

# Integrated products & solutions

Enclosed switching, protection and metering systems

2017  
2018

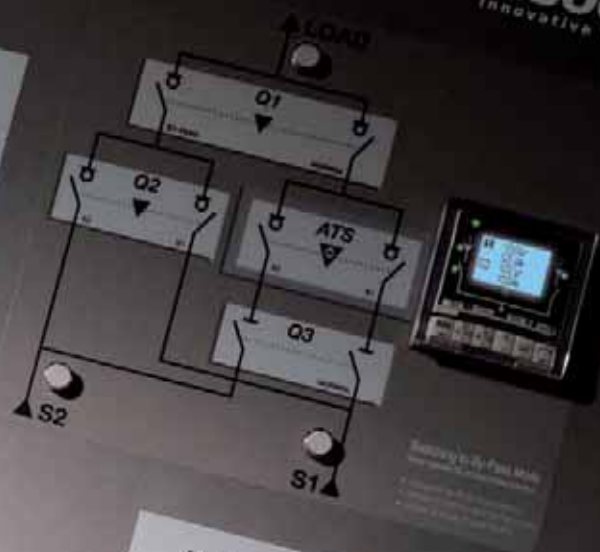


your energy  
our expertise



**socomec**  
Innovative Power Solutions

# By-pass Double Line



# Contents

An independent manufacturer .....	p. 4
Expert Services your partner .....	p. 5
Adapted solutions .....	p. 6
A cutting-edge laboratory .....	p. 8
A high-quality power supply .....	p. 9
Equipped enclosures and cabinets to suit all your applications .....	p. 3
References list .....	p. 78

## Enclosed switches

### Load break switches



**COMO**  
Polycarbonate  
20 to 125 A  
(3/4 P)  
p. 16



**SIRCO & SIRCO M**  
Steel  
20 to 1250 A  
(3/4 P)  
p. 20

### Fuse combination switches



**FUSERBLOC**  
Steel  
20 to 800 A  
(3/4 P)  
p. 24

## Safety enclosures

### Overview of our range p. 30

#### Normal atmospheres



**Polyester enclosure**  
50 to 1600 A  
(3/4/6 P)  
p. 32



**Steel enclosure**  
50 to 1600 A  
(3/4/6 P)  
p. 36

#### Explosive atmospheres



**Steel - Dust enclosure**  
50 to 630 A  
(3/4/6P)  
p. 44

## Enclosed transfer switches

### Overview of our range p. 48

#### Manual operation



**Polyester enclosure**  
25 to 630 A  
(3/4 P)  
p. 50



**Steel enclosure**  
63 to 3200 A  
(3/4 P)  
p. 52

#### Motorised operation



**RTSE / ATSE**  
40 to 3200 A  
(2/3/4 P)  
p. 56

#### ATyS Bypass solution



**ATSE**  
40 to 3200 A  
(4 P)  
p. 62

## Enclosed metering systems

### Overview of our range

#### Multifunction meters



**DIRIS A**  
Steel enclosure  
100 to 400 A  
p. 68

#### Measurement & monitoring systems



**DIRIS Digiware**  
Steel enclosure  
p. 72

## Specific applications



**Photovoltaic enclosures**  
p. 12



**Solutions for medical locations**  
p. 14

## Find out more

### Custom design and production of distribution panels



SOCOMECE designs and manufactures specific products to meet customer specifications and technical requirements in accordance with standard IEC 61439.

We will help you find the best solution for your application.

Contact your local sales office.



# An independent manufacturer

The benefit of a specialist

**3,500 m<sup>2</sup>**  
of test platforms

One of the leading  
independent power testing  
labs in Europe

**65,000**  
on-site interventions  
per year

Nearly 400 experts in  
commissioning, technical  
audit, consultancy and  
maintenance

**10%**  
of turnover invested  
in R&D

Always at the cutting-edge  
of technology for innovative,  
high-quality products



## SO innovative!

Since its foundation more than 90 years ago, SOCOMEC continues to design and manufacture its core products in Europe. Notably solutions for its primary mission: the availability, control and safety of low voltage electrical networks.

As an independent manufacturer, the Group is committed to constant innovation to improve the energy performance of electrical installations in infrastructures as well as industrial and commercial sites.

Throughout its history, SOCOMEC has constantly anticipated market changes by developing cutting-edge technologies, providing solutions that are adapted to customer requirements and fully in keeping with international standards.

"Optimising the performance of your system throughout its life cycle" - this is the commitment carried out every day by the SOCOMEC teams around the world, wherever your business is located.

SYDW 161 B



# Expert Services your partner

enabling available, safe and efficient energy

SOCOMEc is committed to deliver a wide range of value-added services to ensure the availability of your critical installation, the safety of your site operations and the performance optimisation of your low voltage equipment during its life cycle. The expertise and proximity of our specialists are there to ensure the reliability and durability of your equipment.



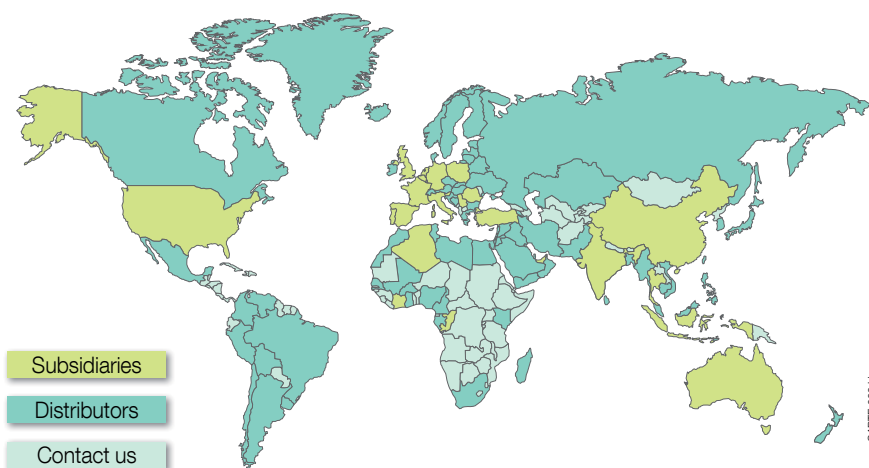
APPLI 724 A

## Key figures

Nearly 400 Socomec experts supported by 200 engineers and technicians from our distributors, drive the solutions to your specific needs.

Our global presence includes:

- 10 branches in France,
- 12 European subsidiaries,
- 8 Asian subsidiaries,
- representatives in 70+ countries.



CARTE 068 H

## On-site service management

- 65,000 service operations per year (mainly preventive visits).
- 98% Service Level Agreement compliance rate.



APPLI 571 A

## Technical hotline network

- 20+ languages spoken.
- 3 advanced technical support centres.
- 100,000+ incoming calls handled per year.



SITE 558 A

## Certified expertise

- 5,000 hours of technical training deployed per year (product, methodology and safety).



CORPO 269 A



# Adapted solutions

## to meet your energy objectives

### SMART BUILDINGS

Reducing your energy bills and energy dependency



DIRIS Digiware multi-circuit measurement system



ENERGY MANAGEMENT software packages



ATyS automatic and remotely operated transfer switches



SUNSYS PCS? Power Conversion System and Storage

### HEAVY

Controlling and securing your energy



DELPHYS MX UPS



COUNTIS E energy meter and DIRIS A multifunction meter (PMD)

### NAVAL SHIPS

Energy conversion in environments with harsh restrictions



SHARYS IP rectifier



NETYS RT-M UPS



UPS and other customised products



SIRCO load break switches

### SHOPPING CENTRES

Assuring your business continuity and visitor safety



COUNTIS E energy meter and multi-utility pulse concentrator



ATyS M automatic and remotely operated modular transfer switches



EMERGENCY CPSS, secure power supply for emergency systems



ENERGY MANAGEMENT software packages

### PUBLIC DISTRIBUTION AND SMART GRID

Helping you to meet the challenge of energy demand and response



SUNSYS PCS? Power Conversion System and Storage



TIPI low-voltage feeder pillar with DIRIS multi-function meter



Auxiliary unit with AtyS transfer switch



SIRCO and SIDER load break switches



DIRIS Digiware multi-circuit measurement system

### RENEWABLE ENERGY

Guaranteeing the performance, security and durability of your photovoltaic facilities



SUNSYS PCS? Power Conversion System and Storage



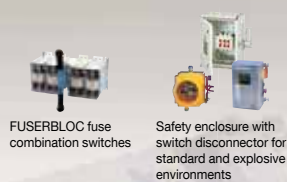
INOSYS load break switches with tripping function



PV string enclosure combiner box

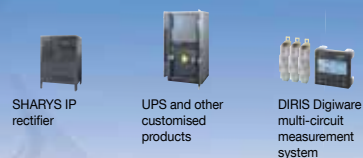


## INDUSTRY



## POWER PLANTS

Securing the piloting of your high-security installations and installations with seismic constraints



## TRANSPORT

Securing the continuity of your installations



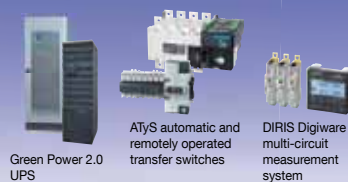
## DATA CENTRES

Meeting the challenge of the availability and performance of your energy



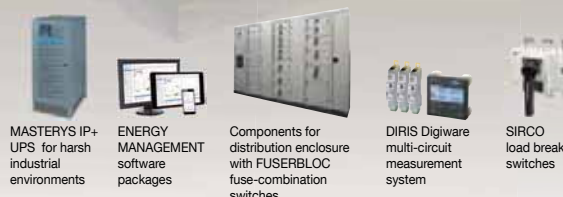
## MEDICAL FACILITIES

Assuring patient safety and the energy performance of your hospital



## INDUSTRY

Ensuring the competitiveness of your site



## EXPERT SERVICES



We offer a wide range of value-added services ensuring the reliability of your equipment throughout its design life. Ask for personalised support - for more information consult-us.

# A cutting-edge laboratory

## the backing of an expert

Created in 1965, SOCOMEC's laboratory brings its expertise to guarantee the reliability and the conformity of our products and solutions.

Since 2015, the laboratory renamed Tesla Lab – Power Testing and Certification in 2015, offers its testing and certification services to all its customers.



### Proven expertise

Tesla Lab is an independent laboratory specialised in testing of LV switchgear, components and switchgear assemblies.

4 M€ has been invested since 2011 in this 2000 m<sup>2</sup> laboratory, where 30 experts guarantee the quality of the performed tests, making the Tesla Lab one of the most modern laboratories in Europe.

### Vast range of tests

The laboratory has a 100 MVA ( $I_{sc}$  100 kA rms 1 s) short-circuit platform, three 10 kA overload platforms and many other test facilities covering 2000 m<sup>2</sup> for:

- functional tests,
- mechanical tests: endurance,
- dielectric tests,
- environmental tests: vibration,
- Ingress Protection (IP),
- temperature rise tests up to 60 °C ambient.

### International partnership

The laboratory is recognised by the major certification bodies worldwide: member of ASEFA and LOVAG, it is accredited by COFRAC, UL (CTDP), CSA (shared certification) and DEKRA (WMT).

The partnership with many international certification bodies guarantees the quality and safety requirements in each country.

### Implementation of standard IEC/EN 61439

#### Electrical switchgear manufacturers

IEC/EN 61439 standards define the requirements of "Low voltage switchgear assemblies" as well as the tests necessary to ensure the achievement of the specified levels of performance. The compliance with these standards gives a guarantee of safety and performance to the user of the equipment



#### An original manufacturer according to IEC/EN 61439 standards

Socomec offers a wide range of original manufacturer solutions complying with IEC 61439 standards.

- FLEXYS and CADRYs cabinet systems designed for distribution panel applications.
- Local switching and equipment cabinets covering requirements in power availability and safety.
- Components for integration.

#### Tesla Lab accredited by COFRAC

With its world-class testing facilities, the Tesla Lab can perform all of the tests required by IEC/EN 61439 standards for switchgear assemblies

We can therefore help you to:

- define a verification program,
- perform conformity tests,
- issue test reports in order to get certification from third party certification bodies (ASEFA, LOVAG, DEKRA, UL, CSA, COFRAC, ASTA...).



# A high-quality power supply

## innovative solutions

Critical equipment requires an uninterrupted and continuously available power supply, using energy of the highest quality. Our uninterruptible power supplies (UPS), static transfer systems (STS), energy storage systems and rectifiers comprise the most complete ranges in the world and cover a very wide variety of applications for every sector of activity.



### 100% availability

High quality energy supply at any moment is strategic in many fields such as telecommunications, data processing or certain industrial processes. It is vital to a number of medical applications. In all these sectors, SOCOMEC has over 45 years of experience at your disposal.

### Customised solutions

Underpinned by significant R&D resources, our products are constantly evolving to adapt to the needs of our customers.

Our products have the approval of some of the most stringently demanding users: telecom companies, nuclear industry, naval industry, and many more.

### Recognised expertise

SOCOMECS UPS solutions (inverters) have received the most prestigious awards in the industry; testimony to the way we listen to the needs of our users:

- Award for excellence in customer service (2004),
- Award for product innovation (2006),
- Award for Europe's best product range strategy (UPS) (2009),
- Award for product innovation (2011),
- Award for excellence in product differentiation (2013)
- Award for European company of the year in the UPS sector (2014)
- Award for European technological leadership (UPS) (2015)

### Continuous innovation

Embedded in the DNA of SOCOMEC, innovation is a challenge that itself undergoes constant reinvention:

- First French manufacturer to offer static power supplies (1968)
- First UPS to use PWM technology (1980)
- First high-performance range of UPS with IGBT technology (1996)
- First modular UPS, with scalable and redundant architecture (2001)
- First manufacturer to integrate hybrid components (2001)
- First 200-kVA UPS with IGBT rectifier (2003)
- New battery charging design (2004)
- Dynamic energy storage system: the flywheel (2006)
- First UPS with 96% efficiency in online double conversion mode (2008)
- Most compact STS with 19" hot-swappable rack design (2009)
- Most compact 900-kVA UPS (2010)
- First complete UPS range (10-2400 KW/ kVA) with triple-tier technology, 96% efficiency and an output power factor of 1 (2012)
- "Forever Young" design for modular UPS (2014)

### Always attentive to customer needs

With our extensive sales and after-sales network, we are always there for you. Our clients are happy with the quality of our products and their availability and our commitment to their needs.

### Keeping on track with Socomec

#### SUNSYS PCS<sup>2</sup> power converter storage solution



This bidirectional power converter is the key element of the energy storage system. It ensures that the batteries are charged and discharged according to the required functions.



# Equipped enclosures and cabinets to suit all your applications

Specialist in load-break and changeover switching, as well as protection, metering and measurement equipment, SOCOMEC designs and produces **standard and customised integrated solutions**.

With our dual expertise (in products and solutions) we can offer you the electrical equipment you need for your systems, all under **manufacturer's guarantee**.

Based on decades of extensive experience, our **standard integrated solutions** bring you:

- **Fast implementation backed up** by a review of system limitations,
  - **Ease-of-use, without any risk of non-compliance** with industry standards.
- Our solutions guarantee:
- **The safety and protection of persons and goods,**
  - **Operating continuity,**
  - **Compliance with standards on products, assemblies and installations.**

## What you need to know!

SOCOMEK has an entire department at your service, dedicated to the design and production of specialist equipment.

This department is on hand to support you throughout your projects, including:

- drawing up the spec sheets,
- costings,
- planning,
- design and production,
- qualification and certification,
- support during installation and startup,
- training.

Contact your local SOCOMEC branch to see what our experience can offer!



## PV enclosures



PV enclosures house the PV combiner box that consolidates the output of the various solar strings, while protecting against overcurrents and overvoltages, to enable their connection to solar inverters. Their design (Class II) also provides a maximum level of safety for users against direct contact.

With the SOCOMEC range of PV enclosures you have the solution and a manufacturer's guarantee for all your solar needs (solar fields, buildings and residential systems).

## Solutions for medical facilities



The availability of a reliable electrical power supply is vital to ensure continuity of care. There is no excuse today for power failures that can lead to critical situations.

Medical IT cabinets ensure the availability of electrical power in medical facilities (in accordance with standard NFC 15-211).

The SOCOMEC medical IT cabinet range comes in three models and provides the solution for all your medical facility's needs, backed up by a manufacturer's guarantee.



# Equipped enclosures and cabinets to suit all your applications

## Equipment enclosures



Our switchgear enclosures incorporate load-break switches with or without fuses, and have been developed, qualified and certified for industrial electrical distribution and service sector networks. They provide on-load

breaking and isolation functions, and assure the removal from power supply service for all types of loads. They can also be used as a general switch for equipment in various applications.

## Safety enclosures



Safety enclosures are designed to be installed near a motor or a machine to **separate them from the power supply**. These include manually operated, **load-break switches that can be padlocked** in the OFF position with a **visible and reliable display** of the switchgear's open position. During preventive maintenance or inspection work, these enclosures ensure operator **safety against the accidental startup of electrical machines**.

For use in an explosive atmosphere (gas/dust), use our ATEX model to prevent any explosion during the unit's opening/closing phases, which generate electrical arcs.

## Switching enclosures



Switching enclosures ensure the availability of electrical power in critical facilities (high-rises, public buildings, hospitals, IT or telecommunications centres, airports, industrial sites, etc.), and can be operated manually or automatically to switch between a normal power source and a backup source (genset or auxiliary transformer) to cover in the event of failure. (fig. 1)

For sites that require a power availability rate close to 100%, our **ATyS Bypass** solution offers dual redundancy during normal operation, service and maintenance work. With its capacity to resume Normal/Bypass channels, the ATyS Bypass solution allows the continued, seamless and safe use of your systems.

In industry, our switches can provide:

- removal of the load from service by the earthing connection (fig. 2)
- load redundancy (e.g. between motors) (fig. 3)

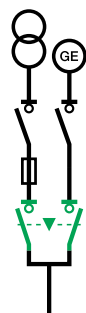


Fig. 1

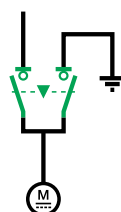


Fig. 2



Fig. 3



# Photovoltaic enclosures

The photovoltaic market sets high standards in terms of security and quality. After an experimental decade, we now find ourselves at an industrial stage calling for a high level of professionalism. This comes in the standardisation of components, their implementation and installation rules.

The only way to ensure the best delivery, security and lifetime of the system is to bring in the skills of a specialist. Mastering photovoltaic technology has enabled SOCOMEC to demonstrate its capacity to find solutions for optimising electrical systems while taking the environment into account.

## What you need to know!

For more information, please refer to our "Photovoltaic technical specifications" on our website, [www.socomec.com](http://www.socomec.com)



We can offer you complete solutions compliant with standard IEC 61439. Please contact us for more details.

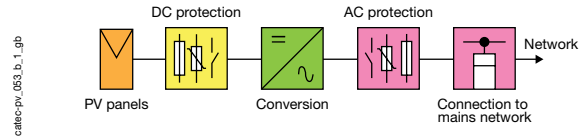




## Main architectures

### Centralised inverter systems

- This architecture is primarily for domestic use requiring less than 10 kWp power.
- Just one fault can jeopardise production.

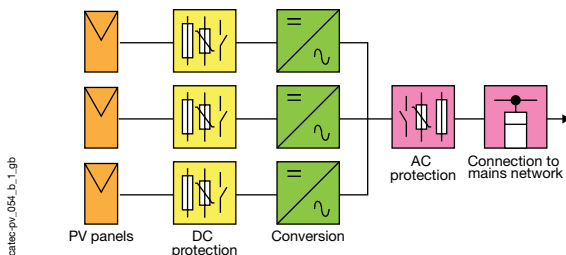


### Multi-inverter installations

This architecture is designed for high-power industrial systems ranging from a few hundred kW to many MWp. In case of a fault or maintenance, the loss of production is limited to that machine.

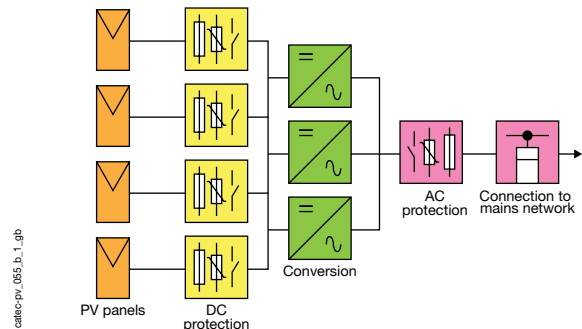
#### Multi-inverter systems with individual control

With this architecture we can reduce the power of PV inverters, by splitting all the PV generators and inverters over multiple lines.

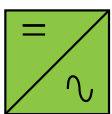


#### Multi-inverter systems with centralised control

Connecting PV generators in parallel to all the inverters allows a high level of flexibility in terms of maintenance and managing the operating time of the machines. This method also ensures the inverters are used at their optimum power depending on the sunlight.

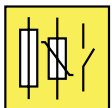


## Key functions



#### Inverter DC/AC conversion

- Converting the continuous electric energy produced by photovoltaic panels into alternative electrical energy.
- Automatic disconnection (loss of insulation, mains power, etc.).



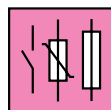
#### DC side, upstream of the inverter

- Switching and isolation.
- Short-circuit and overvoltage protection (fusing).
- Double insulation (class 2).
- System monitoring.
- Arc-fault detection.
- Switch tripping.



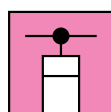
#### Photovoltaic generator

- PV panels.



#### AC side, downstream of the inverter

- Switching and isolation.
- Short-circuit and overvoltage protection (fusing).
- Differential control and protection.



#### Network coupling

- Metering.
- Switching and isolation.
- LV/HV conversion, depending on the installation's power.



# Solutions for medical locations

## SOCOMECC "Medical IT cabinet" solutions

The availability of a reliable electrical power supply is vital to ensure the continuity of care. Our solutions for medical locations guarantee:

- the continuity of the power supply within medical locations,
- patient safety with specific power distribution (hospital isolated power system).

With this equipment we can meet the requirements of IEC 60364-7-710, NFC 15-211 and Harmonisation Document HD 60364-7-710.

"Medical IT" cabinets guarantee a high-level of availability and high-quality electrical distribution in operating rooms.

They provide the following benefits:

- the continuity and availability of the power supply for critical rooms class 0 (or level 1, no cut-off tolerated),
- detection of insulation faults,
- scalability through the implementation of additional outgoing circuits,
- easy to maintain.

The document HD 60364-7-710 stipulates that the medical IT transformer be installed as close as possible to the medical locations. All our solutions are supplied with standard protection devices. We can offer you complete solutions compliant with standard IEC 61439. Please contact us for more details.





## Electrical architecture of the solution

The standard NFC 15-211 requires a medical IT scheme for group 2 locations and at least one transformer for each operating room or each medical site

- Transformer for medical IT scheme
- Permanent insulation monitoring + alarm reports



SOCOMEC oil-free TRM transformers are LV/LV transformers that separate the general distribution network from the medical room power supply provided by the IT scheme. As such, they can isolate and compartmentalise the electrical disturbances across the entire installation.

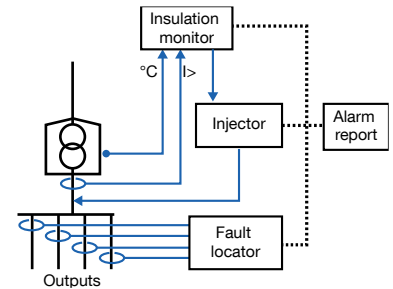
The medical IT scheme is required by the installation standards NFC 15-211, HD 60364-7-710 for group 2 locations.



The permanent insulation controller HMD 420 is a combined device for monitoring:

- the insulation level of the medical IT scheme,
- the load current of single-phase transformer for medical IT schemes (up to 50 A),
- the temperature of the medical IT transformers.

It also integrates an additional signal for detecting insulation faults and it synchronises with fault locators DLD260-12 or DLD200-6.



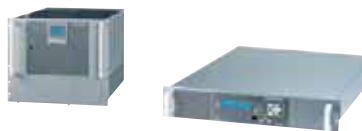
conf\_480\_b\_1\_glb\_cat.ai

The document HD 60364-7-710 stipulates that group 2 medical locations be powered by 2 separate sources

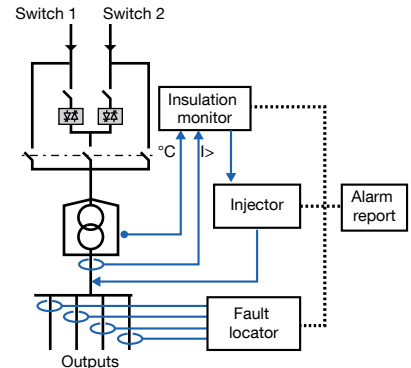
- Automatic transfer switch
- Static transfer system



ATyS M are automatic transfer switches that provide automatic switching to a main power supply. They have been developed, tested and approved according to criteria defined by the international product standards IEC 60947-3 and IEC 60947-6-1.



