CATALOGUE

TRANSMISSION & DISTRIBUTION GRIDS

Energy performance solutions

2018
2019

your energy
our expertise

socomec
Innovative Power Solutions

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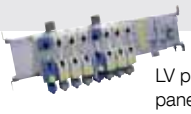

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Our **adapted responses** to your applications

Ever attentive to your requirements, SOCOMEC offers you services, products and customised solutions, whatever your constraints.
As a French distribution switchboard manufacturer since 1965, SOCOMEC is a key player in the field of public electricity distribution.
SOCOMEC's TIPI low voltage feeder pillars represent one of the best-selling products in the French market.

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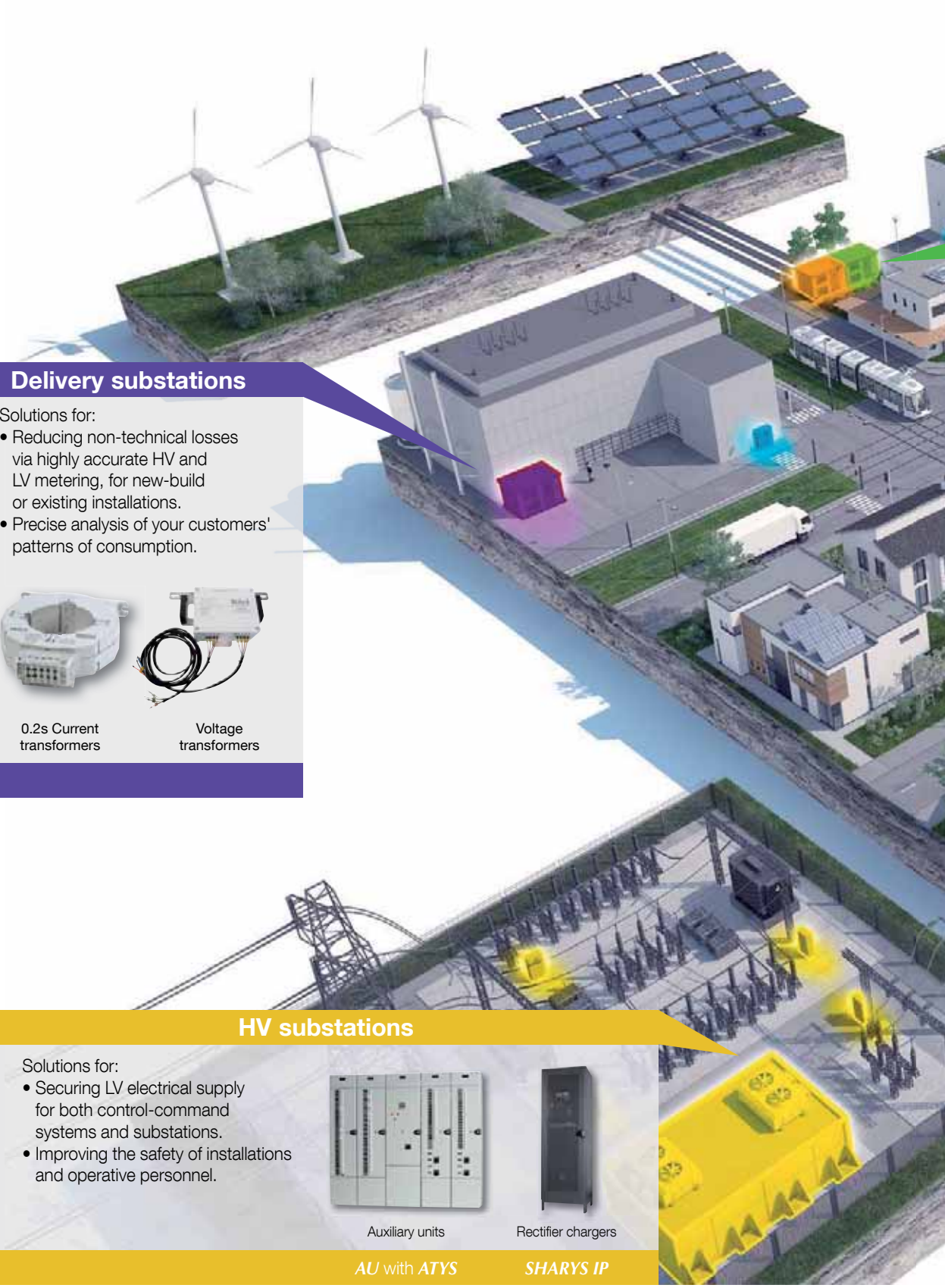
Discover all our public distribution solutions on our website.



Delivery substations

Solutions for:
- Reducing non-technical losses via highly accurate HV and LV metering, for new-build or existing installations.
- Precise analysis of your customers' patterns of consumption.

0.2s Current transformers

Voltage transformers

HV substations

Solutions for:
- Securing LV electrical supply for both control-command systems and substations.
- Improving the safety of installations and operative personnel.

Auxiliary units

AU with *ATYS*

Rectifier chargers

SHARYS IP

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Energy storage

Solutions for:
- Improving grid stability.
- Deferring grid investment.

Power Converter Storage solutions

SUNSYS PCS²

Services

Pre-project phase:
- Help with the design and realisation of customised solutions.
- Qualification and certification testing (IEC 61439).

On-site:
- Commissioning
- Equipment maintenance.
- Supervision.

Smart MV/LV Distribution substation

Solutions for:
- Protection, distribution,measuring and monitoring of the LV electrical grid.
- Securing the electrical supply and minimising maintenance.

DIRIS Digiware

TIPI with ***DIRIS***

Terminal distribution

Solutions for:
- Protecting the LV network in distribution cabinets.
- Ensuring high-accuracy metering.

Load break switches

Fuse-combination switch

SIRCO ***FUSERBLOC***

SYDV 169 A

An independent manufacturer

The benefit of a specialist

3,500 m²
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

MADE IN EUROPE

ENERGY SPECIALIST SINCE 1922

THE GLOBAL COMPACT WE SUPPORT

socomec Innovative Power Solutions

Your energy, our expertise

Critical Power

Ensuring the availability and storage of high quality power

With its wide range of continuously evolving products, solutions and services, Socomec are recognised experts in the cutting-edge technologies used for ensuring the highest availability of the electrical power supply to critical facilities and buildings, including:

- static uninterruptible power supplies (UPS) for high-quality power free of distortions and interruptions occurring on the primary power supply,
- changeover of static, high availability sources for transferring the supply to an operational back-up source,
- permanent monitoring of the electrical facilities to prevent failures and reduce operating losses,
- energy storage for ensuring the proper energy mix of buildings and for stabilisation of the power grid.


© Datadock

Power Control & Safety

Managing power and protecting persons and facilities

Active in the industrial switching market since its foundation in 1922, Socomec is today an undisputed leader in the field of low voltage switchgear, providing expert solutions that ensure:

- isolation and on load breaking for the most demanding switching applications,
- continuity of the power supply to electrical facilities via manual remotely operated or automatic transfer switching equipment.
- protection of persons and assets via fuse-based and other specialist solutions.


APPLI 575A

Energy Efficiency

Managing the energy performance of buildings

Socomec solutions, from current sensors through to a wide choice of innovative scalable software packages are driven by experts in energy performance. They meet the critical requirements of facility managers and operators of commercial, industrial and local authority buildings for:

- measuring energy consumption, identifying sources of excess consumption and raising the awareness of occupants about their impact,
- limiting reactive energy and avoiding the associated tariff penalties,
- using the best available tariffs, checking utility bills and accurately distributing energy billing among consumer entities,
- monitoring and detecting insulation faults.


APPLI 571A

Expert Services

Enabling available, safe and efficient energy

Socomec is committed to delivering a wide range of value-added services to ensure the reliability and optimisation of end-users' equipment:

- prevention and service operations to lower the risks and enhance the efficiency of operations,
- measurement and analysis of a wide range of electrical parameters leading to recommendations for improving the site's power quality,
- optimisation of the total cost of ownership and support for a safe transition when migrating from an old to a new generation of equipment,
- consultancy, deployment and training from the project engineering stage through to final procurement,
- performance assessment of the electrical installation throughout the life cycle of the products via analysis of data transmitted by connected devices.


APPLI 760A

Customised solutions

for implementations adapted to suit your needs

To complement our standard offer, SOCOMEC has an organisation dedicated to the design and implementation of made-to-measure solutions.

We are on-hand to offer support through the different phases of your project, from the analysis of specifications to the qualification of your solutions, up to implementation, commissioning and provision of on-site training.

Please contact us for more information.

CORPO 273 A

Multi-field expertise

We offer support throughout your project with our specialist teams of mechanical, electrical and IT engineers to provide you with a complete and professionally-certified solution.

An adapted response

We take account of all of your specific needs and local restrictions when offering you an optimised solution for transparent levels of investment.

Certified and qualified solutions guaranteed by the manufacturer

Our solutions comply with all standards applicable to products, assemblies and to their installation, as well as with custom specifications.

Our fully-accredited Pierre Siat laboratory is equipped to perform any qualification tests that may be required. Please refer to page 10.

All the switch panels and assemblies comply with IEC/EN 61439.

Typical applications

LV distribution panels for MV/LV* substations with 3-pole fuse headers.

- EN 61439 qualification.
- Panels with 4 or 6 outputs, with additional panels with 4 or 6 outputs.
- SIRCO 1200 A load break switch at panel incomer with adapted connector terminal palm (EST sockets on top and bottom terminals, pins for earth connections, IP2X covers…).
- IP2X protection with transparent protectors.
- Integrated solution with mounted power transformers and auxiliary power units on mounting plate.
- Possible addition of a 50 A control tab for public lighting between the main panel and an additional panel.

See page 67.

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.

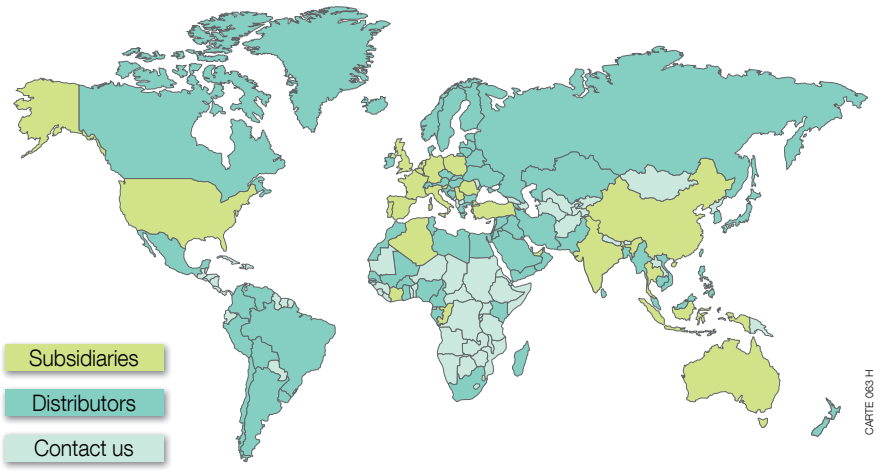
APPLI 724 A

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 063 H

On-site service management

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

Technical hotline network

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

Certified expertise

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


APPLI 571 A


SITE 588 A


CORPO 269 A

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.

CORPO 441 A

Proven expertise

Tesla Lab is an independant laboratory specialised in testing of LV switchgear, components and switchgear assemblies.
4 M€ has been invested since 2011 in this 2000 m² 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_{cc} 100 kA rms 1 s) short-circuit platform, three 10 kA overload platforms and many other test facilities covering 2000 m² 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

IEC/EN 61439 READY

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

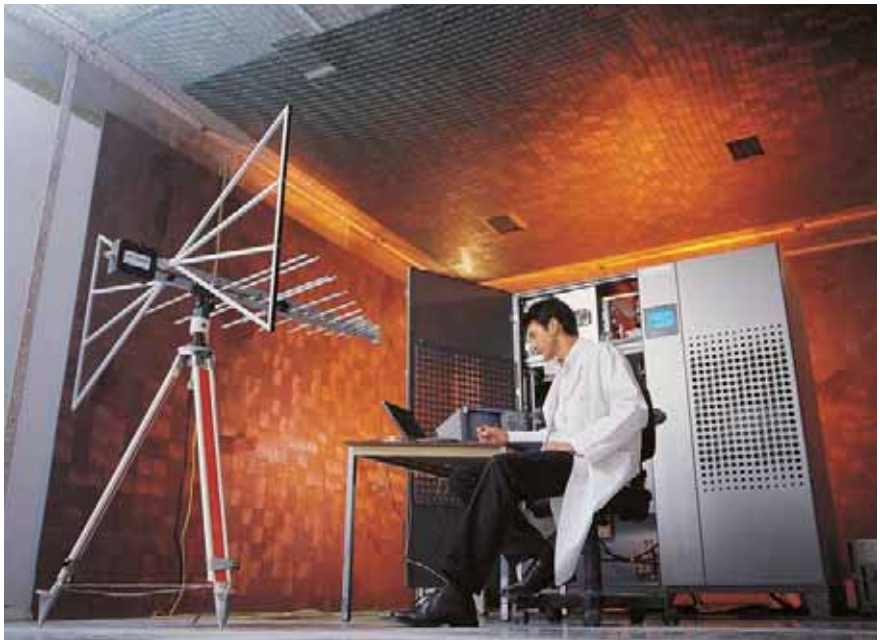
We can therefore help you to:

- 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…).

Test platforms

to guarantee UPS units and other high-quality power supply solutions

Our test platforms use high performance equipment offering an extremely wide range of test options. All of SOCOMEC's products and solutions are submitted to the most rigorous tests of reliability and conformity by our in-house experts.



APPLI 112 B

A complete test system

- Routine tests performed on every product and on each solution.
- Personalised demonstration and qualification tests.
- Specific tests on request.
- Tests on incoming goods and components

High-quality test capacities

- 4 MVA power supply.
- Test capacity up to 8 x 500 kVA.
- Thermal and acoustic test facilities.
- EMI test facilities (Faraday cage).

High level of activity

- More than 300 days per year of tests are conducted in the presence of our customers.

SOCOMEC, an original equipment manufacturer of solutions qualified to EN 61439

The new IEC or EN 61439 standard in brief:

- Standard harmonised to EN 61439, mandatory from November 2014.
- New approach to verification of design concepts and performance levels.
- New tests, checks and documentary traceability; very useful for operation and maintenance of the entire assembly.
- Definition of roles and responsibilities for each participant, especially for the OEM and the assembly manufacturer.
- Specific chapter of EN 61439-5: dedicated to public distribution units; it mandates testing as the only acceptable form of verification.

SOCOMEC, an expert in IEC and EN 61439:

- A dual role: an OEM and a manufacturer of assemblies.
- Our equipment is tested and qualified in accordance with this standard in our certified Pierre Siat laboratory.

This means your system will have the guarantee of optimum performance.

Examples of qualified solutions:

- Auxiliary units for HV/MV substations. See page 25.
- Low-voltage distribution panels from MV/LV stations. See page 67.

Webspace at your service

all our solutions can be adapted to your needs

www.socomec.com

Expertise, customised solutions, products and services, downloads… All yours in a couple of clicks!

1. **Tap into our expertise**
2. **Discover our customised solutions**
3. **Access all our products and services**
4. **Download photos, documentation, software and CAD files**

CORPO 385 A

www.diris-digiware.com

Check out the dedicated site about DIRIS Digiware, our measuring and monitoring system. It gives you all the information you need, including videos, images and documentation on the most revolutionary solution on today's market.

CORPO 466 A

Follow us on social media!

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Smart Grid pilot project

SOCOMEC, a partner of the European consortium

InterFLEX

An innovative project for tomorrow's world

For more details
see page 22.

Find out more

The complete range of SOCOMEC's energy management solutions.

www.socomec.com/en/energy-measurement

Low voltage innovations

for smart grids

Why do low voltage grids need to become “intelligent” ?

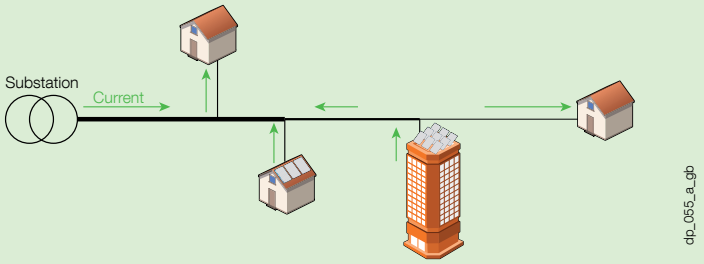
Grid operators have to face several new challenges:

- To facilitate the integration of decentralised production of electricity.
- To anticipate operating failures and to secure the power supply.
- To offer the customer a greater choice of services by promoting their participation in optimising the grid.
- To reduce the environmental impact of the electrical system in its entirety.
- To optimise the necessary reinforcements of the grid.

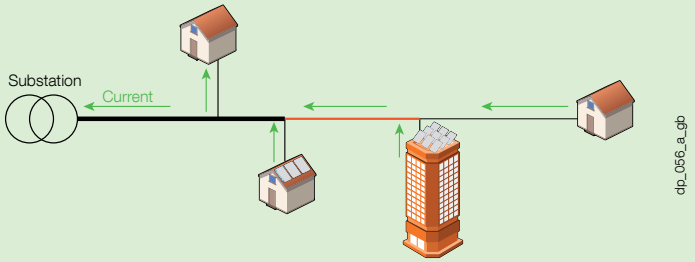
In this new environment, all of the LV grid is only minimally monitored, if at all. Real-time analysis of all the electrical flows in each grid circuit is necessary.

The issue of integrating renewable energy in low voltage grids

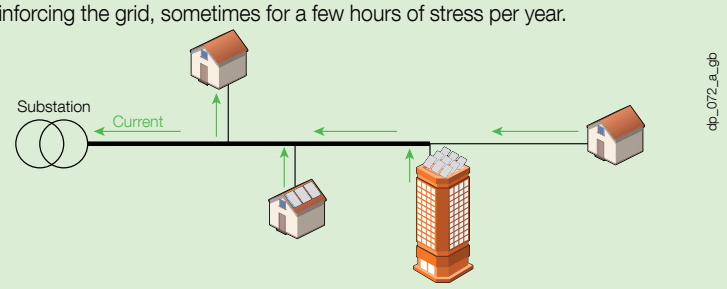
- With centralised production, current and cable sections decrease from the point of production towards the final customer.
- With decentralised production, currents are multi-directional depending on demand and production.



- In the event of surplus production, the grid may be insufficiently sized to take these new levels of current.



- Reinforcing the grid, sometimes for a few hours of stress per year.



Innovation: power conversion and storage solutions

The main idea behind energy storage is the charging and discharging of batteries.
The essential element of this process is the power converter, commonly called 'PCS' (Power Conversion System). SOCOMEC has developed new ranges of power converters: SUNSYS PCS² and SUNSYS PCS² IM.
More details on page 18.

These converters have a double conversion function. First, they use AC voltage coming from the main grid, from PV production, from gensets, etc, and convert it to DC voltage to store it in the batteries. On demand, the stored energy can then be converted back into useable AC current and injected into the grid.
These ‘bi-directional’ storage converters operate according to a charging and discharging profile corresponding to the required functions.

The SUNSYS PCS² IM power conversion and storage units and their innovative control systems also enable the microgrid to be disconnected from the main grid, so that it works totally autonomously.
More details on page 19.

NICE GRID
A SMART SOLAR DISTRICT

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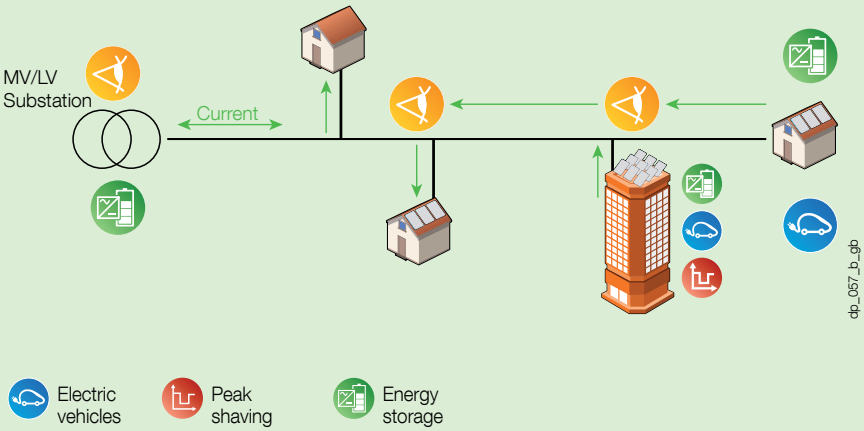
New solutions to tackle new LV grid constraints



Energy storage

This helps to shift consumption to improve the local consumption/production balance at district level by:

- Reducing current in electric cables.
- Avoiding the need for reinforcement work.
- Stabilising the voltage and frequency of the grid.

This also allows the management of a district in 'islanding' mode, a mode which is autonomous and isolated from the mains grid with its own means of PV production and storage.

Low voltage monitoring

This measures and monitors the electrical grid by:

- Detecting any grid constraints.
- Sending alerts in real time.
- Analysing and communicating energy data.

SOCOMEC's expertise in Smart Grids

For more than forty years, SOCOMEC has been developing UPS and solar inverters. This power conversion expertise has naturally led the company towards developing energy storage solutions.

In addition, SOCOMEC's long experience in electrical measurement, monitoring and analysis has enabled the launch of the new DIRIS Digiware concept specifically designed for multi-circuit measurements. Online services available on Socomec's cloud platform complete this offer as an additional LV grid management tool.

Innovation: energy monitoring systems for smart LV grids

The increase in decentralised renewable energy production, energy storage, the use of electric vehicles and load shedding will disrupt the traditional grid and will create new challenges for those responsible for operating them. As everything becomes connected to the network, there is a need to be more flexible and adaptable and utilities will need to develop a comprehensive understanding of what is happening on the grid.

The main issue is to really understand the LV grid with a precise analysis of all electric flows on each active conductor.

SOCOMEC has developed an innovative plug & play measurement and monitoring system, designed especially for multi-circuit electrical installations: DIRIS Digiware. This system is for new substations but also for existing installations. This integrated and flexible system can monitor the secondary of the transformer, and one or all LV feeders on the LV distribution board.

The complete monitoring solution is detailed on the following pages.

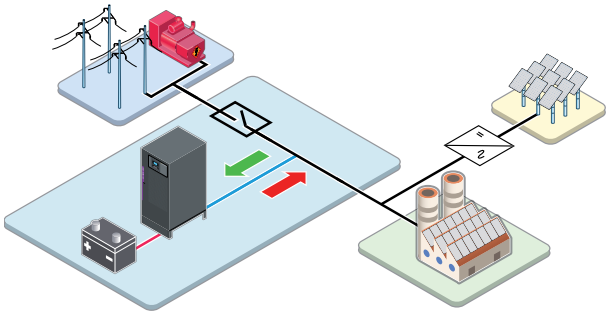
Energy storage

for smart grids, microgrids, renewable energies and smart buildings

Main applications

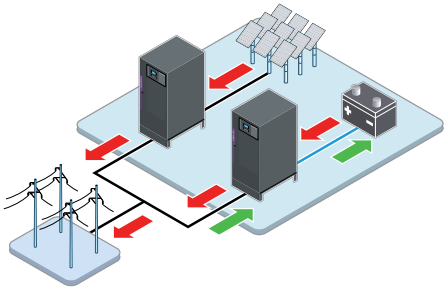
Energy storage is the key solution to meet the challenge of energy transition,
using renewable energy and providing energy cost reductions for the following 4 main applications:

Smart grids
- Improves grid stability
- Defers grid investment



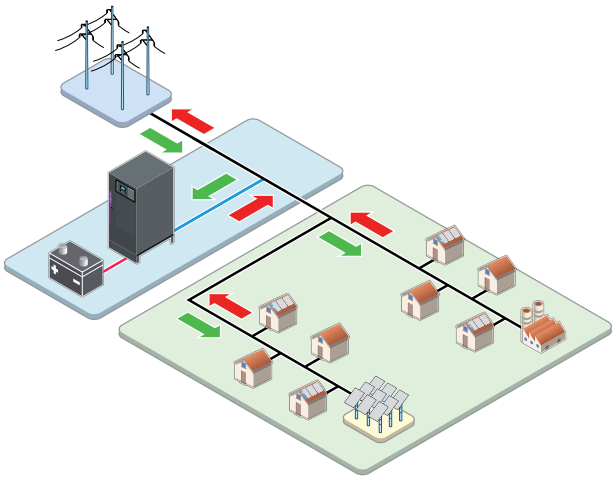
SUNSYS 169 B

Renewable energy power plants
- Manages renewable energy production



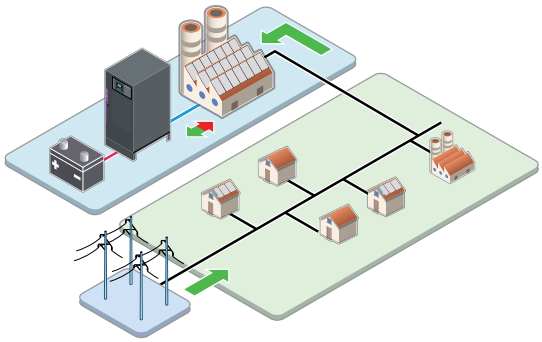
SUNSYS 150 B

Autonomous Microgrids
- Ensures energy availability
- Ensures energy quality



SUNSYS 151 B

Smart Buildings
- Peak shaving
- Maximises self-consumption



SUNSYS 146 B

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Energy storage solutions

Socomec offers modular energy storage solutions including all the necessary control and protection devices for all types of applications.
One of the key components of the solution is the Power Converter; Socomec proposes two models: SUNSYS PCS² for on-grid applications and SUNSYS PCS² IM that enables off-grid applications.

The main features of the converters are:
- full circular 4-quadrant P/Q capability,
- modular "Hot Swap" scalable system,
- extendible from a few kW up to several MW using units in parallel,
- suitable for either centralised or decentralised electrical installations,
- compatible with different battery technologies (lead-acid, lithium-ion…),
- opened communications for connection with Energy Management Systems,
- easy implementation in existing installations.

Power Converter Storage solutions for On-Grid applications

***SUNSYS PCS²* range from 33 to 100 kW**

- Maximum efficiency 96%
- P and Q step response time < 50 ms

- Embedded functionalities:
  - Grid support (F/V)
  - Self-consumption
  - Energy shifting
  - Energy smoothing
  - Peak shaving


SUNSYS 194 A

Power Converter Storage solutions for On & Off-Grid applications

***SUNSYS PCS² IM* range from 33 to 100 kW**

- Maximum efficiency 96%
- P and Q step response time < 500 ms

- On-Grid version functionalities +:
  - Grid forming
  - Scheduled & unforeseen islanding
  - Black start
  - Soft start
  - Power sharing
  - Synchronisation
  - PV production control


SUNSYS 193 A

Associated products & solutions

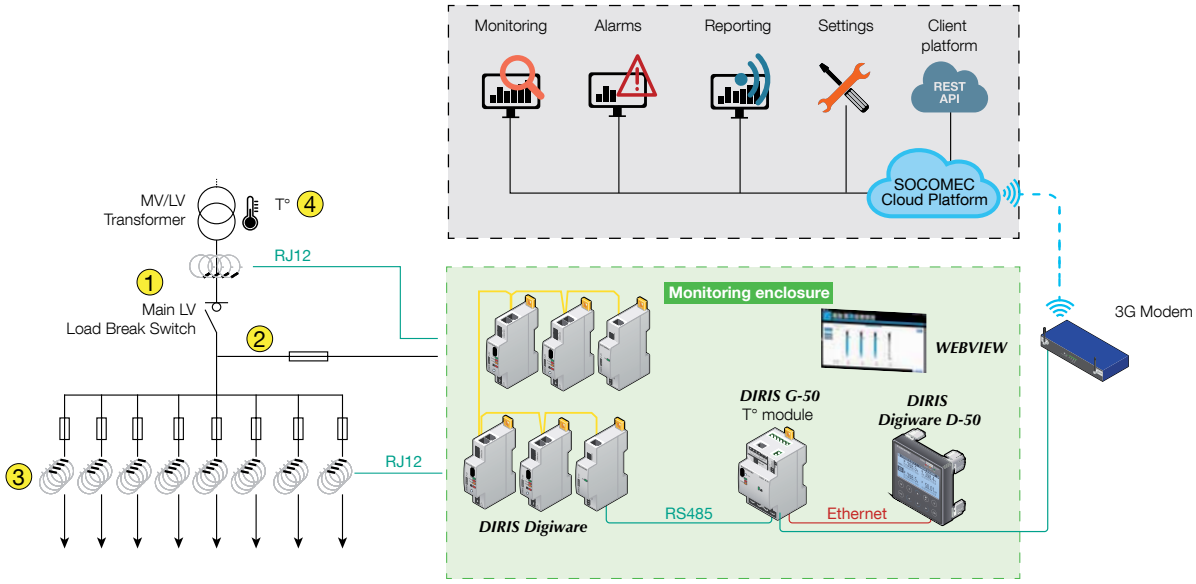
For a complete solution, we also propose:
- Control cabinet
- Distribution cabinets
- Paralleling cabinet
- Batteries
- Containers

SUNSYS 150 A

Energy monitoring

for smart MV/LV substations and LV grids

From a smart LV distribution board to a digital monitoring platform



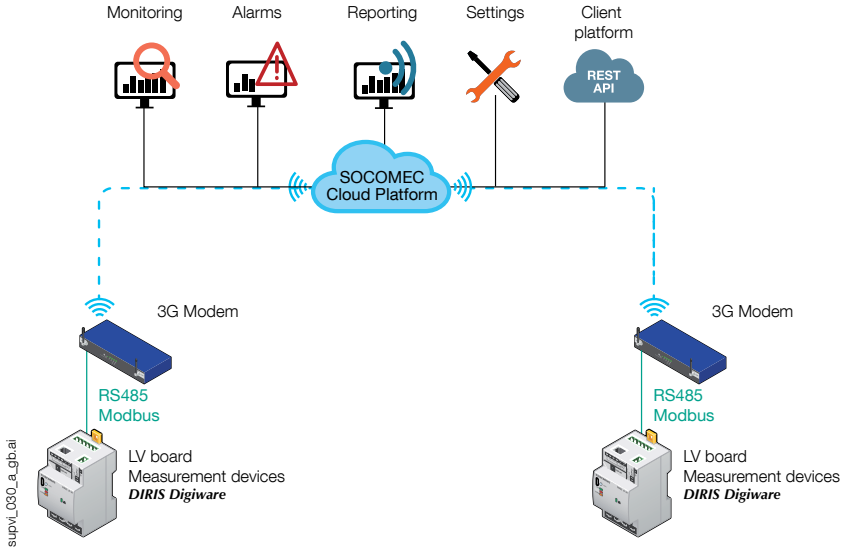
1 Monitoring of 3-phase + N transformer (via 4 current sensors)
To monitor the transformer load and detect possible backfeed on the MV network.

2 Voltage monitoring
A single three-phase voltage tap enables a full analysis to be carried cut.

3 Monitoring of the 3-phase + N feeders (4 current sensors per feeder)
To monitor each live conductor of each feeder, including the neutral, in real time. Phase unbalances are detected, and the events are analysed.

4 Temperature monitoring
For example, to monitor the transformer temparature (DGPT2 probe), the interior temperature of the substation and the external temperature.

Example of Cloud architecture for online services



Specific Cloud application

- Functions
  - LV grid overview & alarms reporting.
  - Customised curves for data analysis.
  - Real time values of the selected transformer or LV distribution board.

Benefits

- A complete solution from the LV board to the software application.
- A new grid management tool changing DSO working methods.
- CAPEX optimisation carrying out the right investments.
- Flexible and scalable deployment.
- Ready to integrate new services and grid evolution.

Contact us for more details.

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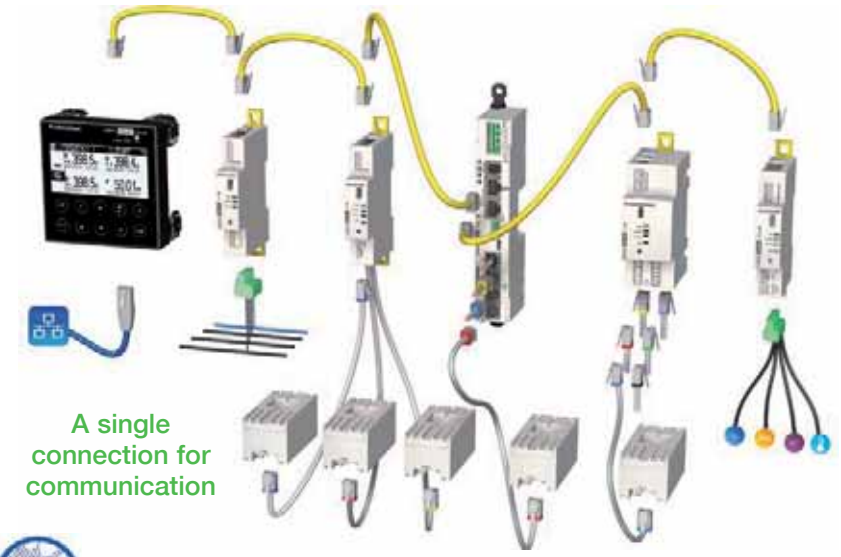
Multi-circuit Power Monitoring devices

- ***DIRIS Digiware***

Build your system:

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



diris-dw_011_c.eps

Exclusive to Socomec, patented

- Flexible
  - Shared functions
  - Installation of components close to the load
  - Compact design
  - Wide choice of current sensors
- Multi-circuit
  - Ability to monitor several circuits via a single current measurement module due to independent current inputs
- Accurate
  - Class 0.5 as per standard IEC 61557-12 for the global measurement chain from 2% to 120% of nominal current
- Plug & Play
  - RJ12 current sensor connection and RJ45 interconnection of modules (fast, reliable, intelligent)
  - Auto-configuration of parameters
- Cost effective
  - Up to 30% saving compared to existing metering technology
  - Implementation in a quarter of the time vs existing technologies

Associated current sensors with DIRIS Digiware and DIRIS B-30

Various types of current sensors can be connected:

- ***TE*** Solid current sensors
  - Suitable for new installations
  - Match the pitch of protective devices
  - 5 to 2000 A
- ***TR*** Split-core current sensors
  - Suitable for existing installations
  - 25 to 600 A
- ***TF*** Flexible (Rogowski) current sensors
  - Suitable for existing installations with space restrictions or with high-intensity currents
  - 150 to 6000 A

TE *TR* *TF*

Communication gateways with embedded web server

diris-g_004_a

DIRIS G-30
RS485 / Ethernet

diris-g_006_a

DIRIS G-40
RS485 - wireless / Ethernet

soft_027_a_1_fr

- WEBVIEW embedded web server.
- Scalable.
  Optional modules are available:
  - digital inputs/outputs,
  - analogue inputs/outputs,
  - temperature inputs.
- Plug & Play:
  - Connected metering and measurement devices are automatically addressed and detected by the gateway.
  - Data exported automatically.

Smart grid projects

Interflex, Nice Grid

The Socomec Group, partner of the Interflex demonstrator

Starting in January 2017 and lasting for 3 years, the French InterFlex pilot project will bring together several key players with complementary fields of expertise involved in the transition toward sustainable energy. The city of Nice on the French Côte d'Azur will be associated with the steering committee alongside manufacturers Enedis, Engie, GRDF, GE, EDF and Socomec.

The DEMO1 project is funded by the European Commission for 70% of its total budget of 5 M€ for the French contribution to the European INTERFLEX project within the framework of the EU Horizon 2020 Research and Innovation programme.

In line with the Nice Grid project, Socomec will be taking part in the French InterFlex pilot project which aims at:

- automatic islanding,
- use of centralised storage systems for multiple services,
- local flexibility mechanisms managed by the DSO (Distribution System Operator).
  www.socomec.com/energy-storage_en.html

Nice Smart Valley, the French Interflex pilot demonstrator

Nice Smart Valley follows on from the Nice Grid experiment, an international project in the field of smart grids, renewable energies and energy transition. It extends over a wide geographic area, encompassing the western districts of Nice, Nice Airport, the Plaine du Var business parks, the Isola 2000 ski resort and the Lérins Islands in the Mediterranean.

NICE SMART VALLEY

Storage for integrating renewable energy and islanding, a proven reality

NICE GRID
A SMART SOLAR DISTRICT

The city of Nice on the Côte d'Azur has put energy control at the heart of its regional planning policies.
In Carros, the NICE GRID project provides various stakeholders with the means to massively integrate renewable energy and ensure optimal energy management.

The challenges of the project

- Maximise photovoltaic production on the local grid using all the roof surfaces available.
- Minimise investments in infrastructure.
- Ensure a continuity of service, even if the main grid fails.

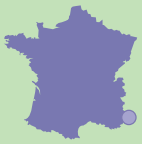
Socomec's smart energy storage management solutions are key to the innovative system implemented in the NICE GRID project. During the day, the surplus photovoltaic production is stored in batteries. The available energy allows you to increase the flexibility of the grid and overcome any interruptions in supply.

