **603x**	145
3890 **2xxx**	182, 183
3890 **3xxx**	182, 183
3890 **8xxx**	180, 181
3890 **9xxx**	180, 181
3894 **xxxx**	158
3898 **202x**	211
3898 **203x**	211
3898 **2080**	145, 147, 149, 151, 158, 182, 183, 211
3898 **2120**	145, 147, 149, 151, 158, 182, 183
3898 **302x**	211
3898 **303x**	206, 211
3898 **3080**	145, 147, 149, 151, 158, 182, 183, 211
3898 **3120**	145, 147, 149, 151, 158, 182, 183
3898 **402x**	211
3898 **403x**	211
3898 **4080**	145, 147, 149, 151, 158, 211
3898 **4120**	145, 147, 149, 151, 158
3899 **0400**	154
3899 **2xxx**	183
3899 **3xxx**	183
3899 **6011**	147, 151, 152, 180, 182
3899 **7011**	147, 151, 152, 182
3899 **7911**	147, 151
3899 **8xxx**	181
3899 **9xxx**	181
38U1 **202x**	183
38U1 **203x**	183
38U1 **205x**	182, 183
38U1 **206x**	182, 183
38U1 **208x**	182, 183
38U1 **21xx**	182, 183
38U1 **302x**	183
38U1 **303x**	183
38U1 **305x**	182, 183
38U1 **306x**	182, 183
38U1 **308x**	182, 183
38U1 **31xx**	182, 183
3954 **2xxx**	119, 129, 211, 297
3954 **3020**	117, 119, 125, 129, 211, 297
3954 **3040**	117, 119, 125, 126, 129, 211, 297
3954 **3041**	119, 129, 211, 297
3954 **3060**	117, 119, 125, 126, 129, 211, 297
3954 **3120**	117
3954 **4020**	117, 119, 125, 129, 211, 297

References	Pages
3954 **4040**	117, 119, 125, 126, 129, 211, 297
3954 **4041**	119, 129, 211, 297
3954 **4060**	117, 119, 125, 126, 129, 211, 297
3954 **4120**	117
3954 **6xxx**	119
3954 **8xxx**	119
3990 **1xxx**	73, 189, 199
3990 **2012**	199
3990 **202x**	73, 189, 199
3990 **204x**	73, 189, 199
3990 **22xx**	73, 189, 199
3990 **2839**	182, 183
3990 **30xx**	73, 189, 199
3990 **31xx**	73, 189, 199
3990 **32xx**	73, 189, 199
3990 **33xx**	73, 189, 199
3990 **3839**	182, 183
3990 **4xxx**	73, 189, 199
3990 **7xxx**	180, 181
3990 **8xxx**	180, 181
3990 **9xxx**	180, 181
3991 **xxxx**	73, 189, 199
3992 **xxxx**	189, 199
3993 **xxxx**	73
3994 **0xxx**	158
3994 **13xx**	186, 187, 190
3994 **14xx**	186, 187, 190
3994 **1901**	158, 227
3994 **1902**	190
3998 **2016**	144 to 151, 158, 227
3998 **2025**	145, 147, 149, 151, 158, 182, 183, 227
3998 **3016**	61, 144 to 151, 158, 227
3998 **3025**	61, 145, 147, 149, 151, 158, 182, 183, 227
3998 **3040**	71, 74, 185 to 187, 190
3998 **3063**	71, 74, 185 to 187, 190, 197, 200
3998 **3120**	185 to 187, 190
3998 **4016**	61, 144 to 151, 158, 227
3998 **4025**	61, 145, 147, 149, 151, 158, 227
3998 **4040**	71, 74, 185 to 187, 190
3998 **4063**	71, 74, 185, 187, 190, 197, 200