Static transfer switches ensure a power supply redundancy between two independent sources while delivering continuous service to critical applications by choosing the best power supply quality. Loads are transferred without interruption.



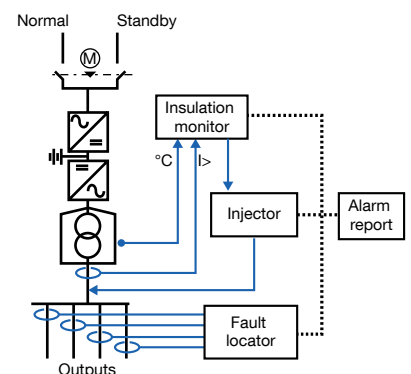
conf\_481\_b\_1\_glb\_cat.ai

The installation standard NFC 15-211 requires that group 2 locations are powered without interruption

- Uninterruptible Power Supplies



MODULYS Uninterruptible Power Supplies (UPSs) (and NETYS RT, depending on the application) ensure continuity of power. Double conversion technology ensures the ultimate protection for loads. The rack design meets all needs to extend power and/or redundancy.



conf\_482\_b\_1\_glb\_cat.ai



# Enclosed load break switches

**COMO**

from 20 to 125 A



20 A, 3/4 poles, IEC  
Polycarbonate

como-enc\_001



25, 32, 40 A, 3/4 poles, IEC  
Polycarbonate

como-enc\_005



32, 63, 80, 100 A, 3/4/6/8 poles, IEC  
Polycarbonate

como-enc\_008



63, 125 A, 3/4/6/8 poles, IEC  
Polycarbonate

como-enc\_011

## Function

COMO are load break switches that will make and break on load and provide isolation for any low voltage electrical circuit. COMO are now available in **enclosed** version incorporating three, four, six and eight-pole manually operated load break switches.

The new enclosed COMO provide protection against contact with live parts as well as environmental factors such as dust, water and other hazards.

## Advantages

### Compact design

- The enclosed COMO range offers compact enclosures tailored to your needs. The range starts with the 20 A enclosure with dimensions of only 64x74.5 mm (2.5x2.93 in).

### IP 65

- The IP65 protection degree provides protection against dust and high pressure water jets for any industrial application. Available in IP67 for the enclosed COMO 20 A.

### Safety of operations

- Triple locking of the handle in the OFF position to ensure maximum safety for operators during maintenance operations.

### Wide range

- The range offers a wide variety of variants depending on the number of poles, rating and enclosure type.

## The solution for

- > OEM
- > Industries
- > Power distribution



## Strong points

- > Compact design
- > IP 65
- > Safety of operations
- > Wide range

## Conformity to standards

- > IEC 60947-3
- > EN 60947-3  
(please consult us)



## Available at your local distributor





## References

Rating (A)	Enclosure size	No. of poles	Reference (with grey/blue handle)	Reference (with yellow/red handle)
20 A	0	3	2115 3301	2115 3401
		4	2115 4301	2115 4401
25 A	1	3	2115 3302	2115 3402
		4	2115 4302	2115 4402
32 A	1	3	2115 3303	2115 3403
		4	2115 4303	2115 4403
	2	6	2115 6303	2115 6403
		8	2115 8303	2115 8403
40 A	1	3	2115 3304	2115 3404
		4	2115 4304	2115 4404
63 A	2	3	2115 3306	2115 3406
		4	2115 4306	2115 4406
	3	6	2115 6306	2115 6406
		8	2115 8306	2115 8406
80 A	2	3	2115 3308	2115 3408
		4	2115 4308	2115 4408
100 A	2	3	2115 3309	2115 3409
		4	2115 4309	2115 4409
125 A	3	3	2115 3312	2115 3412
		4	2115 4312	2115 4412

## Accessories

### Additional pole

#### Use

Installation of this solid pole converts a 3/4/6/8 pole enclosed COMO into a 3/4/6/8 pole+neutral enclosed load break switch.

The 4<sup>th</sup> pole can be added without tools on the right or left side of the device.

Max 1 additional module per device.

#### Solid neutral pole

Rating (A)	No. of poles	Type	Reference
25 ... 32	1	Unswitched	2115 5005
40 ... 63	1	Unswitched	2115 5007
80	1	Unswitched	2115 5009
100 ... 125	1	Unswitched	2115 5011

#### Possible configurations

Additional contact	Product	Additional contact
Aux. contact	3/4/6/8P	Aux. contact
Solid neutral	3/4/6/8P	Aux. contact
Aux. contact	3/4/6/8P	Solid neutral

### Auxiliary contacts

#### Use

Pre-break and signalling of positions 0 and I by NO+NC or 2 NO auxiliary contacts.

They can be mounted on the left or right side of the device.

It is possible to add up to 2 auxiliary contacts on each product.

This is limited to 1 auxiliary contact when a solid neutral pole is used.

Rating (A)	No. of AC	Type of AC	Reference
25 ... 125	1	2 NO	2113 4002
	1	NO + NC	2113 4001



como\_189\_a

# Enclosed load break switches

COMO

from 20 to 125 A

## Characteristics

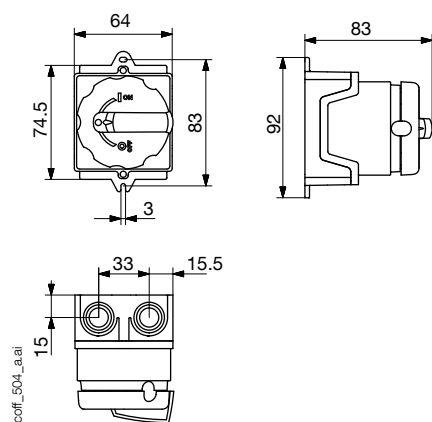
### Characteristics according to IEC 60947-3

Thermal current at 40°C	20 A	25 A	32 A	40 A	63 A	80 A	100 A	125 A
Rated insulation voltage $U_i$ (V)	690	690	690	690	690	690	690	690
Rated impulse withstand voltage $U_{imp}$ (kV)	4	6	6	6	6	6	6	6
<b>Rated current <math>I_n</math></b>								
Rated voltage	Utilisation category							
400 VAC	AC-21A	20	25	32	40	63	80	100
400 VAC	AC-22A	20	25	32	40	63	80	100
400 VAC	AC-23A	15	20	22	40	44	53	70
400 VAC	AC-3A	11.3	16	20	22	36	43	53
690 VAC	AC-21A	20	25	32	40	63	80	100
690 VAC	AC-23A	-	12	13	18	22	23.5	34
690 VAC	AC-3A	-	9.5	11.5	13	17.5	22	25.5
<b>Operational power in AC-23 (kW)<sup>(1)</sup></b>								
400 VAC		7.5	9.5	11.5	20	22	30	37
690 VAC		-	12	13	18	22	25.5	34
<b>Operational power in AC-3 (kW)<sup>(1)</sup></b>								
400 VAC		11.3	16	20	22	36	43	53
690 VAC		-	9.5	11.5	13	17.5	22	25.5
<b>Fuse protected short-circuit withstand (kA rms prospective) at 400VAC</b>								
Prospective short-circuit current (kA rms)		1	8	8	8	8	10	20
Associated fuse rating (A)		20	25	32	40	63	80	100
<b>Circuit breaker protected short-circuit withstand with any breaker that ensures tripping in less than 0.3s</b>								
Rated short-time withstand current 0.3s $I_{cw}$ (kA rms)		0.68	0.68	1.28	1.28	2.52	2.52	4
<b>Short-circuit capacity (without protection)</b>								
Rated short-time withstand current 1s $I_{cw}$ (kA rms)		0.34	0.34	0.64	0.64	1.26	1.26	2
<b>Connection</b>								
Minimum Cu cable cross-section (mm²)		1.5	2.5	2.5	2.5	2.5	2.5	4
Maximum Cu cable cross-section (mm²)		4	10	10	10	16	25	35
Tightening torque min/max (Nm)		1/1.2	2.5/3	2.5/3	2.5/3	2.5/3	2.5/3	2.5/3
<b>Mechanical characteristics</b>								
Durability (number of operating cycle)		100 000	100 000	100 000	100 000	100 000	100 000	100 000
Operating effort - 3 pole device (Nm)		0.25	1	1	1	1	1.5	1.5
Operating effort - 4 pole device (Nm)		0.25	1	1	1	1	1.5	1.5
Weight of a 3 P enclosure (kg)		0.152	0.386	0.386	0.386	0.579	0.717	0.766
Weight of a 4 P enclosure (kg)		0.152	0.42	0.42	0.42	0.619	0.806	0.833
Weight of a 6 P enclosure (kg)		-	-	0.812	-	1.544	-	-
Weight of a 8 P enclosure (kg)		-	-	0.912	-	1.613	-	-



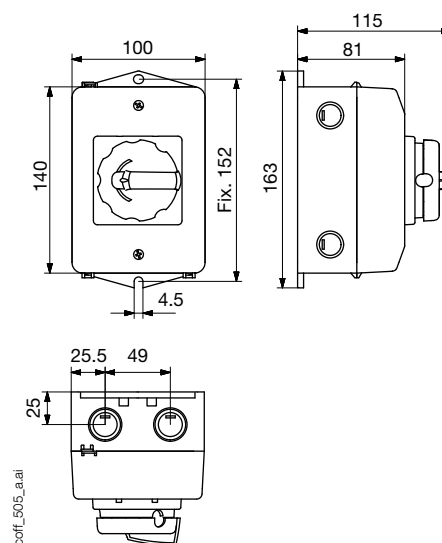
## Dimensions

### Size 0



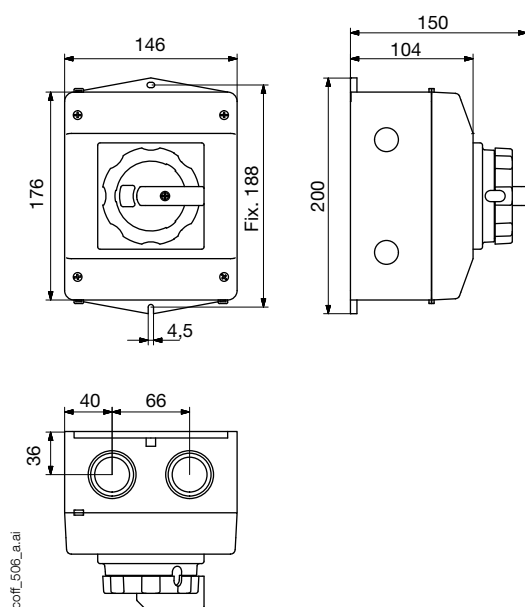
- 4 pre-drilled holes M25 (top and bottom)

### Size 1



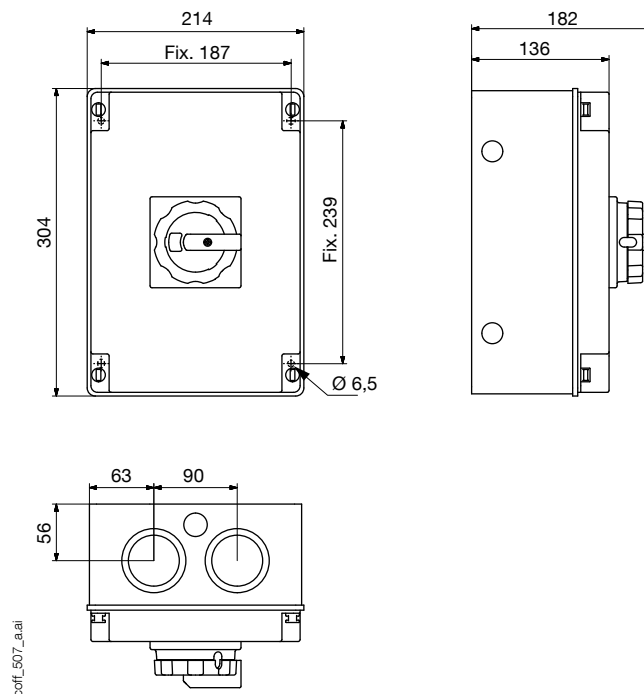
- 4 pre-drilled holes M20 (on the side)
- 4 pre-drilled holes M25 (top and bottom)
- 4 pre-drilled holes for water escape

### Size 2



- 4 pre-drilled holes M20 (on the side)
- 4 pre-drilled holes M32/M40 (top and bottom)
- 2 pre-drilled holes for water escape

### Size 3



- 4 pre-drilled holes M20 (on the side)
- 4 pre-drilled holes M50/M63 and 2 pre-drilled holes M20 (top and bottom)
- 2 pre-drilled holes for water escape



# Enclosed load break switches

**SIRCO and SIRCO M**

from 20 to 1250 A



Enclosed LBS 100 A



Enclosed LBS 200 A

## Function

SIRCO enclosures incorporate three pole and neutral or four pole load break switches which make and break on load and provide isolation for any low voltage electrical circuit.

The enclosure provides protection against contact with live parts as well as environmental factors such as dust, water and other hazards.

## Advantages

### Safety

Local isolation is a health & safety requirement to allow downstream equipment to be safely worked on.

### Inductive load breaking (AC23)

Even highly inductive loads (AC23) can be switched off while in operation in case of problems.

## The solution for

- > Local isolation
- > Industries
- > Commercial buildings



## Strong points

- > Maintenance safety
- > Inductive load breaking (AC23)
- > Robust product
- > Compact

## Compliance with standards

- > BS EN 60947-3
- > IEC 60947-3



## Other products

- > Customised solutions available on request.
- > Stainless steel, other paint colours, labelling.

## General characteristics

### Enclosure

- IP54 rated mild steel enclosures 20 to 1250 A.
- Hinged doors with fastening screws.
- Paint finish RAL 7035 polyester textured gloss finish.
- Metric knockouts Top & Bottom (20 to 100 A).
- Removable gland plates Top & Bottom (160 to 1250 A).
- Generous cabling space for incoming and outgoing cables.

### Switch

- Disconnectable solid neutral link.
- Fully rated AC23 suitable for distribution & motor loads.
- Door interlocked pad-lockable handle as standard.
- Incoming terminals IP20.

### Options

- Extension boxes available.
- Full range of accessories available.

# Enclosed load break switches

SIRCO and SIRCO M

from 20 to 1250 A

## References

### SIRCO in steel enclosure

Rating (A)	Enclosure size	No. of poles	Reference
20	1	3 P	26E5 3002
20	1	4 P	26E5 4002
32	1	3 P	26E5 3003
32	1	4 P	26E5 4003
63	1	3 P	26E5 3006
63	1	4 P	26E5 4006
100	1	3 P	26E5 3010
100	1	4 P	26E5 4010
160	2	3 P	26E5 3016
160	2	4 P	26E5 4016
200	2	3 P	26E5 3020
200	2	4 P	26E5 4020
250	3	3 P	26E5 3025
250	3	4 P	26E5 4025
400	4	3 P	26E5 3040
400	4	4 P	26E5 4040
630	4	3 P	26E5 3063
630	4	4 P	26E5 4063
800	5	3 P	26E5 3080
800	5	4 P	26E5 4080
1000	5	3 P	26E5 3100
1000	5	4 P	26E5 4100
1250	5	3 P	26E5 3125
1250	5	4 P	26E5 4125

## Accessories

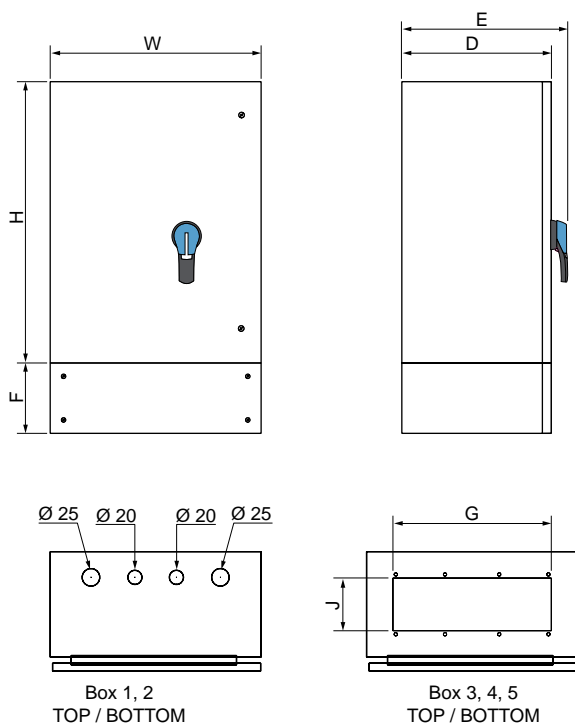
### Cable extension boxes

Description	Enclosure dimensions H x W x D (mm)	Reference
IP65 rated. Gland plate used from enclosed load break switch	275 x 320 x 175	XBE6 0003
	275 x 450 x 275	XBE6 0004
	275 x 550 x 300	XBE6 0005

### Auxiliary contact

Description	Rating (A)	Contact type	Rating I <sub>th</sub> (A)	Reference
Pre-break auxiliary contact	20 ... 100	1 NO + 1 NC	10	2299 0001
Pre-break auxiliary contact	160	1 NO	-	3999 0701
Pre-break auxiliary contact	160	1 NC	-	3999 0702
Pre-break auxiliary contact	200	1 NO + 1 NC	-	2599 0001
Pre-break auxiliary contact (1 <sup>st</sup> )	250 ... 1250	1 NO + 1 NC	16	2699 0031
Pre-break auxiliary contact (2 <sup>nd</sup> )	250 ... 1250	1 NO + 1 NC	16	2699 0032

## Dimensions



Rating (A)	Enclosure size	H x W x D (mm)	E (mm)	Extension Box		
				F (mm)	G (mm)	J (mm)
20	1	215 x 180 x 135	171	-	-	-
20	1	215 x 180 x 135	171	-	-	-
32	1	215 x 180 x 135	171	-	-	-
32	1	215 x 180 x 135	171	-	-	-
63	1	215 x 180 x 135	171	-	-	-
63	1	215 x 180 x 135	171	-	-	-
100	1	215 x 180 x 135	171	-	-	-
100	1	215 x 180 x 135	171	-	-	-
160	2	300 x 270 x 150	187	-	-	-
160	2	300 x 270 x 150	187	-	-	-
200	2	300 x 270 x 150	194	-	-	-
200	2	300 x 270 x 150	194	-	-	-
250	3	395 x 320 x 175	220	275	200	90
250	3	395 x 320 x 175	220	275	200	90
400	4	600 x 450 x 275	320	275	300	160
400	4	600 x 450 x 275	320	275	300	160
630	4	600 x 450 x 275	320	275	300	160
630	4	600 x 450 x 275	320	275	300	160
800	5	750 x 550 x 300	360	275	400	185
800	5	750 x 550 x 300	360	275	400	185
1000	5	750 x 550 x 300	360	275	400	185
1000	5	750 x 550 x 300	360	275	400	185
1250	5	750 x 550 x 300	360	275	400	185
1250	5	750 x 550 x 300	360	275	400	185



# Enclosed load break switches

**SIRCO and SIRCO M**

from 20 to 1250 A

## Characteristics

Characteristics according to IEC 60947-3 (switch tested in free air)

	<b>SIRCO M</b>				<b>SIRCO MV</b>	<b>SIRCO VM</b>
<b>Thermal current <math>I_{th}</math> (40 °C)</b>	<b>20 A</b>	<b>32 A</b>	<b>63A</b>	<b>100 A</b>	<b>160 A</b>	<b>200 A</b>
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 $I_e$ (A)

Rated voltage	Utilisation category	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>
415 VAC	AC-20 A / AC-20 B	20/20	32/32	63/63	100/100	160/160	200/200
415 VAC	AC-21 A / AC-21 B	20/20	32/32	63/63	100/100	160/160	200/200
415 VAC	AC-22 A / AC-22 B	20/20	32/32	63/63	100/100	160/160	200/200
415 VAC	AC-23 A / AC-23 B	20/20	32/32	63/63	100/100	125/160	200/200
500 VAC	AC-20 A / AC-20 B	20/20	32/32	63/63	100/100	160/160	-
500 VAC	AC-21 A / AC-21 B	20/20	32/32	63/63	100/100	160/160	-
500 VAC	AC-22 A / AC-22 B	20/20	32/32	63/63	100/100	125/160	-
500 VAC	AC-23 A / AC-23 B	20/20	25/25	63/63	80/80	100/100	-
690 VAC	AC-20 A / AC-20 B	20/20	32/32	63/63	100/100	160/160	-
690 VAC	AC-21 A / AC-21 B	20/20	32/32	63/63	100/100	160/160	-
690 VAC	AC-22 A / AC-22 B	20/20	32/32	40/63	63/80	100/125	-
690 VAC	AC-23 A / AC-23 B	20/20	25/25	40/40	63/63	80/80	-
250 VDC	DC-20 A / DC-20 B	20/20	32/32	63/63	100/100	160/160	-
250 VDC	DC-21 A / DC-21 B	20/20 <sup>(3)</sup>	32/32 <sup>(3)</sup>	63/63 <sup>(3)</sup>	100/100 <sup>(3)</sup>	160/160 <sup>(3)</sup>	-
250 VDC	DC-22 A / DC-22 B	-	-	-	-	-	-
250 VDC	DC-23 A / DC-23 B	-	-	-	-	-	-
400 VDC	DC-20 A / DC-20 B	20/20	32/32	63/63	100/100	160/160	-
400 VDC	DC-21 A / DC-21 B	20/20 <sup>(4)</sup>	25/25 <sup>(4)</sup>	40/40 <sup>(4)</sup>	63/63 <sup>(4)</sup>	160/160 <sup>(4)</sup>	-
400 VDC	DC-22 A / DC-22 B	-	-	-	-	-	-
400 VDC	DC-23 A / DC-23 B	-	-	-	-	-	-

### Operational power in AC-23 (kW)

400 VAC without pre-break AC(kW) <sup>(5)</sup>	9	15	30	45	75	-
500 VAC without pre-break AC(kW) <sup>(5)</sup>	9	15	30	45	75	-
690 VAC without pre-break AC(kW) <sup>(5)</sup>	11	15	30	45	75	-

### Fuse protected short-circuit withstand (kA rms prospective)<sup>(6)</sup>

Prospective short-circuit current (kA rms)	50	50	50	25	50	50
Associated fuse rating (A)	20	32	63	100	160	200

### Circuit breaker protected short-circuit withstand with any circuit breaker that ensures tripping in less than 0.3s

Rated short-time withstand current 0.3s. $I_{cw}$ (kA rms)	2.5	2.5	2.5	5	7	-
--	-----	-----	-----	---	---	---

### Short-circuit capacity (without protection)

Rated short-time withstand current 1s. $I^{cw}$ (kA rms)	1.26	1.26	1.5	2.75	4	4
Rated peak withstand current (kA peak) <sup>(6)</sup>	6	6	6	12	12	16

### Connection

Minimum Cu cable cross section (mm²)	1.5	1.5	2.5	10	10	10
Maximum Cu cable cross section (mm²)	16	16	35	70	70	95
Tightening torque min/max (Nm)	2 / 2.2	2 / 2.2	3.5 / 3.85	4 / 4.4	4 / 4.4	9

### Mechanical characteristics

Durability (number of operating cycles)	100 000	100 000	100 000	100 000	50 000	10 000
Operating effort - 3 pole device (Nm)	1	1	1.4	1.6	4	-
Operating effort - 4 pole device (Nm)	1.2	1.2	1.6	2	4.2	-

(1) Category with index A = frequent operation - Category with index B = infrequent operation.

(2) One pole per polarity.

(3) 2 poles in series for the "+" and 1 pole for the "-".

(4) 2 poles 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  $U_e$  = 415 VAC.

