

Solutions for Power switching, monitoring and conversion

UL/CSA
Ed.2



When **energy** matters

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For the energy performance of your critical installations

The benefit of a specialist



SO innovative!

Since its foundation more than 95 years ago, SOCOMEC continues to design and manufacture its core products in Europe. Notably solutions for its primary mission: the availability, control and safety of low voltage electrical networks.

As an independent manufacturer, the Group is committed to constant innovation to

improve the energy performance of electrical installations in infrastructures as well as industrial and commercial sites.

Throughout its history, SOCOMEC has constantly anticipated market changes by developing cutting-edge technologies, providing solutions that are adapted to

customer requirements and fully in keeping with international standards.

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

SYDV 419 A

1
**independent
manufacturer**

37,675 ft²
of test platforms

One of the leading
independent power
testing labs in Europe

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

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

70,000
**on-site
interventions
per year**

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



Your energy, our expertise

Power conversion

Ensuring the availability and storage of high quality power

With its wide range of continuously evolving products, solutions and services, Socomec are recognized 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 stabilization of the power grid.



© DataDock

Power switching

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

Power monitoring

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 optimization 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,

- optimization 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

Adapted solutions

to meet your energy objectives

SMART BUILDINGS

Reducing your energy bills and energy dependency



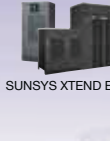
DIRIS Digiware
multi-circuit
measurement
system



ENERGY
MANAGEMENT
software
packages



ATyS
non-automatic
transfer switch



SUNSYS XTEND ESS

HEAVY

Controlling and securing your energy



FUSERBLOC fuse
combination switches

NAVAL SHIPS

Energy conversion in environments with harsh restrictions



SIRCOVER
Manually operated
transfer switch



SIRCO
Disconnect switches

SHOPPING MALLS

Assuring your business continuity and visitor safety



DIRIS DigiBOX
enclosed single
& multi-point
metering solution



SIRCOVER
Manually operated
transfer switch



SUNSYS
XTEND ESS



NETYS PL-120 &
NETYS RT-120
Single Phase
UPS

PUBLIC DISTRIBUTION AND SMART GRID

Helping you to meet the challenge of energy demand and response



SUNSYS
XTEND ESS



SIRCO
Disconnect switches



DIRIS DigiBOX
enclosed single & multi-point
metering solution

RENEWABLE ENERGY

Guaranteeing the performance, security and durability of your photovoltaic facilities



SUNSYS
XTEND ESS



Disconnect switches
for photovoltaic
applications



DIRIS Digiware
DC multi-circuit
measurement
system

INDUSTRY

energy



Enclosed non-fusible disconnect switches, fusible switches and transfer switches

POWER PLANTS

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



DIRIS DigiBOX enclosed single & multi-point metering solution



ATyS non-automatic transfer switch



SIRCOVER manually operated transfer switch



DIRIS Digiware multi-circuit measurement system

TRANSPORT

Securing the continuity of your installations



ATyS non-automatic transfer switch



SIRCOVER manually operated transfer switch



SUNSYS XTEND ESS



DIRIS DigiBOX enclosed single & multi-point metering solution

DATA CENTERS

Meeting the challenge of the availability and performance of your energy



NETYS RT-120V



ATyS Non-automatic transfer switch



SIRCOVER manually operated transfer switch



DIRIS Digiware AC & DC multi-circuit measurement system

MEDICAL FACILITIES

Assuring patient safety and the energy performance of your hospital



SUNSYS XTEND ESS



ATyS Non-automatic transfer switch



SIRCOVER manually operated transfer switch



DIRIS DigiBOX enclosed single & multi-point metering solution



DIRIS Digiware AC & DC multi-circuit measurement system

INDUSTRY

Ensuring the competitiveness of your site



Enclosed non-fusible disconnect switches, fusible switches and transfer switches



ENERGY MANAGEMENT Software packages



FUSERBLOC Fusible disconnect switches UL and CSA



SIRCOVER manually operated transfer switch

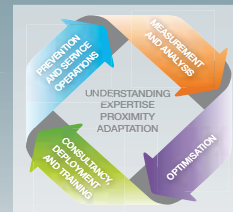


DIRIS Digiware AC & DC Multi-circuit measurement system



SIRCO Disconnect switches

EXPERT SERVICES

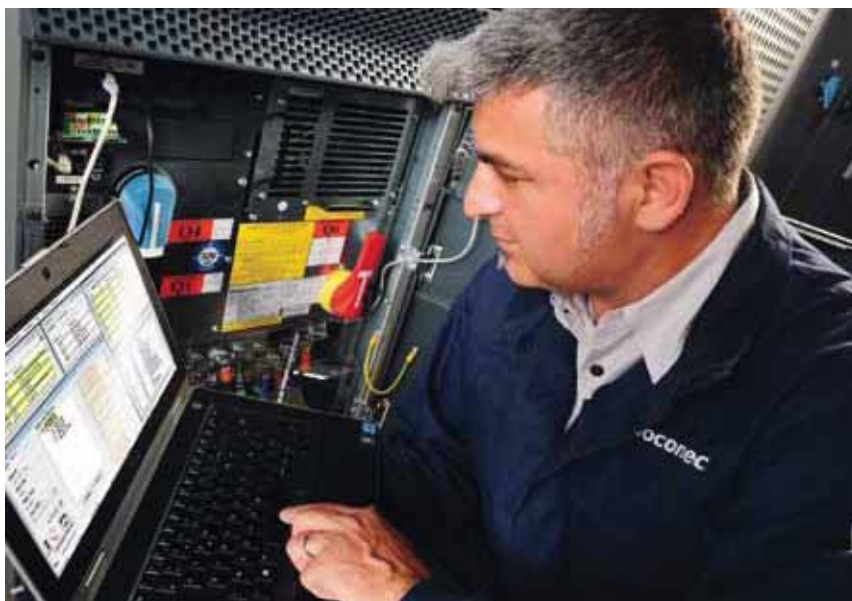


We offer a wide range of value-added services ensuring the reliability of your equipment throughout its design life. Ask for personalized support - see more information on page 8.

Expert Services your partner

enabling available, safe and efficient energy

SOCOMEK 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 optimization 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.

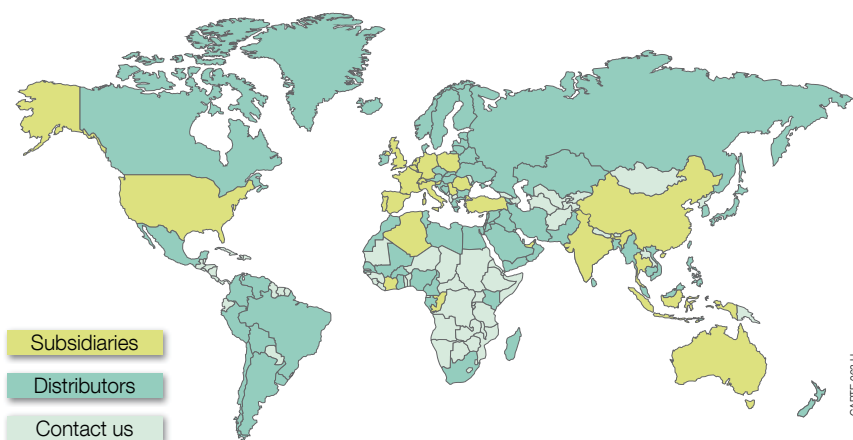


Key figures

More than 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.



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).



A cutting-edge laboratory

the backing of an expert

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

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



Proven expertise

Tesla Lab is an independant laboratory specialized in testing of LV switchgears, components and switchgear assemblies. 4 million dollars has been invested since 2011 in this 21528 ft² 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 100 MVA (I_{cc} 100 kA rms 1 s) short-circuit platform, three 10 kA overload platforms and many other test facilities covering 21528 ft² for:

- functional tests,
- mechanical tests: endurance,
- dielectric tests,
- environmental tests: vibrations,
- Ingress Protection (IP),
- temperature rise tests up to 60 °C/140 °F ambient.

International partnership

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

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



Implementation of standard IEC/EN 61439

Electrical switchgear manufacturers

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



An original manufacturer according to IEC/EN 61439 standards

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

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

Tesla Lab accredited by COFRAC

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

We can therefore help you to:

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



AC non-fusible disconnect switches

Selection guide *p. 12*

Non-fusible disconnect switches



SIRCO M UL
508
16 to 100 A
p. 14



SIRCO M
UL 98
30 to 100 A
p. 22



SIRCO
UL 98
100 to 1200 A
p. 28



TVSS Surge switch
Special designs
p. 36

Enclosed solution

SOCOMEK offers a range of pre-equipped enclosure in polyester, polycarbonate, stainless steel or painted steel.



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Selection guide

Non-fusible disconnect switches

UL/CSA standards for disconnect switches

UL 98 - Enclosed and dead front switches (equivalent to CSA-C22.2 no 4)

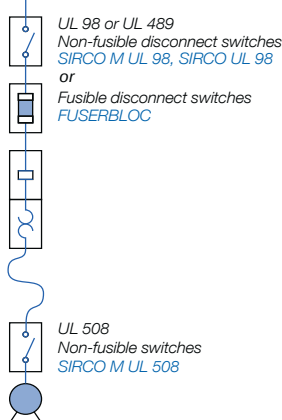
These requirements cover enclosed or dead front switches doesn't need to be capitalized, with or without provision for fuses, at 600 V or less.

These products are used as disconnecting means without restrictions; they are heavy duty products requiring 2 inches (50 mm) minimum of creepage distance, which gives a maximum safety for users and installation. The short circuit withstand of those products goes up to 200 kA.

UL 489 - Molded case switches (equivalent to CSA-C22.2 no 5)

This requirements cover Molded-case Circuit Breaker, Molded case switches and fused Molded-case switches, rated at 600 volts or less and 6000 amperes or less.

Typical control panel



sico-ul_002_b_1_cat



sicom_174_a

UL standards for electrical machinery

UL 508 - Industrial Control Equipment (equivalent to CSA-C22.2 no 14)

These requirements cover manual, starter, controllers, and overload don't need to be capitalized.

These products are IEC type products, requiring only a creepage distance between phases of 1/2 inch. UL 508 standard requested only 5 kA or 10 kA as short circuit withstand with fuse protection. Their use as a disconnecting mean is therefore limited to local disconnection of motors. These products can only be used as a disconnect mean when they have been additionally tested "suitable as motor disconnect". This additional testing ensures that the switch as a proper closing capacity on short circuit. UL 508 (switches or Circuit breakers) can not be used as main disconnect of a electrical panel. (i.e. in entrance of control panels).

A manual motor controller marked "Suitable as motor disconnect" shall be installed only on the load side of the branch circuit protective device (UL 508A 30.3.3 and NEC 430.109(6)).

Which application?

Which function?

Which operation handle?

Which type of breaking?

Machine control		Power distribution	
			
SIRCO M UL 508 16 to 100 A <i>p. 14</i>	SIRCO M UL 98 30 to 100 A <i>p. 22</i>	SIRCO UL 98 100 to 1200 A <i>p. 28</i>	TVSS Surge Switch <i>p. 36</i>

Applications

Main switchboard	•	•	•	
Distribution panel	•	•	•	
Emergency disconnect	•	•	•	
Genset output		•	•	
Network coupling		•	•	
Local safety disconnect	•	•	•	
Machine control	•	•		
Photovoltaic disconnect				
Enclosed switches	•	•	•	
Surge protection				•

Functions

3/4 pole non-fusible disconnect switch	•	•	•	•
6/8 pole non-fusible disconnect switch	•			
3/4 pole changeover switch (I-O-II)	•			
3/4 pole changeover switch (I-I+II-II)	•			

Characteristics

Operation				
Manual (rotating)	•	•	•	•
Manual toggle	•			
Motorized				
Direct operation handle				
Front	•	•	•	•
External operation handle				
Front	•	•	•	•
Right side	•	•		
Indication of breaking				
Positive break indication	•	•	•	•
Switch body				
Modular	•	•		

SIRCO M UL 508

Non-fusible disconnect switches standards UL and CSA
from 16 to 100 A



Rotary switch
SIRCO M 3 x 80 A



Toggle switch
SIRCO M 3 x 80 A + 2 auxiliary contacts



Rotary switch
SIRCO M 3 x 80 A



The solution for

> Industrial control systems



Strong points

- > Positive break indication
- > Direct or external operation
- > Compact footprint
- > DIN-rail or base mounting
- > Wide range of accessories
- > Up to 8 pole or 4 pole MTS

Conformity to standards⁽¹⁾

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



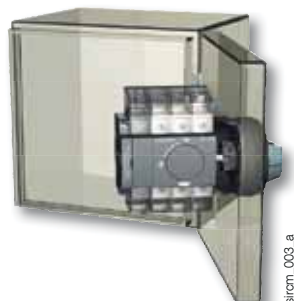
(1) Product reference on request.

Function

SIRCO M UL/CSA are compact and modular non-fusible disconnect switches. They make and break under all types of load conditions and provide safe isolation for any low voltage circuit, especially for machine control circuits.

General characteristics

- Positive break indication.
- Direct or external operation.
- Compact footprint.
- DIN-rail, base or door mounting.
- Wide range of accessories.
- Up to 8 pole or 4 pole MTS.



UL 508 manual motor controller “Suitable as motor disconnect”

References

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

Common accessories - more available on next pages.

(1) Nema/UL type.

(2) Please order the shaft guide: 1419 0000 with the shaft.

(3) Top and bottom.

(4) There is no door interlocking when the switch is fitted on the side of the enclosure.

UL 508 non-metallic polycarbonate 4, 4X enclosed SIRCO M



Function

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

General characteristics

- Grey enclosure with red handle.
- Equipped with a 3 pole SIRCO M UL 508.
- 1 removable ground terminal.
- Possibility of adding 1 power pole and 1 auxiliary contact.
- Nema/UL type 1, 3R, 12, 4, 4X.

Conformity to standards⁽¹⁾

- > UL 508, Guide NLRV, file E173959
- > CSA C22.2#14, Class 3211-05, file 112964
- > IEC 60947-3



(1) Product reference on request.

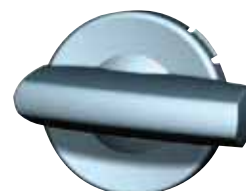
SIRCO M UL 508

Non-fusible disconnect switches standards UL and CSA
from 16 to 100 A

Accessories

Direct operation handle

Rating (A)	Handle color	Handle type	Reference
16 ... 100 CD	Blue	M00	2299 5012



M00 handle

access_277_a_2_cat

External operation handle

Use

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

No interlock in the "OFF" position for S00 and S0 handles.

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



S00 handle

access_264_a_2_cat

Front and right side handles I - 0

Rating (A)	Handle color	Handle type	Nema / UL type	Reference
16 ... 100 CD	Black	S00	3R, 12	1473 1111
16 ... 100 CD	Red/Yellow	S00	3R, 12	1474 1111
16 ... 100 CD	Black	S00	4, 4X	147D 1111
16 ... 100 CD	Red/Yellow	S00	4, 4X	147E 1111
16 ... 100 CD	Black	S0	1, 3R, 12	1483 1111
16 ... 100 CD	Red/Yellow	S0	1, 3R, 12	1484 1111
16 ... 100 CD	Black	S0	4, 4X	148D 1111
16 ... 100 CD	Red/Yellow	S0	4, 4X	148E 1111
16 ... 100 CD	Black	S01 ⁽¹⁾	3R, 12	140F 2111
16 ... 100 CD	Red/Yellow	S01 ⁽¹⁾	3R, 12	140G 2111
16 ... 100 CD	Black	S01 ⁽¹⁾	4, 4X	140D 2111
16 ... 100 CD	Red/Yellow	S01 ⁽¹⁾	4, 4X	140E 2111

(1) Not compatible with door mounting kit.

Front handle for heavy duty I - 0 with metallic lever

Rating (A)	Handle color	Handle type	Nema / UL type	Reference
16 ... 100 CD	Black	S01 ⁽¹⁾	4, 4X	140D 2911
16 ... 100 CD	Red/Yellow	S01 ⁽¹⁾	4, 4X	140E 2911

(1) Not UL.

Front handle for transfer switches I - 0 - II

Rating (A)	Handle color	Handle type	Nema / UL type	Reference
16 ... 100 CD	Black	S00	IP65	1473 1113⁽¹⁾

(1) Not UL.



S0 handle

access_279_a_2_cat



S01 handle

access_304_a_2_cat

Shafts for external handle

Use

Standard lengths:

- 5.9 in / 150 mm
- 7.87 in / 200 mm
- 12.59 in / 320 mm

Other lengths: please consult us.

For 3/4 pole switches, shaft extensions for external front and side handle.

For 6/8 pole switches and SIRCO M transfer switches.



access_280_a_2_cat

For 3/4 pole

Ratg (A)	Handle type	Length		Reference
		(in)	(mm)	
16 ... 100 CD	S00/S0	5.9	150	1407 0515
16 ... 100 CD	S00/S0	7.9	200	1407 0520
16 ... 100 CD	S00/S0	12.6	320	1407 0532
16 ... 100 CD	S01	7.9	200	1404 0520
16 ... 100 CD	S01	12.6	320	1404 0532
16 ... 100 CD	S01	15.7	400	1404 0540

For 6/8 pole

Rating (A)	Handle type	Length		Reference
		(in)	(mm)	
16 ... 100 CD	S00/S0	5.9	150	1407 0515
16 ... 100 CD	S00/S0	7.9	200	1407 0520
16 ... 100 CD	S00/S0	12.6	320	1407 0532

Accessories (continued)

Shaft guide for external handle

Use

This accessory enables handle to engage extension shaft with a misalignment of up to 0.59 in/15 mm.

Required for a shaft length from 12.6 in/320 mm.

Handle type	Reference
S00 and S0	1419 0000



access_260_a_2_cat

Additional pole

4th pole

Rating (A)	No. of poles	Type	Reference
16	1 P	switched	2200 1000
20	1 P	switched	2200 1001
25	1 P	switched	2200 1002
32	1 P	switched	2200 1003
40	1 P	switched	2200 1004
63	1 P	switched	2200 1006 ⁽¹⁾
80	1 P	switched	2200 1008 ⁽¹⁾
100 CD	1 P	switched	2200 1009 ⁽¹⁾

(1) Not UL.

Use

Transforms:
- 3 pole SIRCO M non-fusible disconnect switch into a 4 pole,
- 3 pole SIRCO M transfer switch into a 4 pole.



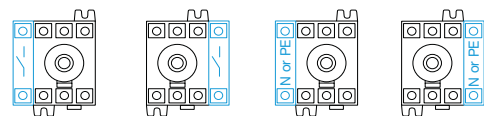
sircm_072_b_1_cat

Solid neutral pole

Rating (A)	No. of poles	Type	Reference
16 ... 40	1 P	unswitched	2200 5005
63 ... 100 CD	1 P	unswitched	2200 5009

Use

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



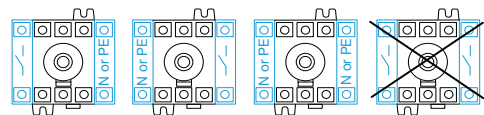
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Ground module

Rating (A)	No. of poles	Type	Reference
16 ... 40	1 P	unswitched	2200 9005
63 ... 100 CD	1 P	unswitched	2200 9009

Use

Adds 1 protective ground module pole to the non-fusible disconnect switch.



Terminal shrouds

Use

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

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

Rating (A)	No. of poles	Position	Reference
16 ... 40	1 P	top and bottom	2294 1005
16 ... 40	3 P	top and bottom	2294 3005
63 ... 100 CD	1 P	top and bottom	2294 1009
63 ... 100 CD	3 P	top and bottom	2294 3009



sircm_049_a_1_cat

SIRCO M UL 508

Non-fusible disconnect switches standards UL and CSA
from 16 to 100 A

M type Auxiliary Contacts

Use

Pre-break and signaling of positions 0 and I by NO+NC or 2 NO Auxiliary Contacts.

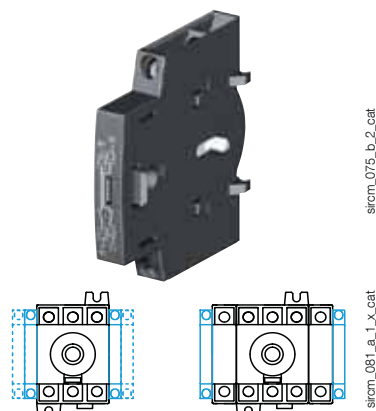
They can be mounted on the left or on the right side of the device.

Max 4 Auxiliary Contacts per product (2 modules).

Characteristics

A300.

Rating (A)	No. of AC	AC type	Reference
16 ... 100 CD	1 AC	NO + NC	2299 0001
16 ... 100 CD	1 AC	2 NO	2299 0011



Auxiliary contacts configurations for SIRCO M

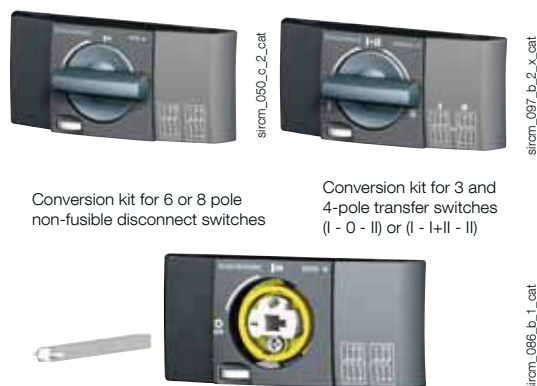
Conversion kit

Use

These accessories enable the assembly of 2 switches in order to achieve:

- 6 or 8 pole switches
- 3 or 4 pole open or close transition transfer switches.

Rating (A)	Type	Reference
16 ... 100 CD	Non-fusible disconnect switches 6/8 pole	2269 6009
16 ... 100 CD	Transfer switch 3/4 pole (I - 0 - II)	2209 6009
16 ... 100 CD	Transfer switch 3/4 pole (I - I+II - II)	2299 6009



Conversion kit for 6 or 8 pole non-fusible disconnect switches

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

Door mounting kit

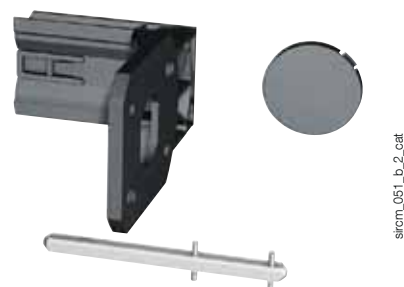
Use

This kit enables direct mounting of the switch on the panel door or on the right or left side of the panel with S00 and S0 handles.

The S0 and S00 external handles are quick and easy to install due to an internal locking nut mounted on the inside of the enclosure.

Rating (A)	No. of poles	Reference
16 ... 100 CD	3/4 P	2299 3409

Not compatible with S01 handle.
No need of external shaft.



Characteristics

Characteristics according to UL 508/CSA22.2#14 suitable as motor disconnect

General use rating (A)	16 A	20 A	25 A	32 A	40 A	63 A	80 A	100 A CD
Short circuit rating at 600 VAC (kA)	65	65	65	65	10/65	50/65	50/65	50/65
Type of fuse	J	J	J	J	J	J	J	J
Max fuse rating (A)	30	30	30	30	60/30	100/60	100/60	100/60

Max. motor hp/FLA 3 ph motor max.

208 VAC	3/0.6	5/16.7	7.5/24.2	7.5/24.2	7.5/24.2	15/46.2	15/46.2	15/46.2
220-240 VAC	5/15.2	5/15.2	7.5/22	7.5/22	7.5/22	20/54	20/54	20/54
440-480 VAC	10/14	10/14	15/21	20/27	20/27	40/52	40/52	40/52
600 VAC	10/11	15/17	20/22	25/27	25/27	40/41	40/41	40/41

Connection terminals

Solid - 1 wire	#14 - #10	#14 - #10	#14 - #10	#14 - #10	#14 - #10	#14 - #10	#14 - #10	#14 - #10
Solid - 2 wires	2 x #12	2 x #12	2 x #12	2 x #12	2 x #12	2 x #12	2x #12	2x #12
Stranded - 1 wire	#14 - #4	#14 - #4	#14 - #4	#14 - #4	#14 - #4	#14 - #1	#14 - #1	#14 - #1
Stranded - 2 wires	2 x (#14 - #12)	2 x (#14 - #12)	2 x (#14 - #12)	2 x (#14 - #12)	2 x (#14 - #12)	2 x (#10 - #6)	2 x (#10 - #6)	2 x (#10 - #6)

Auxiliary contacts

Electrical characteristics	A300	A300	A300	A300	A300	A300	A300	A300
----------------------------	------	------	------	------	------	------	------	------

Mechanical characteristics

Endurance (number of operating cycles)	10 000	10 000	10 000	10 000	10 000	10 000	10 000	10 000
Operating torque (lbs.in/Nm)	7/0.8	7/0.8	7/0.8	7/0.8	7/0.8	8.9/1	8.9/1	8.9/1

Characteristics according to IEC 60947-3

Thermal current I_{th} (40°C)	16 A	20 A	25 A	32 A	40 A	63 A	80 A	100 A CD
Rated insulation voltage U_i (V)	800	800	800	800	800	800	800	800
Rated impulse withstand voltage U_{imp} (kV)	8	8	8	8	8	8	8	8

Rated operational currents I_e (A)

Rated voltage	Utilization	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-23 A/AC-23 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	80/80
500 VAC	AC-22 A/AC-22 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	-
500 VAC	AC-23 A/AC-23 B	16/16	20/20	25/25	25/25	25/25	63/63	63/63	-
690 VAC	AC-21 A/AC-21 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100
690 VAC	AC-22 A/AC-22 B	16/16	20/20	25/25	32/32	32/40	40/63	63/80	-
690 VAC	AC-23 A/AC-23 B	16/16	20/20	25/25	25/25	25/25	40/40	40/40	-

Operational power in AC-23 (kW)

At 400 VAC without prebreaking AC in AC-23 (kW) ⁽¹⁾⁽²⁾	7.5	9	11	15	18.5	30	37	-
At 500 VAC without prebreaking AC in AC-23 (kW) ⁽¹⁾⁽²⁾	7.5	9	11	15	15	30	37	-
At 690 VAC without prebreaking AC in AC-23 (kW) ⁽¹⁾⁽²⁾	7.5	11	15	18.5	18.5	30	37	-

Fuse protected short-circuit withstand (kA rms prospective)

Prospective short-circuit current (kA rms) ⁽³⁾	50	50	50	50	50	50	50	25
Associated fuse rating (A) ⁽³⁾	16	20	25	32	40	63	80	100

Overload capacity (U_e 415 VAC)

Rated short-time withstand current 0.3 s. I_{CW} (kA rms) ⁽³⁾	2.5	2.5	2.5	2.5	2.5	3	3	1.5
Rated short-circuit making capacity I_{cm} (kA peak) ⁽³⁾	6	6	6	6	6	9	9	2.1

Connection

Minimum Cu cable cross section (mm ²)	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5
Maximum Cu cable section (mm ²)	16	16	16	16	16	35	35	35
Tightening torque min/max (Nm)	2/2.2	2/2.2	2/2.2	2/2.2	2/2.2	3.5/3.85	3.5/3.85	3.5/3.85

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

(2) The power value is given for information only, the current values vary from one manufacturer to another.

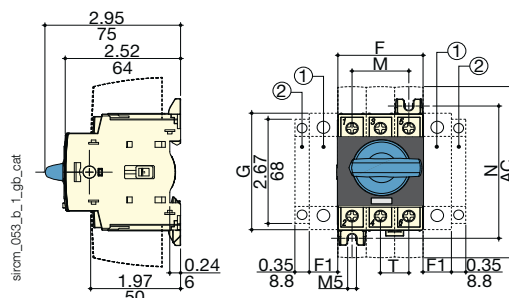
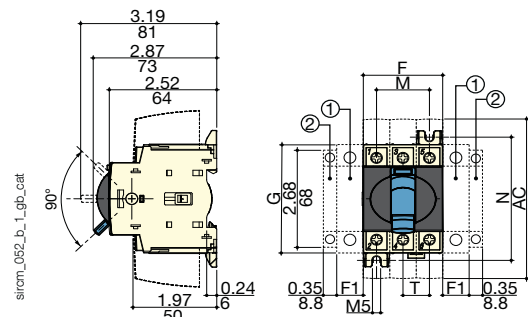
(3) For a rated operating voltage $U_e = 400$ VAC.

Dimensions (in/mm)

16 to 100 A

Toggle operation

Direct operation with handle

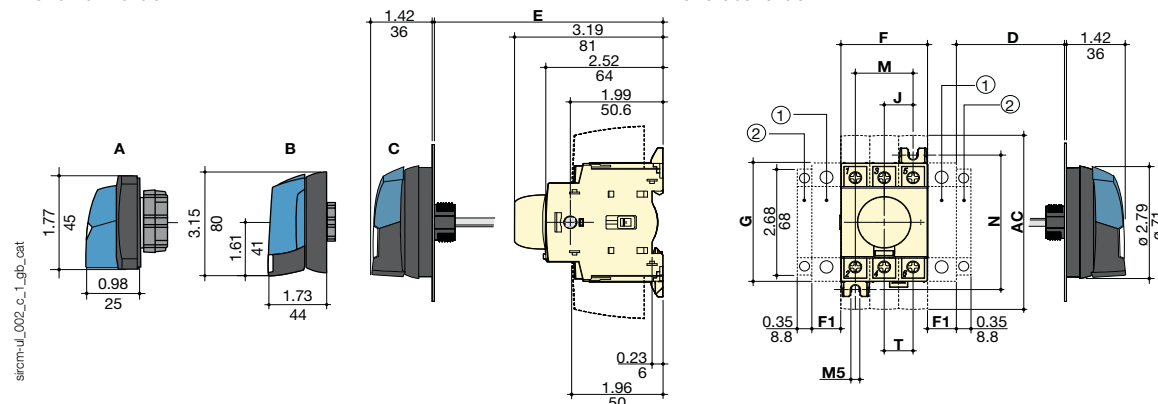


1. Position for 1 switched fourth pole module (1 per device max.) **or** 1 unswitched neutral pole **or** 1 protective ground module **or** 1 auxiliary contact.
2. Position for 1 auxiliary contact only.

Note: Maximum of 4 additional blocks.

External front handle

External side handle



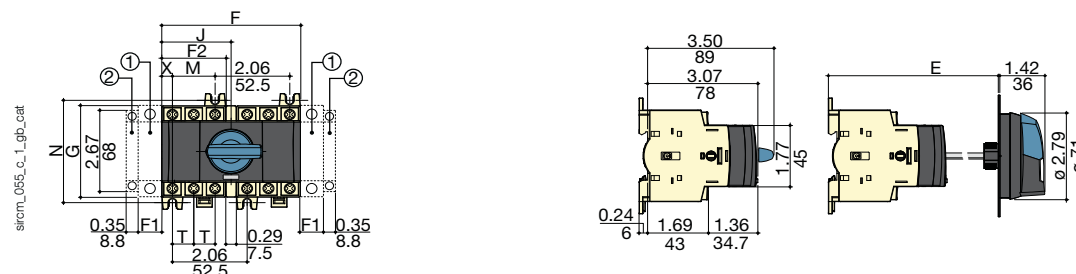
1. Position for 1 switched fourth pole module (1 per device max.) **or** 1 unswitched neutral pole **or** 1 ground module **or** 1 auxiliary contact.
2. Position for 1 auxiliary contact only.

Note: Maximum of 4 additional blocks.

Notes: maximum of 4 additional shrouds													
Rating (A)	Units	Overall dimensions				Terminal shrouds	Switch body				Switch mounting		Connection
		D min	D max	E min	E max	AC	F	F1	G	J	M	N	T
16 ... 40	in	1.18	9.25	3.94	14.64	4.33	1.77	0.59	2.67	0.59	1.18	2.95	0.59
	mm	30	235	100	372	110	45	15	68	15	30	75	15
63 ... 100 CD	in	1.18	9.25	3.93	14.64	4.33	2.06	0.69	2.99	0.69	1.38	3.35	0.69
	mm	30	235	100	372	110	52.5	17.5	76	17.5	35	85	17.5

Direct front handle for 6/8-pole non-fusible disconnect switches
or 3/4-pole transfer switches

External front handle for 6/8-pole non-fusible disconnect switches
or 3/4-pole transfer switches



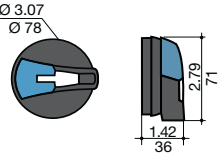
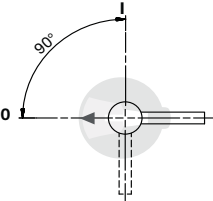
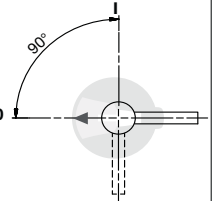
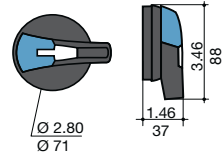
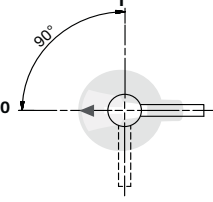
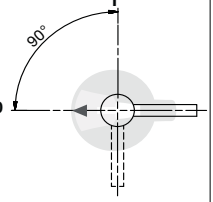
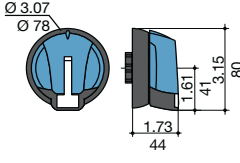
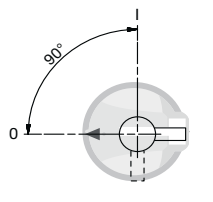
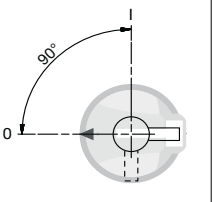
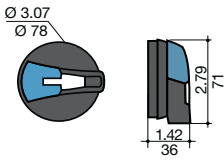
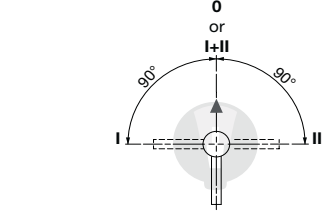
1. Position for 1 switched fourth pole module (1 per device max.) **or** 1 unswitched neutral pole **or** 1 ground module **or** 1 auxiliary contact.
2. Position for 1 auxiliary contact only.

Note: Maximum of 4 additional blocks.

Rating (A)	Units	Overall dimensions		Switch body					Switch mounting		Connection	
		E min	E max	F	F1	F2	G	J	M	N	T	X
16 ... 40	in	4.13	14.64	3.83	0.59	1.77	2.67	1.92	1.18	2.95	0.59	0.29
	mm	105	372	97.5	15	45	68	48.75	30	75	15	7.5
63 ... 100 CD	in	4.13	14.65	4.13	0.69	2.06	2.99	2.06	1.38	3.35	0.69	0.34
	mm	105	372	105	17.5	52.5	76	52.5	35	85	17.5	8.75

External handles dimensions (in/mm)

16 to 100 A

Handle type	Front operation Direction of operation	Side operation Direction of operation	Door drilling
S00 type 			Door drilling With 4 fixing screws: Ø 1.22, Ø 31, 1.57, 40, 2 Ø 0.28, 2 Ø 7. With fixing nut: 0.12, 3, 0.53, 13.5, Ø 0.89, Ø 22.5.
S0 type 			Door drilling With 4 fixing screws: Ø 1.22, Ø 31, 1.57, 40, 2 Ø 0.28, 2 Ø 7. With fixing nut: 0.12, 3, 0.53, 13.5, Ø 0.89, Ø 22.5.
S01 type 			Door drilling With 4 fixing screws: Ø 1.46, Ø 37, 1.10, 28, 4 Ø 7, 4 Ø 0.28.
S00 type Transfer switches 			Door drilling With 4 fixing screws: Ø 1.45, Ø 37, 1.10, 28, 4 Ø 0.27, 4 Ø 7. With fixing nut: Ø 0.88, Ø 22.5, 0.53, 13.5, 0.12, 3.

polgn_059_c_1_us_cat

polgn_060_a_1_us_cat

polgn_018_a_1_gb_cat

polgn_070_a_1_gb_cat

SIRCO M UL 98

Non-fusible disconnect switches standards UL and CSA
from 30 to 100 A



Rotary switch
SIRCO M 3 x 100 A

Function

SIRCO M non-fusible disconnect switches are compact switches. They make and break under on and off load conditions and provide safe isolation. These switches are extremely durable and are tested and approved for use in the most demanding applications.

General characteristics

- Positive break indication.
- Touch safe.
- DIN rail or back plate-mounted.
- Direct or external operation handle.

Specific characteristics

- Contact point technology.

The solution for

- > Power distribution



Strong points

- > Positive break indication
- > Touch safe
- > DIN rail or back plate-mounted
- > Direct or external operation handle
- > Contact point technology

Conformity to standards⁽¹⁾

- > UL 98, Guide WHTY, file E201138
- > CSA 22.2#4, Class 4651-02, file 112964
- > IEC 60947-3



(1) Product reference on request.

References

UL 98 non-fusible disconnect switches

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

Common accessories - more available on next pages.

(1) Shaft guide reference 14190000, is required for shaft length over 12.6 in / 320 mm.

(2) Top and bottom.

Accessories

Direct operation handle

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



M01 handle

aces_253_a_2_cat

External operation handle

Use

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

No interlock in the "OFF" position for S0 handles.

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



S0 handle

aces_279_a_2_cat



S01 handle

aces_304_a_2_cat

Front and right side handles I - 0

Rating (A)	Handle color	Handle type	Nema/UL type	Reference
30 ... 100	Black	S0	1, 3R, 12	1483 1111
30 ... 100	Red/Yellow	S0	1, 3R, 12	1484 1111
30 ... 100	Black	S0	4, 4X	148D 1111
30 ... 100	Red/Yellow	S0	4, 4X	148E 1111
30 ... 100	Black	S01	3R, 12	140F 2111
30 ... 100	Red/Yellow	S01	3R, 12	140G 2111
30 ... 100	Black	S01	4, 4X	140D 2111
30 ... 100	Red/Yellow	S01	4, 4X	140E 2111

Front handle for heavy duty I - 0 with metallic lever

Rating (A)	Handle color	Handle type	Nema/UL type	Reference
16 ... 100 CD	Black	S01	4, 4X	140D 2911
16 ... 100 CD	Red/Yellow	S01	4, 4X	140E 2911

Shafts for external handle

Use

Standard lengths:

- 5.9 in / 150 mm,
- 7.9 in / 200 mm,
- 12.6 in / 320 mm.

Other lengths: please consult us.

For 3/4 pole switches, shaft extensions for external front and side handle.



aces_280_a_2_cat

For 3/4 pole

Rating (A)	Handle type	Length		Reference
		(inches)	(mm)	
30 ... 100	S0	5.9	150	1407 0515
30 ... 100	S0	7.9	200	1407 0520
30 ... 100	S0	12.6	320	1407 0532
30 ... 100	S01	7.9	200	1404 0520
30 ... 100	S01	12.6	320	1404 0532
30 ... 100	S01	15.7	400	1404 0540

Accessories (continued)

Shaft guide for external handle

Use

This accessory makes shaft introduction easier with up to 0.59 in / 15 mm misalignment.
Required for a shaft length over 12.6 in / 320 mm.

Handle type	Reference
S0	1419 0000



access_260_a_2_cat

Additional pole for SIRCO M

4th pole

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

Use

Adding one or two additional poles transforms a non-fusible disconnect switch from 3 poles to 4 poles.



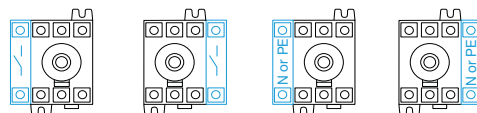
sircm_072_b_1_cat

Solid neutral pole

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

Use

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



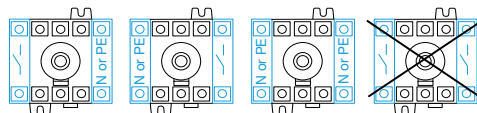
sircm_078_a_1_gp_cat

Ground module

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

Use

Adds 1 ground module pole to the switch-disconnector.