References	Pages
3998 **4120**	185 to 187, 190
3999 **0001**	146, 150, 156
3999 **0002**	146, 150
3999 **0003**	157
3999 **0021**	57, 58, 60, 61, 146, 147, 150, 151, 156, 179, 180, 182
3999 **0022**	57, 58, 60, 61, 146, 147, 150, 151, 156, 179, 180
3999 **0031**	71, 74, 185 to 187, 189, 197, 199
3999 **0041**	61, 157
3999 **0042**	61
3999 **0043**	61
3999 **0044**	61
3999 **005x**	71, 74, 185 to 187, 189, 197, 199
3999 **0103**	157
3999 **011x**	74, 189, 199
3999 **014x**	157
3999 **02xx**	157
3999 **0600**	144, 145, 148, 149, 156
3999 **070x**	21, 24, 57, 58, 60, 61, 89, 90, 117, 119, 125, 147, 151, 156, 179 to 183, 205, 210
3999 **0710**	144, 148, 156, 210
3999 **0720**	117, 119, 125
3999 **2839**	183
3999 **31xx**	73, 190, 198
3999 **32xx**	73, 190, 198
3999 **34xx**	73, 190, 198
3999 **3839**	183
3999 **4110**	73, 190, 198
3999 **6012**	71, 72, 185 to 188
3999 **6013**	71, 72, 188
3999 **6107**	75
3999 **6117**	200
3999 **6201**	185, 186, 188
3999 **6203**	71, 72, 197, 198
3999 **7007**	75, 200
3999 **701x**	181
3999 **702x**	181
3999 **703x**	181
3999 **80xx**	181
3999 **8104**	75, 191, 200
3999 **82xx**	151, 157

References	Pages
3999 **83xx**	151, 157
3999 **84xx**	151, 157
3999 **8906**	150, 157
3999 **8912**	150, 151, 157
3999 **9xxx**	181
3999 **Uxxx**	210
3Vxx **xxxx**	491
4100 **3xxx**	276
4100 **4xxx**	276
4100 **7xxx**	278
4100 **90xx**	278
4100 **91xx**	278
4100 **98xx**	291
4109 **0019**	276 to 278, 280, 291, 312, 314, 316
4109 **0021**	276 to 278, 281, 291
4109 **003x**	276 to 278, 280, 291, 312, 314, 316
4109 **0050**	276 to 278, 280
4109 **006x**	276 to 278, 280, 291, 312, 314, 316
4109 **008x**	276 to 278, 280, 291, 312, 314, 316
4109 **0120**	276 to 278, 280, 312, 314, 316
4109 **0160**	276 to 278, 280, 291, 312, 314, 316
4109 **02xx**	281, 317
4109 **03xx**	281, 317
4109 **1002**	283, 291
4109 **1004**	283
4109 **1006**	283, 291
4109 **2007**	283
4109 **8507**	48
4116 **xxxx**	498
4119 **xxxx**	499
4150 **xxxx**	295
4158 **3021**	295, 297
4158 **3041**	126, 128, 295, 297
4158 **4021**	295, 297
4159 **002x**	126, 128, 295, 297
4159 **0022**	128, 295
4159 **0121**	297
4159 **3xxx**	295, 297
4159 **4xxx**	295, 297
4190 **xxxx**	277
4199 **3018**	126, 128, 296
4199 **3019**	128, 296

References	Pages
4199 **4012**	295, 296
4199 **5012**	41, 43, 276 to 279
4199 **70xx**	126, 295, 296
4199 **7146**	278, 279
4199 **7149**	296
4212 **xxxx**	498
4215 **xxxx**	500
4220 **xxxx**	265
4221 **xxxx**	496
4230 **xxxx**	265
4231 **xxxx**	496
4240 **xxxx**	265
4241 **xxxx**	496
4250 **xxxx**	265
4259 **1xxx**	265, 266
4259 **2xxx**	265, 266
4259 **3xxx**	265, 266
4259 **4xxx**	265, 266
4259 **5xxx**	265, 266
4259 **9xxx**	265
429x **xxxx**	265
4359 **4315**	306
4409 **0022**	276, 281
4409 **8xxx**	489
441x **xxxx**	497
4430 **xxxx**	271
4439 **0001**	271, 272
444x **xxxx**	271
449x **xxxx**	271, 272
4500 **001x**	466
4500 **002x**	466
4500 **003x**	467
4500 **01xx**	465
4501 **xxxx**	464
4502 **xxxx**	465
4503 **xxxx**	465
4504 **xxxx**	465
4505 **xxxx**	465
4510 **xxxx**	441
4511 **xxxx**	441
4512 **xxxx**	441
4513 **xxxx**	441
4514 **xxxx**	441
4518 **xxxx**	443
47xx **xxxx**	413