#### Characteristics according to IEC 60947-3 (switch tested in free air)

	SIRCO					
Thermal current $I_{th}$ (40 °C)	250 A	400 A	630 A	800 A	1000 A	1250 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 $I_e$ (A)

Rated voltage	Utilisation category	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>
415 VAC	AC-20 A / AC-20 B	250/250	400/400	630/630	800/800	1000/1000	1250/1250
415 VAC	AC-21 A / AC-21 B	250/250	400/400	630/630	800/800	1000/1000	1250/1250
415 VAC	AC-22 A / AC-22 B	250/250	400/400	630/630	800/800	1000/1000	1250/1250
415 VAC	AC-23 A / AC-23 B	250/250	400/400	500/500	800/800	1000/1000	1250/1250
500 VAC	AC-20 A / AC-20 B	250/250	400/400	630/630	800/800	1000/1000	1250/1250
500 VAC	AC-21 A / AC-21 B	250/250	400/400	630/630	800/800	800/800	800/800
500 VAC	AC-22 A / AC-22 B	250/250	400/400	500/500	800/800	800/800	800/800
500 VAC	AC-23 A / AC-23 B	200/250	315/315	315/315	630/800	630/800	630/800
690 VAC	AC-20 A / AC-20 B	250/250	400/400	630/630	800/800	1000/1000	1250/1250
690 VAC	AC-21 A / AC-21 B	200/250	400/400	500/500	800/800	800/800	800/800
690 VAC	AC-22 A / AC-22 B	125/160	250/315	315/315	800/800	800/800	800/800
690 VAC	AC-23 A / AC-23 B	100/125	160/200	160/200	200/250	200/250	200/250
250 VDC	DC-20 A / DC-20 B	250/250	400/400	630/630	800/800	1000/1000	1250/1250
250 VDC	DC-21 A / DC-21 B	250/250	400/400	630/630	800/800	1000/1000	1250/1250
250 VDC	DC-22 A / DC-22 B	250/250	400/400	500/500	800/800	1000/1000	1250/1250
250 VDC	DC-23 A / DC-23 B	200/200	400/400	500/500	800/800	1000/1000	1250/1250
400 VDC	DC-20 A / DC-20 B	250/250	400/400	630/630	800/800	1000/1000	1250/1250
400 VDC	DC-21 A / DC-21 B	200/200 <sup>(3)</sup>	400/400 <sup>(3)</sup>	500/500 <sup>(3)</sup>	800/800 <sup>(3)</sup>	1000/1000 <sup>(4)</sup>	1250/1250 <sup>(4)</sup>
400 VDC	DC-22 A / DC-22 B	200/200 <sup>(3)</sup>	400/400 <sup>(3)</sup>	500/500 <sup>(3)</sup>	800/800 <sup>(3)</sup>	1000/1000 <sup>(4)</sup>	1250/1250 <sup>(4)</sup>
400 VDC	DC-23 A / DC-23 B	200/200 <sup>(4)</sup>	400/400 <sup>(4)</sup>	500/500 <sup>(4)</sup>	800/800 <sup>(4)</sup>	1000/1000 <sup>(4)</sup>	1250/1250 <sup>(4)</sup>

#### Operational power in AC-23 (kW)

400 VAC without pre-break AC(kW) <sup>(5)</sup>	132/132	220/220	280/280	450/450	560/560	710/710
500 VAC without pre-break AC(kW) <sup>(5)</sup>	140/160	220/220	220/220	450/560	450/560	450/560
690 VAC without pre-break AC(kW) <sup>(5)</sup>	90/110	150/185	150/185	185/220	185/220	185/220

#### Fuse protected short-circuit withstand (kA rms prospective)<sup>(6)</sup>

Prospective short-circuit current (kA rms)	50	100	70	50	100	100
Associated fuse rating (A)	250	400	630	800	1000	1250

#### Circuit breaker protected short-circuit withstand with any circuit breaker that ensures tripping in less than 0.3s

Rated short-time withstand current 0.3s. $I_{cw}$ (kA rms)	17	25	25	50	65	65
--	----	----	----	----	----	----

#### Short-circuit capacity (without protection)

Rated short-time withstand current 1s. $I^{sc}$ (kA rms)	9	13	13	26	35	35
Rated peak withstand current (kA peak) <sup>(6)</sup>	30	45	45	55	80	80

#### Connection

Minimum Cu cable cross section (mm <sup>2</sup> )	95	185	2 x 150	2 x 185	2 x 240	
Maximum Cu cable cross section (mm <sup>2</sup> )	150	240	2 x 300	2 x 300	4 x 185	4 x 185
Tightening torque min/max (Nm)	20	20	40 / 45	40 / 45	40 / 45	40 / 45

#### Mechanical characteristics

Durability (number of operating cycles)	10 000	10 000	10 000	3 000	3 000	3 000
Operating effort - 3 pole device (Nm)	10	14.5	14.5	37	37	37
Operating effort - 4 pole device (Nm)	10	14.5	14.5	37	37	37

(1) Category with index A = frequent operation - Category with index B = infrequent operation.

(2) One pole per polarity.

(3) 2 poles in series for the "+" and 1 pole for the "-".

(4) 2 poles 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  $U_e = 415$  VAC.



# Enclosed fuse switches

**FUSERBLOC**

from 20 to 800 A



**FUSERBLOC**  
200 A in steel enclosure



**FUSERBLOC**  
200 A in steel enclosure

## Function

**FUSERBLOC** enclosures assure on-load making or breaking and provide safety isolation. When combined with fuses, they also protect against overcurrents for any low voltage electrical circuit.

For certain constant high duty applications it is recommended to order a higher rated enclosure and de-rate the fuses according to the load. This helps to improve thermal management.

## Advantages

### Safety

Local isolation is a health & safety requirement to allow downstream equipment to be safely worked on. Fuses provide the ultimate short circuit protection.

### Inductive load breaking (AC23)

Even highly inductive loads (AC23) can be switched off while in operation in case of problems.

## The solution for

- > Local load protection
- > Industries
- > Commercial buildings



## Strong points

- > Safe operations
- > Robust
- > Inductive load breaking (AC23)

## Conformity to standards

- > BS EN 60947-3
- > IEC 60947-3
- > IEC 60269-1
- > IEC 60269-2



## Available on request

- > Customised solutions available on request.
- > Stainless steel, other paint colours, labelling.



## General characteristics

### Enclosure

- IP54 rated mild steel enclosures 20 to 800 A.
- Hinged doors with fastening screws.
- Paint finish RAL 7035 polyester textured gloss finish.
- Metric knockouts Top & Bottom (20 to 63 A)
- Removable gland plates Top & Bottom (100 to 800 A).
- Generous cabling space for incoming and outgoing cables.
- Supplied with nominally rated fuses.

### Switch

- Disconnectable solid neutral link.
- Fully rated AC23 suitable for distribution & motor loads.
- Door interlocked pad-lockable handle as standard.

### Options

- Extension boxes available.
- Full range of accessories available.

## References

### FUSERBLOC in steel enclosure



Rating (A)	Enclosure size	No. of poles	Reference
20	1	3 P	38E5 3002
20	1	4 P	38E5 4002
32	1	3 P	38E5 3003
32	1	4 P	38E5 4003
63	2	3 P	38E5 3006
63	2	4 P	38E5 4006
100	3	3 P	38E5 3010
100	3	4 P	38E5 4010
160	3	3 P	38E5 3016
160	3	4 P	38E5 4016
200	3	3 P	38E5 3020
200	3	4 P	38E5 4020
250	4	3 P	38E5 3025
250	4	4 P	38E5 4025
400	4	3 P	38E5 3040
400	4	4 P	38E5 4040
630	5	3 P	38E5 3063
630	5	4 P	38E5 4063
800	5	3 P	38E5 3080
800	5	4 P	38E5 4080

# Enclosed fuse switches

**FUSERBLOC**

from 20 to 800 A

## Accessories

### Cable extension boxes

Description	Enclosure dimensions H x W x D (mm)	Reference
IP65 rated. Gland plate utilised from Enclosed Fuse Combination Switch	275 x 320 x 175	XBE6 0003
	275 x 450 x 275	XBE6 0004
	275 x 550 x 300	XBE6 0005

### Auxiliary contact

Description	Rating I <sub>th</sub> (A)	Switch rating	Contact type	Reference
Separate NO and NC direct mounted auxiliary contact blocks for all Enclosed switches 20 to 800 A	10	All sizes	1NO	3999 0701
	10		1NC	3999 0702

Max 4 auxiliaries can be fitted as standard please consult us for additional configurations.

### Solid Links

Description	Rating (A)	Switch rating (A)	Type BS88	Reference
To be used in place of BS88 Fuse Links	32	20 / 32	A1	3629 9003
	63	63	A2-A3	3629 9006
	200	100 / 160 / 200	A4	3629 9010
	250	250	B1-B3	3629 9025
	400	400	B4	3629 9040
	800	630 / 800	C1-C3	3629 9063

### Outgoing Shrouds

Description	Switch rating (A)	No. of poles	Reference
IP20 as standard	20 / 32 / 63	-	-
IP20 Terminal shrouds	100 / 160 / 200	3 P	3998 3016
IP20 Terminal shrouds	250 / 400	3 P	3998 3025
IP20 Terminal shrouds	630 / 800	3 P	3898 3080
IP20 as standard	20 / 32 / 63	-	-
IP20 Terminal shrouds	100 / 160 / 200	4 P	3998 4016
IP20 Terminal shrouds	250 / 400	4 P	3998 4025
IP20 Terminal shrouds	630 / 800	4 P	3898 4080

### Cable lug spacers

Description	Switch rating (A)	No. of poles	Reference
Set of 3 spacers for multiple large cables	100 / 160 / 200	3 P	39Y9 3020
	250 / 400	3 P	39Y9 3039

### Other accessories available

#### Fuses

Full range of BS88 available.  
From 2 to 1250 A.

#### Key interlocking

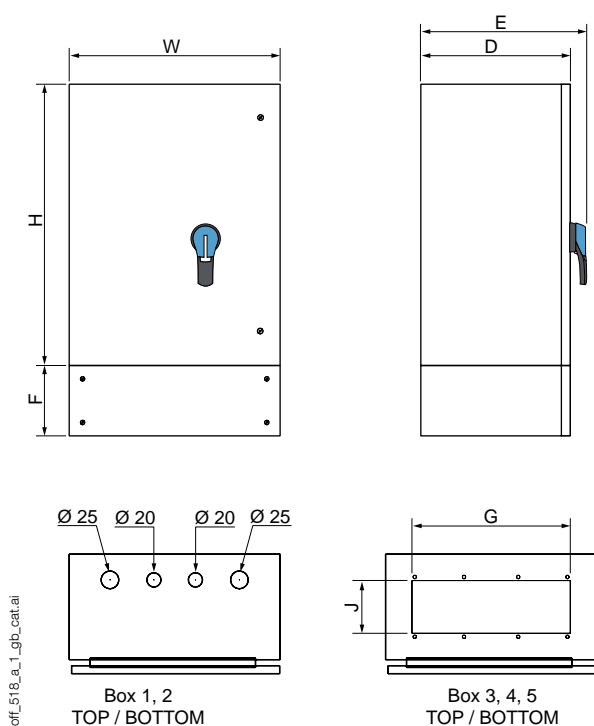
Accessory to enable Key locking with Ronis EL11AP and Castell FS and K Locks

**Note:** Ronis and Castell locks are not included and must be purchased separately.

#### Standard catalogue components

For all other accessories and the full range of Socomec products please consult our Full UK Catalogue and Price List.

## Dimensions



Rating (A)	Enclosure size	No. of poles	H x W x D (mm)	E (mm)	Extension box		
					F (mm)	G (mm)	J (mm)
20	1	3 P	215 x 180 x 135	179	-	-	-
20	1	4 P	215 x 180 x 135	179	-	-	-
32	1	3 P	215 x 180 x 135	179	-	-	-
32	1	4 P	215 x 180 x 135	179	-	-	-
63	2	3 P	300 x 270 x 150	194	-	-	-
63	2	4 P	300 x 270 x 150	194	-	-	-
100	3	3 P	395 x 320 x 175	220	275	200	90
100	3	4 P	395 x 320 x 175	220	275	200	90
160	3	3 P	395 x 320 x 175	220	275	200	90
160	3	4 P	395 x 320 x 175	220	275	200	90
200	3	3 P	395 x 320 x 175	220	275	200	90
200	3	4 P	395 x 320 x 175	220	275	200	90
250	4	3 P	600 x 450 x 275	320	275	300	160
250	4	4 P	600 x 450 x 275	320	275	300	160
400	4	3 P	600 x 450 x 275	320	275	300	160
400	4	4 P	600 x 450 x 275	320	275	300	160
630	5	3 P	750 x 550 x 300	361	275	400	185
630	5	4 P	750 x 550 x 300	361	275	400	185
800	5	3 P	750 x 550 x 300	361	275	400	185
800	5	4 P	750 x 550 x 300	361	275	400	185



# Enclosed fuse switches

**FUSERBLOC**

from 20 to 800 A

## Characteristics

Characteristics according to IEC 60947-3 (switch tested in free air)

Thermal current $I_n$ (40°C)	20 A	32 A	63 A	100 A	CD 160 A
BS88 fuse size	A1	A1	A2-A3	A4 max Ø31 mm	A4 max Ø31 mm
Frame size	0	0	12	13	13A
Rated insulation voltage $U_i$ (V)	800	800	750	750	750
Rated impulse withstand voltage $U_{imp}$ (kV)	8	8	8	8	8

### Rated operational currents $I_e$ (A)

Rated voltage	Utilisation category	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>
400 VAC	AC-22 A / AC-22 B	20/20	32/32	63/63	100/100	160/160
400 VAC	AC-23 A / AC-23 B	20/20	32/32	63/63	100/100	160/160
690 VAC	AC-22 A / AC-22 B	20/20	32/32	63/63	100/100 <sup>(2)</sup>	160/160 <sup>(2)</sup>
690 VAC	AC-23 A / AC-23 B	20/20	32/32	63/63	100/100 <sup>(2)</sup>	125/125 <sup>(2)</sup>
220 VDC	DC-20 A / DC-20 B	20/20	32/32	63/63	100/100	160/160
220 VDC	DC-21 A / DC-21 B			63/63	100/100	160/160
220 VDC	DC-22 A / DC-22 B			63/63	100/100	160/160
220 VDC	DC-23 A / DC-23 B			40/40	100/100	125/125
440 VDC	DC-20 A / DC-20 B	20/20	32/32	63/63	100/100	160/160
440 VDC	DC-21 A / DC-21 B			63/63 <sup>(3)</sup>	100/100 <sup>(3)</sup>	160/160 <sup>(3)</sup>
440 VDC	DC-22 A / DC-22 B			63/63 <sup>(3)</sup>	100/100 <sup>(3)</sup>	160/160 <sup>(3)</sup>
440 VDC	DC-23 A / DC-23 B			40/40 <sup>(3)</sup>	100/100 <sup>(3)</sup>	125/125 <sup>(3)</sup>

### Operational power in AC-23 (kW)

At 400 VAC without pre-break in AC <sup>(1)(5)</sup>	9/9	15/15	30/30	51/51	80/80
At 690 VAC without pre-break in AC <sup>(1)(5)</sup>	15/15	25/25	55/55	90/90	110/110

### Reactive power (kvar)

At 400 VAC <sup>(5)</sup>	8	15	28	45	70
---------------------------	---	----	----	----	----

### Fuse protected short-circuit withstand BS88/DIN (kA rms prospective)

Prospective short-circuit (kA rms) <sup>(6)</sup>	80	80	80	80	50
Associated fuse rating (A) <sup>(6)</sup>	20	32	63	100	160

### Short-circuit capacity

Rated peak withstand current (kA peak) <sup>(6)</sup>	5,5	5,5	10,6	20	20
---	-----	-----	------	----	----

### Fuse selection (maximum fuse size)\*\*

SOCOMECS BS88 - Standard max	6A10 0020	6A10 0032	6A300063	6A400100	6A40 0160
SOCOMECS BS88 - Motor max	6A1M 0020	6A1M 0032	6A3M0080 <sup>(4)</sup>	6A4M0125 <sup>(4)</sup>	6A4M 0160
BUSSMANN - Standard max	NITD 20	NITD 32	BAO63	CEO100	DEO160
BUSSMANN - Motor max	NITD 20M32	NITD 32M63	BAO63M80 <sup>(4)</sup>	CEO100M125 <sup>(4)</sup>	CEO100M160 <sup>(4)</sup>
LAWSON - Standard max	NIT 20	NIT 32	TIS63	TCP100	CTFP160
LAWSON - Motor max	NIT 20M32	NIT 32M63	TIS63M80 <sup>(4)</sup>	CTFP100M125 <sup>(4)</sup>	CTCP100M160 <sup>(4)</sup>
GE - Standard max	NIT 20	NIT 32	TIS63	TCP100	TCP100
GE - Motor max	NIT 20M32	NIT 32M63	TIS36M80 <sup>(4)</sup>	OCP100M125 <sup>(4)</sup>	OCP100M160 <sup>(4)</sup>

### Connection

Minimum Cu cable cross-section (mm <sup>2</sup> )	2.5	2.5	10	25	35
Maximum Cu cable cross-section (mm <sup>2</sup> )	16	16	25	95	95
Maximum busbar width (mm)	-	-	-	-	-
Min. / Max. tightening torque min (Nm)	2/1.6	2/1.6	5.40/2.94	12.75/12.75	12.75/12.75

### Mechanical characteristics

Durability (number of operating cycles)	20 000	20 000	10 000	10 000	10 000
Weight of 3 P switch (kg)	0.48	0.48	1	1.5	1.6
Weight of 4 P switch (kg)	0.50	0.50	1.3	2	2.1

(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) Please ensure that the cut off current of the fuse links does not exceed the values given for the fuse switches.

(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.

\* 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).

## Characteristics according to IEC 60947-3 (switch tested in free air)

Thermal current $I_n$ (40°C)	CD 200 A	250 A	315 A	400 A	630 A
BS88 fuse size	A4 max Ø31 mm	B1 - B3	B1 - B3	B1 - B4	C1 - C2
Frame size	13A	15	16	16	17
Rated insulation voltage $U_i$ (V)	800	800	750	800	1 000
Rated impulse withstand voltage $U_{imp}$ (kV)	8	8	8	8	12

Rated operational currents  $I_e$  (A)

Rated voltage	Utilisation category	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>
400 VAC	AC-22 A / AC-22 B	200/200	250/250	315/315	400/400	630/630
400 VAC	AC-23 A / AC-23 B	200/200	250/250	315/315	400/400	630/630
690 VAC	AC-22 A / AC-22 B	160/160 <sup>(2)</sup>	250/250 <sup>(2)</sup>	315/315 <sup>(2)</sup>	400/400 <sup>(2)</sup>	500/630 <sup>(2)</sup>
690 VAC	AC-23 A / AC-23 B	125/125 <sup>(2)</sup>	250/250 <sup>(2)</sup>	315/315 <sup>(2)</sup>	315/400 <sup>(2)</sup>	315/400 <sup>(2)</sup>
220 VDC	DC-20 A / DC-20 B	200/200	250/250	315/315	400/400	630/630
220 VDC	DC-21 A / DC-21 B	160/160	250/250	315/315	315/315	630/630
220 VDC	DC-22 A / DC-22 B	160/160	250/250	315/315	315/315	400/630
220 VDC	DC-23 A / DC-23 B	125/125	200/200	250/315	250/315	400/630
440 VDC	DC-20 A / DC-20 B	200/200	250/250	315/315	400/400	630/630
440 VDC	DC-21 A / DC-21 B	160/160 <sup>(3)</sup>	250/250 <sup>(3)</sup>	315/315 <sup>(3)</sup>	315/315 <sup>(3)</sup>	400/630 <sup>(3)</sup>
440 VDC	DC-22 A / DC-22 B	160/160 <sup>(3)</sup>	250/250 <sup>(3)</sup>	315/315 <sup>(3)</sup>	315/315 <sup>(3)</sup>	400/630 <sup>(3)</sup>
440 VDC	DC-23 A / DC-23 B	125/125 <sup>(3)</sup>	200/200 <sup>(3)</sup>	250/315 <sup>(3)</sup>	250/315 <sup>(3)</sup>	400/630 <sup>(3)</sup>

## Operational power in AC-23 (kW)

At 400 VAC without pre-break in AC <sup>(1)(5)</sup>	80/80	132/132	160/160	220/220	355/355
At 690 VAC without pre-break in AC <sup>(1)(5)</sup>	110/110	220/220	220/295	220/295	295/400

## Reactive power (kvar)

At 400 VAC <sup>(5)</sup>	90	115	145	185	290
---------------------------	----	-----	-----	-----	-----

## Fuse protected short-circuit withstand BS88/DIN (kA rms prospective)

Prospective short-circuit (kA rms) <sup>(6)</sup>	50	80	80	80	80
Associated fuse rating (A) <sup>(6)</sup>	200	250	315	400	630

## Short-circuit capacity

Rated peak withstand current (kA peak) <sup>(6)</sup>	20	32,5	40	40	70
---	----	------	----	----	----

## Fuse selection (maximum fuse size)\*\*

SOCOMECS BS88 - Standard max	6A400200	6B200250	6B300315	6B400400	6C200630
SOCOMECS BS88 - Motor max	6A4M0200 <sup>(4)</sup>	6B2M0315 <sup>(4)</sup>	6B3M0400 <sup>(4)</sup>	6B4M0500 <sup>(4)</sup>	-
BUSSMANN - Standard max	DEO20 <sup>(4)</sup>	ED250	ED315	ED400	FF630 <sup>(4)</sup>
BUSSMANN - Motor max	DEO100M200 <sup>(4)</sup>	DD200M315 <sup>(4)</sup>	ED315M400 <sup>(4)</sup>	ED400M500 <sup>(4)</sup>	-
LAWSON - Standard max	CTFP200 <sup>(4)</sup>	TKF250	TKF315	TMF400	TTM630 <sup>(4)</sup>
LAWSON - Motor max	CTCP100M200 <sup>(4)</sup>	TF200M315 <sup>(4)</sup>	TKF315M400 <sup>(4)</sup>	TMF400M500 <sup>(4)</sup>	-
GE - Standard max	TCP100	TKF250	TKF315	TMF400	TTM630 <sup>(4)</sup>
GE - Motor max	OCP100M160 <sup>(4)</sup>	TF200M315 <sup>(4)</sup>	TKF315M355 <sup>(4)</sup>	TMF400M450 <sup>(4)</sup>	-

## Connection

Minimum Cu cable cross-section (mm <sup>2</sup> )	50	95	185	185	2x150
Maximum Cu cable cross-section (mm <sup>2</sup> )	95	240	240	240	2X300
Maximum busbar width (mm)	-	-	-	-	-
Min. / Max. tightening torque min (Nm)	12.75/12.75	25.48/12.75	25.48/12.75	25.48/12.75	44.10/25.48

## Mechanical characteristics

Durability (number of operating cycles)	10 000	10 000	10 000	10 000	8 000
Weight of 3 P switch (kg)	1.8	3.2	4.8	4.8	16
Weight of 4 P switch (kg)	2.3	4.5	6.1	6.1	19

(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) Please ensure that the cut off current of the fuse links does not exceed the values given for the fuse switches.

(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.

\* 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).



# Safety enclosures

Socomec safety enclosures are designed for installation near a motor or a machine in order to **isolate it from the power supply**.

All the safety enclosures are equipped with **load break switches** with front or side manual controls which are **lockable** in the open position, and with **visible, reliable indication** of the contacts' open position. They make and break under load conditions and provide safety isolation for any low voltage circuit.

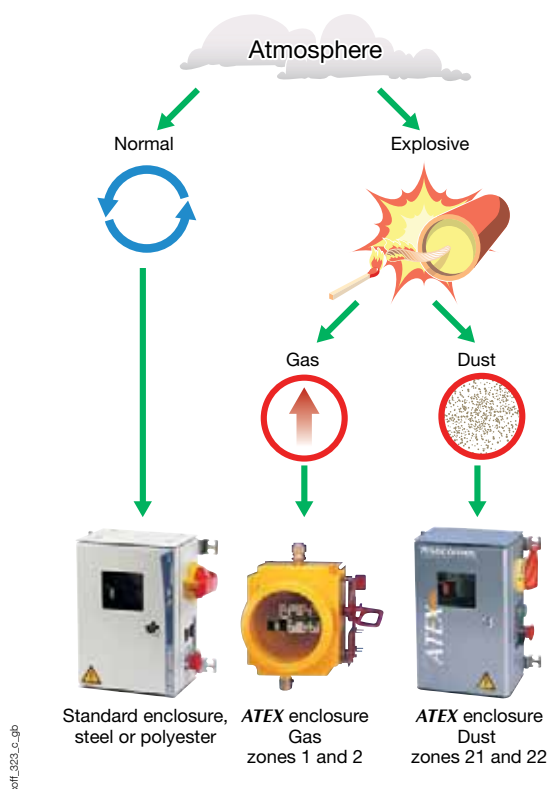
During maintenance or inspection operations, the safety enclosures guarantee the operator's **protection against the accidental startup of electrical machines**.