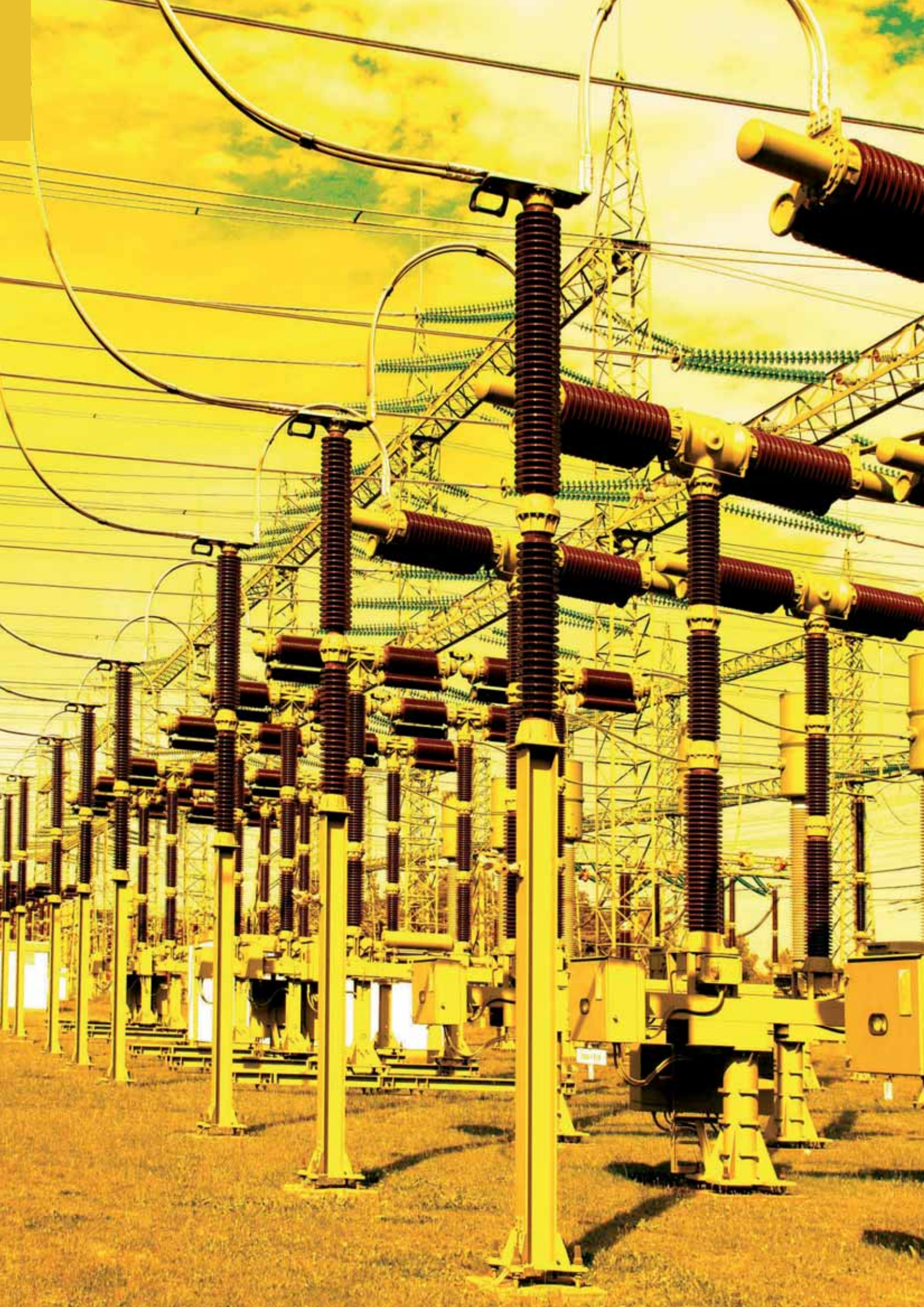
Across the district, the Socomec storage converter allows islanding or the creation of a Microgrid.

Easy to use, this 33-kW storage container is installed on the low-voltage network.

Nice Grid: some figures

- Budget: €30 M
- Project duration: 4 years
- 2,500 smart electricity meters
- 2.5 MWc of PV power
- 2 MW storage capacity
- Load shedding capacity: 3 MW
- Location: Carros – Nice, France





HV substations

How can you ensure the optimum protection of substation auxiliaries? ..... p. 26

AU Auxiliary Units

AU11
switch panel
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AUd11
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Enclosures

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LVDE
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Current short-circuiting device

CCI
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Rectifiers

SHARYS IP
p. 56

UPS Uninterruptible Power supply Systems

MASTERYS IP+
Single and three-phase UPS
p. 60

DELPHYS MP Elite
Three-phase UPS
p. 62

STS Static Transfer Systems

STATYS
Single and three-phase Static Transfer Systems
p. 64

Services

- Designing customised solutions: AU, current transformer, etc.
- Tests and qualifications.
- Commissioning and maintenance contracts.

For more information, see page 9.

How can you ensure the optimum protection of substation auxiliaries?

Secure and guaranteed power supply

Auxiliary services ensure the proper functioning of a high voltage substation. They assure the distribution, sometimes even the production but also the protection and service continuity of various types of low voltage AC and DC energy that is required to ensure the functioning of the equipment used in the substation.

The power supply to the auxiliaries must be secured, as an outage could result in the total loss of the substation.

The auxiliaries to be ensured relate to the supply of:

- Circuit breaker motors.
- Oil circulation pumps.
- Heating circuits of external enclosures and cabinets.
- Control and network management equipments (protection and automatic control devices).
- Telecommunications equipment.
- Rectifiers (battery chargers).
- 175 Hz transmitter equipment.
- Handling equipment, bridge crane.
- Lighting circuits.

These auxiliaries are separated into several autonomous or self-contained groups: these are called the Auxiliary Units (AU)

A complete range

In the following pages you will find all our auxiliary unit panels and the enclosures you need for various functions:

- Our auxiliary units are available in 250, 400, 630 A and other ratings on request.
- Primary enclosures protect the auxiliary unit's power supply and air coolers.
- Collecting units protect and regroup circuits to the LV control-command cabinet. These enclosures are equipped with specific padlockable fuse disconnect switches (RMSC).
- The relay building's battery enclosure and distribution enclosure are linked.
- Presence indicator units, alerting to the presence of operative personnel in the substation.

Other examples of customised enclosures:

- Switch enclosures, for manual distribution on several circuits.
- Remote-locked and voltage stepdown units.
- Condensate pump enclosures or for remote tank.
- Distribution Cabinets (DC), to supply bay equipments from relay buildings.

In addition, the current short-circuiting device is used in measuring and protection circuits.

Any particular requirement?

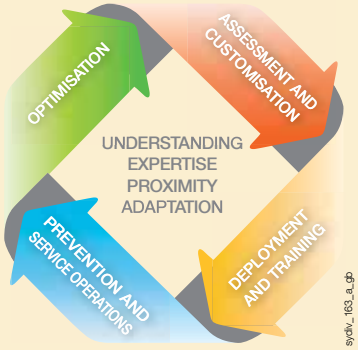
We have made a number of specific developments to meet our customers' requirements.

Do not hesitate to contact us for more information.

At your service

Our local teams can assist in the design and commissioning of your installation, as well as provide any necessary maintenance work and training.

For more information, see page 9.



Compliance with standards

> IEC 61439
> Client specifications
> RTE and ENEDIS agreements

We have a certified and accredited testing laboratory, see page 10.

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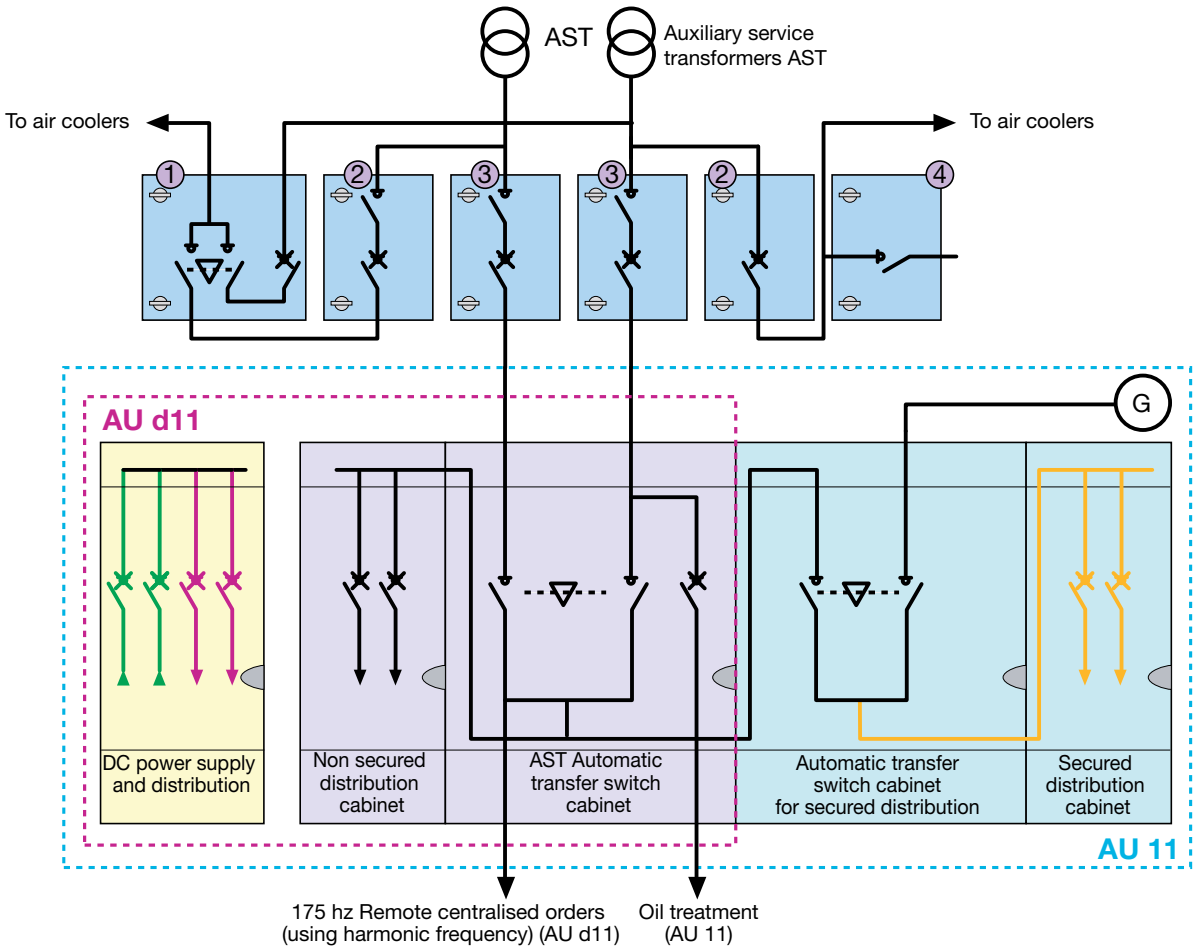
Electrical architecture



Primary protection enclosures:

1. AR enclosure
2. TR' enclosure
3. TR enclosure
4. ZR enclosure

Secure and guaranteed power supply continuity

For your network monitoring and control systems and IT facilities, discover our complete range of UPS, chargers, rectifiers and static transfer switches for all your applications.
See pages 56 to 65.

AU11 panels

Auxiliary units

ua_005_a

The solution for

> High voltage substations

Strong points

> Manufacturer's warranty, RTE agreement
> Improved safety
> Optimised use
> Easy installation
> Flexible configuration

Compliance with standards

> SF716
> SF713
> IEC 61439
> IEC 60947-2
> IEC 60947-3
> IEC 60947-6-1

Function

AU11 panel, the latest evolution of the AU95, is an AC and DC current distribution panel (control and telecommunications) for HV substations. Allowing:

- The continuity of LV power of the station's auxiliary equipment by automatic switching between 2 different sources and a genset ("AST1", "AST2", "G").
- The distribution and protection of AC and DC equipment power supply.

It is composed of:

- 2 switchover chassis guaranteeing the safety of the power supply: Main input "A" and backup input "D"
- 1 or more AC outputs chassis
- 1 or more DC outputs chassis

Advantages

Manufacturer warranty

This panel meets RTE specification and is certified by the CNER (RTE).

As original manufacturer, design, production and tests are IEC 61439 compliant.

Improved safety

This panel has an IP2X protection rating and its design makes it easier to lockout switching devices.

The ATYS, SOCOMEC Automatic Transfer Switch, is padlockable in position “1” with three padlocks.

Optimised use

Switching is ensured with ATyS automatic transfer switches (see the SOCOMEC general catalogue).

Manual operation is possible in case of emergency.

MTTR (Mean Time To Repair) is reduced thanks to easily removable motor and control parts.

Easy installation

This very compact and modular solution can be configured to suit to any setup.

- The IP20 distribution blocks (see the SOCOMEC general catalogue) make it easy to replace or add circuit breakers while keeping the chassis operational.
- Supplied kits enable easily chassis juxtaposition and addition.
- Copper clips and a cable anchoring system simplifies cabling.

Flexible configuration

With these scalable solutions, Socomec can adapt the solution to best suit your requirements. Do not hesitate to contact us for more information.

General characteristics

- Main "A" input chassis, fitted with:
  - 1 ATyS 4 x 250, 400 or 630 A
  - Data on the availability of sources "AST1" and "AST2" (NC)
  - 3 current transformers
  - 1 digital indicator on the front (active sources, modes, U, I, F…)
  - 1 power socket, protected by a circuit breaker and equipped with a front panel ammeter
  - 2 switches: "operating mode selection" and "priority source selection"
- Back-up power supply "D" input chassis, fitted with:
  - 1 ATyS 4 x 125, 160 or 250 A
  - 1 digital indicator on the front (active sources, modes, U, I, F…)
  - 1 protection circuit breaker on the genset ("G") input
- Outputs chassis, configured according to requirements:
  - "General network services" (BA and BB)
  - "Network units" (RA and RB)
  - "General backup services" (SA and SB)
  - "Backup units" (SA and SB)
  - "48-V power unit" (AB1 and AB2)
  - "125-V power unit" (AD)
  - "48-V Telecom power unit" (AT)
  - "48-V Electric Control power unit" (AC)
- Chassis design

The chassis are based on the CADRYS format (see the SOCOMEC general catalogue). The frame is made from 17.5/10 mm sheet steel. The sheath is made from 15/10 mm sheet steel, with textured-finish powder-coated polyester, colour RAL 7035. 2 doors, upper and lower, each give access to the busbars and connection terminals. A hinged central door provides access to electrical equipment.

On the output chassis, the door gives access to:
- Left side, to the connections of the circuit breakers inputs and outputs
- Right side, to the connections of the circuit breakers protected by a transparent polycarbonate screen.

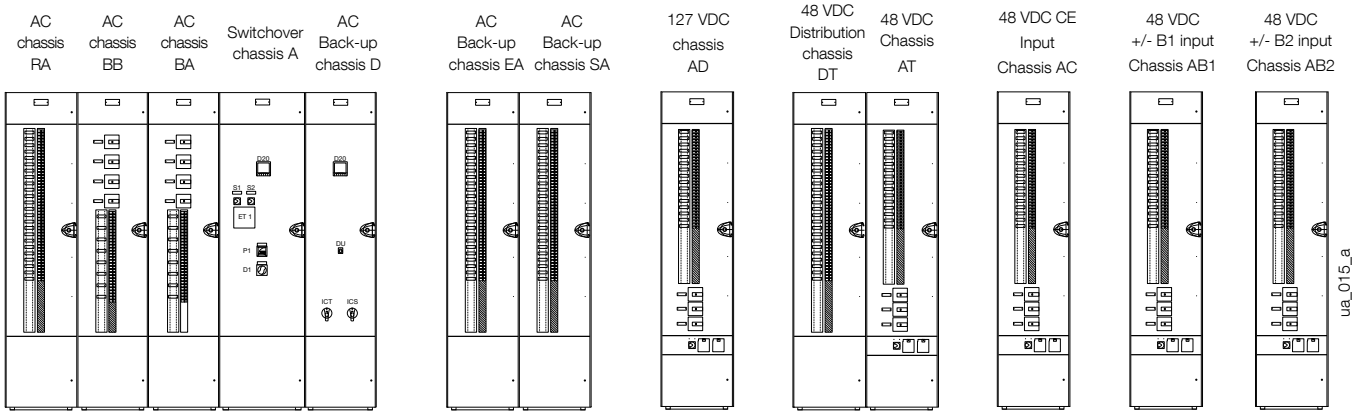
With the door closed, circuit breakers controls are accessible via the openings.

Dimensions

Individual chassis and panel architecture

Type	H (mm)	W (mm)	D (mm)
Main input chassis, 250 A / 400 A*	2250	600	357
Main input chassis, 630 A	2250	800	507
Back-up "D" input chassis	2250	500	357
Output chassis	2250	500	357

(*): Cabling Maxi 2 x 185 mm²/Phase. For larger sections, through-width 800 mm.



AUd11 panels

Auxiliary units

ua_014_a

The solution for

> HV/MV (high/medium voltage) substations

Strong points

> Manufacturer's warranty, ENEDIS agreement
> Improved safety
> Optimised use
> Easy installation
> Flexible configuration

Compliance with standards

> S736-3
> IEC 61439
> IEC 60947-2
> IEC 60947-3
> IEC 60947-6-1

Function

AUd11 panel, the latest evolution of the AU89, is an AC and DC current distribution panel (control and telecommunications) for HV/MV substations. Allowing:

- The continuity of LV power of the station's auxiliary equipment by automatic switching between 2 different sources ("AST1", "AST2").
- The distribution and protection of AC and DC equipment power supply.

It is composed of:

- 1 switchover chassis guaranteeing the safety of the power supply.
- 2 AC outputs chassis, stage 1 and stage 2, which can be regrouped into a single, dual-column chassis.
- 2 DC control outputs chassis, stage 1 and stage 2, which can be regrouped into a single, dual-column chassis.
- 1 DC Telecom output chassis.

Advantages

Manufacturer warranty

This panel meets ENEDIS specifications and is certified by the CNER (RTE). As original manufacturer, design, production and tests are IEC 61439 compliant.

Improved safety

This panel has an IP2X protection rating and its design makes it easier to lockout switching devices.

The ATYS, SOCOMEC Automatic Transfer Switch, is padlockable in position "0" with three padlocks.

Optimised use

Switching is ensured with the ATyS automatic transfer switch (see the SOCOMEC general catalogue).

Manual operation is possible in case of emergency.

MTTR (Mean Time To Repair) is reduced thanks to easily removable motor and control parts.

Easy installation

This very compact and modular solution can be configured to suit to any setup.

- Integrated IP20 distribution blocks (see the SOCOMEC general catalogue) make it easy to replace or add circuit breakers while keeping the chassis operational.
- Supplied kits enable easily chassis juxtaposition and addition.
- Copper clips and a cable anchoring system simplifies cabling.

Flexible configuration

With these scalable solutions, Socomec can adapt the solution to best suit your requirements. Do not hesitate to contact us for more information.

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General characteristics

- **"Changeover" chassis**, fitted with:
  - 1 ATYS 4x125, 400 or 630 A
  - Data on the availability of sources "AST1" and "AST2" (NC)
  - 3 current transformers
  - 1 digital indicator on the front to indicate operation (active sources, modes, U, I, F)
  - 1 red fault light for enclosure "TR"
  - 1 output protected by circuit breaker for the 175 Hz remote centralised orders (TCFM)
  - 1 "priority source selection" switch
- **Outputs chassis**, configured according to the customer's requirements,
  - 400/230 VAC stage 1
  - 400/230 VAC stage 2
  - 48 VDC Telecom
  - 48 VDC control stage 1
  - 48 VDC control stage 2

- **Chassis design**

The chassis are based on the CADRYS format.
The frame is made from 17.5/10 mm sheet steel. The sheath is made from 15/10 mm sheet steel, structured finish powder-coated polyester, colour RAL7035. 2 doors, upper and lower, each giving access to the busbars and connection terminals. A hinged central door provides access to electrical equipment.

On the output chassis, the door gives access to:
- Left side, to the connections of the circuit breakers inputs and outputs
- Right side, to the connections of the circuit breakers protected by a transparent polycarbonate screen.

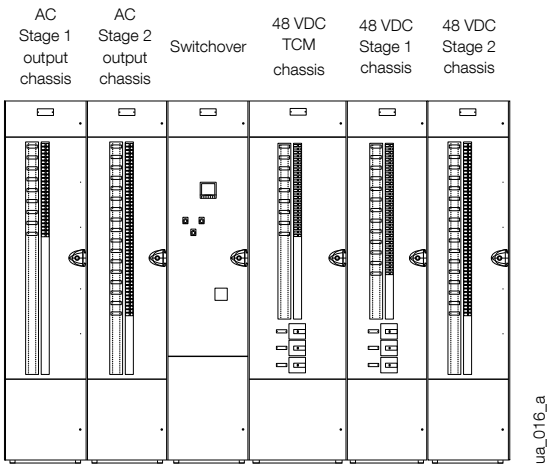
With the door closed, circuit breakers controls are accessible via the openings.

Dimensions

Individual chassis and panel architecture

Type	H (mm)	W (mm)	D (mm)
Input chassis 250 A / 400 A*	2250	600	357
Input chassis 630 A	2250	800	507
Output chassis	2250	500	357

(*): Cabling Maxi 2 x 185 mm² /Phase. For larger sections, through-width 800 mm.



Primary enclosures

Range of enclosures for auxiliary units

coff_405_a

***AR** enclosure*

The solution for

> High voltage substation

Strong points

> Easy wiring
> Weather conditions
> Turnkey enclosure
> Flexible configuration
> RTE and ENEDIS agreements

Compliance with standards

> SF705
> SF720
> HN 46-R-01
> IEC 61439
> IEC 60947-2
> IEC 60947-3
> IEC 60947-6,-1

Function

Our enclosures, installed at the output of auxiliary services transformers, are designed to:

- Protect the AC power supply to an auxiliary unit panel (TR enclosures).
- Protect the power supply to coolers from a transformer or auto-transformer of related power (TR' enclosures).
- Protect and switch to a second source of these coolers (AR or AR' enclosures).
- Protect the occasional power supply of coolers via an auxiliary source (ZR enclosures).

Advantages

Easy wiring

The careful design of this range of primary enclosures provides a functional connection of cables on the different terminals and devices. Connecting the input and output cables at the base of the enclosures is made easier with the removable polyester aluminium plates.

Weather conditions

The enclosures are MINIPOL and MAXIPOL (see the SOCOMEC general catalogue), with excellent resistance to weather conditions and UV.

Turnkey enclosures

The enclosures are delivered assembled and pre-wired. They are ready to be installed on delivery.

Flexible configuration

With these scalable solutions, Socomec can adapt the solution to best suit your requirements.
Do not hesitate to contact us for more information.

TR primary enclosures

Composition

coff_405_a

TR enclosures, designed to protect the connection between the AST (Auxiliary Services Transformer) and the auxiliary unit panel, are equipped with:

- IP43 aerator on each side of the enclosure.
- Condensate outlet device on the base section.
- Busbar and crossover grounding stud.
- 4 wall mounting brackets (supplied, not mounted).
- A power terminal block.
- Removable closing plate on the base, on request with grommet or cable gland.
- Triple-locking device on the door.
- Nameplate.

This enclosure is mounted, assembled and pre-wired.

Characteristics

Enclosure material	Fibreglass reinforced polyester Colour RAL 7035
IP	IP55 enclosure, IP43 aerator
Power supplies	400 VAC, I_n 400A or 250 A Control in 48 or 127 VDC
Max. connection cross-section	400 A: 2 x 185 mm² 250 A: 2 x 95 mm² Option to connect 3 or 4 cables Control connection: 4 mm²

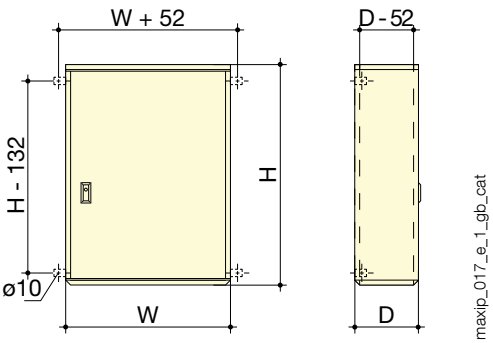
References

Description	Internal devices	Reference
TR 95 400 A enclosure – control 127 VDC	1 x 400 A load break switch with visible breaking + contact NO/NC 1 x 400 A circuit breaker with 127 VDC tripping coil + fault signalling contact 1 heating resistor protected by fuse disconnect switch	7P60 **0001**
TR 95 400 A enclosure – control 48 VDC	1 x 400 A load break switch with visible breaking + contact NO/NC 1 x 400 A circuit breaker with 48 VDC tripping coil + fault signalling contact 1 heating resistor protected by fuse disconnect switch	7P60 **0002**
TR 95 250 A enclosure – control 48 VDC	1 x 250 A load break switch with visible breaking + contact NO/NC 1 x 250 A circuit breaker with 48 VDC tripping coil + fault signalling contact 1 heating resistor protected by fuse disconnect switch	7P60 **0003**
TR 89 250 A enclosure	1 x 250 A load break switch with visible breaking + contact NO/NC 1 x 250 A circuit breaker + fault signalling contact 1 heating resistor protected by fuse disconnect switch	7P60 **0007**
TR 89 400 A enclosure	1 x 400 A load break switch with visible breaking + contact NO/NC 1 x 400 A circuit breaker + contact fault signalling 1 heating resistor protected by fuse disconnect switch	7P60 **0008**

Dimensions

Type	H (mm)	W (mm)	D (mm)	D (mm)	E (mm)	Enclosure
TR 95 400 A enclosure – control 127 VDC	1000	1000	312	-	-	MAXIPOL
TR 95 400 A enclosure – control 48 VDC						
TR 95 250 A enclosure – control 48 VDC	800	600	300	400	600	MINIPOL
TR 89 250 A enclosure						
TR 89 400 A enclosure	1000	1000	312	-	-	MAXIPOL

MAXIPOL



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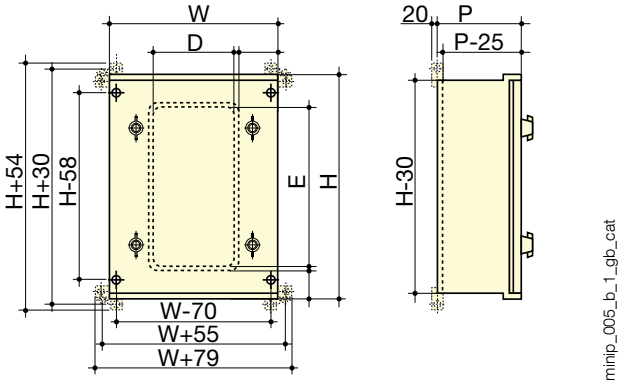
MINIPOL



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Primary enclosures

Range of enclosures for auxiliary units

TR' primary enclosures

Composition

coff_402_a

TR' enclosures, designed to protect the connection between the AST and the coolers, are equipped as standard with:

- IP43 aerator mounted on each side of the enclosure.
- Condensate outlet device on the base section.
- 4 wall mounting brackets (supplied, not mounted).
- Busbar and crossover grounding stud.
- Removable closing plate on the base, on request with grommet or or cable gland.
- Triple-locking device on the door.
- Enclosure nameplate on the door.

This enclosure is mounted, assembled and pre-wired.

Characteristics

Enclosure material	Fibreglass-reinforced polyester Colour RAL 7035
IP	IP55 enclosure, IP43 aerator
Power supplies	400 VAC, I_n 100 A
Max. connection cross-section	1 x 95 mm^2

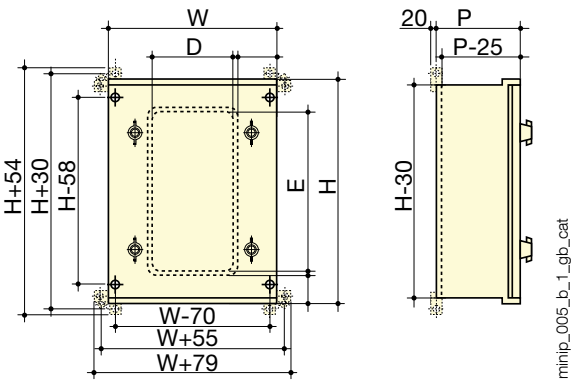
References

Description	Internal devices	Reference
TR' 100 A enclosure	1 x 160 A plug-in circuit breaker + fault signalling contact 1 heating resistor protected by fuse disconnect switch	7P60 **0009**

Dimensions

Type	H (mm)	W (mm)	D (mm)	D (mm)	E (mm)	Enclosure
TR' 100 A enclosure	800	600	300	400	600	MINIPOL

MINIPOL



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AR primary enclosures

Composition


dp_009_a

With these enclosures you can switch the air coolers power supply to a second source, either manually or automatically. They also ensure the protection of the power supply where they are installed near to (assuming the second source to be protected from elsewhere), and contain a changeover switch and a circuit breaker for this purpose.

Enclosures are equipped as standard with:

- IP43 aerator mounted on each side of the enclosure.
- Condensate outlet device on the base section.
- 4 wall mounting brackets (supplied, not mounted).
- Busbar and crossover grounding stud.
- A power terminal block.

Characteristics

Enclosure material	Fibreglass-reinforced polyester Colour RAL 7035
IP	IP55 enclosure, IP43 aerator
Power supplies	400 VAC
Max. connection gauge	1 cable 1 x 50 mm² per phase and 1 cable 1 x 25 mm² for neutral

- Removable closing plate on the base with grommet by cable entry or cable gland.
- Triple-locking device on the door.
- Enclosure nameplate on the door.

The enclosures are mounted, assembled and pre-wired.

References

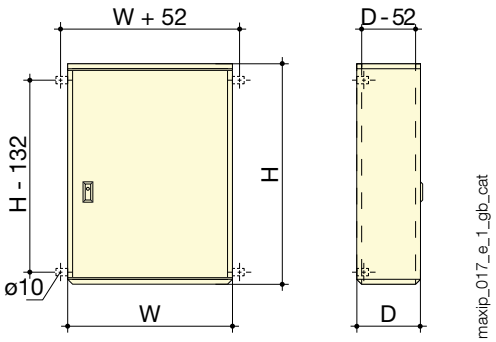
Description	Internal devices	Reference
Enclosure AR automatic	1 4 x 125 A load break switch with visible breaking, direct front operation 1 circuit breaker with 2 fault signalling contacts 1 ATyS 4 x 125 A automatic transfer switch with bottom bridging point and 2 In / 2 Out module 1 function selection switch 1 heating resistor protected by fuse disconnect switch 3 labelled terminal blocks	7P60 **0013**
AR 125 A enclosure	1 x 160 A plug-in circuit breaker + fault signalling contact 1 SIRCOVER* 125 A manual changeover switch 1 heating resistor protected by fuse disconnect switch	7P60 **0016**
AR 32A enclosure	1 x 100 A load break switch with visible breaking + contact NO/NC 1 x 32 A circuit breaker with 127 VDC tripping coil + fault signalling contact 1 heating resistor protected by fuse disconnect switch	7P60 **0015**

**see the SOCOMEC general catalogue.*
Others ratings (25, 40, 63 A…) on request.

Dimensions

Type	H (mm)	W (mm)	D (mm)	D (mm)	E (mm)	Enclosure
AR automatic enclosure	1000	750	420	-	-	MAXIPOL
AR 125 A enclosure	800	600	300			MINIPOL
AR 32A enclosure						

MAXIPOL



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Primary enclosures

Range of enclosures for auxiliary units

AR-TR primary enclosures

Composition

dp_008_a

AR-TR enclosures, a combination of AR and TR enclosures, are designed to protect the connection between the AST and the auxiliary unit panel and coolers, are equipped as standard with:

- IP43 aerator mounted on each side of the enclosure.
- Condensate outlet device on the base section
- Busbar and crossover grounding stud
- 4 wall mounting brackets (supplied, not mounted)
- A power terminal block
- Removable closing plate on the base with grommet or cable gland
- Triple-locking device on the door
- Enclosure nameplate on the door

The enclosures are mounted, assembled and pre-wired.

Characteristics

Enclosure material	Fibreglass-reinforced polyester; Colour RAL 7035
IP	IP55 enclosure, IP43 aerator
Power supplies	400 VAC
Max. connection cross-section	TR 400 A: 2 x 185 mm² 250 A: 2 x 95 mm² Option to connect 3 or 4 cables AR connection: 35 mm² Control connection: 4 mm²

References

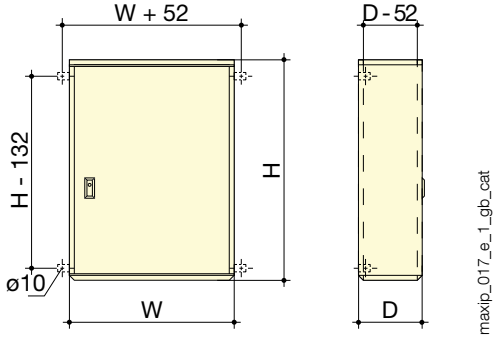
Description	Internal devices	Reference
AR-TR 89 250 A enclosure	1 x 250 A load break switch with visible breaking + fault signalling contact 1 x 250 A circuit breaker with NO/NC and fault signalling contacts 1 x 100 A load break switch with visible breaking + fault signalling contact 1 circuit breaker + contact fault signalling 1 COMO C 40A* manual changeover switch 1 heating resistor protected by fuse disconnect switch	7P60 **0017**
AR-TR 89 250 A enclosure with power outlets	Equipment identical to 7P600017, plus: 1 4 x 25 A 300 mA RCD 1 plug 2P+E P17 16 A 1 plug 3P+N+E P17 32 A	7P60 **0018**
AR-TR 95 400 A enclosure	1 x 400 A load break switch with visible breaking + fault signalling contact 1 x 400A circuit breaker with NO/NC and fault signalling contacts 1 x 100 A load break switch with visible breaking + fault signalling contact 1 circuit breaker + contact fault signalling 1 COMO C 40A* manual changeover switch 1 heating resistor protected by fuse disconnect switch	7P60 **0019**
AR-TR 95 400 A enclosure with power outlets	Equipment identical to 7P600019, plus: 1 4 x 25 A 300 mA RCD 1 plug 2P+E P17 16 A 1 plug 3P+N+E P17 32 A	7P60 **0020**

**see the SOCOMEC general catalogue.*

Dimensions

Type	H (mm)	W (mm)	D (mm)	D (mm)	E (mm)	Enclosure
AR-TR 250 A enclosures	800	600	300	400	600	MINIPOL
AR-TR 400 A enclosures	1000	750	312	-	-	MAXIPOL

MAXIPOL



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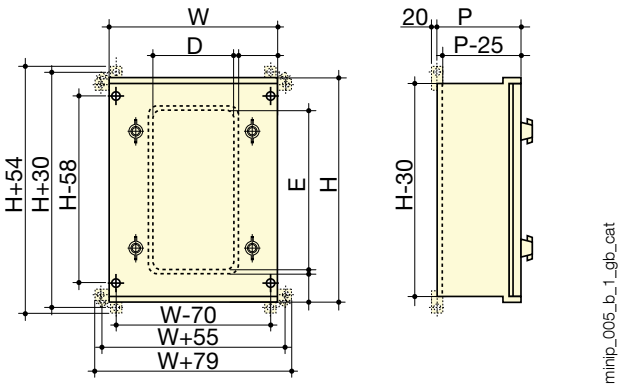
MINIPOL



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socomec Innovative Power Solutions

ZR primary enclosures

Composition


coff_402_a

ZR enclosures, designed to protect the occasional power supply of coolers via an auxiliary power source, are equipped as standard with:

- IP43 aerator mounted on each side of the enclosure.
- Condensate outlet device on the base section.
- 4 wall mounting brackets.
- Busbar and crossover grounding stud.
- 2 power terminals blocks.
- Removable closing plate on the base with grommet or cable gland.
- Triple-locking device on the door
- Enclosure nameplate on the door

The enclosures are mounted, assembled and pre-wired.

Characteristics

Enclosure material	Fibreglass-reinforced polyester Colour RAL 7035
IP	IP55 enclosure, IP43 aerator
Power supplies	400 VAC
Max. connection cross-section	2 x 120 mm² - ZR enclosure 70 mm² - TEST enclosure

References

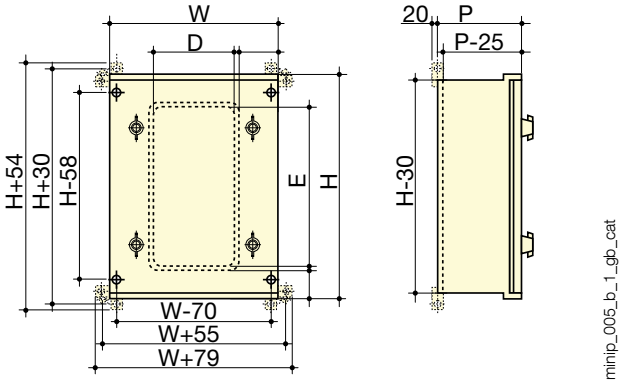
Description	Internal devices	Reference
ZR 63 A enclosure	1 x 63 A SIRCO* load break switch 1 heating resistor protected by fuse disconnect switch	7P60 **0030**
ZR 125 A enclosure	1 x 125 A SIRCO* load break switch 1 heating resistor protected by fuse disconnect switch	7P60 **0031**
Test enclosure	4 test terminals cross-section = 70 mm², width = 31 mm	7P60 **0032**

**see the SOCOMEC general catalogue*

Dimensions

Type	H (mm)	W (mm)	D (mm)	D (mm	E (mm)	Enclosure
ZR 63 A enclosure	800	600	300	400	600	MINIPOL
ZR 125 A enclosure						
Test enclosure	400	300	200			

MINIPOL



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Collecting units

Range of enclosures for HV substations

dp_011_a

3TT 3TC enclosure

The solution for

- HV/HV and HV/MV substations

Strong points

- Easy wiring
- Weather conditions
- Turnkey enclosure
- Flexible configuration

Compliance with standards

- SF705
- IEC 61439
- IEC 60269
- IEC 60947-3

Function

These enclosures are designed to regroup the intermediary connections between:

- The voltage and current measurement transformers or the tapchanger terminals of the transformer and the LV control cabinet.

Advantages

Easy wiring

The careful design of these enclosures provides a functional connection of the cables on the different terminals and devices. Connecting the input and output cables at the base of the enclosures is made easier with a removable plate, or, on request, grommet or glands.