Reference list

References	Pages
4805 **0000**	397
4805 **0001**	397
4805 **0002**	401
4825 **001x**	369
4825 **0080**	373
4825 **0082**	373
4825 **0087**	379
4825 **0088**	373, 379, 385
4825 **0089**	373, 379, 385
4825 **0090**	379, 385
4825 **0092**	379, 385
4825 **0093**	379, 385
4825 **0094**	379, 385
4825 **0097**	379
4825 **0200**	373
4825 **0201**	379
4825 **0202**	379
4825 **0203**	379, 385
4825 **0204**	379, 385
4825 **0205**	379, 385
4825 **0206**	379, 385
4825 **0207**	385
4825 **1xxx**	379
4826 **xxxx**	393
4850 **3000**	355
4850 **3001**	355
4850 **3002**	355
4850 **3003**	357
4850 **3004**	357
4850 **3005**	359
4850 **3006**	359
4850 **3007**	359
4850 **3008**	361
4850 **3009**	361
4850 **3010**	362
4850 **3011**	362
4850 **3012**	359
4850 **3013**	359
4850 **3014**	361
4850 **3015**	361
4850 **3017**	361
4850 **AM10**	353
4852 **0000**	365
4899 **01xx**	394
4899 **02xx**	395
4899 **03xx**	395

References	Pages
4899 **0400**	510
4941 **2xxx**	407
4941 **4xxx**	405
4941 **5xxx**	405
4941 **6xxx**	405
4942 **xxxx**	409
4981 **0xxx**	421
4981 **1xxx**	419
4982 **04xx**	425
4982 **05xx**	417
4982 **0719**	421
4982 **14xx**	425
4982 **15xx**	417
4982 **17xx**	421
4983 **xxxx**	427
4984 **xxxx**	429
4985 **xxxx**	429
4986 **xxxx**	429
4987 **xxxx**	429
4988 **9100**	431
499x **xxxx**	348
5000 **000x**	475
5000 **0010**	473
5000 **0011**	473
5000 **0012**	473
5000 **0015**	475
5000 **0016**	475
5000 **0017**	474
5000 **0018**	475
5000 **0023**	473
5000 **0024**	473
5000 **0025**	473
5000 **0026**	473
5000 **0027**	474
5000 **0028**	473
5000 **0029**	473
5000 **0033**	473
5000 **0034**	473
5000 **0035**	473
5000 **0036**	473
5000 **0037**	473
5000 **0038**	447, 449, 451, 473
5000 **0039**	473
5000 **0041**	25, 474
5000 **0042**	474
5000 **0043**	474

References	Pages
5000 **0044**	474
5000 **0045**	475
5000 **0046**	475
5000 **0047**	475
5000 **0051**	25, 474
5000 **0057**	473
5000 **0058**	473
5000 **006x**	475
5000 **0100**	474
5000 **012x**	473
5000 **013x**	473
5000 **03xx**	474
5000 **1021**	473
5000 **4xxx**	474
5020 **xxxx**	447, 449, 451
5021 **xxxx**	460
5022 **0xxx**	460
5022 **5110**	454
5023 **01xx**	461
5023 **03xx**	456
5023 **04xx**	456
5023 **6110**	454
5024 **1xxx**	447
5024 **2xxx**	447
5024 **4xxx**	447
5024 **5xxx**	451
5024 **6xxx**	447
5024 **7xxx**	449
5024 **8xxx**	449
5024 **9002**	456
5024 **9031**	447, 449
5024 **9033**	451
5024 **9034**	447, 449
5024 **904x**	447, 449
5025 **2110**	452
5025 **5100**	452, 453
5025 **511x**	452
5025 **512x**	452, 453
5025 **513x**	452, 453
5025 **52xx**	453
5026 **xxxx**	463
5027 **xxxx**	455
5028 **0410**	462
5028 **0411**	462, 472
5028 **0412**	462, 472
5028 **0413**	462, 472

References	Pages
5028 **0415**	462, 472
5028 **042x**	472
5028 **045x**	472
5028 **047x**	472
5031 **xxxx**	457
5032 **xxxx**	458
5036 **xxxx**	458
5037 **xxxx**	458
5038 **xxxx**	458
5039 **xxxx**	458
5119 **44xx**	441
5119 **45xx**	441
5119 **46xx**	456
5119 **5xxx**	475
52xx **xxxx**	475
5400 **3016**	47, 62, 146, 147, 150, 151, 159, 467
5400 **302x**	47, 62, 75, 147, 151, 159, 191, 467
5400 **304x**	47, 62, 75, 147, 151, 159, 191, 467
5400 **3063**	47, 62, 75, 191, 467
5400 **32xx**	467
5400 **4016**	47, 62, 146, 147, 150, 151, 159, 467
5400 **402x**	47, 62, 75, 147, 151, 159, 191, 467
5400 **404x**	47, 62, 75, 147, 151, 159, 191, 467
5400 **4063**	47, 62, 75, 191, 467
5400 **42xx**	467
5410 **xxxx**	469
5411 **xxxx**	46, 473
5412 **xxxx**	471
5413 **xxxx**	473
5414 **xxxx**	469
5420 **0xxx**	470
5420 **2xxx**	470
5420 **3xxx**	470
5420 **4xxx**	46, 469
5421 **xxxx**	470
5601 **0015**	219
5601 **0016**	219
5601 **0017**	219, 369, 373, 379, 385, 393
5601 **0018**	219, 369, 373, 379, 385, 393
5601 **0019**	219