For use in explosive atmospheres, **ATEX dust** (standard) and **ATEX gas** (to order) enclosures are available to prevent explosions caused by electrical arcs generated when opening or closing the circuits protected by the device.



## Which ambient atmosphere?

The operating 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.



Environment	Steel enclosure	Polyester enclosure	Stainless steel enclosures <sup>(1)</sup>	ATEX enclosures
Chemical aggression		•	•	
Mechanical risks	•		•	•
Dust risks	•			•
Contamination risks		•	•	
Atmospheric corrosion		•	•	
Risk of explosion				•

(1) Made to order.



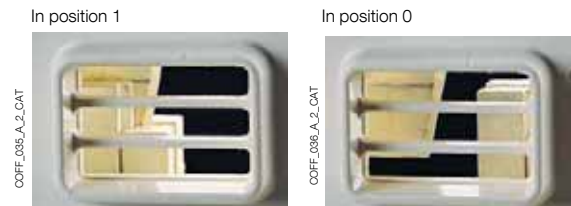
## Safety functions

### Positive break indication



Clear indication of the open or closed position of the switch via the handle and its easy-to-read marking.

### Visible breaking



In accordance with NF C 15 – 100, “an isolating device is considered as having visible breaking if the separation of the contacts is directly visible”. All the devices used in the safety enclosures have visible breaking.

### Padlocking



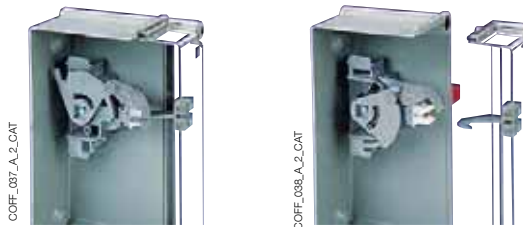
When working on the machine during the lockout phase, qualified personnel may perform triple handle padlocking in the open position. The ergonomic handle can accommodate up to three locks.

### Mechanical flag indicator (optional)

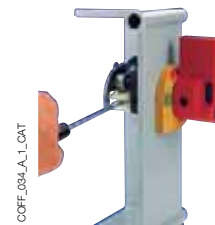


Flush with the viewing window and directly linked to the operating mechanism, this gives clear, at-a-glance indication of contact position, providing easier visualisation of the breaking.

### Double locking



In accordance with standard 60204-1, devices located outside a closed electrical service area must be equipped with the means to allow them to be secured in the OFF position (disconnected state). Qualified personnel may use the ergonomic handle to perform triple handle padlocking.



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.

## Overview of our range

### For normal atmosphere

Polyester

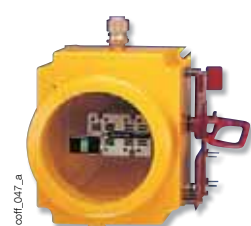


Steel



### For explosive atmosphere

Steel





# Safety enclosures

## Normal atmospheres

polyester enclosures from 50 to 1600 A



*Polyester enclosure  
with front operation handle*



*Polyester enclosure  
with side operation handle*

## 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.

## Advantages

### Safety of operations

- Visible contacts and positive break indication with the possibility to add a mechanical indicator.
- Double locked door when the switch is in the OFF position.
- Triple locking of the handle in the OFF position.

### Inductive load breaking (AC23)

Safety enclosures are designed for use with inductive loads and are able to make and break on load (AC23).

### Robust design

Products have been designed for severe industrial conditions with chemical, pollution or atmospheric corrosion risks (Polyester enclosure: good resistance to chemicals, self-extinguishable at 960°C, etc.)

## The solution for

- > Steel works
- > Cement works
- > Automotive
- > Mining industries
- > Food processing
- > Chemical industry



## Strong points

- > Safety of operations
- > Inductive load breaking (AC23)
- > Robust design
- > Easy implementation

## Conformity to standards

- > IEC 60364
- > IEC 60947-3
- > IEC 60204-1
- > IEC 61439-2



## Specific requests

- > SOCOMEC can offer customised solutions to meet your specific requirements. Please contact your Socomec office for further information.

## General characteristics

### Breaking device

All polyester safety enclosures are equipped with SIDER load break switches and visible, reliable indication of the contacts open position. They make and break under load conditions and provide safety isolation for any low voltage circuit.

### Enclosure

Enclosures are made of glass fibre reinforced polyester and are of the following types:

- COMBIESTER from 50 to 500 A (RAL7035)
- MINIPOL from 630 to 800 A (RAL7035)

Covers on COMBIESTER enclosures are hinged and equipped with a screw locking system.

Doors on MINIPOL enclosures can be locked using a 3 mm double bar key.

These enclosures have good resistance to chemical agents and are self-extinguishing at 960 °C.

These enclosures provide a protection degree of IP55. Wall mounting is achieved using 4 fixing lugs, supplied loose.

### Visible breaking

The contacts are visible through:

- The transparent cover of COMBIESTER enclosures.
- A door-mounted triplex glass window on MINIPOL enclosures. This enables the operator to confirm the position of the contacts either during a preventative check or before an operation.

### Double locking

This function is achieved through a simple and robust mechanism using an extension shaft. Activation with the door open remains possible by authorised personnel.

### Operating handle

Polyester safety enclosures are available with front or side operation handles. The handle is red and made of an insulating material (emergency breaking). The handle can be locked in the OFF position using three padlocks.

### Connection

Polyester safety enclosures are available in two versions:

- TB version (top entry and bottom cable exit)
- BB version (bottom cable entry/exit). Connection is achieved by running cables to the top for 50 A and 80 A ratings. For higher ratings, the top set of terminals are brought down to the bottom of the enclosure with copper bars for easy connection of the incoming cables.

### Miscellaneous

- An earthing bar for connection is available in the enclosure.
- Protection screen for live parts.

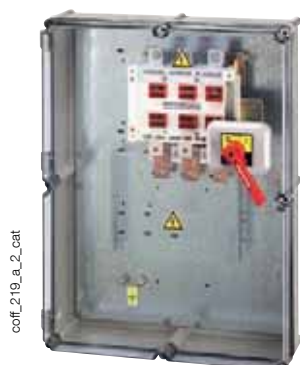
# Safety enclosures

Normal atmospheres

polyester enclosures from 50 to 1600 A

## References

### Front operation



coff\_219\_a\_2\_cat

### Side operation



coff\_163\_b\_1\_cat

Rating (A)	No. of poles	Front operation <sup>(1)(2)</sup>	
		Top/Bottom connection	Bottom/Bottom connection
Reference	Reference		
125	3 P	3215 3012	3225 3012
125	4 P	3215 4012	3225 4012
125	6 P	3215 6012	3225 6012
200	3 P	3215 3020	3225 3020
200	4 P	3215 4020	3225 4020
200	6 P	3215 6020	3225 6020
400	3 P	3215 3040	3225 3040
400	4 P	3215 4040	3225 4040
400	6 P	3215 6040	3225 6040
500	3 P	3215 3050	3225 3050
500	4 P	3215 4050	3225 4050
630	3 P	3215 3063	3225 3063
630	4 P	3215 4063	3225 4063
800	3 P	3215 3080	3225 3080
800	4 P	3215 4080	3225 4080
1250	3 P	3215 3120	3225 3120
1250	4 P	3215 4120	3225 4120
1600	3 P	3215 3160	3225 3160
1600	4 P	3215 4160	3225 4160

Rating (A)	No. of poles	Side operation <sup>(1)(2)</sup>	
		Top/Bottom connection	Bottom/Bottom connection
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	3265 3012	3275 3012
125	4 P	3265 4012	3275 4012
125	6 P	3265 6012	3275 6012
200	3 P	3265 3020	3275 3020
200	4 P	3265 4020	3275 4020
200	6 P	3265 6020	3275 6020
400	3 P	3265 3040	3275 3040
400	4 P	3265 4040	3275 4040
500	3 P	3265 3050	3275 3050
500	4 P	3265 4050	3275 4050
630	3 P	3265 3063	3275 3063
630	4 P	3265 4063	3275 4063
800	3 P	3265 3080	3275 3080
800	4 P	3265 4080	3275 4080
1250	3 P	3265 3120	3275 3120
1250	4 P	3265 4120	3275 4120
1600	3 P	3265 3160	3275 3160
1600	4 P	3265 4160	3275 4160

(1) For the mechanical indicator option, replace the second digit of the enclosure reference number with the letter V.  
For example: 3V15 3012.

(2) Stainless steel enclosures, specific locking systems, terminal pre-wired/non pre-wired control auxiliary contacts, ventilation and humidity evacuation systems or cable glands are available upon request. Please consult us.

## Accessories

### Auxiliary contacts

#### Use

For pre-breaking and signalling of positions 0 and I of the load break switch.

#### Mounting

- On the double locking system.
- Possibility of factory mounting on enclosure (please provide enclosure reference when ordering).

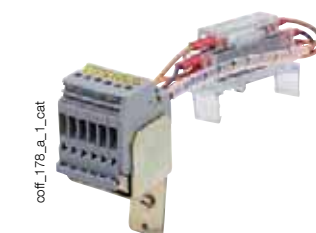
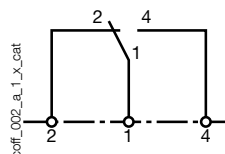
Contact(s)	AC	Factory fitted AC	Factory fitted low level auxiliary
1 <sup>st</sup> NO/NC changeover AC front operation $\geq 125$ A	2799 0001	2799 1001 <sup>(1)</sup>	
2 <sup>nd</sup> NO/NC changeover AC front operation $\geq 125$ A	2799 0002	2799 1002 <sup>(1)</sup>	
2 NO/NC changeover AC side operation	2999 0012	2999 1012	
2 NO/NC changeover AC wired side operation	3290 6002	3290 6102 <sup>(1)</sup>	3290 6012 <sup>(1)</sup>

(1) Please provide the reference number of the enclosure to be equipped.



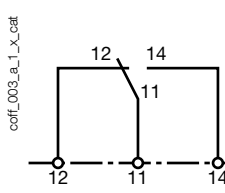
coff\_177\_a\_1\_cat

1<sup>st</sup> NO / NC AC for pre-break



coff\_178\_a\_1\_cat

2<sup>nd</sup> NO / NC AC for pre-break





## Key handle interlocking system

### 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.

Type	Locking in position 0	
	Reference	Factory option Reference
Locking using RONIS EL 11AP lock (not included)	3290 7005	3290 7006 <sup>(1)</sup>
Locking using XOP10 lock (not included)	3290 7015	
Lock RONISEL11AP	4409 8511	
Serv Trayvou XOP10 lock	4409 8601	

(1) Please provide the reference number of the enclosure to be equipped.



## Rated operational currents I<sub>e</sub> (A)

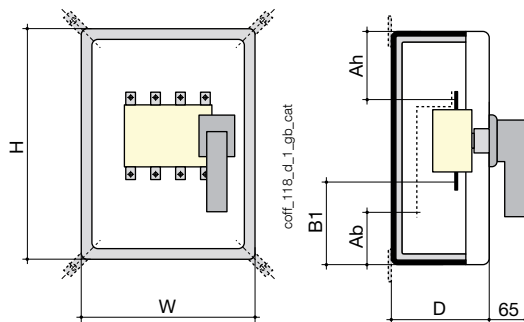
Rated voltage	Utilisation category	50 A	80 A	125 A	200 A	400 A	500 A	630 A	800 A	1250 A	1600 A
400 VAC	AC-21	50	80	125	200	400	500	630	800	1250	1600
400 VAC	AC-22	50	63	125	200	400	400	630	800	1250	1250
400 VAC	AC-23	50	63	125	200	400	400	630	630	1000	1000
690 VAC	AC-21	40	63	100	160	400	400	630	800	1000	1250
690 VAC	AC-22	25	40	63	100	200	200	315	315	400	400
690 VAC	AC-23	-	10	16	-	80	80	100	125	200	200

Motor power output (kW)	25	30	63	100	220	220	355	355	560	560
400 VAC without pre-break AC	25	30	63	100	220	220	355	355	560	560
690 VAC without pre-break AC	-	7.5	11	-	75	75	90	110	185	185
400 VAC without pre-break AC	25	30	63	100	220	220	355	450	710	710
690 VAC without pre-break AC	22	33	55	90	185	185	295	295	400	400

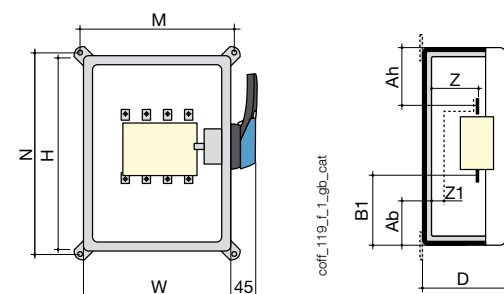
## Dimensions

### Front operation



Rating (A)	No. of poles	H x W x D (mm)	Connection cross-section (mm²)	Top/Bottom connection			Bottom/Bottom connection		
				Ah (mm)	B1 (mm)	Weight (kg)	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	Please consult us	4 x 185	365	365	42	515	594	60
1600	3/4 P	Please consult us	4 x 300	360	360	47	500	580	65

### Side operation



Rating (A)	No. of poles	H x W x D (mm)	Connection cross-section (mm²)	Top/Bottom connection			Bottom/Bottom connection		
				Ah (mm)	B1 (mm)	Weight (kg)	Ab (mm)	B1 (mm)	Weight (kg)
50	3/4 P	270 x 180 x 171	16	84	116	3	-	116	3
50	6 P	270 x 360 x 201	16	84	116	5	-	116	5
80	3/4 P	270 x 180 x 171	35	73	106	3	-	106	3
80	6 P	270 x 360 x 201	35	73	106	5	-	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	Please consult us	4 x 185	365	365	42	570	622	60
1600	3/4 P	Please consult us	4 x 300	360	360	47	550	608	65



# Safety enclosures

## Normal atmospheres

steel enclosure from 50 to 1600 A



### The solution for

- > Iron and steel industry
- > Cement plants
- > Paper mills
- > Sawmills
- > Hydraulic power packs
- > Automotive
- > Mining



### Strong points

- > Operator safety
- > Quick and easy implementation
- > Operating continuity
- > Inductive load breaking (AC23)

### Compliance with standards

- > IEC 60364
- > IEC 60947-3
- > IEC 60204-1
- > IEC 61439-2



### Specific requirements

- > Socomec can offer you customised solutions to meet your specific requirements. Contact your Socomec office for further information.

## 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.

## Advantages

### Operator safety

- Protects operators against accidental start-up of machines.
- Ease of operation without risk of error for unqualified operators.
- Maximum security for all types of simple mechanical and electrical maintenance operations.

### Quick and easy implementation

The space available within the enclosure and the dimensions of the closing plates facilitate connection.

### Durability

The product is designed for harsh industrial environments with mechanical risks or non-explosive dust risks.

### Operating continuity

- Local disconnection: only the targeted machine is switched off, the rest of the installation can continue operating.
- Reduced costs related to production downtime.

### Inductive load breaking (AC23)

Safety enclosures are designed for use with inductive loads and are able to make and break on load (AC23).

## General characteristics

### Enclosure

The robustness of the safety enclosure is ensured by its 2 mm thick sheet steel construction. Corrosion protection is provided by a 70 µm thick polyester powder coating (RAL 7035 ≤ 160 A, RAL 7032 and 9001 for other sizes). The door is hinge-mounted (120° opening) and is secured with a key lock (8 mm square key). The enclosure has an IP65 degree of protection for sizes ≤ 160 A and IP55 for other sizes.

### Switching device

Steel safety enclosures are equipped with visible break SOCOMEC load break switches. They make and break under load and provide safety isolation for any low voltage electric circuit. Separation of the contacts is visible through the triplex window, located on the enclosure door, providing guaranteed isolation to the operator. A mechanical indicator, linked directly to the operation of the contacts, is also provided to give clear position indication.



### Operating handle

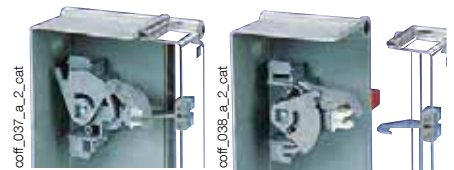
The safety enclosure is equipped with an unpainted metal operating handle which is used for both normal and emergency cut-off operations. The handle can be locked with up to 3 padlocks with a diameter of between 4 and 8 mm.

As an alternative to the standard metallic handle, a red plastic handle with a metal padlocking lever (≤ 160 A), or a red metallic handle, can be factory fitted on request.

### Double locking

Double locking prevents the opening of the enclosure door with the switch in its closed position and the closing of the switch when the door is open; with the use of a tool authorised personnel can bypass this system when the door is open for maintenance purposes.

The locking system comprises a single guard moulded from zamak (aluminium alloy) with a simple and robust mechanism driven directly by the handle's operating shaft.



### Auxiliary control

A removable plate, located below the enclosure's operating handle, is supplied for the installation of auxiliary controls.

Several wiring combinations are available as pre-installed or customer-fit options for enclosures ≤ 160A; for ratings ≥ 200A please contact us.

### Connections

Two removable (top and bottom) gland plates facilitate cable entry and connections.

Cables connect directly onto switch power terminals for enclosures ≤ 160A; for ≥ 200A incoming cables connect to descending copper bars.

### Miscellaneous

A reversible grounding point enables the termination of earth connections inside and/or outside of the enclosure.

All active parts are covered to avoid direct contact.

# Safety enclosures

Normal atmospheres

steel enclosure from 50 to 1600 A

## References

Safety enclosure with bottom/bottom connection<sup>(1)</sup>, side operation<sup>(2)</sup>



coff\_435\_a

Rating (A)	Motor power output (kW) <sup>(3)</sup>		No. of poles	Bottom/Bottom
	400 V	690 V		Reference
50 A	25	-	3 P	3273 3005
			4 P	3273 4005
			6 P	3273 6005
80 A	30	8	3 P	3273 3008
			4 P	3273 4008
			6 P	3273 6008
125 A	55	75	3 P	3273 3012
			4 P	3273 4012
			6 P	3V71 6012
160 A	75	75	3 P	3273 3016
			4 P	3273 4016
200 A	100	75	3 P	Consult us
			4 P	
			6 P	
400 A	220	75	3 P	
			4 P	
500 A	220	75	3 P	
			4 P	
630 A	355	90	3 P	
			4 P	
800 A	355	110	3 P	
			4 P	
1250 A	560	185	3 P	
			4 P	
1600 A	560	185	3 P	
			4 P	

(1) For top/bottom connection please contact us.

(2) For front operation please contact us.

(3) Without pre-break option.

## Accessories

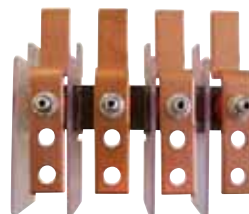
### Terminal connection kit for 125 and 160 A enclosures

#### Use

Power terminal connection kit for 125 and 160 A safety enclosures. Allows you to connect up to 2 x 35 mm<sup>2</sup> cables or 1 x 70 mm<sup>2</sup> cable per pole. Supplied with terminal separation screens and cables for connection to the switch (for onsite installation).

Designation	No. poles	Customer fit	Factory fitted <sup>(1)</sup>
		Reference	Reference
Enclosure terminal block	3 P	3290 1015	3290 1016
Enclosure terminal block	4 P	Contact us	Contact us

(1) Specify the reference of the enclosure to be fitted.



access\_319\_a\_1\_cat



## Accessories (continued)

### Auxiliary contacts

#### Use

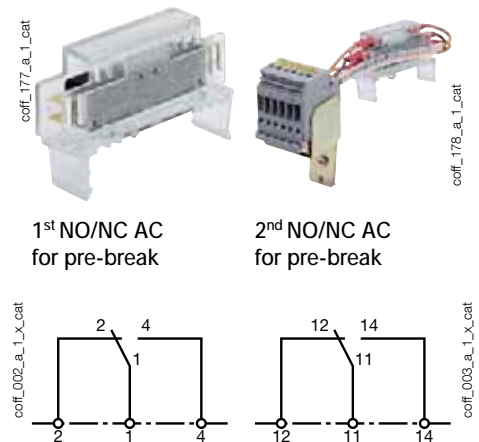
For pre-breaking and signalling of positions O and I of the load break switch.

#### Mounting

- On the double-locking system.
- Possibility of factory mounting within the enclosure (please provide enclosure reference when ordering).

Description	Rating (A)	Customer fit <sup>(1)</sup>	Factory fitted <sup>(1)</sup>
		Reference	Reference
2 AC for pre-break and signalling O and I	50 ... 1600	2999 0012	2999 1012
2 AC low level for pre-break and signalling O and I	50 ... 1600	2999 0112	-
2 AC for pre-break and signalling O and I, wired	50 ... 160	3290 6003	3290 6103
2 AC low level for pre-break and signalling O and I, wired	50 ... 160	3290 6113	3290 6013
2 AC for pre-break and signalling O and I, wired	200 ... 1600	3290 6002	3290 6102

(1) Mounting not compatible with a command and control interface.



### Auxiliary control interface from 50 to 160 A

#### Use

For machine control.

#### Mounting

- Pushbuttons are wired to terminal block, with 2 onsite connection points.
- 2 NO/NC auxiliary contacts for pre-break are provided with one utilised in all control options; the 2<sup>nd</sup> contact is not pre-wired and is available for use.
- The removable interface plate is mounted on the right side of the enclosure below the operating handle.
- Factory installation or customer fit options are available.



coff\_469\_a\_1\_cat

Control diagrams <sup>(1)</sup>	Auxiliary control <sup>(2)</sup>	Button allocation	Customer fit <sup>(3)</sup>	Factory fitted <sup>(3)(4)</sup>
Start/Stop	2 pushbuttons, 22 mm Ø (1 green/1 red): Identification labels "Start" and "Stop"	coff_470_a_1_cat 	3290 2110	3290 2111
Start/Stop and Local/Remote	2 pushbuttons, 22 mm Ø (1 green/1 red): Identification labels "Start" and "Stop"  1 selector with 2 positions: Identification label "Local-Remote"	coff_473_a_1_cat 	3290 2112	3290 2113
Forward/Reverse	3 pushbuttons, 22 mm Ø (2 green/1 red): Identification labels "Start", "Stop" and "Reverse"	coff_472_a_1_cat 	3290 2114	3290 2115
Forward/Reverse and Local/Remote	3 pushbuttons, 22 mm Ø (2 green/1 red): Identification labels "Start", "Stop" and "Reverse"  1 selector with 2 positions: Identification label "Local-Remote"	coff_471_a_1_cat 	3290 2116 <sup>(5)</sup>	3290 2117 <sup>(5)</sup>

(1) See "Command diagrams" page 41.

(2) Labels are identified in English and French languages.

(3) Mounting not compatible with an auxiliary.

(4) Specify the reference of the enclosure to be fitted.

(5) The mounting of a latch locking mechanism is not compatible with this control/command interface with 50 and 80 A ratings.

# Safety enclosures

## Normal atmospheres

steel enclosure from 50 to 1600 A

## Accessories (continued)

### Traffolyte labels

#### Use

Personalise your enclosure. Information to be provided at time of order when factory fit option is requested.

Examples of label types	Customer fit	Factory fitted <sup>(1)</sup>
Set of 10 embossed labels, size 80 x 30 mm with black lettering on a white background. Text according to your requirements. Mounted with plastic rivets.	Contact us	Contact us
Pushbutton label, white lettering on a red background	Contact us	Contact us
Pushbutton label, black lettering on a white background	Contact us	Contact us
Pushbutton label, white lettering on a black background	Contact us	Contact us

<sup>(1)</sup> Specify the reference of the enclosure to be fitted.



coff\_215\_a

### Key handle interlocking system

#### Use

When enabled, the lock prevents handle operation.

Type of lock	Reference
Ronis EL11AP	4409 8511
Serv Trayvou NXOP10	4409 8601

Assembly kit for lock EL11AP (lock not included)	Customer fit <sup>(1)</sup>	Factory fitted <sup>(1)(2)</sup>
Rating (A)	Reference	Reference
50 ... 160	3290 7007	3290 7008
> 160	3290 7005	3290 7006

Assembly kit for lock NXOP10 (lock not included)	Customer fit <sup>(1)</sup>	Factory fitted <sup>(1)(2)</sup>
Rating (A)	Reference	Reference
50 ... 160	3290 7009	3290 7008
> 160	3290 7015	3290 7006

<sup>(1)</sup> Mounting not compatible with a control/command interface. Please contact us for more details.