Terminal shrouds

Use

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

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

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



sircm_049_a_1_cat

M type auxiliary contacts

Use

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

Characteristics

A300.

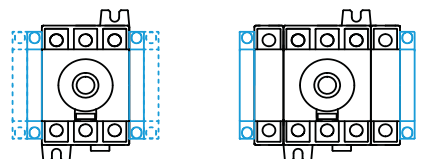
They can be mounted on the left or on the right side of the switch.

Max 4 auxiliary contacts (2 modules).

Rating (A)	No. of AC	AC type	Reference
30 ... 100	1 AC	NO + NC	2299 0001
30 ... 100	1 AC	2 NO	2299 0011



sircm_075_b_2_cat



sircm_081_a_1_x_cat

Auxiliary contacts configurations for SIRCO M

Characteristics

Characteristics according to UL 98/CSA22.2#4

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

Characteristics according to IEC 60647-3

Thermal current I_{th} at 40°C (A)		30 A	60 A	100 A
Rated insulation voltage U_i (V)		800	800	800
Rated impulse withstand voltage U_{imp} (kV)		8	8	8
Rated operational currents I_e (A)				
Rated voltage	Utilization category	A ⁽¹⁾	A ⁽¹⁾	A ⁽¹⁾
400 VAC	AC-22 A	32	63	100
400 VAC	AC-23 A	32	63	100
690 VAC	AC-22 A	32	63	80
690 VAC	AC-23 A	32	63	63
Operational power in AC-23 (kW)				
At 400 VAC without prebreak AC in AC23 (kW) ⁽²⁾⁽³⁾		15	30	45
At 500VAC without prebreak AC in AC23 (kW) ⁽²⁾⁽³⁾		15	30	45
At 690VAC without prebreak AC in AC23 (kW) ⁽²⁾⁽³⁾		18.5	30	45
Overload capacity (U_e 415 VAC)				
Rated short-circuit making capacity I_{cm} (kA peak) ⁽⁴⁾		12	12	12
Connection				
Min. connection section/ (mm ²)		2.5	2.5	10
Max. connection section/ (mm ²)		70	70	70

(1) Category with index A = frequent operation.

(2) A/B: Category with index A = frequent operation - Category with index B = infrequent operation.

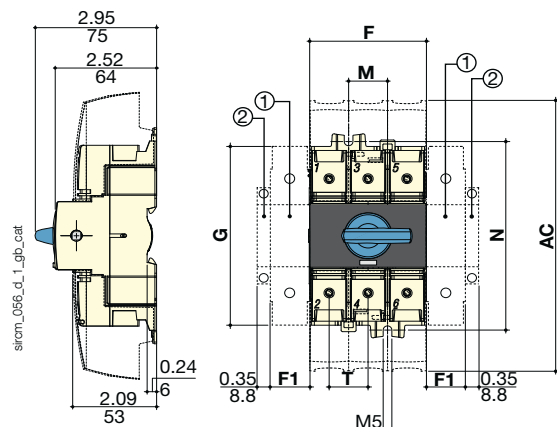
(3) The power value is given for information only, the current values vary from one manufacturer to another.

(4) For a rated operating voltage U_e = 400 VAC.

Dimensions (in/mm)

30 to 100 A

Direct operation with handle

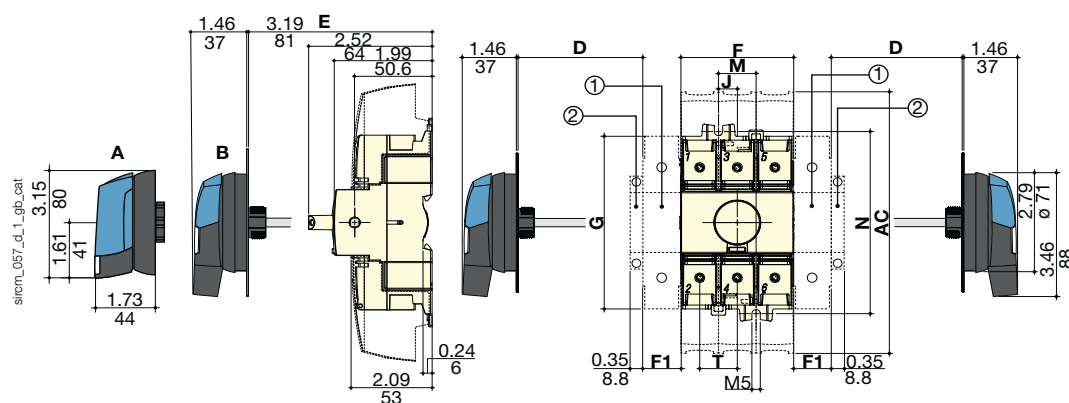


1. Location for: 1 switched fourth pole module (1 per device max.) **or** 1 unswitched neutral pole **or** 1 protective earth module **or** 1 auxiliary contact.
2. Position for 1 auxiliary contact module only.

Note: max 2 additional blocks.

External front operation

External side operation



1. Location for: 1 switched fourth pole module (1 per device max.) **or** 1 unswitched neutral pole **or** 1 protective earth module **or** 1 auxiliary contact.

2. Position for 1 auxiliary contact module only.
Note: max 2 additional blocks.

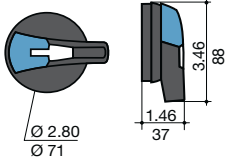
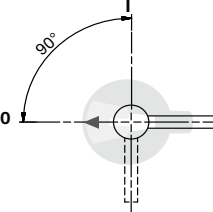
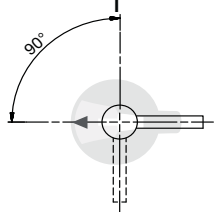
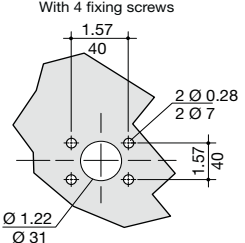
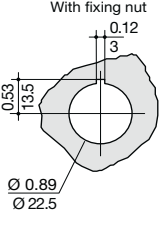
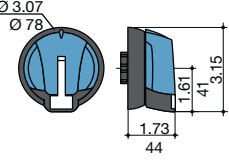
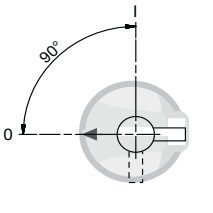
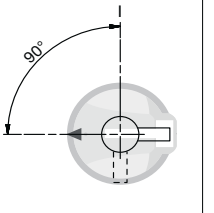
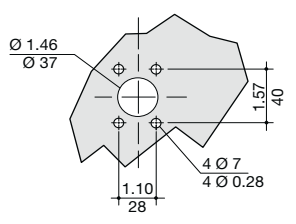
A. S01 handle

B. S00 handle

Rating (A) / Frame size		Overall dimensions				Terminal shrouds	Switch body				Switch mounting		Connection
		D min	D max	E min	E max	AC	F	F1	G	J	M	N	T
30 ... 100 / M3	mm	30	201	100	372	189	78	26	124,6	13	26	131,4	26
	in	1.18	7.93	3.94	14.64	7.44	3,07	1.02	4,90	0.51	1.02	5.17	1.02

External handles dimensions (in/mm)

30 to 100 A

Handle type	Front operation Direction of operation	Side operation Direction of operation	Door drilling
S0 type 			With 4 fixing screws  With fixing nut 
S01 type 			With 4 fixing screws 

polign_060_a_1_us_cat

polign_018_a_1_us_cat

SIRCO UL 98

Non-fusible switches standards UL and CSA
100 to 1200 A



Function

SIRCO non-fusible disconnect switches are heavy duty switches that break and make power circuits on and off load and provide safety isolation.

These switches are extremely durable and are tested and approved for use in the most demanding applications.

General characteristics

- Positive break indication.
- Fully visualized disconnection.
- High thermal and dynamic withstand.
- Severe utilization categories.
- High electrical and mechanical endurance.

The solution for

- > Power distribution



Strong points

- > Reliability
- > Safety of property and personnel
- > Simplicity
- > Easy assembling

Conformity to standards⁽¹⁾

- > UL 98, Guide WHTY, file E201138
- > CSA 22.2#4, Class 4652-04, file 112964
- > IEC 60947-3



(1) Product reference on request.

Customized solutions

- > Please consult us

References

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

Common accessories - more available on next pages

(1) Defeatable handle.

(2) Top.

(3) Bottom.

(4) Top or bottom.

(5) Max. 4 ACs.

Accessories

Direct operation handle

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



Accessories (continued)

External operation handle

Use

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

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

Front handle I - 0

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

Front handle heavy duty I - 0 with metallic lever

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



access_150_a_1_cat



access_166_a_2_cat



access_236_a_2_cat



access_152_a_2_cat

Shaft for external handle

Use

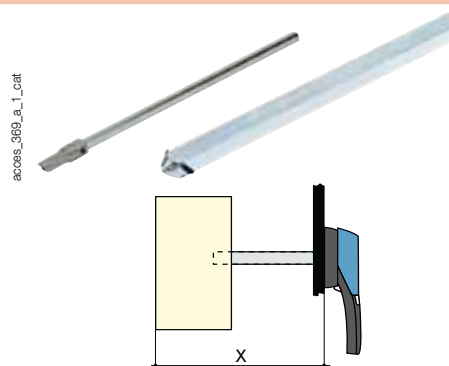
Standard lengths:

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

Other lengths: please consult us.

Rating (A)	Dimension X (in)	Dimension X (mm)	Handle type	Length (inches)	Length (mm)	Reference
100 ... 400	5.31 ... 10.43	135 ... 265	S2	7.9	200	1400 1020
100 ... 400	5.31 ... 15.16	135 ... 385	S2	12.6	320	1400 1032
100 ... 400	5.31 ... 18.31	135 ... 465	S2	15.7	400	1400 1040
100 ... 400	5.31 ... 22.25	135 ... 565	S2	19.7	500	1400 1050
600 ... 1200	8.70 ... 13.50	221 ... 343	S3, S4	7.9	200	1401 1520
600 ... 1200	8.70 ... 18.23	221 ... 463	S3, S4	12.6	320	1401 1532
600 ... 1200	8.70 ... 21.38	221 ... 543	S3, S4	15.7	400	1401 1540
600 ... 1200	8.70 ... 26.73	221 ... 679	S3, S4	19.7	536	1401 1554 ⁽¹⁾

(1) UL pending, please consult us.



access_369_a_1_cat

access_144_b_1_cat

access_202_a

Alternative color S-type handle cover

Use

For single lever handles type S1, S2, S3 and double lever handle, type S4.

Other colors: please consult us.

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



access_198_a_1_cat

S-type handle raiser

Use

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

Dimensions

Adds 0.47 in / 12 mm to the depth.

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



access_187_a_1_cat

Shaft guide for external handle

Use

This accessory makes shaft introduction easier with up to 0.59 in / 15 mm misalignment.

Required for a shaft length over 12.6 in / 320 mm.

Description	Reference
Shaft guide	1429 0000



access_260_a_2_cat

Auxiliary Contacts

Use

Pre-break and color of positions 0 and I.
To have 2 NO/NC contacts per switch, please order 1st and 2nd auxiliary contacts per switch. 1st contact is mandatory to operate the 2nd one.

Electrical characteristics

A300 for 100 to 400 A.

A600 for 600 to 1200 A.



access_076_a_1_cat

NO/NC contact for 100 to 1200 A

Rating (A)	No. of AC	Reference
100 ... 1200	1 st	2799 0021
100 ... 1200	2 nd	2799 0022

Low level NO/NC contact for 100 to 1200 A

Rating (A)	No. of AC	Reference
100 ... 1200	1 st	2799 0121
100 ... 1200	2 nd	2799 0122

Terminal screens

Use

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

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

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



access_079_a_1_cat

Terminal lugs

Use

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

Rating max (A)	Wires range	No wires per lug	Lugs per kit	Wires	Reference
100 ... 200	#6 - 300MCM	1	2	Cu / Al	3954 2020
100 ... 200	#6 - 300MCM	1	3	Cu / Al	3954 3020
100 ... 200	#6 - 300MCM	1	4	Cu / Al	3954 4020
400	#4 - 600MCM	1	2	Cu / Al	3954 2040
400	#4 - 600MCM	1	3	Cu / Al	3954 3040
400	#4 - 600MCM	1	4	Cu / Al	3954 4040
400	2x (#6 - 350MCM)	2	2	Cu / Al	3954 2041
400	2x (#6 - 350MCM)	2	3	Cu / Al	3954 3041
400	2x (#6 - 350MCM)	2	4	Cu / Al	3954 4041
600	2x (#2 - 600MCM)	1	2	Cu / Al	3954 2060
600	2x (#2 - 600MCM)	2	3	Cu / Al	3954 3060
600	2x (#2 - 600MCM)	2	4	Cu / Al	3954 4060
800 ... 1200	4x (#2 - 600MCM)	2	6	Cu / Al	3954 3120
800 ... 1200	4x (#2 - 600MCM)	2	8	Cu / Al	3954 4120



ul_032_a

SIRCO UL 98

Non-fusible disconnect switches
100 to 1200 A

Characteristics

Characteristics according to UL 98/CSA 22.2#4

SIRCO UL 98 - 100 to 1200 A							
General use rating (A)	100 A	200 A	400 A	600 A	800 A	1000 A	1200 A
Short circuit rating at 600 VAC (kA)	200	200	200	200	100	100	100
Type of fuse	J	J	J	J	L	L	L
Max. fuse rating (A)	100	200	400	600	800	1000	1200
Max. motor hp / FLA 3 ph motor max.							
220-240 VAC	30 / 80	75 / 196	125 / 312	200 / 480	200 / 480	200 / 480	200 / 480
440-480 VAC	75 / 96	150 / 180	250 / 302	400 / 477	500 / 590	500 / 590	500 / 590
600 VAC	100 / 99	200 / 192	350 / 336	350 / 336	500 / 472	500 / 472	500 / 472
Max. motor hp / FLA 1 ph motor max.							
220-240 VAC	10/50	10/50					
Max. motor hp / DC FLA motor max.							
125 VDC ⁽¹⁾	10 / 76	15 / 112	20 / 148	20 / 148			
250 VDC ⁽²⁾	15 / 55	15 / 55	50 / 173	50 / 173			
Connection terminals							
Min. connection section / AWG	#6	#6	2x #6 / #4	2x #2	4x #2	4x #2	4x #2
Max. connection section / AWG	300MCM	300MCM	2x 350 / 600MCM	2x 600MCM	4x 600MCM	4x 600MCM	4x 600MCM
Mechanical characteristics							
Endurance (number of operating cycles)	10000	8000	6000	6000	3500	3500	3500
Operating torque (lbs.in/Nm)	88.5/10	88.5/10	128.3/14.5	327.5/37	442.5/50	442.5/50	442.5/50
Auxiliary contacts							
Electrical characteristics	A300	A300	A300	A600	A600	A600	A600

(1) 2 pole in series.

(2) 3 pole in series.

Characteristics according to IEC 60947-3

SIRCO UL 98 - 600 to 1200 A					
Thermal current I_{th} (40°C)	600 A	800 A	1000 A	1200 A	
Rated insulation voltage U_i (V)	1000	1000	1000	1000	
Rated impulse withstand voltage U_{imp} (kV)	12	12	12	12	
Rated operational currents I_e (A)					
Rated voltage	Utilization category	A ⁽¹⁾	A ⁽¹⁾	A ⁽¹⁾	A ⁽¹⁾
400 VAC	AC-22 A	630	800	1000	1200
400 VAC	AC-23 A	630	800	1000	1000
690 VAC	AC-22 A	500	630	630	630
690 VAC	AC-23 A	200	400	400	400
Connection					
Min. Cu cable cross section (mm ²)	2 x 150	2 x 185	2 x 240		
Min. Cu busbar section (mm ²)	2 x 30 x 5	2 x 40 x 5	2 x 50 x 5	2 x 60 x 5	
Operational power in AC-23 (kW)					
At 400 VAC without prebreaking AC in AC23 (kW) ⁽²⁾⁽³⁾	355	450	560	560	
At 500 VAC without prebreaking AC in AC23 (kW) ⁽²⁾⁽³⁾	450	560	560	560	
At 690 VAC without prebreaking AC in AC23 (kW) ⁽²⁾⁽³⁾	185	400	400	400	
Overload capacity (U_e 415 VAC)					
Rated short-circuit making capacity I_{cm} (kA peak) ⁽⁴⁾	48	75	48	75	

(1) Category with index A = frequent operation.

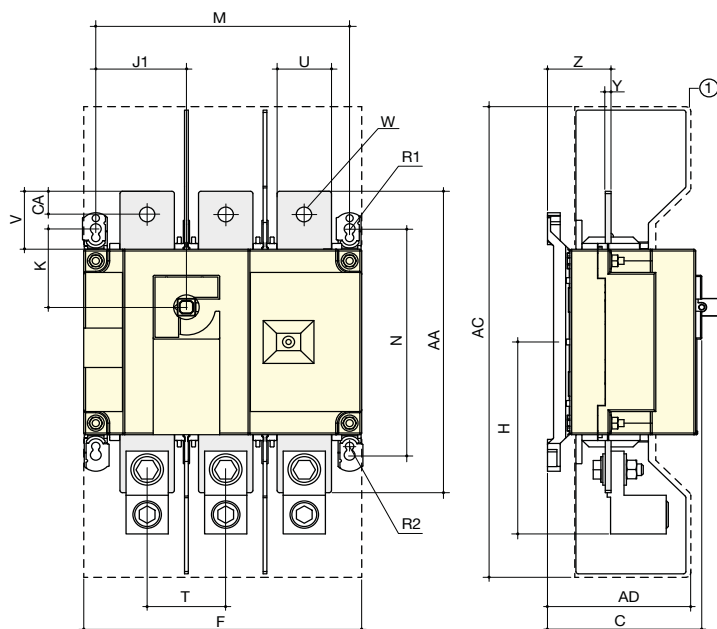
(2) A/B: Category with index A = frequent operation - Category with index B = infrequent operation.

(3) The power value is given for information only, the current values vary from one manufacturer to another.

(4) For a rated operating voltage U_e = 400 VAC.

Dimensions (in/mm)

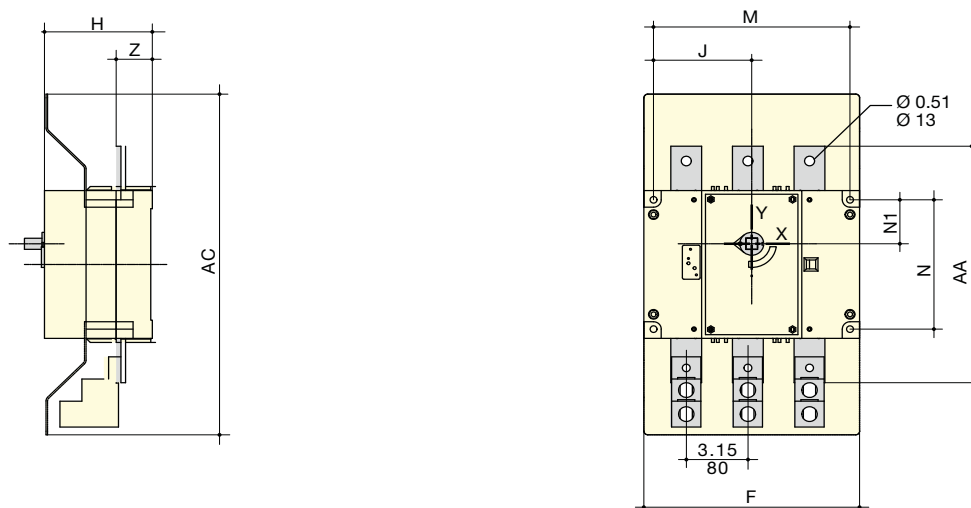
100 to 400 A



1. Terminal shrouds

Rating (A)	Unit	Overall dimensions	Terminal shrouds		Switch body						Switch mounting					Connection							
		C	AC	AD	F 3p.	F 4p.	H	J1 3p.	J1 4p.	K	M 3p.	M 4p.	N	R1	R2	T	U	V	W	Y	Z	AA	CA
100	in	3.72	10.1	3.05	7.09	9.06	4.22	2.17	4.13	1.8	6.3	8.27	5.31	0.35	0.27	1.97	0.98	1.18	0.43	0.14	1.35	6.3	0.6
	mm	94.6	256	77.5	180	230	107	55	105	45.6	160	210	135	9	7	50	25	30	11	3.5	34.4	160	15
200	in	3.72	10.1	3.05	7.09	9.06	4.22	2.17	4.13	1.8	6.3	8.27	5.31	0.35	0.27	1.97	0.98	1.18	0.43	0.14	1.35	6.3	0.6
	mm	94.6	256	77.5	180	230	107	55	105	45.6	160	210	135	9	7	50	25	30	11	3.5	34.4	160	15
400	in	4.92	16	4.15	9.05	11.4	6.53	2.95	5.31	2.65	8.26	10.6	7.67	0.35	0.27	2.56	1.77	1.97	0.43	0.2	2.08	10.2	0.8
	mm	128	406	115	230	290	166	75	135	67.5	210	270	195	9	7	65	45	50	13	5	53	260	20

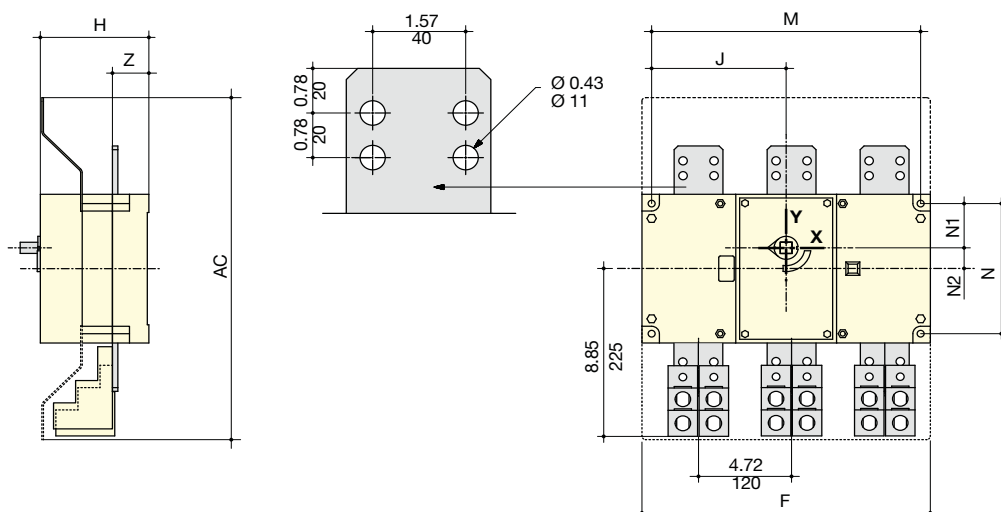
600 A



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

Dimensions (in/mm) (continued)

800 to 1200 A

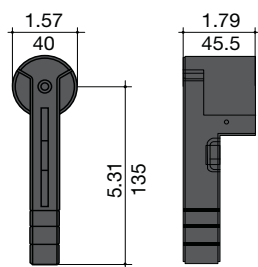


sirco_228_d_1_x_cat

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

100 to 400 A

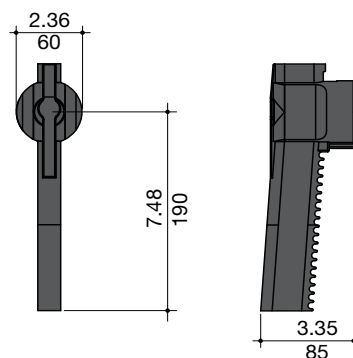
Front direct handle



sirco-ul_027_a_1_x_cat

600 to 1200 A

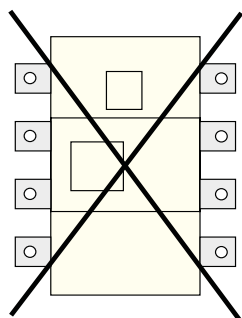
Front direct handle



sirco_267_b_1_x_cat

Mounting orientation

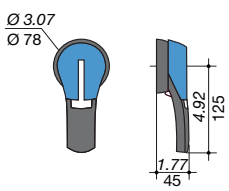
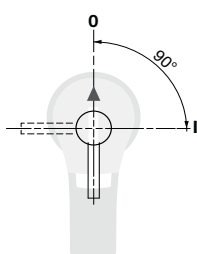
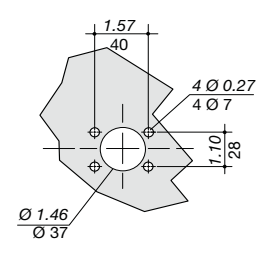
3/4 pole



sirco-ul_028_a_1_x_cat

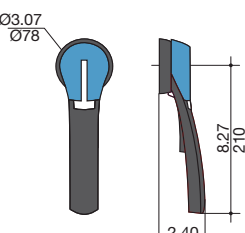
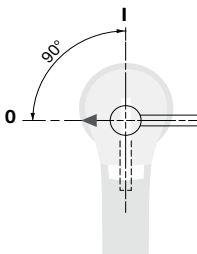
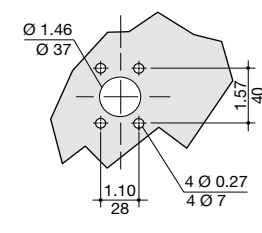
External handles dimensions (in/mm)

100 to 400 A

Handle type	Front operation Direction of operation	Door drilling
S2 type 		

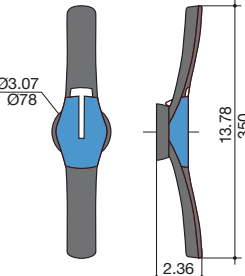
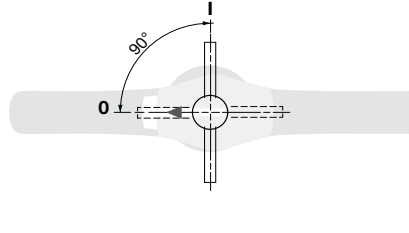
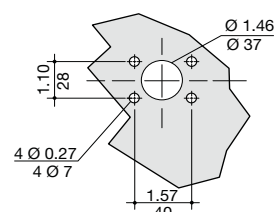
poign_013_a_1_us_cat

600 to 1200 A

Handle type	Front operation Direction of operation	Door drilling
S3 type 		

poign_046_a_1_gb_cat

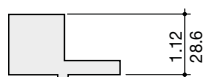
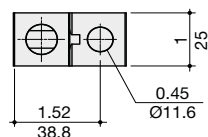
600 to 1200 A

Handle type	Front operation Direction of operation	Door drilling
S4 type 		

poign_036_a_1_us_cat

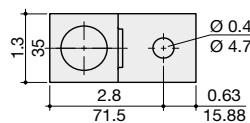
Terminal lugs (in/mm)

100 to 200 A



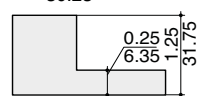
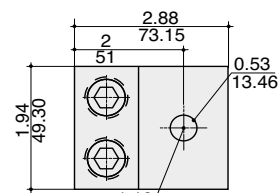
300 kcmil

400 A



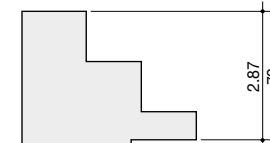
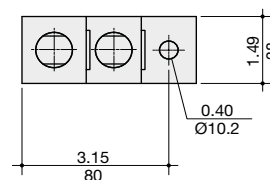
600 kcmil

400 A



2 x 350 kcmil

600 to 1200 A



2 x 600 kcmil

TVSS Surge switch

Special designs

TVSS (Transient Voltage Surge Suppressor) Surge Switch



Strong points

- > Compact product
- > High performance

Conformity to standards⁽¹⁾

- > UL 508, Guide NRNT, File E224992
- > IEC 60947-3



(1) Product reference on request.

Customized solutions

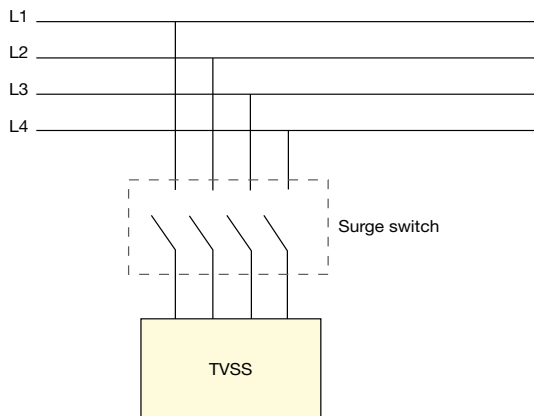
- > Please consult us

Function

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

General characteristics

- 200 kA 8/20 μ s shockwave withstand.
- Rated 100 A 600 VAC UL 508 general use.
- High electrical and mechanical endurance.



References

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

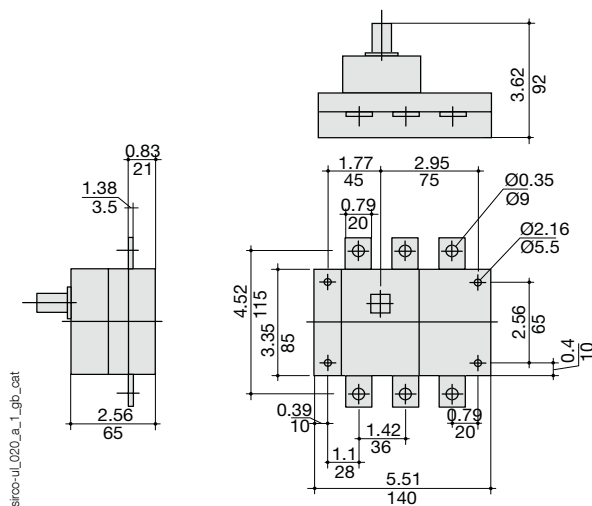
Common accessories - more available on next pages
(1) Top or bottom.

Characteristics

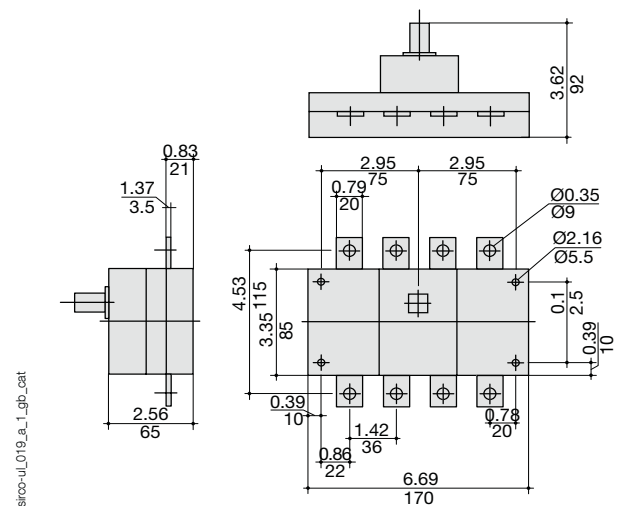
UL 508 100 A 600 VAC General use

Dimensions (in/mm)

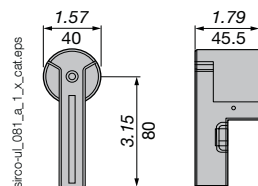
3 pole



4 pole



Front direct handle





Photovoltaic range

A fully tested range for all your PV applications p. 40

Photovoltaic disconnect switches



SIRCO MC PV
UL 508i
25 to 45 A
p. 42



SIRCO PV
UL 98B
100 to 2000 A
p. 50



SIRCO PV
UL 98B compact
320 to 600 A
p. 76



SIRCO MOT PV
2000 A
p. 84



RM PV
30 A
p. 88

Expert Services

Our experts are here for you to make your project a success.
see page 8.





A fully tested range for all your PV applications

Photovoltaic range

Using tested and certified components is key for the success of the design for any photovoltaic system. The SIRCO PV range is tested and certified according to main standards used in the photovoltaic industry.

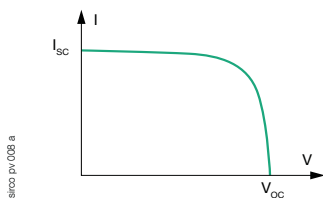
Global approvals

Our SIRCO PV solar disconnect range meets UL 98B, UL 508i, IEC 60947-3 Standards and bear the CE mark. Using the SOCOMEC range in your design is therefore a unique opportunity to standardize your components and use the same switches on 5 continents.



PV critical current

Under particular conditions (cloudy, days, evenings...) PV systems can deliver a low current at high voltage. This type of current is extremely difficult to interrupt. Standard AC or DC products are usually not tested in these particular conditions and could therefore be unable to interrupt low currents at high DC voltage. If the electrical arc produced is not interrupted it may result in operator injury or fire. The SIRCO PV range has been specifically designed and tested to interrupt the current under all current/voltage conditions.



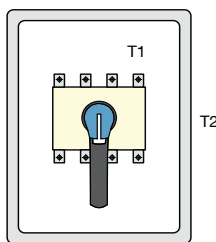
Current (I) / Voltage (V) curve of a PV system. When the current decreases (in the evening or when cloudy) the voltage may increase. SC = Short-circuit, OC = Open-circuit

Short Circuit

The complete UL 98B range is tested to withstand a short circuit of 10 kA for a duration of 50 ms without any specific protection. This allows the use of any overcurrent protection device for line protection. Our UL 508i have been tested at 5 kA with fuses.

Thermal current test

Thermal tests have been performed according to both IEC and UL standards.



SIRCO PV 055 a



According to UL 98B standard, the maximum difference authorized between T1 (temperature of terminals) and T2 is 40 °K when the switch is fully loaded.



According to IEC 60947-3, switches are tested in free air. Maximum temperature elevation on terminals is 70 °K.

Our UL 98B switches are certified up to 60 °C AMBIENT without derating

The standards for PV disconnect switches

USA

- UL 98B; Disconnect switches for photovoltaic systems, usually for rating above 40 A.
- UL 508i; Manual disconnect switches for photovoltaic systems, usually for ratings up to 40 A.
- UL 1741; Inverters and interconnection system equipment.

Worldwide

- IEC 60947; Low-voltage switchgear and controlgear. Part 3; Switches, disconnectors, switch-disconnectors and fuse-combination units.



The 5th largest European power laboratory

Since 1965, the Pierre Siat test laboratory has used its expertise to guarantee the reliability and compliance of SOCOMEC products and solutions.

This totally independent laboratory is recognized by the major certification bodies worldwide: member of UL, CSA and KEMA. It also works in partnership with numerous international certification organizations (CEBEC, ASTA, Lloyd's, Bureau Veritas, GOST-R, etc.). The quality and safety requirements specific to each country are therefore fully taken into account.

With its 100 MVA (I_{dc} 100 kA rms 1 s) short-circuit platform, three 10 kA overload platforms and numerous other test instruments, in facilities covering 1500 m², the Pierre Siat laboratory is currently the 2nd largest French power laboratory. It combines expertise in electricity and mechanics, pneumatics and computing.



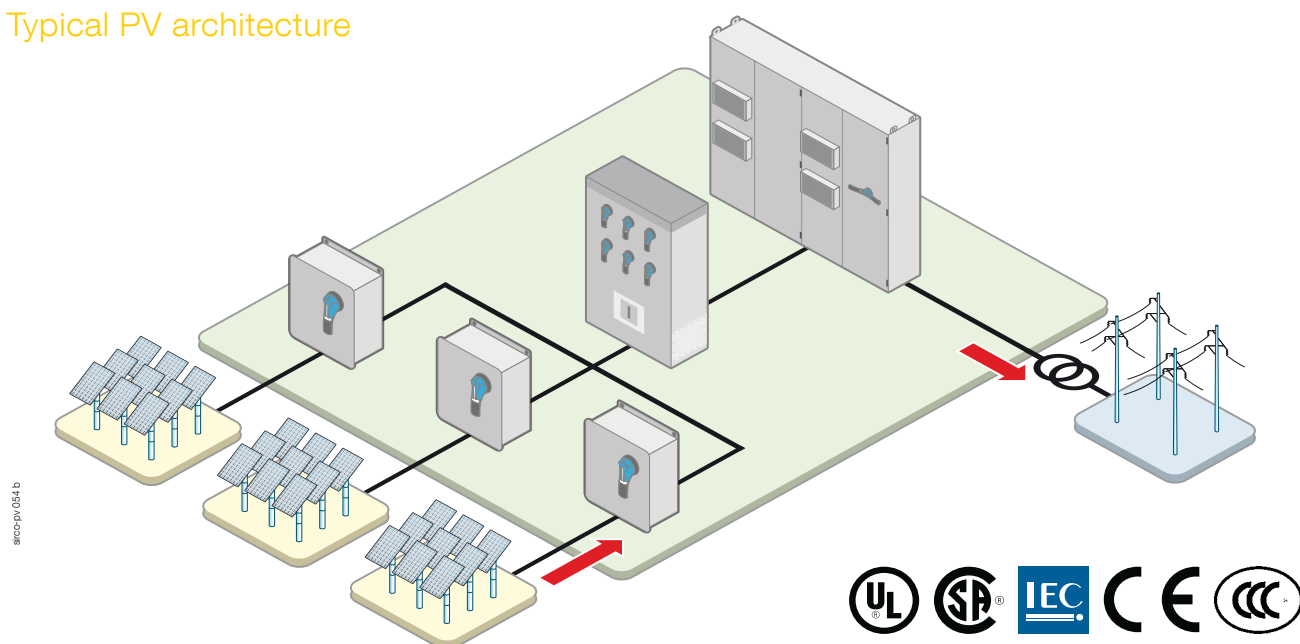
corpo 346 a



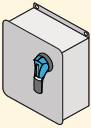
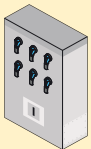
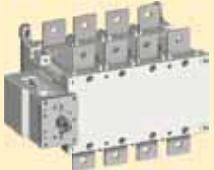
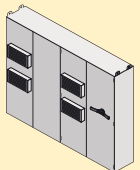
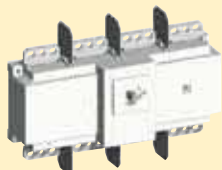
corpo 349 a

The SIRCO PV range provides safe disconnection and isolation at all levels within your PV installation.

Typical PV architecture



The SOCOMEC solutions

LEVEL OF INSTALLATION	SOCOMECSOLUTIONS	
Combiner box		
		SIRCO PV One circuit up to 400 A at 1500 VDC
		SIRCO MC PV UL 508i One circuit or two circuits up to 1000 VDC
Recombiner box		
		SIRCO PV 4 circuits up to 350 A at 1000 VDC 2 circuits up to 350 A at 1500 VDC
Inverter		
		SIRCO PV One circuit up to 2000 A at 1000 VDC



SIRCO MC PV UL 508i

Non-fusible disconnect switches for photovoltaic applications
from 25 to 45 A, up to 1000 VDC



SIRCO MC PV 25 A - 1000 VDC
DIN-rail mounting

The solution for

- > Residential
- > Buildings
- > Solar parks



Strong points

- > Compact
- > High breaking capacity up to 1000 VDC
- > Safety

Conformity to standards

- > UL 508i, Guide NMSJ, file E365404



- > IEC 60947-3



Approvals and certifications⁽¹⁾



⁽¹⁾ Product reference on request.

Function

SIRCO MC PV are DC non-fusible disconnect switches. They make and break under load conditions and provide optimum safe isolation for any PV circuit.

Advantages

Compact

Due to its compact design, the space needed within the combiner box or the solar inverter is greatly reduced.