References	Pages
5601 **002x**	219
5601 **5xxx**	219
5602 **5xxx**	219
5602 **9xxx**	220
5603 **5xxx**	219
5603 **9xxx**	220
5604 **0003**	220, 223
56Dx **xxxx**	223
58xx **xxxx**	474
5Axx **xxxx**	233
5Fxx **xxxx**	233
6012 **0000**	237, 369, 373, 379, 385, 393
6012 **0001**	237
6012 **0002**	237
6012 **0004**	237
6012 **0006**	237
6012 **0008**	237
6012 **001x**	237
6012 **002x**	237
6012 **003x**	237
6013 **xxxx**	237
6019 **0000**	237, 240
6022 **xxxx**	237
6023 **xxxx**	237
6029 **0000**	155, 237, 240
6032 **xxxx**	237
6033 **xxxx**	237
6039 **0000**	155, 237, 240
605x **xxxx**	237
606x **xxxx**	237
60Px **xxxx**	258
63xx **xxxx**	227
6401 **0011**	240
642x **xxxx**	155, 238 to 240
643x **xxxx**	228
6441 **0005**	155, 238 to 240
6500 **000x**	225
6500 **001x**	225
6500 **002x**	225
6500 **003x**	225
6500 **004x**	226
6500 **1010**	225, 248
6500 **11xx**	225
6501 **1010**	225, 226, 249

References	Pages
6501 **1011**	225, 226, 250
6501 **1012**	225, 226, 251
6501 **1013**	225, 226, 251
6501 **103x**	225
6501 **111x**	225, 226
6501 **113x**	225
651x **xxxx**	225
6600 **xxxx**	238
6601 **xxxx**	239
6692 **xxxx**	238
6693 **xxxx**	239
6702 **xxxx**	238
6703 **xxxx**	239
6712 **xxxx**	238
6713 **xxxx**	239
6722 **xxxx**	238
6723 **xxxx**	239
6732 **xxxx**	238
6733 **xxxx**	239
6746 **xxxx**	238
6747 **xxxx**	239
6852 **xxxx**	238
6853 **xxxx**	239
6862 **xxxx**	238
6863 **xxxx**	239
6872 **xxxx**	238
6873 **xxxx**	239
6882 **xxxx**	238
6883 **xxxx**	239
6896 **xxxx**	238
6897 **xxxx**	239
6A10 **xxxx**	231
6A1M **xxxx**	232
6A20 **xxxx**	231
6A2M **xxxx**	232
6A30 **xxxx**	231
6A3M **xxxx**	232
6A40 **xxxx**	231
6A4M **xxxx**	232
6B10 **xxxx**	231
6B1M **xxxx**	232
6B20 **xxxx**	231
6B2M **xxxx**	232
6B30 **xxxx**	231
6B3M **0400**	232
6B40 **xxxx**	231

References	Pages
6B4M **0500**	232
6C10 **01xx**	231
6C10 **02xx**	231
6C10 **03xx**	231
6C10 **04xx**	232
6C1M **xxxx**	232
6C2x **xxxx**	232
6C3x **xxxx**	232
6Dxx **xxxx**	232
6F10 **xxxx**	231
6F1M **xxxx**	232
6F20 **xxxx**	231
6F2M **xxxx**	232
73xx **xxxx**	228
7739 **0025**	475
7769 **9999**	159, 191
Nxxx **xxxx**	472
SA10 **420x**	473
SA10 **421x**	474
SA12 **420x**	473
SA12 **421x**	474
SA13 **420x**	473
SA13 **421x**	474

Note

Note

A worldwide presence

➲ Representative network

Africa
- Algeria
- Cambodia
- Egypt
- Ghana
- Morocco
- Nigeria
- South africa
- Tunesia

América
- Argentina
- Brazil
- Chile
- Mexico
- Perou
- Venezuela

Asia
- Hong Kong
- Indonesia
- Japan
- Malaysia
- Myanmar
- Philippines
- Sri lanka
- Taiwan
- Thailand
- Vietnam