<sup>(2)</sup> Specify the reference of the enclosure to be fitted.



coff\_205\_a\_1\_cat

### Post mounting

#### Use

For mounting the safety enclosure to a round or square post.

Rating (A)	Reference
50 ... 80	3290 7252
125 ... 160	3290 7254
> 160	Contact us



coff\_463\_a\_1\_cat

### Enclosure canopy

#### Use

To protect your enclosure against extreme weather.

Rating (A)	Reference
50 ... 80	3290 7212
125 ... 160	3290 7214
> 160 A	Contact us



coff\_464\_a\_1\_cat

## Operating handle

### Use

For switch operation. Factory assembly only.

Rating (A)	Type of handle	Reference <sup>(1)</sup>
50 ... 160	S type handle, red with metal padlocking lever	3261 0090
50 ... 160	Red steel handle	3261 0092
200 ... 500	Red steel handle	3211 0500
630 ... 1600	Red steel handle	3211 1250

(1) Specify the reference of the enclosure to be fitted.



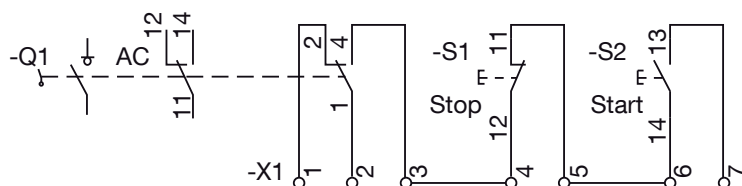
coff\_181\_a\_1\_cat



access\_436\_a\_1\_cat

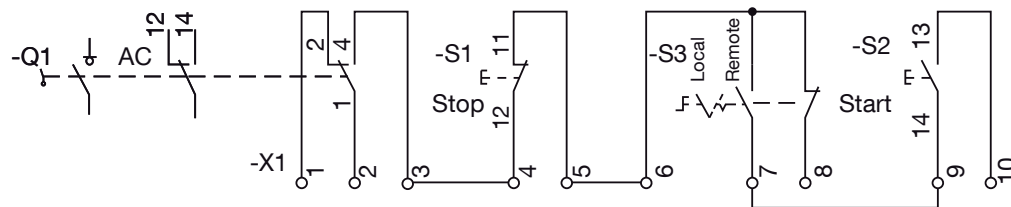
## Control diagrams

### Start/Stop



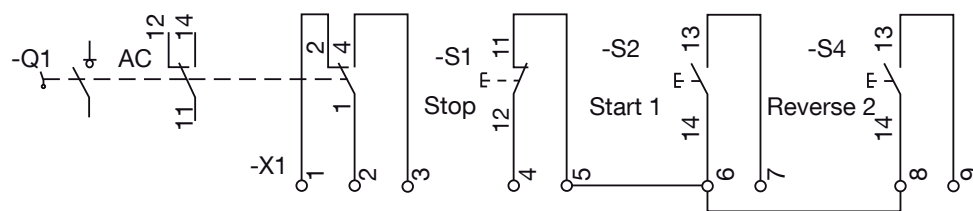
coff\_465\_b\_1\_gb\_cat.ai

### Start/Stop and Local/Remote



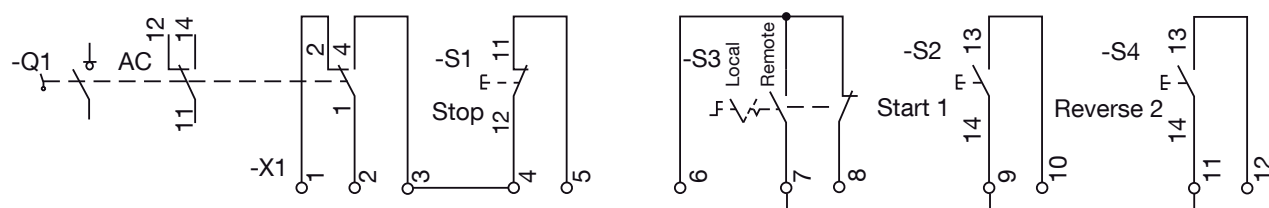
coff\_466\_b\_1\_gb\_cat.ai

### Forward/Reverse



coff\_467\_b\_1\_gb\_cat.ai

### Forward/Reverse and Local/Remote



coff\_468\_b\_1\_gb\_cat.ai

# Safety enclosures

Normal atmospheres

steel enclosure from 50 to 1600 A

## Characteristics

### Characteristics according to IEC 60947-3

Rating (A)		50 A	80 A	125 A	160 A	200 A	400 A	500 A	630 A	800 A	1250 A	1600 A
Rated operating current $I_e$ (A)												
Rated voltage	Utilisation category	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
400 VAC	AC-21A	50	80	125	160	200	400	500	630	800	1250	1600
400 VAC	AC-22A	50	63	125	160	200	400	400	630	800	1250	1250
400 VAC	AC-23A	32	40	125	125	200	400	400	630	630	1000	1000
690 VAC	AC-21A	40	63	125	160	160	400	400	630	800	1000	1250
690 VAC	AC-22A	25	63	80	100	100	200	200	315	315	400	400
690 VAC	AC-23A	-	10	80	80	80	80	80	100	125	200	200
Motor power output (kW)												
At 400 VAC without pre-break AC		22	30	55	75	90	220	220	355	355	560	650
At 690 VAC without pre-break AC		-	8	75	75	75	75	75	90	110	160	180
At 400 VAC with pre-break AC		22	37	55	75	90	220	250	355	450	650	850
At 690 VAC with pre-break AC		37	55	110	132	132	390	390	580	780	1100	1300

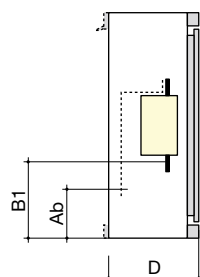
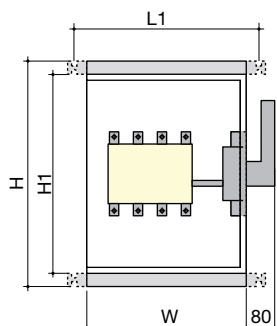
### Characteristics according to IEC 61439-1

Rating (A)	50 A	80 A	125 A	160 A	200 A	400 A	500 A	630 A	800 A	1250 A	1600 A
Operating current max, $I_e$ (A) 400V	50	80	125	160	200	400	500	630	800	1250	1600
Operating current max, $I_e$ (A) 690V	50	80	125	160	200	400	500	630	800	1250	1600
Mechanical specifications											
Connection											
Minimum copper cable cross-section (mm <sup>2</sup> )	6	16	10	10	70	185	240	2 x 150	2 x 185	-	-
Maximum copper cable cross-section (mm <sup>2</sup> )	16	35	70	70	95	240	240	2 x 300	3 x 300	4 x 185	6 x 240
Min./max. tightening torque (Nm)	2	2	4/4,4	4/4,4	8,3/13	20/26	20/26	20/26	20/26	20/26	40/45



## Dimensions

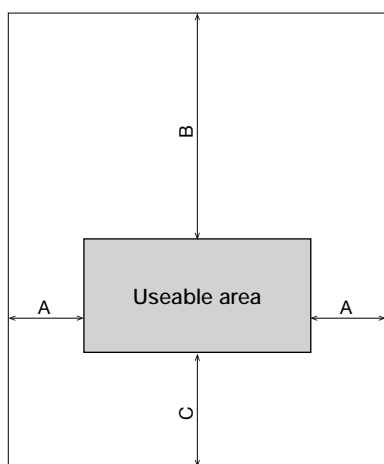
50 to 1600 A



cofl\_117\_e\_1\_gdb\_cat

Rating (A)	No. poles	H x W x D (mm)	Mounting		Connection		Weight (kg)
			H1 (mm)	L1 (mm)	Ab (mm)	B1 (mm)	
50	3 P	310 x 215 x 150	258	263	-	168	9
	4 P	310 x 215 x 150	258	263	-	168	9.5
	6 P	300 x 400 x 200	252	448	-	160	10
80	3 P	310 x 215 x 150	258	263	-	168	9
	4 P	310 x 215 x 150	258	263	-	168	9.5
	6 P	300 x 400 x 200	252	448	-	140	10
125	3 P	400 x 275 x 165	348	323	-	200	17
	4 P	400 x 300 x 165	348	348	-	200	18
	6 P	400 x 400 x 200	460	448	240	275	21
160	3 P	400 x 275 x 165	348	323	-	200	17
	4 P	400 x 300 x 165	348	348	-	200	18
200	3 P	400 x 300 x 200	352	348	180	220	21
	4 P	500 x 400 x 200	452	448	250	295	22
	6 P	600 x 500 x 200	552	548	300	345	27
400	3 P	700 x 400 x 250	652	448	345	405	35
	4 P	700 x 400 x 250	652	448	345	405	35
500	3 P	700 x 400 x 250	652	448	340	400	39
	4 P	700 x 400 x 250	652	448	340	400	39
630	3 P	900 x 500 x 300	852	548	455	540	55
	4 P	900 x 500 x 300	852	548	455	540	55
800	3 P	900 x 500 x 300	852	548	445	530	85
	4 P	900 x 500 x 300	852	548	445	530	85
1250	3 P	1200 x 600 x 400	1152	640	670	770	90
	4 P	1200 x 600 x 400	1152	740	670	770	100
1600	3 P	1200 x 600 x 400	1152	640	650	790	100
	4 P	1200 x 700 x 400	1152	740	650	790	110

## Closing plate



cofl\_462\_a\_1\_gdb\_cat

The useable area can be drilled for gland installation.

Rating (A)	A (mm)	B (mm)	C (mm)
50 ... 80	20	60	30
125 ... 160	20	60	30



# Safety enclosures

## Explosive atmosphere (ATEX)

steel enclosures from 50 to 630 A



coff\_280\_b\_1\_cat

Steel enclosures from 50 to 630 A

### Function

SOCOMECA ATEX enclosures incorporate three or four pole manually operated SIDER (ND) load break switches which make and break on load, providing emergency breaking and maintenance isolation for any low voltage electrical circuit which is in an area where there is a risk of explosion due to dust.

### Advantages

#### Safety of operations

- Visible contacts and positive break indication through the operating handle and a factory fitted mechanical flag indicator, provide guaranteed position indication of the contacts.
- Double locked door when switch is in the OFF position.
- Triple locking of the handle in the open position.

#### Inductive load breaking (AC23)

ATEX enclosures are designed for use with inductive loads and are able to make and break on load (AC23).

#### Robust design

Product has been specifically designed for industrial environments with the risk of explosion due to dust (galvanised steel, thickness 2 mm, triplex glass, S type handle with metal padlocking lever...)

#### Protection degree IP65

Protection degree of ATEX enclosures is IP65.

### The solution for

- > Steel works
- > Cement works
- > Mining industries



### Strong points

- > Safety of operations
- > Inductive load breaking (AC23)
- > Robust design
- > Protection degree IP65

### Conformity to standards

- > Directive 94/9/CE
- > IEC 60204-1
- > IEC 61439-2
- > IEC 60947-3
- > IEC 60364
- > NF C 15-100



### Other regulations

- > 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: machine compliance



### Specific requests

- > SOCOMEC can offer customised solutions to meet your specific requirements. Please contact your Socomec office for further information.

## General characteristics

### Breaking device

- All safety enclosures are equipped with load break switches that provide visible, reliable indication of the contacts open position.
- SIDER for 50 A, 80 A and 630 A ratings
- SIDER ND 80 A (6 P) to 400 A ratings
- They make and break under load conditions and provide safety isolation for any low voltage circuit. They are factory fitted with a mechanical flag indicator (SIDER) which provides guaranteed position indication of the contacts.

### Enclosure

- Enclosures are made of a 2 mm thick galvanised steel. They are welded and deburred.
- The anti-corrosion protection is achieved using an epoxy polyester powder which polymerises in the oven at 180°. Paint coating is 60 µm minimum and colour is metallic gray.
- The chrome-plated zamak door is assembled on an invisible hinge and is locked using an 8 mm square key.
- Wall mounting is achieved using 4 fixing lugs (factory mounted).

### Visible breaking

- The contacts are visible through a triplex window, located on the enclosure door. This enables the operator to confirm the position of the contacts either during a preventative check or before an operation.

### Double locking

- This function is achieved through a simple and robust mechanism using an extension shaft. Activation with the door open remains possible by authorised personnel.

### Operating handle

- ATEX enclosures are provided with a red S type operation handle. It is made of an insulating material and includes a metal padlocking lever. The handle can be locked in the OFF position using three padlocks.

### Connection

- Steel safety enclosures are available with bottom cable entry and exit.
- Enclosures are fitted with a top roof and bottom closing plate.
- Connection is achieved by running cables to the top terminal for 50 and 80 A ratings. For higher ratings, the top set of terminals are brought down to the bottom of the enclosure with copper bars for easy connection of the incoming cables.

### Miscellaneous

- Two earthing bars for connection are available in the enclosure.
- Protection screen for live parts.

# Safety enclosures

Explosive atmosphere (ATEX)

steel enclosures from 50 to 630 A

## References



coff\_280\_b\_1\_cat

Rating (A)	No. of poles	Bottom/Bottom connection 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

## Accessories

### ATEX cable gland

Black polyamide

Diameter (mm)	Min. cable diameter (mm)	Max. cable diameter (mm)	Cable gland Reference	Locknut Reference
12	4	7	3240 1012	3240 3012
16	5.5	10	3240 1017	3240 3016
20	5.5	13	3240 1020	3240 3020
25	8	17.5	3240 1025	3240 3025
32	12	21	3240 1032	3240 3032
40	17	28	3240 1040	3240 3040
50	22	35	3240 1050	3240 3050



coff\_283\_a\_1\_cat

Brass

Diameter (mm)	Min. cable diameter (mm)	Max. cable diameter (mm)	Cable gland Reference	Locknut Reference
12	3	6.5	3240 2012	3240 4012
16	4.5	10	3240 2016	3240 4016
20	6	13	3240 2020	3240 4020
25	10	18	3240 2025	3240 4025
32	16	24.5	3240 2032	3240 4032
40	22	32	3240 2040	3240 4040



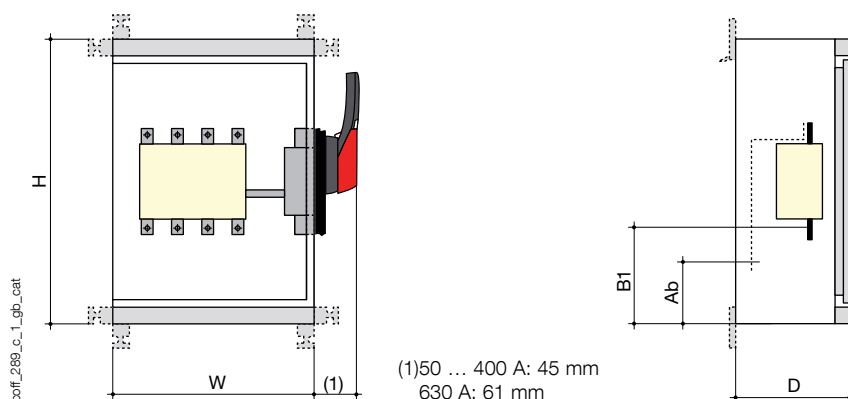
coff\_329\_a\_1\_cat



## Characteristics

Rating (A)	50 A	80 A	80 A	125 A	160 A	200 A	400 A	630 A
Rated operational currents $I_e$ (A)								
Rated voltage	Utilisation category	3/4 P	3/4 P	6 P	3/4 P	6 P	3/4 P	3/4 P
415 VAC	AC-21 A/B	50/50	63/63	-/80	125/125	-/160	200/200	/315
415 VAC	AC-22 A/B	50/50	63/63	-/80	125/125	-/160	200/200	/315
415 VAC	AC-23 A/B	25/25	40/40	-/80	125/125	-/160	200/200	/315
Motor power output (kW)								
400/500 VAC without pre-break AC		11/-	18.5/15	40/-	60/-	80/-	100/-	160/-
400/500 VAC with pre-break AC		25/-	30/25	40/-	60/-	80/-	100/-	160/-

## Dimensions



Rating (A)	No. of poles	H x W x D (mm)	Cross-section (mm <sup>2</sup> )	Bottom/Bottom connection		Weight (kg)
				Ab (mm)	B1 (mm)	
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

# Enclosed transfer switches

The switching market is a **highly demanding market in terms of safety and quality**.

Changeover switches are essential devices used to guarantee a continuous power supply for critical installations (high-rise buildings, healthcare buildings, data centres, banks, etc.).

SOCOMEc's expertise in switching technology enables it to optimise your electrical installations, thereby **guaranteeing continuous electrical power**.

To ensure optimal functional safety, all SOCOMEc enclosed changeover switches are compliant with standards **IEC 60947-3/ IEC 60947-6-1** and standard **IEC 61439** governing switchgear.

From the small 25 A manual changeover unit to the 3200 A ATyS bypass unit, SOCOMEc offers a complete range covering all your needs.

## Glossary for IEC 60947-6-1

Terms:

- MTSE (Manual Transfer Switching Equipment).
- RTSE (Remote Transfer Switching Equipment).
- ATSE (Automatic Transfer Switching Equipment).

Changeover switches in the SOCOMEc range are type PC. The range is designed to establish and support short circuits.

## Typical applications



SITE 403 A



SITE 403 A



SITE 403 A

### Source transfer

Solution enabling manual or automatic switching between two sources, either transformer or generator (fig. 1).

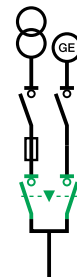


Fig. 1

### Earthing

Earthing of equipment such as motors or electrical lines whilst isolating them from their power supply in a fail-safe way (fig. 2).

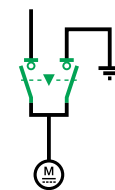


Fig.2

### Load switching

Switching of the power supply from one load to another in order to guarantee redundancy and balancing of the operating time for the two loads (fig. 3).



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).



Fig.4

## Overview of our range

### Manual operation



Solution enabling switching, source inversion and breaking in complete safety on low voltage power circuits.

*p. 50*

### Motorised and automatic switching



#### **Motorised solution:**

Source changeover switch controlled remotely by an external controller using pulse logic or maintained contact (contactor).

#### **Automatic solution:**

Autonomous source changeover switch.

*p. 56*

### ATyS Bypass automatic switching



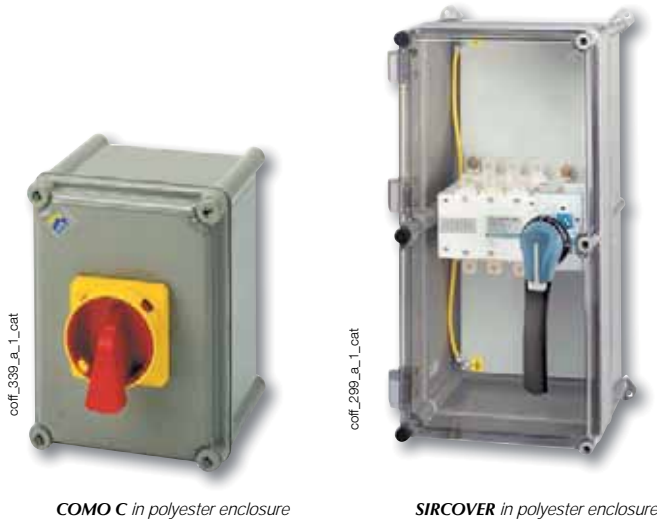
Automatic switching solution enabling switching between two independent sources. Solution enabling the automatic changeover switch to be isolated and a bypass to be created (inspection operations) in complete safety and in a transparent way in terms of the load (no power disconnection).

*p. 62*

# Enclosed transfer switches

## Manual operation

MTSE\* - Polyester enclosures from 25 to 630 A



### The solution for

- > Safe supply of medium critical loads



### Strong points

- > Safe operations
- > Utilisation categories AC22 and AC23
- > Robust
- > Compact design

### Conformity to standards

- > IEC 60947-6-1
- > IEC 60364
- > IEC 61439
- > EN 60204-1



### Function

These manually operated changeover switches are mainly used to provide the following functions:

- Changeover/source inversion.
- Switching.
- Earthing.
- Changeover.
- Safety isolation.

### Advantages

- The **COMO C** and **SIRCOVER** ranges are multipole changeover switches with positive break indication for safe operations.
- The **SIRCOVER** range is designed for use in AC22 and AC23 utilisation categories.

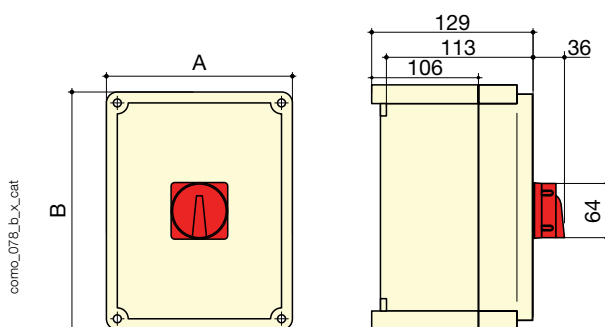
## COMO C range

### General characteristics



- Adapted to environments subject to chemical, dust, contamination and atmospheric corrosion risks.
- Operating handle: Red/yellow handle
- Protection degree: IP65.
- Colour: RAL 7030.
- Material: glass fibre reinforced polyester.
- Product supplied as a kit, to be assembled.
- Locking system: screw.

### Dimensions



### 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 - II	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 <sup>(1)</sup>
80	3 P	I - 0 - II	135	180	4231 3C08
80	4 P	I - 0 - II	135	180	4231 4C08 <sup>(1)</sup>
80	3 P	I - I+II - II	135	180	4241 3C08
80	4 P	I - I+II - II	135	180	4241 4C08 <sup>(1)</sup>

(1) Derated to 70 A for 4 pole.

\*MTSE: Manual Transfer Switching Equipment

## SIRCOVER range



coff\_299\_a\_1\_cat

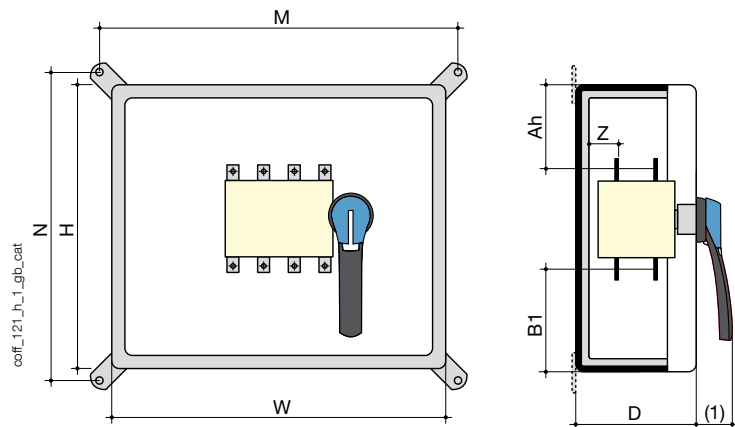
## References

Rating (A)	No. of poles	Top/Bottom connection I - O - 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

## General characteristics

- Adapted to environments subject to chemical, dust, contamination and atmospheric corrosion risks.
- Operating handle: S type black handle, padlockable in position 0.
- Protection degree: IP55 / IK 10.
- Colour: RAL 7030 (range < 400 A), RAL 9002 (range ≥ 400 A).
- Closing plate: N/A.
- Material: glass fibre reinforced polyester.
- Coating: N/A.
- 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: good resistance to creepage currents, high resistance to chemicals, self-extinguishable at 960°C, 2 bolted earth connection points.

## Dimensions



(1) 125 ... 630 A: 45 mm

Rating (A)	No. of poles	H x W x D (mm)	Max. connection cross-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



# Enclosed transfer switches

## Manual operation

MTSE\* and Bypass - Steel enclosures from 63 to 3200 A

conf\_293\_b\_1\_cat



**SIRCO VM1** changeover switches  
in steel enclosure

conf\_298\_b\_1\_cat



**SIRCOVER**  
in steel enclosure

### The solution for

- > Safe supply of medium critical loads
- > Secure electrical supply to non-critical loads



### Strong points

- > Visible double breaking (SIRCO VM1)
- > On load operation (AC22/AC23) - SIRCOVER
- > Safety of operations
- > Robust product
- > Compact design

### Conformity to standards

- > IEC 60947-6-1
- > IEC 60364
- > IEC 61439
- > EN 60204-1



### Specific requests

- > SOCOMEC can provide a wide range of specific solutions. Please consult us.