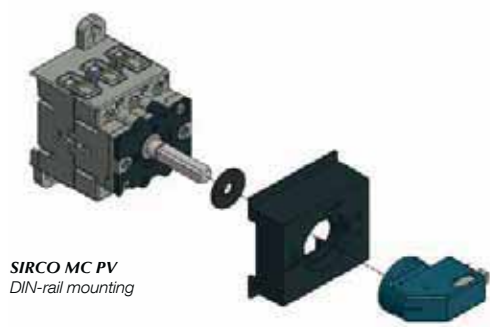
High breaking capacity up to 1000 VDC

- Making and breaking capacity under load conditions up to 1000 VDC.
- Specific photovoltaic test beyond requirements of UL 508i and IEC 60947-3 standard.

Safety

- Bridging bars are factory fitted for easier, quicker and safer connection.
- Direct access to connection terminals for adequate tightening.

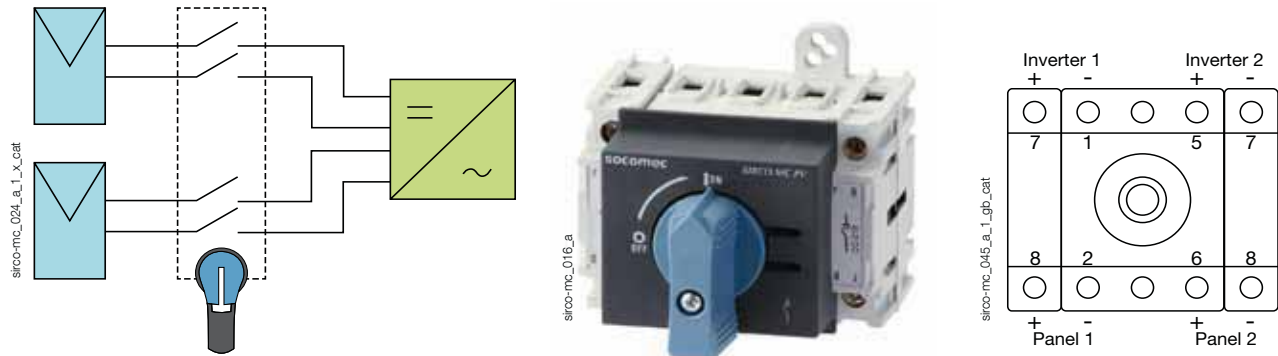
sirco-mc_028_a



SIRCO MC PV
DIN-rail mounting

Multi-circuit switching

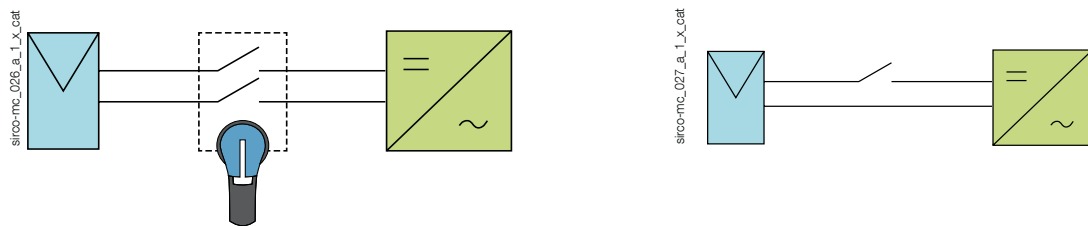
- The SIRCO MC PV for dual circuits (2 MPPT: Maximum Power Point Tracking) enables connection of two independent photovoltaic circuits to a single switch in order to reduce the costs of the global solution.



What you need to know

For grounded or ungrounded networks:

It is possible to use the SIRCO MC PV in both network systems, either switching one or both polarities.



SIRCO MC PV UL 508i

Non-fusible disconnect switches for photovoltaic applications
from 25 to 45 A, up to 1000 VDC

References

600 VDC

Rating (A)	Circuit type	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Auxiliary contact
25 A	Single PV circuit	2 P	21PV 2102-UL	MC01 type Blue 2119 1012	S00 type Black 4.4X 147D 0111 ⁽¹⁾	S00 type 265 mm 10.43 in 2107 0517	1 contact NC+NO 2119 0001
	Dual PV circuit	4 P	21PV 5102-UL				
45 A	Single PV circuit	4 P	21PV 4144	MC01 type Blue 2119 1412	Red 4.4X 147R 0111 ⁽¹⁾		
	Dual PV circuit	8 P	21PV 8144				

Common accessories - more available on next pages.

(1) Door interlocking.

1000 VDC

Rating (A)	Circuit type	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Auxiliary contact
32 A	Single PV circuit	4 P	21PV 4144	MC01 type Black 2119 1012	S00 type Black 4.4X 147D 0111 ⁽¹⁾	S00 type 265 mm 10.43 in 2107 0517	1 contact NC+NO 2119 0001
	Dual PV circuit	8 P	21PV 8144	MC01 type Black 2119 1412			

Common accessories - more available on next pages.

(1) Door interlocking.

Accessories

Direct operation handle

Use

The direct operation conversion kit requires an additional 4 mm distance on each side of the 2 and 3 pole device.

Rating (A)	Handle color	Type of locking	Handle type	45 mm modular DIN front plate	Reference
25 ... 45	Blue	-	MC0	yes	2119 0012 ⁽¹⁾
25 ... 45	Blue	1 padlock Ø 0.20 in / 5 mm	MC01	yes	2119 1012

(1) Standard handle.

2 MPPT 600 V					
Rating (A)	Handle color	Type of locking	Handle type	45 mm modular DIN front plate	Reference
25	Blue	-	MC0	yes	2119 0012
25	Blue	1 padlock Ø 0.20 in / 5 mm	MC01	yes	2119 1012
45	Blue	1 padlock Ø 0.20 in / 5 mm	MC01	yes	2119 1412



MC0 handle



MC01 handle

access_305_a_1_cat

access_293_a_1_cat

External operation handle

Use

The external control will allow the operator to safely disconnect and isolate the solar strings prior to any intervention.

External controls are user-friendly and adapted to meet requirements of residential installations, large roofs and ground-based generators.



S00 handle



MC1 handle

access_341_a_1_cat

access_302_a_1_cat

DIN-rail or back plate mounting

Rating (A)	Handle type	Handle color	Type of locking	Nema type	Reference
25 ... 45	MC1	Black	3 padlocks Ø 0.35 in / 8 mm	4.4X	2119 3312
25 ... 45	MC1	Red/Yellow	3 padlocks Ø 0.35 in / 8 mm	4.4X	2119 3313
25 ... 45	S00	Black	3 padlocks Ø 0.35 in / 8 mm	4.4X	147D 0111
25 ... 45	S00	Red/Yellow	3 padlocks Ø 0.35 in / 8 mm	4.4X	147R 0111

Shaft for external handle

Use

The shaft can be adjusted and cut depending on the need.

Shaft length

Device + shaft:
- 10.43 in / 265 mm



access_297_a_1_cat

DIN-rail or back plate mounting

Rating (A)	Device + shaft Length	Reference
25 ... 45	10.43 in / 265 mm	2107 0517⁽¹⁾

(1) Shaft for door interlocking.

Terminal shrouds

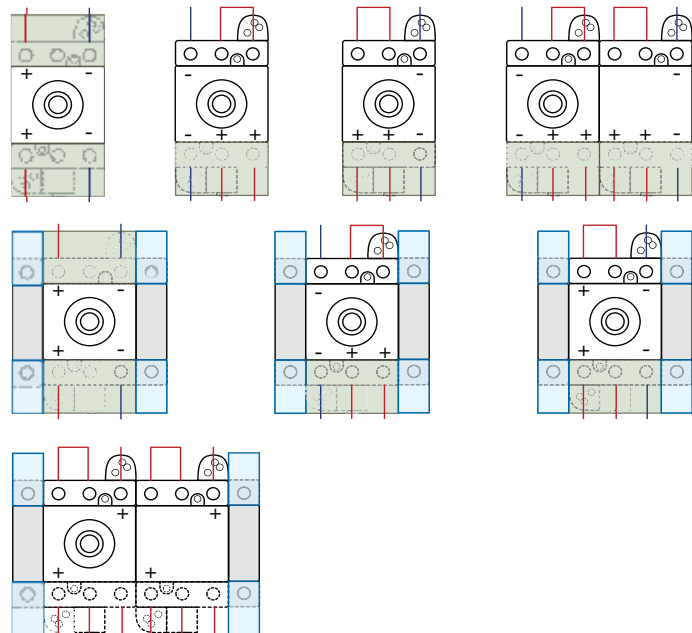
Use

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

The SIRCO MC PV non-fusible disconnect switch is pre-bridged. Terminal covers are mounted on the top or bottom free space of the device.

Possibility to assemble a terminal shroud on the bridge side by removing the insulating material of the series connection bar (irreversible step).

Rating (A)	Type of mounting	No. of poles	Position	Reference
25 ... 45	DIN-rail	1 P	top or bottom	2194 1004
25 ... 45	DIN-rail	3 P	top or bottom	2194 3004



sirco-mc_011_e_1_cat

access_299_a_1_cat



Terminal shrouds 1 pole

access_300_a_1_cat



Terminal shrouds 3 pole

SIRCO MC PV UL 508i

Non-fusible disconnect switches for photovoltaic applications
from 25 to 45 A, up to 1000 VDC

Characteristics

according to UL 508i

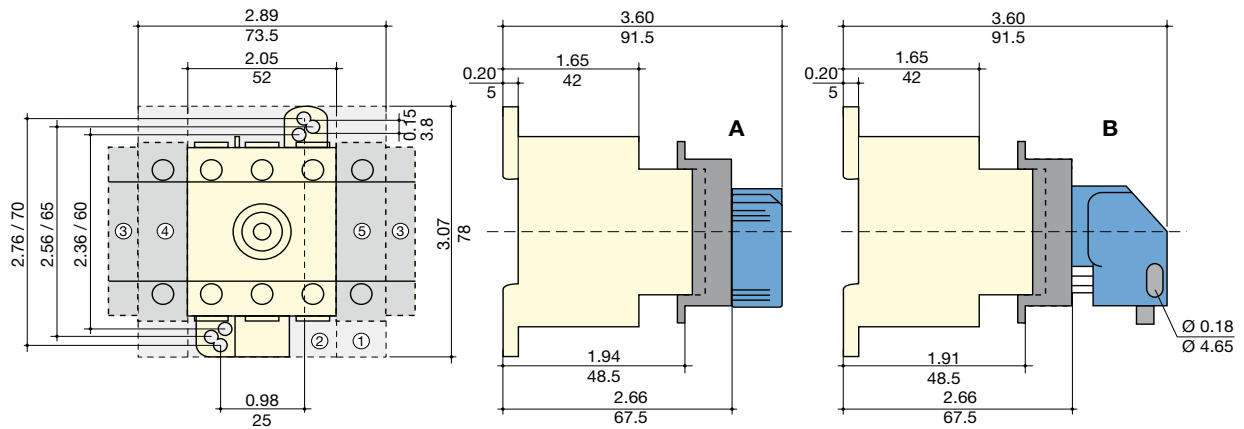
	25 A	45 A
General use rating with 200% overload extra test		
Rated voltage	(A)	(A)
600 VDC	25	-
600 VDC	-	45
600 VDC	25	-
600 VDC	-	45
1000 VDC	-	32
1000 VDC	-	32
Short-circuit capacity at 600 VDC		
Prospective short-circuit current (kA rms)	5	5
Type of fuse	gPV	gPV
Associated fuse rating (A)	25	80
Short-circuit capacity at 1000 VDC		
Prospective short-circuit current (kA rms)	5	5
Connection terminals		
Min. connection wire range / AWG (solid or stranded)	14 / 7	14 / 3
Mechanical characteristics		
Durability (number of operating cycles)	30 000	30 000
Tightening torque (Nm)	2	2

according to IEC 60947-3

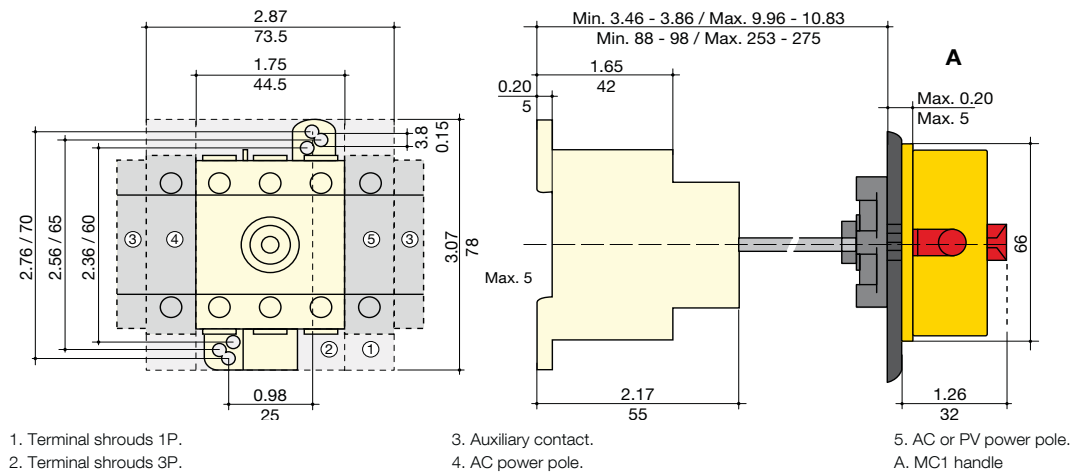
Rated current	25 A	45 A
Thermal current I_{th} at 40°C (A)	25	45
Thermal current at 50°C (A)	25	45
Thermal current at 60°C (A)	25	45
Rated insulation voltage U_i (V)	1000	1000
Rated impulse withstand voltage U_{imp} (kV)	8	8
Rated operational currents I_e (A)		
Rated voltage	(A)	(A)
600 VDC	30	-
600 VDC	-	40
600 VDC	30	-
600 VDC	-	40
1000 VDC	10	-
1000 VDC	-	40
1000 VDC	10	-
1000 VDC	-	40

Dimensions (in/mm)

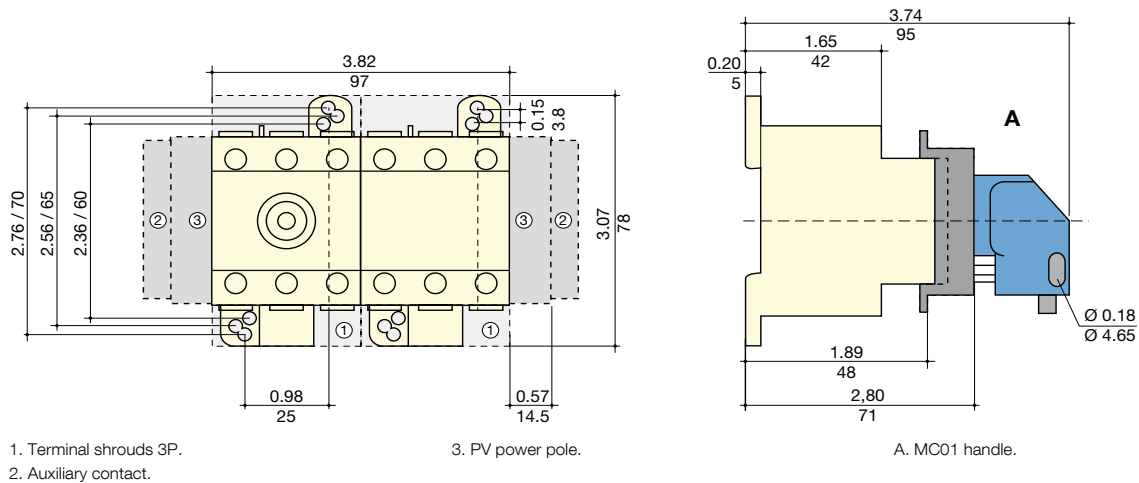
DIN-rail mounting - Direct operation



DIN-rail mounting - External operation



2 MPPT - 45 A - 600 VDC and 32 A - 1000 VDC - DIN-rail mounting - Direct operation

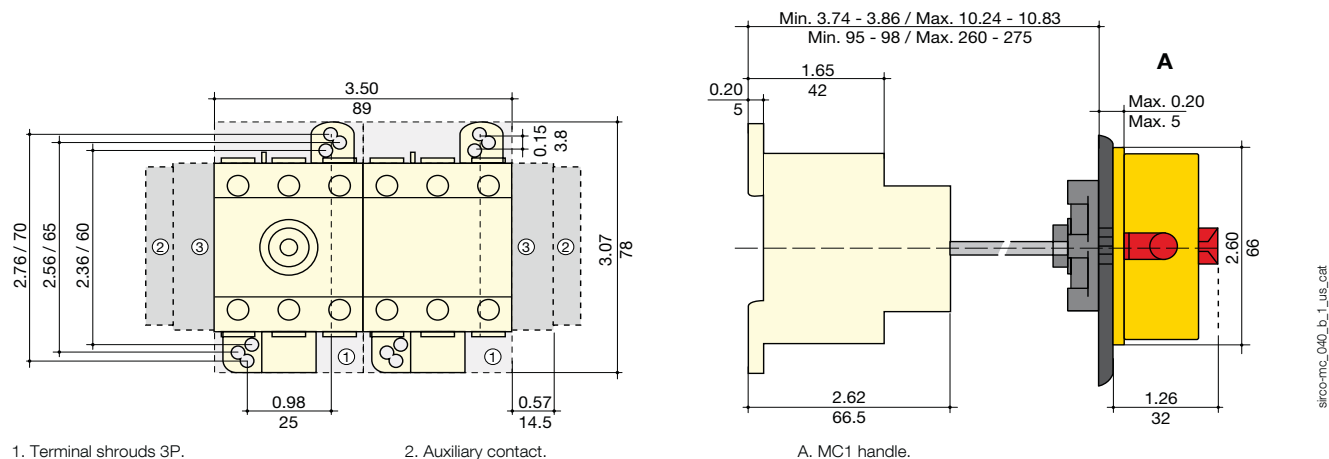


SIRCO MC PV UL 508i

Non-fusible disconnect switches for photovoltaic applications
from 25 to 45 A, up to 1000 VDC

Dimensions (continued)

DIN-rail mounting - External operation



Dimensions for external handles (in/mm)

DIN-rail or back plate mounting

Handle type	Front operation Direction of operation	Door drilling
MC1 type 		
S00 type 		With 4 fixing screws With fixing nut

polgn_001_a_1_us_cat

polgn_056_a_1_us_cat

Poles connections

Switching of polarities + and - ⁽¹⁾

	Single PV circuit	Dual PV circuit
	Diagram illustrating a Single PV circuit connection. A PV panel (blue envelope icon) is connected to a disconnect switch (light blue box with a switch symbol). The switch is connected to a load (light bulb icon) and a ground symbol (green square with a tilde symbol). The switch is labeled <i>sirco-mc_028_a_1_x_cat</i>.	Diagram illustrating a Dual PV circuit connection. Two PV panels (blue envelope icons) are connected to a disconnect switch (light blue box with a switch symbol). The switch is connected to a load (light bulb icon) and a ground symbol (green square with a tilde symbol). The switch is labeled <i>sirco-mc_024_a_1_x_cat</i>.
Rating	Single PV circuit	Dual PV circuit
25 A - 600 VDC	Diagram illustrating the 21PV 2102-UL Single PV circuit connection. The disconnect switch (light blue box) has terminals 1, 2, 3, 4, 5, 6, 7, and 8. The PV panel (blue envelope icon) is connected to terminals 1 and 2. The inverter (green box) is connected to terminals 3 and 4. The switch is labeled <i>sirco-mc_044_a_1_gb_cat</i>.	Diagram illustrating the 21PV 5102-UL Dual PV circuit connection. The disconnect switch (light blue box) has terminals 1, 2, 3, 4, 5, 6, 7, and 8. Two PV panels (blue envelope icons) are connected to terminals 1 and 2. Two inverters (green boxes) are connected to terminals 3 and 4. The switch is labeled <i>sirco-mc_045_a_1_gb_cat</i>.
45 A - 600 VDC 32 A - 1000 VDC	Diagram illustrating the 21PV 4144 Single PV circuit connection. The disconnect switch (light blue box) has terminals 1, 2, 3, 4, 5, 6, 7, and 8. The PV panel (blue envelope icon) is connected to terminals 1 and 2. The inverter (green box) is connected to terminals 3 and 4. The switch is labeled <i>sirco-mc_083_a_1_gb_cat</i>.	Diagram illustrating the 21PV 8144 Dual PV circuit connection. The disconnect switch (light blue box) has terminals 1, 2, 3, 4, 5, 6, 7, and 8. Two PV panels (blue envelope icons) are connected to terminals 1 and 2. Two inverters (green boxes) are connected to terminals 3 and 4. The switch is labeled <i>sirco-mc_085_a_1_gb_cat</i>.

(1) For grounded systems, single polarity switching, a bridge shall be added.
 For spare bridging bars, please consult use.



SIRCO PV UL 98B

Disconnect switches for photovoltaic applications

from 100 to 2000 A, up to 1500 VDC



Function

SIRCO PV UL 98B are manually operated multipolar disconnect switches. They make and break under load conditions and provide safety isolation for any PV circuit up to 1000 VDC (as per UL 98B standard) and 1500 VDC (as per IEC 60947-3). They comply with NEC Art. 690 (US National Electrical Code) concerning photovoltaic installations. They are compliant for use within solar inverters and enclosures governed by standard UL1741.

SIRCO PV are extremely durable switches that have been tested and approved for use in the most demanding environments. They have been designed and tested for all types of applications: Grounded, floating and bipolar.

Advantages

Performance

A glass fiber reinforced polyester break chamber with an arc extinguishing system provides a patented safety disconnection system offering rapid extinguishing of the electric arc up to 1500 VDC and current interruption up to 2000 A.

Back-to-back double disconnect switch

The system of back-to-back double switches enables:

- on load operation of two switches with a single handle,
- compact solution when connecting two separate photovoltaic circuits compared with the use of two separate switches,
- easy connection,
- voltages above 1000 VDC are broken by the use of two poles in series.

The solution for

- > Combiner box
- > Recombiner box
- > Inverter



Strong points

- > Patented switching technology
- > Positive break indication
- > Up to 1000 VDC as per characteristics by UL 98B
- > Up to 1500 VDC as per characteristics by IEC 60947-3
- > Suitable for use in accordance with NEC Art. 690

Conformity to standards

- > UL 98B, Guide WHVA, file E346418
- > CSA C22.2#4, Class 4651-02, file 112964
- > IEC 60947-3



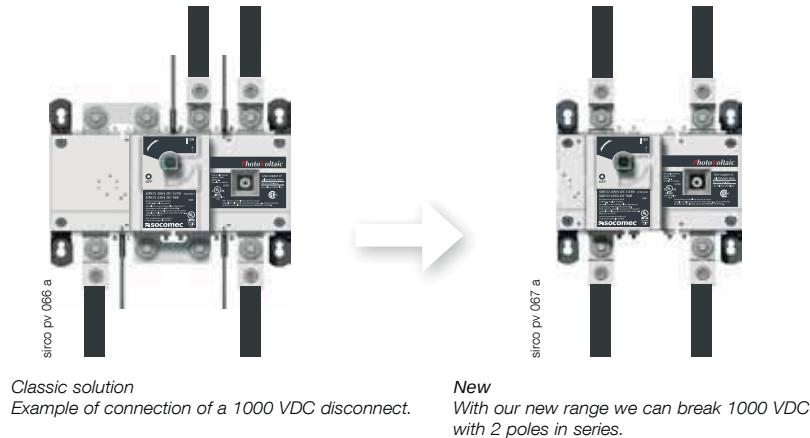
Approvals and certifications⁽¹⁾



⁽¹⁾ Product reference on request.

New patented switching technology to break 500 VDC per pole

Most PV systems today are designed at 1000 VDC. Our new range of switches allows on-load breaking of 1000 VDC on just 2 poles. This innovation provides an extremely compact solution.



Optimize your investment

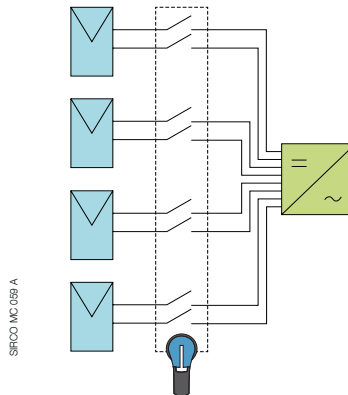
- Limit costs by reducing the number of jumpers per device.
- Gain time by having a less number of jumpers to install.
- Reduce the overall heat dissipation of the switch. A 2 pole SIRCO PV switch takes direct advantage of this, leading to possibility to use a smaller enclosure.

Limit potential risk

PV equipment is subject to extreme variation in temperature. Point of connection are therefore subject to potential loosening of connection due to breaking cooling effect. Limiting the number of poles greatly reduces the risk of a loose connection.

Allows to disconnect up to 4 circuits with one switch ("The Worlds first")

A compact and cost effective solution for recombined applications. Allows to break up to 24 circuits by respecting the NEC article 690.

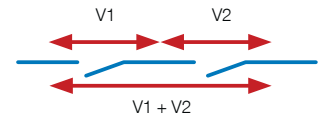


4 MPPT switches, 4 circuits are switched together.

Achieving 1500 VDC characteristics in a compact footprint

SOCOMECS's new technology enables utilization at 1500 VDC by connecting three poles in series.

- Each pole of a switch has a maximum voltage breaking capacity. To break a high DC voltage it is necessary to connect poles in series. The global on-load breaking capacity of a switch is determined by multiplying the max voltage breaking capacity per pole by the number of poles in series.
- Paralleling the poles on our double-stack design permits a higher current rating to be achieved.



350 A 1000 VDC 4 circuits.



400 A 1500 VDC



800 A 1500 VDC with a 400 A double stack switch.

SIRCO PV UL 98B

Disconnect switches for photovoltaic applications
from 100 to 2000 A - up to 1500 VDC

References

1000 VDC - Back plate mounting

Rating (A)	Frame size	No. of poles	Switch body	External handle	Shaft for external handle
1 PV circuit					
100 A	B4	2 P	27PV 2009	S2 type Black 1, 3R, 12 142F 2111⁽¹⁾ Red/Yellow 1, 3R, 12 142G 2111⁽¹⁾ Black 4, 4X 142D 2111⁽¹⁾ Red/Yellow 4, 4X 142E 2111⁽¹⁾	200 mm 7.9 inches 1400 1020 320 mm 12.6 inches 1400 1032 400 mm 15.7 inches 1400 1040⁽²⁾
200 A	B4		27PV 2019		
250 A	B4		27PV 2024		
325 A	B5		27PV 2032		
400 A	B5		27PV 2039		
600 A	B6	4 P	27PV 4060	S3 type Black 4, 4X 143D 3111⁽¹⁾ Red/Yellow 4, 4X 143E 3111⁽¹⁾ S4 type Black 4, 4X 144D 3111⁽¹⁾ Red/Yellow 4, 4X 144E 3111⁽¹⁾	200 mm 7.9 inches 1401 1520 320 mm 12.6 inches 1401 1532 400 mm 15.7 inches 1401 1540⁽²⁾
800 A	B7		27DC 4081		
1200 A	B7		27DC 4121		
2000 A	B7 _{DS}	8 P	27DC 4201	V1 type Black 3R, 12 2799 7145	320 mm 12.6 inches 4199 3018
2 PV circuits					
100 A	B4 _{DS}	4 P	27PV 5009	S2 type Black 1, 3R, 12 142F 2111⁽¹⁾ Red/Yellow 1, 3R, 12 142G 2111⁽¹⁾ Black 4, 4X 142D 2111⁽¹⁾ Red/Yellow 4, 4X 142E 2111⁽¹⁾	200 mm 7.9 inches 1400 1020 320 mm 12.6 inches 1400 1032 400 mm 15.7 inches 1400 1040⁽²⁾
250 A	B4 _{DS}		27PV 5024		
325 A	B5		27PV 4032		
400 A	B5		27PV 4039		
600 A	B6 _{DS}	8 P	27PV 8060	V1 type Black 3R, 12 2799 7145	320 mm 12.6 inches 4199 3018
800 A	B7 _{DS}		27DC 8081		
1000 A	B7 _{DS}		27DC 8101		
4 PV circuits					
350 A	B5 _{DS}	8 P	27PV 8039	S3 type Black 4, 4X 143D 3111⁽¹⁾ Red/Yellow 4, 4X 143E 3111⁽¹⁾	200 mm 7.9 inches 1401 1520 320 mm 12.6 inches 1401 1532 400 mm 15.7 inches 1401 1540⁽²⁾

(1) Defeatable handle.

(2) Shaft guide reference 1429 0000 is required for a shaft length over 12.6 in / 320 mm.

1500 VDC - Back plate mounting

Rating (A)	Frame size	No. of poles	Switch body	External handle	Shaft for external handle
1 PV circuit					
275 A	B5	3 P	27PV 3026	S2 type Black 1, 3R, 12 142F 2111 ⁽²⁾	200 mm 7.9 inches 1400 1020
325 A	B5		27PV 3032	Red/Yellow 1, 3R, 12 142G 2111 ⁽²⁾	320 mm 12.6 inches 1400 1032
400 A	B5		27PV 3039	Black 4, 4X 142D 2111 ⁽²⁾ Red/Yellow 4, 4X 142E 2111 ⁽²⁾	400 mm 15.7 inches 1400 1040 ⁽³⁾
600 A ⁽¹⁾	B6 _{DS}	8 P	27PV 8060	V1 type Black 3R, 12 2799 7145	320 mm 12.6 inches 4199 3018
800 A ⁽¹⁾	B7 _{DS}		27DC 8081		
1000 A ⁽¹⁾	B7 _{DS}		27DC 8101		
2 PV circuits					
275 A	B5 _{DS}	6 P	27PV 6026	S3 type Black 4, 4X 143D 3111 ⁽²⁾	200 mm 7.9 inches 1401 1520
350 A	B5 _{DS}		27PV 6039	Red/Yellow 4, 4X 143E 3111 ⁽²⁾	320 mm 12.6 inches 1401 1532 400 mm 15.7 inches 1401 1540 ⁽³⁾

(1) Not UL.

(2) Defeatable handle.

(3) Shaft guide reference 1429 0000 is required for a shaft length over 12.6 in / 320 mm.

Accessories

External operation

Use

In a combiner box, located close to the solar cell strings, or located close to the inverter, we recommend to use a door interlocked external handle for its safety features.

Door interlocked external operation handles include an escutcheon, are padlockable and must be utilized with an extension shaft.

Example

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

Frame size	Handle type	Handle color	Nema degree of protection	Reference
B4 ... B5 B4 _{DS}	S2	Black	1, 3R, 12	142F 2111
		Red/Yellow		142G 2111
		Black		142D 2111
B5 _{DS} B6	S3	Red/Yellow	4, 4X	142E 2111
		Black		143D 3111
		Red/Yellow		143E 3111
B7	S4	Black		144D 3111
		Red/Yellow		144E 3111
B6 _{DS} ... B7 _{DS}	V1	Black	1, 3R, 12	2799 7145

Front handle heavy duty I - 0 with metallic lever

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

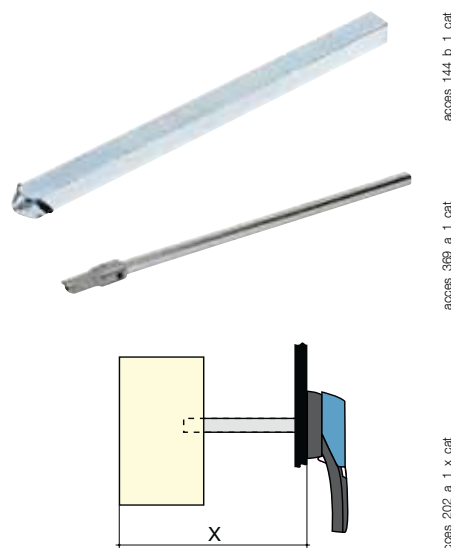
Shaft for external handle

Use

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

Other lengths: please consult us.
19.69 in / 500 mm available.

Frame size	Handle type	Dimension (inches)	Dimension X (mm)	Length (inches)	Length (mm)	Reference
B4	S2	6 ... 11.6	150 ... 295	7.9	200	1400 1020
		6 ... 16.3	150 ... 415	12.6	320	1400 1032
		6 ... 19.4	150 ... 495	15.7	400	1400 1040
B5	S2	8 ... 12.9	203 ... 328	7.9	200	1400 1020
		8 ... 17.6	203 ... 448	12.6	320	1400 1032
		8 ... 20.7	203 ... 525	15.7	400	1400 1040
B6	S3	8.70 ... 13.50	220 ... 343	7.9	200	1401 1520
		8.70 ... 18.23	220 ... 463	12.6	320	1401 1532
		8.70 ... 21.38	220 ... 543	15.7	400	1401 1540
B7	S4	12 ... 14.4	305 ... 366	7.9	200	1401 1520
		12 ... 19.1	305 ... 485	12.6	320	1401 1532
		12 ... 22.2	305 ... 564	15.7	400	1401 1540
B4 _{DS}	S2	12 ... 14.3	305 ... 363	7.9	200	1400 1020
		12 ... 19	305 ... 483	12.6	320	1400 1032
		12 ... 22.10	305 ... 561	15.7	400	1400 1040
B5 _{DS}	S3, S4	16 ... 18.4	406 ... 467	7.9	200	1401 1520
		16 ... 23.1	406 ... 589	12.6	320	1401 1532
		16 ... 26.3	406 ... 668	15.7	400	1401 1540
B6 _{DS}	V1	20 ... 28.1	508 ... 714	12.6	320	4199 3018
		20 ... 31.3	508 ... 795	15.7	400	4199 3019
		20 ... 28.1	508 ... 714	12.6	320	4199 3018
B7 _{DS}	V1	20 ... 39.4	508 ... 795	15.7	400	4199 3019



S-type handle adapter

Use

For handles S2, S3 and S4.

Dimensions

Increases the distance between the handle grip and the door by 0.47 in / 12 mm, for better handling.

Color	Nema degree of protection	To be ordered in multiples of	Reference
Black	1, 3R, 12	10	1493 0000



access_187_a_3_cat

Alternative S-type handle cover colors

Use

For handles S2, S3 and S4.

Other colors: please consult us.

Handle color	Handle type	To be ordered in multiples of	Reference
Light grey	S2, S3	50	1401 0001
Dark grey	S2, S3	50	1401 0011
Light grey	S4	50	1401 0031
Dark grey	S4	50	1401 0041



access_198_a_3_cat

Auxiliary contact

Use

Pre-break and signaling of positions 0 and I:

- 1 to 2 NO/NC auxiliary contacts,
- 1 to 2 low level NO/NC auxiliary contacts.

Electrical characteristics

A300.

To have 2 NO/NC contacts per switch, please order 1st and 2nd auxiliary contacts per switch.



access_076_a_1_cat

NO/NC contact

Frame size	Position AC	Type	Reference
B4 ... B7	1 st	NO/NC	2799 0021
	2 nd		2799 0022
B4 _{DS} ... B7 _{DS}	1 st		4159 0021

Low level NO/NC auxiliary contacts

Frame size	Position AC	Type	Reference
B4 ... B7	1 contact	NO/NC	2799 0121
	2 contacts		2799 0122
B4 _{DS} ... B7 _{DS}	1 contact		4159 0022

Terminal screen

Use

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

Frame size	No. of poles	Position	Pack	Reference
B4	2 P	Top	1 unit	2798 3021
	2 P	Bottom	1 unit	2798 8021
B5	3 P	Top	1 unit	2798 3041
	3 P	Bottom	1 unit	2798 8041
B5	4 P	Top or bottom	1 unit	2798 4041
B6	4 P	Top or bottom	1 unit	2798 4061
B4 _{DS}	2 P	Top or bottom	1 unit	4158 3021
B5 _{DS}	6 P	Top or bottom	1 unit	4158 3041
	8 P	Top or bottom	1 unit	4158 4041
B6 _{DS}	8 P	Top and bottom	2 units	2798 8061
B7 _{DS}	8 P	Top or bottom	1 unit	2798 4121



access_079_a_1_cat

Jumpers for connecting poles in series

1 PV circuit - 1000 VDC

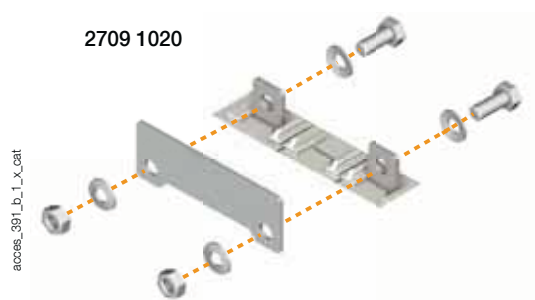
Switch Reference	Frame size	Rating (A)	Quantity of jumper kits to be order per switch		Jumper kit Reference
			Ungrounded	Grounded	
27PV 2009	B4	100	N/A	1	2709 1020
27PV 2019	B4	200	N/A	1	2709 1020
27PV 2024	B4	250	N/A	1	2709 1020
27PV 2032	B5	325	N/A	1	2709 1041
27PV 2039	B5	400	N/A	2	2709 1041
27PV 4060	B6	600	2	3	2709 0062
27PV 4081	B7	800	2	3	2709 0081
27PV 4121	B7	1200	2	3	2709 0121
27PV 4201	B7 _{DS}	2000	6	6 ⁽¹⁾	2709 0121

Use

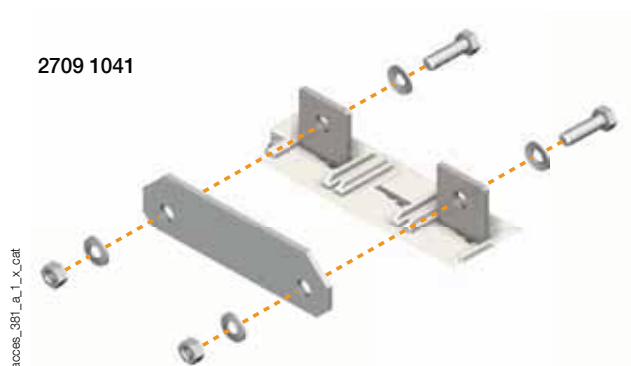
The jumpers will make easy the connection of the poles in series, allowing the following configurations⁽¹⁾.

⁽¹⁾ Other connections: refer to mounting instructions.