Europe
- Bosnia & Herzegovina
- Bulgaria
- Croatia
- Czech republic
- Denmark
- Finland
- Greece
- Hungary
- Iceland
- Irish republic
- Lettonie
- Lithuania
- Norway
- Poland
- Portugal
- Roumanie
- Russia
- Serbia
- Slovenia
- Sweden
- Switzerland
- Turkey
- Ukraine

Middle east
- Iraq
- Israel
- Jordan
- Kuwait
- Lebanon
- Libye
- Pakistan
- Saudi arabia
- Syria
- United arab emirates

Oceania
- Australia
- New zealand
- Fidji island
- New Guinea



CARTE 021 A

Model: Piano Forte
Production: SOCOMEC
Photography: Martin Bernhart and Studio Objectif
Printing: PVA, Druck und Medien-Dienstleistungen GmbH
Industriestraße 15 - D-76829 LANDAU/PFALZ - GERMANY



To help protect the environment,
this document has been printed on
PEFC paper (Programme for the
Endorsement of Forest Certification).

Socomec worldwide

IN EUROPE

BELGIUM
SOCOMEC BELGIUM
B - 1190 Brussel
Tel. +32 (0)2 340 02 30 - Fax +32 (0)2 346 28 99
info.scp.be@socomec.com

FRANCE
SOCOMEC
F - 94132 Fontenay-sous-Bois Cedex
Tel. +33 (0)1 45 14 63 30 - Fax +33 (0)1 45 14 63 38
info.scp.fr@socomec.com

GERMANY
SOCOMEC GmbH
D - 76275 Ettlingen
Tel. +49 (0)7243 65 29 2 0 - Fax +49 (0)7243 65 29 2 13
info.scp.de@socomec.com

ITALY
SOCOMEC Elettrotecnica s.r.l.
I - 20098 San Giuliano Milanese (MI)
Tel. +39 02 9849821 - Fax +39 02 98243310
info.scp.it@socomec.com

SPAIN
SOCOMEC ELECTRO, S.L.
E - 08310 Argentona (Barcelona)
Tel. +34 93 741 60 67 - Fax. +34 93 757 49 52
info.scp.es@socomec.com

THE NETHERLANDS
SOCOMEC B.V.
NL - 3992 De Houten
Tel. +31 (0)30 63 71 504 - Fax +31 (0)30 63 72 166
info.scp.nl@socomec.com

THE UNITED KINGDOM
SOCOMEC Ltd
Hitchin Hertfordshire SG4 0TY
Tel. +44 (0)1462 440033 - Fax +44 (0)1462 431143
info.scp.uk@socomec.com

IN ASIA

NORTH EAST ASIA
SOCOMEC CHINA
CN - 200030 P.R.C Shanghai - China
Tel. +86 (0)21 5298 9555 - Fax +86 (0)21 6228 3468
info.scp.cn@socomec.com

SOUTH EAST ASIA & PACIFIC
SOCOMEC SWITCHING AND PROTECTION
UBI TECHPARK - 408569 Singapore
Tel. +65 65 07 94 90 - Fax +65 65 47 86 93
info.scp.sg@socomec.com

SOUTH ASIA
SOCOMEC INDIA
122001 Gurgaon, Haryana - India
Tel. +91 124 456 27 00 - Fax +91 124 456 27 38
info.scp.in@socomec.com

IN MIDDLE EAST

UNITED ARAB EMIRATES
SOCOMEC Middle East
Dubai, U.A.E.
Tel. +971 (0) 4 29 98 441 - Fax +971 (0)4 29 98 449
info.scp.ae@socomec.com

IN NORTH AMERICA

USA, CANADA & MEXICO
SOCOMEC Inc
Cambridge, MA 02142 USA
Tel. +1 617 245 0447 - Fax +1 617 245 0437
info.scp.us@socomec.com

HEAD OFFICE

SOCOMEC GROUP
S.A. SOCOMEC capital 11 303 400 €
R.C.S. Strasbourg B 548 500 149
B.P. 60010 - 1, rue de Westhouse
F-67235 Benfeld Cedex - FRANCE

INTERNATIONAL SALES DEPARTMENT

SOCOMEC
1, rue de Westhouse - B.P. 60010
F - 67235 Benfeld Cedex - FRANCE
Tel. +33 (0)3 88 57 41 41 - Fax +33 (0)3 88 74 08 00
info.scp.isd@socomec.com

Non contractual document. © 2010, Socomec SA. All rights reserved.

VALID FOR FRANCE

www.socomec.com

socomec
Innovative Power Solutions SCP

COUV 171 A

Réf. DCG 104013I - 12/10