## Function

These **manually operated changeover switches** are mainly used to provide the following functions:

- Changeover/source inversion.
- Generator connection points.
- Earthing.
- Duty/standby selection.
- Safety isolation

## Advantages

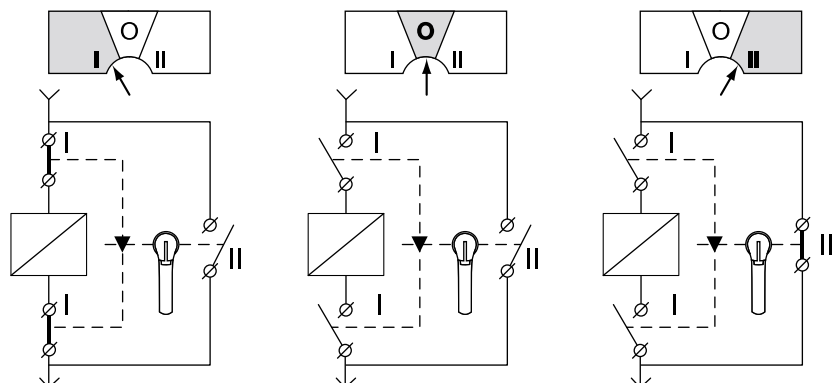
The **SIRCO VM1** and **SIRCOVER** ranges are multipole changeover switches with positive break indication for safe operations.

- The SIRCO VM1 also enables visible double breaking.
- The SIRCOVER range is designed for use in AC22 and AC23 utilisation categories.
- The SIRCO VM1 and SIRCOVER ranges are available in I, 0, II / I, I+II, II / Bypass versions (SIRCOVER only).

## What you need to know

SIRCOVER Bypass products are a combination of three interlocked switches enabling the use with 3 + 6 poles or 4 + 8 poles.

They insulate by providing simultaneous safety isolation top and bottom and bypassing loads or low voltage circuits mainly during maintenance operations



atys\_570\_a\_1\_x\_cat

\* MTSE: Manual Transfer Switching Equipment

## SIRCO VM1 changeover switches in steel enclosure

### Front operation

cof\_283\_b\_1\_cat



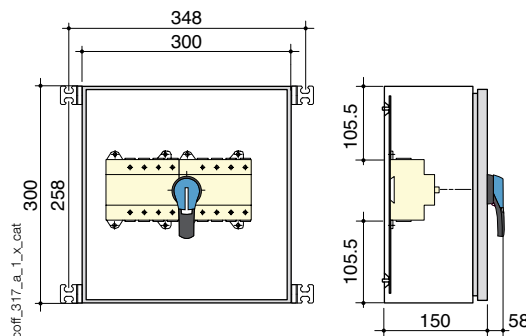
### General characteristics

- Adapted to mechanical risk and dust hazard.
- Operating handle: S-type black handle padlockable.
- Protection degree: IP54 / IK 09.
- Colour: epoxy polyester powder RAL 7035.
- 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 poles	Top/Bottom connection 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



Rating (A)	Max. connection section (mm <sup>2</sup> )	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

### IP20 bridging bar

#### Use

For creating a common connection between switches I & II, on the top or bottom side of the SIRCO VM1, to enable, for example, the load to be fed from either incoming source (I or II).

The bridging bar does not reduce the connection capacity of the cage clamp terminals.

Rating (A)	No. of poles	Reference
63 ... 125	3 P	4499 3006
63 ... 125	4 P	4499 4006



comul\_005\_a\_1\_cat

### NO/NC auxiliary contact

#### Use

Pre-breaking and signalling of positions I and II: 1 NO/NC auxiliary contact for each position.

#### Characteristics

- Snaps on and is secured by a screw.
- Connector block with a maximum capacity of up to 2 x 1.5 mm<sup>2</sup> per terminal.

Rating (A)	Switching type	Contact(s)	Reference
63 ... 125	I - 0 - II	1	4439 0001 <sup>(1)</sup>

(1) Not available for overlapping contact switch (I-I+II-II).

# Enclosed transfer switches

## Manual operation

MTSE and Bypass - Steel enclosures from 63 to 3200 A

## SIRCOVER & SIRCOVER Bypass in steel enclosure

### Front operation



coeff\_298\_b\_2\_cat

### References

#### SIRCOVER

Rating (A)	No. of poles	Top/Bottom connection	
		I - 0 - II Reference <sup>(1)</sup>	I - I+II - II Reference <sup>(2)</sup>
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
1250	3 P	4212 3120	4116 3120
1250	4 P	4212 4120	4116 4120
1600	3 P	4212 3160	4116 3160
1600	4 P	4212 4160	4116 4160

(1) Provided without bridging bars.

(2) Provided with bridging bars.

#### SIRCOVER Bypass

Rating (A)	No. of poles	Top/Bottom connection	
		I - 0 - II Reference <sup>(1)</sup>	
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	
1250	3+6 P	4119 7120	
1250	4+8 P	4119 9120	
1600	3+6 P	4119 7160	
1600	4+8 P	4119 9160	

(1) Provided with bridging bars.

## General characteristics SIRCOVER

### SIRCOVER

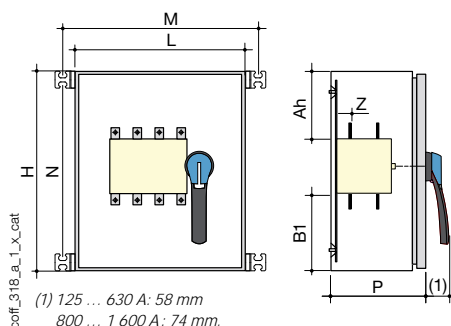
- Adapted to mechanical risk and dust hazard.
- Operating handle: S-type black handle padlockable in position 0.
- Protection degree: IP54 / IK 09.
- Colour: RAL 7035 (range < 630 A) , RAL 9001 for casing and door, other RAL 7035.
- Cable gland plate: top and bottom.
- Material: XC steel, thickness 1.5 mm.
- Coating: epoxy polyester powder (range < 630 A), polyester powder (range ≥ 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.

### SIRCOVER Bypass

- Adapted to mechanical risk and dust hazard.
- Operating handle: S-type black handle padlockable in position 0.
- Protection degree: IP54 / IK 09.
- 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.

## Dimensions

### SIRCOVER

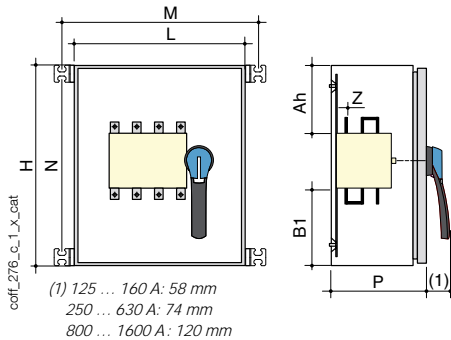


coeff\_318\_a\_1\_cat

Rating (A)	No. of poles	H x W x D (mm)	Max. connection cross-section (mm²)	M (mm)	N (mm)	Z (mm)	Top/Bottom connection		
							Ah (mm)	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
1250	3/4 P	1200 x 700 x 500	4 x 185	740	1152	24	465	465	88
1600	3/4 P	1200 x 700 x 500	4 x 300	740	1152	-	470	470	94

## Dimensions

### SIRCOVER Bypass



Rating (A)	No. of poles	H x W x D (mm)	Max. connection cross-section (mm <sup>2</sup> )	M (mm)	N (mm)	Z (mm)	Top/Bottom connection		
							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	3/4 P	1200 x 700 x 500	2 x 300	740	1152	24	465	465	78
1250	3/4 P	1200 x 700 x 500	4 x 185	740	1152	24	465	465	88
1600	3/4 P	1200 x 700 x 500	4 x 300	740	1152	-	470	470	94

(1) Please consult us.

## SIRCOVER & SIRCOVER Bypass accessories

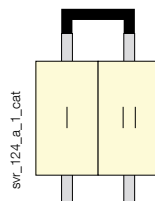
### Bridging bars

#### Use

For creating a common connection between switches I & II, on the top or bottom side of the SIRCOVER, to enable, for example, the load to be fed from either incoming source (I or II).

For SIRCOVER Bypass, two sets of bridging bars are required (3/6 pole or 4/8 pole switch).

Rating (A)	Frame size	No. of poles	Diameter (mm)	Reference
125 ... 200	B3	1 P	20 x 2.5	4109 0019
250	B4	1 P	25 x 2.5	4109 0025
315 ... 400	B4	1 P	32 x 5	4109 0039
500	B5	1 P	32 x 5	4109 0050
630	B5	1 P	50 x 5	4109 0063
800 ... 1000	B6	1 P	50 x 6	4109 0080
1250	B6	1 P	60 x 8	4109 0120
1600	B7	1 P	90 x 10	4109 0160



#### SIRCOVER I-0-II and SIRCOVER I-I+II-II



#### SIRCOVER Bypass



### Auxiliary contact for SIRCOVER

#### Use

Pre-breaking and signalling of positions I and II: 1 to 2 NO/NC auxiliary contacts in each position.

Low level AC: consult us.

#### Characteristics

#### Connection to the control circuit

By 6.35 mm fast-on terminal.

#### Electrical characteristics

30,000 operations.

Rating (A)	Frame size	Nominal current (A)	Operating current I <sub>e</sub> (A)			
			250 VAC AC-13	400 VAC AC-13	24 VDC DC-13	48 VDC DC-13
125 ... 3200	B3... B8	16	12	8	14	6

NO/NC changeover contact			
Rating (A)	Frame size	Contact(s)	Reference
125 ... 1600	B3 ... B7	1 <sup>st</sup> / 2 <sup>nd</sup>	4109 0021
2000 ... 3200	B8	1 <sup>st</sup> / 2 <sup>nd</sup>	included





# Enclosed transfer switches

## Motorised operation

ATSE\* - Automatic equipment from 40 to 3200 A

coff\_366\_b\_1\_cat



*ATyS g M and ATyS p M three-phase  
in steel enclosure*

coff\_305\_b\_1\_cat



*ATyS p three-phase  
in steel enclosure*

### The solution for

- > High-rise buildings
- > Data centers
- > Energy generation
- > Healthcare buildings
- > Banks and insurance companies
- > Transport (airports, tunnels, etc.)



### Strong points

- > Dedicated solution
- > Multiple configurations
- > Robust product
- > Easy integration

### Compliance with standards

- > IEC 61439-2
- > IEC 60947-6,-1
- > IEC 60947-3
- > BS 60947-6-1



### Function

- ATSE switching enclosures are autonomous solutions which monitor the incoming supplies and automatically transfer to ensure power availability for critical applications.
- From 40 to 160 A, enclosures are equipped with ATyS g M (2 P/4 P - simplified control system) or ATyS p M (4 P - advanced control system) in modular format for optimised integration.
- From 125 to 3200 A, enclosures are equipped with ATyS p (4 P - advanced control system) with back-to-back switch configuration, providing a more compact device and enabling easier connection.

### Advantages

#### Dedicated solution

ATSE solutions have been designed and tested with ease-of-use in mind.

#### Multiple configurations

The ATSE range is available in polycarbonate or steel enclosures.

\* ATSE: Automatic Transfer Switching Equipment



## What you need to know - ATSE model

### ATyS g M and ATyS p M models

#### Power supply

- ATyS M devices are self-powered from the incoming sources: 230 VAC (176-288 VAC for ATyS g M and 160-305 VAC for ATyS p M), 50/60 Hz (45-65 Hz).
- For three-phase two versions are available:
  - 230 / 400 VAC with neutral conductor: product is powered between phase and neutral,
  - 127 / 230 VAC with or without neutral conductor: product is power supplied between phases.
- For single-phase one version is available:
  - 230 VAC: product is powered between phase and neutral.
- The neutral conductor can be connected to the left or right side of the device.
- Neutral position is automatically detected.

#### Configuration

##### ATyS g M



##### Three-phase interface



##### ATyS p M

##### Three-phase interface



- Common points between the three-phase and single-phase versions:
  - 2 potentiometers (priority source loss and return time delays)
  - 2 dip switches (pause for 2 seconds in position 0 during transfer I->II and Transformer/Transformer or Transformer/Genset configuration)
- 4 LEDs (Availability of sources 1 & 2, automatic mode and fault).
- 3 external control inputs (automatic mode inhibit, remote test on load (priority source selection for Transformer/Transformer) and manual retransfer from the backup source to the normal source).
- 1 NO bi-stable output relay for generator start/stop command (30 VDC / 2 A).
- 1 NC relay for product availability (230 VAC / 0.5 A).
- Specific to the three-phase ATyS M:
  - 2 additional potentiometers (nominal voltage and voltage/frequency thresholds)
  - 2 additional dip switches (50 or 60 Hz and 3P/1P network)
- Specific to the single-phase ATyS M:
  - PROG button: nominal voltage and frequency Auto-configuration
- Applications: Transformer/Genset and Transformer/Transformer - with or without priority.
- Independently adjustable over/undervoltage and over/under frequency settings, configurable via the HMI.
- HMI: Display + keypad (device configuration, viewing source availability and measurements, test & control mode access).
- LEDs (indicators for - Product powered, Source availability, Switch position, Automatic mode, Test/Control mode & fault).
- 3 programmable inputs.
- 3 programmable volt-free outputs.
- 1 configurable bi-stable output relay for generator start/stop command (30 VDC / 2 A).
- Connection for an ATyS D10 or D20 remote interface .
- RS485 MODBUS communication.

### ATyS p models

#### Operation

##### ATyS p



ATyS p are equipped with 2 integrated power supplies (same as ATyS d): one is fed from source 1 and the other from source 2.

With either of the two incoming sources present, the ATyS p can be electrically operated into any of its three positions.

#### Characteristics

- Single-phase or three-phase control on sources I and II.
- Independently adjustable over/undervoltage and over/under frequency thresholds:  $\pm 30\%$  of the nominal value.
- Adjustable hysteresis linked to the threshold values.
- Control of phase rotation.
- Measurements (3U and frequency on networks 1 and 2; ATyS Normal/Emergency source cycle delay)
- Display + keypad (adjustment of all measurement parameters; adjustment of timers 1FT, 2AT, ODT, 1RT and 2CT; view electrical values in real-time; test and position control functions).
- LEDs (Product powered; Source Availability; Switch position; "AUT" mode; TEST/CONTROL mode and Fault).
- 1 configurable bi-stable output relay for genset start/stop command (30 VDC, 5 A, AC1).
- 1 NO fault relay activated if the position ordered is not reached (30 VDC, 5 A, AC1).

# Enclosed transfer switches

## Motorised operation

ATSE - Automatic equipment from 40 to 3200 A

### ATyS g M single-phase in polycarbonate enclosure



#### General characteristics

- From 40 to 160 A.
- Network 230 VAC [176-288 VAC] / 50 Hz/60 Hz [45 Hz-65 Hz].
- Degree of protection: IP 55, IK08.
- Colour: RAL 7035.
- Material: transparent cover, enclosure base: polycarbonate.
- Mounting: 4 holes on the rear of the enclosure.
- Flame resistant to 650°C.

#### References

##### ATyS g M version

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



Auxiliary contact

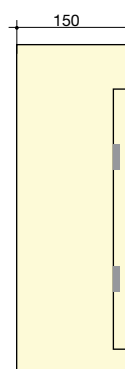
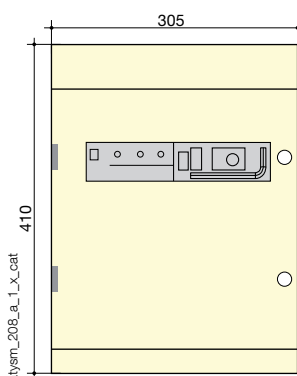


Voltage sensing tap

##### Customer fit

Description	Reference
Auxiliary contact	1309 0001
Voltage sensing and power supply tap (2 for each part)	1399 4006
Sealable cover	1359 2000

#### Dimensions



- Weight: 5.5 kg.
- Connection: recommended cable size (Cu): 25 to 70 mm<sup>2</sup> according to rating (max. cable size: 70 mm<sup>2</sup>).

# Enclosed transfer switches

Motorised operation

ATSE - Automatic equipment from 40 to 3200 A

## ATyS g M and ATyS p M three-phase in steel enclosure



### General characteristics

- From 40 to 160 A.
- Network 230/400 VAC +/-20% as standard 50 Hz/60 Hz [45 Hz-65 Hz].
- Network 127/230 VAC on request for ATyS g M and ATyS p M 50 Hz/60 Hz [45 Hz-65 Hz].
- Standard for 4 pole and optional for 3 pole versions.
- Bridging bars fitted as standard.
- Degree of protection: IP3X and IP54 versions available.
- Colour RAL 7035.
- Cable gland plates: top and bottom.
- Material: Steel, thickness 1.2 mm.
- Coating: epoxy polyester powder.
- Mounting: 4 wall-mounted brackets supplied - not fitted.
- Door: hinged, cut-out 327.4 x 47.6 mm.
- Locking device: 3 mm double bar (key included).
- Integrated RS485 MODBUS communication - ATyS p M version only.

### References

#### ATyS g M - Network 230/400 VAC

Rating (A)	No. of poles	IP 3X Reference <sup>(1)</sup>	IP 54 Reference <sup>(1)</sup>
40	4 P	1854 4004	1854 4005
63	4 P	1854 4006	1854 4007
80	4 P	1854 4008	1854 4009
100	4 P	1854 4010	1854 4011
125	4 P	1854 4012	1854 4013
160	4 P	1854 4016	1854 4017

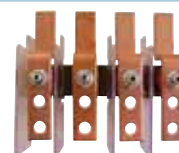
<sup>(1)</sup> Network 127/230 VAC, on request.

#### ATyS p M - network 230/400 VAC

Rating (A)	No. of poles	IP 3X Reference <sup>(1)</sup>	IP 54 Reference <sup>(1)</sup>
40	4 P	1884 4004	1884 4005
63	4 P	1884 4006	1884 4007
80	4 P	1884 4008	1884 4009
100	4 P	1884 4010	1884 4011
125	4 P	1884 4012	1884 4013
160	4 P	1884 4016	1884 4017

<sup>(1)</sup> Network 127/230 VAC, on request.

### Accessories



Cage-terminal interface

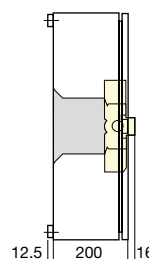
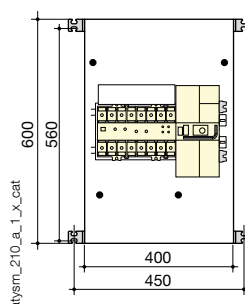
#### Customer fit

Description	Reference
Auxiliary contact	1309 0001
Voltage sensing and power supply tap (2 per reference).	1399 4006
Solid neutral	1309 9008
Sealable cover	1359 0000 <sup>(1)</sup>
Kit IP54	1399 4016
Cage-terminal interface	1399 4017 <sup>(2)</sup>

<sup>(1)</sup> For ATyS g M only.

<sup>(2)</sup> To convert incoming and outgoing terminals, order quantity 3 sets.

### Dimensions



- Weight (without accessories): 15 kg.
- Connection (without cage/terminal interface): min. Cu 6 mm<sup>2</sup>, max. 70 mm<sup>2</sup>.

# Enclosed transfer switches

## Motorised operation

ATSE - Automatic equipment from 40 to 3200 A

### ATyS p three-phase in steel enclosure



#### General characteristics

- Suitable for environments subject to mechanical risk and dust hazards.
- Degree of protection: IP54.
- Colour: RAL 7035.
- Connections: Top and bottom up to 250 A - bottom connections only for 400 to 3200 A.
- Auxiliary contacts are wired to a terminal block for easy access.
- Material: XC steel, thickness 2 mm.
- Coating: epoxy polyester powder.
- Mounting:  $\leq 400$  A - 4 wall-mounting brackets, supplied loose;  $\geq 630$  A - floor-standing feet.
- Door: solid with hinges.
- Locking device: 3 mm double bar (key included)

#### 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

##### 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 D20	9599 2020
RJ45 connection cable	1599 2009 <sup>(1)</sup>
RS485 MODBUS communication module	1599 2000
2 input / 2 output module	1599 2001

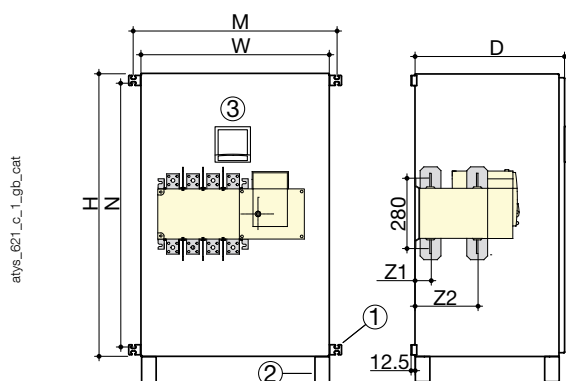
<sup>(1)</sup> Required to connect an ATyS D20.

# Enclosed transfer switches

Motorised operation

ATSE - Automatic equipment from 40 to 3200 A

## Dimensions



- (1) Wall-mounting brackets supplied loose - up to 400 A.
- (2) Height adjustable feet from 630 A (add 200 mm for feet, to H dimension).
- (3) ATyS D20 interface (optional).

Rating (A)	Recommended Cu cable cross-section (mm <sup>2</sup> )	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	650	400	300	448	608	38	134	25
250	120	1000	650	475	698	958	39.5	134.5	45
400	240	1000	650	475	698	958	39.5	134.5	50
630	2 x 185	1000	650	475			53	190	70
800	2 x 240	1200	800	660			66.5	253.5	135
1000	4 x 150	1200	800	660			66.5	253.5	140
1250	4 x 185	1600	1000	830			66.5	253.5	270
1600	4 x 240	1600	1000	830			67.5	253.5	375
2000	8 x 150	2000	1000	1000					400
2500	8 x 185	2000	1000	1000					400
3200	8 x 240	2000	1000	1000					400





# Enclosed transfer switch solutions

## ATyS Bypass “no-break” solution

ATSE\* - Automatic equipment from 40 to 3200 A



### The solution for

- > Data centres
- > Power production
- > Healthcare buildings
- > High-rise buildings
- > Banking and Insurance
- > Transportation



### Strong points

- > No-break load transfer in Bypass mode
- > Solution certified by a manufacturer
- > Optional accessories available

### Conformity to standards

- > IEC 61439-2
- > IEC 60947-6-1
- > IEC 60947-3
- > BS 60947-6-1



### Function

- Automatic transfer between two sources to ensure continuity of supply to critical loads such as sprinklers, fire lifts, water pumps...
- Guaranteed continuity of the power supply during maintenance and test operations.
- Complete isolation of the Automatic Transfer Switch ensuring maintenance safety.
- The association of an ATyS along with a remote interface D20, enables configuration, exploitation and visualisation of the data shown on the front of the equipment (timer settings, hysteresis, start/stop of the genset...).

### General characteristics

- From 40 to 3200 A - 4 poles.
- 230/400 VAC  $\pm$  20%, 50/60 Hz, self-powered from incoming sources.
- Normal/Emergency logic control sequence.
- Voltage and frequency checking of networks I and II.
- Control of phase rotation.
- 1 configurable output relay for generator start/stop command.
- Position I, 0, II control by external dry contact.
- Manual emergency operation.
- Auxiliary contacts.
- MODBUS communication (supplied as standard).
- AUTO / MANU selector.
- Equipment protection degree: IP41 as standard - Other IP upon request.
- Hinged door.
- Wall mounting brackets supplied up to 160 A.
- Floor standing feet from 250 to 3200 A.
- Easy extraction of ATyS from 160 A.
- Phase identification.
- Mimic panel (3 LEDs; source availability (1 and 2) and load; 16 LED mimic panel optional).
- Integral protection against direct contact on each functional unit.
- Steel enclosure.
- Colour: RAL 7035.

### Expert Services

Study, definition, advice, implementation, maintenance and training...

Our Expert Services team offers customised support to make your project a success.