Weather conditions

The enclosures are MINIPOL boxes (see the SOCOMEC general catalogue), with excellent resistance to weather conditions and UV.

Turnkey enclosures

The enclosures are delivered assembled and pre-wired. They are ready to be installed on delivery.

Flexible configuration

With these scalable solutions, SOCOMEC can adapt the solution to best suit your needs.

Do not hesitate to contact us for more information.

TT collecting units

Composition

coff_402_a

TT enclosures, designed to regroup and protect the circuits between the voltage transformers and the LV control cabinet, are equipped with:

- IP43 aerator mounted on each side of the enclosure.
- A condensate outlet device is mounted on the base section.
- Busbar and crossover grounding stud.
- Removable closing plate on the base.
- Enclosure nameplate on the door.

This enclosure is mounted, assembled and pre-wired.

Characteristics

Enclosure material	Fibreglass-reinforced polyester Colour RAL 7035
IP	Enclosure IP55, aerator IP43
Connecting cables	1 x 6 mm² for voltage terminals; 1 x 25 mm² for fuse disconnect switches

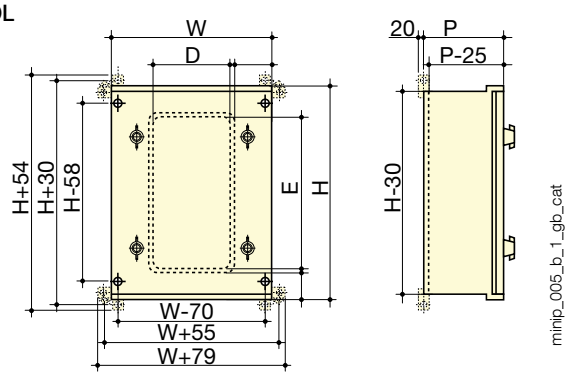
References

Description	Internal devices	Reference
1TT enclosure	1 RMSC fuse disconnect switch 1 P+N equipped with 10 A gl fuses 8 M6/8 voltage cable terminals	7P70 **0001**
2TT enclosure	2 RMSC fuse disconnect switches 1 P+N equipped with 10 A gl fuses 10 M6/8 voltage cable terminals	7P70 **0002**
3TT enclosure	1 fuse disconnect switch 3 P+N equipped with 10 A gl fuses 8 M6/8 voltage cable terminals	7P70 **0003**

Dimensions

Type	H (mm)	W (mm)	D (mm)
1TT enclosure	400	400	200
2TT enclosure	400	400	200
3TT enclosure	400	400	200

MINIPOL



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Collecting units

Range of enclosures for HV substations

3TC collecting units

Composition

coff_402_a

The 3TC enclosure, designed to regroup the connections between the current transformers and the LV control cabinet, is equipped as standard with:

- IP43 aerator mounted on each side of the enclosure.
- A condensate outlet device is mounted on the base section.
- Busbar and crossover grounding stud
- Removable closing plate on the base
- Enclosure nameplate on the door

This enclosure is mounted, assembled and pre-wired.

Characteristics

Enclosure material	Fibreglass-reinforced polyester Colour RAL 7035
IP	Enclosure IP55, aerator IP43
Connecting cables	1 x 10 mm² for "current" terminals

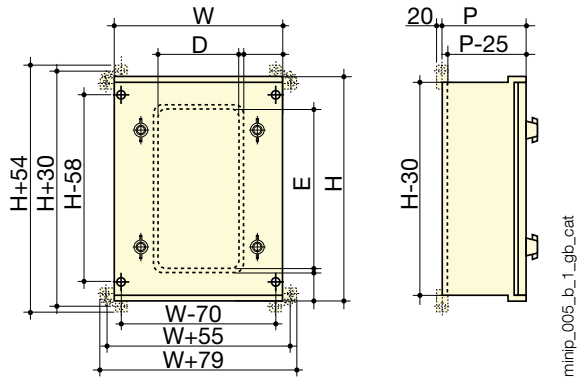
References

Description	Internal devices	Reference
3TC enclosure	14 current connection terminals with a 10 mm² rod, 16 mm pitch.	7P71 **0004**

Dimensions

Type	H (mm)	W (mm)	D (mm)
3TC enclosure	400	400	200

MINIPOL



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socomec Innovative Power Solutions

3TT-3TC collecting units

Composition


dp_011_a

The 3TT-3TC enclosure, designed to regroup and protect the circuits between the voltage and current transformers and the LV control cabinet, is equipped with:

- IP43 aerator mounted on each side of the enclosure.
- A condensate outlet device is mounted on the base section.
- Busbar and crossover grounding stud
- Removable closing plate on the base
- Enclosure nameplate on the door

This enclosure is mounted, assembled and pre-wired.

Characteristics

Enclosure material	Fibreglass-reinforced polyester Colour RAL 7035
IP	IP55 enclosure, IP43 aerator
Connecting cables	1 x 6 mm² for voltage terminals, 1 x 10 mm² for current terminals and 1 x 25 mm² for fuse disconnect switches

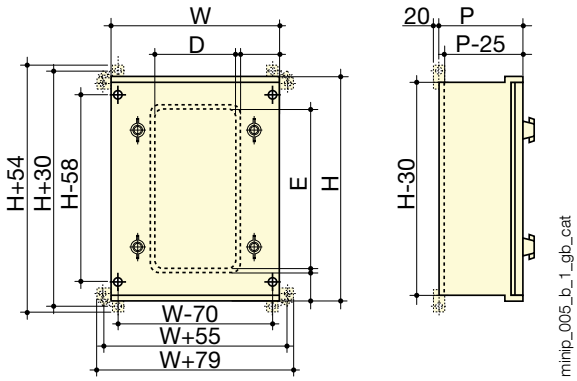
References

Description	Internal devices	Reference
3TT-3TC enclosure	1 fuse disconnect switch 3P+N equipped with 10 A gl fuses 8 M6/8 voltage cable terminals 14 current connection terminals with a 10 mm² rod, pitch of 16 mm.	7P71 **0005**

Dimensions

Type	H (mm)	W (mm)	D (mm)
3TT-3TC enclosure	800	600	300

MINIPOL



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Fuse disconnect switches on *TT* and *3TC* enclosures

Composition

The RMSC is a 3-padlock modular fuse disconnect switch equipped with additional security devices:

- A safety mechanism prevents any of the grippers from unintentional opening. The user must pass under the cradle to open the disconnector, making this action absolutely voluntary.
- A system allows the cradle lock to be padlocked when closed , making it impossible to open the gripper in the event of the cradle coming away by accident.

The switch is equipped with an auxiliary contact, which can send a signal (fuse blown, fuse presence) or have an early shut-off function.

Characteristics

Reference standards	IEC 60269-1,-2. CE compliance. Electrical features according to IEC 60947-3
Thermal current I_{th} (20 C)	50
Rated insulation voltage U_i (V AC)	690
Prospective short-circuit current (kA eff)	100
Rated impulse withstand voltage U_{imp} (kV)	8

References

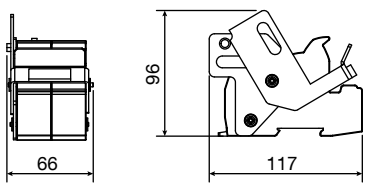
Description	Internal devices	Reference
RMSC 1P+N	50 A, single-pole + neutral fuse disconnect switches with lock cradle and auxiliary contact, for 14 x 51 cylindrical fuses	7P71 **0006**
RMSC 3P+N	50 A, 3-pole + neutral fuse disconnect switches with lock cradle and auxiliary contact, for 14 x 51 cylindrical fuses	7P71 **0007**

Characteristics

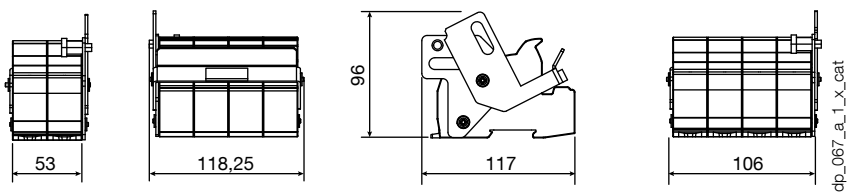
Fuse rating (A)	Copper wiring recommended (mm^2)	Max. torque (Nm)	Available current adjustment depending on the temperature	
			Temperature (°C)	K x I_n
16 … 20	2.5	3		
25	4		20	1
32	6		30	0.95
40	8		40	0.9
50	10		50	0.8
Voltage and current (rated values)	0.1 … 10 A / 250 VAC			
Voltage and current (min operating values)	1 mA / 4 VDC			
Temperature	-20 … + 125 °C			

Dimensions

1 P + N



3 P + N



Collecting units *J* and *H*

Composition

coff_402_a

J and H enclosures, designed to regroup the intermediate connection between the power transformer (J) or the auto-transformer (H) and the LV control cabinet, are equipped as standard with:

- IP43 aerator mounted on each side of the enclosure.
- A condensate outlet device is mounted on the base section.
- Busbar and crossover grounding stud
- Removable closing plate on the base
- Enclosure nameplate on the door

This enclosure is mounted, assembled and pre-wired.

Characteristics

Enclosure material	Fibreglass-reinforced polyester Colour RAL 7035
IP	IP55 enclosure, IP43 aerator
Connecting cables	1 x 6 mm² for voltage terminals and 1 x 10 mm² for current terminals

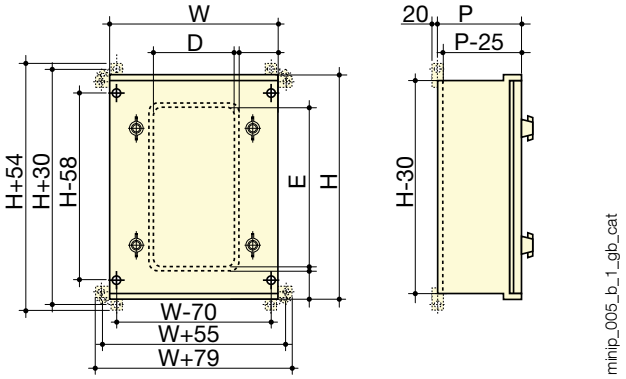
References

Description	Internal devices	Reference
Enclosure J	60 M6/8 voltage cable terminals 6 current connection terminals with a 10 mm² rod, pitch of 16 mm	7P70 **0006**
Enclosure H	15 M6/8 voltage cable terminals 11 current connection terminals with a 10 mm² rod, pitch of 16 mm	7P70 **0007**

Dimensions

Type	H (mm)	W (mm)	D (mm)
Enclosure type J	800	600	300
Enclosure type H	400	400	200

MINIPOL



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LVDE enclosures

Lockable voltage divider enclosures

coff_521_a.eps

coff_520_a.eps

The solution for

> High voltage substation

Strong points

> Easy wiring
> Improved safety
> Weather conditions
> Turnkey enclosures
> RTE agreements

Compliance with standards

> SF705
> SF725
> IEC 61439
> IEC 60947-4

Function

The **LVDE enclosures** allow the breaking of measurement circuits downstream of the voltage reducers installed on the HV feeders.

The breaking function is ensured by a closing contactor, the purpose of which is to:

- cut-off the 3 line conductors downstream of the S1 terminals of the voltage dividers,
- bridge the 3 conductors downstream of the S2 terminals at their entry to the enclosure.

Advantages

Easy wiring

The careful design of these enclosures provides a functional connection of the cables on the different terminals. Connecting the input and output cables at the base of the enclosures is made easier with the removable stainless steel plates.

Improved safety

The enclosures are equipped with a manual locking and unlocking system with a pushbutton switch. IP2X protection ensures that no contact with bare live parts is possible inside the enclosure.

Weather conditions

SOCOMEC voltage divider enclosures are made of 2 mm thick stainless steel with excellent resistance both to harsh weather conditions and to UV rays.

Turnkey enclosures

The enclosures are delivered assembled and pre-wired. They are ready to be installed on delivery.

Composition

LVDE enclosures are equipped as standard with:

- Opaque hinge-mounted door
- Butterfly latch, keyless
- 4 wall mounting brackets, factory-fitted
- A contactor locking and unlocking system with pushbutton switch.
- IP43 ventilator mounted on each side of the enclosure.
- A heating resistor fitted at the base and a thermostat.
- A connecting terminal board with sufficient space for the cables entering from below.
- A through-hole earth connection on the outside of the enclosure and a perforated earth bar.
- A triple door-locking system.
- Enclosure nameplate on the door

Characteristics

Enclosure material	Stainless steel 2 mm thick
Colour	RAL 7032
IP	IP 43
Impact resistance	IK10
Power supply	48 and 125 V DC

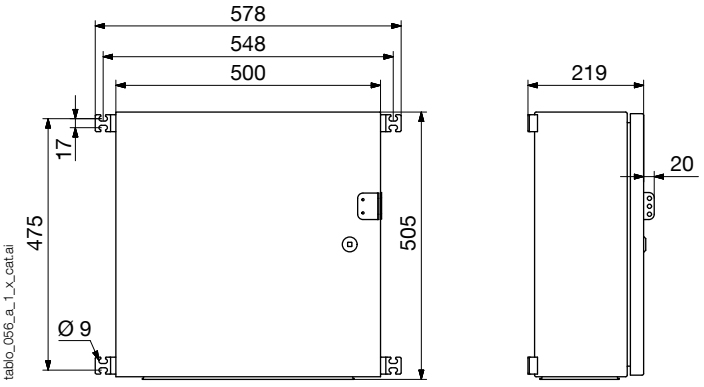
References

Description	Internal devices	Part number
125 V DC LVDE enclosure	1 coil closing contactor 125 V DC 1 time relay 125 V DC 2 Locking/Unlocking pushbuttons	7P70 **0203**
48 V DC LVDE enclosure	1 coil closing contactor 48 V DC 1 time relay 48 V DC 2 Locking/Unlocking pushbuttons 1 heating resistor	7P70 **0213**

**see the SOCOMEC general catalogue*

Dimensions

Type	H (mm)	W (mm)	D (mm)
125 V DC LVDE enclosure	500	500	200
48 V DC LVDE enclosure			



RB enclosures

Battery enclosure for relay buildings (RB)

RB *(relay building) enclosure*
2 switches

The solution for

> High voltage substation

Strong points

> IP2X enclosure
> Easy wiring
> Weather conditions
> Turnkey enclosure

Compliance with standards

> SF705
> SF728
> IEC 61439
> IEC 60947-2

Function

The **RB** battery enclosure is placed between the battery and the distribution enclosure of the RBs. With it, you can disconnect the battery and connect a back-up battery.

It is usually installed in the RB relay building.

This enclosure allows power to be supplied to the bottom distribution cabinet:

- Either from the permanent battery through a two-pole fully visualised breaking switch.
- Or from a provisional battery or "buffer battery", protected by two crossed bushings.

Advantages

IP2X enclosure

The RB battery enclosure avoids any contact with live bare conducting parts and eliminates risk of short-circuits between the +/- polarities inside the enclosure. Transparent isolating screens isolate the barrel of each bushing and the switch is equipped with terminal shrouds both top and bottom.

Easy wiring

The internal connection is done on a specific terminal. Buffer (back-up) batteries are connected externally by 2 quick-fit plugs under a pivoting cover.

Weather conditions

This enclosure is a MINIPOL box (see the SOCOMEC general catalogue), with excellent resistance to weather conditions and UV.

Turnkey enclosure

The enclosures are delivered assembled and pre-wired. They are ready to be installed on delivery.

Composition

Enclosures are equipped as standard with:

- Opaque hinge-mounted door.
- Butterfly latch, keyless.
- 4 wall mounting brackets (supplied, not mounted).
- Terminal rods with caps for connecting 35 mm² cables.
- 2 x 10mm diameter plugs with outer protective cover with hinge springs.
- 4 Iso PVC cable glands, 20mm-diameter (5 if auxiliary contacts).
- Enclosure nameplate on the door.

This enclosure is mounted, assembled and pre-wired.

Characteristics

Enclosure material	Fibreglass-reinforced polyester Colour RAL 7035
IP	IP55
Power supplies	DC control circuits, 48 V rated voltage Maximum conditions of service: - steady-state current: 18 A - peak current: 72 A / 1 s
External wiring	1-pole cable, 25mm²

References

Description	Internal devices	Reference
Battery enclosure with 2 switches	2 SIRCO M* 3 x 80 A load break switches with terminal shroud, direct padlockable handle	7P60 **0042**
Option: 2 auxiliary contacts, type NC	2 NC aux. contacts on switch on 4 terminals	7P60 **0041**

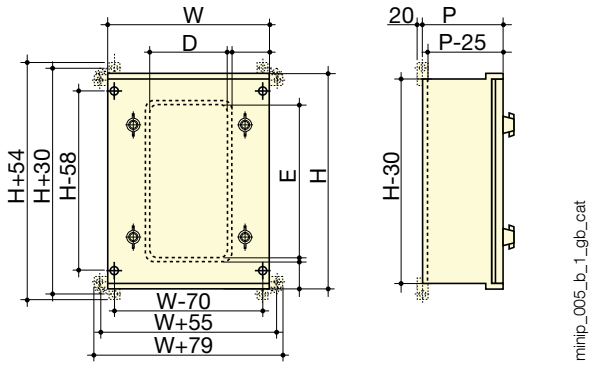
**see the SOCOMEC general catalogue.*

Dimensions

Type	H (mm)	W (mm)	D (mm)	D (mm)	E (mm)
Battery enclosure with 2 SIRCO M * 3 x 80 A switches	400	300	200	400	600

**see the SOCOMEC general catalogue.*

MINIPOL



DE enclosures

Distribution enclosures

The solution for

> High voltage substation

Strong points

> Easy wiring
> Improved safety
> Turnkey enclosures
> RTE agreements

Compliance with standards

> SF714
> IEC 61439
> IEC 60947-2

Function

The **DE enclosures** allow the distribution of DC voltage for auxiliary supply of the control equipment installed in substation relay buildings (RB).
The distribution busbar is supplied either by a Rectifier source or by a Battery source.

Advantages

Easy wiring
The careful design of these enclosures provides a functional connection of the cables on the different terminals. Connecting the input and output cables at the base of the enclosures is made easier with the pre-perforated rubber cable glands.

Improved safety
Connecting the power supplies to the terminal boards is done without security restrictions (live working at low volatges). The distribution of the polarities to the circuit breakers is protected against short circuits. The degree of protection IP2X ensures that no contact with the bare live parts is possible inside the enclosure.

Turnkey enclosures
The enclosures are delivered assembled and pre-wired. They are ready to be installed on delivery.

Composition

DE enclosures are equipped as standard with:

- An opaque front plate, not hinge-mounted.
- 4 wall mounting brackets, factory-fitted.
- Earthing stud.
- Distribution comb 2 x 100 A and its fitting.
- A connecting terminal board with sufficient space for the cables entering from above.
- Some circuit breaker outputs fitted on a resistor polarity to limit the effects of short-circuit currents (according to RTE).
- Enclosure nameplate on the door

Characteristics

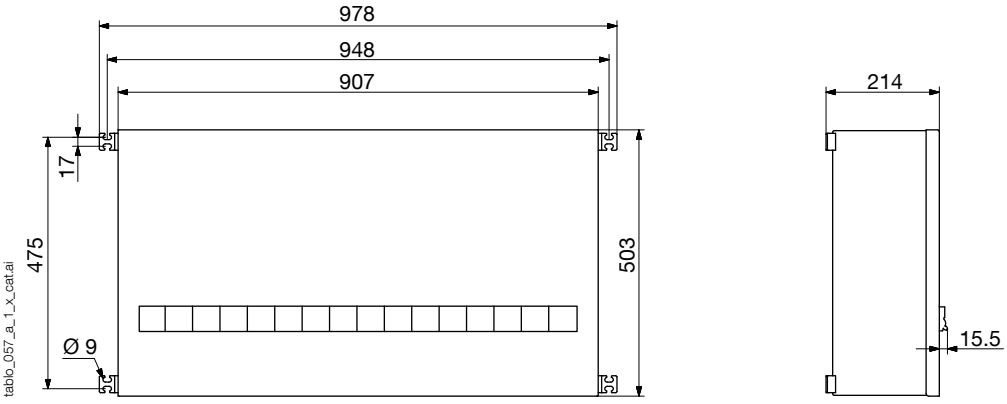
Enclosure material	Sheet metal
Colour	RAL 7035
IP	IP 2X
Power supply	48 V DC

References

Description	Internal devices	Part number
Enclosure DE2 D	1 input circuit breaker (2 poles) 32 A curve B + SD contact 6 output circuit breakers 6 A curve C 3 output circuit breakers 10 A curve B 2 output circuit breakers 3 A curve Z	Please ask us for information
Enclosure DE4 D	1 input circuit breaker (2 poles) 32 A curve B + SD contact 9 output circuit breakers 6 A curve C 2 output circuit breakers 10 A curve B 2 output circuit breakers 3 A curve Z 2 output circuit breakers 6 A curve B	Please ask us for information
Enclosure DE2 E	1 input circuit breaker (2 poles) 32 A curve B + SD contact 9 output circuit breakers 6 A curve C 6 output circuit breakers 10 A curve B 2 output circuit breakers 3 A curve Z	Please ask us for information
Enclosure DE4 E	1 input circuit breaker (2 poles) 32 A curve B + SD contact 13 output circuit breakers 6 A curve C 4 output circuit breakers 10 A curve B 2 output circuit breakers 3 A curve Z 2 output circuit breakers 6 A curve B	Please ask us for information

Dimensions

Type	H (mm)	W (mm)	D (mm)
Enclosure DE2 D	900	500	200
Enclosure DE4 D			
Enclosure DE2 E			
Enclosure DE4 E			



Presence indicator units

Enclosures for HV substations

The solution for

> High voltage substation

Strong points

> Easy to install
> Weather conditions
> Turnkey enclosure
> Flexible configuration
> ENEDIS & RTE agreement

Compliance with standards

> SF705
> DTP 871.2
> CEI 61439
> CEI 60947-3

Function

The **presence indicator unit** alerts operators and technical staff to the presence of operative personnel carrying out work inside a substation.

Its other functions are:

- Flashing orange light indicating the start-up of the presence station.
- The lighting control for station access.
- Connection for emergency stop “warning” alarm.
- Telephone equipment.
- Indicator/controls for a second operative.

Advantages

Easy to install

This enclosure has the benefit of two mounting options. The wall mount is supplied as standard but there is an optional stainless steel base.

Weather conditions

The presence indicator enclosure is MINIPOL-type enclosure (see the SOCOMEC general catalogue).
This enclosure has excellent resistance to weather conditions and UV.

Turnkey enclosure

The enclosures are delivered assembled and pre-wired. They are ready to be installed on delivery.

Flexible configuration

SOCOMEC can adapt the solution to best suit your requirements.

Do not hesitate to contact us for more information.

Composition

Enclosures are equipped as standard with:

- Transparent hinge-mounted door.
- Butterfly latch, keyless.
- IP43 aerator mounted on each side of the enclosure.
- A condensate outlet device is mounted on the base section.
- 4 wall mounting brackets, mounted.
- Busbar and crossover grounding stud.
- Removable aluminium closing plate on the base (if wall-mounted).
- A name plate for the enclosure.

This enclosure is mounted, assembled and pre-wired.

Characteristics

Enclosure material	Fibreglass-reinforced polyester Colour RAL 7035
IP	IP65 and IP43 for aerator
IK	IK10

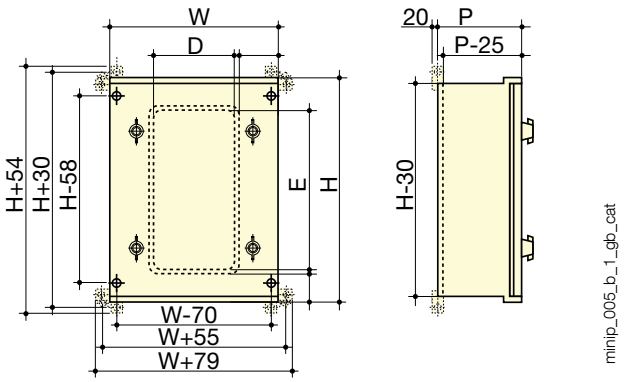
References

Description	Internal devices	Reference
Polyester presence indicator unit	Inside steel door equipped with auxiliaries such as push-button “access lighting”, presence indication switch, telephone handset or any other auxiliary equipment; 1 internal lighting operated by door contact; 1 flash lamp mounted on the roof; 1 connection terminal block; Heating resistor; Telephone jack	7P60 **0060**
Stainless steel with emergency stop and earthing clamp		7P60 **0062**

Dimensions

Type	H (mm)	W (mm)	D (mm)
Polyester proximity and presence indicator enclosure	500	400	200
Stainless steel with emergency stop and earthing clamp	1250 mm in height Other dimensions available		

MINIPOL



Current transformer shorting device

dp_002_a

The solution for

> High voltage substation

Strong points

> Improved safety
> Easy to install
> Easy wiring
> Turnkey solution

Compliance with standards

> EDF-CERT D6100-06-76-86/23a
> HN 46-R-01
> IEC 60947-3

Function

This device ensures:

- The protection of persons working within the HV measuring circuits
- The protection of the HV systems

Within the measuring circuits, this device provides the short-circuiting of CT secondary circuits, thus ensuring the protection of operative personnel. This operation is required before any servicing work or opening of circuits if the primaries are live.

In protection circuits, the short-circuiting device protects HV installations by preventing potential increases in voltage from induction by fixing the common point to the earth potential.

Advantages

Improved safety

The short-circuiting device is made from a 4-pole SIDER visible load break switch (see the SOCOMEC general catalogue), mounted in an isolating housing with a transparent cover. The operator can see the device's operating status before any servicing work or during preventive checks. The positions "SHORT-CIRCUIT CURRENT" (position I, switch off) and "NO SHORT-CIRCUIT CURRENT" (position 0, switch on) are marked on the external side-operation plate. An auxiliary NO+NC contact can signal the switch's position, used for a control circuit.

Easy to install

The CT short-circuiting device is easy to install with its threaded rods, included on the plate. It can be mounted onto the plate itself, in a panel or on a chassis.

Easy wiring

The connection is carried out by integrated bolts (intended for one or multiple 6 mm^2 cables with lugs), and by 6.35 mm Faston connectors for the auxiliary contact. A clear, to-scale diagram is screen-printed on the transparent cap, to make it easy to identify terminals and positions.

Turnkey solution

The short-circuiting devices are delivered assembled. They are ready to be installed on delivery.

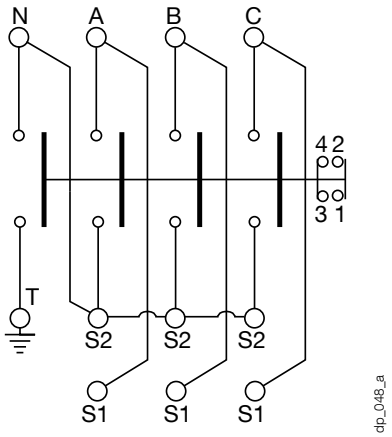
References

Rating (A)	Reference
80 A	2935 **0001**

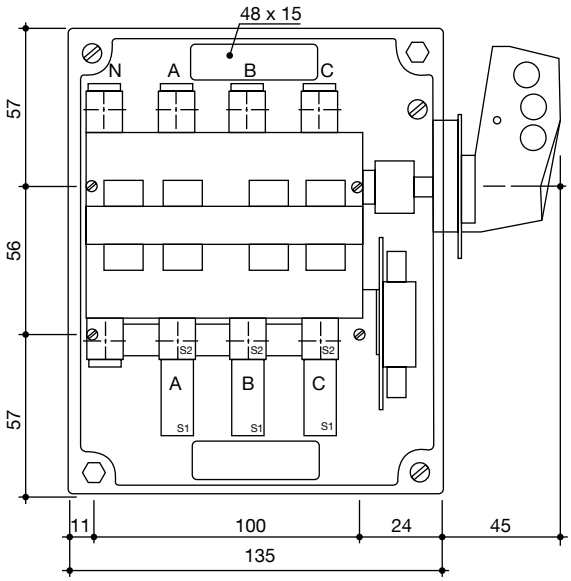
Characteristics

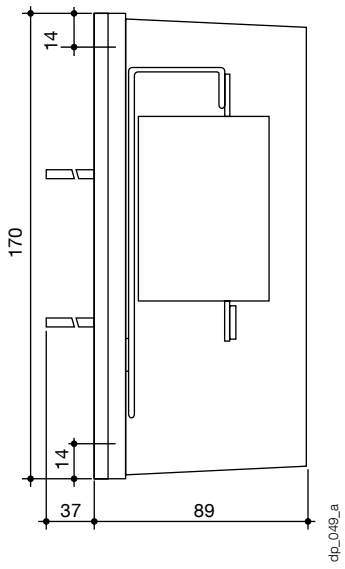
Nominal current	80 A
Rated short-time withstand current (kA peak)	12
Rated short-time withstand current 1s I_{cw} (kA rms)	2.5
Rated short circuit making capacity (kA peak)	4.5
Number of electrical operations	2500 power factor = 0.7 / 200 power factor = 0.35
Number of mechanical operations	20000
Aux. contacts' breaking capacity	16 A – 250 VAC – power factor = 0.4
Global resistance of one pole (± 10%)	3.75.10-4 Ω
Pole discrepancy (snap opening and closing)	T < 2.5 ms

Electrical diagram



Dimensions





Electrical shunting cabinets

High voltage substation cabinets

The solution for

> HV/MV substatios

Strong points

> Easy wiring
> Improved safety
> Weather conditions

Compliance with standards

> IEC 61439
> IEC 60947-2
> IEC 60947-3

Function

The **electrical shunting cabinets** allow each circuit to be individually insulated, as part of an injection of a 175Hz audio frequency ripple control current on several circuits. This operation can be achieved thanks to fuse holders and neutral links.

Advantages

Easy wiring

The careful design of these cabinets provides a functional connection of the cables on the different palms and on the busbar. Connecting the input and output cables at the base of the cabinet is made easier via access to the socket outlet. Wall or floor mounting.

Improved safety

All the appliances are accessible without disassembly and have IP2X protection thanks to the use of transparent polycarbonate screens.

Turnkey enclosures

The enclosures are delivered assembled and pre-wired. They are ready to be installed on delivery.

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Innovative Power Solutions

Composition

The electrical shunting cabinets are equipped as standard with:

- 2 opaque hinge-mounted doors at front and rear.
- A system for stopping and closing the doors.
- Three-pole main busbar.
- Single row of 3 fuse holders per feeder (1 per phase).
- Second row (or double row) for the earthing of each phase.
- Neutral links mounted on fuse holders.
- A heating resistor fitted at the base.
- ISO PVC 40 cable glands.
- Enclosure nameplate on the door

Characteristics

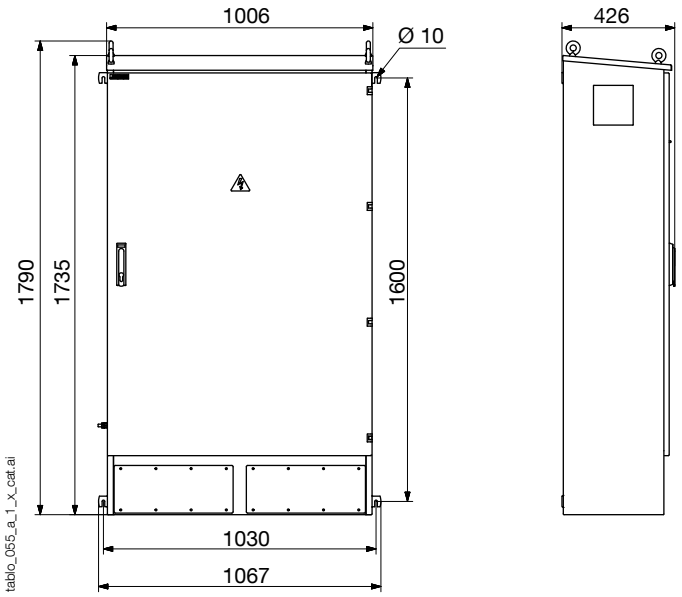
Enclosure material	Stainless steel
Colour	RAL 7035
IP	IP 54
Impact resistance	IK10
Power supply	1000 V CA
Connection	max 2 x 300 mm² for inputs and outputs

References

Row of fuse holders	N° of feeders	N° of fuse holders	Part number
Single	2	6	Please ask us for information
	3	9	Please ask us for information
	4	12	Please ask us for information
Double (feeders can be earthed)	2	12	Please ask us for information
	3	18	Please ask us for information
	4	24	Please ask us for information

Dimensions

Type	N° of feeders	H (mm)	W (mm)	D (mm)
Single	2	1800	1000	400
	3			
	4			
Double	2	1900	1400	450
	3			
	4			



SHARYS IP

Rugged, reliable DC power solution

24/48/108/120 V from 15 to 200 A

SHARYS IP Enclosure

SHARYS IP System

The solution for

- Process industry
- Switchgear tripping
- Signalling
- Alarms systems
- Automatisms (PLC, relays, etc)

Certifications

All SHARYS IP (SH-IP) series rectifiers are certified by TÜV SÜD with regard to product safety (EN 61204-7 and EN 60950-1).

The SHARYS IP series have been designed with the objective of reliable DC supply.

Ideally suited for industrial applications, SHARYS IP combines telecom features like modularity, hot swap module replacements, redundancy N+1 and scalability along with a robustly designed frame creating an innovative mix.

Flexible design and a wide range of customization possibilities complete the package and enable the use of SHARYS IP in a wide range of situations.

Upgradeability

- Expandable according to future requirements by adding additional rectifier modules.

Reliability and robustness

- Robust steel frame.
- Degree of protection IP30(1).
- PCB tropicalisation as standard.
- Microprocessor control.
- Intelligent rectifier cooling.
- Battery safe thanks to the end of discharge protection (option).
- Limited thermal stress and longer life of the components.

Total Costs of Ownership (TCO)

- High efficiency up to 93%: low energy consumption, low heat dissipation.
- Sinusoidal current absorption with power factor close to one: low conductor heat dissipation and no plant oversize.
- Easy to install.
- Reduced maintenance costs.
- Process continuity with hot-swap capabilities (replacement of modules without any power interruption).

Easy, user-friendly operation

- Front mimic panel with clear working status indication.
- Digital control and monitoring of the rectifier modules.
- Adapted to be used with different types of battery technologies.
- Wide choice of communication interfaces: Dry contact, MODBUS RTU, SNMP (with NET VISION option).

(1) Contact us for power extension or customization needs

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Technical data

	SHARYS IP - Rectifier Module					
Model	24 V 50 A	48 V 15 A	48 V 30 A	48 V 50 A	108 V 20 A	120 V 20 A
INPUT						
Rated voltage	230 V 1ph + N					
Voltage tolerance	±20% @ 100% I_n up to -50% @ 40% I_n					
Frequency	47.5 … 63 Hz					
Power factor	≥ 0.99	≥ 0.98	≥ 0.99	≥ 0.99	≥ 0.99	≥ 0.99
Absorbed current distortion	complies with standard EN 61000-3-2					
Inrush current on insertion	limited by precharge circuit					
OUTPUT						
Rated voltage	24 V	48 V			108 V	120 V
Voltage regulation(1)	21-29 V	42-58 V			95-131 V	105-145 V
Static behaviour V_o	≤ 1%					
Rated current	50 A	15 A	30 A	50 A	20 A	20 A
Permanent current overload with constant power	105% of rated currrent					
Residual ripple (with I_o ≥ 10%)	AC < 50 mV, PP < 100 mV					
Current imbalance in parallel operation	≤ 0,05 I_o					
Dynamic behaviour on load variation (ΔI_o = 50% I_o in the range 10-100% I_o)	$\Delta V_o \leq 4\%$					
EFFICIENCY						
Typical	90%	90%	91%	92%	93%	93%
ISOLATION						
Input/output dielectric rigidity	3 kV (50 Hz for 60 s)					
ENVIRONMENT						
Operating ambient temperature	-5 … 45 °C without derating, up to 55 °C with power derating					
Relative humidity	10% to 90%					
Cooling	Forced with intelligent fan speed control					
CONNECTIONS						
Connections	Plug in + locking screw					
RECTIFIER ENCLOSURE						
Degree of protection	IP20					
Colours	RAL 7012					
STANDARDS						
Safety	IEC/EN 61204-7					
EMC	EN 61204-3, EN 61000-6-4, EN 61000-6-2					
Performance	IEC/EN 61204					
Resistance to vibrations	ASTM D999					
Resistance to falls	ASTM D5276					

Standard electrical features

- Polarity insulated or grounded.
- Internal battery protection.
- Fitting for output DC distribution.
- Battery temperature sensor.
- PCB tropicalization.
- IP30 steel cabinet.
- Pallet truck friendly base.

Electrical options

- BLVD battery low voltage disconnector.
- Output distribution.
- Double AC power supply.
- Double string battery protection.
- Emergency Power Off (EPO).
- Power Share.
- Coupling kit.
- Earth leakage control.
- Input surge suppressors.
- Battery cabinet.
- Enhanced protection degree.

Standard communication features

- Dry contact interface.
- SHARYS PLUS, advanced digital controller(1).
- MODBUS RTU(1).
- 2 slots for communication options(1).

Communication options

- NET VISION for DC systems: professional WEB/SNMP interface for DC system monitoring and shutdown management of several operating systems (1).