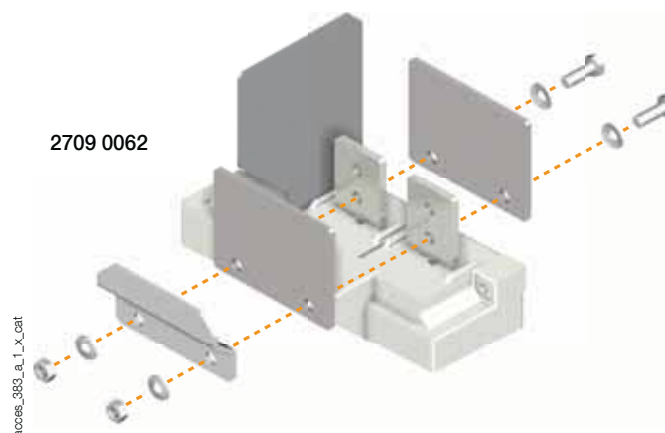
2709 1020



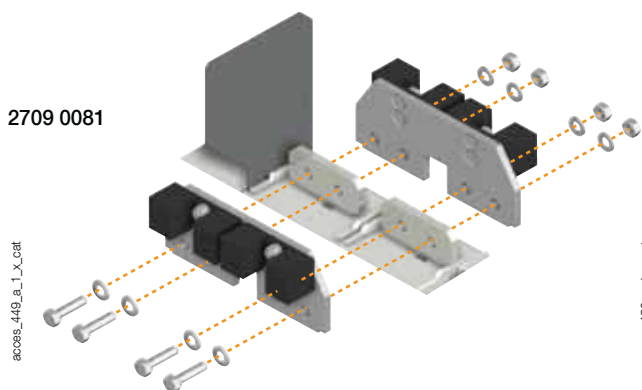
2709 1041



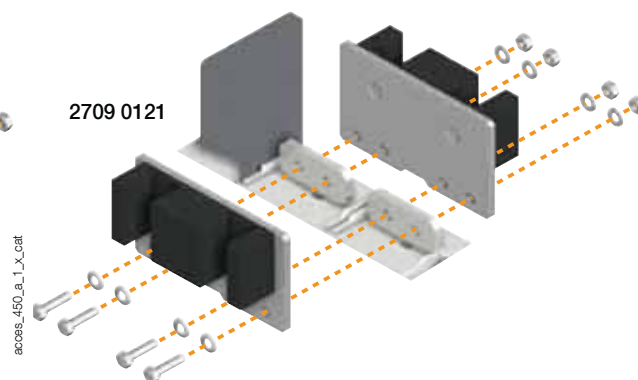
2709 0062



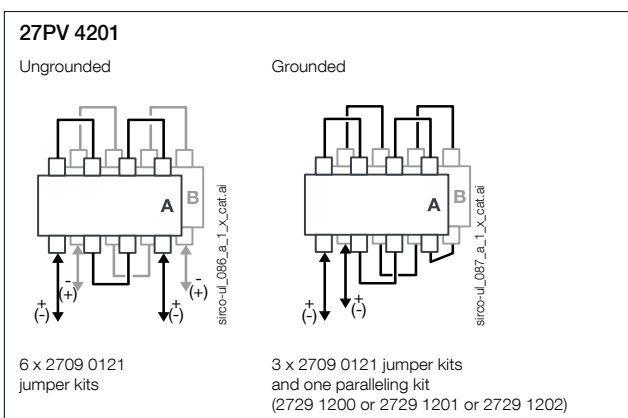
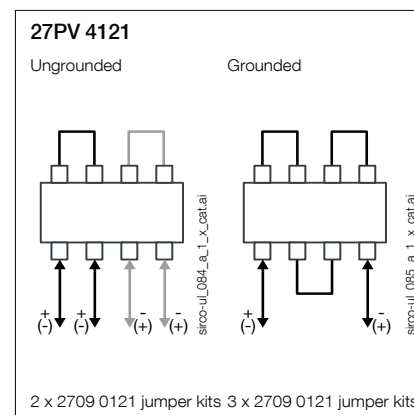
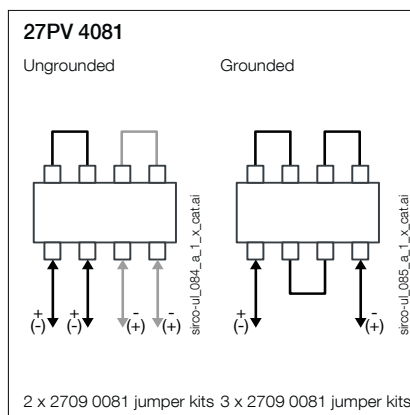
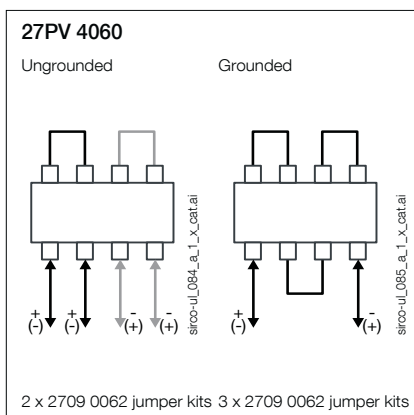
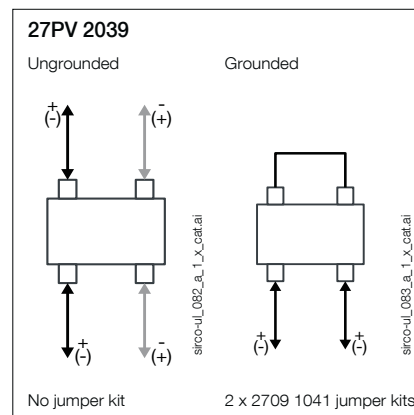
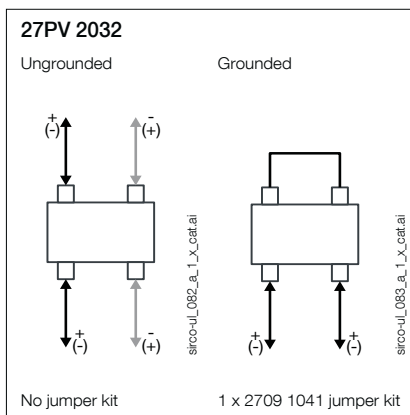
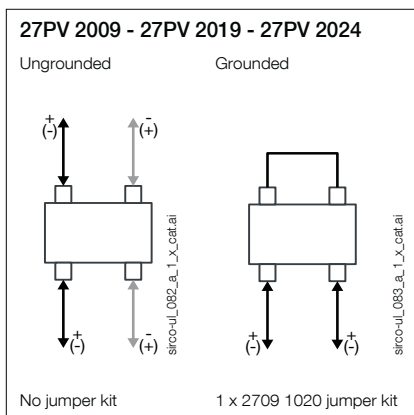
2709 0081



2709 0121



1 PV circuit - 1000 VDC



Jumpers for connecting poles in series (continued)

2 PV circuits - 1000 VDC

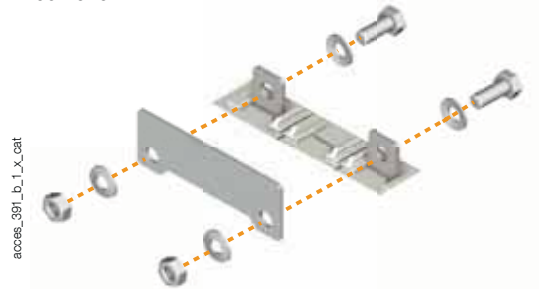
Switch Reference	Frame size	Rating (A)	Quantity of jumper kits to be order per switch		Jumper kit Reference
			Ungrounded	Grounded	
2 PV circuits					
27PV 5009	B4 _{DS}	100	N/A	2	2709 1020
27PV 5024	B4 _{DS}	250	N/A	2	2709 1020
27PV 4032	B5	325	N/A	2	2709 0027
27PV 4039	B5	400	N/A	2	2709 0038
27PV 8060	B6 _{DS}	600	4	6	2709 0062
27PV 8081	B7 _{DS}	800	4	6	2709 0121
27PV 8101	B7 _{DS}	1000	4	6	2709 0121

Use

The jumpers will make easy the connection of the poles in series, allowing the following configurations⁽¹⁾.

⁽¹⁾ Other connections: refer to mounting instructions.

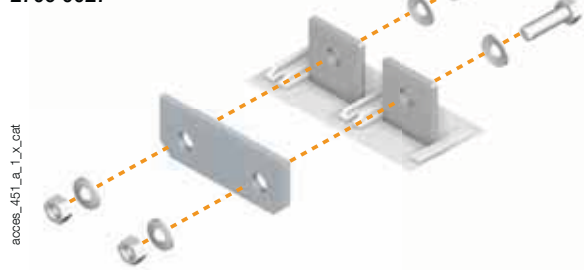
2709 1020



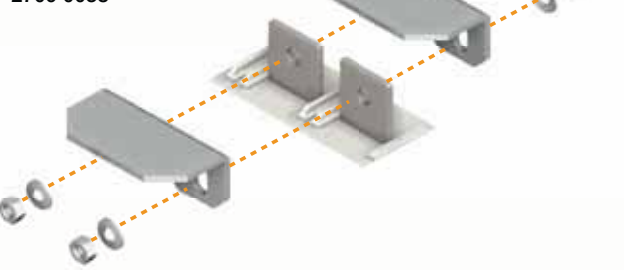
4 PV circuits - 1000 VDC

Switch Reference	Frame size	Rating (A)	Quantity of jumper kits to be order per switch		Jumper kit Reference
			Ungrounded	Grounded	
27PV 8039	B5 _{DS}	350	N/A	4	2709 0038

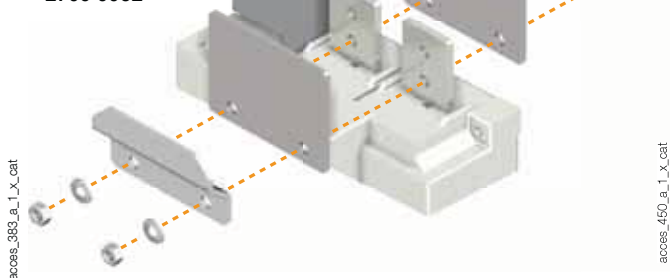
2709 0027



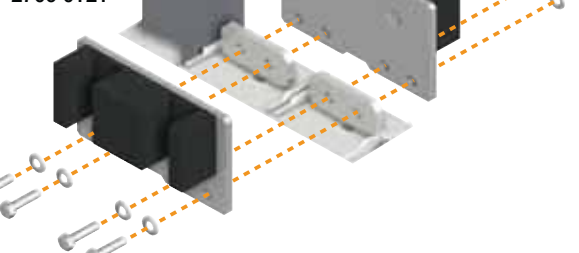
2709 0038



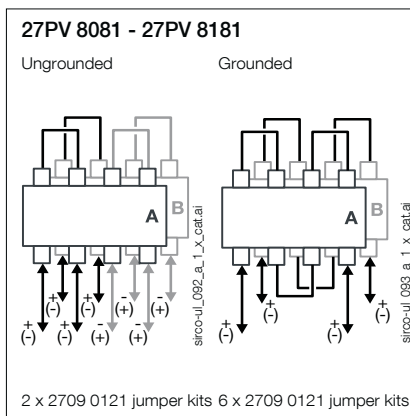
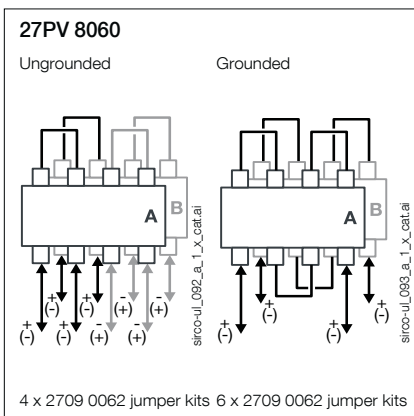
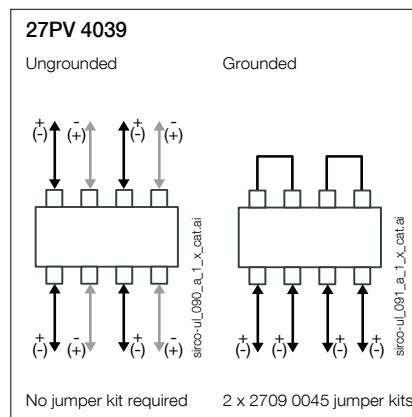
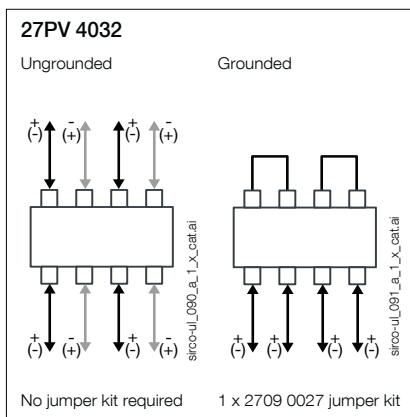
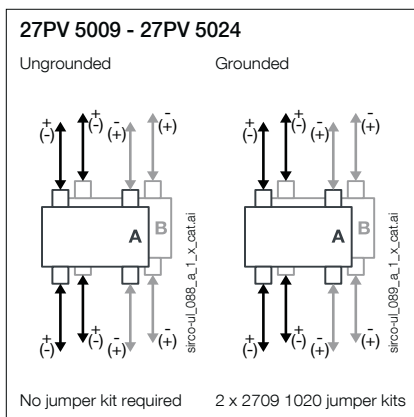
2709 0062



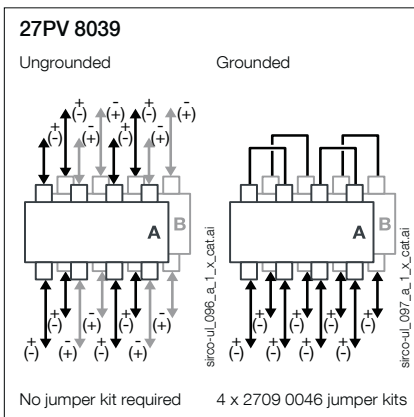
2709 0121



2 PV circuits - 1000 VDC



4 PV circuits - 1000 VDC



Jumpers for connecting poles in series (continued)

1 PV circuit - 1500 VDC

Switch Reference	Frame size	Rating (A)	Quantity of jumper kits to be order per switch		Fig. of one jumper kit	Jumper kit Reference
			Ungrounded	Grounded		
1 PV circuit						
27PV 3026	B5	275	1	2	3	2709 0027
27PV 3032	B5	325	1	2	3	2709 0027
27PV 3039	B5	400	1	2	4	2709 0038
27PV 8060	B6 _{DS}	600	6	6 ⁽²⁾	6	2709 0062
27PV 8081	B7 _{DS}	800	6	6 ⁽¹⁾	8	2709 0121
27PV 8101	B7 _{DS}	1000	6	6 ⁽¹⁾	8	2709 0121
2 PV circuits						
27PV 6026	B5 _{DS}	275	2	4	3	2709 0027
27PV 6039	B5 _{DS}	350	2	4	4	2709 0038

(1) Please order paralleling kit to connect back and front switches, see paralleling connection kit.

(2) Paralleling kit is needed to connect back and front switches, please consult us

2 PV circuits - 1500 VDC

Switch Reference	Frame size	Rating (A)	Quantity of jumper kits to be order per switch		Fig. of one jumper kit	Jumper kit Reference
			Ungrounded	Grounded		
27PV 6026	B5 _{DS}	275	2	4	3	2709 0027
27PV 6039	B5 _{DS}	350	2	4	4	2709 0038

Use

The jumpers will make easy the connection of the poles in series, allowing the following configurations⁽¹⁾.

(1) Other connections: refer to mounting instructions.

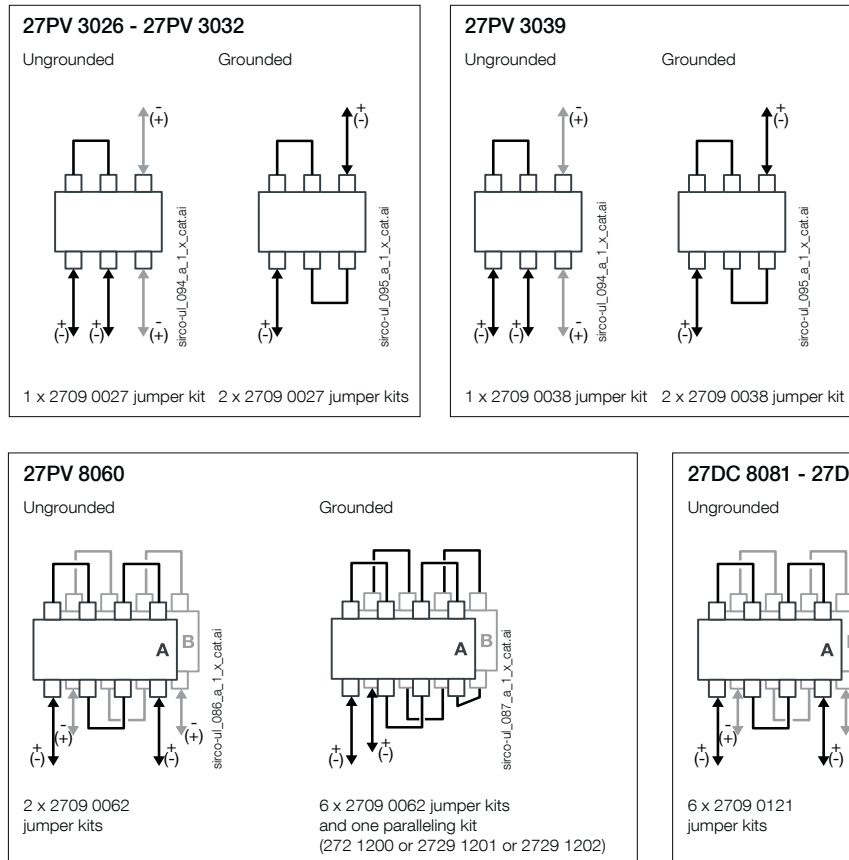
2709 0027

2709 0038

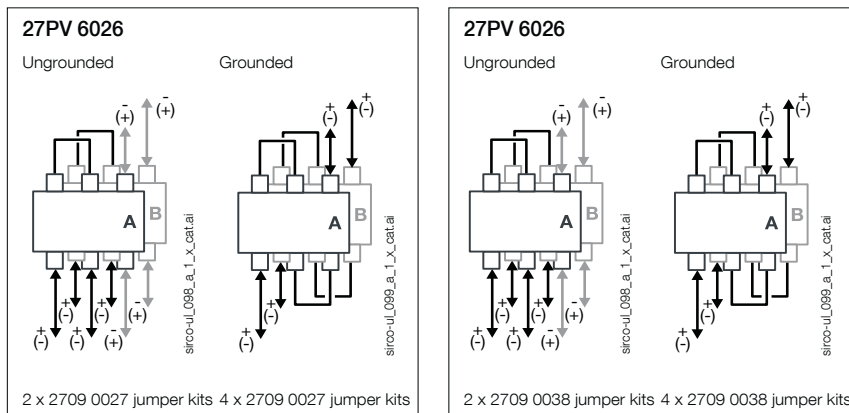
2709 0062

2709 0121

1 PV circuit - 1500 VDC



2 PV circuits - 1500 VDC



Accessories (continued)

Terminal lugs

Use

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

Optional fan out kit for ratings of 800 to 1200 A for connecting several cables to the switch.

Frame size	Rating max (A)	Number and size of cables	Max. number of connections per terminal	Type of cable	Quantity	Reference
B4 - B4 _{DS}	100 ... 250	1 conductor (#6-300MCM)	1	Cu / Al	2 lugs	3954 2020
		2 conductors (#4-2/0)	1	Cu / Al	2 lugs	3954 2025
B5 - B5 _{DS}	325 ... 400	1 conductor (#4-600MCM)	1	Cu / Al	2 lugs	3954 2040
		2 conductors (#6-350MCM)	1	Cu / Al	2 lugs	3954 2041
B6 - B6 _{DS}	600	2 conductors (#2-600MCM)	1	Cu / Al	2 lugs	3954 2060
B7	800 ... 1200	2 conductors (#2-600MCM)	2	Cu / Al	2 lugs	3954 2060
		2 conductors (#2-600MCM)	3 ⁽¹⁾	Cu / Al	3 lugs	3954 3060
B7 _{DS}	2000	2 conductors (#2-600MCM)	2 ⁽²⁾	Cu / Al	2 lugs	3954 2060
		2 conductors (#2-600MCM)	3 ⁽³⁾	Cu / Al	3 lugs	3954 3060

(1) Order a fan out kit reference 2709 1203 for connecting 3 connectors per terminal (6 in total for the switch).

(2) 2 connectors per terminal with the connection kit 2729 1200.

(3) 3 connectors per terminal with the connection kits 2729 1201 and 2709 1202.



ul_032_a

Paralleling connection kit

Use

Allows connection of double stack switches to increase current or voltage characteristics from 800 to 2000 A.

For 600 A double stack switches, please consult us.

Top or bottom flat connection

Frame size	Rating (A)	Figure	Quantity to order per pole	Number of terminals	Reference
B7 _{DS}	800 ... 1000	1	1	2	2729 1200
		2	1	3	2729 1202
	2000	1	1	2	2729 1200
		2	1	3	2729 1202

Top or bottom edgewise connection

Frame size	Rating (A)	Figure	Quantity to order per pole	Number of terminals	Reference
B7 _{DS}	800 ... 2000	3	1	3	2729 1201

Fig. 1



access_312_b_1_x_cat

Fig. 3



Fig. 2



access_313_b_1_x_cat

access_314_b_1_x_cat

Characteristics

Compliance to UL 98B and IEC 60947-3 standards

SIRCO PV UL 98B switches comply with both UL 98B and IEC 60947-3 standards. As acceptance test criteria are different depending on one or the other standard, the same product can be referred to with two different ratings, identified in the characteristic table as follows:

- "Rating" for characteristics as per standard UL 98B.
- "Rated current" for characteristics as per standard IEC 60947-3.

UL 98B									
Rating (A)		100 A				200 A			
Number of circuits	Rated voltage	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size
1 circuit	1000 VDC	100	2 P	2 P	B4	200	2 P	2 P	B4
2 circuits	600 VDC	100	1 P	2 P	B4	130	1 P	2 P	B4
2 circuits	1000 VDC	100	2 P	4 P	B4 _{DS}	200	2 P	4 P	B4 _{DS}
4 circuits	600 VDC	100	1 P	4 P	B4 _{DS}	130	1 P	4 P	B4 _{DS}
Short-circuit capacity at 1000 VDC (any circuit breaker)									
Prospective short-circuit current (kA rms DC)		10 ⁽¹⁾				10 ⁽¹⁾			
Connection terminals									
Min. connection wire range/ AWG		#6				#6			
Max. connection wire range/ AWG		300MCM				300MCM			
Mechanical characteristics									
Durability (number of operating cycles)		10 000				10 000			
Operating effort (lbs.in/Nm)		88.5/10				88.5/10			
Auxiliary contact									
Electrical characteristics		A300				A300			

IEC 60947-3										
Rated current I _n			160 A				250 A			
Thermal current at 40°C (A)			160				250			
Thermal current at 50°C (A)			160				250			
Thermal current at 60°C (A)			160				250			
Rated insulation voltage U _i (V)			1500				1500			
Rated impulse withstand voltage U _{imp} (kV)			12				12			
Number of circuits	Rated voltage	Utilization category	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size
1 circuit	1000 VDC	DC-21 B	160	2 P	2 P	B4	250	2 P	2 P	B4
1 circuit	1500 VDC	DC-21 B	160	4 P	4 P	B4 _{DS}	250	4 P	4 P	B4 _{DS}
2 circuits	1000 VDC	DC-21 B	160	2 P	4 P	B4 _{DS}	250	2 P	4 P	B4 _{DS}
4 circuits	600 VDC	DC-21 B	125	1 P	4 P	B4 _{DS}	160	1 P	4 P	B4 _{DS}

(1) Without fuse during 50 ms.

Characteristics (continued)

as per standards UL 98B and IEC 60947-3

UL 98B										
Rating		250 A				275 A				
Number of circuits	Rated voltage	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size	
1 circuit	1000 VDC	250	2 P	2 P	B4	275	2 P	2 P	B5	
1 circuit	1500 VDC	-	-	-	-	275	3 P	3 P	B5	
2 circuits	600 VDC	130	1 P	2 P	B4	215	1 P	2 P	B5	
2 circuits	1000 VDC	250	2 P	4 P	B4 _{DS}	275	2 P	4 P	B5	
2 circuits	1500 VDC	-	-	-	-	275	3 P	6 P	B5 _{DS}	
4 circuits	600 VDC	130	1 P	4 P	B4 _{DS}	215	1 P	4 P	B5	
4 circuits	1000 VDC	-	-	-	-	215	2 P	8 P	B5 _{DS}	
6 circuits	600 VDC	-	-	-	-	215	1 P	6 P	B5 _{DS}	
8 circuits	600 VDC	-	-	-	-	215	1 P	8 P	B5 _{DS}	
Short-circuit capacity at 1000 VDC (any circuit breaker)										
Prospective short-circuit current (kA rms DC)		10 ⁽¹⁾				10 ⁽¹⁾				
Connection terminals										
Min. connection wire range/ AWG		#6				2x#6				
Max. connection wire range/ AWG		300MCM				600MCM				
Mechanical characteristics										
Durability (number of operating cycles)		10 000				6 000				
Operating effort (lbs.in/Nm)		88.5/10				128.3/14.5				
Auxiliary contact										
Electrical characteristics		A300				A300				
IEC 60947-3										
Rated current I _n		315 A				275 A				
Thermal current at 40°C (A)		315				275				
Thermal current at 50°C (A)		315				275				
Thermal current at 60°C (A)		315				275				
Rated insulation voltage U _i (V)		1500				1500				
Rated impulse withstand voltage U _{imp} (kV)		12				12				
Number of circuits	Rated voltage	Utilization category	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size
1 circuit	1000 VDC	DC-21 B	315	2 P	2 P	B4	275	2 P	2 P	B5
1 circuit	1500 VDC	DC-21 B	315	4 P	4 P	B4 _{DS}	275	3 P	3 P	B5
2 circuits	1000 VDC	DC-21 B	315	2 P	4 P	B4 _{DS}	275	2 P	4 P	B5
4 circuits	600 VDC	DC-21 B	160	1 P	4 P	B4 _{DS}	275	1 P	4 P	B5
4 circuits	1000 VDC	DC-21 B	-	-	-	-	275	2 P	8 P	B5 _{DS}
6 circuits	600 VDC	DC-21 B	-	-	-	-	275	1 P	6 P	B5 _{DS}
8 circuits	600 VDC	DC-21 B	-	-	-	-	275	1 P	8 P	B5 _{DS}

(1) Without fuse during 50 ms.

as per standards UL 98B and IEC 60947-3

UL 98B										
Rating		325 A				350 A				
Number of circuits	Rated voltage	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size	
1 circuit	1000 VDC	325	2 P	2 P	B5	-	-	-	-	
1 circuit	1500 VDC	325	3 P	3 P	B5	-	-	-	-	
2 circuits	600 VDC	215	1 P	2 P	B5	-	-	-	-	
2 circuits	1000 VDC	325	2 P	4 P	B5	350	3 P	6 P	B5 _{DS}	
2 circuits	1500 VDC	-	-	-	-	350	3 P	6 P	B5 _{DS}	
4 circuits	600 VDC	215	1 P	4 P	B5	-	-	-	-	
4 circuits	1000 VDC	325	2 P	8 P	B5 _{DS}	350	2 P	8 P	B5 _{DS}	
6 circuits	600 VDC	215	1 P	6 P	B5 _{DS}	215	1 P	6 P	B5 _{DS}	
8 circuits	600 VDC	215	1 P	8 P	B5 _{DS}	215	1 P	8 P	B5 _{DS}	
Short-circuit capacity at 1000 VDC (any circuit breaker)										
Prospective short-circuit current (kA rms DC)		10 ⁽¹⁾				10 ⁽¹⁾				
Connection terminals										
Min. connection wire range/ AWG		2x#6				2x#6				
Max. connection wire range/ AWG		600MCM				600MCM				
Mechanical characteristics										
Durability (number of operating cycles)		6 000				6 000				
Operating effort (lbs.in/Nm)		128.3/14.5				128.3/14.5				
Auxiliary contact										
Electrical characteristics		A300				A300				
IEC 60947-3										
Rated current In		400 A				500 A				
Thermal current at 40°C (A)		400				500				
Thermal current at 50°C (A)		400				500				
Thermal current at 60°C (A)		400				500				
Rated insulation voltage U _i (V)		1500				1500				
Rated impulse withstand voltage U _{imp} (kV)		12				12				
Number of circuits	Rated voltage	Utilization category	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size
1 circuit	1000 VDC	DC-21 B	400	2 P	2 P	B5	-	-	-	-
2 circuits	1000 VDC	DC-21 B	400	2 P	4 P	B5	500	3 P	6 P	B5 _{DS}
4 circuits	600 VDC	DC-21 B	275	1 P	4 P	B5				
4 circuits	1000 VDC	DC-21 B	400	2 P	8 P	B5 _{DS}	500	2 P	8 P	B5 _{DS}
6 circuits	600 VDC	DC-21 B	275	1 P	6 P	B5 _{DS}	275	1 P	6 P	B5 _{DS}
8 circuits	600 VDC	DC-21 B	275	1 P	8 P	B5 _{DS}	275	1 P	8 P	B5 _{DS}

(1) Without fuse during 50 ms.

Characteristics (continued)

as per standards UL 98B and IEC 60947-3

UL 98B									
Rating		400 A				600 A			
Number of circuits	Rated voltage	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size
1 circuit	1000 VDC	400	2 P	2 P	B5	600	4 P	4 P	B6
1 circuit	1500 VDC	400	3 P	3 P	B5	600	8 P	8 P	B6 _{DS}
2 circuits	600 VDC	215	1 P	2 P	B5	600	3 P	6 P	B6 _{DS}
2 circuits	1000 VDC	400	2 P	4 P	B5	600	4 P	8 P	B6 _{DS}
4 circuits	600 VDC	215	1 P	4 P	B5	-	-	-	-

Short-circuit capacity at 1000 VDC (any circuit breaker)

Prospective short-circuit current (kA rms DC)	10 ⁽¹⁾	10 ⁽¹⁾
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Connection terminals

Min. connection wire range/ AWG	2x#6	2x#2
Max. connection wire range/ AWG	600MCM	2 x 600MCM

Mechanical characteristics

Durability (number of operating cycles)	6 000	6 000
Operating effort (lbs.in/Nm)	128.3/14.5	327.5/37

Auxiliary contact

Electrical characteristics	A300	A300
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IEC 60947-3										
Rated current In			500 A				800 A			
Thermal current at 40°C (A)			500				800			
Thermal current at 50°C (A)			500				800			
Thermal current at 60°C (A)			500				800			
Rated insulation voltage U _i (V)			1500				1200			
Rated impulse withstand voltage U _{imp} (kV)			12				12			
Number of circuits	Rated voltage	Utilization category	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size
1 circuit	1000 VDC	DC-21 B	500	2 P	2 P	B5	800	4 P	4 P	B6
1 circuit	1500 VDC	DC-21 B	500	3 P	3 P	B5	800	8 P	8 P	B6 _{DS}
2 circuits	1000 VDC	DC-21 B	275	1 P	4 P	B5	800	4 P	8 P	B6 _{DS}
4 circuits	600 VDC	DC-21 B	275	1 P	4 P	B5	-	-	-	-

(1) Without fuse during 50 ms.

(2) 1200 VDC for B6.

as per standards UL 98B and IEC 60947-3

UL 98B									
Rating		800 A				1000 A			
Number of circuits	Rated voltage	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size
1 circuit	1000 VDC	800	4 P	4 P	B7	1000	8 P	8 P	B7 _{DS}
1 circuit	1500 VDC	800	8 P	8 P	B7 _{DS}	1000	8 P	8 P	B7 _{DS}
2 circuits	600 VDC	800	3 P	6 P	B7 _{DS}	1000	4 P	8 P	B7 _{DS}
2 circuits	1000 VDC	800	4 P	8 P	B7 _{DS}	1000	4 P	8 P	B7 _{DS}
Short-circuit capacity at 1000 VDC (any circuit breaker)									
Prospective short-circuit current (kA rms DC)		10 ⁽¹⁾				10 ⁽¹⁾			
Connection terminals									
Min. connection wire range/ AWG		4x#2				4x#2			
Max. connection wire range/ AWG		6x 600MCM ⁽²⁾				6x 600MCM ⁽²⁾			
Mechanical characteristics									
Durability (number of operating cycles)		3 500				3 500			
Operating effort (lbs.in/Nm)		495.7/56				495.7/56			
Auxiliary contact									
Electrical characteristics		A300				A300			

IEC 60947-3										
Rated current I _n			1000 A				1200 A			
Thermal current at 40°C (A)			1000				1200			
Thermal current at 50°C (A)			1000				1200			
Thermal current at 60°C (A)			1000				1200			
Rated insulation voltage U _i (V)			1200				1200			
Rated impulse withstand voltage U _{imp} (kV)			12				12			
Number of circuits	Rated voltage	Utilization category	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size
1 circuit	1000 VDC	DC-21 B	1000	4 P	4 P	B7	1200	4 P	4 P	B7 _{DS}
1 circuit	1500 VDC	DC-21 B	1000	8 P	8 P	B7 _{DS}	1000	8 P	8 P	B7 _{DS}
2 circuits	1000 VDC	DC-21 B	1000	4 P	8 P	B7 _{DS}	1000	4 P	8 P	B7 _{DS}

(1) Without fuse during 50 ms.

(2) Maximum 6 x 600MCM with fan out kit 2729 1203.

(3) 1200 VDC for B7.

Characteristics (continued)

as per standards UL 98B and IEC 60947-3

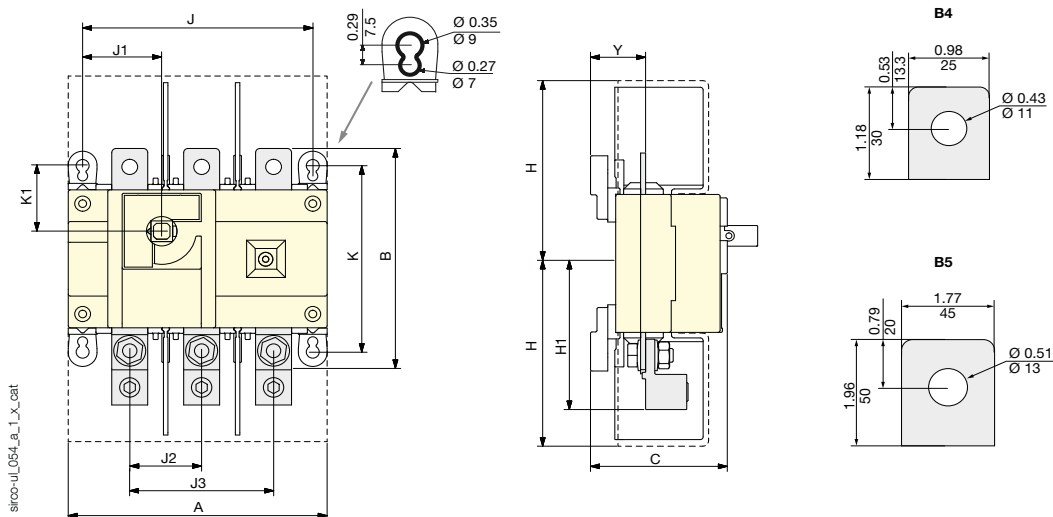
UL 98B										
Rating			1200 A			2000 A				
Number of circuits	Rated voltage	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size	
1 circuit	1000 VDC	1200	4 P	4 P	B7	2000	8 P	8 P	B7 _{DS}	
1 circuit	1500 VDC									
2 circuits	600 VDC	1200	3 P	6 P	B7 _{DS}					
2 circuits	1000 VDC	1200	4 P	8 P	B7 _{DS}					
Short-circuit capacity at 1000 VDC (any circuit breaker)										
Prospective short-circuit current (kA rms DC)			10 ⁽¹⁾			10 ⁽¹⁾				
Connection terminals										
Min. connection wire range/ AWG			4x#2			4x#2				
Max. connection wire range/ AWG			6x 600MCM ⁽²⁾			6x 600MCM ⁽²⁾				
Mechanical characteristics										
Durability (number of operating cycles)			3 500			3 500				
Operating effort (lbs.in/Nm)			495.7/56			663.9/75				
Auxiliary contact										
Electrical characteristics			A300			A300				
IEC 60947-3										
Rated current In			1400 A			2200 A				
Thermal current at 40°C (A)			1400			2200				
Thermal current at 50°C (A)			1400			1850				
Thermal current at 60°C (A)			1400			1600				
Rated insulation voltage U _i (V)			1200			1200				
Rated impulse withstand voltage U _{imp} (kV)			12			12				
Number of circuits	Rated voltage	Utilization category	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size
1 circuit	1000 VDC	DC-21 B	1400	4 P	4 P	B7 _{DS}	2200	8 P	8 P	B7 _{DS}
1 circuit	1500 VDC	DC-21 B	1000	8 P	8 P	B7 _{DS}				
2 circuits	1000 VDC	DC-21 B	1000	4 P	8 P	B7 _{DS}				

(1) Without fuse during 50 ms.

(2) Maximum 6 x 600MCM with fan out kit 2729 1203.