\* ATSE: Automatic Transfer Switching Equipment

# Enclosed transfer switch solutions

ATyS Bypass "no-break" solution

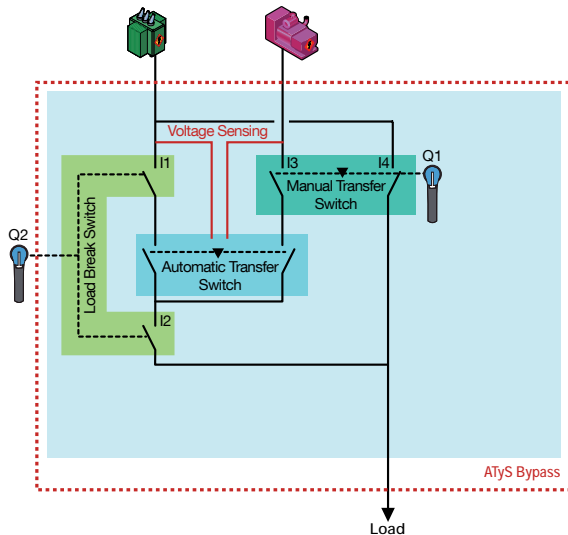
ATSE - Automatic equipment from 40 to 3200 A

## 2 versions

### ATyS Bypass Single Line

- It consists of 2 functions: an automatic transfer switch and a single Bypass line connected to the preferred supply source.

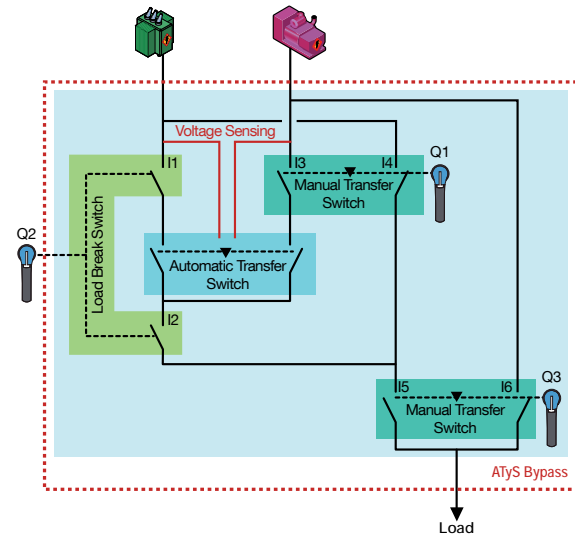
ATyS Bypass - SINGLE LINE



### ATyS Bypass Double Line

- It consists of 3 functions: an automatic transfer switch, an ATyS Bypass and a facility for selecting between supply sources when in Bypass.

ATyS Bypass - DOUBLE LINE



## Use

### Normal Position:

- The load is supplied by the supply defined as the preferred source. In case of primary source failure, the ATyS automatically transfers the load to the alternate source when available.

### Bypass position:

- Manually switch Q1 to bypass mode without interrupting supply to the load. Then open switch Q2 to completely isolate the ATyS for inspection.

### Test Position:

- From the Bypass position, switch Q2 can be closed to supply the ATyS and achieve operational checks, without jeopardizing the supply to the load. Transfer to the normal position can then be achieved.

## References

### Standard product - 230 VAC for ATyS p M

Rating (A)	No. of poles	Single Line Reference	Double Line Reference
40	4 P	1785 4004	1786 4004
63	4 P	1785 4006	1786 4006
80	4 P	1785 4008	1786 4008
100	4 P	1785 4010	1786 4010
125	4 P	1785 4012	1786 4012

### Standard product- 230 VAC for ATyS p

Rating (A)	No. of poles	Single Line Reference	Double Line Reference
160	4 P	1785 4016	1786 4016
250	4 P	1785 4025	1786 4025
400	4 P	1785 4040	1786 4040
630	4 P	1785 4063	1786 4063
800	4 P	1785 4080	1786 4080
1000	4 P	1785 4100	1786 4100
1250	4 P	1785 4120	1786 4120
1600	4 P	1785 4160	1786 4160
2000	4 P	1785 4200	1786 4200
2500	4 P	1785 4250	1786 4250
3200	4 P	1785 4320	1786 4320

# Enclosed transfer switch solutions

## ATyS Bypass "no-break" solution

ATSE - Automatic equipment from 40 to 3200 A

## Accessories

### Customer fit

Description	Reference
2 inputs / 2 outputs module (ATyS p only)	1599 2001 <sup>(1)</sup>

(1) Up to 3 can be fitted.

### Extension cabinet

#### Use

From 1250 to 3200 A, the standard enclosed ATyS Bypass 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 ATyS Bypass 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



kdrys\_504\_a\_2\_cat

### Protection against overvoltages

#### Use

In order to ensure protection of the equipment against overvoltages, type 1 and 2 surge protection is available.

For more information, please see our catalogue general or our website [www.socomec.com](http://www.socomec.com)

Rating (A)	Reference
40 ... 125	1599 9016
250 ... 400	1599 9017
630 ... 3200	1599 9018



sgys\_069\_a\_1\_cat

### Multifunction meter

#### Use

Multifunction meters are available for the display and monitoring of all the electrical parameters.

For more information, please see our catalogue general or our website [www.socomec.com](http://www.socomec.com)



dlris\_750\_a\_1\_cat

### Engine Exerciser

#### Use

The enclosed ATyS Bypass up to 125 A can be supplied with a genset exerciser (configure generator Start/Stop times, enable/disable routines, etc.).

Description	Reference
Engine Exerciser	1599 9006



access\_276\_a\_1\_cat

### Tinned Busbars

#### Use

Tinned busbar 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

# Enclosed transfer switch solutions

ATyS Bypass "no-break" solution

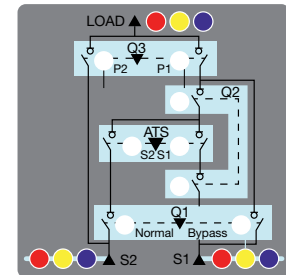
ATSE - Automatic equipment from 40 to 3200 A

## Signalling

### Use

To get a global overview of the system status, an optional 17 LED mimic panel is available (voltage availability per phase and device positions).

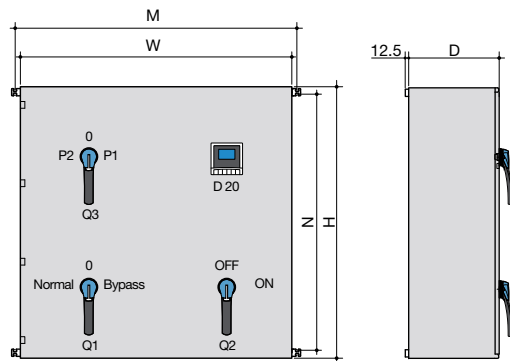
Rating (A)	Mimic panel	
	Single Line Reference	Double Line Reference
40 ... 3200	1599 9033	1599 9034



access\_275\_b\_1\_x\_cat

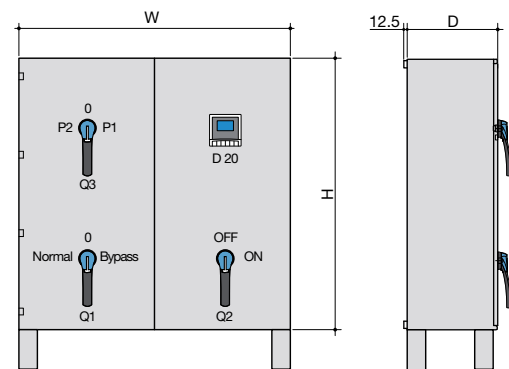
## Dimensions

### 40 to 160 A



atys\_749\_d\_1\_gb\_cat

### ≥ 250 A



atys\_759\_d\_1\_gb\_cat

### Wall mounting - Bottom

Rating (A)	Recommended connection cross-section (mm²)	H (mm)	W (mm)	D (mm)	M (mm)	N (mm)	Weight (kg)
40	10	800	800	300	848	752	80
63	16	800	800	300	848	752	80
80	25	800	800	300	848	752	80
100	35	1000	800	300	848	752	80
125	50	1000	800	300	848	752	80
160	70	1000	800	400	848	752	160

### Floor fixing - Bottom

Rating (A)	Recommended connection cross-section (mm²)	H (mm)	W (mm)	D (mm)	Weight (kg)
250	120	1200 <sup>(1)</sup>	1000	550	180
400	240	1200 <sup>(1)</sup>	1000	550	200
630	2 x 185	1600 <sup>(2)</sup>	1200	600	600
800	2 x 240	1800 <sup>(2)</sup>	1600	800	1000
1000	4 x 150	1800 <sup>(2)</sup>	1600	800	1000
1250	4 x 185	2000 <sup>(3)</sup>	2000	1000	2000
1600	4 x 240	2000 <sup>(3)</sup>	2000	1000	2000
2000	8 x 150	2000 <sup>(4)</sup>	2200	1000	2500
2500	8 x 185	2000 <sup>(4)</sup>	2200	1000	2500
3200	8 x 240	2000 <sup>(4)</sup>	2200	1000	2500

(1) Add 200 mm for feet.

(2) Add 100 mm for feet.

(3) Add 125 mm for feet.

(4) Add 120 mm for feet.

## Connection (input / output)

- From 40 to 125 A (B/B or T/B or T/T or B/T),
- From 160 to 400 A (B/B or B/T),
- 630 A (B/B),
- ≥ 800 A (Consult us).

# Why choose SOCOMEC metering systems?

Innovative and high performance solutions manufactured by specialists in electrical energy management

## A leader in Energy & Power Management

- With the COUNTIS E, DIRIS A, DIRIS Digiware and associated current sensor ranges, SOCOMEC has developed one of the most advanced multifunction measurement ranges on the market, dedicated to improving your energy performance.

## A monitoring device specialist

- The DIRIS G communication gateways and DATALOG H dataloggers centralise measurement data via hard-wired or radio link.
- Webserver solutions embedded in the DIRIS A and DIRIS G products enable the real-time monitoring of electrical parameters and alert users in case of anomalies.

## Experts in power management

- For small installations with up to 32 meters the DIRIS G50 Webview embedded webserver provides a hardware based power management solution.
- For larger installations N'View analyses multi-utility metering data and allows the creation of customised reports and dashboards.

### Metering

**DIRIS Digiware** multi-circuit Power Monitoring Devices



**COUNTIS E** single-circuit Energy meters



### Measurement

**DIRIS Digiware** multi-circuit Power Monitoring Devices



**DIRIS A** single-circuit Multifunction meters



**DIRIS B** wireless Power Monitoring Device



### Enclosed Metering Systems

Enclosed **DIRIS Digiware** for multi-circuit monitoring



Enclosed **DIRIS A20/A40** for single-circuit monitoring





## An independent partner working closely with our customers



### Ranges that combine performance and quality

The DIRIS A and DIRIS Digiware ranges are compliant with the latest IEC 61557-12 standard dedicated to multi-measurement devices (PMD\*). The COUNTIS E range complies with the requirements of the latest MID\*\* directive (B+D module).

\* Performance Measuring and Monitoring Devices.

\*\* MID: Measuring Instruments Directive.

### Customised support and partner proximity

Fully trained SOCOMEC commissioning engineers are available to set up, verify your metering installation and provide training.

#### Data centralisation

**DIRIS G** communication gateways



**DATALOG H** Dataloggers



#### Monitoring

**WEBVIEW** web server



**WEBVIEW** is embedded in the DIRIS G communication gateway.



#### Analysis

**N'VIEW** software



**N'VIEW** is hosted on a Cloud server.





# Enclosed multifunction meters

## Multifunction meters - PMD

DIRIS A from 100 to 400 A



### Function

DIRIS A20 and A40 multifunction meters ensure the user has access to all the measurements required for successfully carrying out energy efficiency projects and ensuring that the electrical distribution is monitored. All this information can be analysed remotely using energy management software solutions.

Here they are supplied in a steel enclosure complete with current transformers and fuses.

A wide selection of optional plug-in allows you to add features to the meters as required by your project.

### Advantages

#### Easy to use

Mount the enclosure on the wall, attach the power cables and you're ready to start metering. The DIRIS A20 and A40 are easy to configure and detect wiring mistakes.

#### Customisable

Particularly with the DIRIS A40 a wide range of optional plug-in are available: pulse, RS485 Modbus, Profibus, Modbus TCP over Ethernet, 4-20 mA - to suit your requirements.

#### Compliant with IEC 61557-12

IEC 61557-12 is a high-level standard for all PMDs (Performance Monitoring Devices) that are designed to measure and monitor electrical parameters in distribution networks. Compliance with IEC 61557-12 ensures a high level of equipment performance in terms of accuracy and immunity to environmental conditions (EMC, temperature etc).

### The solution for

- > Industries
- > Commercial buildings
- > Infrastructure



### Strong points

- > Easy to use
- > Customisable
- > Compliant with IEC 61557-12

### Compliance with standards

- > IEC 62053-22  
classe 0,5 S
- > IEC 62053-23  
classe 2
- > IEC 61557-12

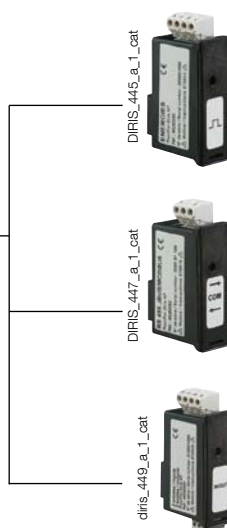


### MID certification

- > DIRIS A14 is MID approved for sub-billing
- > Contact us for details



### Plug-in modules DIRIS A 20



#### 1 Output

1 output assignable to:

- Pulses: configurable (type, weight, duration) in kWh or kvarh.
- Monitoring: 3I, In, 3V, 3U, F, ΣP, ΣQ, ΣS, ΣPFL/C, THD 3I, THD 3V, THD 3U and timer.
- Remote command of device.

#### Communication

RS485 link with JBUS / MODBUS protocol (speed up to 38400 bauds)

#### 3 inputs, 1 output

3 inputs assignable to:

- Remote status device.

1 output assignable to:

- Pulses: configurable (type, weight, duration) in kWh or kvarh.
- Monitoring: 3I, In, 3V, 3U, F, ΣP, ΣQ, ΣS, ΣPFL/C, THD 3I, THD 3V, THD 3U and timer.
- Remote command of device.










# Enclosed multifunction meters

Multifunction meters - PMD

DIRIS A from 100 to 400 A

## Plug-in modules DIRIS A 40



	<b>Pulse outputs</b> 2 configurable pulse outputs (type, weight and duration) on $\pm$ kWh, $\pm$ kvarh and kVAh.
	<b>Communication MODBUS®</b> RS485 link with MODBUS® protocol (speed up to 38400 bauds).
	<b>PROFIBUS® DP communication</b> SUB-D9 link with PROFIBUS® DP protocol (speed up to 12 Mbauds).
	<b>Ethernet communication</b> <ul style="list-style-type: none"> <li>Ethernet connection with MODBUS TCP or MODBUS RTU over TCP protocol.</li> <li>Embedded Webserver function <sup>(1)</sup>.</li> </ul>
	<b>Ethernet communication with RS485 MODBUS gateway</b> <ul style="list-style-type: none"> <li>Ethernet connection with MODBUS TCP or MODBUS RTU over TCP protocol.</li> <li>Connection of 1 to 247 RS485 MODBUS slaves.</li> <li>Embedded Webserver function.</li> </ul>
	<b>Analogue outputs</b> A maximum of 2 modules may be connected, providing up to 4 analogue outputs. Per module 2 outputs assignable to: 3I, In, 3V, 3U, F, $\pm$ $\Sigma$ P, $\pm$ $\Sigma$ Q, $\Sigma$ S, $\Sigma$ PFL/C, I sys, Vsys, Usys, Ppred, Q pred, Spred, T°C internal, T°C 1, T°C 2, T°C3 and to 30 VDC power supply.
	<b>2 inputs - 2 outputs</b> A maximum of 3 modules may be connected, providing up to 6 inputs and 6 outputs. Per module 2 outputs assignable to: - monitoring: 3I, In, 3V, 3U, F, $\pm$ $\Sigma$ P, $\pm$ $\Sigma$ Q, $\Sigma$ S, $\Sigma$ PFL/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. - 2 inputs for pulse metering.
	<b>Memory</b> <ul style="list-style-type: none"> <li>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.</li> <li>Storing of 10 hour-dated last alarms.</li> <li>Storing of the last minimum and maximum instantaneous values for 3U, 3V, 3I, In, F, <math>\Sigma</math>P<math>\pm</math>, <math>\Sigma</math>Q<math>\pm</math>, <math>\Sigma</math>S, THD 3U, THD 3V, THD, 3U, THD, 3V, THD, 3I, THD In.</li> <li>Storing of 3U, 3V and F average values based on synchronisation function (maximum 60 days).</li> </ul>
	<b>Temperature</b> Temperature indication: <ul style="list-style-type: none"> <li>internal,</li> <li>external sensor PT 100 (T°C 1),</li> <li>external sensor PT 100 (T°C 2),</li> <li>external sensor PT 100 (T°C 3),.</li> </ul>

# Enclosed multifunction meters

Multifunction meters - PMD

DIRIS A from 100 to 400 A

## DIRIS A20 in steel enclosure



### References

Rating (A)	Reference
100	48E5 1002
160	48E5 1602
200	48E5 2002
250	48E5 2502
400	48E5 4002

### Optional plug-in modules

Description	Reference
1 output (pulse)	4825 0080
RS485 Modbus communication	4825 0082
3 inputs, 1 output	4825 0083

### General characteristics

#### Multi-measurement

- Currents
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: V1, V2, V3, U12, U23, U31, F
- Power
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - maximum average: ΣP, ΣQ, ΣS
- Power factors
  - instantaneous: 3PF, Σ

#### Metering

- Active energy: + kWh
- Reactive energy: + kvarh
- Hours: ☉
- Harmonic analysis
- Total harmonic distortion (level 51)

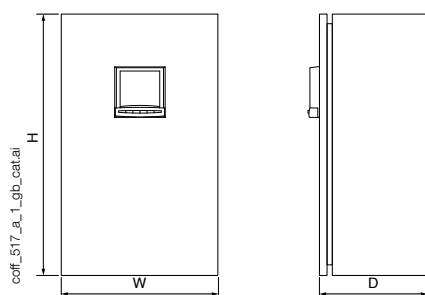
### Accessories

Description	Reference
IP65 cover (meter only)	4825 0089

### Services

Description	Reference
Commissioning (weekday, 9am to 5pm)	U4397 SS41
Commissioning (weekday, overnight)	U4397 SS43
Commissioning (weekend)	U4397 SS45

### Dimensions



Rating (A)	H (mm)	W (mm)	D (mm)
100	600	400	200
160	600	400	200
200	600	400	200
250	600	400	200
400	600	400	200

## DIRIS A40 in steel enclosure



### General characteristics

#### Multi-measurement

- Currents
  - instantaneous: I1, I2, I3, In, Isystem
  - average/maximum average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: V1, V2, V3, U12,
- U23, U31, F, Vsystem, Usystem
  - average/maximum average: V1, V2, V3, U12, U23, U31, F
- Power
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - maximum average: ΣP, ΣQ, ΣS
  - predictive: (ΣP), (ΣQ), (ΣS)
- Power factors
  - instantaneous: 3PF, ΣPF
  - average/maximum average: ΣPF

#### Metering

- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Apparent power: kVAh
- Hours: ⌚

#### Harmonic analysis

- Total harmonic distortion
- Individual up to level 63

For option modules see page 69.

### References

Rating (A)	Reference
100	48E5 1004
160	48E5 1604
200	48E5 2004
250	48E5 2504
400	48E5 4004

### Optional plug-in modules

Description	Reference
Pulse outputs	4825 0090
RS485 Modbus communication	4825 0092
Analogue outputs 4-20mA	4825 0093
2 inputs / 2 outputs	4825 0094
Profibus DP Sub D9	4825 0205
Memory	4825 0097
Ethernet single point inc webserver	4825 0203
Ethernet gateway inc webserver	4825 0204
Temperature module	4825 0206

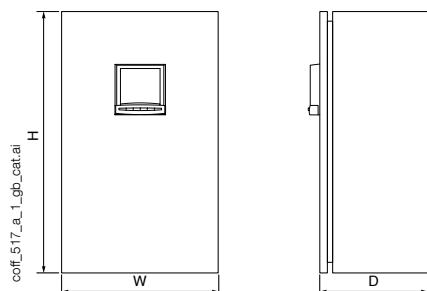
### Accessories

Description	Reference
IP65 cover (meter only)	4825 0089
Temperature sensor PT100 (M6 screw type)	4825 0208
Temperature sensor PT100 (M6 eyelet type)	4825 0209

### Services

Description	Reference
Commissioning (weekday, 9am to 5pm)	U4397 SS41
Commissioning (weekday, overnight)	U4397 SS43
Commissioning (weekend)	U4397 SS45

### Dimensions



Rating (A)	H (mm)	W (mm)	D (mm)
100	600	400	200
160	600	400	200
200	600	400	200
250	600	400	200
400	600	400	200





# Enclosed measurement & monitoring systems

DIRIS Digiware



Enclosure **DIRIS Digiware**  
Front view



Enclosure **DIRIS Digiware**  
1 x 3 P incomer 10 x 3 P outgoing ways  
or 30 x 1 P outgoing ways

## The solution for

- > Industry
- > Building
- > Data center



## Strong points

- > Retrofit, easy to install
- > Accuracy of measurement guaranteed according to IEC standard 61557-12
- > Multi-circuit

## Compliance with standards

- > IEC 61557-12
- > ISO 14025



## Function

DIRIS Digiware is an extremely versatile multi-circuit metering and measurement system. It uses a common display and a single voltage reference to create the most compact multi-circuit solution available. Supplied in a high quality enclosure this is the perfect solution for retrofit metering of an existing switchboard, PDU or distribution board. If required by your project, Socomec can assist with commissioning and verification of the installation.

## Advantages

### Retrofit / easy to install

- The compact enclosure is supplied with all the required components fitted, wired and tested. Glands are provided for easy cable entry.
- Split-core and Rogowski coil current sensors are easy to fit around existing cables. Connection is via RJ12 plugs and the sensors can be up to 10m away from the modules.
- A single voltage reference means a spare 3-phase way is all that is required per system.

### Accurate

- Makes current sensor selection easy
- Class 0.2 for the meter alone
- Class 0.5 from 2% to 120% of nominal current for the whole measurement chain (associated with TE/TF sensors). Class 1 with TR sensors.

### Multi-circuit

- A 6-way current module can be configured for 2 x three phase loads or 6 x single phase loads. This flexibility drastically reduces the enclosure size required.