(1) System only

	SHARYS IP - Enclosures and Systems																			
Model	ENCLOSURE ED						ENCLOSURE EX						SYSTEM IS				SYSTEM IX			
INPUT																				
Rated voltage	230 V 1ph + N						400 V 2ph						230 V 1ph + N, 400 V 3ph + N				400 V 3ph			
Voltage tolerance	± 20% @ 100% P_n up to a -50% @ 40% P_n																			
Frequency	from 47.5 to 63 Hz																			
Input transformer	-						included in standard						-				included in standard			
OUTPUT																				
Rated voltage (V)	24	48			108	120	24	48			108	120	24	48	108	120	24	48	108	120
Rated current (A)	100	30	60	100	40		100	30	60	100	40		200	200	80	80	150	150	60	60
Maximum power (kW)	2.4	1.4	2.9	4.8	4.3	4.8	2.4	1.4	2.9	4.8	4.3	4.8	4.8	9.6	8.6	9.6	3.6	7.2	6.5	14.4
Max number of rectifier	2 modules						2 modules						4 modules				3 modules			
Voltage regulation(1) (V)	21-29	42-58			95-131	105-145	21-29	42-58			95-131	105-145	21-29	42-58	95-131	105-145	21-29	42-58	95-131	105-145
Voltage ripple	50mVrms 100mVpp																			
RECTIFIER CABINET																				
Dimensions W x D x H(2)	600 x 535 x (894 to 1254) mm												600 x 600 x 1925 mm							
Weight(3)	60 to 75 kg												245 kg				305 kg			
Degree of protection	IP30																			
Colours	RAL 7012																			

(1) Output voltage variation depends on the recharging voltage and on the end of the discharging voltage settings (typically 1.13 Vn with mains present and battery charged, 0.90 Vn when batteries are completely discharged). - (2) Height depends on accessories and backup time. - (3) Without batteries.

SHARYS IP

Rectifiers

24/48/108/120 V from 15 to 200 A

Rectifier module

SHARYS RECTIFIER modules use double conversion switching technology. The combination of SMD technology, of digital microprocessor control and of IGBT components result in a highly reliable and efficient rectifier.

- Plug-in "hot-swap".
- Microprocessor control with CAN-BUS protocol communication.
- Parallel connection with active load sharing and selective disconnection of a faulty module.
- PCB conformal coating (tropicalization) as standard.

	24 V DC	48 V DC	108 V DC	120 V DC
15 A	-	SH-IP-048015	-	-
20 A	-	-	SH-IP-108020	SH-IP-120020
30 A	-	SH-IP-048030	-	-
50 A	SH-IP-024050	SH-IP-048050	-	-

Enclosure

Flexible modular design DC power supply system.

Can include 2 rectifier modules max, suitable for full power application or redundant solution.

Useful in all most common low-medium power applications such as switchgear tripping equipment.

ED - Max 2 rectifier modules, redundancy 1+1 or full power

	24 V DC	48 V DC	108 V DC	120 V DC
30 A	-	ED048I030	-	-
40 A	-	-	ED108I040	ED120I040
60 A	-	ED048I060	-	-
100 A	ED024I100	ED048I100	-	-

EX - Max 2 rectifier modules, redundancy 1+1 or full power, integrated input transformer

	24 V DC	48 V DC	108 V DC	120 V DC
30 A	-	EX048I030	-	-
40 A	-	-	EX108I040	EX120I040
60 A	-	EX048I060	-	-
100 A	EX024I100	EX048I100	-	-

System

Complete DC power supply system

This can include up to 4 rectifier modules(1), suitable for N+1 redundant solution.

Useful in medium power applications such as automatic control equipment (PLC, relays, etc.) and process supply.

Thanks to the advanced controller SHARYS PLUS, it is indicated when extended communication possibilities and full setting flexibility are required.

(1) Contact us for power extension or customization

IS - Max 4 rectifier modules, redundancy N+1

	24 V DC	48 V DC	108 V DC	120 V DC
80 A	-	-	IS108I080	IS120I080
200 A	IS024I200	IS048I200	-	-

IX - Max 3 rectifier modules, redundancy N+1, integrated input transformer

	24 V DC	48 V DC	108 V DC	120 V DC
60 A	-	-	IX108I060	IX120I060
150 A	IX024I150	IX048I150	-	-

SHARYS PLUS control module(1)

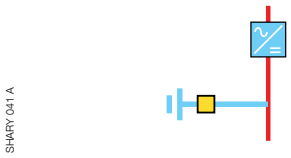
The SHARYS PLUS advanced control and monitoring module is included as standard on all SHARYS IP SYSTEMS. A 32-digit LCD display provides easy and fast access to all information parameter settings.

- Microprocessor control with CAN-BUS protocol communication and RS232/485 port for external communication.
- Additional easy frontal LEDs indications.
- Plug-in "hot swap" solution, easy to replace.

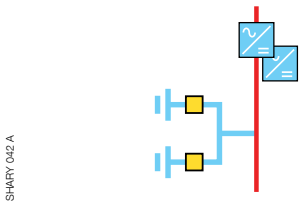
(1) System only.

Typical configurations

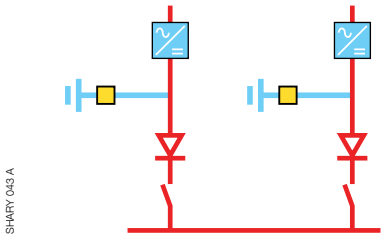
Single



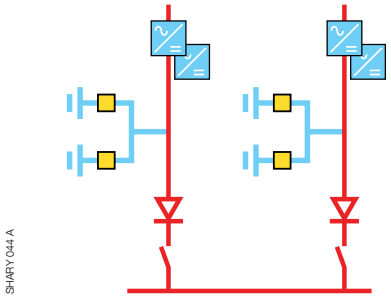
Redundant N+1



Full redundant 1+1



Extended full redundant



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Full battery compatibility

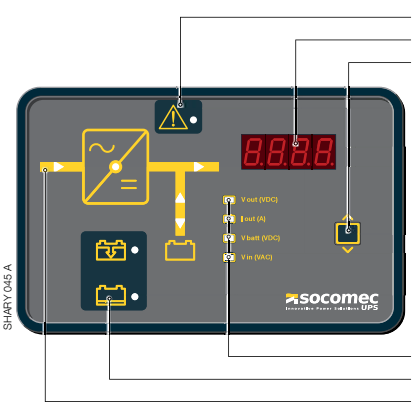
SHARYS IP design is compatible with different battery technologies(1) such as:

- Valve Regulated Lead Acid (VRLA),
- Open Vented Lead Acid,
- Nichel Cadmium.

(1) Please check the compatibility with load supply voltages.

APPLI 146 A

Mimic panel



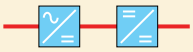
SHARY 045 A

1. Fault alarm
2. Display
3. Status LED
4. Selection button
5. Battery discharge status
6. Power flow indication

Product highlights

APPLI 496 A

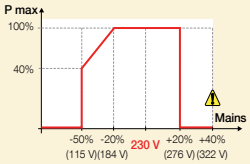
Double conversion IGBT based topology



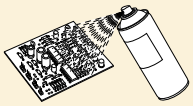
Unitary input power factor (PF >0.99) and low input THDI

Hot swappable wireless modules with selective disconnection

Wide Input Voltage and frequency range. Protection against permanent input overvoltages (up to +40%) and against surges



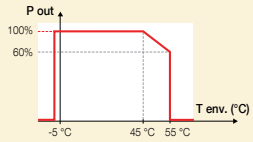
PCB tropicalization



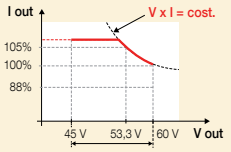
Built-in input output galvanic isolation

Digital microprocessor control and regulation SMD technology

Wide temperature and environment range up to +55 °C ambient temperature

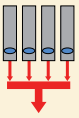


Constant output power

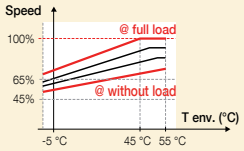


Can bus communication between modules

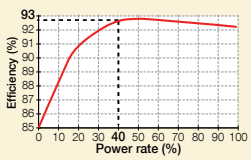
Active load sharing among modules



Speed controlled forced air cooling (temperature-load) Automatic self-test fan failure detection



Optimized efficiency design point



MASTERYS IP+

Robust, highly reliable protection for harsh environments from 10 to 80 kVA

The solution for

- Industrial processes
- Services
- Medical

Certifications

The ***MASTERYS IP+*** series is certified by TÜV SÜD with regard to product safety (EN 62040-1).

Advantages

AVAILABLE IP52 MODELS

Designed for the most demanding applications

- Designed to protect industrial processes.
- A compact solution with isolation transformer and integrated batteries.
- Robust enclosure (2 mm thick heavy steel structure).
- Floor anchoring (to prevent tilting).
- Standard IP31 protection degree.
- Dust and water splash resistant enclosure (IP52) with easy replaceable dust filters (option).
- Operation at temperature up to 50 °C.
- Wide input voltage tolerance from -40 % up to +20 % of nominal voltage.
- Double EMC immunity compared to UPS international standard IEC 62040-2.
- Double overvoltage protection.

Process continuity

- Frontal access for input/output cabling, spares replacement and preventative maintenance.
- Scalable power and high availability (using redundancy), with the facility to parallel up to 6 units.

Easy integration into industrial networks

- Input power factor > 0.99 and input current harmonic distortion < 3% thanks to IGBT rectifier.
- Compatible with Open Vented Lead Acid, Valve Regulated Lead Acid (VRLA) and Nickel Cadmium batteries.
- User-friendly multilingual interface with graphic display.
- Flexible communication boards for every industrial communication need: dry contacts, MODBUS, PROFIBUS, etc.
- Fully compatible with generator sets.
- K-rated galvanic isolation transformer embedded.
- Adaptation to typical industrial voltages (input and output).

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For industrial loads

- 100 % non-linear loads.
- 100 % unbalanced loads.
- 100 % "6-pulse" loads (motor speed drivers, welding equipment, power supplies…).
- Motors, lamps, capacitive loads.

Standard electrical features

- Dual input mains.
- Internal maintenance bypass.
- Backfeed protection: detection circuit.
- EBS (Expert Battery System) for battery management.

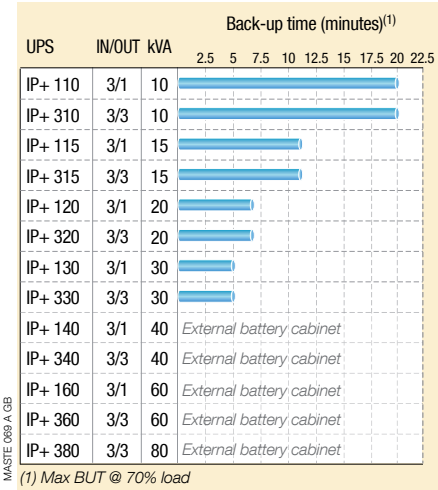
Energy storage option: ultracapacitor

Ultracapacitor could be a suitable battery replacement in special situations where a long back-up time is not required. This solution is targeted specifically to ride-through frequent voltage dips and short power outages, or simply bridge the startup of a generator, or where ambient temperatures could compromise battery lifetime. This would result in a highly reliable energy storage system that would require no maintenance.

Advantages

- Extremely long lifetime: 15 years with virtually unlimited cycling.
- High-reliability – No maintenance.
- Wide temperature range up to 45 °C.
- Ultra rapid charging.
- Battery-free, lead-free and environment-friendly.

UPS and batteries



UPS	IN/OUT	kVA	Back-up time (minutes)(1)
IP+ 110	3/1	10	
IP+ 310	3/3	10	
IP+ 115	3/1	15	
IP+ 315	3/3	15	
IP+ 120	3/1	20	
IP+ 320	3/3	20	
IP+ 130	3/1	30	
IP+ 330	3/3	30	
IP+ 140	3/1	40	External battery cabinet
IP+ 340	3/3	40	External battery cabinet
IP+ 160	3/1	60	External battery cabinet
IP+ 360	3/3	60	External battery cabinet
IP+ 380	3/3	80	External battery cabinet

(1) Max BUT @ 70% load

Technical data

	MASTERYS IP+ 10-80						
Sn [kVA]	10	15	20	30	40	60	80
Pn [kW] - 3/1	9	13.5	18	27	32	48	-
Pn [kW] - 3/3	9	13.5	18	27	36	48	64
Parallel configuration(1)	up to 6 units						
INPUT							
Rated voltage	400 V						
Voltage tolerance	± 20%(2) (up to -40% @ 50% of rated power)						
Rated frequency	50/60 Hz						
Frequency tolerance	± 10%						
Power factor / THDI(3)	0.99 / < 3%						
OUTPUT							
Rated voltage	1ph + N: 230 V (can be configured 220/240 V) 3ph + N: 400 V (380/415 V configurable)						
Voltage tolerance	± 1%						
Rated frequency	50/60 Hz						
Frequency tolerance	± 2% (configurable from 1% to 8% with generating set)						
Total output voltage distortion - linear load	< 1%						
Total output voltage distortion - non-linear load	< 5%						
Overload	125% for 10 minutes, 150% for 1 minute(2)						
Crest factor	3:1 (complying with IEC 62040-3)						
BYPASS							
Rated voltage	1ph + N: 230 V, 3ph + N: 400 V						
Voltage tolerance	± 15% (configurable from 10% to 20% with generating set)						
Rated frequency	50/60 Hz						
Frequency tolerance	± 2% (configurable from 1% to 8% with generating set)						
ENVIRONMENT							
Operating ambient temperature	from 0 °C up to +50 °C(2) (from 15 °C to 25 °C for maximum battery life)						
Relative humidity	0% - 95% without condensation						
Maximum altitude	1000 m without derating (max. 3000 m)						
Acoustic level at 1 m (ISO 3746)	< 52 dBA			< 55 dBA		< 65 dBA	
UPS CABINET							
Dimensions (3/1) W x D x H	600 x 800 x 1400 mm				1000 x 835 x 1400 mm		-
Dimensions (3/3) W x D x H	600 x 800 x 1400 mm					1000 x 835 x 1400 mm	
Weight (3/1)	230 kg	250 kg	270 kg	330 kg	490 kg	540 kg	-
Weight (3/3)	230 kg	250 kg	270 kg	320 kg	370 kg	500 kg	550 kg
Degree of protection (according to IEC 60529)	IP31 and IP52				IP31		
Colours	RAL 7012						
STANDARDS							
Safety	IEC/EN 62040-1, AS 62040.1.1, AS 62040.1.2						
EMC	IEC/EN 62040-2, AS 62040.2						
Performance	IEC/EN 62040-3, AS 62040.3						
Product declaration	CE, RCM (E2376)						

(1) With transformer on input/bypass side. - (2) Conditions apply.
(3) At source THDV < 2 % and nominal load.

Electrical options

- Long-life batteries.
- External battery cabinet (degree of protection up to IP32).
- External temperature sensor.
- Additional battery chargers.
- Additional transformer.
- Parallel kit.
- Cold start.
- ACS synchronization system.
- Neutral creation kit for mains without neutral.
- Tropicalization and anti-corrosion protection for electrical boards.

Standard communication features

- Multilanguage graphic display.
- Dry contact interface.
- MODBUS RTU.
- Embedded LAN interface (web pages, email).
- 2 slots for communication options.

Communication options

- PROFIBUS.
- MODBUS TCP.
- NET VISION: professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems.

Remote monitoring service

- LINK-UPS, remote monitoring service that connects your UPS to your Critical Power specialist 24/7.

DELPHYS MP Elite+

Resilient transformer-based power protection
from 80 to 200 kVA

new

DEFYS 121 B 1 CAT

The solution for

- Industry
- Processes
- Infrastructure
- Healthcare
- Service sector
- Telecommunications

Advantages

CLEAN RECTIFIER

TRANSFORMER BASED UPS

High quality power supply

- Permanent operation in VFI mode (online double conversion).
- Output voltage precision under all load conditions.
- High overload capability to withstand abnormal load conditions.
- A very high short-circuit current capacity which facilitates the selection of protective devices for selectivity in the downstream distribution.
- An isolation transformer installed on the inverter output to ensure complete galvanic isolation between DC circuit and load output. This insulation also provides a separation between the two inputs when they are supplied by different sources.
- Sinusoidal ThdU output voltage < 2 % with linear loads and < 4 % with non-linear loads.

High availability

- Field-proven technology.
- Fault-tolerant architecture with redundancy of basic functions, such as the ventilation system.
- Easy maintainability reduces MTTR thanks to pull-out sub-assemblies and front access all components.
- Accurate diagnostics guarantee power supply to the load.
- Cascade failure prevention for parallel systems.
- Mechanical & electrical robustness for industrial environments.
- Soft start capability (ramp up) of the IGBT inverter allows a good operation even with a genset.
- Specifically designed to be adapted to different industrial environment: high IP protection options, high peak current capability, long back up time…

Cost-effective equipment

- The "clean" IGBT rectifier allows:
  - a high efficiency,
  - a high and constant input power factor,
  - a low THDi.

  These characteristics help to limit the dimensions of upstream network infrastructure.
- Possibility to create new neutral system without additional losses (extra transformer required on by-pass line only).
- High short-circuit capability simplifies downstream protective devices.
- High power density: its small footprint saves space on your premises.
- Mains connection of the rectifier requires only 3 cables (no neutral).
- Battery connection to UPS requires only 2 cables.

User-friendly operation

- A control panel with graphic display for more ergonomic operation.
- An array of "com-slot" plug-in communication interfaces, for upgrading your operating requirements evolution.

Simplified maintenance

- An advanced diagnostic system.
- A remote access device connected to the remote maintenance centre.
- Easy access to subassemblies and components, facilitating tests and reducing maintenance time (MTTR)

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Parallel systems

- Distributed or centralized bypass for parallel architecture up to 6 units.
- Redundant systems ("1+1" and "n+1").
- "2n" architecture with Static Transfer Systems.

Standard electrical features

- Slots for 3 communication cards.
- Backfeed protection: detection circuit.
- Standard interface:
  - 3 inputs (emergency stop, generating set, battery protection),
  - 4 outputs (general alarm, back-up, bypass, preventative maintenance needs).

Electrical options

- EBS (Expert Battery System)(2).
- FLYWHEEL compatible.
- ACS synchronisation system for 2n architecture.
- Redundant electronic power supplies.
- Hot plug option (increase the power keeping the load supplied in double conversion).
- Long back up time rectifier.

Mechanical options

- Reinforced IP protection degree.
- Dust filters.
- Fan redundancy with failure detection.
- Top entry connection.
- Reinforced IP protection up to IP52.

Communication options

- GTS (Graphic Touch Screen).
- ADC interface (configurable voltage-free contacts).
- MODBUS RTU.
- MODBUS TCP.
- PROFIBUS / PROFINET.
- BACnet/IP interface.
- NET VISION: professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems.
- 3 extra slots for communication cards.

Remote monitoring service

- LINK-UPS, remote monitoring service that connects your UPS to your Critical Power specialist 24/7.

Technical data

	DELPHYS MP Elite+				
Sn [kVA]	80	100	120	160	200
Pn [kW]	72	90	108	144	180
Input / output	3/3				
Parallel configuration	up to 6 units (distributed or centralised bypass)				
INPUT					
Rated voltage	380 V - 400 V - 415 V(1)				
Voltage tolerance	342 to 460 V(2)				
Rated frequency	50/60 Hz				
Frequency tolerance	45 to 65 Hz				
Power factor / THDI	0.99 constant / 2.5 % without filter				
OUTPUT					
Rated voltage	380 V - 400 V - 415 V (configurable)(1)				
Voltage tolerance	< 1 % (static load), ± 2 % in 5 ms (dynamic load conditions from 0 to 100 %)				
Rated frequency	50/60 Hz				
Frequency tolerance	± 0.2%				
Total output voltage distortion - linear load	ThdU <2%				
Total output voltage distortion - non-linear load	ThdU <4%				
Short-circuit current on inverter (100ms)	Up to 3.5 In				
Overload	Up to 150 % for 1 minute, 125 % for 10 minutes(2)				
Crest factor	3:1				
BYPASS					
Rated voltage	380 V - 400 V - 415 V				
Voltage tolerance	± 10% (selectable)				
Rated frequency	50/60 Hz				
Frequency tolerance	± 2% (configurable for GenSet compatibility)				
Short-circuit current on by-pass (20ms)	Up to 24 In				
EFFICIENCY					
Online mode	93.5%				
Eco Mode	98%				
ENVIRONMENT					
Operating ambient temperature	from 0 °C up to +40 °C(2) (from 15 °C to 25 °C for maximum battery life)				
Relative humidity	0 % - 95 % without condensation				
Maximum altitude	1000 m without derating (max. 3000 m)				
Acoustic level at 1 m (ISO 3746)	65 dBA		67 dBA		
UPS CABINET					
Dimensions W x D x H	1000 x 800 x 1930 mm				
Weight	740 kg	860 kg		1020 kg	
Degree of protection	IP20 (other IP as option)				
Colours	RAL 9006				
STANDARDS					
Safety	IEC/EN 62040-1, AS 62040.1.1, AS 62040.1.2				
EMC	IEC/EN 62040-2, AS 62040.2				
Product declaration	CE, RCM (E2376)				

(1) Others on demand. (2) Conditions apply.

STATYS

Redundant design for power availability and site maintainability
from 32 to 1800 A

The solution for

- Finance, banking and insurance
- Healthcare sector
- Telecom & Broadcasting
- Industry
- Power generation plants
- Transport

STATYS provides

- High reliability - internal redundant design to ensure service continuity.
- Flexibility and adaptability to various types of applications.
- Compact design: saves up to 40% of valuable space.
- Easy and secured maintenance.
- Operational security and ease of use Remote data access in real time and from any location.
- Full support and service.

Static Transfer Switch: user benefits

Supplied by two independent alternate sources, STATYS increases the overall electrical infrasrtucture availability during abnormal events and programmed maintenance.

- Provides redundant power supply to mission critical loads to increase global uptime of the supplied system.
- Increases the power supply availability by choosing the best power supply quality.
- Provides plant segmentation and prevents fault propagation.
- Allows easy extension and easy infrastructure design, ensuring high availability of the power supply to critical applications.
- Facilitates and secures the maintenance or the modifications of the overall electrical installation (source, distribution, switchboard) while the load is kept supplied.

STATYS also provides protection against:

- Main power source outage.
- Failures in the upstream power distribution system.
- Failures caused by faulty equipment supplied by the same source.
- Operator errors.

Flexibility

STATYS offers a wide range of three-phase systems that suits all types of applications and power supply systems.

Dual or single cord servers, linear or non-linear loads, IT or electromechanics are just some of the load types that STATYS can supply. Wherever a smart power source is needed, whether for existing or new electrical plants, STATYS can be easily installed and efficiently supply the load.

It is available in:

- 2 wires and 2 poles switching, to be connected between phase/neutral or phase/phase.
- 3 wires arrangement without neutral,

- for reduced cable costs,
- for local zoning of the applications by using insulating transformers,

- 4 wires three-phase arrangement with neutral, with or without neutral pole switching,

STATYS offers:

- Flexible digital control capacity that can adapt to any operational or electrical environment conditions,
- Capability to manage synchronised and non-synchronised sources according to load specificity,
- Advanced Transformer Switching Management (ATSM). If the upstream network has no distributed neutral cable, two upstream transformers or one downstream transformer can be added to create a neutral reference point at the output. For the downstream solution, STATYS, thanks to ATSM, correctly manages the switching to limit inrush current and avoid the risk of spurious breakers.

socomec
Innovative Power Solutions

High reliability - Internal redundant design

Main features:

- Redundant control system using double microprocessor control boards.
- Dual redundant power supplies for control boards.
- Individual control board with redundant power supply for each SCR path.
- Redundant cooling with fan failure monitoring.
- Real-time SCR fault sensing.
- Separation of main functions to prevent internal fault propagation.
- Robust internal field communication bus.
- Internal monitoring of sensors to ensure maximum system reliability.

Compact design

- Small footprint and compact units.
- Adjacent or back to back mounting.
- Integrable chassis version for optimal implementation into switchboards.
- Front access for easy maintenance.
- Compact Hot Swap 19" rack system.

Standard features

- Smart commutation system configurable according to the load.
- Synchronised and non-synchronised sources compatibility (configurable synchronisation tolerance and switching management).
- Fuse-free or fuse-protected design.
- Output fault current sensing.
- Internal CAN Bus.
- Double maintenance bypass.
- Neutral oversizing for non-linear loads compatibility.
- Embedded Inputs, output and maintenance bypass switches (cabinet version).

Standard communication features

- Ethernet network connection (WEB/SNMP/eMail/MODBUS TCP).
- Dry-contact interface.
- Flexible Com Slots.
- LCD or Graphic Mimic Panel.
- Full digital configuration and setting.

Options

- Additional dry contacts interface board.
- MODBUS RTU.
- PROFIBUS interface.
- Automatic maintenance bypass interlock.
- Voltage adaptation.

Remote monitoring

- 24/7 real-time remote data access.
- Wide choice of communication protocols for remote monitoring and easy integration in your BMS / SCADA systems.
- LINK-UPS, remote monitoring service that connects your STS to your Critical Power specialist 24/7.

Technical data

STATYS	19" rack - hot swap		Cabinet - integrable chassis (OEM)											
Rating [A]	32	63	63	100	200	300	400	600	800	1000	1250	1400	1600	1800
ELECTRICAL SPECIFICATIONS														
Rated voltage	120-127/220 240/254 V		208-220/380-415/440 V											
Voltage tolerance	± 10% (configurable)													
Frequency	50 Hz or 60 Hz (± 5 Hz (configurable)													
Number of phases	ph+N or ph-ph (+ PE)		3ph+N or 3ph (+ PE)											
Number of poles switching	2-pole switching		3 or 4-pole switching											
Maintenance bypass (cabinet version)	interlocked and secured													
Overload	150 % for 2 minutes - 110 % for 60 minutes													
Efficiency	99 %													
Admissible power factor	no restrictions													
ENVIRONMENT														
Operating ambient temperature	0-40 °C													
Relative humidity	95%													
Maximum altitude	1000 m a.s.l. without derating													
Acoustic level at 1 m (ISO 3746)	<45 dBA				≤ 60 dBA						≤ 84 dBA			
STANDARDS														
Safety	IEC 62310, IEC 60529, AS 62310, AS 60529													
EMC	C2 category (IEC 62310-2, AS 62310.2)													
Product declaration	CE, RCM (E2376)													

Dimensions

Model		Range (A)	Width (mm)	Depth (mm)	Height (mm)
1 phase	19" Rack	32 - 63	483 (19")	747	89 (2U)
3 phases	Integrable Chassis (OEM)	63 - 100	483 (19")	648	400 (9U)
		200	400	586	765
		300 - 400	600	586	765
		600	800	586	765
		800 - 1000	1000	950(1)	1930
		1250 - 1800	910	815	1955
	Cabinet	200	500	600(1)	1930
		300 - 400	700	600(1)	1930
		600	900	600(1)	1930
		800 - 1000	1400	950(1)	1930
		1250 - 1600	2010	815	1955

(1) Depth does not include handles (+40 mm)

MV/LV distribution substations

TIPI - IP2X LV feeder pillars

TIPI feeder pillars
p. 68

LV protection panels

BT-300
p. 72

Reduced size LV feeder pillars

TRS
p. 74

Load break switches

SIRCO
Load break switches for power distribution
p. 80

SIDER
Load break switches with visible breaking
p. 96

SIDERMAT
Remote-trip load break switches
p. 96

Fuses for public distribution

gG fuses
p. 102

Services

- Customised solutions: low voltage distribution panels.
- Tests and qualifications.
- Commissioning and maintenance services.
- For more information, please see page 9.

Find out more

- Smart Grid innovations for intelligent MV/LV substations.
- Energy storage,
- Grid measurement and monitoring.
- For more information, please see page 18.

TIPI

Low voltage feeder pillars
for public distribution networks

TIPI 4-500

TIPI 8-1200

The solution for

> MV/LV public distribution substations

Strong points

> Improved safety
> Simple optimised operation
> Design & robustness
> Manufacturer warranty

Compliance with standards

> HN 63-R-61 2002 2nd edition
> IEC 60947-3

Customised solutions

> Solution adapted to your requirements, IEC EN 61439

Please ask us for further details.
See page 8.

SOCOMEC, partner of

Smart MV/LV substation

> LV grid monitoring innovations

See page 20.

Function

TIPI low voltage feeder pillars are installed bottom of the transformers in MV/LV public distribution substations.
At the level of the LV network's incomers, they assure general on-load breaking or making and the distribution on 4 to 8 feeders protected by fuse disconnect switches.
Additional functions provide new advantages for:

- Better awareness of the requirements for power supply continuity and the safety of property and persons.
- Preparing the 'increased intelligence' of substations; a measurement unit can be installed directly on the panel, for example for monitoring transformer data.

Advantages

Improved safety

- The IP2X total insulation of the pillar protects operators who may be in proximity to the pillar or performing maintenance procedures.
- The top short-circuiting device assures the short-circuiting and earthing of the transformer LV input.
- The top and bottom voltage sockets enable operators to carry out EST (electrical safety testing) procedures quickly and safely.
- Temperature rises are limited to 65°C as specified by EDF; these are stricter values than those stipulated in the IEC standard (70°C).

Simple optimised operation

- A quick-connection interface allows the safe connection of an external emergency or maintenance power source.
- Feeders are fitted with terminals with self-snapping fuse screws to ensure the tightening torque.
- A provisional feeder is provided for temporary installations such as building sites, fun fairs, etc.
- The power supply for internal circuits and lighting is provided directly by the pillar.

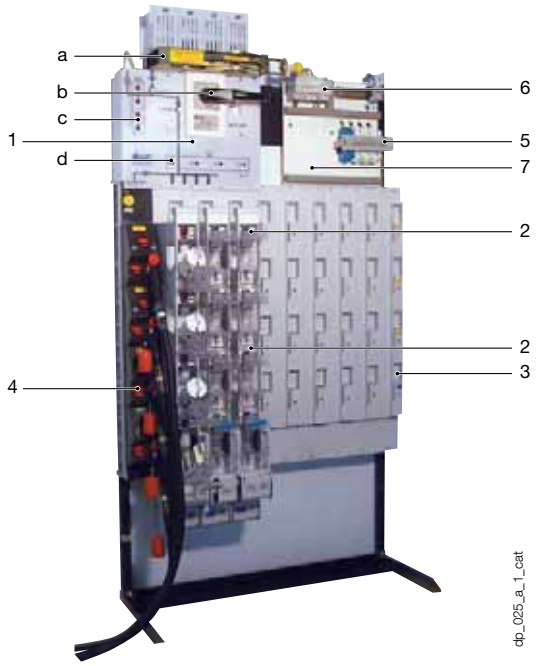
Design & robustness

With its sleek design and smooth front, the appearance of the TIPI feeder pillar improves safety with large thermoset insulating fittings. Thanks to its rigidity, this excellent insulation material provides much greater robustness.

Manufacturer warranty

The pillar fully complies with HN 63-S-61 specifications, 2nd edition, and is ERDF approved. Our quality assurance procedures ensure reliability: individual tests for each pillar, traceability, comprehensive sampling tests, etc.

Composition



1. Incoming unit
- **a.** Top short-circuiting device
- **b.** Load break switch
- **c.** Top EST (electrical safety testing) sockets
- **d.** Bottom EST (electrical safety testing) sockets

2. Monobloc fuse feeder
3. Temporary feeder, identified by colour label
4. Rapid connection supply device, providing a secure connection from an external power source for emergency or maintenance procedures
5. ACG 60 A relay for public lighting supply
6. 32 A power supply for internal circuits
7. Option: measurement and monitoring solutions. See page 21.

1. Incoming unit

The TIPI feeder pillars are equipped with SIRCO* 4-pole AC22B load break switches with fully visible breaking. As per IEC 60947-3, they provide on-load breaking and making, i.e. electrical isolating.
A grounding neutral lug inside the device earths the installation's neutral when the switch is opened.

For standard models, top cable lugs are designed to take 240 mm² rigid cables (neutral possible for 150 mm² cables): 500 A with 1 cable, 1200 A with 3 cables, 1800 A with 4 cables.

Other connections on request.

*Please see the SOCOMEC general catalogue

6. Relay for power supply of internal circuits

The relay is fitted with:
- 1 outgoing unit for 10 A lighting of the substation.
- 1 16 A socket.
- 1 neutral terminal.
- Optional connection cables chute and outgoing units for power supply:
  - a LV power-line communication (PLC) concentrator device (2 A),
  - an I.T.I. enclosure or a MV fault detection device (2 A).

References

TIPI

Type	Rating (A)	Max. number of feeders	MV/LV transformers	Type of substation	ERDF N°	Reference
TIPI 4-500	500	4 + 1(1)	Up to 250 kVA	PSS(2)	69 82 150	8057 **0001**
TIPI 8-1200	1200	8 + 1(1)	630 kVA	PAC(2)	69 82 156	8057 **0003**
TIPI 8-1800	1800	8 + 1(1)	1000 kVA	PAC(2)	69 82 158	8057 **0004**
TIPI 8-1200 (lowered)	1200	8 1(1)	630 kVA	PUIE(2)	-	On request

(1) +1 'provisional' feeder reserved for connecting temporary installations (building sites, fun fairs, etc.)
(2) PSS (simplified substation on floor), PAC (substation with gangway), PUIE (urban substation integrated in the environment).
Please contact us for any requests concerning TIPI incoming units (load break switch and shorting kit).

Accessories

Type 1 feeder unit - 400 A

Use

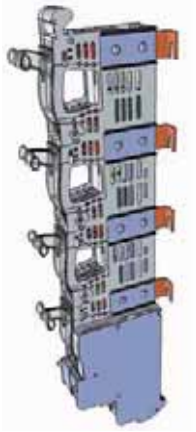
From the main busbars of the pillar, these feeders provide the power supply and electrical protection of the low voltage distribution network (underground or a combination of overhead & underground). They are intended to be connected to the pillar permanently.

These ergonomic feeders are easy to manoeuvre thanks to the fuse support handles. The transparent handles make for easy reading of the ratings on the fuses that have been installed. To ensure the IP2X level of protection, it is recommended to use Size 2 HN fuses and insulated neutral wiring bars, see page 102.

The terminal lugs are fitted with self-snapping fuse screws, which ensures the tightening torque without using a special tool.

The terminals are designed to take rigid aluminium multicore cables insulated with cross-linked polyethylene (PEX):

- 3 x 240 mm² + 1 x 95 mm².
- 3 x 150 mm² + 1 x 150 mm².
- 3 x 150 mm² + 1 x 70 mm².
- 3 x 95 mm² + 1 x 50 mm².



dp_062_a

Type 1 provisional feeder unit - 400 A

Use

The provisional feeder is used for temporary installations such as building sites, fun fairs, etc. Similar to the standard feeder unit, it also allows the connection of overhead twisted cables.

Type	Packaging	ERDF N°	Reference
Type 1 feeder unit - 400 A	1	69 82 200	8061 **0001**
Provisional type 1 feeder unit - 400 A	1	69 82 202	8061 **0002**

Fastenings to pillar base			
Type	**Packaging**	**ERDF N°**	**Reference**
Fastening to 4-feeder pillar base	1	69 82 250	8061 **0007**
Fastening to 8-feeder pillar base	1	69 82 252	8061 **0008**

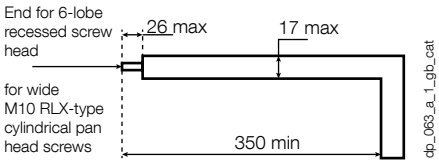
Insulated operating key

Use

Live tightening or unscrewing of feeder fastening screws.

One key per pillar is recommended.