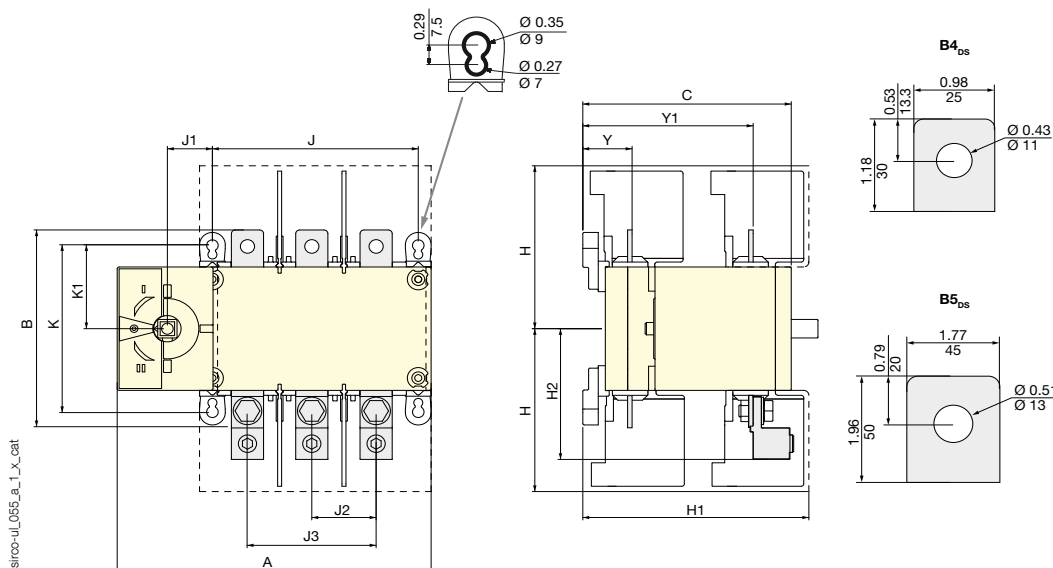
Dimensions (in/mm)

B4-B5



Frame size	No. of poles	Unit	A	B	C	H	H1 max.	J	J1	J2	J3	K	K1	Y
B4	2 P	inches	7.08	6.30	3.74	5.21	4.21	6.30	2.16	-	3.94	5.31	1.89	1.51
		mm	180	160	95	132.5	107	160	55	-	100	135	48	38.5
B5	2 P	inches	9.05	10.23	5.04	8	6.53	8.26	2.95	-	5.12	7.67	2.65	2.08
		mm	230	260	128	203	166	210	75	-	130	195	67.5	53
B5	3 P	inches	9.05	10.23	4.98	8	6.53	8.26	2.95	2.56	-	7.67	2.65	2.02
		mm	230	260	126.5	203	166	210	75	65	-	195	67.5	51.5
B5	4 P	inches	11.41	10.23	4.98	8	6.53	10.63	5.31	2.56	-	7.67	2.65	2.02
		mm	290	260	126.5	203	166	270	135	65	-	195	67.5	51.5

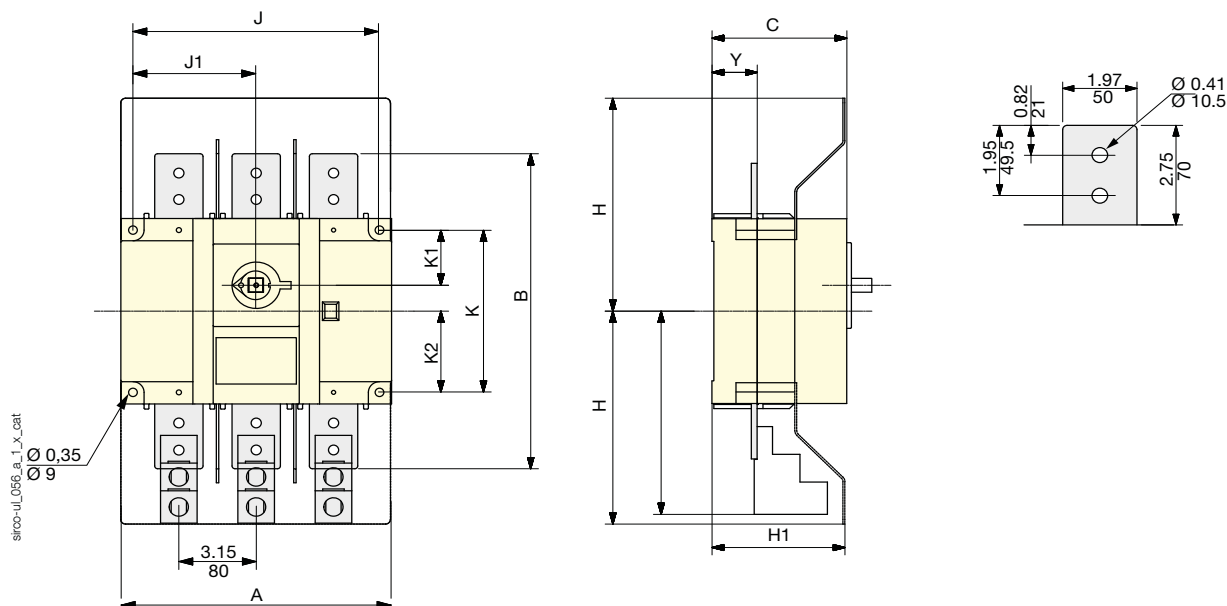
B4_{DS}-B5_{DS}



Frame size	No. of poles	Unit	A	B	C	H	H1	H1 max.	J	J1	J2	J3	K	K1	Y	Y1
B4 _{DS}	4 P	inches	9.60	6.30	6.37	5.08	6.93	4.21	6.30	1.37	-	3.93	5.31	2.65	1.51	5.21
		mm	244	160	162	129	176	107	160	35	-	100	135	67.5	38.5	132.5
B5 _{DS}	6 P	inches	11.85	10.23	9.39	8	6.51	6.53	6.26	1.37	2.56	-	7.67	2.70	2.02	7.44
		mm	301	260	238.5	203	165.5	166	210	35	65	-	195	68.5	51.5	189
B5 _{DS}	8 P	inches	14.21	10.23	9.39	8	6.51	6.53	10.63	1.37	2.56	-	7.67	2.70	2.02	7.44
		mm	361	260	238.5	203	165.5	166	270	35	65	-	195	68.5	51.5	189

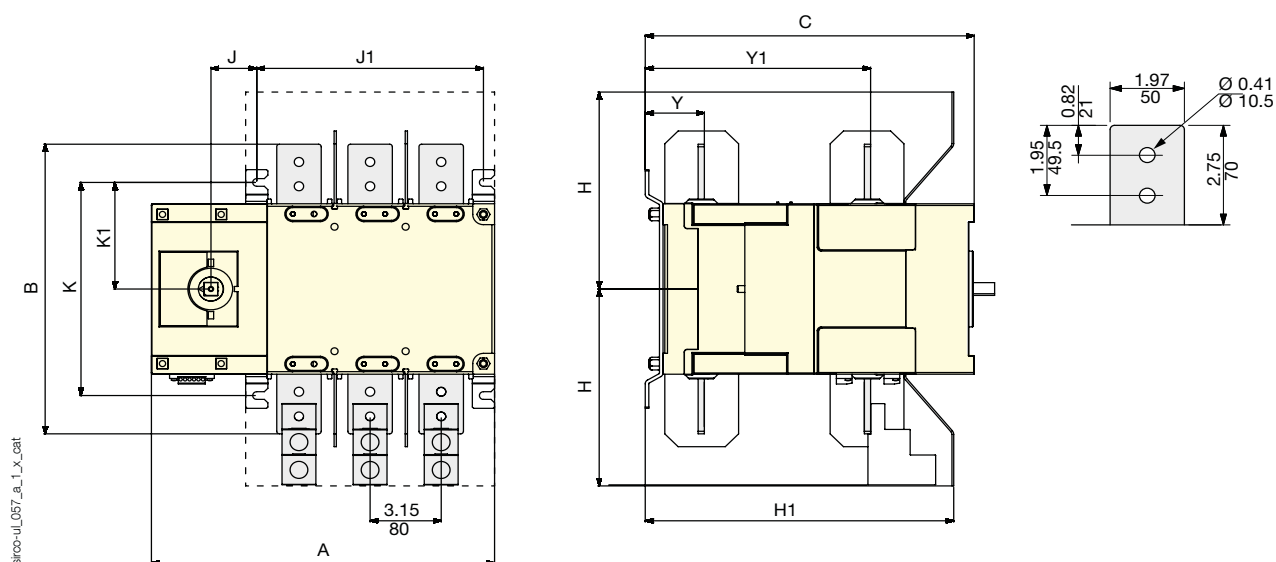
Dimensions (in/mm) (continued)

B6



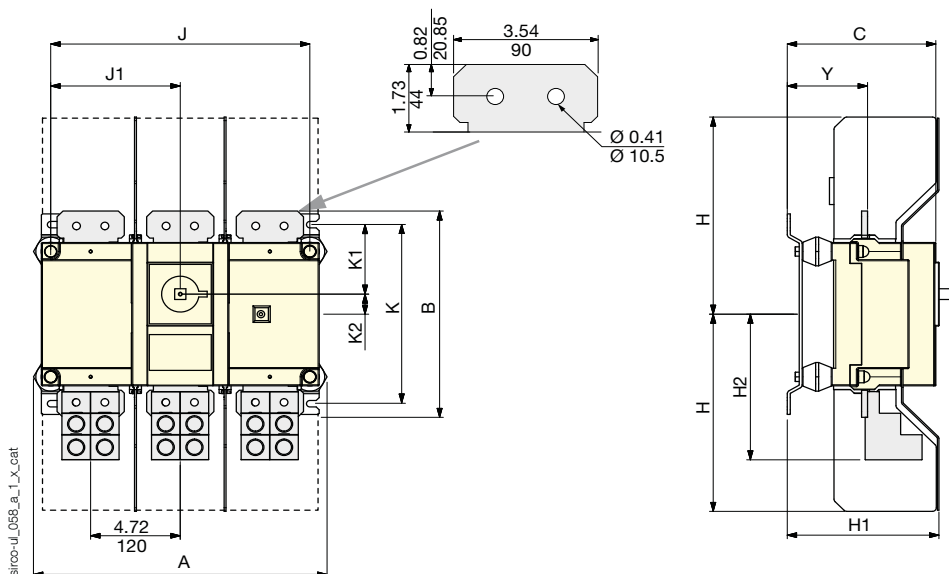
Frame size	No. of poles	Unit	A	B	C	H	H1	J	J1	K	K1	K2	Y
B6	4 P	inches	14.17	13.38	5.47	10.63	5.70	13.19	6.59	6.88	2.34	1.10	1.83
		mm	360	340	139	270	145	335	167.5	175	59.5	28	46.5

B6_{DS}



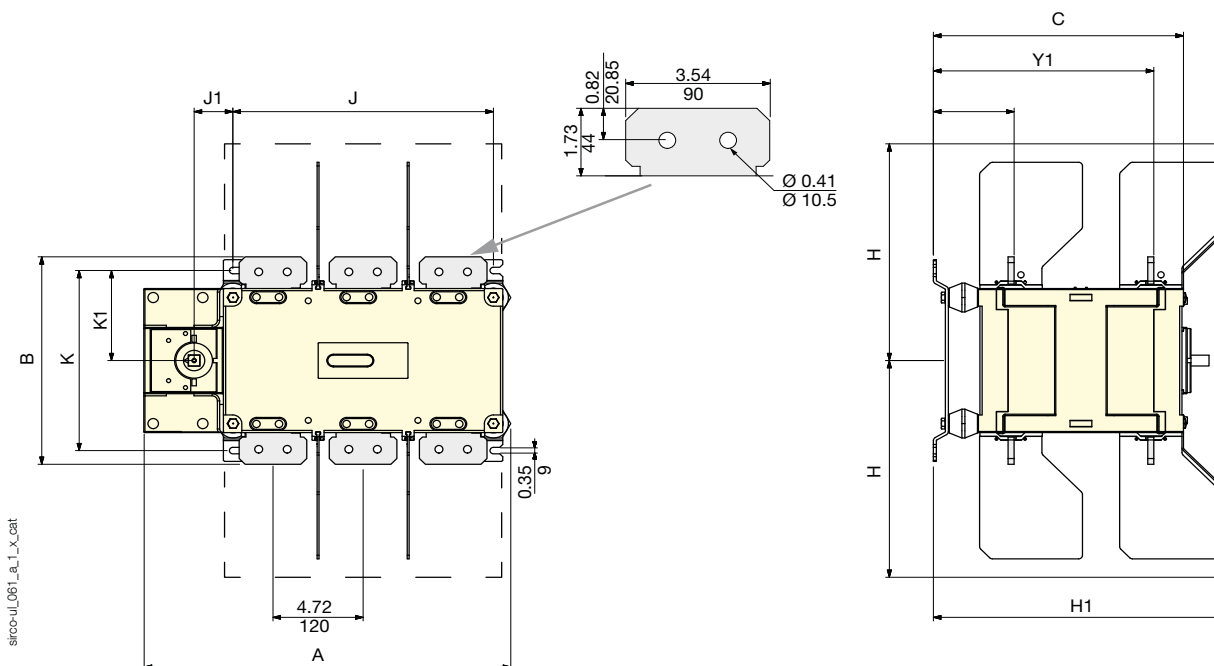
Frame size	No. of poles	Unit	A	B	C	H	H1	J	J1	K	K1	Y	Y1
B6 _{DS}	8 P	inches	18.34	13.38	14.56	10.63	13.66	13.18	2.02	9.84	4.92	2.61	9.98
		mm	466	340	370	270	347	335	51.5	250	125	66.5	253.5

B7



Frame size	No. of poles	Unit	A	B	C	H	H1	H2	J	J1	K	K1	K2	Y
B7	4 P	inches	20.19	11.33	7.97	11.89	8.30	8.01	18.38	9.19	9.84	3.82	1.10	4.23
		mm	513	288	200	302	211	203.5	467	233.5	250	97	28	107.5

B7_{DS}



Frame size	No. of poles	Unit	A	B	C	H	H1	J	J1	K	K1	Y	Y1
B7 _{DS}	8 P	inches	23.95	11.33	13.11	11.85	15.31	18.38	2.02	9.84	4.92	4.23	11.55
		mm	608.5	288	333	301	389	467	51.5	250	125	107.5	293.5

Dimensions for external handles (in/mm)

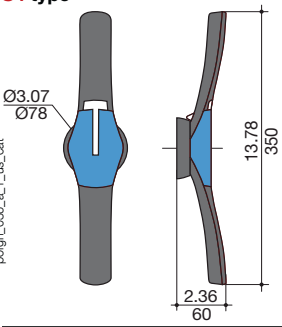
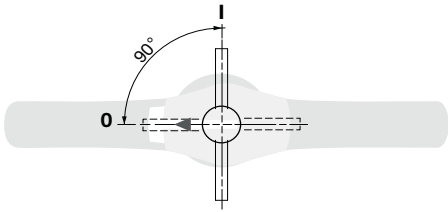
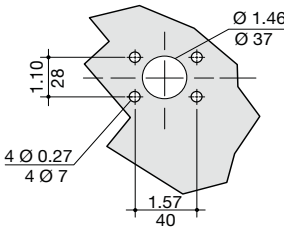
B4 - B4_{DS} - B5

Handle type	Front operation Direction of operation	Door drilling
S2 type 		

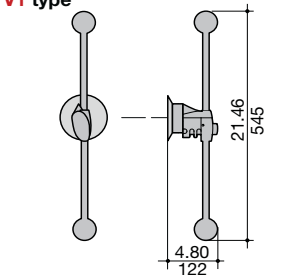
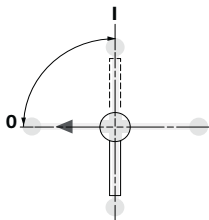
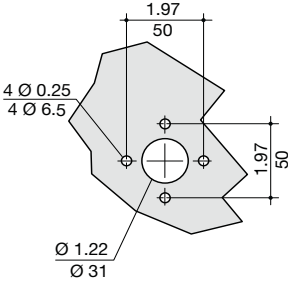
B5_{DS} - B6

Handle type	Front operation Direction of operation	Door drilling
S3 type 		

B7

Handle type	Front operation Direction of operation	Door drilling
S4 type 		

B6_{DS} - B7_{DS}

Handle type	Front operation Direction of operation	Door drilling
V1 type 		

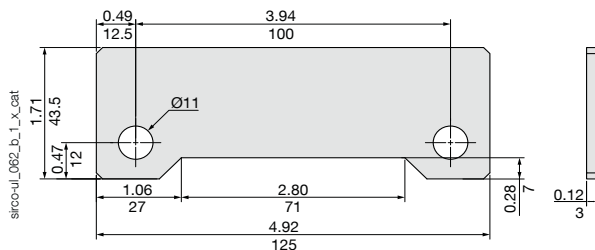
SIRCO PV UL 98B

Disconnect switches for photovoltaic applications
from 100 to 2000 A - up to 1500 VDC

Jumpers (in/mm)

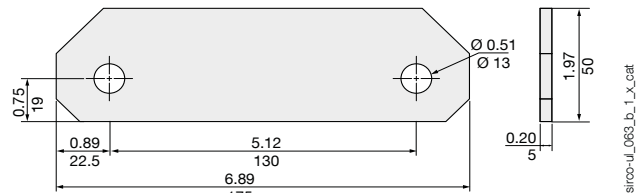
B4 - B4_{DS}

2709 1020



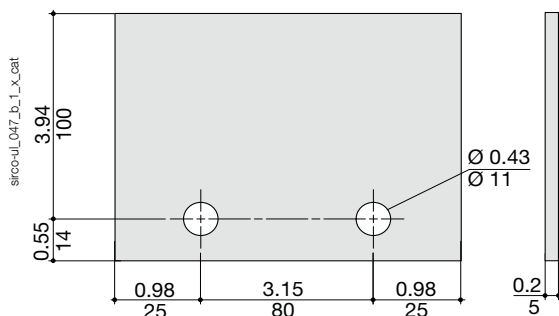
B5 - B5_{DS}

2709 1041

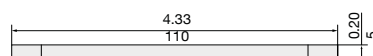


B6 - B6_{DS}

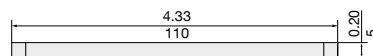
2709 0062



2709 0027

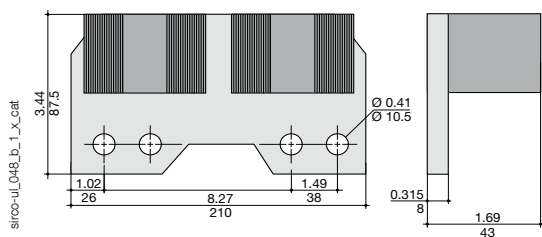


2709 0038

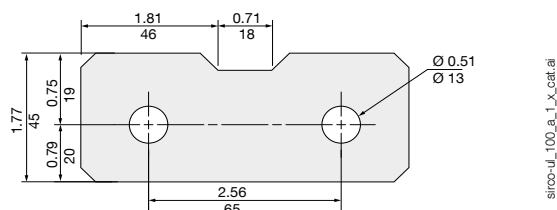


B7

2709 0081

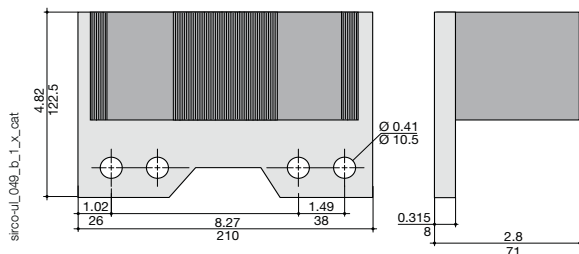


2709 0038



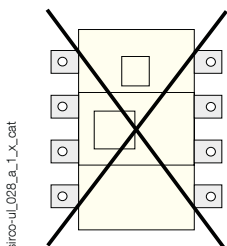
B7 - B7_{DS}

2709 0121



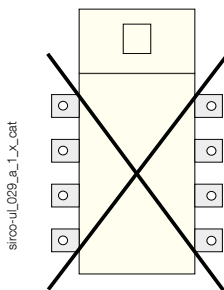
Mounting orientation

All frames



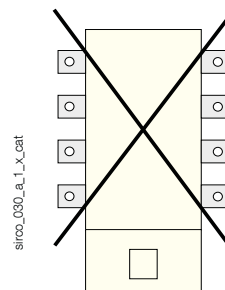
sirco-ul_028_a_1_x_cat

B4_{DS} - B5_{DS}



sirco-ul_029_a_1_x_cat

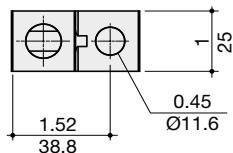
B6_{DS} - B7_{DS}



sirco_030_a_1_x_cat

Terminal lugs (in/mm)

100 to 250 A

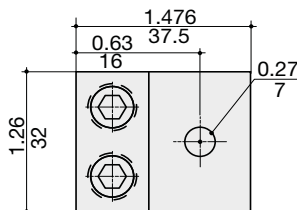


sirco_115_b_1_us_cat

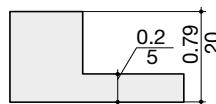


300MCM

100 to 250 A

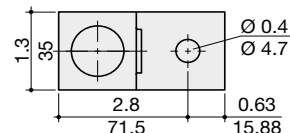


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2/0

400 A

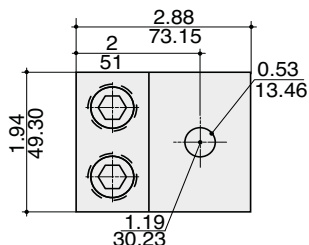


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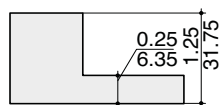


600MCM

400 A

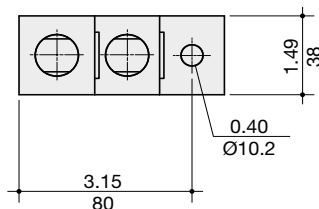


sirco-ul_026_b_1_us_cat

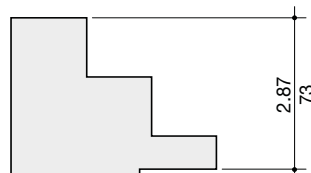


2 x 350MCM

600 to 2000 A



sirco_116_b_1_us_cat



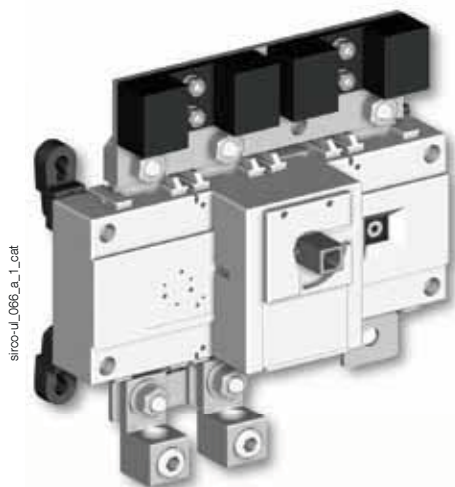
2 x 600MCM



SIRCO PV UL 98B compact

Disconnect switches for photovoltaic applications

from 320 to 650 A - up to 1000 VDC



Function

Photovoltaic energy producers demand equipment and installations that combine a high production output, consistent reliability and safety with a low maintenance cost. Besides a high-efficiency production, the equipment must support the specificity and technical constraints of the severe environment related to solar applications.

Specifically designed for photovoltaic applications, **SIRCO PV UL 98B compact** solar non-fusible disconnect switches have been tested for use in applications with high performance characteristics that meet or exceed of the latest industry standard requirements. These switches are suitable for use in accordance with NEC Art. 690 Photovoltaic Installations.

Advantages

High switching performance in a compact footprint

SIRCO PV switches are capable of breaking 500 VDC per pole thanks to a patented switching technology. The ratings of 320 to 650 A are achieved by putting poles in parallel which significantly reduces footprint of the product.

Reliability and performance

Our range of SIRCO PV non-fusible disconnect switches are compliant with UL 98B standard and have been tested above the standards expectation.

They are as well able to withstand 10 kA, 50 ms, allowing the use of any overcurrent protection device for line protection.

Guarantee safety over time

SIRCO PV are extremely robust products, with all casings made from fiber glass reinforced polyester materials that allows:

- High mechanical withstand.
- High stability to temperatures (RTI of 130°C).
- High dielectric performance (high CTI / tested according to ASTM D 2303).

The solution for

- > Combiner box
- > Recombiner box
- > Inverter



Strong points

- > Patented switching technology
- > Positive break indication
- > Up to 1000 VDC as per UL 98B
- > Suitable for use in accordance with NEC Art. 690

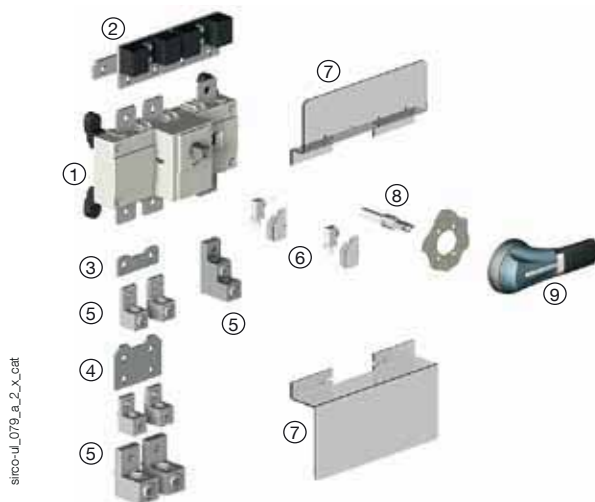
Conformity to standards

- > UL98B, Guide WHVA, file E346418



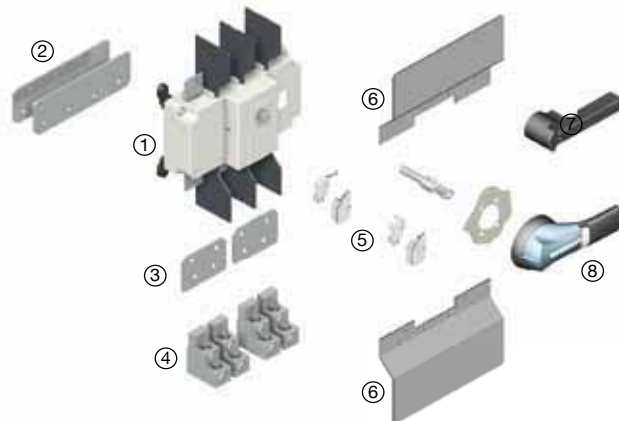
Product description

320 - 400 A



1. SIRCO PV UL 98B switch
2. Top jumper
3. Short bottom jumper
4. Long bottom jumper
5. Lugs (optional)
6. Auxiliary contacts
7. Terminal screen
8. Shaft extension
9. External operation handle

500 - 650 A



1. SIRCO PV UL 98B switch
2. Top jumper
3. Bottom jumper
4. Lugs (optional)
5. Auxiliary contacts
6. Terminal screen
7. Shaft extension
8. External operation handle

References

1000 VDC - Back plate mounting

Rating (A)	Frame size	No. of poles	Switch body	External handle	Shaft for external handle	jumpers		
						Top	Bottom	
1 PV circuit								
320 A	B4	3 P	27PV 2029	S2 type Black 4, 4X 142D 2111 ⁽¹⁾ Red/Yellow 4, 4X 142E 2111 ⁽¹⁾	200 mm 7.9 inches 1400 1020 320 mm 12.6 inches 1400 1032	2709 5032 Grounded	Short 2709 0021	
400 A	B4		27PV 2038			2709 5043 Grounded	Long 2709 0043	
500 A	B5	4 P	27PV 2050			2709 5065 Grounded	2x 2709 0065 Ungrounded	2x 2709 0065
600 A	B5		27PV 2065					
2 PV circuits								
500 A	B5 _{DS}	8 P	27PV 5050	S2 type Black 4, 4X 143D 3111 ⁽¹⁾ Red/Yellow 4, 4X 143E 3111 ⁽¹⁾	200 mm 7.9 inches 1401 1520 320 mm 12.6 inches 1401 1532	2x 2709 5065 Grounded	4x 2709 0065	
650 A	B5 _{DS}		27PV 5065			4x 2709 0065 Ungrounded		

Common accessories - more available on next pages.

(1) Defeatable handle.

SIRCO **PV** UL 98B compact

Disconnect switches for photovoltaic applications
from 320 to 650 A - up to 1000 VDC

Accessories

External operation

Use

In a combiner box, located close to the solar cell strings, or located close to the inverter, we recommend to use a door interlocked external handle for its safety features.

Door interlocked external operation handles include an escutcheon, are padlockable and must be utilized with an extension shaft.

Example

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

Frame size	Handle type	Handle color	Nema degree of protection	Reference
B4 - B5	S2	Black	1, 3R, 12	142F 2111
		Red/Yellow		142G 2111
		Black	4, 4X	142D 2111
		Red/Yellow		142E 2111
B5 _{DS}	S3	Black	1, 3R, 12	143F 3111
		Red/Yellow		143G 3111
		Black	4, 4X	143D 3111
		Red/Yellow		143E 3111



(1) Please consult.

Front handle heavy duty I - 0 with metallic lever

Rating (A)	Handle type	Color	Nema type	Reference
100 ... 650	S2	Black	4, 4X	142D 2911
100 ... 650	S2	Red/Yellow	4, 4X	142E 2911

Shaft for external handle

Use

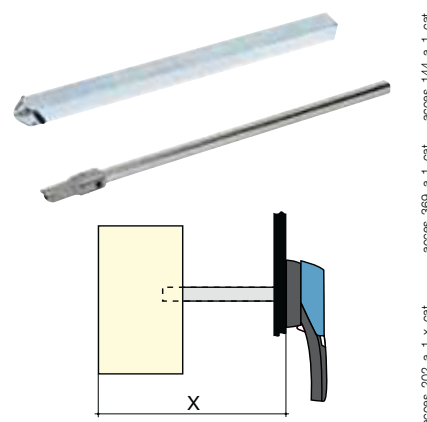
Standard lengths:

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

Other lengths: please consult us.

19.69 in / 500 mm available.

Frame size	Handle type	Dimension (inches)	Dimension X (mm)	Length (inches)	Length (mm)	Reference
B4	S2	6 ... 11.6	150 ... 295	7.9	200	1400 1020
		6 ... 16.3	150 ... 415	12.6	320	1400 1032
		6 ... 19.4	150 ... 495	15.7	400	1400 1040
B5	S2	8 ... 12.9	203 ... 328	7.9	200	1400 1020
		8 ... 17.6	203 ... 448	12.6	320	1400 1032
		8 ... 20.7	203 ... 525	15.7	400	1400 1040



S-type handle adapter

Use

For handles S2, S3 and S4.

Dimensions

Increases the distance between the handle grip and the door by 0.47 in / 12 mm, for better handling.

Color	Nema degree of protection	To be ordered in multiples of	Reference
Black	1, 3R, 12	10	1493 0000



Alternative S-type handle cover colors

Use

For handles S2.

Other colors: please consult us.

Handle color	Handle type	To be ordered in multiples of	Reference
Light grey	S2	50	1401 0001
Dark grey	S2	50	1401 0011

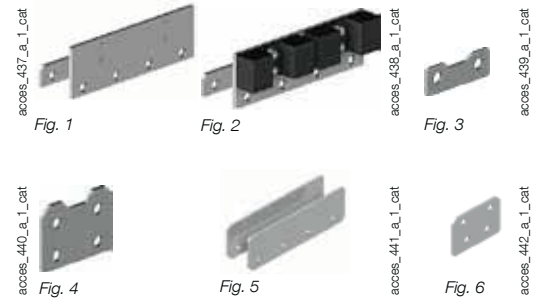


Jumpers for connecting poles in series

Use

The jumpers will make easy the connection of the poles in series.
Refer to mounting instructions.

Frame size	Position	Rating (A)	Quantity to be ordered per switch	Figure	Reference
B4	Top	320	1	Fig. 1	2709 5032
		400	1	Fig. 2	2709 5043
	Bottom	320 ... 400	1	Fig. 3	2709 0021
			1	Fig. 4	2709 0043
B5	Top	500 ... 600	1 for grounded circuit 2 for ungrounded circuit	Fig. 5	2709 5065
	Bottom	500 ... 650	2	Fig. 6	2709 0065



Terminal screen

Use

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

Frame size	No. of poles	Position	Utilization	Pack	Reference
B4	3 P		Switch equipped without lugs or with NSI 350T lugs (or strictly equivalent)	1 unit	2798 4021
			Switch equipped with 3954x020(1) or 3954x040(1) or PANDUIT LAM2SA300-38-3 lugs (or strictly equivalent)	1 unit	2798 4022
B5	4 P	top or bottom	Switch equipped without or with PANDUIT LAM2A-350 lugs (or strictly equivalent)	1 unit	2798 4041
			Switch equipped without CMC PV2-600 lugs (or strictly equivalent)	1 unit	2798 4065
B5 _{DS}	8 P		Switch equipped without or with PANDUIT LAM2A-350 lugs (or strictly equivalent)	1 unit	2798 4041
			Switch equipped without CMC PV2-600 lugs (or strictly equivalent)	1 unit	2798 8065

(1) x – any number between 0 and 9.



Auxiliary contact

Use

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

Electrical characteristics

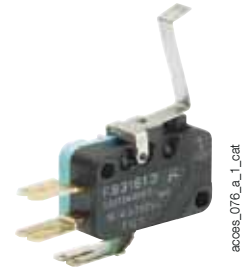
A300.

NO/NC contact

Frame size	Position AC	Type	Reference
B4 - B5	1 contact	NO/NC	2799 0021
	2 contacts		2799 0022
B5 _{DS}	1 contact		4159 0021

Low level NO/NC auxiliary contacts

Frame size	Position AC	Type	Reference
B4 - B5	1 contact	NO/NC	2799 0121
	2 contacts		2799 0122
B5 _{DS}	1 contact		4159 0021

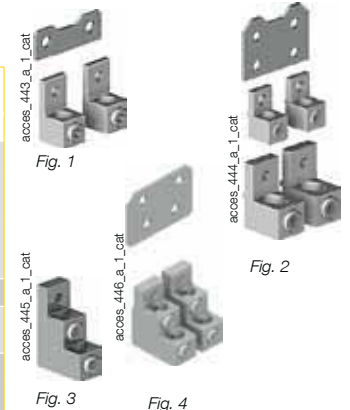


Terminal lugs

Use

Connection of bar copper cables onto the terminals.

Frame size	Rating (A)	Number and size of cables	Type of cable	Quantity	Reference	Must be utilized with jumper	Figure
B4	320 ... 400	1 conductor (#6-300MCM)	Cu / Al	2 lugs	3954 2020	2709 0043	Fig. 2
			Cu / Al	4 lugs	3954 4020	2709 0043	
			Cu / Al	6 lugs	3954 6020	2709 0043	
		1 conductor (#2-600MCM) or 2 conductors (1/0-250MCM)	Cu / Al	2 lugs	3954 2040	2709 0043	Fig. 1
			Cu / Al	4 lugs	3954 4040	2709 0043	
			NSI 350T			2709 0021	
B5 - B5 _{DS}	500 ... 650	1 conductor (#6-350MCM)	check with supplier		PANDUIT LAM2SA300-38-3	-	Fig. 3
		2 conductors (#6-300MCM)	Cu / Al	2 lugs	3954 2041	2709 0065	Fig. 4
			Cu / Al	4 lugs	3954 4041	2709 0065	
			Cu / Al	4 lugs	3954 4060	2709 0065	
		2 conductors (2-600MCM)	Cu / Al	8 lugs	3954 8060	2709 0065	



SIRCO PV UL 98B compact
Disconnect switches for photovoltaic applications
from 320 to 650 A - up to 1000 VDC

Characteristics

as per standards UL 98B

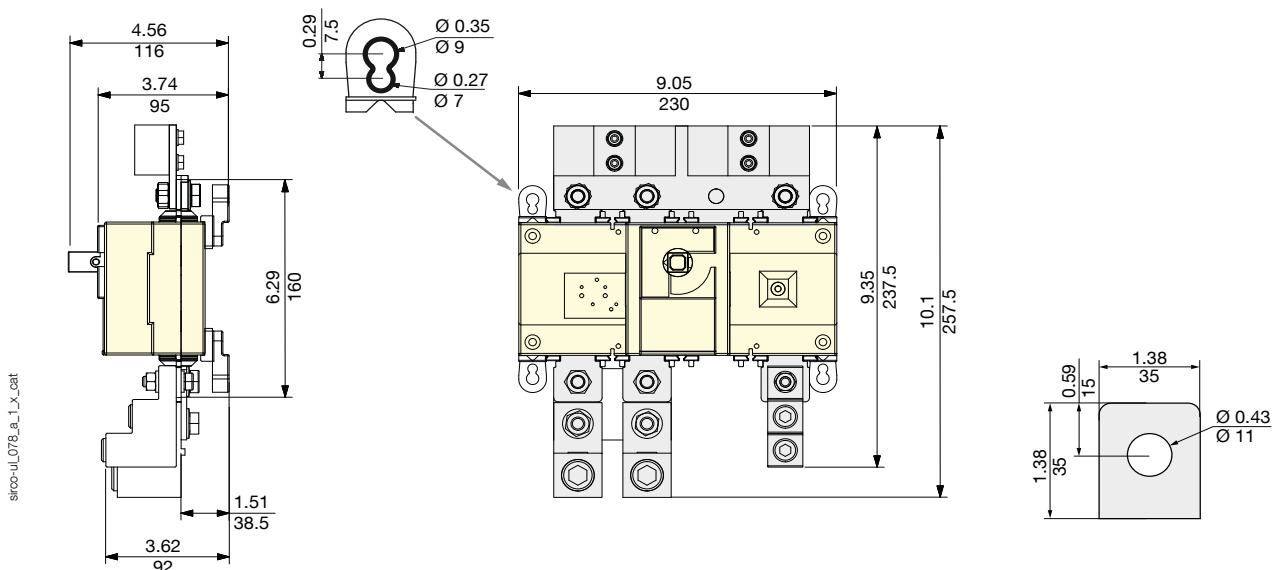
Rating		320 A				400 A			
Number of circuits	Rated voltage	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size
1 circuit	1000 VDC	320	2 P in // + 1 P	3 P	B4	400	2 P in // + 1 P	3 P	B4
Short-circuit capacity at 1000 VDC (any circuit breaker)									
Prospective short-circuit current (kA rms DC)		10 ⁽¹⁾				10 ⁽¹⁾			
Connection terminals									
Min. connection wire range/ AWG		2x#6				2x#6			
Max. connection wire range/ AWG		600MCM				600MCM			
Mechanical characteristics									
Durability (number of operating cycles)		6000				6000			
Operating effort (lbs.in/Nm)		88.5/10				88.5/10			
Auxiliary contact									
Electrical characteristics		A300				A300			

Rating		500 A				650 A			
Number of circuits	Rated voltage	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size
1 circuit	1000 VDC	500	2 P in //	4 P	B5	650	2 P in //	4 P	B5
2 circuit	1000 VDC	500	2 P in //	8 P	B5 _{DS}	650	2 P in //	8 P	B5 _{DS}
Short-circuit capacity at 1000 VDC (any circuit breaker)									
Prospective short-circuit current (kA rms DC)		10 ⁽¹⁾				10 ⁽¹⁾			
Connection terminals									
Min. connection wire range/ AWG		2 x #2				2 x #2			
Max. connection wire range/ AWG		2 x 600 MCM				2 x 600 MCM			
Mechanical characteristics									
Durability (number of operating cycles)		6000				6000			
Operating effort (lbs.in/Nm)		128.3 / 14.5				128.3 / 14.5			
Auxiliary contact									
Electrical characteristics		A300				A300			

(1) Without fuse during 50 ms.