## The DIRIS Digiware system

- A single centralised control unit Display module
- A single voltage measurement module (U)
- Current measurement modules (I)
- Current sensors














A single connection for communication



Exclusive to Socomec,  
patented

## Selection guide

Application	Voltage measurement module		
	Metering	Monitoring	Analysis
			
<b>DIRIS Digiware U</b>	<b>U-10</b>	<b>U-20</b>	<b>U-30</b>
<b>Multi-measurement</b>			
U12, U23, U31, V1, V2, V3, f	•	•	•
U system, V system			•
Ph/N unbalance			•
Ph/Ph unbalance			•
<b>Quality analysis</b>			
THDv1, THDv2, THDv3, THDu12, THDu23, THDu31		•	•
Individual harmonics U & V (up to rank 63)			•
Voltage dips, cutoffs and surges (EN 50160)			•
<b>Alarms</b>			
On threshold			•
<b>History of average values</b>			
45 days (max)			•
<b>Format</b>			
Width/number of modules	18 mm / 1	18 mm / 1	18 mm / 1

Application	Current measurement modules							
	Metering		Monitoring	Analysis	Monitoring	Analysis	Metering	
								
<b>DIRIS Digiware I</b>	<b>I-30</b>	<b>I-31</b>	<b>I-33</b>	<b>I-35</b>	<b>I-43</b>	<b>I-45</b>	<b>I-60</b>	<b>I-61</b>
<b>Number of current inputs</b>								
	3	3	3	3	4	4	6	6
<b>Metering</b>								
± kWh, ± kvarh, kVAh	•	•	•	•	•	•	•	•
Load curves		•		•		•		•
Multi-tariff		•		•		•		•
<b>Multi-measurement</b>								
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•	•	•	•	•	•	•
P, Q, S, PF per phase			•	•	•	•		
Predictive power				•		•		
Current unbalance (Inba, Idir, linv, Ihom, Inb)				•		•		
Phi, cos Phi, tan Phi				•		•		
<b>Quality</b>								
THDi1, THDi2, THDi3, THDin			•	•	•	•		
Individual harmonics I (up to level 63)				•		•		
Overcurrents				•		•		
<b>Alarms</b>								
On threshold				•		•		
Inputs/outputs					2/2	2/2		
<b>History of average values</b>								
45 days (max)				•		•		
<b>Format</b>								
Width/number of modules	18 mm / 1	18 mm / 1	18 mm / 1	18 mm / 1	27 mm / 1.5	27 mm / 1.5	36 mm / 2	36 mm / 2

# Enclosed measurement & monitoring systems

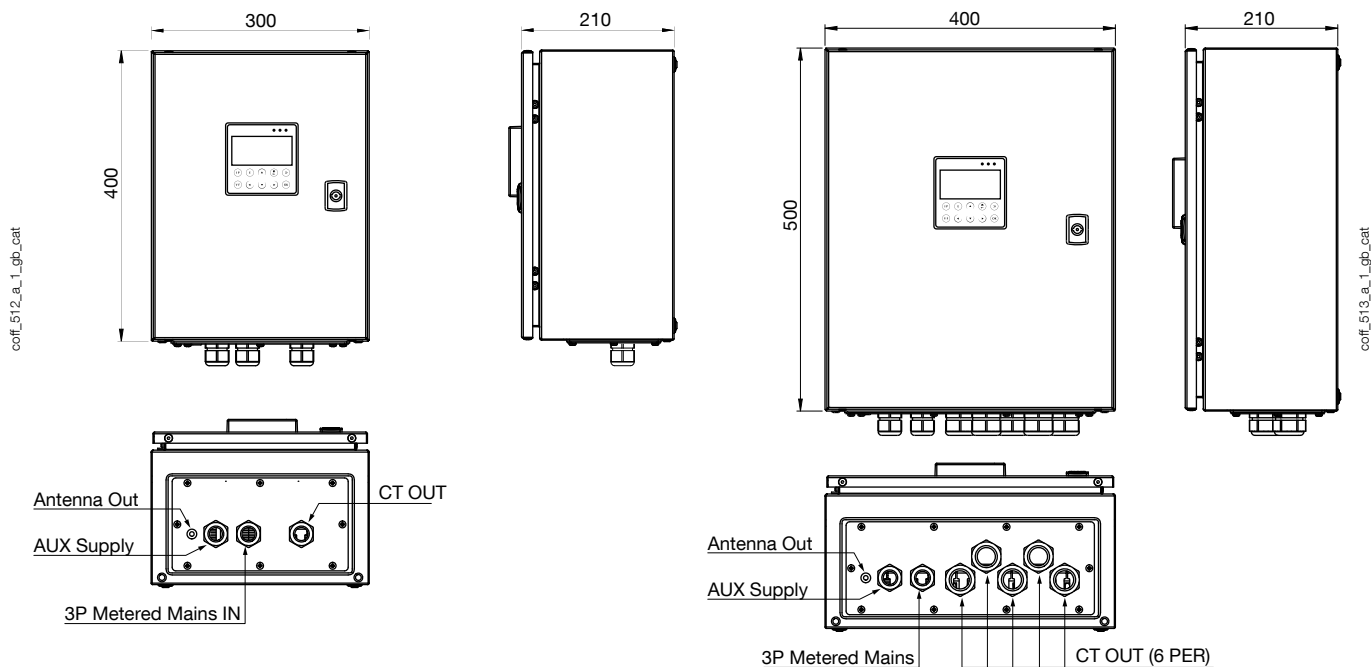
DIRIS Digiware

## Enclosure *DIRIS Digiware*

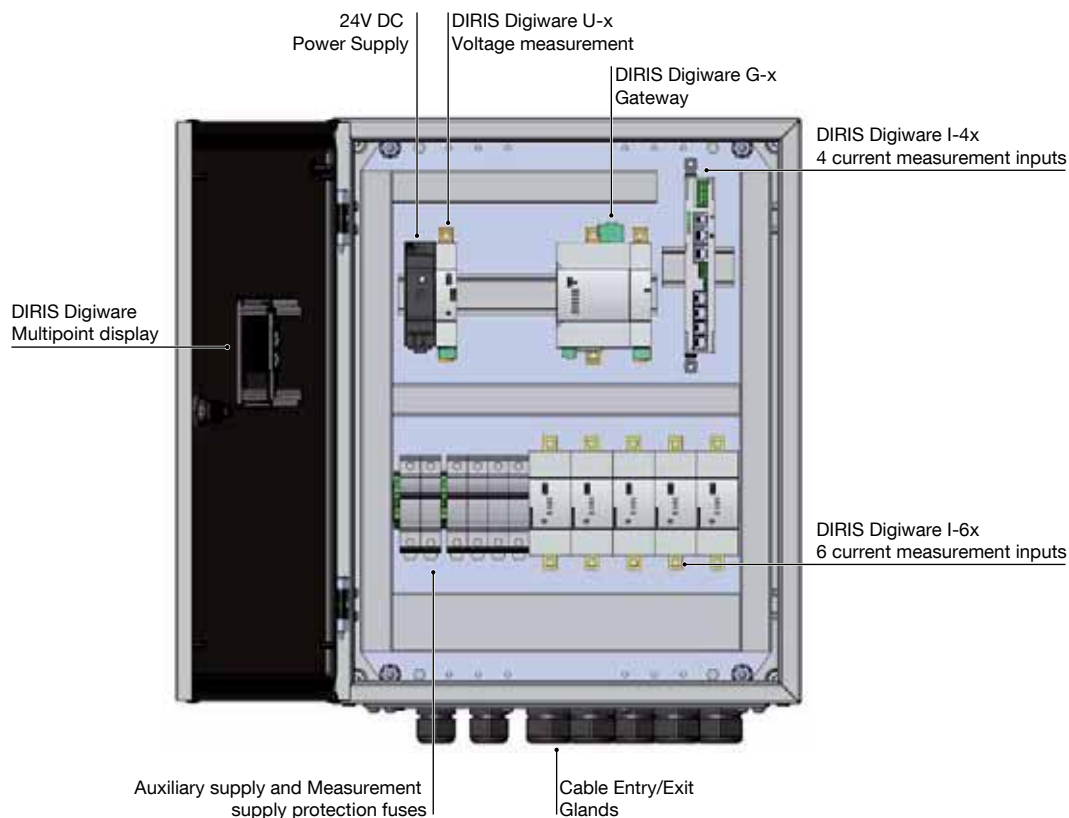
### Dimensions

Enclosure for 1 x B30

Enclosure for 1 x 3P incomer and 10 x 3P outgoing ways



Other enclosure dimensions on application



## Reference generator

Start	Type	Meter type	Customer	No. of 3-phase meters <sup>(1)</sup>	Variant 1 <sup>(2)</sup>	Incomer	Gateway fitted	Modem fitted	Options
4	E = enclosure A = accessory	3 = DIRIS B30 4 = DIRIS B30 RF 9 = Digiware	SC = Generic	NN	0 = Metering 1 = Monitoring 2 = Analysis	X = None A = 1 x I-45 Fitted B = 2 x I-45 Fitted	NN = none G5 = DIRIS G50 H8 = DIRIS H80	X = none	X = none A = Panel Mounted D30 Display B = Remote D30 Display C = Panel Mounted D50 Display D = Remote D50 Display

(1) For single-phase metering, divide by 3 to obtain number of three-phase metering points.

(2) Metering = I30/I60; Monitoring = I31/I61; Analysis = I35.

Example 1 1 x 3P incomer and 10 x 3P outgoing ways, D50 screen

4E9SC100ANNXC

Example 2 1 x 3P incomer and 72 x 1P outgoing ways, no screen, G50 gateway & data logger

4E9SC240AG5XX

## Associated current sensors

### References

#### TE – Solid current sensors



Model	Nominal current range (A)	Actual coverage range (A)	Pitch (mm)	Reference
TE-18	5 ... 20	0.1 ... 24	18	4829 0500
TE-18	25 ... 63	0.5 ... 75	18	4829 0501
TE-25	40 ... 160	0.8 ... 192	25	4829 0502
TE-35	63 ... 250	1.26 ... 300	35	4829 0503
TE-45	160 ... 630	3.2 ... 756	45	4829 0504
TE-55	400 ... 1000	8 ... 1200	55	4829 0505
TE-90	600 ... 2000	12 ... 2400	90	4829 0506

Accessories	Reference
Coupling link (20 linear assembly parts and 10 for staggered assembly)	4829 0598
CT/5A adapter (measurements of >2000 A) (max primary current 10000 A/5/A)	4829 0599
Sealable caps (20 pieces)	4829 0600

#### TR - Split-core sensor



Model	Nominal current range (A)	Actual coverage range (A)	Ø (mm)	Reference
TR-10	25 ... 75	0.5 ... 90	10	4829 0551
TR-16	32 ... 100	0.64 ... 120	16	4829 0552
TR-24	63 ... 200	1.26 ... 200	24	4829 0553
TR-36	200 ... 600	4 ... 720	36	4829 0554

Accessories	Reference
Sealable caps (20 pieces)	4829 0600

#### TF - Flexible current sensors



Model	Nominal current range (A)	Actual coverage range (A)	Ø loop (mm)	Reference
TF-55	150 ... 600	3 ... 720	55	4829 0570
TF-120	500 ... 2000	10 ... 2400	120	4829 0571
TF-300	1600 ... 6000	32 ... 7200	300	4829 0572

Accessories	Reference
Sealable caps (20 pieces)	4829 0600

#### RJ12 cables for connection between current modules and sensors

RJ12 connection cables	Cable length (m)								
	0.1	0.2	0.3	0.5	1	2	5	10	50 m reel + 100 connectors
Number of cables	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
1	-	-	-	-	-	-	4829 0602	4829 0603	4829 0601
3	4829 0580	4829 0581	4829 0582	4829 0595	4829 0583	4829 0584	-	-	-
4	-	-	-	4829 0596	4829 0588	4829 0589	-	-	-
6	4829 0590	4829 0591	4829 0592	4829 0597	4829 0593	4829 0594	-	-	-

## Associated current sensors (continued)

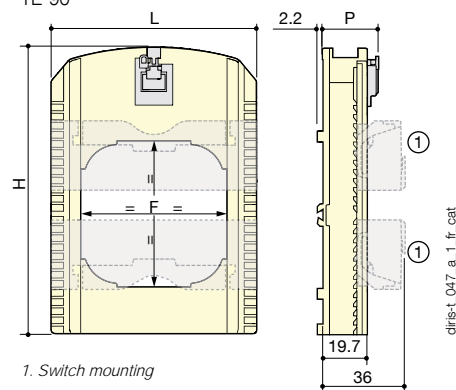
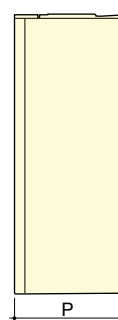
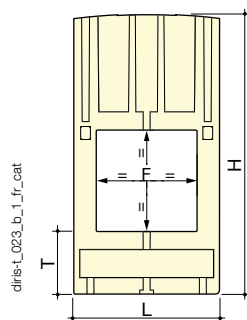
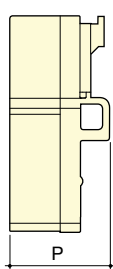
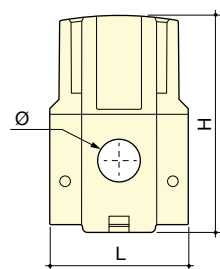
### Dimensions (mm)

#### TE - Solid current sensors

TE-18

TE-25 / TE-35 / TE-45 / TE-55

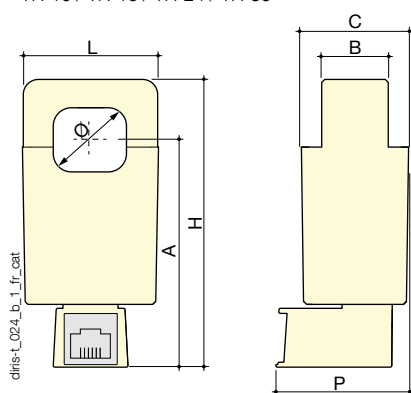
TE-90



Model	Nominal current range (A)	Actual coverage range (A)	Pitch (mm)	H x W x D (mm)	F (mm)	T (mm)
TE-18	5 ... 20 / 25 ... 63	0.1 ... 24 / 0.5 ... 75	18	45 x 28 x 20	8.6	-
TE-25	40 ... 160	0.8 ... 192	25	65 x 25 x 32.5	13.5 x 13.5	17.5
TE-35	63 ... 250	1.26 ... 300	35	71 x 35 x 32.5	21 x 21	17.5
TE-45	160 ... 630	3.2 ... 756	45	86 x 45 x 32.5	31 x 31	19.5
TE-55	400 ... 1000	8 ... 1200	55	100 x 55 x 32.5	41 x 41	21.5
TE-90	600 ... 2000	12 ... 2400	90	126 x 90 x 24.6	64 x 64	-

#### TR - Split-core sensor

TR-10 / TR-16 / TR-24 / TR-36

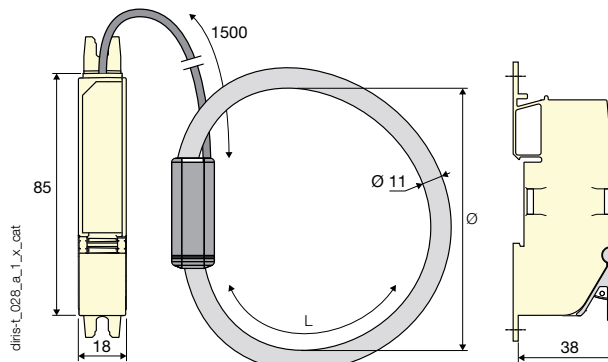
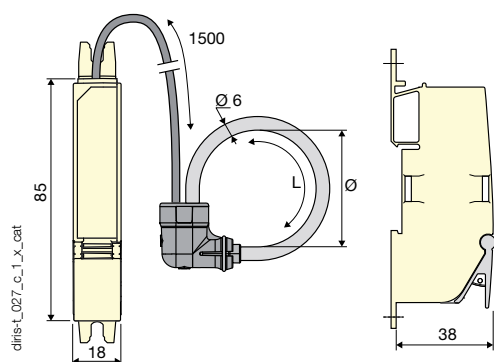


Model	Nominal current range (A)	Actual coverage range (A)	H x W x D (mm)	Ø (mm)	A (mm)	B (mm)	C (mm)
TR-10	25 ... 75	0.5 ... 90	71 x 25 x 39	10	58	14.5	26
TR-16	32 ... 100	0.64 ... 120	74 x 30 x 42	16	61	19	31
TR-24	63 ... 200	1.26 ... 200	95 x 45 x 44	24	72	22	34
TR-36	200 ... 600	4 ... 720	111 x 57 x 42	36	82	34	40.5

#### TF - Flexible current sensors

TF-55

TF-120 / TF-300



Model	Nominal current range (A)	Actual coverage range (A)	Ø loop (mm)	L = Loop length (mm)
TF-55	150 ... 600	3 ... 720	55	182
TF-120	500 ... 2000	10 ... 2400	120	376
TF-300	1600 ... 6000	32 ... 7200	300	942



## Associated current sensors (continued)

### Specifications

#### TE - Solid current sensors

Model	TE-18	TE-18	TE-25	TE-35	TE-45	TE-55	TE-90
Nominal current range $I_n$ (A)	5 ... 20	25 ... 63	40 ... 160	63 ... 250	160 ... 630	400 ... 1000	600 ... 2000
Actual coverage range (A)	0.1 ... 24	0.5 ... 75	0.8 ... 192	1.26 ... 300	3.2 ... 756	8 ... 1200	12 ... 2400
Max. current (A)	24	75.6	192	300	756	1200	2400
Weight (g)	24	24	69	89	140	187	163
Max. voltage (phase/neutral)	300 V						
Rated withstand voltage	3 kV						
Frequency	50/60 Hz						
Intermittent overload	10 x $I_n$ over 1 sec						
Measurement category	CAT III						
Protection degree	IP30 / IK06						
Operating temperature	-10 ... +70°C						
Storage temperature	-25 ... +85°C						
Relative humidity	95% RH non-condensing						
Altitude	< 2000 m						
Connection	Socomec cable or equivalent RJ12 straight, twisted pair, unshielded 300 V cat. III cable. -40 / +85 °C						

#### TR - Split-core sensor

Model	TR-10	TR-16	TR-24	TR-36
Nominal current range $I_n$ (A)	25 ... 75	32 ... 100	63 ... 200	200 ... 600
Actual coverage range (A)	0.5 ... 90	0.64 ... 120	1.26 ... 240	4 ... 720
Max. current (A)	90	120	240	720
Weight (g)	74	117	211	311
Max. voltage (phase/neutral)	300 V			
Rated withstand voltage	3 kV			
Frequency	50/60 Hz			
Intermittent overload	10 x $I_n$ for 1s			
Measurement category	CAT III			
Protection degree	IP20 / IK06			
Operating temperature	-10 ... +70°C			
Storage temperature	-25 ... +85°C			
Relative humidity	95% RH non-condensing			
Altitude	< 2000 m			
Connection	Socomec cable or equivalent RJ12 straight, twisted pair, unshielded 300 V cat. III cable. -40 / +85 °C			

#### TF - Flexible current sensors

Model	TF-55	TF-120	TF-300
Nominal current range $I_n$ (A)	150 ... 600	500 ... 2000	1600 ... 6000
Actual coverage range (A)	3 ... 720	10 ... 2400	32 ... 7200
Weight (g)	114	142	220
Max. voltage (phase/neutral)	600 V		
Rated withstand voltage	3.6 kV		
Frequency	50 / 60 Hz		
Intermittent overload	10 x $I_n$ for 1 s		
Measurement category	CAT III		
Protection degree	IP30 / IK07		
Operating temperature	-10 ... +70°C		
Storage temperature	-25 ... +75°C		
Relative humidity	95% RH non-condensing		
Altitude	< 2000 m		
Connection	Socomec cable or equivalent RJ12 straight, twisted pair, unshielded 300 V cat. III cable. -40 / +85 °C		

# References list

References	Pages	References	Pages	References	Pages	References	Pages
1309 0xxx	58, 59	2999 0012	34, 39	3290 7008	40	443x xxxx	53
1309 9xxx	59	2999 0112	39	3290 7009	40	449x xxxx	53
1359 0xxx	59	2999 1012	34, 39	3290 7015	35, 40	4825 0080	72
1359 2000	58	3211 xxxx	41	3290 72xx	40	4825 0082	72
1399 4006	58, 59	3215 xxxx	34	36xx xxxx	26	4825 0083	72
1399 401x	59	322x xxxx	34	389x xxxx	26	4825 0089	72, 73
1599 1xxx	60	324x xxxx	46	38Ex xxxx	25	4825 009x	73
1599 2000	60	3261 xxxx	41	3998 xxxx	26	4825 02xx	73
1599 2001	60, 64	3265 xxxx	34	3999 xxxx	23, 26	4829 xxxx	77
1599 2009	60	3273 xxxx	38	39Yx xxxx	26	48E5 1002	72
1599 900x	64	3275 xxxx	34	3V4x xxxx	46	48E5 1004	73
1599 901x	64	3290 1xxx	38	3V5x xxxx	46	48E5 1602	72
1599 903x	65	3290 2xxx	39	3V71 6012	38	48E5 1604	73
176x xxxx	60	3290 6002	34, 39	410x xxxx	55	48E5 2002	72
178x xxxx	63	3290 6003	39	411x xxxx	54	48E5 2004	73
1854 2xxx	58	3290 6012	34	4212 xxxx	54	48E5 2502	72
1854 4xxx	59	3290 6013	39	4215 xxxx	51	48E5 2504	73
188x xxxx	59	3290 6102	34, 39	422x xxxx	50	48E5 4002	72
21xx xxxx	17	3290 6103	39	423x xxxx	50	48E5 4004	73
22xx xxxx	23	3290 611x	39	424x xxxx	50	9599 2020	60
25xx xxxx	23	3290 7005	35, 40	43xx xxxx	72, 73	Xxxx xxxx	23, 26
26xx xxxx	23	3290 7006	35, 40	440x xxxx	35, 40		
27xx xxxx	34	3290 7007	40	441x xxxx	53		

Model: SOCOME  
Production: SOCOME  
Photography: Martin Bernhart et Studio Objectif  
Printing: GRASPO CZ, a.s. Pod Šternberkem 324  
763 02 Zlín – Czech Republic  
IČ: 255 86 092  
Bureau France: Nord Est Offset



# Socomec worldwide

## THE UNITED KINGDOM

### HITCHIN HERTFORDSHIRE

Power Control & Safety / Energy Efficiency  
Knowl Piece - Wilbury Way  
Hitchin Hertfordshire SG4 0TY  
Tel. 01462 440033  
Fax 01462 431143  
info.uk@socomec.com

### CIRENCESTER

Critical Power  
Units 7A-9A Lakeside Business Park  
Broadway Lane - South Cerney  
Cirencester - GL7 5XL  
Tel. 01285 863300  
Fax 01285 862304  
info.uk@socomec.com

### LONDON

Commercial Office  
Central Court  
25 Southampton Buildings  
London - WC2A 1AL  
Tel. 02034 275107  
Fax 02030 438889  
info.uk@socomec.com

## IN EUROPE

### BELGIUM

Critical Power / Power Control & Safety /  
Energy Efficiency  
info.be@socomec.com

### FRANCE

Critical Power / Power Control & Safety /  
Energy Efficiency  
dcm.ups.fr@socomec.com

### GERMANY

Critical Power  
info.ups.de@socomec.com  
Power Control & Safety / Energy Efficiency  
info.scp.de@socomec.com

### ITALY

Critical Power  
info.ups.it@socomec.com  
Power Control & Safety / Energy Efficiency  
info.scp.it@socomec.com

### NETHERLANDS

Critical Power / Power Control & Safety /  
Energy Efficiency  
info.nl@socomec.com

### POLAND

Critical Power  
info.ups.pl@socomec.com  
Power Control & Safety / Energy Efficiency  
info.scp.pl@socomec.com

### PORTUGAL

Critical Power / Power Control & Safety /  
Energy Efficiency  
info.ups.pt@socomec.com

### ROMANIA

Critical Power / Power Control & Safety /  
Energy Efficiency  
info.ro@socomec.com

### SERBIA

Critical Power / Power Control & Safety /  
Energy Efficiency  
info.rs@socomec.com

### SLOVENIA

Critical Power / Power Control & Safety /  
Energy Efficiency  
info.si@socomec.com

### SPAIN

Critical Power / Power Control & Safety /  
Energy Efficiency  
info.es@socomec.com

### SWITZERLAND

Critical Power  
info@socomec.ch

### TURKEY

Critical Power / Power Control & Safety /  
Energy Efficiency  
info.tr@socomec.com

## IN ASIA PACIFIC

### AUSTRALIA

Critical Power / Power Control & Safety  
info.ups.au@socomec.com

### CHINA

Critical Power / Power Control & Safety /  
Energy Efficiency  
info.cn@socomec.com

### INDIA

Critical Power / Power Control & Safety /  
Energy Efficiency  
info.in@socomec.com

### SINGAPORE

Critical Power / Power Control & Safety /  
Energy Efficiency  
info.sg@socomec.com

### THAILAND

Critical Power  
info.ups.th@socomec.com

## IN MIDDLE EAST

### UNITED ARAB EMIRATES

Critical Power / Power Control & Safety /  
Energy Efficiency  
info.ae@socomec.com

## IN AMERICA

### USA, CANADA & MEXICO

Power Control & Safety / Energy Efficiency  
info.us@socomec.com

## OTHER COUNTRIES

### NORTH AFRICA

Algeria / Morocco / Tunisia  
info.naf@socomec.com

### AFRICA

Other countries  
info.africa@socomec.com

### SOUTH EUROPE

Cyprus / Greece / Israel / Malta  
info.se@socomec.com

### SOUTH AMERICA

info.es@socomec.com

### MORE DETAILS

[www.socomec.co.uk/worldwide](http://www.socomec.co.uk/worldwide)

## HEAD OFFICE

### SOCOMECS GROUP

SAS SOCOMECS capital 10 686 000 €  
R.C.S. Strasbourg B 548 500 149  
B.P. 60010 - 1, rue de Westhouse  
F-67235 Benfeld Cedex - FRANCE  
Tel. +33 3 88 57 41 41  
Fax +33 3 88 74 08 00  
info.scp.isd@socomec.com

## YOUR DISTRIBUTOR / PARTNER

[www.socomec.co.uk](http://www.socomec.co.uk)

your energy  
our expertise



ENERGY  
SPECIALIST  
SINCE 1922

**socomec**  
Innovative Power Solutions