Compliant with IEC 60900.



dp_063_a_1_gb_cat

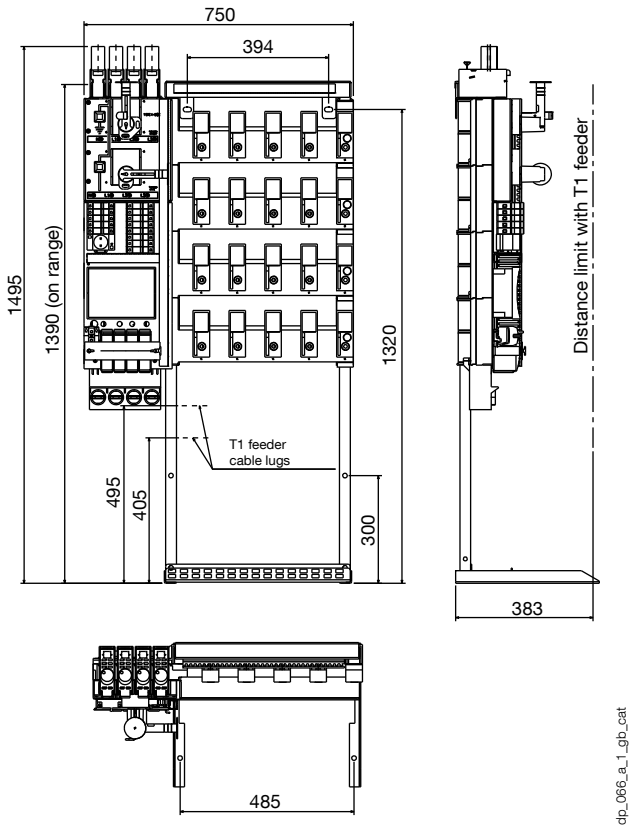
Type	Packaging	ERDF N°	Reference
Insulated operating key	1	69 82 820	8061 **0009**

Characteristics

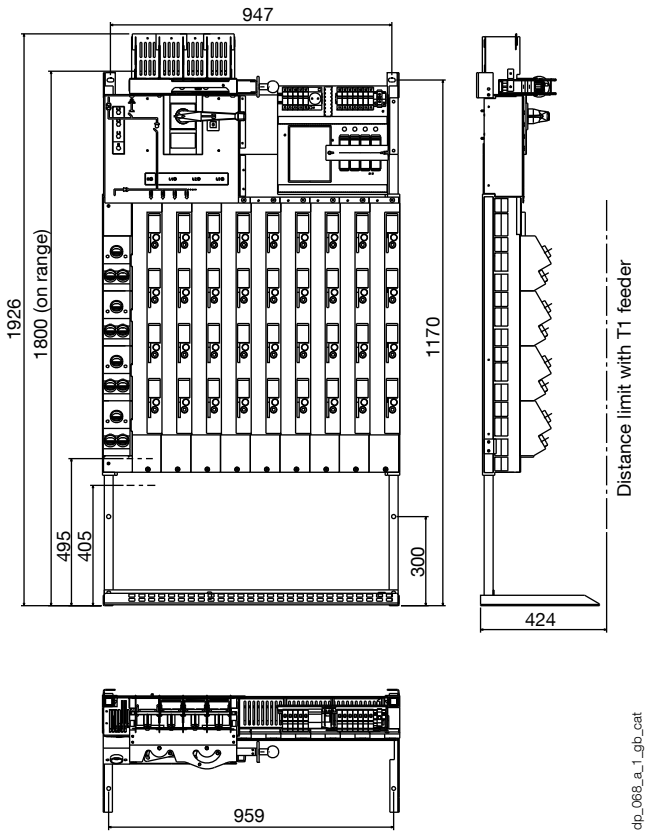
	TIPI 4-500	TIPI 8-1200	TIPI 8-1800	Type 1 feeder
Rated operational voltage (V)	400	400	400	400
Rated voltage at 50 Hz/1 min (earthed) (kV)	10	10	10	10
Rated voltage at 50 Hz/1 min between poles (kV)	2	2	2	2
Rated impulse withstand earthing voltage (kV)	20	20	20	20
Rated impulse withstand voltage between poles (kV)	6	6	6	6
Incoming unit and busbar rated current (A)	500	1200	1800	400
Short-time withstand current 0.5 s (kA)	10	25	32	32
Peak short-time withstand current (kA)	17	52, 5	67.2	67.2

Dimensions

TIPI 4-500 : 1400 x 750 x 400 mm



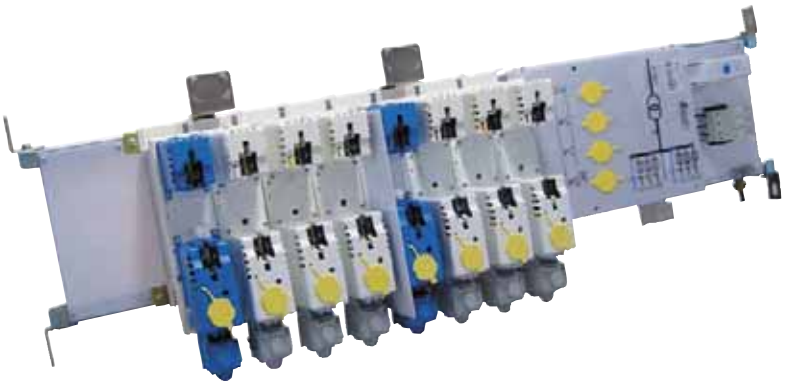
TIPI 8-1200 / 8-1800 : 1800 x 1000 x 400 mm



BT 300

300 A protection panels

low voltage protection panels for rural public distribution networks



dp_059_a

BT 300
power supply on the right

The solution for

- Rural electrification
- SCRS: Simplified compact rural substations (max. 160 kVA)

Strong points

- Improved safety
- Simple optimised operation
- Design & robustness
- Manufacturer warranty

Compliance with standards

- HN 64-S-57: 2011

SOCOMEC, partner of

SOCOMEC & GUERIN MATERIEL ELECTRIQUE

Function

BT 300 low voltage panels are installed bottom of the transformers in MV/LV rural public distribution substations.

At the level of the low voltage network's incomers, they ensure distribution on 1 or 2 feeders protected by fuse disconnect switches.

Advantages

Improved safety

- The IP2X level of insulation of the panel ensures operator safety when close to the panel or performing maintenance operations.
- The top and bottom voltage sockets enable EST (electrical safety testing) to be done quickly and safely.
- Temperature rises are limited to 65°C as per the EDF specification. These values are stricter than those stipulated in the IEC standard (70°C).

Simple optimised operation

Special terminals enable the secure connection of an external power supply for emergency or maintenance purposes.

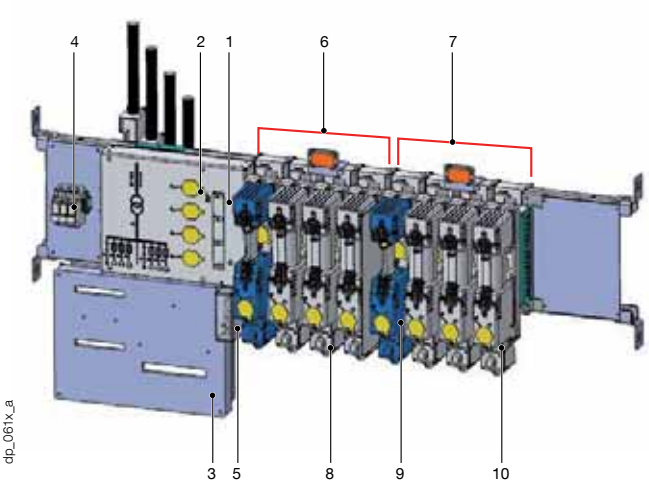
Design & robustness

With its sleek design and mimic display panel, the appearance of the BT 300 improves safety with an insulating support on a single post.

Manufacturer warranty

The panel complies with HN 64-S-57 specifications and is certified by ERDF. Our quality assurance procedures ensure reliability: individual tests for each panel, traceability, comprehensive sampling tests, etc.

Composition



dp_061x_a

1: Incoming unit for U1000 R2V 35-240 mm² cables, to the left or the right of the panel
2: Top electrical safety testing (EST) sockets
3: Top short-circuit, earthing and gen-set supply sockets
4: PLC (Power-line communication) support
5: Auxiliary circuit, 4-pole outgoing unit, PLC
6: Neutral earthing stud.
7: Outgoing unit N° 1
8: Outgoing unit N° 2
9: 35 - 150 mm² cable clamp connector with break-off screw
10: Top fuse electrical safety testing sockets
11: Top short-circuiting, earthing and gen-set supply fuse sockets
12: Support frame
13: Earthing collector

References

Rating (A)	Max. number of feeders	MV/LV transformer (kVA)	Maximum resupply capacity	Position of the power supply	Weight (kg)	Reference
250	1	50	200 A	right or left	25	contact us*
250	2	100 -160	200 A	right or left	30	contact us*

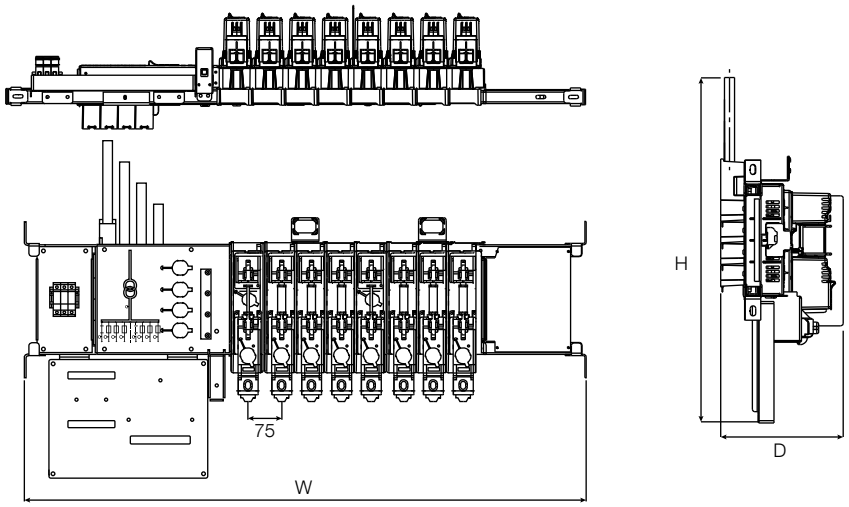
**Depending on the quote*

Characteristics

Rated operating voltage U_e	400 V
Rated power frequency voltage U_w at 50 Hz/1 min (earthing)	10 kV
Rated power frequency voltage U_w at 50 Hz/1 min between poles	2 kV
Rated impulse withstand voltage U_{imp} (earthing)	20 kV
Rated impulse withstand voltage U_{imp}(between poles)	6 kV
Rated current for the incoming unit and busbars	250 A
Rated short-time withstand current I_{cw} 0.5 s	10 kA
Rated short-time withstand current I_{pk} for phases	17 kA
Rated short-time withstand currentI_{pk} for the neutral	13,6 kA
Degree of protection	IP2X, IK 07

Dimensions

Type	W (mm)	H (mm)	D (mm)
BT 300	Length to be adapted depending on the size of the prefabricated substation	553.5	262.5



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TRS

Reduced size urban panels

Low voltage panels for public distribution networks

The solution for

- MV/LV public distribution substations

Strong points

- Guaranteed safety
- Proven reliability
- Easy installation and operation
- Wide range

Compliance with standards

- HN 63-S-61 ed02 : 1979
- IEC 60947-3

Function

TRS, or **reduced size** panels, are installed bottom of transformers in MV/LV public distribution substations. At the level of the LV network's incomers, they provide general on load breaking or making on 4 or 8 feeders protected by fuse disconnect switches.

Advantages

Guaranteed safety

The design of the panel ensures secure isolation and high dielectric withstand. Safety is further enhanced by an automatic earthing of the neutral when the load break switch is opened. Through the use of SIDER load break switches, the TRS panel offers technical characteristics that go beyond certain requirements, such as the short-circuit withstand current and power supply capacity. A horizontal protective screen above the monoblock provides protection of exposed live parts.

Proven reliability

In addition to their certification of origin, thousands of panels currently in service have shown their reliable operation in low voltage networks.

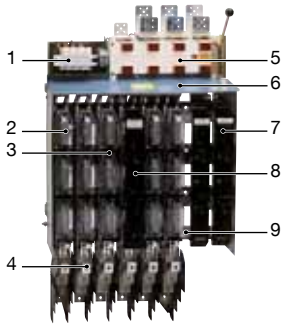
Easy installation and operation

The compact panel is easily installed via its removable mounting brackets and easy connection of cables top of the switch. Operating continuity is optimised by the possibility of installing fuses and fuse feeders while the panel is active.

Extensive range

In addition to the panels, a wide range of accessories enhance its operation in full safety: 400 A feeder unit, fuse holder protector, reserve panel, locking and test panel, and insulated operating key.

Composition



dp_001x_a

1. 60 A ACG relay for public lighting power supply.
2. Fuse holder protector (3 per feeder).
3. Fuse feeder unit.
4. Feeder cable terminals.
5. Incoming unit with SIDER load break switch with visible breaking.
6. Horizontal protective screen above feeders.
7. Reserve panel.
8. Locking, short-circuiting and testing panel.
9. Plated aluminium 4-pole busbar fastened by insulators on a metallic frame.

References

TRS

Type	Rating (A)	Max. number of feeders	MV/LV transformer rated power	Public lighting relay	Reference
TRS 4-800	800	4	≤ 400 kVA	Without	8051 **0002**
				With	8051 **0032**
TRS 4-1200	1200	8	630 kVA	Without	8052 **0002**
				With	8052 **0032**
TRS 8-1800	1800	8	1000 kVA	Without	8053 **0002**
				With	8053 **0032**

Customised solutions available on request Please ask us for further details.

Incoming unit

The TRS is fitted with 4-pole SIDER* load break switches with visible breaking.
As per IEC 60947-3, they assure on load breaking and making, and electrical isolation.
A grounding neutral lug inside the device earths the installation's neutral when the switch is opened. For standard models, top cable lugs are designed to take 240 mm² rigid cables.

Type	Rating (A)	No. of poles	Panel	Reference
800 A SIDER* load break switch with grounding lug and mounting plate	800	4	TRS 4-800	8056 **MA31**
1200 A SIDER* load break switch with grounding lug and mounting plate	1200	4	TRS 8-1200	8056 **MA32**
1800 A SIDER* load break switch with grounding lug and mounting plate	1800	4	TRS 8-1800	8056 **MA33**

**Please see the SOCOMEC general catalogue or page 90.*

Accessories

400 A feeder unit

Use

From the panel's main busbar, these feeders provide the power supply and electrical protection of the low voltage distribution network. It is recommended to use Size 2 HN fuses and insulated neutral cable lugs.

The feeders are intended to be connected permanently to the panel. Bolting them to the panel can be done while the panel is active.

Connecting the feeder cables is done using Ø12 mm bolts provided for maximum wire sections of 240 mm².

Type	Packaging	ERDF N°	Reference
400 A feeder unit	1	69 82,777	806G **U004**
400 A feeder unit	40	69 82,777	806G **0004**

Accessories (continued)

Fuse holder protector

Use

The fuse holder allows the installation and removal of fuses whilst active and on load.
Mounted on each fuse feeder, it prevents access to live parts.
3 fuse holders per feeder should be used.

Type	Packaging	ERDF N°	Reference
Fuse holder protector	1	69 82 873	8056 **0008**

Reserve panel

Use

The reserve panel attaches to an available feeder slot.
It ensures the protection against direct contact with exposed/open-mounted live busbars.

Type	Packaging	ERDF N°	Reference
Reserve panel	1	69 82 833	8056 **0003**

Locking panel

Use

The locking panel allows the locking of a feeder and the short-circuiting and earthing of the four conductors. Cable testing should only be done with an appropriate device. Attaching the panel is done by fixing it to the feeder, after removing the fuses.

Type	Packaging	ERDF N°	Reference
Locking panel	1	69 82 830	8056 **0005**

Insulated operation key

Use

Tightening or loosening of feeder fastening bolts when circuit is live. One key per panel is recommended. Compliant with IEC 60900.

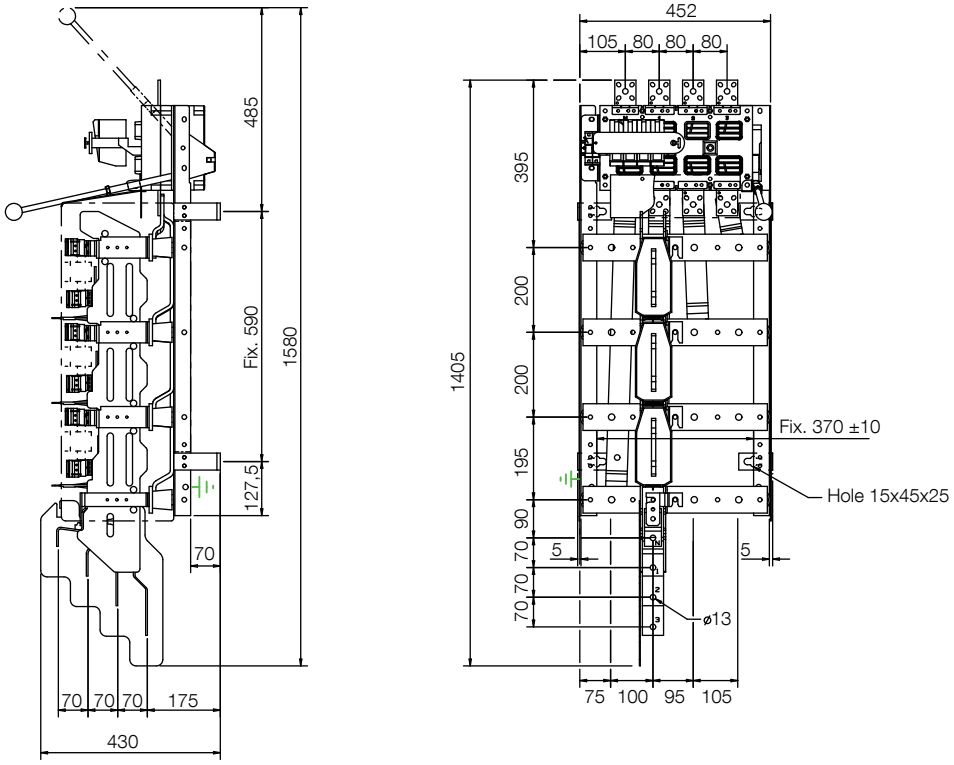
Type	Packaging	ERDF N°	Reference
Insulated operation key	1	69 82 814	8056 **0002**

Characteristics

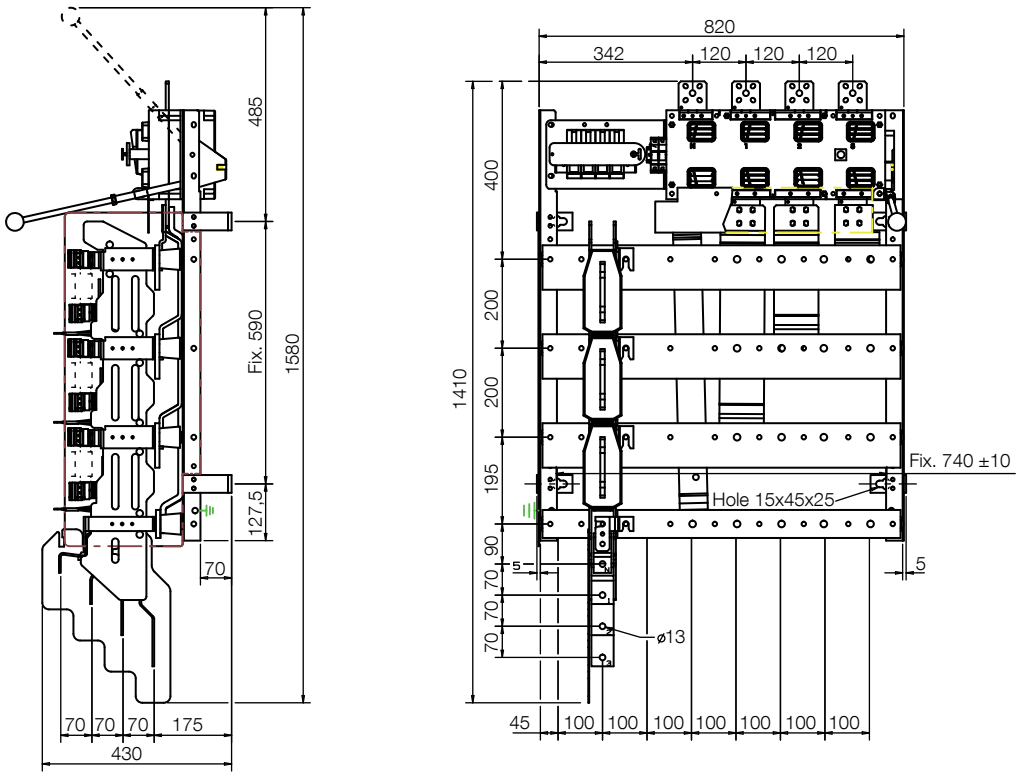
Type	TRS 4-800	TRS 8-1200	TRS 8-1800	Feeder
Rated operating voltage	1 V	400 V	400 V	400 V
Rated voltage at 50 Hz/1 min (earthing)	10 kV	10 kV	10 kV	10 kV
Rated voltage at 50 Hz/1 min between poles	4 kV	4 kV	4 kV	4 kV
Rated earthing impulse withstand voltage	20 kV	20 kV	20 kV	20 kV
Incoming unit and busbar rated current	800 A	1200 A	1800 A	400 A
Short-time withstand current 0.5 s	16 kA	25 kA	32 kA	-
Peak short-time withstand current	32 kA	52 kA	72 kA	-

Dimensions

TRS 4-800 A



TRS 4-1200 - TRS 8-1800 A



Selection guide

Load break switches

for low voltage public distribution panels

Why choose a load break switch for the feeders on a LV public distribution panel?

In public distribution substations, the load break switch is the the most widely used and is recommended worldwide for low voltage panels.

Between the MV/LV transformer and LV distribution switchboard with fuse-based feeders, the load break switch ensures safe operation by assuring the protection of property and persons.

Our load break switches are fully compliant with IEC 60947-3. They benefit from snap closing and tripping independent of the operator, a double-break per phase, and high levels of performance in terms of on-load breaking and making (AC22-23).

Their high short-circuit making capacity ensures total safety for the operator, even in case of accidental closing on a bottom fault.

In case of an electrical arc, this is confined inside the casing of the switch.

Special requirements

SOCOMEC manufactures custom products that meet your requirements. We will help you find the best solution for your application.

Load break switches:

- Specially for LV HN public distribution panels
- With over rated neutral
- High short-circuit withstand
- Multi-pole
- Earthing
- For 1000 V networks
- Special motorised models

Do not hesitate to contact us for more information.

The solution for

> LV switch panel for MV/LV substations

Strong points

> Reliability and performance
> Safety of property and persons
> Wide range of standard and custom load break switches, complete accessory sets
> Easy to install and implement

Compliance with standards

> IEC 60947-3, EN 60947-3

To find out more

> Discover the complete range of SOCOMEC switchgear

vwww.socomec.com/en /distri-load-break-switches

Active in the electrical switchgear market since 1922, SOCOMEC is both a global leader and an undisputed benchmark reference.
Our range of load break switches is one of the widest on the market today.

Which function? ▶ What sort of breaking? ▶ What kind of command?

				
	SIRCO **125 to 5000 A**	***SIRCO AC*** **200 to 4000 A**	***SIDER*** **125 to 3150 A**	***SIDERMAT*** **250 to 1800 A**
Function				
3/4-pole load break switch	•	•	•	•
6/8-pole load break switch	•	•	•	
Characteristics				
Breaking				
Fully visible	•	•	•	•
Visible			•	•
Command				
Rotary handle operation	•	•	•	•
By lever (toggle)			•	
Via tripping				•
Direct control handle				
Front	•	•	•	•
Side			•	•
External operation handle				
Front	•	•	•	•
Right side	•		•	•

SIRCO

Load break switches for power distribution
from 125 to 5000 A

The solution for

> LV panels in MV/LV substations

Strong points

> Reliability
> Safety of property and persons
> Simplicity
> Easy to install

Compliance with standards

> IEC 60947-3

Find out more

The full range of SIRCO load break switches

www.socomec.com/en/distri-load-break-switches

Function

SIRCO are manually operated or motorised multipolar load break switches They make and break under load conditions and provide safety isolation. SIRCO are designed for 415 VAC and DC low voltage electrical circuits.

General characteristics

- Double positive break indication given through a position indication window, located directly on the product, and by the operating handle.
- Severe utilisation categories (AC-22 and AC-23).
- High resistance to damp heat (supplied "tropicalised").

In public distribution, the most widely used disconnect switch at the level of LV panel incomers is the SIRCO with direct front operation (e.g. CD SIRCO 1250 A).

Advantages

Reliability and performance

The double breaking per pole, achieved through its sliding bar contact system, is a proven design that offers very high durability and short-circuit withstand.

Safety of property and persons

The position indicator is located directly on the sliding bar contact mechanism, ensuring it can be seen in all circumstances.

The use of glass fibre reinforced polyester gives the SIRCO both high mechanical and thermal resistance.

Simplicity

The standardisation of the SIRCO range and its wide choice of common accessories enable:

- Simple mounting.
- Reduced stock management and storage costs.

Easy to install

The dimensions and design of outdoor connection palms allow easy implementation via:

- A good centre-to-centre distance (up to 120 mm).
- Connection up to 6 x 185 mm².
- Connection accessories which facilitate both flat and edgewise connections.

References

Standard applications - Front operation - 3 & 4-pole

Rating (A) / Frame size	No. of poles	Switch body[1]	Direct handle	External handle	Shaft for external handle	Auxiliary contact	Terminal cover	Terminal screen
125 A / B3	3 P	2600 **3014**	B1 type Black 2699 **5042**[2] Red 2699 **5043**	S2 type Black IP55 1421 **2111**[2] Black IP65 1423 **2111** Red IP65 1424 **2111**	200 mm 1400 **1020** 320 mm 1400 **1032**[2] 500 mm 1400 **1050**	1st contact NO/NC 2699 **0031** 2nd contact NO/NC 2699 **0032**	3 P 2694 **3014**[3] 4 P 2694 **4014**[3]	3 P 2698 **3012**[3] 4 P 2698 **4012**[3]
	4 P	2600 **4014**						
160 A / B3	3 P	2600 **3017**						
	4 P	2600 **4017**						
200 A / B4	3 P	2600 **3021**	B2 type Black 2699 **5052**[2] Red 2699 **5053**				3 P 2694 **3021**[3] 4 P 2694 **4021**[3]	3 P 2698 **3020**[3] 4 P 2698 **4020**[3]
	4 P	2600 **4021**						
250 A / B4	3 P	2600 **3026**						
	4 P	2600 **4026**						
315 A / B5	3 P	2600 **3032**					3 P 2694 **3051**[3] 4 P 2694 **4051**[3]	3 P 2698 **3050**[3] 4 P 2698 **4050**[3]
	4 P	2600 **4032**						
400 A / B5	3 P	2600 **3041**						
	4 P	2600 **4041**						
500 A / B5	3 P	2600 **3051**						
	4 P	2600 **4051**						
630 A / B5	3 P	2600 **3064**						
	4 P	2600 **4064**						
800 A / B6	3 P	2600 **3081**	C2 type Black 2799 **7012**[2] Red 2799 **7013**	S4 type Black IP65 1443 **3111**[2] Red IP65 1444 **3111**	200 mm 1401 **1520** 320 mm 1401 **1532**[2] 400 mm 1401 **1540**		-	3 P 2698 **3080**[3] 4 P 2698 **4080**[3]
	4 P	2600 **4081**						
1000 A / B6	3 P	2600 **3099**						
	4 P	2600 **4099**						
CD 1250 A / B6	3 P	2600 **3119**						
	4 P	2600 **4119**						
1250 A / B7	3 P	2600 **3121**						3 P 2698 **3120**[3] 4 P 2698 **4120**[3]
	4 P	2600 **4121**						
1600 A / B7	3 P	2600 **3161**						
	4 P	2600 **4161**						
1800 A / B8	3 P	2600 **3181**						
	4 P	2600 **4181**						
2000 A / B8	3 P	2600 **3200**		V2 type Black IP65 2799 **7136**[2] Red IP65 2799 **7134**	200 mm 2799 **3015** 320 mm 2799 **3018**[2] 450 mm 2799 **3019**			3 P 2698 **3200**[3] 4 P 2698 **4200**[3]
	4 P	2600 **4200**						
2500 A / B8	3 P	2600 **3250**						
	4 P	2600 **4250**						
3200 A / B8	3 P	2600 **3320**						
	4 P	2600 **4320**						
4000 A / B9	3 P	2600 **3401**	V0 type Black 2799 **7072**[2]	V0 type Black IP65 2799 **7155**[2]		1st/2nd contact NO/NC included		-
	4 P	2600 **4401**						
5000 A / B9	3 P	2600 **3500**						
	4 P	2600 **4500**						

(1) Device available in enclosure. *(2) Standard.* *(3) Top or bottom.*

Accessories

Direct operation handle

Rating (A) / Frame size	No. of poles	Handle type	Handle colour	Reference
125 … 160 / B3	3/4 P	B1	Black	2699 **5042**[1]
125 … 160 / B3	3/4 P	B1	Red	2699 **5043**
125 … 160 / $B3_{DS}$	6/8 P	B3	Black	4199 **5012**[1]
200 … 630 / B4 ... B5	3/4 P	B2	Black	2699 **5052**[1]
200 … 630 / B4 ... B5	3/4 P	B2	Red	2699 **5053**
250 … 630 / $B4_{DS}$ ... $B5_{DS}$	6/8 P	C1	Black	2799 **7052**[1]
250 … 630 / $B4_{DS}$ ... $B5_{DS}$	6/8 P	C1	Red	2799 **7053**
800 … 3200 / B6 ... B8	3/4 P	C2	Black	2799 **7012**[1]
800 … 3200 / B6 ... B8	3/4 P	C2	Red	2799 **7013**
800 … 1600 / $B6_{DS}$ ... $B7_{DS}$	6/8 P	C2	Black	2799 **7012**[1]
800 … 1600 / $B6_{DS}$ ... $B7_{DS}$	6/8 P	C2	Red	2799 **7013**
4000 … 5000 / B9	3/4 P	V0	Black	2799 **7072**[1]

(1) Standard.
Other types of handle: please consult the SOCOMEC general catalogue.

J1 type handle

B2 type handle

Accessories (continued)

Inter-phase barrier

Use

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

Rating (A) / Frame size	No. of poles	Reference
125 ... 160 / B3	3 P	2998 **0033**
125 ... 160 / B3	4 P	2998 **0034**
200 ... 250 / B4	3 P	2998 **0023**
200 ... 250 / B4	4 P	2998 **0024**
315 ... 630 / B5	3 P	2998 **0013**
315 ... 630 / B5	4 P	2998 **0014**
800 ... 5000 / B6 ... B9	3 P	included
800 ... 5000 / B6 ... B9	4 P	included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Terminal shrouds

Use

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

Advantage

Perforations allow remote thermographic inspection without the need to remove the shrouds. The terminal shrouds also provide phase separation for SIRCO switches from 125 to 630 A.

Rating (A) / Frame size	No. of poles	Position	Reference
125 ... 160 / B3	3 P	Top or bottom	2694 **3014**(1)
125 ... 160 / B3	4 P	Top or bottom	2694 **4014**(2)
200 ... 250 / B4	3 P	Top or bottom	2694 **3021**(1)
200 ... 250 / B4	4 P	Top or bottom	2694 **4021**(2)
315 ... 630 / B5	3 P	Top or bottom	2694 **3051**(1)
315 ... 630 / B5	4 P	Top or bottom	2694 **4051**(2)

(1) Reference includes 3 parts for top or bottom protection.
(2) Reference includes 4 parts for top or bottom protection.


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Terminal screen

Use

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

Rating (A) / Frame size	No. of poles	Position	Reference
125 ... 160 / B3	3 P	Top or bottom	2698 **3012**
125 ... 160 / B3	4 P	Top or bottom	2698 **4012**
200 ... 250 / B4	3 P	Top or bottom	2698 **3020**
200 ... 250 / B4	4 P	Top or bottom	2698 **4020**
315 ... 630 / B5	3 P	Top or bottom	2698 **3050**
315 ... 630 / B5	4 P	Top or bottom	2698 **4050**
800 ... CD 1250 / B6	3 P	Top or bottom	2698 **3080**
800 ... CD 1250 / B6	4 P	Top or bottom	2698 **4080**
1250 ... 1800 / B7	3 P	Top or bottom	2698 **3120**
1250 ... 1800 / B7	4 P	Top or bottom	2698 **4120**
2000 ... 3200 / B8	3 P	Top or bottom	2698 **3200**
2000 ... 3200 / B8	4 P	Top or bottom	2698 **4200**
4000 ... 5000 / B9	3/4 P	Top or bottom	1509 **4200**


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Characteristics according to IEC 60947-3

125 to 800 A

Thermal current I_{th} at 40 °C		125 A	160 A	200 A	250 A	315 A	400 A	500 A	630 A	800 A
Frame size		**B3**	**B3**	**B4**	**B4**	**B5**	**B5**	**B5**	**B5**	**B6**
Rated insulation voltage U_i (V)		800	800	800	800	1000	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)		8	8	8	8	12	12	12	12	12
Rated operational currents I_e (A)										
Rated voltage	**Utilisation category**	**A/B[1]**	**A/B[1]**	**A/B[1]**	**A/B[1]**	**A/B[1]**	**A/B[1]**	**A/B[1]**	**A/B[1]**	**A/B[1]**
415 VAC	AC-20 A / AC-20 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630	800/800
415 VAC	AC-21 A / AC-21 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630	800/800
415 VAC	AC-22 A / AC-22 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630	800/800
415 VAC	AC-23 A / AC-23 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	500/500	800/800
220 VDC	DC-20 A / DC-20 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630	800/800
220 VDC	DC-21 A / DC-21 B	125/125	160/160	160/200	250/250	315/315	400/400	500/500	630/630	800/800
220 VDC	DC-22 A / DC-22 B	125/125	160/160	160/200	250/250	315/315	400/400	400/500	500/500	800/800
220 VDC	DC-23 A / DC-23 B	125/125	125/125	160/160	200/200	315/315	400/400	400/400	500/500	800/800
440 VDC	DC-20 A / DC-20 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630	800/800
440 VDC	DC-21 A / DC-21 B	125[3]/125[3]	160[3]/160[3]	160[3]/200[3]	200[3]/200[3]	315[3]/315[3]	400[3]/400[3]	400[3]/400[3]	500[3]/500[3]	800[4]/800[4]
440 VDC	DC-22 A / DC-22 B	125[3]/125[3]	125[3]/125[3]	160[3]/160[3]	200[3]/200[3]	315[3]/315[3]	400[3]/400[3]	400[3]/400[3]	500[3]/500[3]	800[4]/800[4]
440 VDC	DC-23 A / DC-23 B	125[4]/125[4]	125[4]/125[4]	160[4]/160[4]	200[4]/200[4]	315[4]/315[4]	400[4]/400[4]	400[4]/400[4]	500/500	800[4]/800[4]
500 VDC	DC-20 A / DC-20 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630	800/800
500 VDC	DC-21 A / DC-21 B	125[3]/125[3]	125[3]/125[3]	160[3]/200[3]	200[3]/200[3]	315[3]/315[3]	400[3]/400[3]	400[3]/400[3]	500[3]/500[3]	800[4]/800[4]
500 VDC	DC-22 A / DC-22 B	125[4]/125[4]	125[4]/125[4]	160[4]/160[4]	200[4]/200[4]	315[4]/315[4]	315[4]/400[4]	315[4]/400[4]	500[4]/500[4]	800[4]/800[4]
500 VDC	DC-23 A / DC-23 B	125[4]/125[4]	125[4]/125[4]	160[4]/160[4]	200[4]/200[4]	315[4]/315[4]	315[4]/400[4]	315[4]/400[4]	500[4]/500[4]	800[4]/800[4]
Operational power in AC-23 (kW)[1][5]										
At 415 VAC without pre-break AC[1]		63/63	80/80	100/100	132/132	160/160	220/220	280/280	280/280	450/450
Reactive power (kvar)										
At 400 VAC (kvar)[5]		55	75	90	115	145	185	230	290	365
Rated fused (gG DIN) short-circuit conditonal current [6]										
Prospective short-circuit current (kA rms)		100	100	80	50	100	100	100	70	50
Associated fuse rating (A)		125	160	200	250	315	400	500	630	800
Circuit breaker protected short-circuit withstand with any circuit breaker that ensures tripping in less than 0.3s										
Admissible rated short-time current I_{cw} 0.3s (kA rms.)		15	15	17	17	25	25	25	25	50
Short-circuit operation (switch only)										
Admissible rated short-time currentI_{cw} 1s (kA rms.)		7	7	9	9	13	13	13	13	35
Rated peak withstand current in I_{cc} (kA peak)[6][7]		20	20	30	30	45	45	45	45	55
Connection										
Minimum Cu cable cross-section (mm^2)		35	50	70	95	150	185	240	2 x 150	2 x 185
Minimum Cu busbar cross-section (mm^2)		-	-	-	-	-	-	-	2 x 30 x 5	2 x 40 x 5
Maximum Cu cable cross-section (mm^2)		50	95	95	150	240	240	240	2 x 300	2 x 300
Maximum Cu busbar width (mm)		25	25	32	32	40	40	40	50	63
Tightening torque min/max (Nm)		9/-	9/-	20/-	20/-	20/-	20/-	20/-	20/-	40/45
Mechanical specifications										
Durability (number of operating cycles)		10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000	3000
Operating effort (Nm)		6.5	6.5	10	10	10	14.5	14.5	14.5	37
Weight of a 3-pole device (kg)		1	1.5	2	2	3.5	3.5	3.5	3.5	8
Weight of a 4-pole device (kg)		1.5	1.5	2	2	4	4	4.5	4.5	10

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) With terminal shrouds or phase barrier.
(3) 3-pole device with 2 poles in series for the '+' and 1 pole for the '-'.
(4) 4-pole device with 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.
(7) Coordination tables with circuit breaker: please contact us.