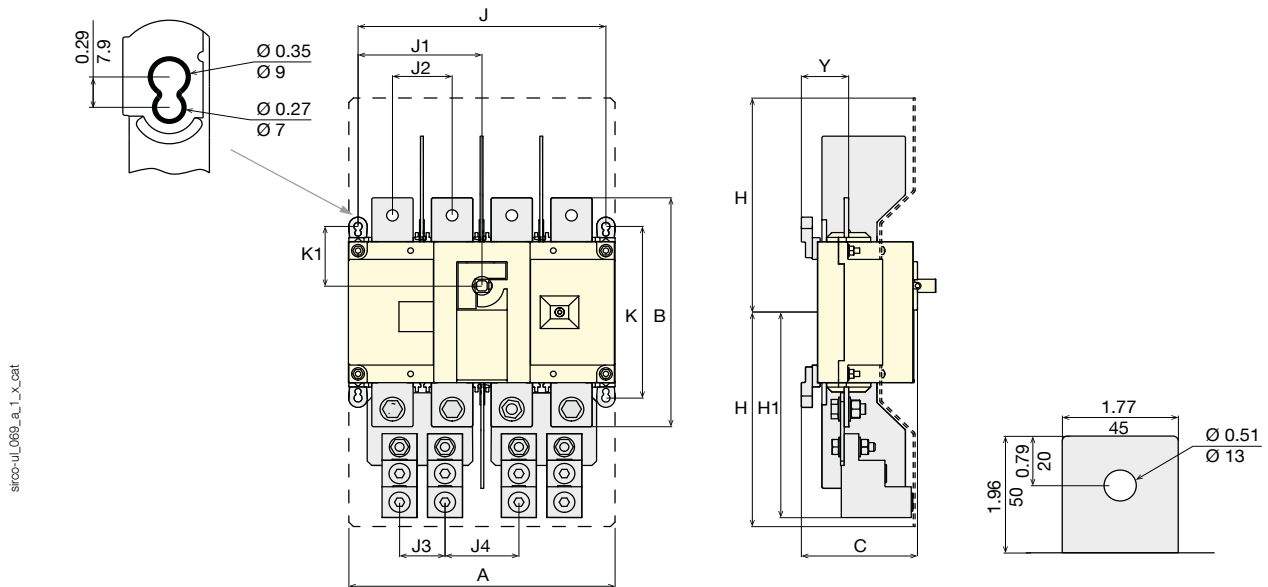
Dimensions (in/mm)

B4



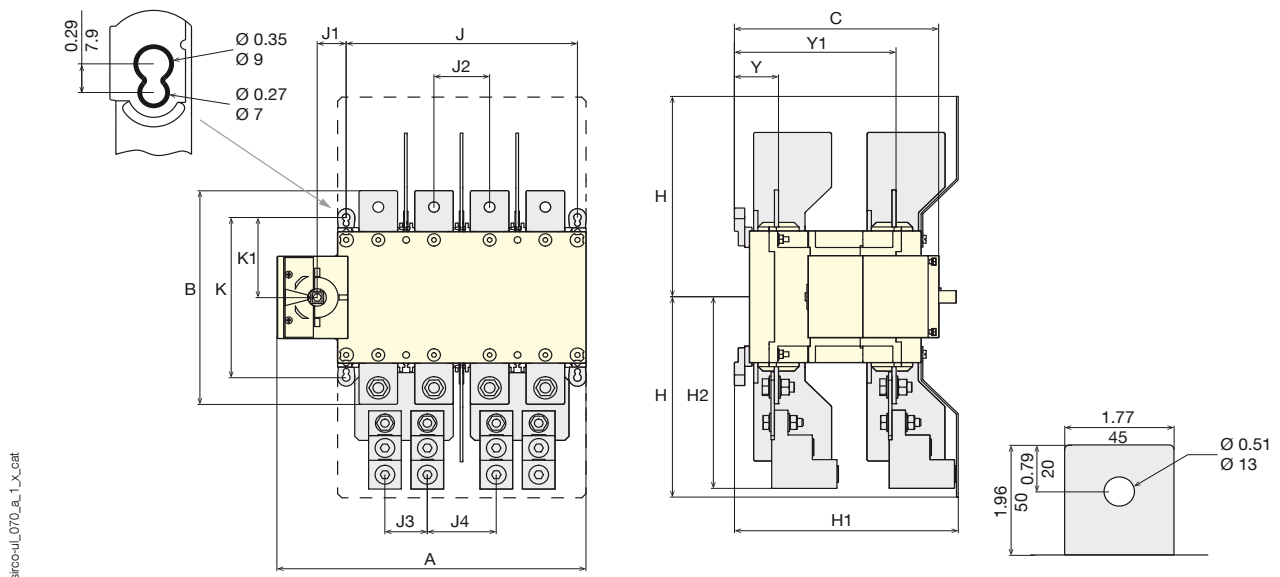
Dimensions (in/mm) (continued)

B5



Rating (A)	Units	A	B	C	H	H1	J	J1	J2	J3	J4	K	K1	Y
500 ... 650	in	11.41	10.23	4.98	95.9	9.17	10.63	5.31	2.56	1.94	3.17	7.67	2.65	2.02
	mm	290	260	126	243.5	233	270	135	65	49.5	80.5	195	67.5	51.5

B5_{DS}



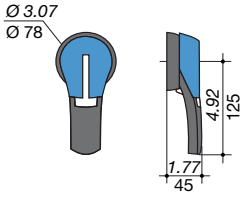
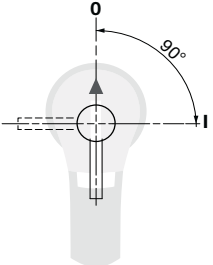
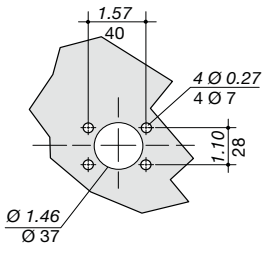
Rating (A)	Units	A	B	C	H	H1	H2 max.	J	J1	J2	J3	J4	K	K1	Y	Y1
500 ... 650	in	14.21	10.23	9.41	95.9	6.51	9.17	10.63	1.37	2.56	1.94	3.17	7.67	2.70	2.02	7.44
	mm	361	260	239	243.5	165.5	233	270	35	65	49.5	80.5	195	68.5	51.5	189

SIRCO PV UL 98B compact

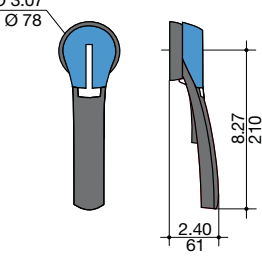
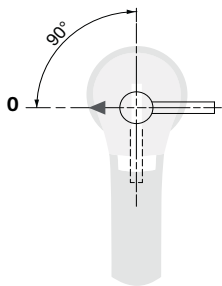
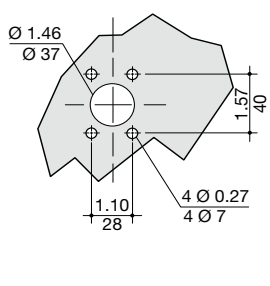
Disconnect switches for photovoltaic applications
from 320 to 650 A - up to 1000 VDC

Dimensions for external handles (in/mm)

B4 - B5

Handle type	Front operation Direction of operation	Door drilling
S2 type 		

B5_{DS}

Handle type	Front operation Direction of operation	Door drilling
S3 type 		

Pole connections in series

1000 VDC

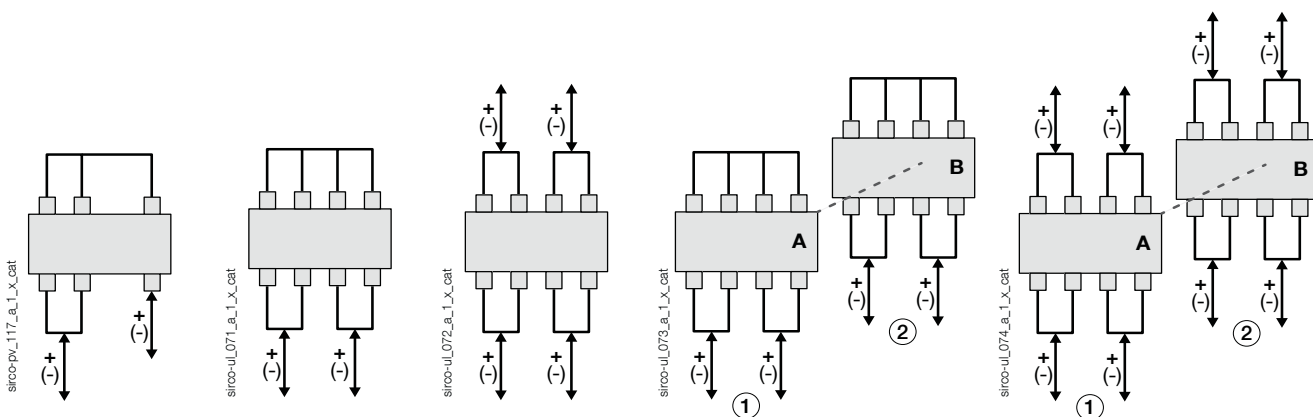
B4 - 3 P
1 PV circuit Grounded

B5
1 PV circuit Grounded

B5
1 PV circuit Ungrounded

B5_{DS}
1 PV circuit Grounded

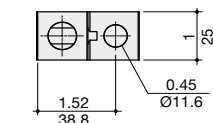
B5_{DS}
1 PV circuit Ungrounded
or 2 PV circuit Grounded



Terminal lugs (in/mm)

B4

3954 x020⁽¹⁾



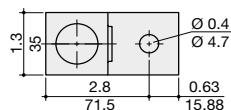
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300MCM

(1) x - any number between 0 and 9.

3954 x040⁽¹⁾



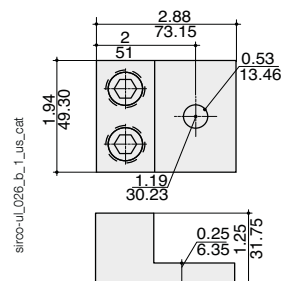
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600MCM

B5 - B5_{DS}

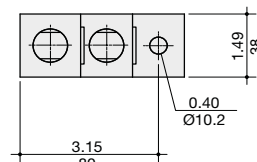
3954 x041⁽¹⁾ - 2 x 350 MCM



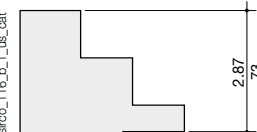
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(1) x - any number between 0 and 9.

3954 x060⁽¹⁾ - 2 x 600 MCM

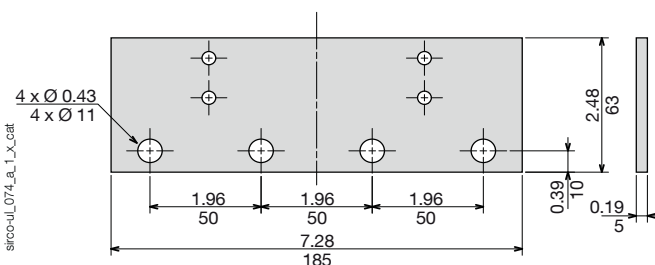


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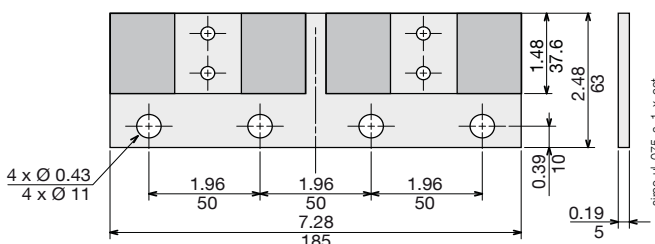
Jumpers (in / mm)

Ref.: 2709 5032



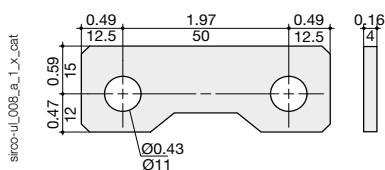
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Ref.: 2709 5043



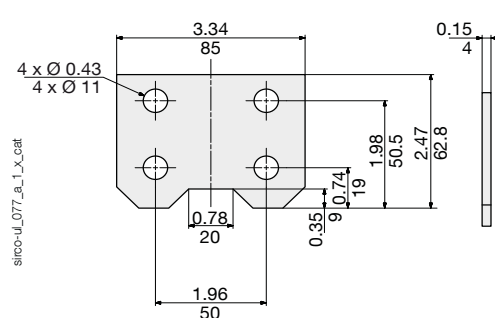
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Ref.: 2709 0021



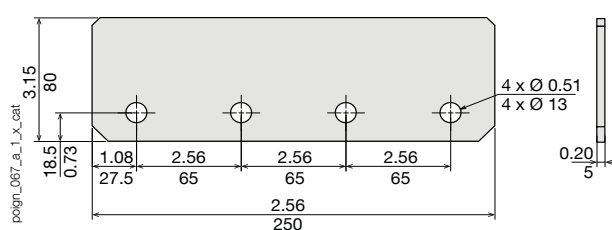
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Ref.: 2709 0043



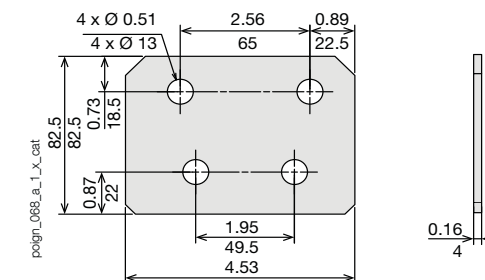
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Ref.: 2709 5065



poin_067_a_1_x_cat

Ref.: 2709 0065



poin_068_a_1_x_cat



SIRCO MOT PV

Disconnect switches for photovoltaic applications
remotely operated range 2000 A, up to 1000 VDC

Photovoltaic range



The solution for

- > Solar parks
- > Solar inverters



Strong points

- > High breaking capacity up to 2000 A, 1000 VDC
- > Remotely operated product
- > Manual emergency operation

Conformity to standards

- > UL 98B, Guide WHVA, file E346418
- > IEC 60947-3



Function

SIRCO PV are remotely operated multipolar load break switches. They make and break under load conditions and provide safety isolation for any low voltage circuit dedicated to photovoltaic applications up to 1000 VDC.

Advantages

High breaking performance

A glass fiber reinforced polyester break chamber with an arc extinguishing system provides a patented safety disconnection system offering rapid extinguishing of the electric arc up to 1000 VDC and current interruption up to 2000 A.

Remotely operated product

SIRCO MOT PV are intended for use in photovoltaic installations and solar inverters. They can be remotely controlled via volt-free contacts, from either an external automatic controller or a switch.

Manual emergency operation

In addition to its motorized operation, the SIRCO MOT PV also includes a manual operation facility, enabling the switch position to be changed directly on the device if required.

General characteristics

- Up to 1000 VDC 2000 A.
- Patented switching technology.
- Remotely operated product (motor control).
- Positive break indication.
- 2 stable positions (I, 0).

References

1000 VDC - Back plate mounting

Rating (A) / Frame size	Circuit type	No. of poles	Switch body	Bridging bars for connecting poles in series	Inter phase barrier	Terminal screens
2000 A / B7	Single PV circuit	4 P	19PV 4320	2 P 2609 1200 ⁽¹⁾	included	1509 4200

Common accessories - more available on next pages.

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

Accessories

Bridging bars for connecting poles in series

Use

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

- Bottom/Bottom
- Top/Top

- Top/Bottom
- Bottom/Top
Connection diagrams:
see "Pole series connections"
p. 87



access_392_a_1_cat

Rating (A) / Frame size	Number of poles of the device in series	Pack	Reference
2000 / B7	2 P	1 piece	2609 1200

Accessories (continued)

Auxiliary contact

Use

Pre-break and signalisation of position I:
1 to 2 NO/NC auxiliary contacts
(1 as standard).

Low level auxiliary contacts: please consult us.

Connection to the control circuit

By 0.25 in / 6.35 mm fast-on terminal.

Electrical characteristics

30 000 operations.

Characteristics

Rating (A)	Nominal current (A)	Operating current I _o (A)			
		250 VAC AC-13	400 VAC AC-13	24 VDC AC-13	48 VDC AC-13
2000	16	12	8	14	6

References
NO/NC changeover contact

Rating (A) / Frame size	Contact(s)	Reference
2000 / B7	2 nd	1999 1032



accses_065_a_1_cat



svr_058_a_1_cat

Terminal screens

Use

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

Rating (A) / Frame size	No. of poles	Position	Reference
2000 / B7	4 P	top or bottom	1509 4200



accses_207_a_2_cat

Inter phase barrier

Use

Safety isolation between the terminals.

Rating (A) / Frame size	No. of poles	Reference
2000 / B7	4 P	included



accses_036_a_2_cat

2 position padlocking (I - 0)

Use

Enables padlocking in position I (product can be padlocked in position 0 as standard).

Factory fitted.

Rating (A) / Frame size	Reference
2000 / B7	9599 0004



atys_854_a_1_cat

Key handle interlocking system

Use

Motorised and manual operations can be locked in position 0 using a RONIS EL11AP lock. Factory fitted.

As standard, locking in position 0.

Optional padlocking in 2 positions: Locking in position 0 and I.

Rating (A) / Frame size	Reference
2000 / B7	9599 1004



atys_853_a_1_cat

Other specific accessories

Low level auxiliary contacts.

Accessories (continued)

Door protective surround

Use

When direct access to the SIRCO MOT front face (mode selection, manual operation, display...) is required, the door surround can be utilised to provide a clean and safe finish to the panel's cut-out.



Rating (A) / Frame size	Reference
2000 / B7	1529 0080

Characteristics as per standards UL 98B and IEC 60947-3

2000 A / B7

UL 98B					
Rating		2000 A			
Number of circuits	Rated voltage	(A)	Number of pole(s) in series per polarity	Number of pole(s) of the device	Frame size
1 circuit	1000 VDC	2000	4 P	4 P	B7

Short-circuit capacity at 1000 VDC (any circuit breaker)

Prospective short-circuit current (kA rms DC)	10 ⁽¹⁾
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Connection terminals

Use copper bar min. cross section	2 x 80 x 8
Maximum bars width Cu	3.94 in (100 mm)

Mechanical characteristics

Durability (number of operating cycles)	6 000
Operating effort min./max. (lbs.in/Nm)	354/398 lb.in (40/45 Nm)

Thermal current I _{th} at 40°C		2000 A
Rated insulation voltage U _i (V)		1200
Rated impulse withstand voltage U _{imp} (kV)		12
Frame size		B7

Rated operational currents I_e (A)

Rated voltage	Utilisation category	Number of poles of the device	Number of pole(s) in series per polarity	Ambient temperature (°C)	(A)
1000 VDC	DC-21 B	4 P	2 P + and 2 P -	40	2000
1000 VDC	DC-21 B	4 P	2 P + and 2 P -	50	1800
1000 VDC	DC-21 B	4 P	2 P + and 2 P -	60	1600
1000 VDC	DC-21 B	4 P	2 P + and 2 P -	65	1520

Switching time

I - 0	1.60
-------	------

Power supply

Power supply. 230 VAC min. / max. (VAC)	166/332
---	---------

Control supply power demand

Power supply 230 VAC inrush / nominal (VA)	460/230
--	---------

Connection

Rigid Cu cable cross-section (mm ²)	-
Maximum Cu busbar width (mm)	100
Tightening torque min/max (Nm)	40/45

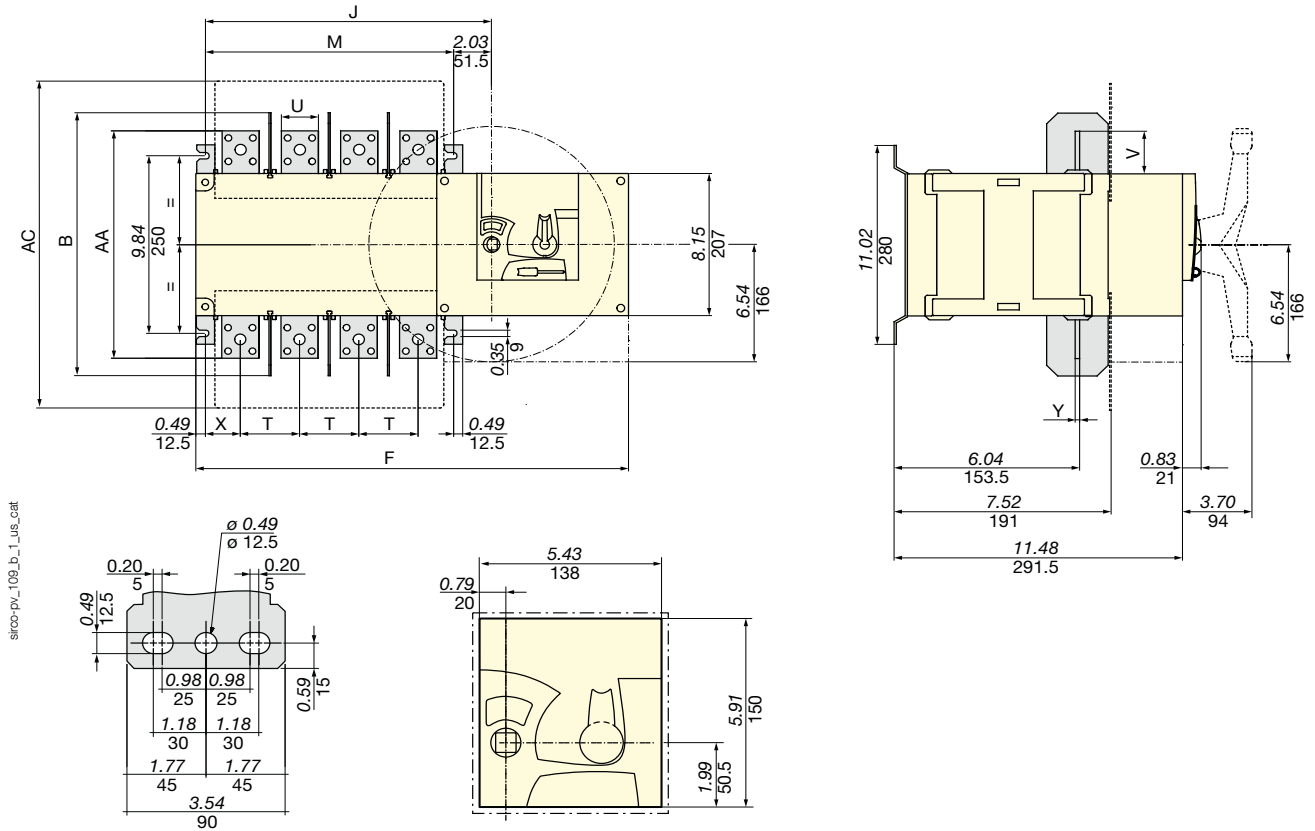
Mechanical characteristics

Durability (number of operating cycles) ⁽¹⁾	3000
Weight of a 4 pole device (kg)	42

(1) Improved endurance: Please consult us.

Dimensions (in/mm)

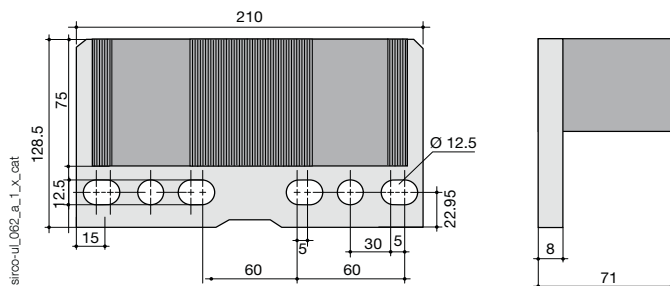
2000 A / B7



Rating (A) / Frame size	Overall dimensions	Terminal shrouds	Switch body		Switch mounting	Connection					
	B	AC	F 4p.	J 4p.	M 4p.	T	U	V	X	Y	AA
2000 / B7	380	531	716	518.5	467	120	90	44	53	8	288

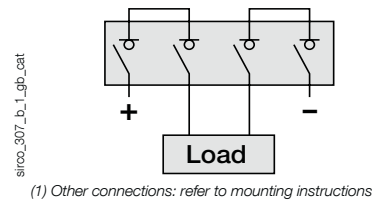
Bridging bar

2000 A / B7



Pole series connections⁽¹⁾

4 poles - bottom / bottom





RM PV UL

Photovoltaic modular fuse holder
for PV Midget and 10x38 fuses



RM PV Midget / 10x38
30 A UL / 32 A IEC

Function

RM PV UL are modular fuse holders for cylindrical gPV fuses. They provide safety disconnection and protection against overcurrents in photovoltaic applications up to 30 A, 1000 VDC. RM PV are available with or without blown fuse light indicators.

Advantages

Improved safety

- Rated voltage of 1000 VDC.
- Self-extinguishing thermoplastic material.
- Finger safe, protection IP2X.

Product dedicated to PV UL and IEC applications

Protection against reverse currents thanks to gPV fuses dedicated to PV applications.

Features and options

- Modular DIN 45 mm cut-out.
- Blown fuse LED indicator option
- Front face label slot
- Rated for use with 60, 75 and 90 °C copper wire or comb bus bar
- Sealing with 1.5 mm² wire

The solution for

- > Small installations up to large PV farms



Strong points

- > Improved safety
- > Product dedicated to PV UL and IEC applications
- > Features and options

Conformity to standards

- > UL 4248-18
guide IZMR
file E307648



- > CSA C22.2
class 3211-37
file 265615



- > IEC 60269-2



References

No. of poles	30 A Midget, 10x38 Reference
1 P	57PV 0001
1 P with LED signaling	57PV 0L01

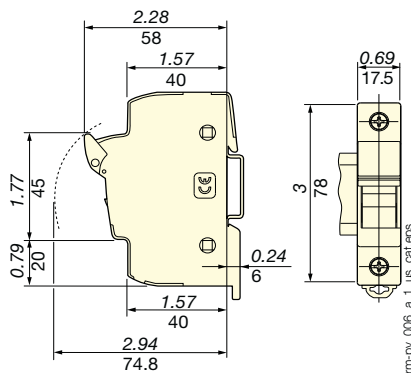
Characteristics according to UL 4248-18 / CSA C22.2

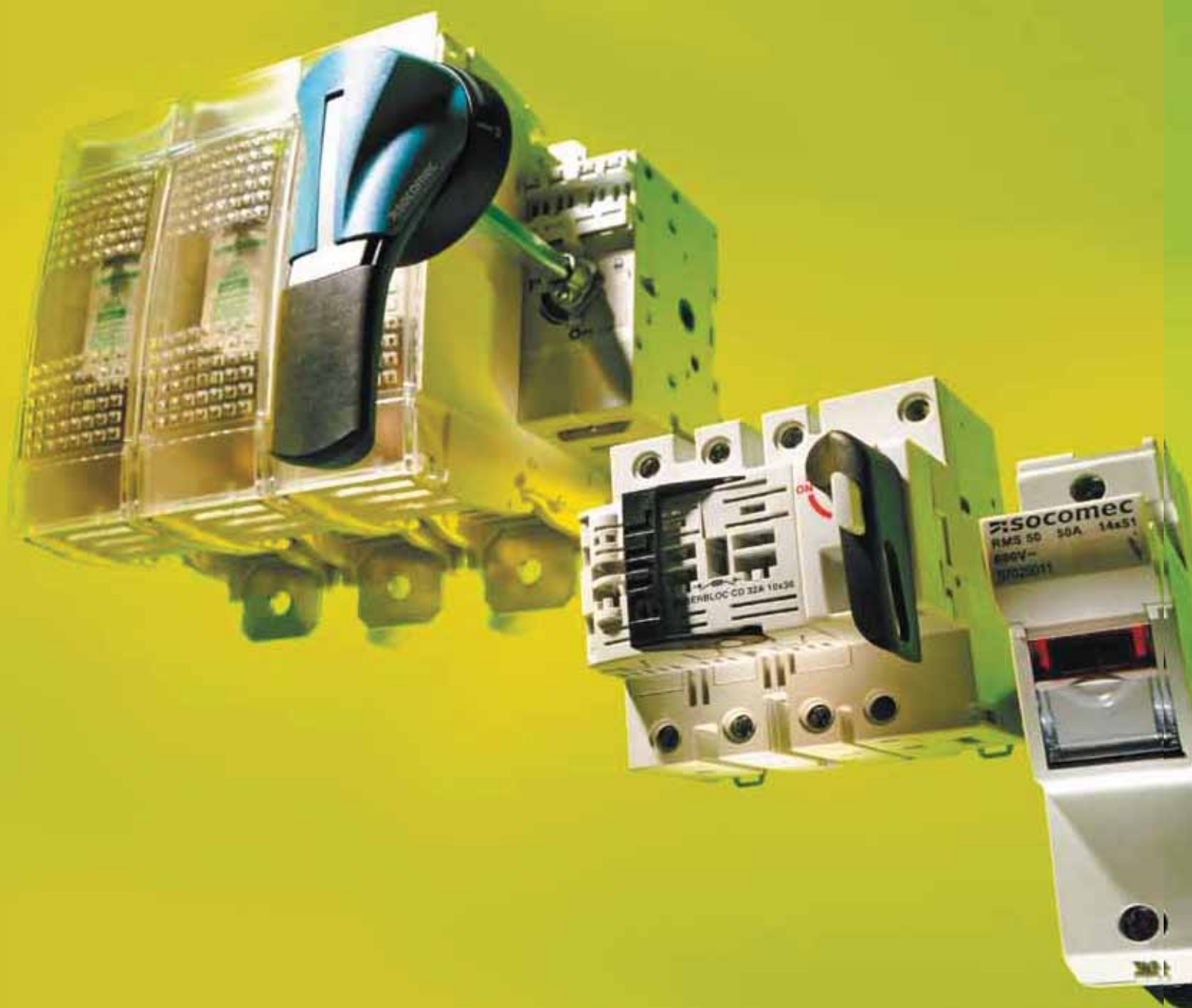
Rated current	30 A
Rated insulation voltage U_i	1000 V
SCCR rating	30 kA
Fuse link	
Fuse size	Midget
Fuse rating	1 to 30 A
Max fuse dissipated power	4 W
Connection terminals	
Solid wire	#8 - 18 AWG / 0,75 - 16 mm ²
Stranded wire	#8 - 18 AWG / 0,75 - 16 mm ²
Tightening torque on terminals	22 lb.in / 2,5 Nm
Mechanical Characteristics	
Weight NETTO	57 gr

Characteristics according to IEC 60269-2

Rated current	32 A
Rated insulation voltage U_i	1000 V
Rated impulse withstand voltage U_{imp}	6 kV
Protection degree	IP20
Fuse link	
Fuse size	10X38
Fuse holder current derating by number of poles side by side	
N = 1 ... 3	1
N = 4 ... 6	0.8
N = 7 ... 9	0.7
N ≥ 10	0.6

Dimensions





Fusible disconnect switches

Fuse solutions: Definite advantages over circuit breakers p. 92

Fusible disconnect switches



FUSERBLOC UL
30 to 800 A
p. 94

Modular fuse holders



RM - RMS
for Midget /
Ferrule fuses
32 to 125 A
p. 108



new
RM CC
Class CC
30 A
p. 114

Specific products

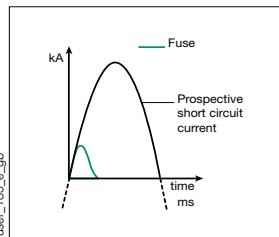
Fuse combination switches for specific applications.



p. 118

Fuse solutions: definite advantages over circuit breakers

Fuses: a high performance



Due to the high current limiting CC, J and L type fuses, the best protection will be provided to downstream components, such as motor or motor starter.

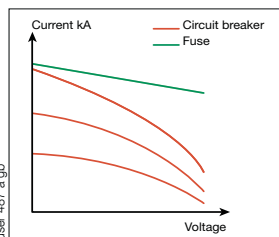
Our disconnects have been designed around this concept to provide 200 kA as a SCCR on most of the range.

Safety



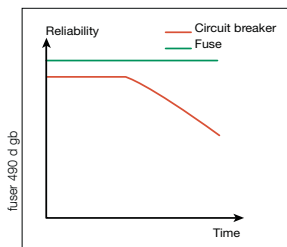
The energy released during a short-circuit is contained in the sealed fuse cartridge, there is no release of ionized gases, thus no effect on surrounding equipment in comparison to what happens when circuit-breakers open on short-circuit.

Circuit-breakers: reduced breaking capacity



Breaking capacity of circuit-breakers reduces dramatically when voltage increases: capacity can decrease from 100 kA at 240 V to 20 kA or even less at 600 V.

Reliability over time



Fuses are totally sealed products, which guarantee long-term protection without any maintenance.

Circuit-breakers are complex devices including lots of moving parts. Their mechanism is affected by dust, humidity... and needs maintenance.

Re-close or Replace ?



Circuit-breakers can be re-closed after a default: that's the biggest argument of their manufacturers.

You should however consider that the circuit-breaker should be inspected each time there is a significant short-circuit. It is hard to know how many times a circuit-breaker has operated...

In contrast, when a fuse blows, it is replaced by a new one, and the installation is as reliable as prior to the fault.

Thus, Re-close or replace ?

Last longer



Our FUSERBLOC show 2 main functionalities:

- magneto-thermal protection, made inside the encapsulated fuses,
- disconnection thru moving contacts that stay closed during short-circuit (arc won't destroy them).
- On a circuit-breaker both functionality are on the same mechanical element.

Evolution of NEC® regulation

Requirement of panel sccr Art 409 of NEC® 2005 & UL 508A

According to NEC® 2005, all industrial control panels must be marked with a Short-Circuit Current Rating (SCCR).

This covers the entire panel and not just the primary rating of the over-current protection device, as commonly done before.

Calculation of this Panel SCCR is easy with Fuse Disconnect Switch, since there is a defined table SB4.1 in UL 508 which specifies I_p (peak value) of feeder fuse that can be used for protection of downstream components, which is not the case on circuit-breakers. Thanks to the high current limiting characteristics of the fuses the SCCR of branch circuits can be highly enhanced.

Arc flash NEC®2005

The NEC now contains requirements related to arc flash hazards. Section 110-16, Flash Protection, requires markings on switchboard, panel boards, industrial control panels and motor control centers to warn from potential arc flash hazards.

Arc flash mitigation is greatly enhanced by the use of fuses and their current limiting capabilities and fast opening times.

UL/CSA standards for disconnect switches

UL 98 - Enclosed and dead front switches (equivalent to CSA-C22.2 no 4)

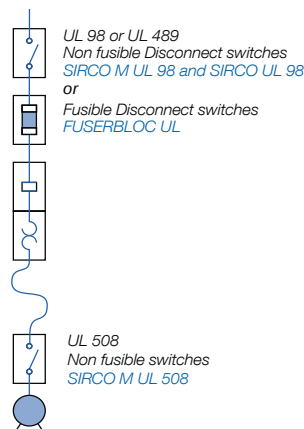
These requirements cover enclosed or dead front Switches, with or without provision for fuses, at 600 V or less.

These products are used as disconnecting means without restrictions; they are heavy duty products requiring 2 inches (50 mm) minimum of creepage distance, which gives a maximum safety for users and installation. The short circuit withstand of those products goes up to 200 kA.

UL 489 - Molded case switches (equivalent to CSA-C22.2 no 5)

This requirements cover Molded-case Circuit Breaker, Molded case switches and fused Molded-case switches, rated at 600 volts or less and 6000 amperes or less.

Typical control panel



UL standards for Electrical Machinery

UL 508 - Industrial Control Equipment (equivalent to CSA-C22.2 no 14)

These requirements cover Manual, magnetic and solidstate Starters and Controllers, Overload relays, pushbuttons, selector switches, control lights...

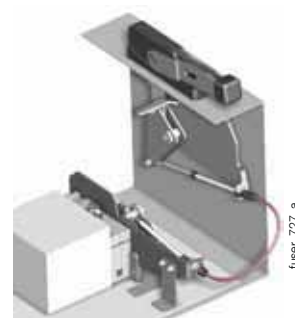
These products are IEC type products, smaller requiring only a creepage distance between phases of 1/2 inch. UL 508 standard requested only 5 kA or 10 kA as short circuit withstand with fuse protection. Their use as a disconnecting mean is therefore limited to local disconnection of motors. These products can only be used as a disconnect mean when they have been additionally tested "suitable as motor disconnect". This additional testing ensures that the switch as a proper closing capacity on short circuit. UL 508 (switches or Circuit breakers) can not be used as main disconnect of a electrical panel. (i.e. in entrance of control panels).

A manual motor controller marked "Suitable as motor disconnect" shall be installed only on the load side of the branch circuit protective device (UL 508A 30.3.3 and NEC 430.109(6)).

NFPA 79 Electrical Standard for industrial machinery

The following types of machines are identified as industrial machinery:

- metalworking machine tools, including machines that cut or form metal,
- plastics machinery,
- wood machinery, including woodworking, laminating, and sawmill machines,
- assembly machines,
- material handling machines, including industrial robots and transfer machines,
- inspection and testing machines, including coordinate measuring and in-process gauging machines.



FUSERBLOC UL

Fusible disconnect switches UL and CSA
from 30 to 800 A



ul_004_a



fuser-ul_006_a



fuser-ul_005_a

Function

FUSERBLOC UL fusible disconnect switches are heavy duty switches that break and make power circuits on and off load.

The switches employ double break contacts per pole that ensure complete isolation of the fuse when the switch is in the "OFF" position. These switches are extremely durable and are tested and approved for use in the most demanding applications.

The TEST position function is enabled with handles with the TEST position. This function tests the control circuit auxiliaries without switching the main contacts. It is a simple alternative to a separately wired push button.

Advantages

Improved safety

- On load make and break power circuit applications.
- Double break by phase.
- Touch safe covers.

High breaking capacity.

- Up to 200 kA Short circuit rating.

A complet range of functions

- Compact footprints.
- Front or side operation.
- Flange operation.
- NFPA 79 compliant kits.
- Voltage sensing terminals.

The solution for

- > Motor on-load disconnect
- > Protection of industrial cabinet
- > Electrical distribution



Strong points

- > Improved safety
- > High breaking capacity
- > A complet range of functions

Conformity to standards⁽¹⁾

- > UL489
guide WJAZ
file E255272
(Frame size 1 and 2)
- > UL 98
guide WHTY
file E201138
(Frame sizes 4 to 8)
- > CSA 22.2 #5
class 4652-06
file 112964
(Frame size 1 and 2)
- > CSA 22.2 #4
class 4651-02, file 112964
(Frame sizes 4 to 8)
- > IEC 60947-3
- > NFPA79 (2002 Edition)



> (1) Product reference on request.

Enclosures

- > Enclosed fusible disconnect switch available, please consult page 178



coff-ul-032.eps

References

Fusible disconnect

Rating (A) Fuses Frame size	No. of poles	Switch body	Direct handle	Front external handle	External right side handle ⁽¹⁾	Shaft external handle	NFPA79 kit	U-type auxiliary contacts	Terminal shrouds					
CD 30 A CC 1	3 P	3710 3003	Black 3729 4012	S0 type Black I - 0 1, 3R, 12 1493 0111 4, 4X 149D 0111		S0 type 200 mm 7.9 inches 1405 0620 320 mm 12.6 inches 1405 0632 400 mm 15.7 inches 1405 0640	3729 4532⁽²⁾	1 contact NO 3999 0701 1 contact NC 3999 0702	not required					
	3 P + switched neutral	3710 4003												
	3 P + solid neutral	3710 5003												
CD 30 A J 2	3 P	3710 3004	3729 4014	S1 type Black I - 0 1, 3R, 12 141F 2111 4, 4X 141D 2111		S1 type 200 mm 7.9 inches 1401 0520 320 mm 12.6 inches 1401 0532 400 mm 15.7 inches 1401 0540				1 contact NO 3999 0701 1 contact NC 3999 0702	not required			
	3 P + switched neutral	3710 4004												
	3 P + solid neutral	3710 5004												
30 A J 4	2 P	3861 2004	Black 3629 7910	S1 type Black I - 0 1, 3R, 12 Defeatable 141F 2111 I - 0 4, 4X Defeatable 141D 2111 I - 0 - Test 4, 4X Defeatable 141D 2115	S1 type Black I - 0 4, 4X 141H 6111 S1 type Red / yellow I - 0 4, 4X 141I 6111	S1 type 200 mm 7.9 inches 1400 1020 320 mm 12.6 inches 1400 1032 400 mm 15.7 inches 1400 1040	3729 7540					1 contact NO 3999 0701 1 contact NC 3999 0702	not required	
	3 P	3861 3004												
	4 P	3861 6004												
60 A J 4	2 P	3861 2005												
	3 P	3861 3005												
	4 P	3861 6005												

Common accessories - more available on next pages.

(1) No door interlocking.

(2) Please use with S1 handle

FUSERBLOC UL

Fusible disconnect switches UL and CSA
from 30 to 800 A

References (continued)

Rating (A) fuses Frame size	No. of poles	Switch body	Direct handle	Front external handles	External right side handle ⁽¹⁾	Shaft for external handle	NFPA79 kit	U-type auxiliary contacts	Terminal shrouds
60 A J 5	2 P	3861 2006	Black 3629 7910	S2 type Black I - O 1, 3R, 12 Defeatable 142F 2111 4, 4X Defeatable 142D 2111	S2 type Black I - O 4, 4X 142H 6111 Red / yellow I - O 4, 4X 142I 6111	S2 type 200 mm 7.9 inches 1400 1020 320 mm 12.6 inches 1400 1032 400 mm 15.7 inches 1400 1040	3729 7540	1 contact type NO 3999 0701 1 contact type NC 3999 0702	not required
	3 P	3861 3006							
	4 P	3861 6006							
100 A J 5	2 P	3861 2010							
	3 P	3861 3010							
	4 P	3861 6010							
200 A J 6	2 P	3861 2020							
	3 P	3861 3020							
	4 P	3861 6020							
400 A J 7	2 P	3851 2038							
	3 P	3851 3038							
	4 P	3851 6038							
600 A J 8	2 P	3850 2060	Black 3859 6011	S3 type Black I - O 1, 3R, 12 Defeatable 143F 3111 4, 4X Defeatable 143D 3111		S3 type 200 mm 7.9 inches 1400 1220 320 mm 12.6 inches 1400 1232 400 mm 15.7 inches 1400 1240	3729 7552	2 P 3898 2080 3 P 3898 3080 4 P 3898 4080	
	3 P	3850 3060							
	4 P	3850 6060							
800 A L 8	2 P	3850 2080							
	3 P	3850 3080							
	4 P	3850 6080							

Common accessories - more available on next pages.

(1) No door interlocking.

Accessories

Electronic fuse operation indication (FMD)

Use

For fuse cartridge BS88, DIN and UL.

Principle

The FMD detects fuse operation using a bistable relay and a signaling LED.

It can be mounted on a DIN rail, a back plate, next to the FUSERBLOC, or on the door.