Characteristics according to IEC 60947-3-1 (continued)

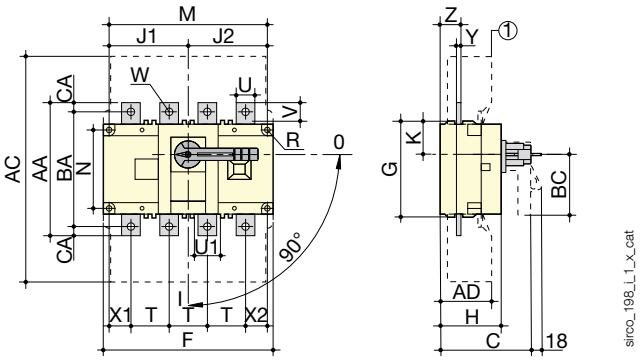
1000 to 5000 A

Thermal current Ith at 40°C		1000 A	CD 1250 A	1250 A	1600 A	1800 A	2000 A	2500 A	3200 A	4000 A	5000 A
Frame size		**B6**	**B6**	**B7**	**B7**	**B7**	**B8**	**B8**	**B8**	**B9**	**B9**
Rated insulation voltage U_i (V)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)		12	12	12	12	12	12	12	12	12	12
Rated operational currents I_e (A)											
Rated voltage	**Utilisation category**	**A/B[1]**	**A/B[1]**	**A/B[1]**	**A/B[1]**	**A/B[1]**	**A/B[1]**	**A/B[1]**	**A/B[1]**	**A/B[1]**	**A/B[1]**
415 VAC	AC-20 A / AC-20 B	1000/1000	1250/1250	1250/1250	1600/1600	1800/1800	2000/2000	2500/2500	3200/3200	4000/4000	5000/5000
415 VAC	AC-21 A / AC-21 B	1000/1000	1250/1250	1250/1250	1600/1600	1800/1800	2000/2000	2500/2500	3200/3200	4000/4000	5000/5000
415 VAC	AC-22 A / AC-22 B	1000/1000	1250/1250	1250/1250	1600/1600	1800/1800	2000/2000	2500/2500	2500/3200	2500/3200	2500/3200
415 VAC	AC-23 A / AC-23 B	1000/1000	1250/1250	1250/1250	1250/1250	1250/1250	1600/1600	1600/1600	1600/1600	1800/2000	1800/2000
220 VDC	DC-20 A / DC-20 B	1000/1000	1250/1250	1250/1250	1600/1600	1800/1800	2000/2000	2500/2500	3200/3200	4000/4000	5000/5000
220 VDC	DC-21 A / DC-21 B	1000/1000	1250/1250	1250/1250	1250/1600	1250/1600	2000/2000	2000/2500	2000/2500	2500/3200	2500/3200
220 VDC	DC-22 A / DC-22 B	1000/1000	1250/1250	1250/1250	1250/1250	1250/1250	1250/1600	1250/1600	1250/1600	1800/2000	1800/2000
220 VDC	DC-23 A / DC-23 B	1000/1000	1250/1250	1250/1250	1250/1250	1250/1250	1250/1250	1250/1250	1250/1250	1250/1600	1250/1600
440 VDC	DC-20 A / DC-20 B	1000/1000	1250/1250	1250/1250	1600/1600	1800/1800	2000/2000	2500/2500	3200/3200	4000/4000	5000/5000
440 VDC	DC-21 A / DC-21 B	1000[4]/1000[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1600[4]	1250[4]/1600[4]	2000[4]/2000[4]	2000[4]/2500[4]	2500[4]/3200[4]	3200[4]/4000[4]	3200[4]/5000[4]
440 VDC	DC-22 A / DC-22 B	1000[4]/1000[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1600[4]/1800[4]	1600[4]/1800[4]
440 VDC	DC-23 A / DC-23 B	1000[4]/1000[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]
500 VDC	DC-20 A / DC-20 B	1000/1000	1250/1250	1250/1250	1600/1600	1800/1800	2000/2000	2500/2500	3250/3250	4000/4000	5000/5000
500 VDC	DC-21 A / DC-21 B	1000[4]/1000[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1600[4]	1250[4]/1600[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1600[4]/1800[4]	1600[4]/1800[4]
500 VDC	DC-22 A / DC-22 B	1000[4]/1000[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1600[4]	1250[4]/1600[4]
500 VDC	DC-23 A / DC-23 B	1000[4]/1000[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1250[4]/1250[4]	1000[4]/1000[4]	1000[4]/1000[4]	1000[4]/1000[4]	1000[4]/1000[4]	1000[4]/1000[4]
Operational power in AC-23 A (kW) (1)(5)											
At 415 VAC without AC pre-break[1]		560/560	710/710	710/710	710/710	710/710	710/710	710/710	710/710	710/710	710/710
Reactive power (kvar)											
At 400 VAC (kvar)[5]		460	-	-	-	-	-	-	-	-	-
Fuse protected short-circuit withstand (kA rms prospective)(6)											
Prospective short-circuit current (kA rms)		100	100	100	100	100	100	100	-	-	-
Associated fuse rating (A)		1000	1250	1250	2 x 800	2 x 800	2 x 1000	2 x 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)		65	65	100	100	100	100	100	100	-	-
Short-circuit operation (switch only)											
Rated short-time withstand current 1s. I_{cw} (kA rms)		35	35	50	50	50	50	50	50	75	75
Rated peak withstand current (kA peak)[6][7]		80	80	110	110	110	110	110	120	165	165
Connection											
Minimum Cu cable cross-section (mm²)		2 x 240	-	-	-	-	-	-	-	-	-
Minimum Cu busbar cross-section (mm²)		2 x 50 x 5	2 x 60 x 5	2 x 60 x 5	2 x 80 x 5	3 x 100 x 5	3 x 100 x 5	4 x 100 x 5	4 x 100 x 5	2 x 100 x 10	2 x 100 x 10
Maximum Cu cable cross-section (mm²)		4 x 185	4 x 185	4 x 185	6 x 185	6 x 185	-	-	-	-	-
Maximum Cu busbar width (mm)		63	63	100	100	100	100	100	100	-	-
Tightening torque min/max (Nm)		40/45	40/45	40/45	40/45	40/45	40/45	40/-	40/-	40/-	40/-
Mechanical specifications											
Durability (number of operating cycles)		3000	3000	4000	4000	4000	3000	3000	3000	2000	2000
Operating effort (Nm)		37	37	56	56	56	75	75	75	105	105
Weight of a 3-pole device (kg)		8	8	12	12	12	22	22	22	45	45
Weight of a 4-pole device (kg)		10	10	15	15	15	25	25	25	50	50

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) With terminal shrouds or phase barrier.
(3) 3-pole device with 2 poles in series for the '+' and 1 pole for the '-'.
(4) 4-pole device with 2 poles in series per polarity.
(5) The power value is given for information only, as the current values vary from one manufacturer to another.
(6) For a rated operational voltage U_e = 415 VAC.
(7) Coordination tables with circuit breaker: please contact us.

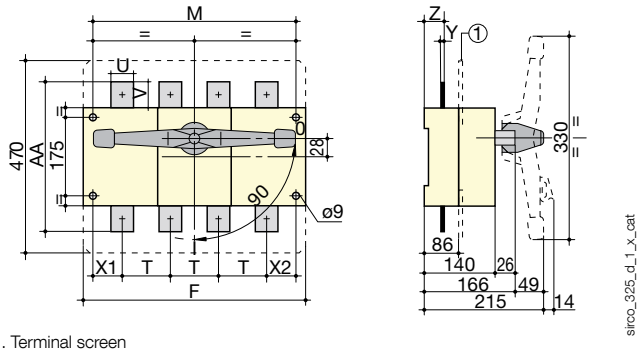
Dimensions - Front operation

125 to 630 A / B3 to B5



1. Terminal shroud

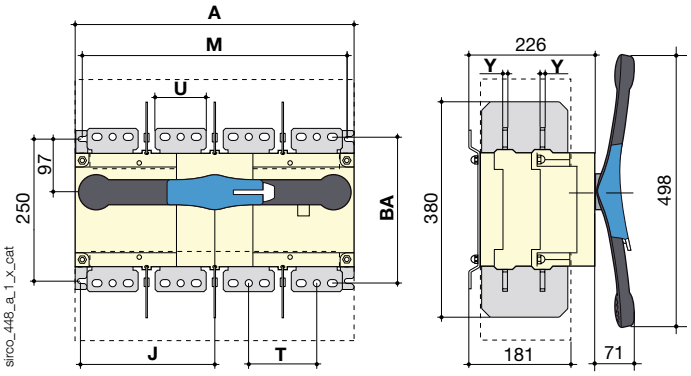
800 to 1800 A / B6 - B7



1. Terminal screen

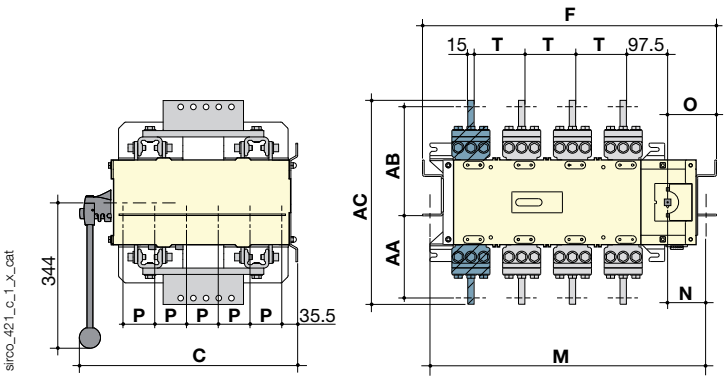
Rating (A) / Frame size	Overall dimensions C	Overall dimensions D min	Terminal shroud AC	Terminal shroud AD	Switch body F 3p.	Switch body F 4p.	Switch body G	Switch body H	Switch body J1 3p.	Switch body J1 4p.	Switch body J2	Switch body K	Switch body BC	Switch mounting M 3p.	Switch mounting M 4p.	Switch mounting N	Switch mounting R	Connection T	Connection U	Connection U1	Connection V	Connection W	Connection X1 3p.	Connection X1 4p.	Connection X2	Connection Y	Connection Z	Connection AA	Connection BA	Connection AC
125 … 160 / B3	115	125	235	50	140	170	93	65	45	75	75	31.5	80	120	150	65	5.5	36	20	20.5	25	9	28	22	20	3.5	20.5	135	115	10
200 … 250 / B4			280	60	180	230	108	75	55	105	105	34	115	160	210	80	5.5	50	20	25.5	21.5	11	33	33	27	3.5	22.5	160	130	15
315 … 400 / B5	160	165	401	89	230	290	170	110	75	135	135	55	115	210	270	140	7	65	32	45.5	29	11	42.5	37.5	37.5	5	36	235	205	15
500 / B5																						13								
630 / B5																			45		41.5							260	220	20
800 … 1000 / B6	-	-	-	-	280	360	-	-	-	-	-	-	-	255	335	-	-	80	50	-	60.5	-	47.5		47.5	7	46.5	321	-	-
CD 1250 / B6																			60		65							330		
1250 … 1800 / B7					372	492								347	467			120	90		44		53.5		53.5	8	47.5	288		

2000 to 3200 A / B8



Rating (A) / Frame size	Overall dimensions A 3p.	Overall dimensions A 4p.	Switch body J 3p.	Switch body J 4p.	Switch mounting M 3p.	Switch mounting M 4p.	Connection T	Connection U	Connection Y	Connection BA
2000 … 3200 / B8	372	492	173.5	233.5	347	367	120	90	8	258

4000 to 5000 A / B9

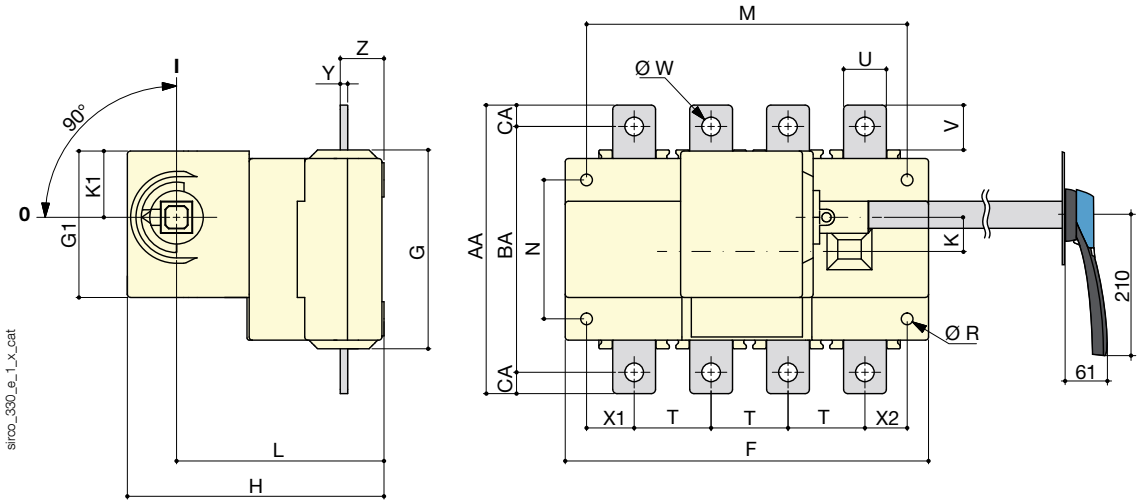


Rating (A) / Frame size	Overall dimensions C	Switch body F 3p.	Switch body F 4p.	Switch mounting M 3p.	Switch mounting M 4p.	Switch mounting N	Switch mounting NO	Switch mounting D	Connection T	Connection V	Connection AA	Connection AB	Connection AC	Connection BA
4000 … 5000 / B9	514	695	695	660	660	98	115.5	75	120	86	160	292	482	452

Dimensions - Side operation

125 to 630 A / B3 to B5

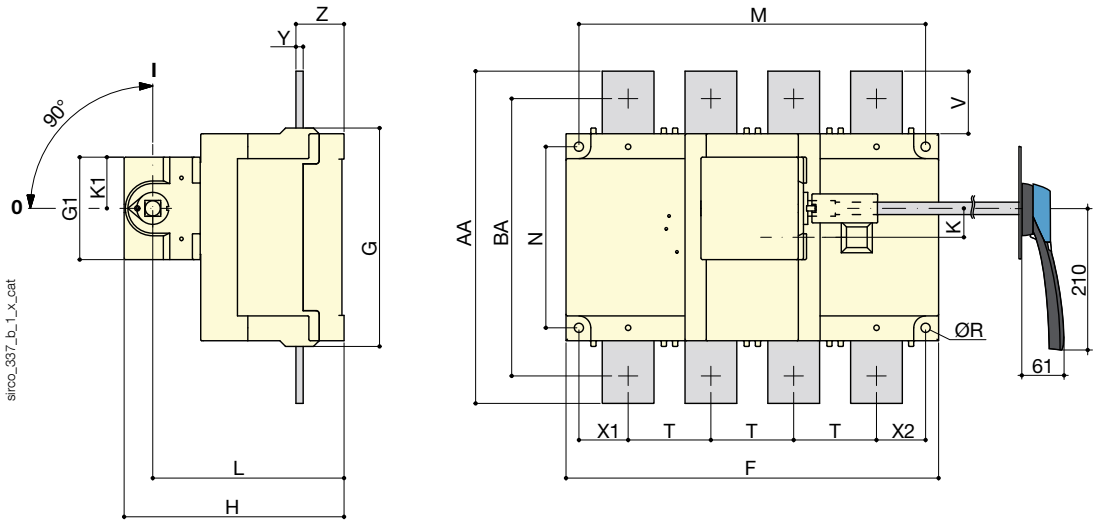
External right side operation



Rating (A) / Frame size Side	Switch body					Switch mounting							Connection										
	F 3p.	F 4p.	G	G1	H	K	K1	W	M 3p.	M 4p.	N	R	T	U	V	W	X1 3p.	X1 4p.	X2	Y	Z	AA	BA	AC
125 … 160 / B3	140	170	93		120	15		97	120	150	65	5.5	36	20	25	9	28	22	20	3.5	20.5	135	115	10
200 … 250 / B4	180	230	108		130	20		108	160	210	80		50	25	21.5	11	33	33	27		22.5	160	130	
315 … 400 / B5				69			31							32	29							235	205	15
500 / B5	230	290	170		165	29		142	210	270	140	7	65			13	42.5	37.5	37.5	5	36			
630 / B5														45	41.5							260	220	20

800 to 1800 A / B6 to B7

External right side operation



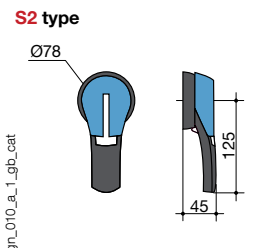
Rating (A) / Frame size Side	Switch body					Switch mounting							Connection							
	F 3p.	F 4p.	G	G1	H	K	K1	W	M 3p.	M 4p.	N	R	T	V	X1	X2	Y	Z	AA	BA
800 / B6	280	360	211	99	213	28	50	185	255	335	175	9	80	60.5	47.5	47.5	7	46.5	321	268
CD 1 250 / B6														65					330	271
1800/B7	372	492							347	467			120	44	53.5	53.5	8	47.5	288	258

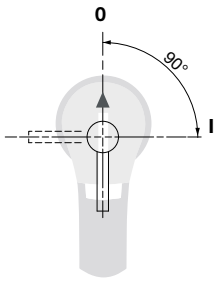
Dimensions for external handles

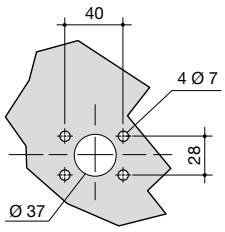
B3 to B5

Front operation

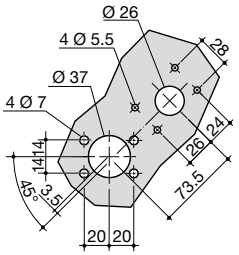
Handle type	Direction of operation	Door drilling
S2 type		







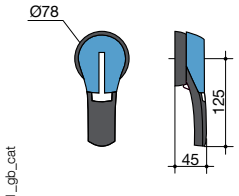
With lock
RONIS EL11AP

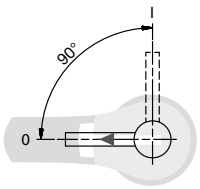


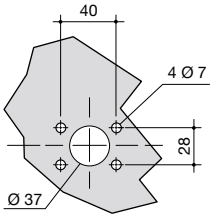
poign_010_a_1_gb_cat

Side operation

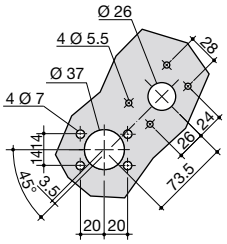
Handle type	Direction of operation	Door drilling
S2 type	**Right side operation**	







With lock
RONIS EL11AP

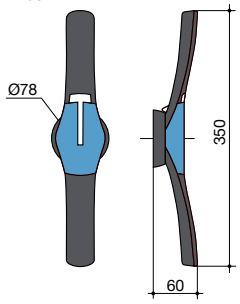


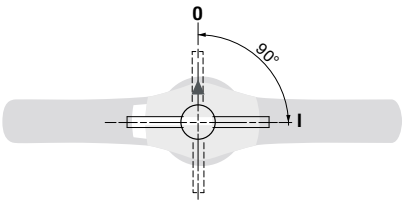
poign_028_a_1_gb_cat

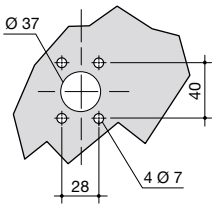
B6 - B7

Front operation

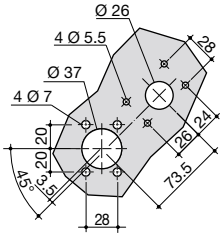
Handle type	Direction of operation	Door drilling
S4 type		







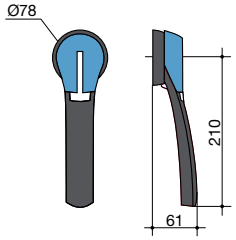
With lock
RONIS EL11AP

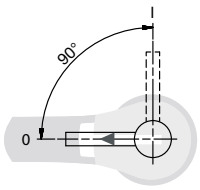


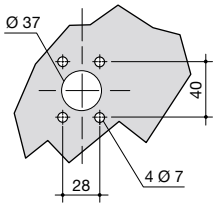
poign_011_a_1_gb_cat

Side operation

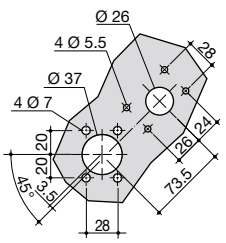
Handle type	Direction of operation	Door drilling
S3 type	**Right side operation**	







With lock
RONIS EL11AP

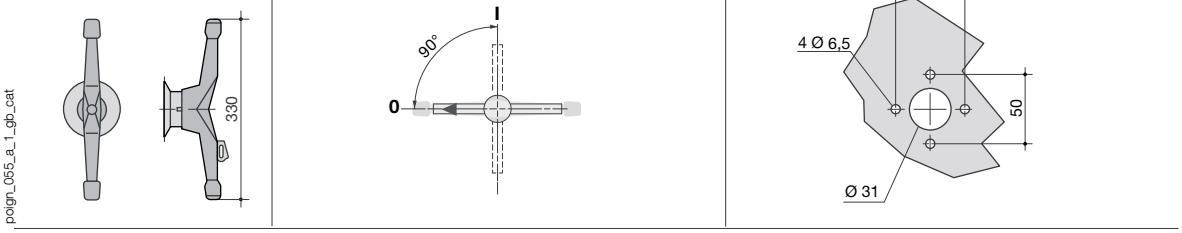


poign_029_a_1_gb_cat

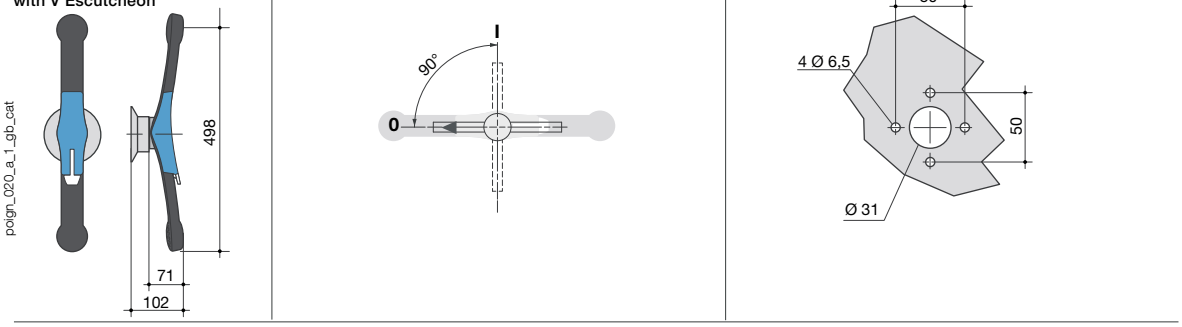
Dimensions for external handles (continued)

B7 - B8

Handle type	Front operation Direction of operation	Door drilling
V2 Type		

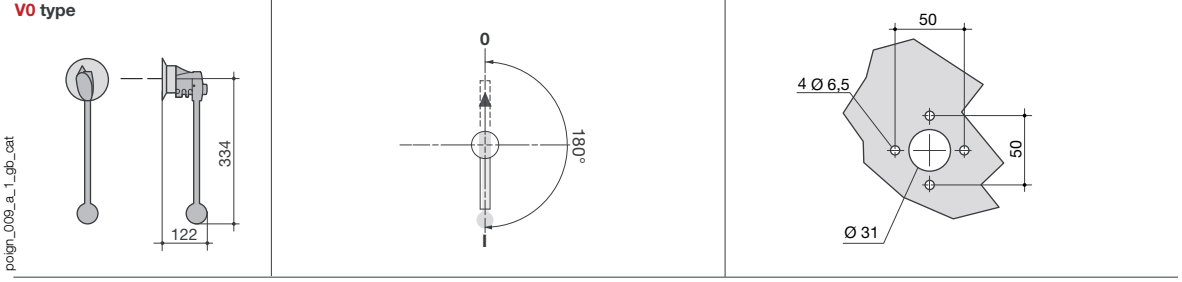


Handle type	Front operation Direction of operation	Door drilling
S5 type with V Escutcheon		



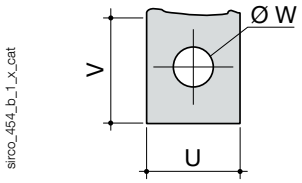
B9

Handle type	Front operation Direction of operation	Door drilling
V0 type		



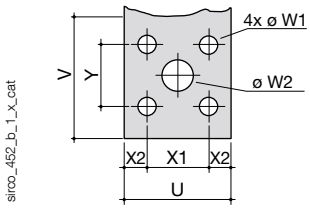
Connection terminal

125 to 630 A



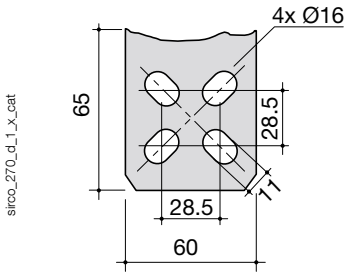
Rating (A)	U	V	W
125 … 160	20	25	9
200 … 250	25	21.5	11
315 … 400	32	29	
500			13
630	45	41.5	

630 to 1000 A



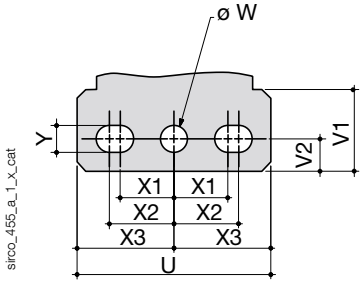
Rating (A)	U	V	W1	W2	X1	X2	Y
630 … 1000	50	60.5	9	16	28.5	11	33

CD 1250 A



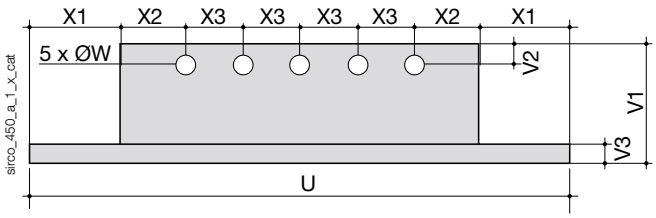
Rating (A)	U	V1	V2	W	X1	Y
CD 1250 A	60	65	28.5	16	28.5	11

1250 to 3200 A



Rating (A)	U	V1	V2	W	X1	X2	X3	Y
1250 … 3200	90	35.8	15	12.5	25	30	45	12.5

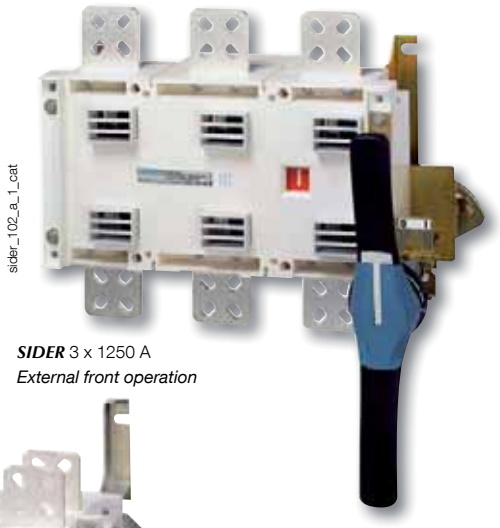
4000 to 5000 A



Rating (A)	U	W	X1	X2	X3	V1	V2	V3
4000 … 5000	286	13	48	35	30	86	15	15

SIDER

Load break switches for power distribution
with visible breaking from 630 to 3150 A



SIDER 3 x 1250 A
External front operation

SIDER 2500 A
Direct front operation

The solution for

> LV panels in MV/LV distribution substations

Strong points

> Safety thanks to visible breaking
> Wide range

Compliance with standards

> IEC 60947-3
> UKR (Ukraine)
> GOST (Russia)

Function

SIDER are manually operated 3 or 4-pole load break switches.
They assure on-load making and breaking and provide safety isolation for any LV circuit. They can be installed at the level of section incomers in low voltage distribution cabinets.
In public distribution, SIDER load break switches are frequently used at the level of section incomers in LV substations (reduced size urban switchboards, etc).

Advantages

Safety thanks to visible breaking
Visible breaking and positive break indication ensure safe switching. The user can assess the condition of the device either during a preventive check or before an operation.

Wide range
The SIDER range is very extensive, covering ratings from 630 up to 3150 A, in 3 and 4-pole versions (4-pole only up to 1600 A).

References

Front operation

Rating (A)	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle
630 A	3 P	2900 **3063**	Black 2799 **7012**(1) Red 2799 **7013**	S4 type Black 1443 **3111**(1) Red/Yellow IP65 1444 **3111**	200 mm 1401 **1520** 320 mm 1401 **1532**(1) 400 mm 1401 **1540**
	4 P	2900 **4063**			
800 A	3 P	2900 **3080**			
	4 P	2900 **4080**			
1250 A	3 P	2900 **3120**			
	4 P	2900 **4120**			
1600 A	3 P	2900 **3160**			
	4 P	2900 **4160**			
1800 A	3 P	2901 **3180**			
2000 A	3 P	2901 **3200**			
2500 A	3 P	2901 **3250**			
3150 A	3 P	2901 **3310**			

(1) Standard.

Accessories

Direct operation handle

Rating (A)	Handle colour	Reference
630 … 3150	Black	2799 **7012**(1)
	Red	2799 **7013**

(1) Standard.

C2 type handle

acces_153_a_1_cat

External operation handle

Rating (A)	Handle colour	Reference
630 … 3150	Black	1443 **3111**(1)
	Red/Yellow IP65	1444 **3111**

(1) Standard.

S4 type handle

acces_152_a_1_cat

Accessories (continued)

Shaft for external operation

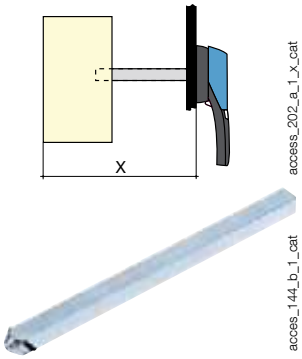
Use

Standard lengths:

- 200 mm.
- 300 mm.
- 400 mm.

Other widths available - please ask us.

Rating (A)	Length (mm)	Reference
630 ... 3150	200	1401 **1520**
	320	1401 **1532**
	400	1401 **1540**



Terminal screen

Use

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

Rating (A)	No. of poles	Position	Reference
630 ... 1800	3 P	Top or bottom	2998 **3120**
630 ... 1600	4 P	Top or bottom	2998 **4120**

Inter-phase barrier

Use

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

Rating (A)	No. of poles	Reference
630 ... 1800	3 P	2998 **0003**
630 ... 1600	4 P	2998 **0004**

Key handle interlocking system

Use

Locking in position 0 of the front operation handle:

- Using a RONIS EL11AP lock in direct front operation (Fig. 1).
- Using a RONIS EL11AP or CASTELL K-type lock in external front operation (Fig. 2).

Rating (A)	Command	Figure	Reference
630 ... 1800	front direct	1	2799 **7007**
630 ... 1800	external front	2	1499 **7701**

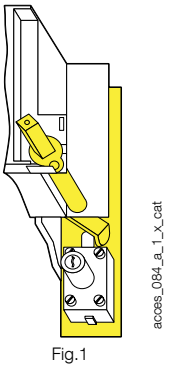


Fig.1

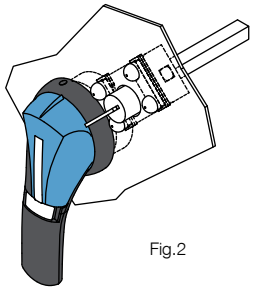


Fig.2

Electrical characteristics

Characteristics according to IEC 60947-3

Thermal current I_{th} at 40°C		**630**	**800**	**1250**	**1600**	**1800**	**2000**	**2500**	**3150**
Rated insulation voltage U_i (V)		1000	1000	1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)		12	12	12	12	12	12	12	12
Rated operational currents I_e (A)									
Rated voltage	**Load duty category**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**
415 VAC	AC-20 A / AC-20 B	630/630	800/800	1250/1250	1600/1600	1800/1800	2000/2000	2500/2500	3150/3150
415 VAC	AC-21 A / AC-21 B	630/630	800/800	1250/1250	1600/1600	1800/1800	2000/2000	2500/2500	3150/3150
415 VAC	AC-22 A / AC-22 B	630/630	800/800	1250/1250	1250/1250	-	-	-	-
415 VAC	AC-23 A / AC-23 B	630/630	630/800	1000/1000	1000/1000	-	-	-	-
Short-circuit operation (switch only)									
Rated admissible short-time withstand current 1s. Icw (kA rms)		26	26	50	50	50	50	50	50
Short-circuit making capacity without fuses I_{cm} (kA assumed peak)		50	50	70	70	80	80	80	80
Connection									
Minimum Cu cable cross-section (mm^2)		2 x 150	2 x 185	-	-	-	-	-	-
Minimum Cu cable cross-section (mm^2)		2 x 30 x 5	2 x 40 x 5	2 x 60 x 5	2 x 80 x 5	-	-	-	-
Minimum Cu cable cross-section (mm^2)		2 x 300	2 x 300	4 x 185	6 x 240	-	-	-	-
Maximum Cu busbar width (mm)		63	63	100	100	-	-	-	-
Tightening torque min/max (Nm)		20	20	20	40	-	-	-	-

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

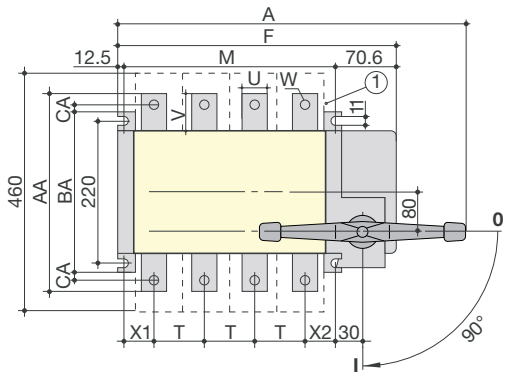
SIDER

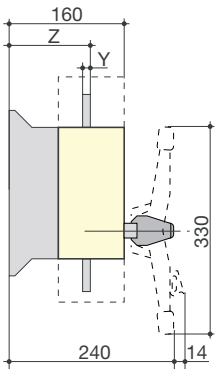
Load break switches for power distribution,
with visible breaking from 630 to 3150 A

Dimensions

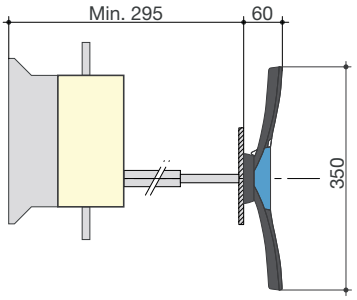
630 to 1800 A

Direct front operation





External front operation

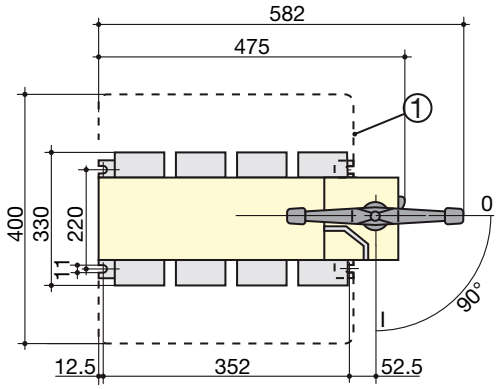


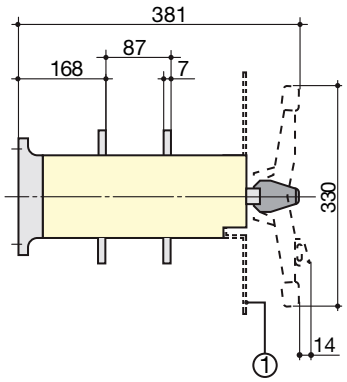
sider_061_f_1_x_cat.eps

Rating (A)	Overall dimensions A 3p.	Overall dimensions A 4p.	Switch body F 3p.	Switch body F 4p.	Switch mounting M 3p.	Switch mounting M 4p.	Connection T	U	V	W	X1	X2	Y	Z	AA	BA	AC
630	463	543	358	438	255	335	80	40	50	13	42.5	52.5	6	106	300	260	20
800	463	543	358	438	255	335	80	50	60	9	47.5	47.5	6	106	320	-	-
1250	555	675	430	550	347	467	120	63	65	16x11	46.5	60.5	7	107	330	-	-
1600	555	675	430	550	347	467	120	80	80	13	46.5	60.5	15	111	360	-	-
1800	479	-	417	-	345	-	120	100	80	-	46.5	60.5	15	112	630	250	-

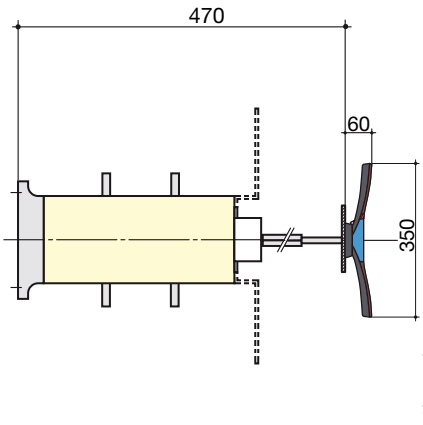
2000 to 2500 A

Direct front operation





External front operation



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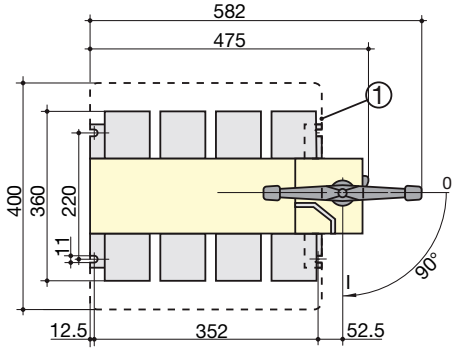
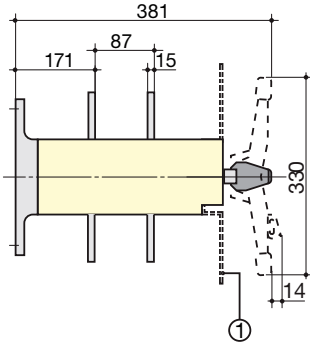
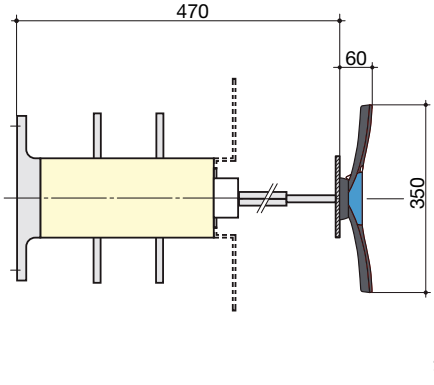
3150 A

Direct front operation





External front operation



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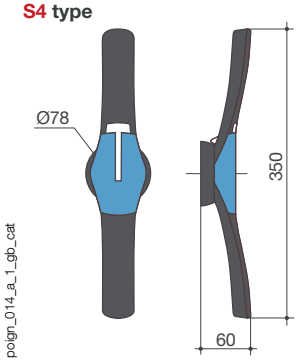
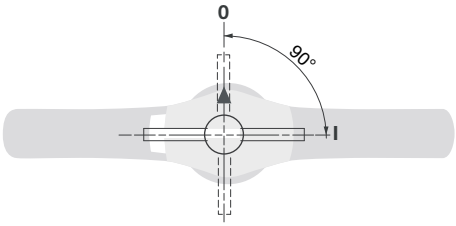
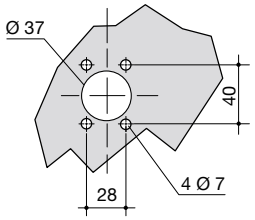
Dimensions for external handles

630 to 3150 A

Handle type	Front operation Direction of operation	Door drilling
S4 type 		

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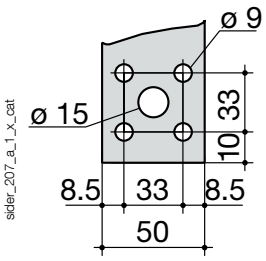
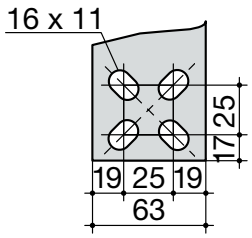
Connection terminal

800 A



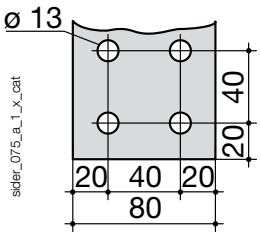
sider_207_a_1_x_cat

1250 - 2000 - 2500 A



sider_074_a_1_x_cat

1800 A



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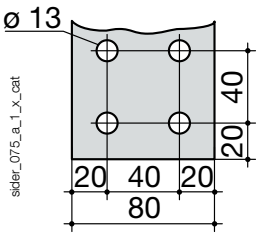
1600 - 3150 A



sider_075_a_1_x_cat

SIDERMAT

Remote-trip load break switches for power distribution

remotely trippable switch from 250 to 1800 A

The solution for

> LV panels in MV/LV distribution substations

Strong points

> Remote tripping
> Safety thanks to visible double breaking
> Utilisation in harsh operating conditions

Compliance with standards

> IEC 60947-3
> UKR (Ukraine)
> GOST (Russia)
> SGS (Saudi Arabia)

Find out more

The complete range of SIDERMAT load break switches

www.socomec.com/en/distri-load-break-switches

Function

SIDERMAT are manually operated 3 or 4-pole load break switches with visible breaking and a remote tripping function. They make and break under load conditions and provide safety isolation for any low voltage circuit.

The tripping function is used to provide the following functions:

- Personal protection against insulation faults when utilised in combination with toroids and differential relays.
- Protection against overloads when utilised in combination with CTs and thermal relays.
- Fuse-based protection against short circuits.

The SIDERMAT load break switch is used in certain low voltage public distribution switchboards that require a tripping function.

Advantages

Remote tripping

Remote opening via a push-button voltage release device for disconnecting the installation.

Safety thanks to visible double breaking

SIDERMAT switches are double breaking devices with visible contacts (quadruple breaking up to 800 A) for a clear and secure display of the contacts' position.

Utilisation in harsh operating conditions

By lowering the current via a limiting resistor, a SIDERMAT fitted with an undervoltage coil may be used in continuous processes or exposed to high ambient temperatures.

References

Front operation

Switch body with a 230 VAC shunt trip coil

Rating (A)(1)	No. of poles	Switch body External operation	Direct handle	External handle	Shaft for handle
630 A	3 P	3500 **3064**	Black 3999 **6203**(2)	S3 type Black 1431 **3511**(2) Red/Yellow IP65 1432 **3511**	200 mm 1401 **1520** 320 mm 1401 **1532**(2)
	4 P	3500 **4064**			
800 A	3 P	3500 **3081**			
	4 P	3500 **4081**			
1250 A	3 P	3500 **3121**			
	4 P	3500 **4121**			
1600 A	3 P	3500 **3161**			
	4 P	3500 **4161**			
1800 A	3 P	3500 **3180**			
	4 P	3500 **4180**			

(1) Ratings < 630 A : please refer to the SOCOMEC general catalogue.
(2) Standard.

Accessories

Direct operation handle

Rating (A)	Handle colour	Reference
630 … 1800	Black	3999 **6203**(1)
	Red	contact us

(1) Standard.

External operation handle

Rating (A)	Handle colour	Reference
630 … 1800	Black	1431 **3511**(1)
	Red/Yellow IP65	1432 **3511**

(1) Standard.

Shaft for external operation

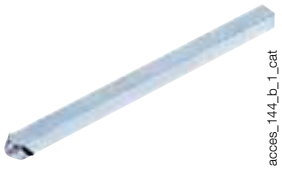
Use

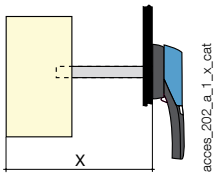
Standard lengths:

- 200 mm.
- 320 mm.

Other lenghts available - please ask us.

Rating (A)	Length (mm)	Reference
630 … 1800	200	1401 **1520**
	320	1401 **1532**





Accessories (continued)

Terminal screen

Use

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

Rating (A)	Position	Reference
1250 … 1800	Top or bottom	2998 **3120**

acces_058_a_1_cat

Inter-phase barrier

Use

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

Rating (A)	Reference
1250 … 1600	2998 **0003**
1800	Included

acces_036_a_1_cat

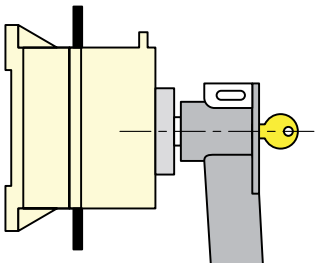
Handle key interlocking system

Use

Locking in position 0 of the front operation handle:

- Using a padlock (not supplied) and factory integrated into the handle. Padlocking, in external front operation, locks the door.
- Using RONIS 1104 A lock (key BC 3318) to be mounted directly on the padlockable handle.
- Locking using RONIS EL11AP lock (not supplied).

Rating (A)	Operation	Type	Reference
630 … 1800	Front direct	RONIS 1104 A (included)	3999 **8104**
630	Front direct	RONIS EL11AP lock (not supplied)	3999 **6107**
800 … 1800	Front direct	RONIS EL11AP lock (not supplied)	3999 **7007**
630 … 1800	External front	RONIS EL11AP lock (not supplied)	1499 **7701**



RONIS 1104A lock

acces_010_b_1_x_cat

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Tripping coil

Use

Omnipolar breaking remotely controlled by shunt trip or undervoltage release coil.

Note:the shunt trip coil must not be supplied for more than 5s.

A 230 VAC shunt trip coil is fitted as standard to the switch body. To have an alternative coil, one of the references below must be added to the switch reference.

Shunt trip coil

acces_049_a_1_cat

Voltage	Shunt trip coil	Undervoltage trip coil
24 VAC	3991 **1024**	3991 **3024**
48 VAC	3991 **1048**	3991 **3048**
110 VAC	3991 **1110**	3991 **3110**
230 VAC	Included	3991 **3220**
400 VAC	3991 **1380**	3991 **3380**
12 VDC	3991 **2012**	3991 **4012**
24 VDC	3991 **2024**	3991 **4024**
48 VDC	3991 **2048**	3991 **4048**
110 VDC	3991 **2220**	3991 **4110**
220 VDC	3991 **2220**	3991 **4220**

Undervoltage trip coil

acces_050_a_1_cat

Electrical characteristics

Characteristics according to IEC 60947-3

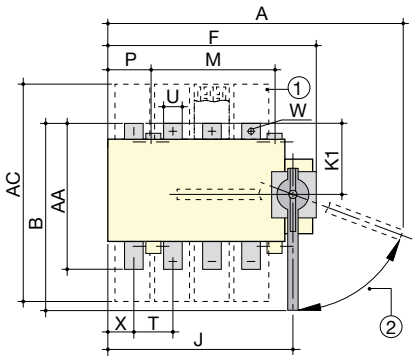
Thermal current I^{th} at 40°C		**630 A**	**800 A**	**1250 A**	**1600 A**	**1800 A**
Rated insulation voltage U_i (V)		1000	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)		12	12	12	12	12
Rated operational currents I_e (A)						
Rated voltage	**Load duty category**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**
400 VAC	AC-22 A / AC-22 B	630/630	800/800	1250/1250	1600/1600	1800/1800
400 VAC	AC-23 A / AC-23 B	630/630	630/630	1250/1250	1600/1600	1800/1800
Short-circuit operation (switch only)						
Rated short-time withstand current 0.3 s. I_{cw} (kA rms.)		50	65	65	80	80
Rated peak withstand current in I_{cc} (kA peak)(2)		55	80	100	120	120

(1) Category with index A = frequent operation - Category with index B = infrequent operation.
(2) For a rated operational voltage Ue = 440 VAC.

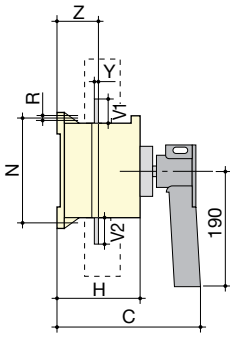
Dimensions

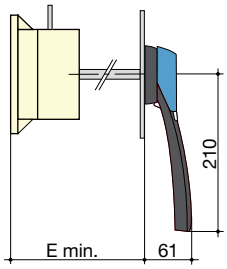
630 to 800 A

Direct front operation



External front operation





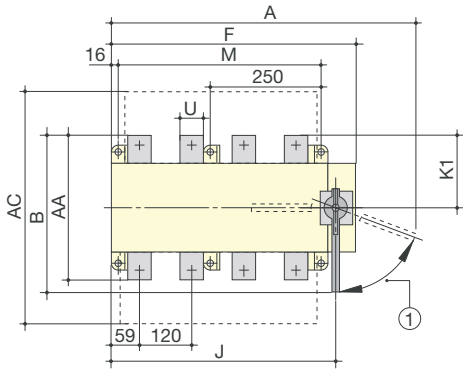
sdmat_061_c_1_x_cat

1. Terminal shroud
2. 70° reset

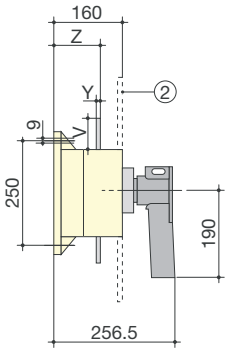
Rating (A)	Overall dimensions					Terminal shrouds	Switch body						Switch mounting					Connection										
	A 3p.	A 4p.	B	C	E min	AC:	F 3p.	F 4p.	H	J 3p.	J 4p.	K1	M	N	P 3p.	P 4p.	R	T	U	V1	V2	W	X 3p.	X 4p.	Y	Z	AA
630	435	495	318.5	248	275	388	285	345	148	253	313	115	210	180	10	70	7	65	32	35	43	13	31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

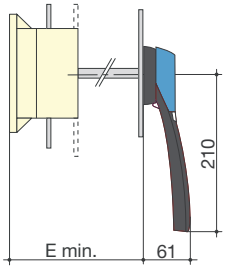
1250 to 1800 A

Direct front operation



External front operation





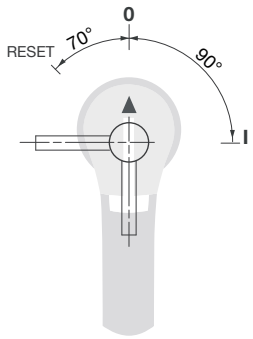
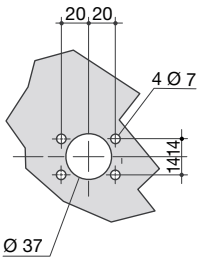
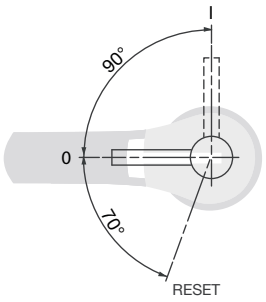
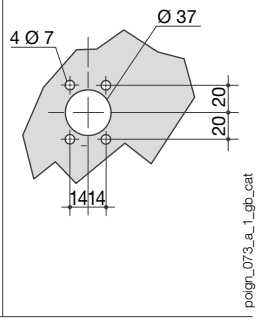
sdmat_062_c_1_x_cat

1. 70° reset
2. Terminal screen

Rating (A)	Overall dimensions				Terminal shrouds	Switch body				Switch mounting		Connection					
	A 3p.	A 4p.	B	E min	AC:	F 3p.	F 4p.	J 3p.	J 4p.	M 3p.	M 4p.	U	V	Y	Z	AA	K1
1250	582	702	355	291	480	437	557	400	520	345	465	63	65	7	106	330	165
1600	582	702	370	291	479	437	557	400	520	345	465	80	80	15	110	360	180
1800	582	702	370	291	479	437	557	400	520	345	465	100	80	15	110	360	180

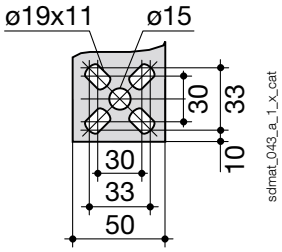
Dimensions for external handles

630 to 1800 A

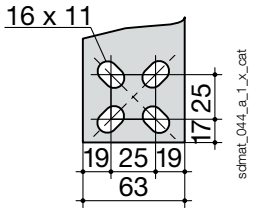
Handle type	Front operation		Side operation	
	Direction of operation	Door drilling	Direction of operation	Door drilling
S3 type				

Connection terminal

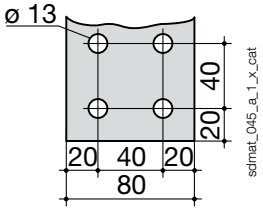
800 A



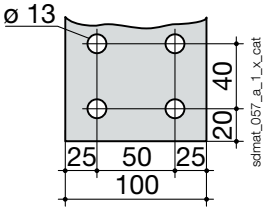
1250 A



1600 A



1800 A



Fuses for public distribution

Special size 2 gG fuses

from 63 to 400 A

fusib_158_a_1_cat

Fuse with flexible clamp

fusib_159_a_1_cat

Fuse with secure clamp

The solution for

- Low voltage switch panels in MV/LV distribution substations
- Distribution cabinet
- Metering and connection enclosure

Strong points

- Improved mechanical withstand
- IP2XC
- Optimum quality
- Adapted protection
- Certified low watt loss

Compliance with standards

- HN 63-S-20
- IEC 60269-1-2

Function

SOCOMEC fuses provide protection for low voltage distribution wiring systems. They are intended for section feeders on low voltage switchboards, high power circuits, and with network boxes and connection enclosures.

There are 2 versions of fuses:

- 115 mm bar with flexible clamp.
- 160 mm bar with secure clamp.

In addition to the fuses, a neutral link should be fitted to the neutral pole of the circuit breakers.

Advantages

In addition to the benefits of standard gG fuses (high breaking capacity, simple and reliable discrimination, guaranteed protection over time, arc containment inside the fuse during fault elimination, etc.), these fuses have extra benefits.

Improved mechanical withstand

SOCOMEC fuses can withstand a drop of one metre on any angle without breaking or bending out of shape. The impact resistance is 3 joules, as per standard HN 63-S-20. For this, the fuses have patented insulating gripping lugs and an insulating polyester casing.

IP2XC

Its IP2X protection index considerably enhances operator safety. Apart from the blades that project on either side of the fuse casing, the entire fuse is made of insulating material, including the gripping lugs. Once in place, this type of fuse ensures the IP2XC protection level for equipment, for example the TIPI low voltage feeder pillar

Optimum quality

Product quality and traceability are ensured by an individual test and quality-control marking at the end of production.

Adapted protection

With a slightly different curve compared to a gG fuse, a HN fuse provides better protection for low overcurrents that occur especially in case of short circuit impedance (e.g. a fault on a long section of cable). See the characteristics below.

Certified low watt loss

Consumption for each rating is limited by standard HN 63-S-20, thus reducing operating costs.

References

Rating (A)	Blade (mm)	ERDF N°	Reference
63*	115	-	8115 **0063**
	160	-	8160 **0063**
125	115	69 42 007	8115 **0125**
	160	69 43 408	8160 **0125**
160*	115	-	8115 **0160**
	160	-	8160 **0160**
200	115	69 43 009	8115 **0200**
	160	69 43 413	8160 **0200**
250	115	69 43 013	8115 **0250**
	160	69 43 417	8160 **0250**
315*	115	-	8115 **0315**
	160	-	8160 **0315**
400	115	69 43 016	8115 **0400**
	160	69 43 424	8160 **0400**

** Extended fuse rating to HN standard scope. Fuses designed according to HN 63-S-20 (insulating gripping lugs...) with a melting element according to IEC EN 60269 63 A fuse gG curve.*

Accessories

Type	Blade (mm)	Reference
Neutral link with insulating brackets	115	9059 **0015**
	160	9059 **0010**

Electrical characteristics

Nominal current (A)	63, 125, 160, 200, 250, 315, 400
Rated voltage (V)	440
Breaking capacity (kA rms)	50

Fuses for public distribution

Special size 2 gG fuses

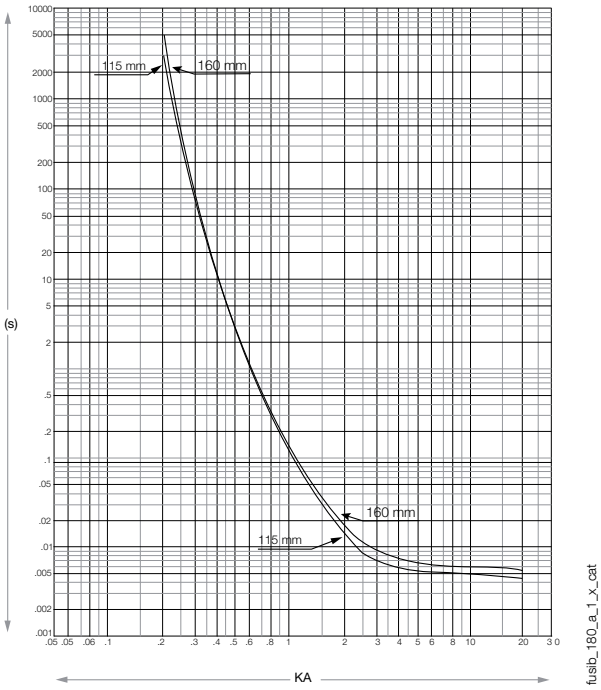
from 63 to 400 A

Typical HN fuse curves

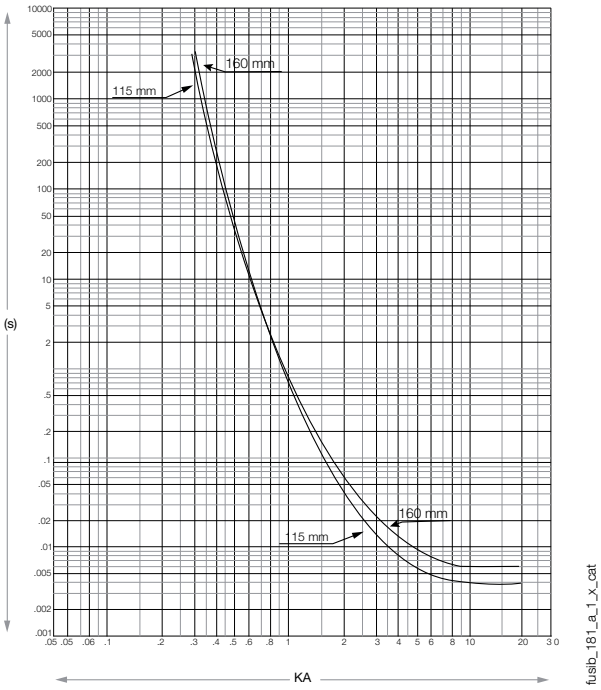
Rated current I_n (A)	HN 63-S-20 Total operating time for a current equal to…			
	2.5 I_n	≤ 4 I_n	6 I_n	≤ 20 I_o
125 - 200 - 250	1.5 A / 70 s	0.2 A / 5.5 s	0.05 A / 1.0 s	2 to 24 ms
400	7 A / 110 s	0.8 A / 10.0 s	0.2 A / 1.8 s	3 to 50 ms

HN fuse melting times are very similar to gG fuses for high overcurrents (20 I_n and over), but slightly quicker for overcurrents from 2.5 to 6 I_n.

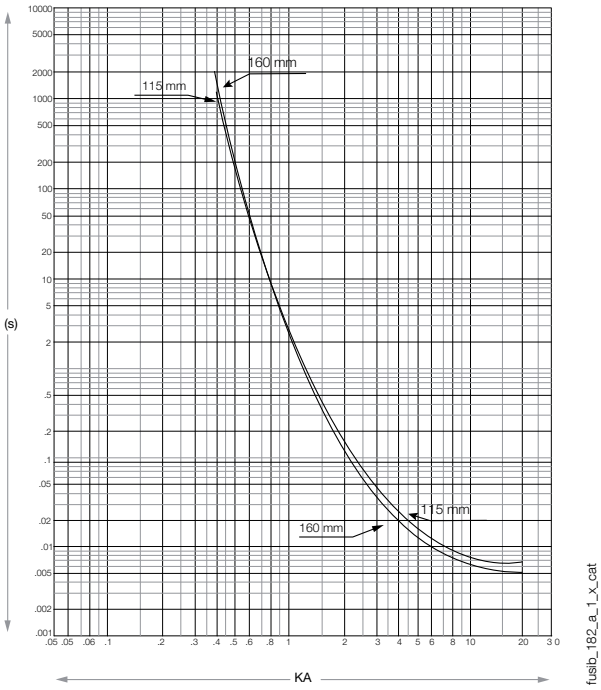
125 A curve



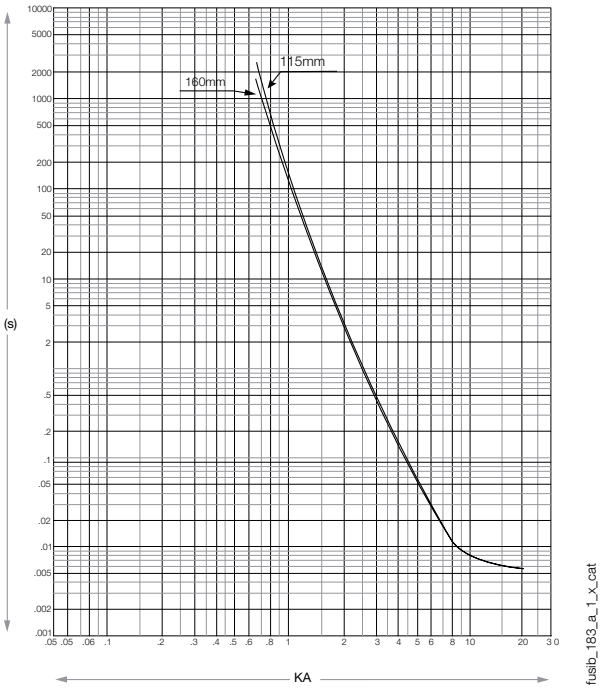
200 A curve



250 A curve



400 A curve



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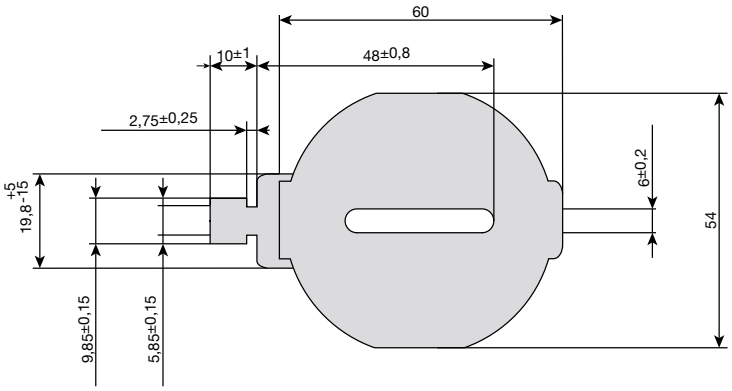
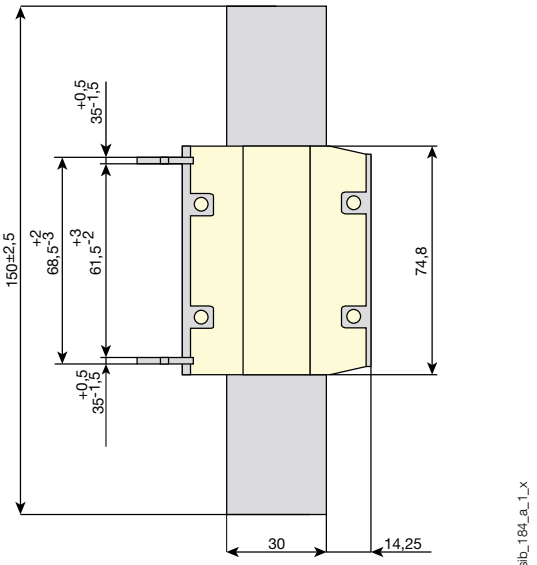
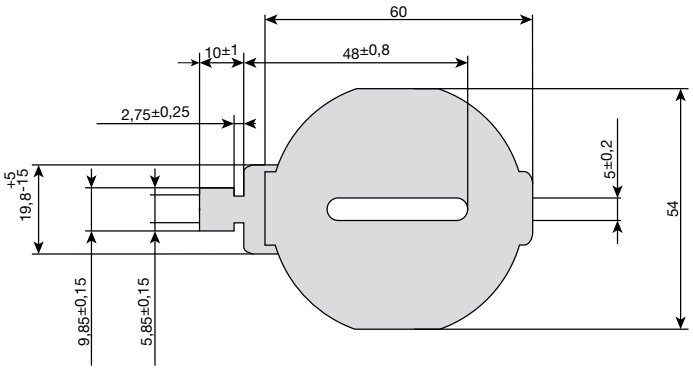
Dimensions

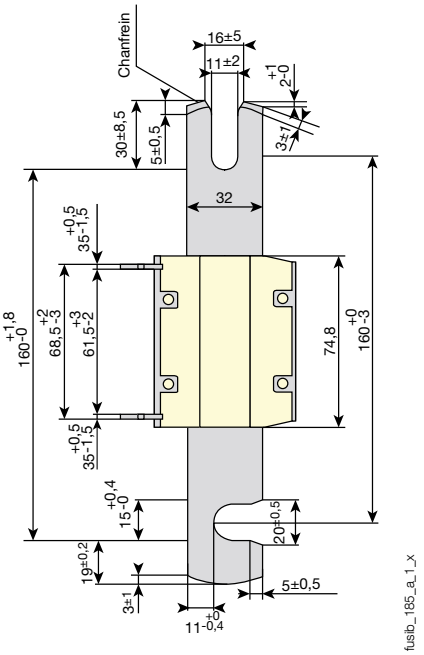
115 mm blade





0.5 160 mm





Delivery substations

Current transformers

Ø 40
Transformer
0.5 and 0.2s class
p. 110

42 x 105 mm
Transformer
0.2s class
p. 110

Ø 90
Transformer
0.2s class
p. 110

Voltage transformers

Voltage transformers
Indoor version
p. 112

Voltage transformers
Outdoor version
p. 112

UPS

ITYS ES
1000 to 3000 VA
p. 114

Services

- Designing customised solutions: AU, current transformer, etc.
- Tests and qualifications
- Commissioning and maintenance contracts

- For more information, See page 9.

Current transformers

High-precision LV measurement sensors

Why use high-precision measurement sensors?

Delivery substations

Above 50 kVA, commercial and industrial businesses are supplied directly with medium voltage (MV) power. The supply to the electrical installation is done via an MV/LV substation that is in close proximity to subscriber power components. The subscriber to MV electricity has cheaper prices.

The MV/LV substation belongs to the subscriber and is called a “delivery substation”. The metering equipment in this substation belongs to the utility operator.

Why use a 0.2s current transformer?

Current transformers are the first link in the metering chain and play a decisive role in ensuring overall measurement accuracy.

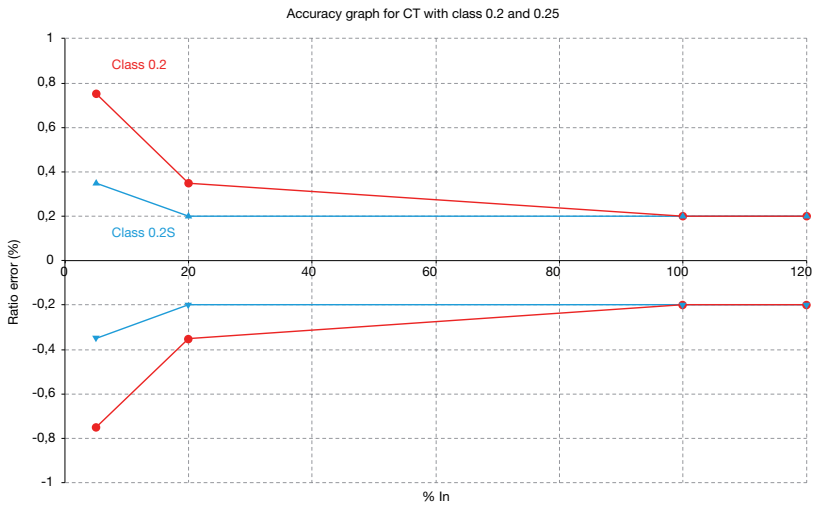
A high 0.2s measurement accuracy is recommended for metering functions in delivery substations because they enable metering of all energy consumption, even for low loads. For 80% of the year, the subscriber's consumption is less than the contracted level of power rating on which the prices are based.

These high precision sensors also enable a precise analysis of subscriber consumption and facilitate fraud detection (reduction of non-technical losses).

Tomorrow, with the development of Smart Grids and Smart Cities, they will be the ideal complement to new smart meters that require greater accuracy.

0.2s accuracy class

The 0.2s accuracy class means that the measurement has an error rate of 0.2% over a range of 20 to 120% of the nominal rating (In) and a specific accuracy above 1% In (IEC 61869-2).



Accuracy class	Ratio error ± % (% of rated value)				
	1	5	20	100	120
0.2s	0.75	0.35	0.2	0.2	0.2
0.2	--	0.75	0.35	0.2	0.2

The solution for

- Current measurement and energy metering in HV/LV substations

Strong points

- Low-load metering
- Precise analysis of patterns of consumption
- The ideal addition to smart meters

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How do you guarantee the high accuracy of measurement sensors?

Technological expertise in cores and current transformers

The core comprises the basic element of a current transformer. The core may be iron-nickel, iron-silicon, iron-cobalt or nano-crystalline. Expertise in these different technologies means the manufacturer has control over the choice of materials depending on the required rating and footprint while ensuring high-level precision that goes even further than the 0.2s classification stipulated by IEC 61869-2. Full control over the manufacture of the core and transformer ensures the product's technical features and quality.

Tested and qualified solutions

All our solutions are checked in our testing laboratories.

Each transformer is individually tested on the production line to check and ensure the stated levels of performance. On request, these products can be delivered with individual certificates of conformity.

Customised solutions

We can meet your requirements for the following:

- Current and voltage transformers.
- High-precision AC measurement transformers, LV or MV voltage metering.
- Differential protection, differential current sensors, fault current detection and location.
- Extensive ranges of transformers:
  - split or closed,
  - multi or single ratings,
  - standard or custom ratings.

Strong points

- Technological expertise in cores and current transformers
- Tested and qualified solutions
- Customised solutions on request

Do not hesitate to contact us for more information.

Compliance with standards

- IEC 61869-2
- Customer specifications (ERDF, etc.)

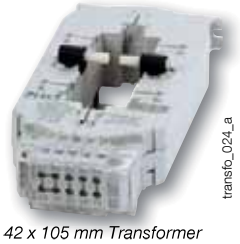
Measuring and monitoring an electrical installation

For monitoring all energy flows from a substation or grid, check out our new range of measurement and monitoring equipment based on an innovative 'Plug & Play' concept for new and retro-fit installations;
see page 21.

Current transformers

High accuracy measurement sensors
from 100 to 2000 A

Ø 40 Transformer
0.5 and 0.2s class



42 x 105 mm Transformer
0.2s class

Ø 90 Transformer
0.2s class

The solution for

> Current measurement and energy metering in HV/LV substations

Strong points

> Enedis approved
> High measurement accuracy
> Wide dimensions choice
> Multi-ratings
> Easy to install
> Easy to connect and secure

Compliance with standards

> IEC 61869-2
> Enedis-NOI-CPT_01E V5 Technical documentation on metering

Other products

> SOCOMEC can also offer the following customised solutions:
- Metering
- Other LV ratings
- Other dimensions

Please ask us for further details.

Function

SOCOMEC current transformers deliver a standard current to the secondary that is proportional to the primary current and adapted to the rating of the associated energy meter.

Advantages

High measuring accuracy

The very high 0.2s accuracy class guarantees maximum metering, even with low loads.

An 0.2s accuracy class means that the measurement has an error rate of 0.2% over a range of 20 to 120% of the nominal current (I_n) and at a specific accuracy above 1% of I_n.

Wide dimensions choice

Three models to allow through any primary conductor, cables or bar.

Please refer to the connection capacities on next page.

Multi-ratings

Multi-rating transformers offer great flexibility on installation. You can adapt the CT to the subscribed power without changing equipment.

They improve the continuity of the power supply by limiting network interruptions and outages.

Easy to install

3 types of fastenings for any type of mounting:

- On back-plate or section.
- On DIN rail.
- On busbars with isolated centring system.

Easy to connect and secure

- Connection of a secondary circuit by cage terminal for 6 mm² cables.
- Double connection to adapt to the cable input direction and to short-circuit the secondary after rating change.
- Sealing cover to prevent access to the rating settings.

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References

Primary ratings	Secondary	Reference
100, 200, 500 A	5 A	**TRAMES141**
200, 500 A	5 A	**TRAMES142**
200, 500 A	5 A	**TRAMES143**
500, 1000, 2000 A	5 A	**TRAMES144**
500, 1000, 2000 A	5 A	**TRAMES145**

Characteristics

	TRAMES141	TRAMES142	TRAMES143	TRAMES144	TRAMES145
Winding ratio	100-200-500/5 A	200-500/5 A	200-500/5 A	500-1000-2000/5 A	500-1000-2000/5 A
Connection	S2 - S1: 500/5 A S2 - S3: 200/5 A S2 - S5: 100/5 A	S2 – S1: 500/5 A S2 – S3: 200/5 A	S2 – S1: 500/5 A S2 – S3: 200/5 A	S2 - S1: 2000/5 A S2 - S3: 1000/5 A S2 - S5: 500/5 A	S2 - S1: 2000/5 A S2 - S3: 1000/5 A S2 - S5: 500/5 A
Output power (VA)	3.75	7.5	7.5	7.5	7.5
Frequency	50 Hz				
Max. primary voltage	Umax = 0.72 kV				
Withstand voltage rated to industrial-level frequency	Ui = 3 kV				
Accuracy class	0.5	0.2s	0.2s	0.2s	0.2s
Operating conditions	-25 to +70°C ; <100% HR				

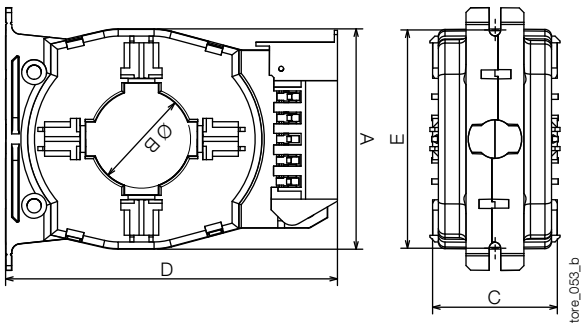
Connection

	TRAMES141 - TRAMES142	TRAMES143 - TRAMES144	TRAMES145
Primary circuit conductor	one Ø 40 mm cable or two 50 x 5 mm busbars	one Ø 90 mm cable or three 100 x 5 mm busbars	two 125 x 5 mm busbars and one 125 x 10 mm busbar

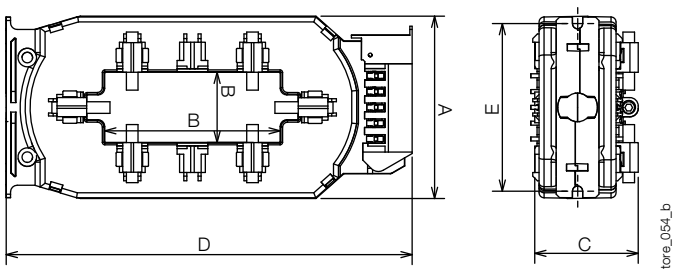
Dimensions

	TRAMES141 - TRAMES142	TRAMES143 - TRAMES144	TRAMES145
A (mm)	118	169	109
B (mm)	40	90	106 x 42
C (mm)	55	56	62
D (mm)	149	216	245
E (mm)	118	169	103

TRAMES141 to TRAMES144



TRAMES145



Voltage transformers

Three phase voltage transformers
outdoor and indoor version

Indoor version

Outdoor version

The solution for

- Inside use
- Outside use
- Industrial metering system for HVA delivery stations

Strong points

- Compact and robust design
- Metal fasteners
- Outside version IP66

Homologations and certifications

- Enedis certification

Conformity to standards

- EN 60439-1
- EN 60529
- EN 62262
- EN 61869-1
- EN 61869-3

Function

SOCOMEC-TCT designs, manufactures and sells tailor –made or standard voltage transformers type 400 V/100 V or 220 V/400 V, class 0,5 for the equipment of industrial metering systems for HVA delivery stations.

The voltage transformers are available in indoor and outdoor versions for the low voltage metering with a primary rated voltage of 230 V or 127 V and a secondary rated voltage of 57.7 V or 220 V.

Those transformers are mainly used by energy producers and energy transport companies.

Advantages

Compact and robust design

The voltage transformers have a compact and robust design. It can be used inside and outside.

Metal fasteners

The indoor version of the voltage transformer has metal fixations with handgrip system to allow a quick and easy installation . The adjustable metal fixation fits all installations.

Outside version IP66

The outdoor version of the voltage transformer is integrated into a sealed box. It is designed to withstand a humidity rate of 95 %, thanks to the IP66 design. The boxes are delivered ready to install for a greater reactivity.