References

For FUSERBLOC 100 to 800 A			
Nb of leds	Type	Operating voltage Ph/Ph	Reference
1	FMD10	120 - 260 VAC	3899 1120
1	FMD10	380 - 690 VAC	3899 1380
3	FMD30	120 - 260 VAC	3899 3120
3	FMD30	380 - 690 VAC	3899 3380

Accessories		Reference
Kit for connection accessories	Standard	3819 9120
Kit for connection accessories	Door mounted	3829 9120

Relay characteristics

Type	Relay operating current I _c (A)	
	AC-15	DC-13
FMD10 and FMD30	2.5 A	0.2



FMD10
1-led version

FMD30
3-leds version

NFPA79 accessories

Flange handle for flange operation

Use

Meets both UL 508A and NFPA 79 requirements.
The handle will operate the switch by cable or rod.

Rating (A)	Type	Nema type	Reference
30 ... 200	Standard handle	1, 3, 3R, 4, 12	3729 9002 ⁽¹⁾
30 ... 200	Chrome plated handle	1, 3, 3R, 4, 4X, 12	3729 9003 ⁽¹⁾

For 400 A rating, please consult us.
(1) Defeatable handle.



siroco_246_a_1_us_cat

Cable operator

Use

Link between the flange handle and the switch, please order the flange handle, the mechanism and a cable length of your choice.

Rating (A)	Description	Reference
30 ... 200	Cable flange mechanism	3729 9903

Cable length (inches)	Cable length (mm)	Reference
36	900	3729 9992
60	1500	3729 9993
120	3000	3729 9994

For 400 A rating, please consult us.



siroco_247_a_1_cat



uL042_b_1

Rod operator

Use

Link between the flange handle and the switch. The rod flange is an economical solution, please order the flange handle and a rod kit.

Rating 30 ... 200 A

For enclosure depth (inches)	For enclosure depth (mm)	Reference
8 ... 24	203 ... 613	3729 9904

For 400 A rating, please consult us.



uL043_a

NFPA 79 "Through the door" kit

Use

Meets both UL 508A and NFPA 79 requirements.
Allows retrofit of your installations for ratings from 30 to 800 A.
Please order an S-type external handle separately.

Number of auxiliary contact installed on the switch will be limited to 1 layer (instead of 2).
If more needed please use the S type auxiliary contacts.
Delivered with a 12.6 in / 320 mm shaft.
For longer shafts, please consult us.

Rating (A)	Frame size	Reference
CD 30	1/2	3729 4532 ⁽¹⁾
30 ... 200	3 ... 6	3729 7540
400	7	3729 7544
600 ... 800	8	3729 7552

(1) Please use with S1 handle.



uL121_b

FUSERBLOC UL

Fusible disconnect switches UL and CSA
from 30 to 800 A

Accessories

Direct handle

Rating (A)	Color	Fuses	Fig.	Reference
CD 30	Black	CC	1	3729 4012
CD 30	Black	J	1	3729 4014
30 ... 400	Black	J	2	3629 7910
600 ... 800	Black	J / L	2	3859 6011



External handle

Use

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

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

The interlocking function is restored when the door is re-closed.

Front operation

Rating (A)	Frame size	Handle type	Nema type	Test	Handle color	Reference
CD 30	1/2	S0 ⁽¹⁾	1, 3R, 12	I - 0	Black	1493 0111
CD 30	1/2	S0 ⁽¹⁾	1, 3R, 12	I - 0	Red/Yellow	1494 0111
CD 30	1/2	S0 ⁽¹⁾	4, 4X	I - 0	Black	149D 0111
CD 30	1/2	S0	4, 4X	I - 0	Red/Yellow	149E 0111
CD 30 ... 60	1/2/4	S1	1, 3R, 12	I - 0	Black	141F 2111
CD 30 ... 60	1/2/4	S1	1, 3R, 12	I - 0	Red/Yellow	141G 2111
CD 30 ... 60	1/2/4	S1	4, 4X	I - 0	Black	141D 2111
CD 30 ... 60	1/2/4	S1	4, 4X	I - 0	Red/Yellow	141E 2111
CD 30 ... 60	1/2/4	S1	4, 4X	I - 0 - Test	Black	141D 2115
CD 30 ... 60	1/2/4	S1	4, 4X	I - 0 - Test	Red/Yellow	141E 2115
60 ... 200	5 ... 7	S2	4, 4X	I - 0 - Test	Black	142D 2115
60 ... 200	5 ... 7	S2	4, 4X	I - 0 - Test	Red/Yellow	142E 2115
60 ... 400	5 ... 7	S2	1, 3R, 12	I - 0	Black	142F 2111
60 ... 400	5 ... 7	S2	1, 3R, 12	I - 0	Red/Yellow	142G 2111
60 ... 400	5 ... 7	S2	4, 4X	I - 0	Black	142D 2111
60 ... 400	5 ... 7	S2	4, 4X	I - 0	Red/Yellow	142E 2111
600 ... 800	8	S3	1, 3R, 12	I - 0	Black	143F 3111
600 ... 800	8	S3	1, 3R, 12	I - 0	Red/Yellow	143G 3111
600 ... 800	8	S3	4, 4X	I - 0	Black	143D 3111
600 ... 800	8	S3	4, 4X	I - 0	Red/Yellow	143E 3111

(1) S0: No interlock in the OFF position.

Front handle heavy duty I - 0 with metallic lever

Rating (A)	Frame size	Handle type	Nema type	Test	Handle color	Reference
CD 30 ... 60	1/2/4	S1	4, 4X	I - 0	Black	141D 2911
CD 30 ... 60	1/2/4	S1	4, 4X	I - 0	Red/Yellow	141E 2911
60 ... 400	5 ... 7	S2	4, 4X	I - 0	Black	142D 2911
60 ... 400	5 ... 7	S2	4, 4X	I - 0	Red/Yellow	142E 2911
600 ... 800	8	S3	4, 4X	I - 0	Black	143D 3911
600 ... 800	8	S3	4, 4X	I - 0	Red/Yellow	143E 3911

Right side operation

Rating (A)	Frame size	Handle type	Nema type	Test	Handle color	Reference
30 ... 60	4	S1	4, 4X	I - 0	Black	141H 6111
30 ... 60	4	S1	4, 4X	I - 0	Red/Yellow	141I 6111
100 ... 400	5 ... 7	S2	4, 4X	I - 0	Black	142H 6111
100 ... 400	5 ... 7	S2	4, 4X	I - 0	Red/Yellow	142I 6111
600 ... 800	8	S3	4, 4X	I - 0	Black	consult us
600 ... 800	8	S3	4, 4X	I - 0	Red/Yellow	consult us



S-type handle raiser

Use

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

Dimensions

Increases distance to door by 0.47 in / 12 mm.

Handle color	Pack qty	External degree of protection (IP)	Reference
Black	10	IP65	1493 0000



acces_187_a_1_cat

Alternative color S-type handle cover

Use

For single lever handle S-type S1, S2, S3 and double lever handle, type S4. Other colors: please consult us.

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



acces_198_a_1_cat

Shaft for external handle

Use

Standard lengths:

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

Other lengths: please consult us.

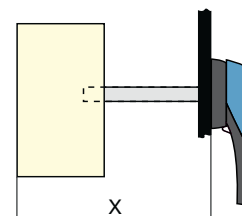
Rating (A)	Dimensions X		Length		Reference
	(in)	(mm)	(in)	(mm)	
CD 30	4.02 ... 9.65	102 ... 245	7.9	200	1405 0620
CD 30	4.02 ... 14.37	102 ... 365	12.6	320	1405 0632
CD 30	4.02 ... 17.52	102 ... 445	15.7	400	1405 0640
CD 30	4.02 ... 9.65	102 ... 245	7.9	200	1401 0520
CD 30	4.02 ... 14.37	102 ... 365	12.6	320	1401 0532
CD 30	4.02 ... 17.52	102 ... 445	15.7	400	1401 0540
30 ... 100	5.3 ... 9.06	135 ... 230	7.9	200	1400 1020
30 ... 100	5.3 ... 13.78	135 ... 350	12.6	320	1400 1032
30 ... 100	5.3 ... 16.93	135 ... 430	15.7	400	1400 1040
30 ... 100	5.3 ... 20.87	135 ... 530	19.7	500	1400 1050
200	5.7 ... 9.06	145 ... 230	7.9	200	1400 1020
200	5.7 ... 13.78	145 ... 350	12.6	320	1400 1032
200	5.7 ... 16.93	145 ... 430	15.7	400	1400 1040
200	5.7 ... 20.87	145 ... 530	19.7	500	1400 1050
400	7.87 ... 10.24	200 ... 260	7.9	200	1400 1020
400	7.87 ... 14.96	200 ... 380	12.6	320	1400 1032
400	7.87 ... 18.1	200 ... 460	15.7	400	1400 1040
400	7.87 ... 22	200 ... 560	19.7	500	1400 1050
600 ... 800	10.63 ... 11.97	270 ... 304	7.9	200	1400 1220
600 ... 800	10.63 ... 16.69	270 ... 424	12.6	320	1400 1232
600 ... 800	10.63 ... 19.84	270 ... 504	15.7	400	1400 1240
600 ... 800	10.63 ... 23.78	270 ... 604	19.7	500	1400 1250



acces_145_b_1_cat



acces_369_a_1_cat



acces_202_a_1_cat

FUSERBLOC UL

Fusible disconnect switches UL and CSA
from 30 to 800 A

Accessories (continued)

External front operation shaft support accessory

Use

This support maintains shaft position for extension shafts greater than 12.6 in / 320 mm in length.

Rating (A)	Frame size	Reference
50 ... 400	11 ... 16	3899 0400



fuser_698_a_2_cat

Shaft guide for external handle

Use

This accessory enables handle to engage shaft with a misalignment of up to 0.59 in / 15 mm.

Required for a shaft length over 400 mm for S1 to S3 handles and for a shaft from 12.6 in / 320 mm for S0 handle.

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



access_260_a_2_cat

U-type auxiliary contacts

Use

U-type AC can be configured to be operated on both, standard and TEST position switches from CD 30 to 800 A. Each slot can accommodate up to 2 interlocked ACs.

- For CD 30A/CC, a maximum of 4 ACs (8 with an additional holder);
- For CD 30A/J, maximum 2 ACs (6 with an additional holder);
- For 30 to 200A/J, maximum 4 ACs;
- For 400 to 800A/L, maximum 8 ACs.

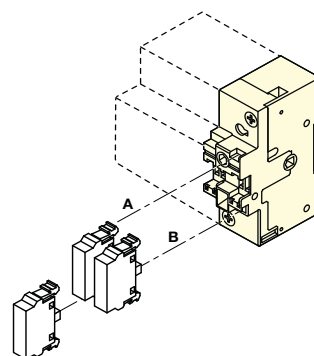
Electrical characteristics

A600.

When FUSERBLOC is front operated, ACs are prebreak and signaling position I and 0. When FUSERBLOC is side operated, ACs are signaling positions I and 0.



access_066_a_1_cat



access_043_a_1_x_cat

CD 30 : U-type auxiliary contacts cannot be mounted on switches with direct operation handle

NO auxiliary contacts		
Rating (A)	Number of contacts	Reference
CD 30 ... 800	1	3999 0701
NC auxiliary contacts		
Rating (A)	Number of contacts	Reference
CD 30 ... 800	1	3999 0702
Contact holder for additional auxiliary contacts		
Rating (A)	Fuses	Reference
CD 30	CC	3999 0710
CD 30	J	3999 0710

S-type auxiliary contacts

Use

Side operated auxiliary contacts for FUSERBLOC 30 to 400 A, position OFF and ON signalled by 1 to 4 NO + NC auxiliary contacts.

Electrical characteristics

A600/D600.

S-type auxiliary contacts are signaling position I and 0.



access_051_a_1_cat

access_083_a_1_cat

NO+NC auxiliary contacts		
Rating (A)	Number of contacts	Reference
30 ... 800	1	3999 U041
30 ... 800	2	3999 U042

Terminal shrouds

Use

Top or bottom protection against direct contact with terminals or connection parts.
2 sets required to fully shroud both line and load terminals.

Front and side operation		
Rating (A)	No. of poles	Reference ⁽¹⁾
30 ... 100	2/3/4 P	as standard
200	2 P	3898 2020
200	3 P	3898 3020
200	4 P	3898 4020
400	2 P	3898 2040 ⁽²⁾
400	3 P	3898 3040 ⁽²⁾
400	4 P	3898 6040 ⁽²⁾
600 ... 800	2 P	3898 2080 ⁽³⁾
600 ... 800	3 P	3898 3080 ⁽³⁾
600 ... 800	4 P	3898 4080 ⁽³⁾

(1) Top or bottom. (2) Not compatible with 2 wire lugs (3954x041). (3) Line side delivered as standard.



fuser_314_a_1_cat

Terminals lugs

Use

Connection of cables to the terminals.

Rating (A)	Wires range	No wires per lug	Lugs per kit	Wires	Reference
CD 30	#14 - #10	1		Cu	as standard
30	#14 - #10	1		Cu	as standard
30 ... 60	#10 - #6	1		Cu	as standard
60 ... 100	#12 - #1	1		Cu	as standard
200	#6 - 300MCM	1	2	Cu / Al	3954 2020
200	#6 - 300MCM	1	3	Cu / Al	3954 3020
200	#6 - 300MCM	1	4	Cu / Al	3954 4020
400	#2 - 600MCM	1	2	Cu / Al	3954 2040
400	#2 - 600MCM	1	3	Cu / Al	3954 3040
400	#2 - 600MCM	1	4	Cu / Al	3954 4040
400	2 x (#6 - 350 MCM)	2	2	Cu / Al	3954 2041
400	2 x (#6 - 350 MCM)	2	3	Cu / Al	3954 3041
400	2 x (#6 - 350 MCM)	2	4	Cu / Al	3954 4041
600 ... 800	2 x (#2 - 600MCM)	1	2	Cu / Al	3954 2060
600 ... 800	2 x (#2 - 600MCM)	2	3	Cu / Al	3954 3060
600 ... 800	2 x (#2 - 600MCM)	2	4	Cu / Al	3954 4060



ul_032_a

Solid links

Rating (A)	Fuses	No of links per kit	Reference
100	J	3	3799 9010
200	J	3	3799 9020
400	J	3	3799 9040
600 ... 800	J / L	3	3799 9080



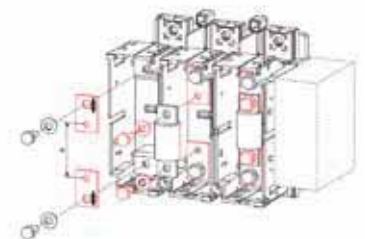
fuser-ul_019_a_1_cat

Class T fuse adapter

Use

The adapter makes it possible to fit class T fuses in the FUSERBLOC fuse switches.

Rating (A)	Size Class T fuse		No. of poles	Reference
	(in)	(mm)		
100	2.34	59.5	3 P	3729 8010
200	2.48	63	3 P	3729 8020
400	2.71	69	3 P	3729 8040
600	2.95	75	3 P	3729 8060
800	3.17	80.5	3 P	3729 8080



fuser-ul_014_b_1_cat

FUSERBLOC UL

Fusible disconnect switches UL and CSA
from 30 to 800 A

Characteristics according to UL 98/CSA 22.2 #4

CD 30 to 800 A

Characteristics UL and CSA	CD 30 A ⁽³⁾	CD 30 A ⁽³⁾	30 A	60 A	60 A	100 A	200 A	400 A	600 A	800 A
Short circuit rating at 600 VAC (kA)	100	100	200	100	200	200	200	200	200	200
Type of fuse	CC	J	J	J	J	J	J	J	J	L
Max. fuse rating (A)	30	30	30	60	60	100	200	400	600	800

Max. motor hp / FLA 1 ph motor max.

120 VAC	2 / 24	2 / 24	2 / 24	5 / 56	5 / 56	7.5 / 80	15 / 135	-	-	-
240 VAC	5 / 28	5 / 28	5 / 28	10 / 50	10 / 50	20 / 88	40 / 176	50 / 216	-	-

Max. motor hp / FLA 3 ph motor max.

220-240 VAC	7.5 / 22	7.5 / 22	7.5 / 22	15 / 42	15 / 42	30 / 80	60 / 154	125 / 312	200 / 480	200 / 480
440-480 VAC	15 / 21	15 / 21	15 / 21	30 / 40	30 / 40	60 / 77	125 / 156	250 / 302	500 / 590	500 / 590
600 VAC	20 / 22	20 / 22	20 / 22	50 / 52	50 / 52	75 / 77	150 / 144	350 / 336	500 / 472	500 / 472
125 VDC ⁽¹⁾	3 / 25	3 / 25	3 / 25	3 / 25	3 / 25	7.5 / 58	15 / 112	20 / 148	-	-
250 VDC ⁽²⁾	5 / 20	5 / 20	5 / 20	10 / 38	10 / 38	20 / 38	40 / 140	50 / 173	-	-

Mechanical endurance

Endurance (number of operating cycles)	10 000	10 000	10 000	10 000	10 000	10 000	8 000	6 000	5 000	5 000
Operating torque (lbs.in / Nm)	31 / 3.5	31 / 3.5	71 / 8	71 / 8	71 / 8	71 / 8	90 / 10.2	150 / 17	586 / 66.2	586 / 66.2

Connection

Min. connection cross-section/ (mm ²) ⁽²⁾	#14	#14	#10	#10	#10	#10	#6	#2 or 2 x #6	2 x #2	2 x #2
Max. connection cross-section/ (mm ²) ⁽²⁾	#10	#10	#6	#6	#2/0	#2/0	300MCM	600MCM or 2 x 350MCM	2 x 600MCM	2 x 600MCM

Common accessories - more available on next pages.

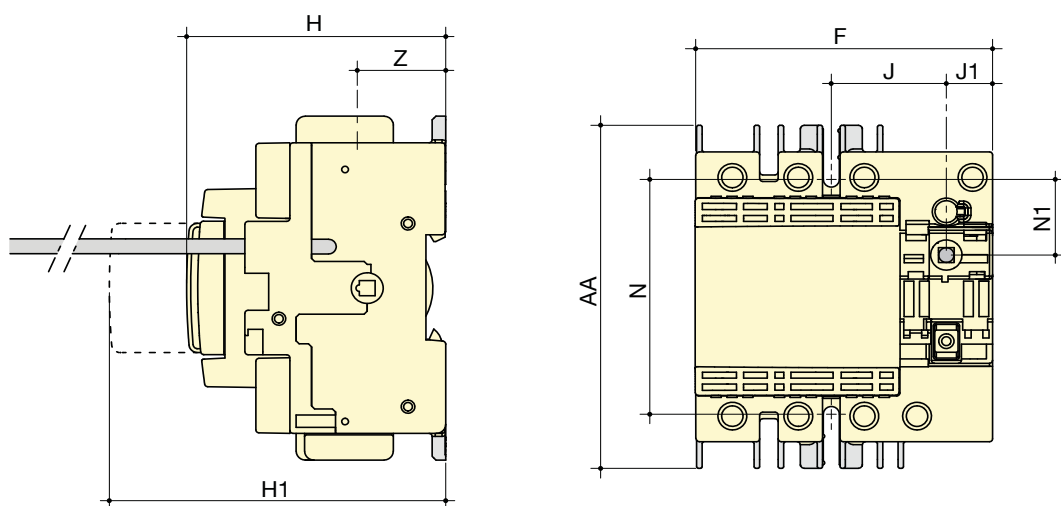
(1) 2 pole in series.

(2) 3 pole in series.

(3) UL 489/CSA22.2 #5.

Dimensions (in/mm)

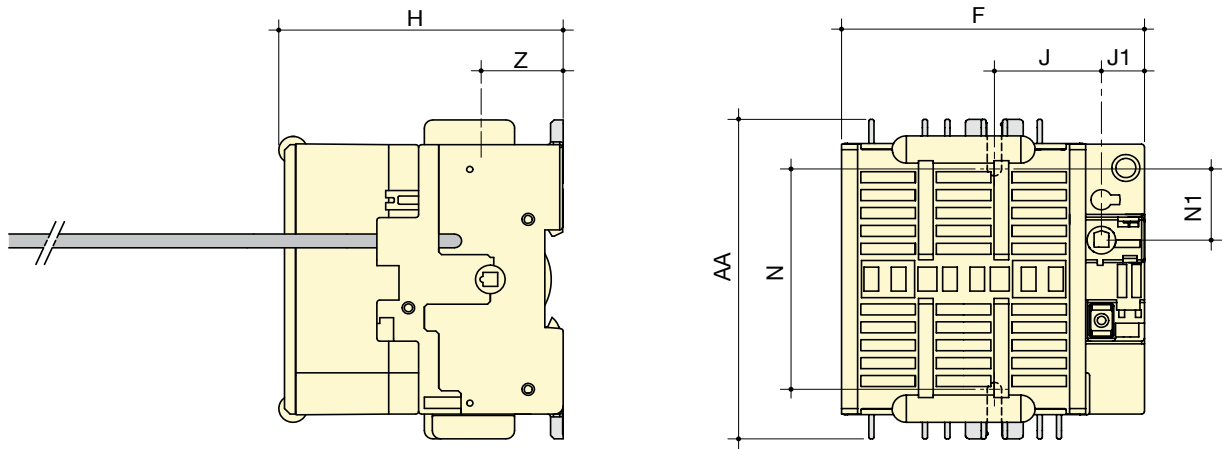
CD 30 A / CC - Frame size 1



fUser_655_a_1_X_cat

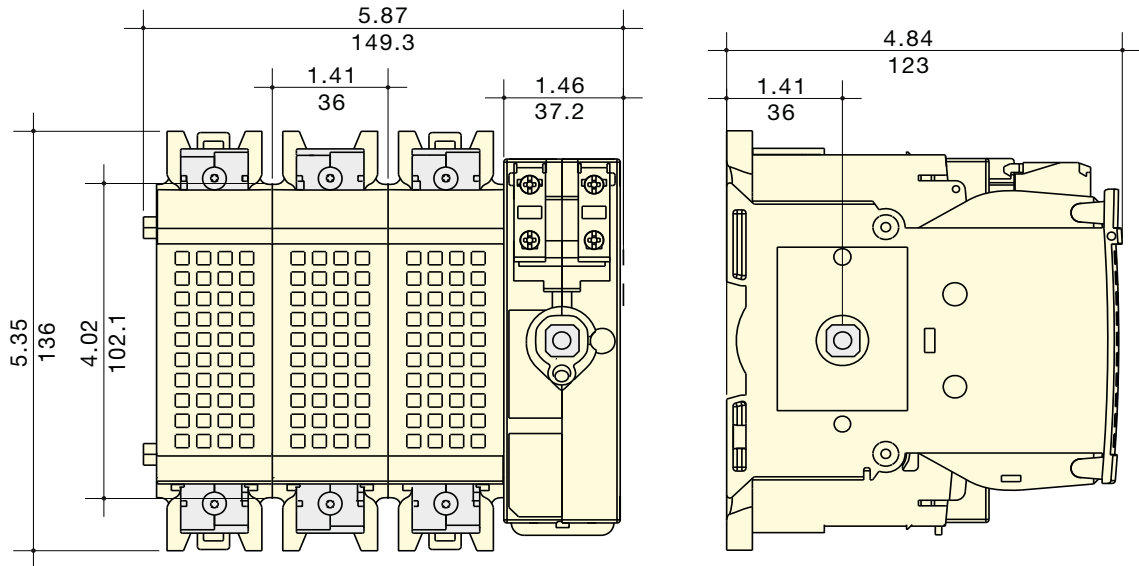
Rating (A) / Fuse	Unit	Switch body					Switch mounting		Connection	
		F	H	H1	J	J1	N	N1	AA	Z
CD 30 A / CC	in	3.78	3.28	5.19	1.47	0.59	3.13	1	4.56	1.12
	mm	96	83.5	132	37.5	15	79.5	25.5	116	28.5

CD 30 A / J - Frame size 2



Rating (A) / Fuse	Unit	Switch body				Switch mounting		Connection	
		F	H	J	J1	N	N1	AA	Z
CD 30 A / J	in	4.13	3.89	1.47	0.59	3.30	1	4.56	1.12
	mm	105	99	37.5	15	84	25.5	116	28.5

30 to 60 A / J - Frame size 4



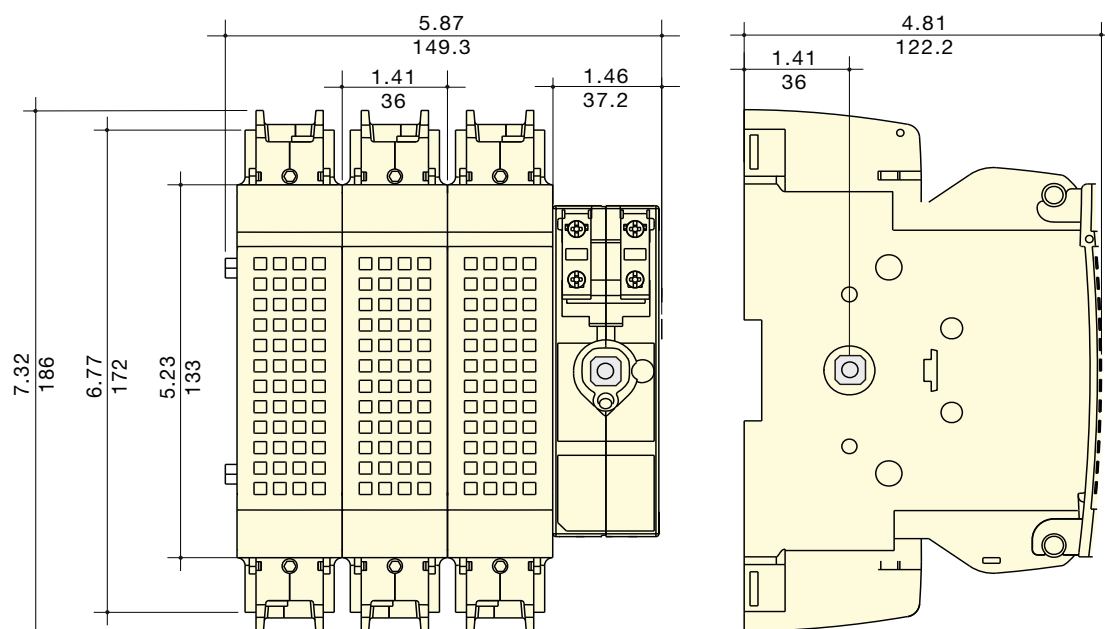
Note for width:
For 2 pole device decrease overall width by 1.41 in / 36 mm.
For 4 pole device increase overall width by 1.41 in / 36 mm.

FUSERBLOC UL

Fusible disconnect switches UL and CSA
from 30 to 800 A

Dimensions (in/mm) (continued)

60 to 100 A / J - Frame size 5

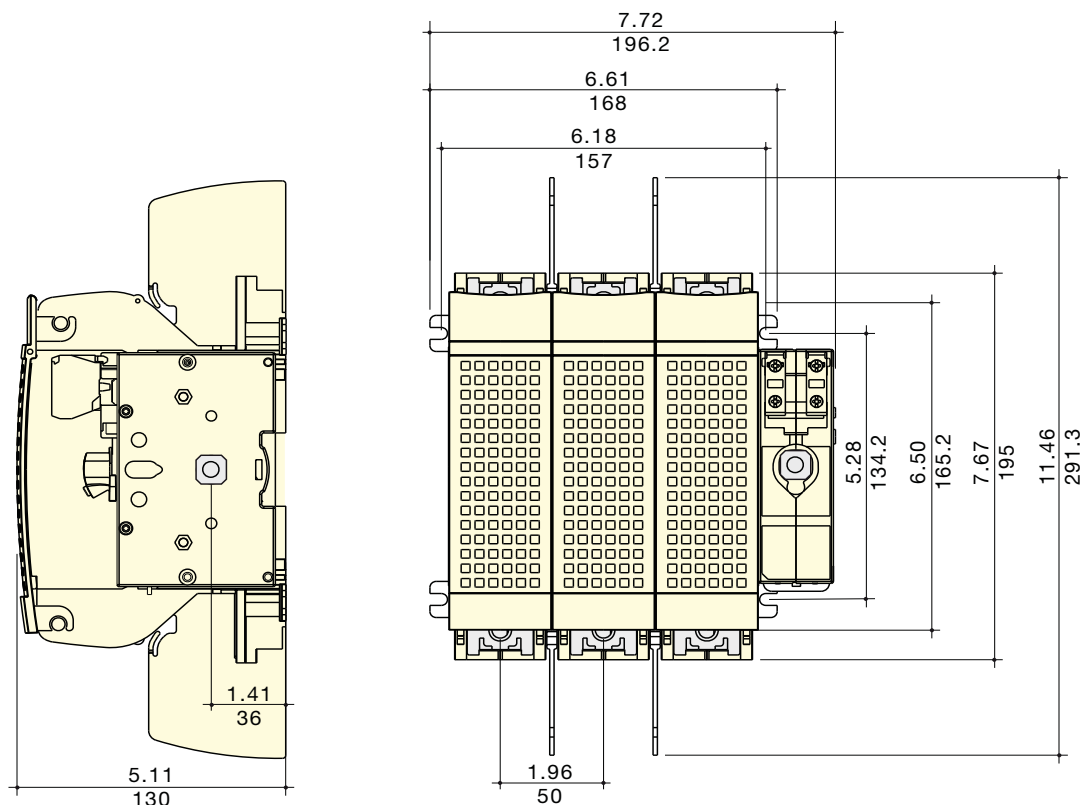


Note for width:

For 2 pole device decrease overall width by 1.41 in / 36 mm.

For 4 pole device increase overall width by 1.41 in / 36 mm.

200 A / J - Frame size 6

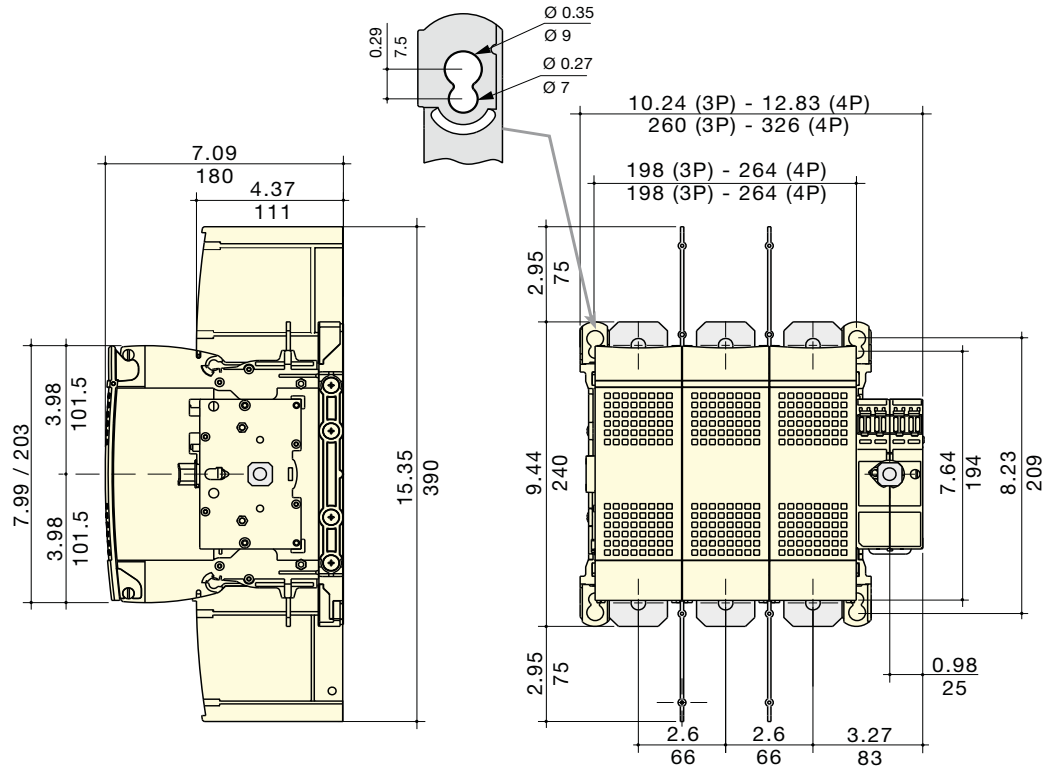


Note for width:

For 2 pole device decrease overall width by 1.96 in / 50 mm.

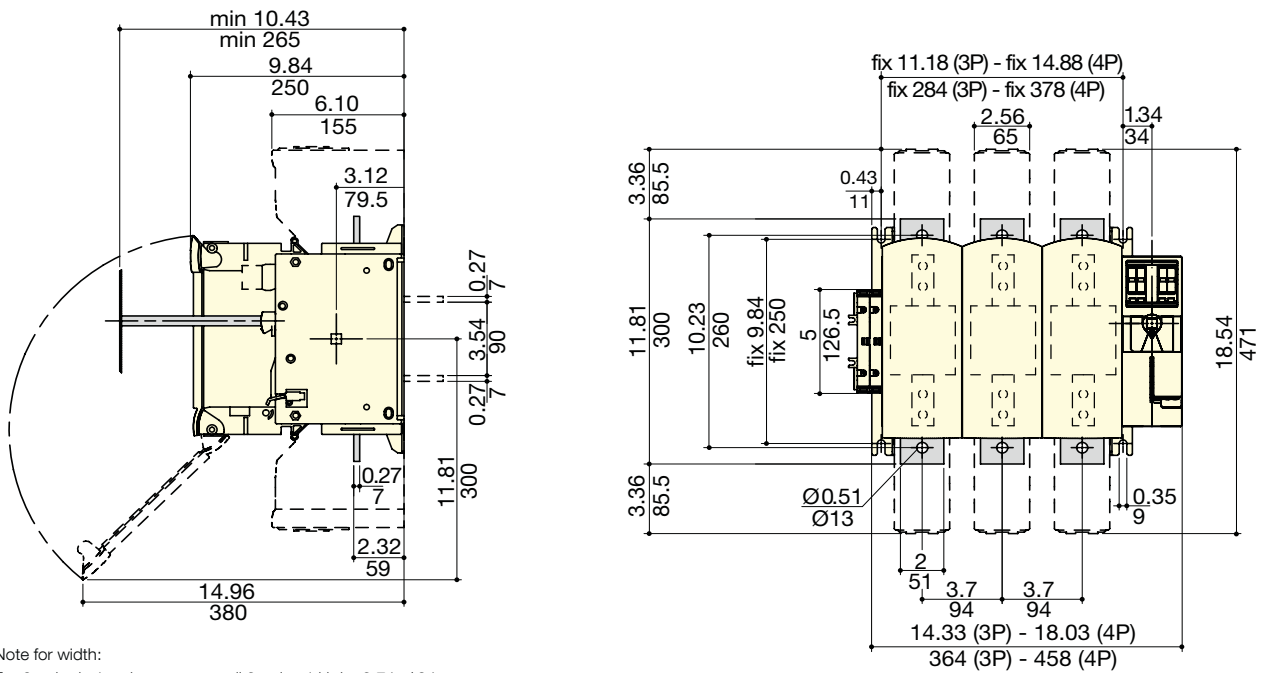
For 4 pole device increase overall width by 1.96 in / 50 mm.

400 A / J - Frame size 7



Note for width:
For 2 pole device decrease overall 3 pole width by 2.59 in / 66 mm.

600 to 800 A / J - Frame size 8



Note for width:
For 2 pole device decrease overall 3 pole width by 3.7 in / 94 mm.

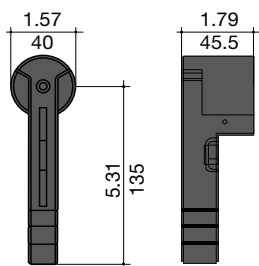
FUSERBLOC UL

Fusible disconnect switches UL and CSA
from 30 to 800 A

Dimensions (in/mm) (continued)

30 to 400 A

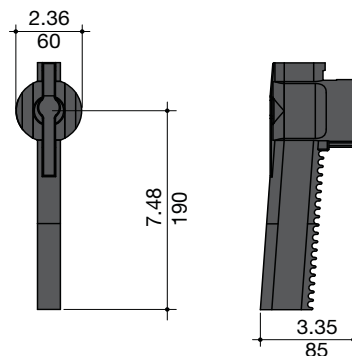
Front direct handle



siroco-ul_027_a_1_x_cat

600 to 800 A

Front direct handle



siroco_267_b_1_x_cat

External handle dimensions (in/mm)

CD 30 A - Frame size 1 / 2

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

fuser-ul_015_a_1_gp_cat

CD 30 to 60 A - Frame size 1 / 2 / 4

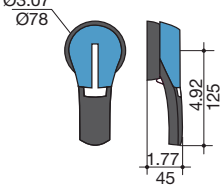
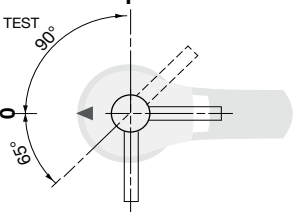
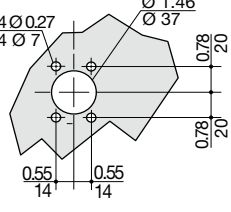
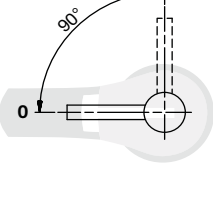
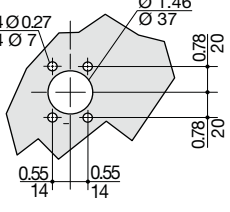
Handle type	Front operation Direction of operation	Door drilling	Side operation ⁽¹⁾ Direction of operation	Door drilling
S1 type 				

fuser-ul_015_b_1_gp_cat

(1) Not for frames 1 and 2.

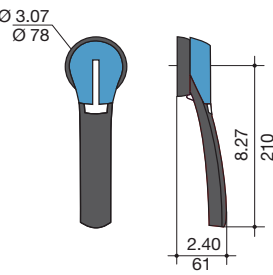
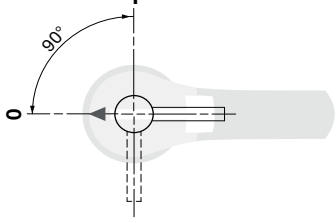
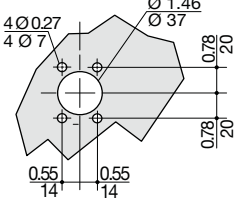
External handle dimensions (in/mm)

60 to 400 A - Frame size 5 / 6 / 7

Handle type	Front operation		Side operation	
	Direction of operation	Door drilling	Direction of operation	Door drilling
S2 type 				

fuser-ul_016_b_1_gb_cat

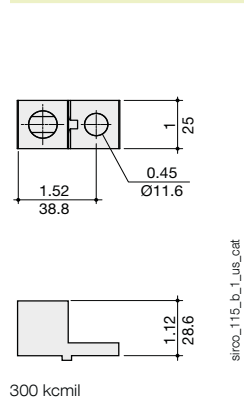
600 and 800 A - Frame size 8

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

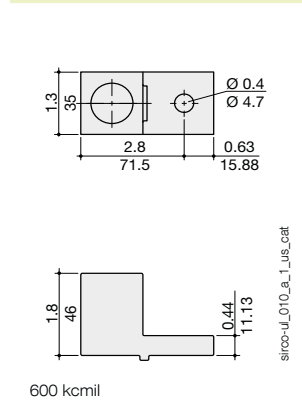
fuser-ul_017_b_1_gb_cat

Terminal lugs (in/mm)

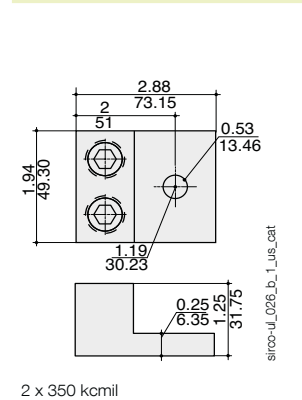
200 A



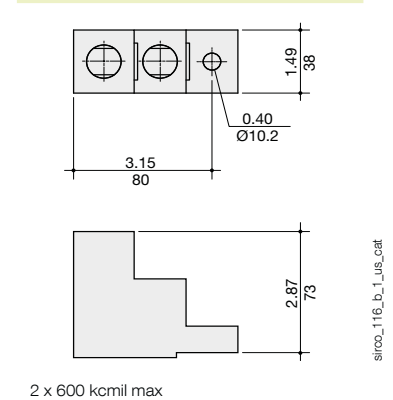
400 A



400 A



600 to 800 A



RM and RMS

Modular fuse holders

for industrial and high speed (uR) for Midget/Ferrule fuses up to 125 A



The solution for

- > Small outputs

Strong points

- > Improved safety
- > High breaking capacity
- > Specific format and accessory
- > Label holder

Large range

- > Pre-break, please consult us

Compliance with standards

- > UL 4248-1
guide IZLT
file E307648
- > CSA C22.2
class 3211-37
file 265615
- > IEC 60269-2,-1



Approvals and certifications⁽¹⁾



(1) Product reference on request.