Specific realisations

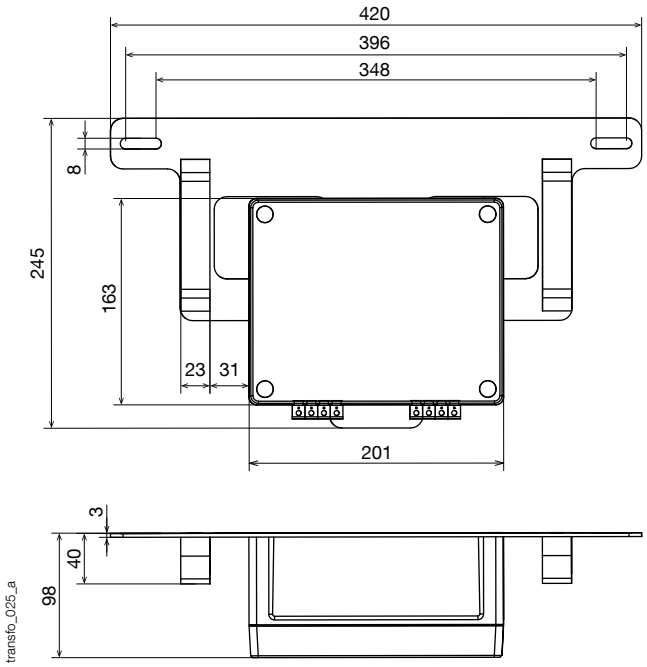
SOCOMEC-TCT realises as well tailor-made voltage transformers and adapt the mechanical presentation and fasteners matching your environment and special needs.
For any question, please contact us.

Technical characteristics

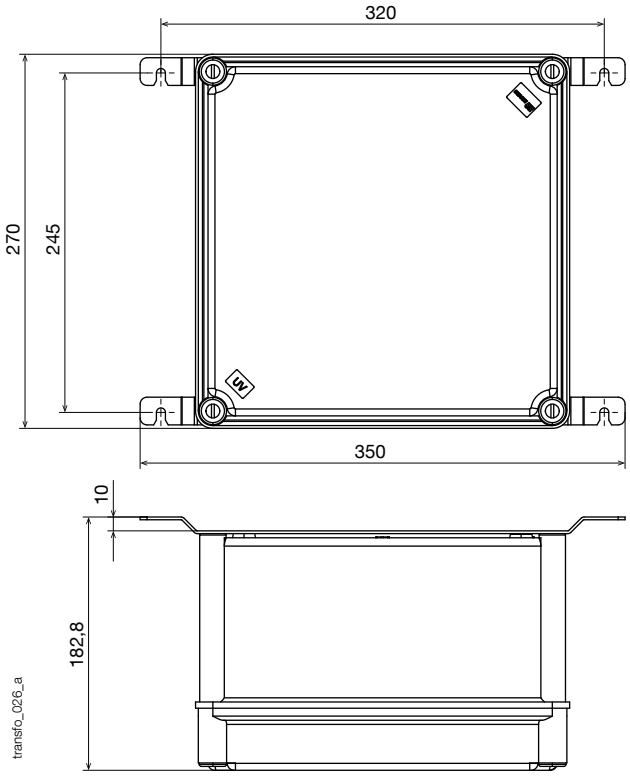
	Indoor	Outdoor
Type	three-phase	three-phase
Three-phase operating voltage	400 V between phases	200 V between phases
Single-phase operating voltage	230 V between phase and neutral	127 V between phase and neutral
Max. isolation voltage	0.72 kV	0.72 kV
Primary voltage	400 V/√3 V between phase and neutral, i.e. 230 Vrms	220 V/√3 V between phase and neutral; i.e. 127 Vrms
Secondary voltage	100 V/√3 V between phase and neutral, i.e. 57.7 Vrms	400/√3 V between phase and neutral; i.e. 220 Vrms
Precision class	0.5	0.5
Precision power	15 VA	7.5 VA
Power in thermal held	≥ 100 VA	≥ 100 VA
Heating voltage	1.2 U_n	1.2 U_n
Isolation class	A	A
Frequency	50 Hz	50 Hz
Working temperature	-25 … +40 °C	-25 … +40 °C
Pollution degree	level 3	level 3
Weight – indoor version	11.5 kg (TRAMES160)	
Weight – outdoor version	12.5 kg (TRAMES183)	12.5 kg (TRAMES197)

Dimensions (mm)

Indoor version



Outdoor version



References

Model	Version	Reference
Voltage transformer	indoor	**TRAMES160**
Voltage transformer	outdoor	**TRAMES183**
Voltage transformer	outdoor	**TRAMES197**

ITYS ES

Single-phase UPS systems
from 1000 to 3000 VA

The solution for

> Control devices
> Electric lines

Technology

> VFI "online double conversion"

Certifications

RoHS COMPLIANT

High protection and high availability

- The ITYS ES series is a range of compact UPS systems available in 1000, 2000 and 3000 VA models with on-line double conversion technology (VFI) with sinusoidal absorption.
- ITYS ES guarantees permanent regulation of the output voltage and frequency. This technology is compatible with all IT and industrial applications and operating environments, installations with generator sets included.
- Wide tolerance on input voltage ensures that switchovers to battery mode are infrequent, significantly prolonging battery lifetime.
- The automatic bypass device switches over in zero time in the event of overload or failure, guaranteeing uninterrupted services.

Straightforward to install and easy to use

- The UPS is shipped ready for connection with internal batteries connected and charged.
- ITYS ES, with the manual bypass option is easy to install without any special plant engineering preparation, as it is equipped with built-in thermal protection.
- The LCD monitoring/control panel and a buzzer make the equipment extremely easy and intuitive to use. The graphic indicating the power distribution path shows at a glance whether or not the system is working as it should.
- Battery efficiency can be tested via the control panel or using dedicated software.

Operating efficiency and versatility

- The versatility of these models makes them suitable for protecting critical devices in the industrial field.
- The standard equipment and communication accessories have been specially designed to satisfy the typical needs of installation or use in transformer cabins (i.e. tropicalized boards).
- In situations where automatic power management procedures are required, the communication software can be used to programme scheduled start-up and shutdown times.
- Restarting the UPS from the battery to power the DG before closing the main isolator.

Tech info

The italian CEI 016 STANDARD for auxiliary cabin equipment requires an uninterrupted power supply to the control circuits for the General Protection and Medium Voltage Switch.

The control circuits for the General Protection, Medium Voltage Switch and coil must be powered by the same auxiliary voltage when there is no power. The power supply must be guaranteed for a back-up time of 1 hour, either by the UPS or by buffer batteries.

The Medium Voltage Switch must be powered up by skilled personnel if out of service for a long time due to maintenance or failure.

It is necessary to power the General Protection before closing the Medium Voltage Switch.

The required protection comprises:

- Mains power cuts due to poor maintenance of the user's system.
- Inappropriate tripping of the Medium Voltage Switch because of faults in the trip circuit.
- Alert signalling if the Medium Voltage Switch trips due to a power failure (system with regular maintenance).

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UPS - Technical data

	ITYS ES		
Sn [VA]	1000	2000	3000
Pn [W]	800	1600	2400
Input / output	1/1		
INPUT			
Rated voltage	230 V (110÷300 V)		
Rated frequency	50/60 Hz		
Power factor	0.98		
OUTPUT			
Rated voltage	208 / 220 / 230 / 240 V (± 2 %)		
Rated frequency	50 / 60 Hz (45÷55 Hz / 54÷66 Hz)		
Overload	up to 150 % for 10 seconds		
Crest factor	3:1		
Wiring	3 x IEC 320 (C13)	6 x IEC 320 (C13)	4 x IEC 320 (C13) + terminals
BATTERIES			
Type	sealed lead-acid maintenance free - expected lifetime 3-5 years		
Back-up time at 75% of the rated load(1)	10 minutes	17 minutes	9 minutes
Sized for a back-up time of	115 minutes @ 50 W	154 minutes @ 100 W	216 minutes @ 150 W
Back-up time(2) + switching back on	60 minutes @ 50 W	60 minutes @ 100 W	60 minutes @ 150 W
Battery test	•	•	•
COMMUNICATION			
Interfaces	RS232 - USB		
Ethernet adapter	NET VISION (TCP / IP & SNMP) optional card		
Local communication software	Local View		
EFFICIENCY			
Online mode	up to 92%		
ENVIRONMENT			
Ambient service temperature	from 0 °C up to +40 °C (from 15 °C to 25 °C for maximum battery lifetime)		
Relative humidity	< 95 % non-condensing		
Maximum altitude	1000 m without de-rating		
Noise level at 1 m	< 50 dBA		
UPS			
Dimensions W x D x H	145 x 400 x 220 mm	192 x 460 x 347 mm	
Weight	13 kg	31 kg	60 kg
Degree of protection	IP20		
COMPLIANCE WITH STANDARDS			
Safety	IEC/EN 62040-1, AS 62040.1.1, AS 62040.1.2		
EMC	IEC/EN 62040-2, AS 62040.2		
Product declaration	CE, RCM (E2376)		
	ITYS ES - Manual bypass (3)		
Sn [VA]	1000	2000	3000
INPUT			
Type of terminals	CBD6		
Wire size	6 mm² max		
BYPASS			
Switching positions	1: UPS - 2: MAINS		
Switching time	6 ms max		
LOAD OUTPUT			
Type of terminals	CBD6		
Wire size	6 mm² max		
UPS SUPPLY OUTPUT			
Type of socket	IEC 320 10 A		IEC 320 16 A
SURGE ARRESTORS (on request)			
Type	"L" in compliance with CEI EN 61643-11		
L/N pulse current	40 kA (8/20) max		
VAC N/GND	255 V max		
VAC L/N	320 V max		

(1) @ 25 °C with charged battery.
(2) Factory setting: back-up time limited to 60 minutes to permit subsequent restarting with battery.
(3) Upon request.

Standard communication features

- LOCAL VIEW: ideal UPS monitoring and shutdown point-to-point solution for Windows®, Linux and Mac OS X® operating systems.
- MODBUS/JBUS RTU (RS 232).

Communication options

- NET VISION: professional WEB/SNMP interface for UPS monitoring and shutdown management of several operating systems.
- Dry contact interface.

Manual bypass (option)

- Specially designed for ITYS ES, the manual bypass option enables:
- simplified installation: connection to the system is made with industrial grade terminals, while connection to the UPS is via the pre-wired plug and socket supplied.
- easy maintenance and uninterrupted operation: thanks to the manual bypass isolator it is possible to service or replace the UPS while maintaining the power supply to the devices downstream in complete safety for the operator. This operation has been specially devised to be simple to carry out, even in an emergency.
- increased level of equipment immunity to surge voltages, typical for this type of application, thanks to suitable surge arrestors included in addition to standard UPS protection.


DÉFENSE D'AFFICHER

Terminal distribution

Load break switches

SIRCO VM
Load break switches with visible breaking
p. 120

Current transformers

High accuracy measurement sensors
p. 124

Enclosures

Reinforced urban cabinets
p. 126

Services

- Designing customised solutions: AU, current transformer, etc.
- Tests and qualifications.
- Commissioning and maintenance contracts.

- For more information, see page 9.

Find out more

Discover our certified products for power-monitored enclosures (ex-yellow tariff):

- 100 and 200 A Load break switches, see page 120.
- 0.2s current transformers, see page 124.

Selection guide

Switching and protection ranges for power distribution

Active in the electrical switchgear market since 1922, SOCOMEC is both a global leader and an undisputed benchmark reference.
Our range of load break swicthes is one of the widest on the market today.

Which function? ▶ What sort of breaking?

	Load break switches					
						
	SIRCO M **16 to 125 A**	***SIRCO*** **125 to 5000 A**	***SIRCO AC*** **200 to 4000 A**	***SIRCO VM*** **63 to 250A**	***SIDER*** **125 to 1600 A**	
Function						
3/4-pole load break switch	•	•	•	•	•	
6/8-pole load break switch	•	•	•	•	•	
Fuse disconnect switch						
Characteristics						
Breaking						
Fully visible	•	•	•	•	•	
Visible				•	•	
Operation						
Rotary handle operation	•	•	•	•	•	
By lever (toggle)	•			•		
Via tripping						
Motorised						
Direct control handle						
Front	•	•	•	•	•	
Side					•	
Via a panel						
External operation handle						
Front	•	•	•	•	•	
Right side	•	•			•	
Left side	•					
Central						

For monitored power connection enclosures (ex-yellow tariff)

Discover our certified load break switches for these connection enclosures:
- 200 A Enclosure: SIRCO VM2 200 A 4-pole (ref. **25TJ4020**)
- 100 A Enclosure: SIRCO M 100 A 4-pole (ref. **22TJ4010**)

These 4-pole devices are supplied complete with handle and terminal shrouds.

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SOCOMEC has always promoted the benefits of fuse-based protection for both personal and equipment safety. Particularly suitable for public distribution networks, fuse-based protection offers real advantages over the circuit breaker.

What kind of operation?

	Fuse protection			
				
	SIDERMAT **250 to 1800 A**	***FUSERBLOC*** **20 to 1250 A**	***FUSOMAT/SIDERMAT*** fuse-combination switches **250 to 1800 A**	***RM - RMS*** **32 to 100 A**
	•	•	•	
				•
	•	•	•	
	•		•	
	•	•	•	
	•		•	
	•	•	•	
	•	•	up to 1250 A	
		up to 32 A		
	•	•	•	
	•	•	up to 1250 A	
		•		
		Contact us		

The solution for

- Distribution cabinets, road-side cabinets
- Subscriber enclosures

Strong points

- Reliability
- Safety of property and persons
- Wide range of standard and custom load break switches, complete accessory sets
- Easy to install and implement devices

Compliance with standards

- IEC 60947-3, EN 60947-3
- IEC 60269-1-2
- EN 60269-1-2

To find out more

- Discover the complete range of SOCOMEC switchgear

www.socomec.com/en
/distri-load-break-switches

Effective protection for your electrical networks

Discover the range of fuses for public energy distribution that fully conform to specification HN 63-S-20.
See page 102.

SIRCO VM

Load break switches with visible breaking
from 63 to 250 A

sirco_284_a_2_cat

sirco_288_a_2_cat

The solution for
- Distribution cabinet
- Subscriber enclosures

Strong points
- Reliability
- Increased safety with visible breaking
- Wide range

Compliance with standards
- IEC 60947-3, EN 60947-3
- VDE 0660-107 (1992)

Certifications.
- GOST (Russia)
- BBJ (Poland)
- Lloyd's Register of Shipping
- CEBEC (Belgium)
- LOVAG/ASEFA
- KEMA
- CCA
- PSA E03.15.605.G
- RENAULT EB03.15.613

Function

SIRCO VM are manually operated modular multipolar load break switches. They assure on-load making and breaking and provide safety isolation for any LV circuit.

Advantages

Reliability and performance

The double breaking per pole, achieved through its sliding bar contact system, is a proven design that offers very high durability and short-circuit withstand. The quick opening and rapid closure of the SIRCO's contacts, combined with specifically designed arcing chambers, provides the SIRCO AC with improved breaking performance.

Improved safety

Thanks to the double visible breaking, the operator can visually check the status of the device during preventive checks before working on the installation.

Extensive range

The SIRCO VM range is very extensive; from 63 A to 250 A, 3 and 4 poles, with many accessories.

General characteristics
- Positive break indication
- Visible double break per phase
- DIN-rail mounting, panel or modular panel with 45 mm front cut out
- Device and IP20 accessories.
- Severe load duty categories (AC-22 and AC-23).

Reinforced protection in connection enclosures

SIRCO VM units with visible breaking are particularly suitable for connection enclosures. They allow the operator to safely isolate the top network system from the reserved bottom system.
The visible breaking enables additional visual checks before intervening.

200 A Enclosure: SIRCO VM2 200 A 4-pole, ref. **25TJ4020**.

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References

Front operation(1)

Switch body(2)	N° of poles(3)	Switch body for front operation	Direct operation handle	External operation handle	Shaft for external operation	Auxiliary contact	Terminal shrouds(5)	Cage terminals with cover
VM1 63 A	3 P	2500 **3006**	Black 2599 **5012**(2)	Type S1 Black IP55 1411 **2111**(2) Black IP65 **1413 2111** Red/Yellow IP65 1414 **2111**	200 mm 1402 **0820**(2) 320 mm 1402 **0832**	1st contact NO/NC Type A 2599 **0001**(4)	built-in	built-in
	4 P	2500 **4006**						
VM1 80 A	3 P	2500 **3008**						
	4 P	2500 **4008**						
VM1 100 A	3 P	2500 **3010**						
	4 P	2500 **4010**						
VM1 125 A	3 P	2500 **3011**						
	4 P	2500 **4011**						
VM2 160 A	3 P	2500 **3016**	Black 2599 **5022**(2)				2594 **4020**	3 P 2593 **3020** 4 P 2593 **4020**
	4 P	2500 **4016**						
VM2 200 A	3 P	2500 **3020**						
	4 P	2500 **4020**						
VM2 250 A	3 P	2500 **3025**						
	4 P	2500 **4025**						
VM2 200 A	4 P	25TJ **4020**	Included	-	-	-	Included	Included

(1) Side operation: please ask us.
(2) Standard.
(3) 6 or 8-pole modules: please ask us.
(4) For 2 aux. contacts, order reference 2599 0001 twice.
(5) Top/bottom

Accessories

Direct operation handle

Rating (A)	Handle colour(1)	Reference
VM1 63 … VM1 125	Black	2599 **5012**
VM2 160 … VM2 250	Black	2599 **5022**

(1) Red handle: please ask us.

SIRCO VM1 and VM2 handle.

acces_111_a_1_cat

External operation handle

Use

The door's interlocked external operation handle includes a padlockable handle and plate, and must be used with an extension shaft.

External front operation		
Rating (A)	**Handle colour**	**Reference**
63 … 250	Black	1411 **2111**(1)

(1) Standard.

SIRCO VM0 handle.

acces_149_a_2_cat

Accessories (continued)

Shaft extension for external front operation

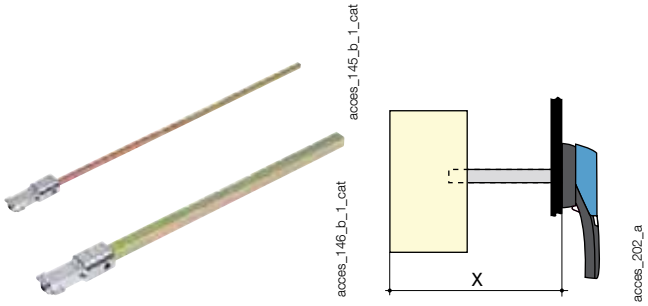
Use

Standard width for external operation:

- 200 mm.
- 320 mm.
- 400 mm.

Other widths available - please ask us.

Rating (A)	Side X (mm)	Real length (mm)	Reference
63 ... 250	96 ... 260	200	1402 **0820**
63 ... 250	96 ... 380	320	1402 **0832**



Top/bottom terminal shrouds

Use

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

Rating (A)	Position	Reference
160 ... 250	top/bottom	2594 **4020**

Cage terminals with cover

Use

Direct connection of cables without terminal lugs, as well as top and bottom protection against direct contact with terminals or connection parts.

Characteristics

- Size capacity from 10 to 95 mm² for rigid cables or 70 mm² for flexible cables.
- Top or bottom mounting terminations.

Rating (A)	N° of poles	Reference
160 ... 250	3 P	2593 **3020**
160 ... 250	4 P	2593 **4020**

Characteristics

Characteristics according to IEC 60947-3

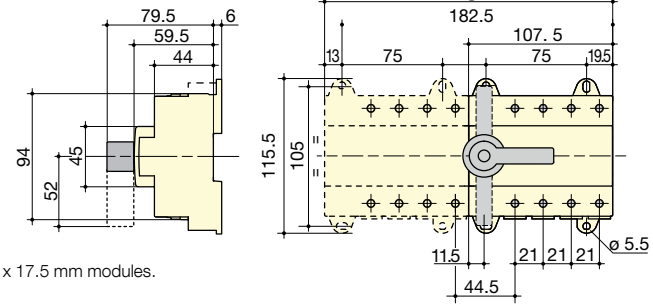
Thermal current I_{th} (40 C)		VM1 63 A	VM1 80 A	VM1 100 A	VM1 125 A	VM2 160 A	VM2 200 A	VM2 250 A
Rated insulation voltage U_i (V)		800	800	800	800	800	800	800
Rated impulse withstand voltage U_{imp} (kV)		8	8	8	8	8	8	8
Rated operational currents I_e (A)								
Rated voltage	**Operating category**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**	**A/B(1)**
400 VAC	AC-21 A / AC-21 B	63/63	80/80	100/100	125/125	160/160	200/200	200/250
400 VAC	AC-22 A / AC-22 B	63/63	80/80	100/100	125/125	160/160	200/200	200/200
400 VAC	AC-23 A / AC-23 B	63/63	63/63	63/63	63/63	160/160	200/200	200/200
Conditional rated short-circuit current with gG DIN fuse								
Prospective short-circuit (kA rms.)(5)		100	100	100	50	50	50	50
Associated fuse rating (A) (5)		63	80	100	125	160	160	160
Short-circuit capacity								
Rated short-time withstand current 1 s. I_{cw} (kA rms.)		2.5	2.5	2.5	2.5	4	4	4
Short-circuit making capacity (kA peak) (5)		12	12	12	12	16	16	16
Connection								
Minimum Cu cable cross-section		4	4	4	4	10	10	10
Maximum Cu rigid cable cross-section (mm^2)		50	50	50	50	95	95	95
Tightening torque min (Nm)		6	6	6	6	9	9	9
Maximum Cu busbar width (mm)					-	20	20	20
Mechanical specifications								
Durability (number of operating cycles)		20,000	20,000	20,000	20,000	10,000	10,000	10,000
Weight of a 3-pole device (kg)		0.6/0.8	0.6/0.8	0.7/0.9	0.7/0.9	0.9/1.1	0.9/1.1	0.9
Weight of a 4-pole device (kg)		0.7/0.9	0.7/0.9	0.8/1	0.8/1	1/1.2	1/1.2	1

(1) Category with index A = frequent operation / Category with index B = infrequent operation.
(2) With terminal shrouds.
(3) 4-pole device with 2 poles in series per polarity.
(4) The power value is given for information only, the values vary from a manufacturer to another.
(5) For a rated operational voltage U_e = 400 VAC.

Dimensions

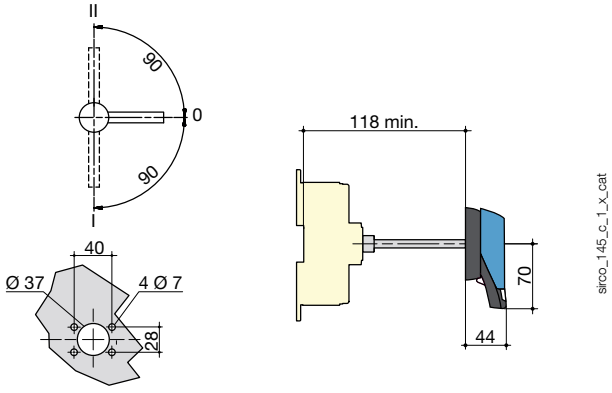
SIRCO VM1 from 63 to 80 A

Direct front operation - 3 and 4-pole



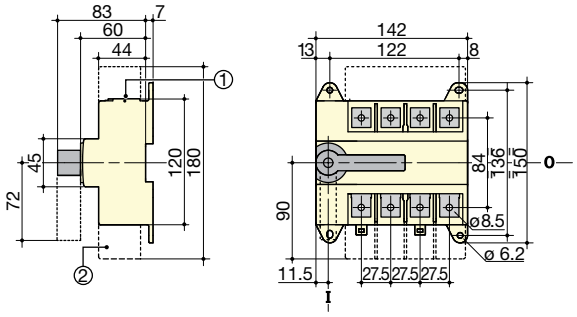
1. 12 x 17.5 mm modules.

External front operation



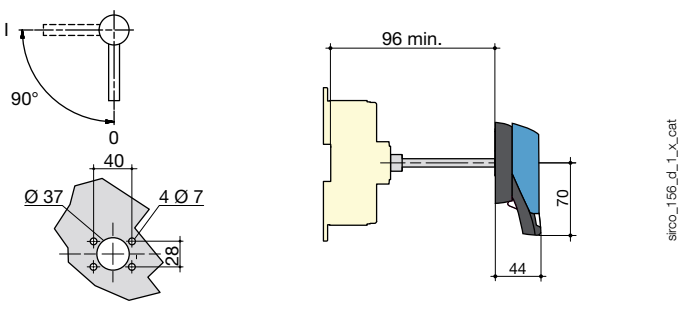
SIRCO VM2 200 to 250 A

Direct front operation



1. Terminal cage (accessories).
2. Terminal covers (accessories).

External front operation



Current transformers

150/5 A measurement sensors of 0.2s accuracy class

dp_051_a

The solution for

> ENEDIS LV metering cabinets (36 to 100 kVA)

Strong points

> High measurement accuracy
> Safe mounting
> Fast safe connection

Compliance with standards

> IEC 61869-2
> ENEDIS-NOI-CPT_01E V5
> Technical documentation on metering

Other products

> SOCOMEC also offers the following customised solutions:
- Other LV ratings
- Other dimensions

Please ask us for further details.

Function

This high-accuracy, HV current transformer is used in the low-voltage, metering cabinets (36 to 100 kVA).
SOCOMEC current transformers deliver a standard current to the secondary that is proportional to the primary current and adapted to the rating of the associated energy meter.

Advantages

High measuring accuracy

The very high 0.2s accuracy class guarantees maximum metering, even with low loads.
A 0.2s accuracy class means that the measurement has an error rate of 0.2% over a range of 20 to 120% of the nominal rating (In) and at a specific accuracy above 1% of In (IEC 61869-2). For more information, see page 108.

Secure, fast wiring

Quick wiring with Fast-on lugs. These lugs are locked with a permanent protective guard.

Safe to install

This transformer is integrated on a plate designed especially for this application.
A foolproof coding device prohibits any directional error from the primary conductor.

References

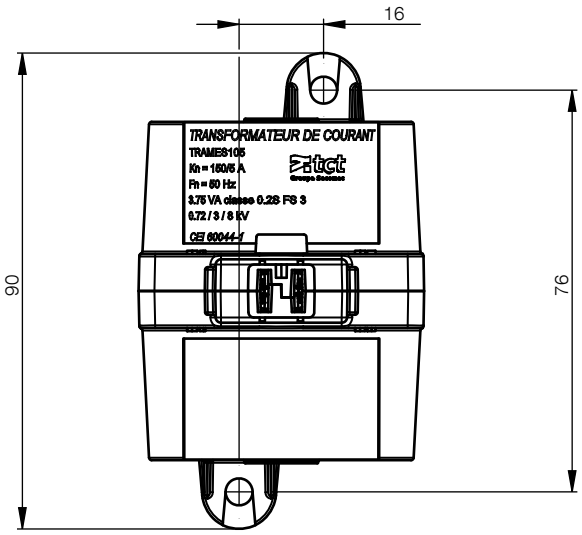
Description	Reference
150/5 A	**TRAMES105**

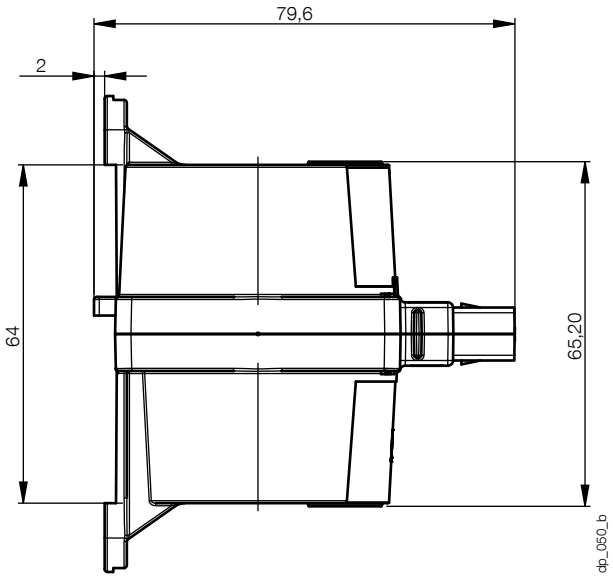
Characteristics

Winding ratio	150 A / 5 A
Output power (VA)	3.75
Frequency	50 – 60 Hz
Max. primary voltage	Umax = 0.72 kV
Withstand voltage rated to industrial-level frequency	Ui = 3 kV
Accuracy class	0.2s according to IEC 60044-1
Safety factor	3
Operating conditions	-25 to +70°C ; <100% HR

Dimensions

Type	Ø (mm)
Primary conductor window	13





Reinforced urban cabinets

Suitable for urban environments

dp_053_a

The solution for

- Anti-vandal, urban distribution cabinet
- Public signalling and lighting cabinet

Strong points

- Anti-vandal
- Patented closure system
- Uninterrupted power
- Flexible configuration

Compliance with standards

- IEC 62208

Function

With over 40 years of experience in the design of enclosures and cabinets, SOCOMEC has developed a complete range of enclosures to protect outdoor equipment against vandalism.

Advantages

Anti-vandal

Made from painted stainless sheet steel, these cabinets offer maximum resistance to first-level mechanical abuse, with door reinforcements and adapted locks and latches.

Treated with special varnish, they are graffiti and sticker-proof.

Patented closure system

An 8-point door latch system prevents the risk of intrusion (Fig. 1).

The lock is a 2-key lock (Fig. 2):

- 1 x ½ cylinder key, DIN 18252, key number to be confirmed for locking/unlocking
- 1 x 8-mm spanner key to operate the closing mechanism

This is camouflaged by an anti-burglar cover with fingerprint lock.

Uninterrupted power

The chassis design means you can install and uninstall the enclosure without having to shut off the power to the equipment.

Flexible configuration

With these scalable solutions, Socomec can adapt the solution to best suit your requirements. Do not hesitate to contact us for more information.

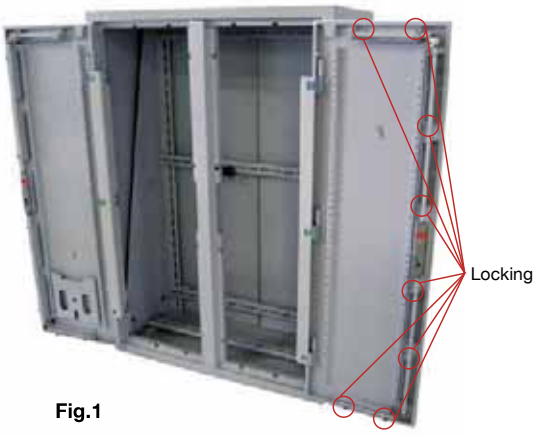


Fig.1

Fig.2

dp_071_a_1_gb_cat

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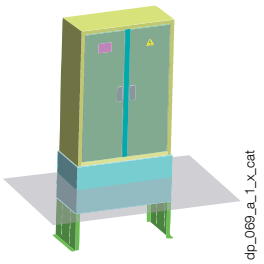
Functional diagram

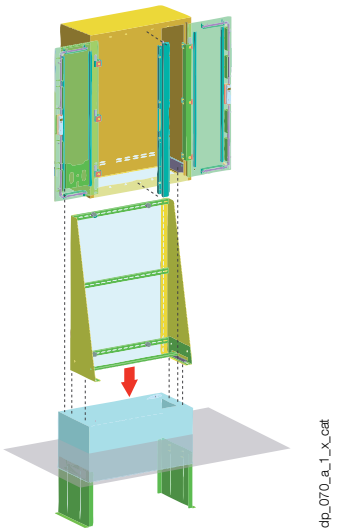
Mounted set



dp_069_a_1_x_cat

Height-adjustable feet, to embed in concrete.

Disassembled system



dp_070_a_1_x_cat

Technical characteristics

Enclosure

- Single-unit stainless steel enclosure with a wall thickness of 2 mm, sloped roof to ensure excellent resistance to extreme weather conditions (corrosion, UV, frost, rain, etc.).
- Varnished, anti-graffiti and anti-sticker finish.
- Polyester textured paint, standard colour RAL 7035.
- IP43 with louvering on the rear upper part, IK10.
- Centre post can be removed without tools.
- Stainless steel document door.

Chassis

- Steel EZ chassis, thickness 2.5 mm, colour RAL 7035.
- 4 'C' rails; 2 welded and 2 removable.
- 4 fixing points on the base.
- 4 fixing points on the jacket.

Base

- Stainless steel base, 2-mm thick, colour RAL 7035 (except feet).
- Side legs to raise/lower, height-adjustable (400 mm), to embed in concrete.

Optional

- Wiring arrangement defined by the customer.
- Other colours.
- Other dimensions.
- Lifting parts of the enclosure.
- Enclosure without upper louvering (IP44).

Dimensions and references

Type	Cabinet dimensions H x W x D (mm)	N° of doors	Fixing spacers (mm)	Reference
Cabinet size 0	850 x 590 x 320	1	495 x 160	51R1 **0000**
Cabinet size 0H	1100 x 590 x 320	1	495 x 160	51R1 **000H**
Cabinet size 1	850 x 785 x 320	1	695 x 160	51R1 **0010**
Cabinet size 1H	1100 x 785 x 320	1	695 x 160	51R1 **001H**
Cabinet size 2	850 x 1115 x 320	2	1025 x 160	51R1 **0020**
Cabinet size 2H	1100 x 1115 x 320	2	1025 x 160	51R1 **002H**
Cabinet size 3	850 x 1445 x 320	2	1355 x 160	51R1 **0030**
Cabinet type 1	1245 x 985 x 450	2	895 x 300	51R0 **0001**
Cabinet type 2	1455 x 985 x 450	2	895 x 300	51R0 **0002**

Accessories

Type	Base dimensions H x W x D (mm)	Reference
Base size 0	500 x 630 x 370	51R1 **0040**
Base size 0H	500 x 630 x 370	51R1 **0040**
Base size 1	500 x 825 x 370	51R1 **0050**
Base size 1H	500 x 825 x 370	51R1 **0050**
Base size 2	500 x 1155 x 370	51R1 **0060**
Base size 2H	500 x 1155 x 370	51R1 **0060**
Base size 3	500 x 1485 x 370	51R1 **0070**
Base type 1	500 x 1011 x 491	51R0 **0005**
Base type 2	500 x 1011 x 491	51R0 **0005**

Type	Base dimensions H x W x D (mm)	Reference
Chassis size 0	775 x 550 x 250	51R1 **0041**
Chassis size 0H	1025 x 550 x 250	51R1 **0042**
Chassis size 1	775 x 745 x 250	51R1 **0051**
Chassis size 1H	1025 x 745 x 250	51R1 **0052**
Chassis size 2	775 x 1075 x 250	51R1 **0061**
Chassis size 2H	1025 x 1075 x 250	51R1 **0062**
Chassis size 3	775 x 1405 x 250	51R1 **0071**
Chassis type 1	1170 x 945 x 400	51R0 **0003**
Chassis type 2	1376 x 945 x 400	51R0 **0004**

Type	Cabinet type	Reference
Key for shroud cover		51R0 **0090**
Pair of angle brackets for fixing cabinet to the base (for use without chassis)	For cabinet sizes 0 to 3	51R0 **0091**
Pair of angle brackets for fixing cabinet to the base (for use without chassis)	For cabinet type 1 or type 2	51R0 **0092**

References list

ENEDIS article reference	Article	SOCOMEC article reference	Page
49 20 135	AR-TR 95 400 A enclosure	7P60 **0020**	36
49 20 121	TR 89 400 A enclosure	7P60 **0008**	33
49 20 122	AR-TR 89 250 A enclosure	7P60 **0018**	36
49 20 123	TR 89 250 A enclosure	7P60 **0007**	33
49 20 124	AR 32 A enclosure	7P60 **0015**	35
49 20 127	Enclosure AR automatic	7P60 **0013**	35
49 20 129	Polyester presence indicator unit	7P60 **0060**	51
49 20 130	Stainless steel with emergency stop and earthing clamp	7P60 **0062**	51
69 42 007	Fuse cartridge (125 A / 115 mm centre distance)	8115 **0125**	103
69 43 009	Fuse cartridge (200 A / 115 mm centre distance)	8115 **0200**	103
69 43 013	Fuse cartridge (250 A / 115 mm centre distance)	8115 **0250**	103
69 43 016	Fuse cartridge (400 A / 115 mm centre distance)	8115 **0400**	103
69 43 408	Fuse cartridge (160 A / 125 mm centre distance)	8160 **0125**	103
69 43 413	Fuse cartridge (200 A / 160 mm centre distance)	8160 **0200**	103
69 43 417	Fuse cartridge (125 A / 200 mm centre distance)	8160 **0250**	103
69 43 424	Fuse cartridge (125 A / 250 mm centre distance)	8160 **0400**	103
69 82 150	TIPI 4-500	8057 **0001**	69
69 82 156	TIPI 8-1200	8057 **0003**	69
69 82 158	TIPI 8-1800	8057 **0004**	69
69 82 200	Type 1 400 A feeder unit	8061 **0001**	70
69 82 202	Type 1 400 A provisional feeder unit	8061 **0002**	70
69 82 250	Floor anchoring for 4-feeder panel	8061 **0007**	70
69 82 252	Floor anchoring for 8-feeder panel	8061 **0008**	70
69 82 777	400 A reduced urban LV feeder unit	806G **U004**	75
69 82 814	Insulated operating key for reduced urban LV panel	8056 **0002**	76
69 82 820	Insulated operating key for TIPI	8061 **0009**	70
69 82 830	Locking panel	8056 **0005**	76
69 82 833	Reserve panel	8056 **0003**	76
69 82 873	Fuse holder protector	8056 **0008**	76
64 88 386	7.5VA-0.2S D40 (200-500/5) LV CT	**TRAMES 142**	111
64 88 387	7.5VA-0.2S D80-90 (200-500/5) LV CT	**TRAMES 143**	111
64 88 388	7.5VA-0.2S D80-90 (500-1000-2000/5) LV CT	**TRAMES 144**	111
64 88 389	7.5VA-0.2SB42x105 (500-1000-2000/5) LV CT	**TRAMES 145**	111
64 88 520	3.75VA-0.5 D40 (100-200-500/5) LV CT	**TRAMES 141**	111

Other article references: please consult us.

Note

Note

Model : SOCOMEC
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Photography : Martin Bernhart et Studio Objectif
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