Function

RM and **RMS** are modular fuse disconnect switches for cylindrical fuses. They provide safety disconnection and protection against overloads and short-circuits in any low voltage electrical circuit.

- RM: Non-signalling fuse disconnect switches for fuses without strikers.
- RMS: Fuse disconnect switches with pre-break auxiliary contact, position and blown indication.

Advantages

Improved safety

- Omnipolar and simultaneous breaking.
- High dielectric strength. IP2X protection.

Specific format and accessory

- Modular 45-mm cut-out.
- Interlocking with accessory possible.

High breaking capacity

Protection against overloads and short-circuits thanks to high breaking capacity fuses (100 kA rms).

References

RM - Non-signalling device

Basic device Fuse size	32 A ⁽¹⁾ 10 x 38		50 A ⁽²⁾ 14 x 51		100 A ⁽²⁾ 22 x 58	
	To be ordered in multiples of	Reference	To be ordered in multiples of	Reference	To be ordered in multiples of	Reference
No. of poles						
1 P	12	5701 0015	6	5702 5001	6	5703 5001
1 P + N (1 module)	12	5601 5005				
1 P + N (2 modules)	6	5701 0017	3	5702 5005	3	5703 5005
1 P LED signalling	12	5701 0011	6	5702 0011	6	5703 0011
2 P	6	5701 0020	3	5702 5002	3	5703 5002
3 P	4	5701 0018	2	5702 5003	2	5703 5003
3 P + N	3	5701 0019	1	5702 5004	1	5703 5004
4 P			1	5702 5006	1	5703 5006
N	12	5701 0016	6	5702 5000	6	5703 5000

(1) Devices are cURus and CSA-certified, except 5601 5005.

(2) Devices are cURus-certified.

RMS - Device with 1 signalling auxiliary contact (AC) ⁽¹⁾

Basic device Fuse size	50 A ⁽²⁾ 14 x 51		100 A ⁽²⁾ 22 x 58	
	To be ordered in multiples of	Reference	To be ordered in multiples of	Reference
No. of poles				
1 P	6	5702 5011	6	5703 5011
2 P	3	5702 5012	3	5703 5012
3 P	2	5702 5013	2	5703 5013
3 P + N	1	5702 5014	1	5703 5014
4 P	1	5702 5016	1	5703 5016

(1) The signalling auxiliary contact provides the pre-break, the fuse presence and also blown fuse signal.

(2) Devices are cURus-certified.

Something to think about



10x38 RMs equipped with 0.5 A Midget fuses provide effective protection for voltage inputs and auxiliary power supplies for all our electronic devices (DIRIS, DIRIS Digiware, DIRIS DigiBOX, etc.)

RM and RMS

Modular fuse holders

for industrial and high speed (uR) for Midget/Ferrule fuses up to 125 A

Accessories (non UL certified)

Connection accessories for RM 32 A 10 x 38

Comb bridging connection⁽¹⁾

Designation	Cross-section (mm ²)	Reference
Unipolar comb with 12 modules	10	1749 0001
Unipolar comb with 13 modules	10	1749 0011
Unipolar comb with 57 modules	10	1749 0021
Unipolar comb with 12 modules	16	1749 0031
Unipolar comb with 13 modules	16	1749 0041
Unipolar comb with 57 modules	16	1749 0051
Nozzle		1749 8001

(1) Not UL.

Connection terminals

Designation	Reference
Insulated neutral terminal for a 6 to 25-mm ² cable, side input	1749 9001
Insulated neutral terminal for a 6 to 50-mm ² cable, side input	1749 9002
Fully insulated power feed terminal for a 6 to 25-mm ² cable, side input	1749 9003
Right/left insulated terminal, 6 x 25 mm ²	1749 9004



Auxiliary contact

Use

1 or 2 NO/NC auxiliary contacts:

- Pre-break, fuse presence and fuse blown signalling for RMS 50 and 100.
- Fuse blown signalling for RM 50 and 100.

Connection

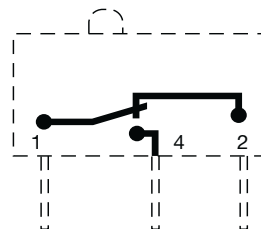
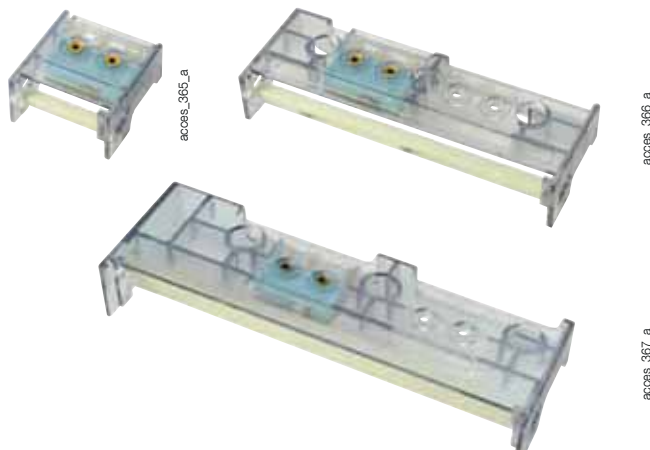
By 6.35 mm fast-on terminal.

Characteristics		Operating current I _b (A)
Rating (A)	Contact type	250 VAC AC-13
50 ... 100	NO/NC contact	2.5
50 ... 100	Two-level NO/NC contact	0.1

References		
NO/NC contact		
Rating (A)	Contact	Reference ⁽¹⁾
50	1 P with 1 AC	5702 9901
50	3 P with 1 AC	5702 9903
50	3 P with 2 AC	5702 9030
100	1 P with 1 AC	5703 9901
100	3 P with 1 AC	5703 9903
100	3 P with 2 AC	5703 9030

(1) Not UL.

Low level NO/NC auxiliary contact		
Rating (A)	Contact	Reference
50	1 P with 1 AC	5702 9911
50	3 P with 1 AC	5702 9913
100	1 P with 1 AC	5703 9911
100	3 P with 1 AC	5703 9913



Key handle interlocking system

Use

Padlocking of the handle (padlock not supplied).

For RM and RMS		
Rating (A)	Quantity (units)	Reference ⁽¹⁾
32	5	5701 9040
50	5	5702 9040
100	5	5703 9040

(1) Not UL.

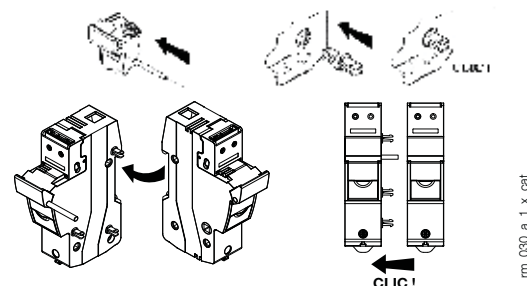


Coupling system for RM

For RM and RMS		
Rating (A)	Quantity (units)	Reference ⁽¹⁾
32	12	5704 0003 ⁽²⁾
50 ... 100	12	5702 9020 ⁽²⁾

(1) Not UL.

(2) One coupling device allows to link two RM/RMS. Also sold in bags containing separate components (bags of 100 pieces) for assembling larger quantities. Contact us



Reinforced insulation kit

Rating (A)	Reference ⁽¹⁾
32	5701 9010 ⁽²⁾

(1) Not UL.

(2) 1 reference = 1 set of 10 couplings.



access_361_a

RM and RMS

Modular fuse holders

for industrial and high speed (uR) for Midget/Ferrule fuses up to 125 A

Characteristics according to UL 4248-1

30 to 100 A

Thermal operational current	30 A	50 A	100 A
Fuse size	Midget / 10 x 38	14 x 51	22 x 58
Rated operating voltage (V)	750	750	750
Rated fuse dissipated power (W/P)	3	5	9.5 (max 12 W)
Protection degree	IP20	IP20	IP20

gG fuse protected short-circuit withstand

	Rated volatge			
Prospective short-circuit current (kA rms.) ⁽¹⁾	690 VAC	100	100	100
Prospective short-circuit current (kA rms.) ⁽¹⁾	400/500 VAC	120	120	120

Design current derating coefficient for N poles side by side

N = 1 ... 3	1	1	1
N = 4 ... 6	0.8	0.8	0.8
N = 7 ... 9	0.7	0.7	0.7
N ≥ 10	0.6	0.6	0.6

Design current derating coefficient depending on the temperature

20°C	1	1	1
30°C	0.95	0.95	0.95
40°C	0.90	0.90	0.90
50°C	0.80	0.80	0.80
60°C	0.70	0.70	0.70
70°C	0.60	0.60	0.60

Connection

Minimum Cu cable cross-section SOLID / STRANDED	0.75 mm² / 18 AWG	1.5 mm² / 16 AWG	1.5 mm² / 16 AWG
Maximum Cu cable cross-section SOLID	16 mm² / 8 AWG	35 mm² / 8 AWG	50 mm² / 1 AWG
Maximum Cu cable cross-section STRANDED	16 mm² / 8 AWG	25 mm² / 6 AWG	35 mm² / 2 AWG
Tightening torque	2.5 Nm / 22 lb.in	3 Nm / 26 lb.in	4 Nm / 35 lb.in

Dimensional data

Weight of 1 P / N (kg)	0.057 / 0.06	0.1	0.155
Weight of 1 P + N (kg)	0.117	0.215	0.327
Weight of 3 P + N (kg)	0.229	0.415	0.632

(1) Connection for RM32 1 P + N (1 module).

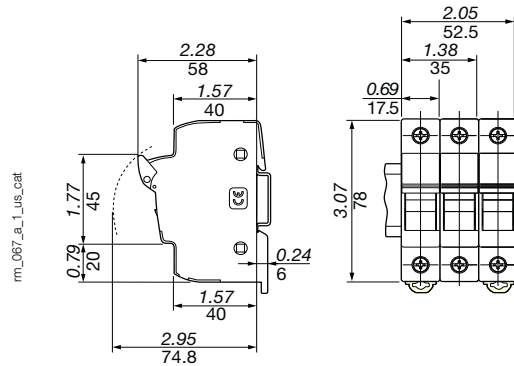
Characteristics according to IEC 60269-2

32 to 100 A

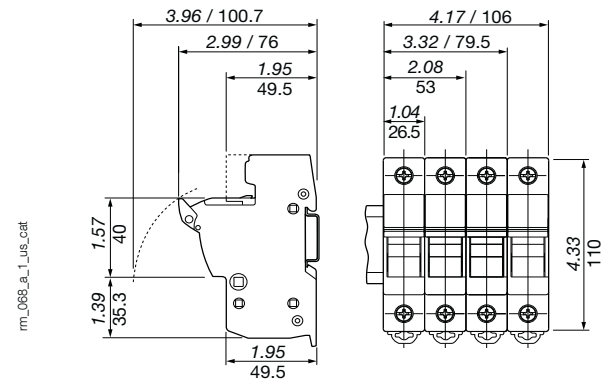
Thermal current I _{th} (20°C)	32 A	50 A	100 A
Fuse size	10 x 38	14 x 51	22 x 58
Rated insulation voltage U _i (V)	690	690	690
Fuse rating (A)			
at 400 VAC	32	50	125
at 500 VAC	32	50	125
at 690 VAC		50	125

Dimensions

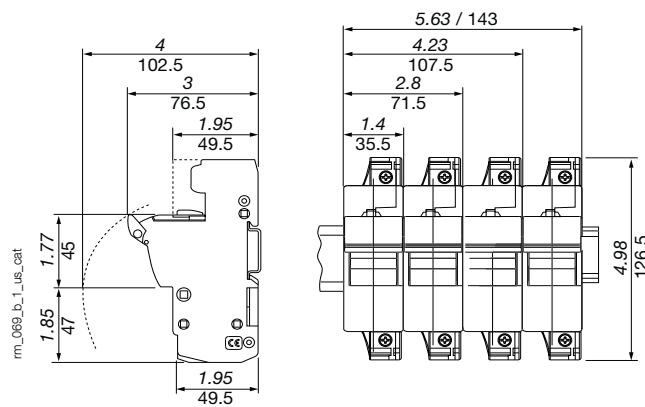
RM 32 A



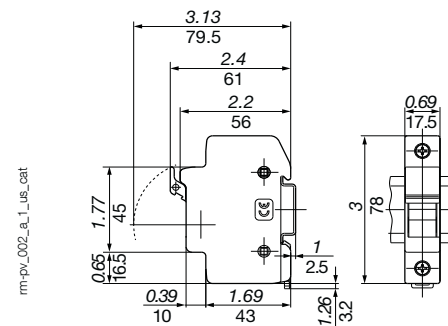
RM / RMS 50 A unipolar and multipolar



RM / RMS 100 A unipolar and multipolar



RM 32 A Ref.: 5601 5005





RM CC

Modular fuse holders for industrial class CC fuses

new



The solution for

- > Distribution boards
- > Motor and Control circuits
- > Transformers protection
- > Measuring devices and multi-function meter protection

Strong points

- > Improved safety
- > High breaking capacity
- > Specific format and accessories
- > Label holder

Compliance with standards

- > UL 4248-1
guide IZLT
file E307648
- > CSA C22.2
class 6225-01
file 265615



Function

RM CC are modular DIN rail mounted fuse holders for UL Class CC fuses. They are available with and without LED indication in 1, 2 and 3-pole versions. RM CC fuse holders are IP20 protected from touch by fingers and provide safe breaking and isolation of electrical circuits up to 600 V / 30 A.

Advantages

Improved safety

- Omnipolar and simultaneous disconnection.
- High dielectric strength. Protection IP2X.

High breaking capacity

Protection against overloads and short-circuits thanks to high breaking capacity fuses (200 kA rms).

Specific format and accessories

- Modular 45 mm cut-out design.
- Padlocking accessory available.

Label holder

- RM CC are equipped with a label holder for an easy circuit identification.

References

RM CC

Basic device Fuse size	30 A Class CC		30 A with LED Class CC	
	To be ordered in multiples of	Reference	To be ordered in multiples of	Reference
No. of poles				
1 P	12	5705 0001	12	5705 0011
2 P	6	5705 0002	6	5705 0012
3 P	4	5705 0003	4	5705 0013

Accessories (non UL certified)

Key handle interlocking system

Use

Padlocking of the handle (padlock not supplied).

Rating (A)	Quantity (units)	Reference
30	5	5701 9040

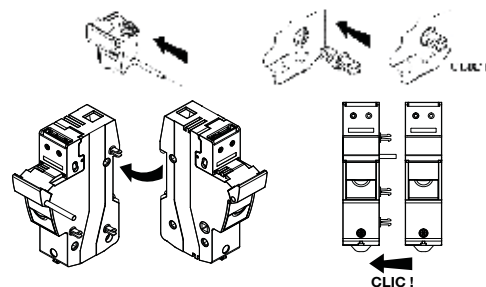


Coupling system

Rating (A)	Quantity (units)	Reference
30	12	5704 0003 ⁽¹⁾

⁽¹⁾ One coupling to attach two RM/CC.

Also sold in bags containing separate components (bags of 100 pieces) for assembling larger quantities. Please contact us.



Reinforced insulation kit

Rating (A)	Reference
30	5701 9010 ⁽¹⁾

⁽¹⁾ 1 reference = 1 set of 10 insulation kits



Characteristics

Characteristics according to UL 4248-4

Rated operational current (A)		30 A
Fuse size		class CC
Rated operating voltage (V)		600
Dielectric strength (V)		2200
LED working voltage ⁽¹⁾		120 ... 600 VAC
Rated power dissipation (W/P)		3
Protection degree		IP20

Class CC fuse protected short-circuit withstand

Prospective short-circuit current (kA rms.)	200
---	-----

Design current derating coefficient for N poles side by side

N = 1 ... 3	1
N = 4 ... 6	0.8
N = 7 ... 9	0.7
N ≥ 10	0.6

Connection

Wire type (solid / stranded Cu)		60 / 75°C
1 wire	Minimum Cu cable cross-section solid / stranded	0.75 mm ² / 18 AWG
	Maximum Cu cable cross-section solid / stranded	16 mm ² / 8 AWG
2 wires	Minimum Cu cable cross-section solid / stranded	0.75 mm ² / 18 AWG
	Maximum Cu cable cross-section solid	10 mm ² / 8 AWG
	Maximum Cu cable cross-section stranded	6 mm ² / 10 AWG
Wire strip (mm / in)		10 / 0.39
Maximum tightening torque		2.5 Nm / 22 lb.in
Fixing		DIN rail 35 mm DIN 46277/1-3 (EN50022)

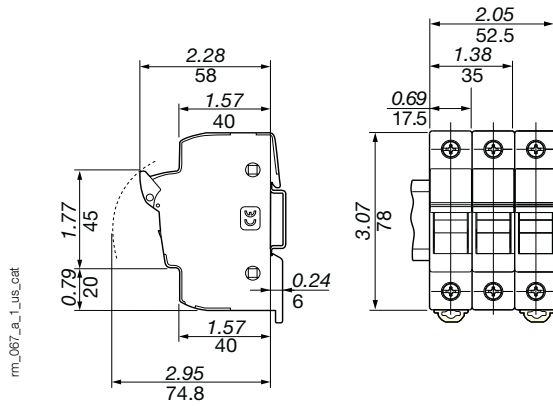
Mechanical characteristics

Weight of 1 P (kg / lb)	0.057 / 0.126
Weight of 2 P (kg / lb)	0.114 / 0.251
Weight of 3 P (kg / lb)	0.170 / 0.375

(1) For fuse holders with LED indicator.

Dimensions (in / mm)

30 A





Fuse combination switches

for specific applications

Despite already offering a wide range of fuse combination switches, SOCOMEC also manufactures specific products suitable for all your requirements and dedicated to specific applications. Some of these products can be seen on these two pages, however this list does not include them all. Please contact us for more information.

Fused changeover switches



Available from 600⁽¹⁾ to 800 A, the **FUSERBLOC changeover switch** range is a great solution for safe guarding of energy supply, protection and disconnection of stand-by pumps and other sensitive loads.

(1) Other ratings: please consult us.

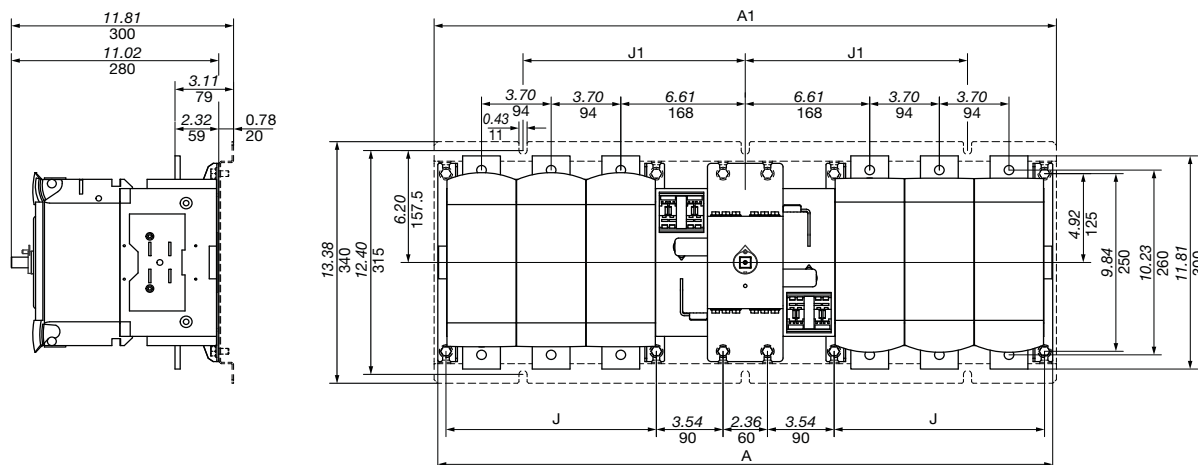
Factory mounted UL 98 certified 600 A and 800 A fusible changeover switches with three stable positions:

I – 0 – II and padlockable in OFF position.

References for UL listed fused changeover switches

Rating (A)	No. of poles	Fuse	Reference	External operation handle	Shaft
600 A	2 P	Class J	3881 2060	S4 type, 4,4X, Black 144D 3113	320 mm 1401 1532
	3 P		3881 3060		
	4 P		3881 4060		
800 A	2 P	Class L	3881 2080		400 mm 1401 1540
	3 P		3881 3080		
	4 P		3881 4080		

Dimensions



fuser-ul_024_a_1_x_cat.ai

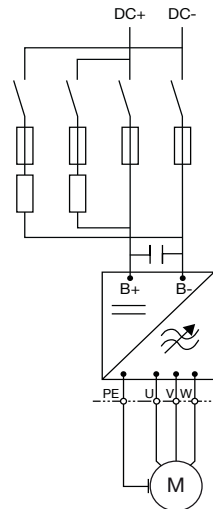
FUSERBLOC LMDC (not UL listed)

fuser-lm_002_a.eps

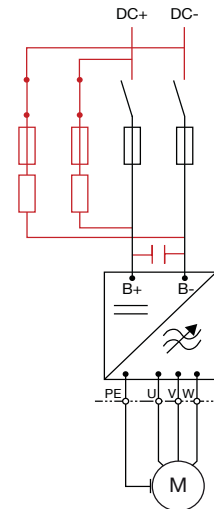


FUSERBLOCs LMDC are designed to perform the maintenance of DC/AC speed drives or PV inverters without stopping the entire installation. This multifunctional device for performing maintenance work on a branch of the electrical system while leaving the rest of the equipment energised. FUSERBLOCs LMDC ensure a safe charge of capacitive loads by limiting high inrush current during power-up of the branch and thus reducing stress to components.

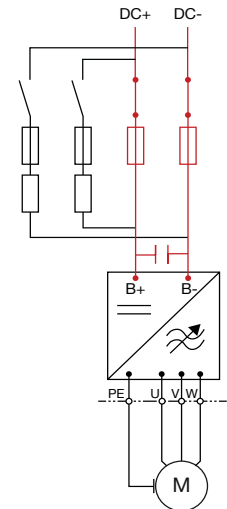
Example: Variable speed drive disconnected from the common DC bus. The inverter capacitors discharge and the direct power up would cause a current draw that could damage the inverter, or even shut down the entire system (voltage drop). This inrush current must be limited.



Disconnected variable speed drive and motor



Manual interlocking and capacitors charging through the precharge circuit while limiting the current draw.



Automatic switching over to the main protection circuit, connecting the VSD to the DC bus.

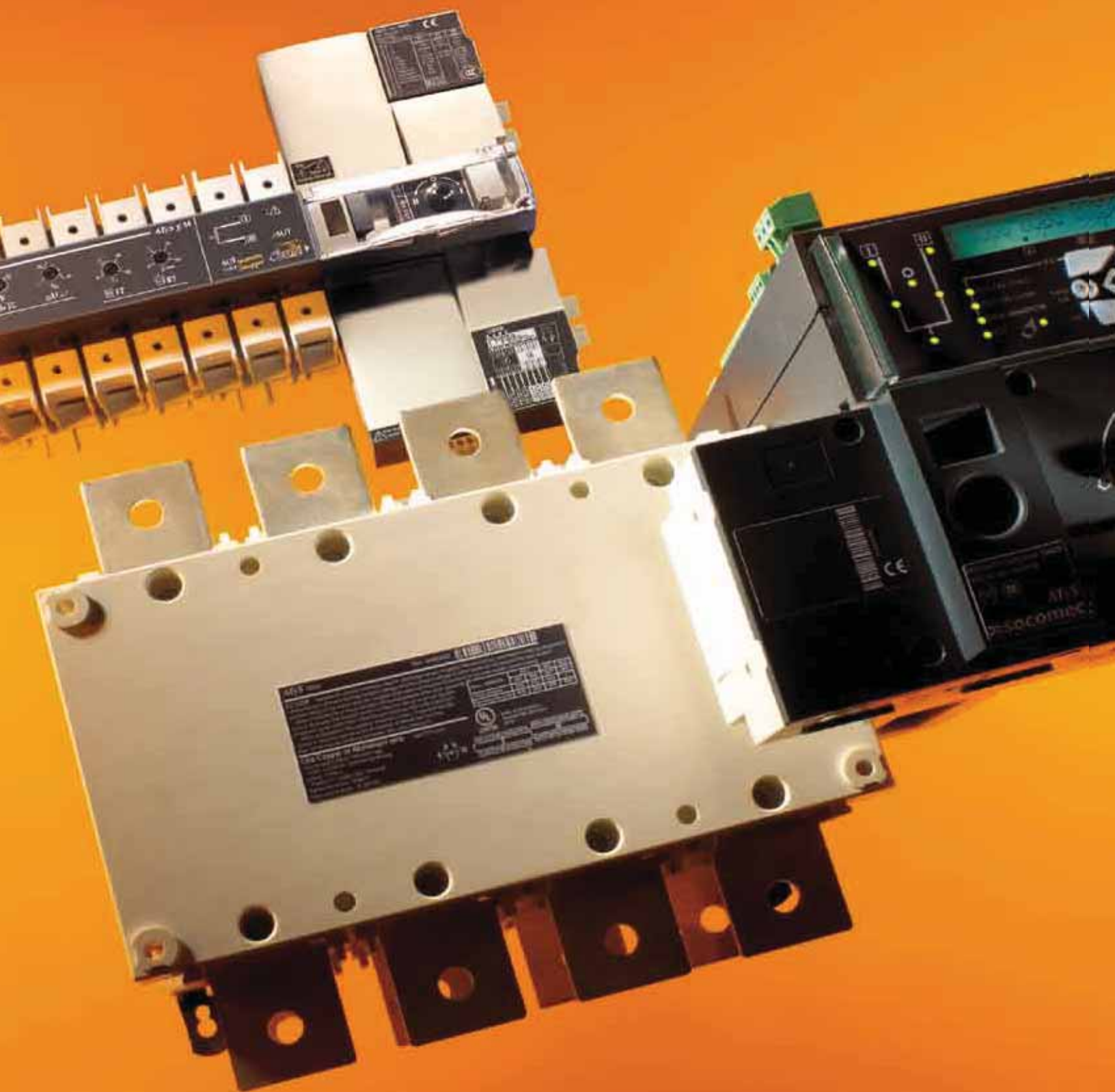
fuser-lm_012_a_1_x_cat.ai

References

Rating (A)	No. of main poles	Fuse size of main poles	Pre-charge poles (DIN 43620)	Reference	External front handle	Direct front handle	Shaft for external front handle
125 A	2	DIN 43620 00	2 x 160 A Size 00	38DR 2012 ⁽¹⁾⁽²⁾	S3 type Black IP65 1433 3111	Black 3899 6011	200 mm 1400 1220
160 A	2	DIN 43620 1	2 x 160 A Size 00	38DR 2016 ⁽¹⁾⁽²⁾			
250 A	2	DIN 43620 2	2 x 160 A Size 00	38DR 2025 ⁽¹⁾⁽²⁾	Red/Yellow IP65 1434 3111	Black 3899 7011	320 mm 1400 1232 500 mm 1400 1250
400 A	2	DIN 43620 3	2 x 160 A Size 00	38DR 2040 ⁽¹⁾⁽²⁾			
630 A	2	DIN 43620 3	2 x 160 A Size 00	38DR 2063 ⁽¹⁾⁽²⁾	S4 type Black IP65 1443 3111		
900 A	2	KN/110	2 x 160 A Size 00	38DR 2090 ⁽¹⁾⁽²⁾			
1100 A	4 (2 //)	DIN 43620 3	2 x 160 A Size 00	38DR 4110 ⁽¹⁾⁽²⁾	Red/Yellow IP65 1444 3111		
1600 A	4 (2 //)	KN/110	2 x 160 A Size 00	38DR 4160 ⁽¹⁾⁽²⁾			

(1) Coil must be ordered separately.

(2) Include standard fuse protection cover. If fuse microswitch is used please use specific fuse protection cover.



Transfer switches

Manual & non-automatic transfer switches *p. 122*

Manual transfer switches



SIRCOVER UL 98/1008
100 to 1200 A
p. 124

Non-automatic transfer switches



ATyS UL 1008
100 to 1200 A
p. 136





Manual & non-automatic transfer switches

A range of manual or non-automatic transfer switches up to 1200 A

MTSE (Manual)	RTSE (Remotely operated)
  SIRCOVER UL 1008 Manual transfer switching equipment	  ATyS UL 1008 Non-automatic transfer switching equipment

Typical applications

The ATyS UL 1008 range provides safe transfer for mains/genset and genset/genset applications.

Mains/Mains	Mains/Genset	Genset/Genset
  ATyS aty-ul_005_b_1_cat	  ATyS aty-ul_006_b_1_cat	  ATyS aty-ul_007_b_1_cat

Function

ATYS and SIRCOVER UL 1008 transfer switching equipment ensure:

- Maintenance free transfer switching equipment with a robust and reliable design.
- Power control and safety between a normal and an alternate source.
- Integrated and robust switch disconnection.
- A stable OFF position with integrated padlocking to facilitate safe downstream maintenance.
- Positive break indication with clear visible position indication I - 0 - II.
- An inherent failsafe mechanical interlock prevents asynchronous paralleling of the two sources.
- Stable positions (I - 0 - II) non-affected by typical vibration and shock.
- Constant pressure on the contacts non affected by network voltage perturbation.
- Quick, easy and extremely safe manual operation.

Along with the above, the ATyS also includes:

- A simple and secure motorization remote controls interface.
- Integrated switch position auxiliary contacts.
- An active "product availability" status feedback.
- Compatibility with virtually any make of ATS, AMF and Genset controller provided with volt-free contacts.

Power supply continuity for most electrically controlled total system optional standby power applications.

SOCOMECL UL products

The ATYS UL is a full load break transfer switch where the main switching components are from proven technology devices (SIRCOVER - Manual Transfer Switches) also fulfilling requirements in UL 98 and IEC 60947-3 standards. The transfer is done in open transition with a minimum supply interruption during transfer ensuring full compliance with UL 1008 and IEC 60947-6-1 international TSE standards.

As a stand-alone product, the ATyS is a non-automatic power transfer switch (an electrically operated transfer switch that is not self-acting), generally used in applications where the load is non-emergency, does not require automatic transfer and where operating persons can be made available to initiate the transfer.

The electrical control of the ATyS UL may be direct through push-buttons and dry contacts fitted onto the enclosure door or through a dedicated local or remote ATS controller.

Your preferred brand of ATS controller, genset / AMF controller or power / building management system, may easily be paired with the ATyS to provide a complete automatic transfer switch to suit your needs.

ATyS have three stable positions (I-0-II) which can be selected remotely, via volt-free contacts, or directly, through use of the emergency operation handle; emergency operation requires no supply to be present. The OFF position provides disconnection of both supplies ensuring downstream isolation for safe maintenance.

UL Applications

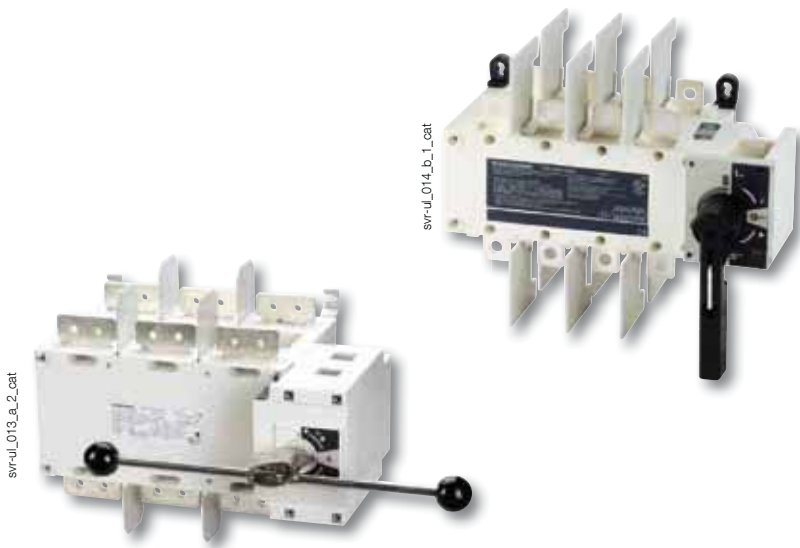
ATyS UL 1008 transfer switches are rated from 100 to 1200 A and designed for use in total system optional standby power applications for the safe transfer of a load supply between a normal and an alternate source.

Optional standby systems are those systems installed to provide an alternate source of power for structures for which a power outage could cause discomfort or interruption or damage to products or processes.



SIRCOVER UL 98/1008

Manually operated transfer switching equipment
from 100 to 1200 A



The solution for

- > Manufacturing industry
- > Power distribution
- > Domestic



Strong points

- > Stable positions
- > Compact design
- > On-load switching
- > Reliability

Conformity to standards

- > UL 1008
guide WPYV
file 317092
- > UL 98
guide WHTY
file 201138
- > CSA 22.2#4
class 4651-02



*UL 98 and CSA from 600-1200 A. Specific
reference from 100 to 400 A on request.*

Enclosed solutions

SOCOMEc offers a range
of pre-equipped enclosures



Enclosed
SIRCOVER

Function

SIRCOVER UL 98/1008 are heavy duty manual transfer switches. They ensure switching transfer of sources or transfer of two low voltage circuits on load as well as their safe disconnection.

These switches are extremely durable and are tested and approved for use in the most demanding applications, such as resistive load or total system applications.

Advantages

Stable positions

SIRCOVERs have three stable positions which are not affected by voltage drops or vibrations, thus protecting your load against network interference.

Compact design

The SIRCOVER are based on a back-to-back switching technology, providing a compact solution.

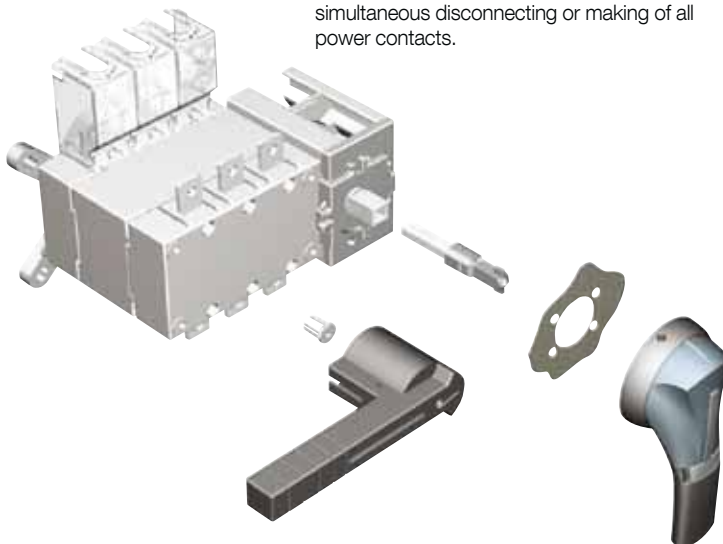
On-load switching

The SIRCOVER UL enables secure and reliable switching, without the need for pre-breaking upstream.

Reliability

The SIRCOVER has double breaking per pole achieved through its sliding bar contacts system.

The quick opening and rapid closure provides simultaneous disconnecting or making of all power contacts.

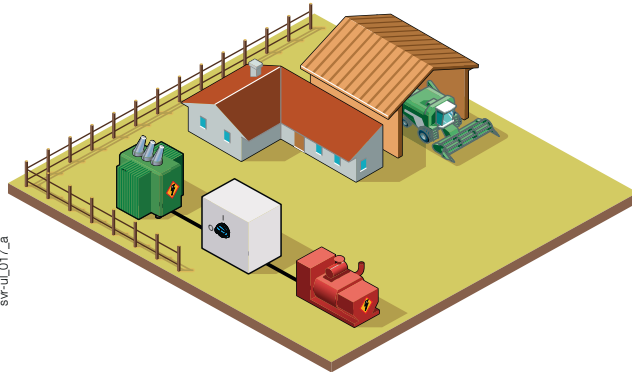


Typical application

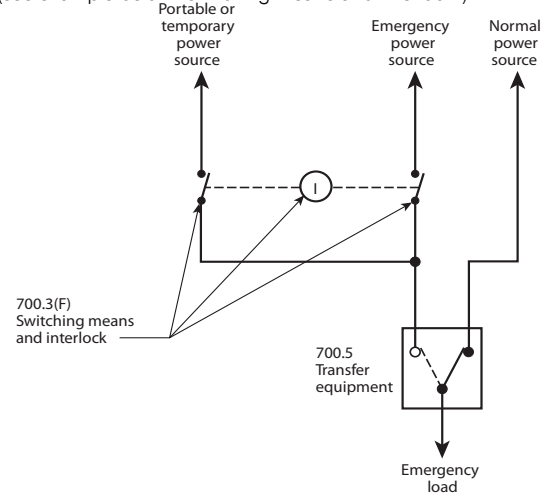
The SIRCOVER UL 98/1008 range provides safe transfer and disconnection within your LV installation for optional standby systems (as described in NEC Article 702).

Standard applications also include:

- Transfer from Normal power supply to the backup genset source (emergency supply).
- Safe on load transfer.
- Changing motor phase rotation and equipment grounding connection.



The SIRCOVER UL 98/1008 can also be used as switching means to a temporary power supply in emergency systems (systems needed for human safety) as described in article 700.3(F) of the NEC (see example below "switching means and interlock").



Example of connection for temporary or portable power ⁽¹⁾.

(1) National Fire Protection Agency, NFPA 70: National Electrical Code®, 2017 Edition. Quincy, MA: National Fire Protection Agency, 2016, p. 70–581.

SOCOMEc solution up to 1200 A

svr-ul_014_b_2_cat



UL 1008 Manual Transfer Switch

From **100 to 400 A** for resistive and total systems applications.
UL 98 / CSA 22.2#4 versions on request.

svr-ul_013_a_2_cat



UL 1008 and UL 98 Manual Transfer Switch

From **600 to 1200 A** for resistive and total systems applications.
Has UL 98/CSA 22.2#4 certification.

IEC solution up to 3200 A

The SIRCOVER UL 1008 is part of a large range that includes an IEC products of standalone or enclosed manual transfer switches and manual bypass switches with overlapping options. Contact us for further information on our complete range.



SIRCOVER UL 98/1008

Manually operated transfer switching equipment
from 100 to 1200 A

References

SIRCOVER UL 98/1008

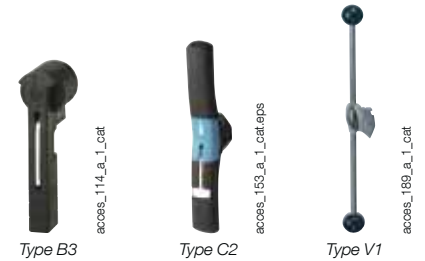
Rating (A)	Frame size	No. of poles	Switch body	Direct handle	External handle	Shaft for external handle	Bridging bars	Auxiliary contacts	Terminal screens
100 A*	B4	2 P	4150 2012	Black 4199 4012	S2 type Black I - 0 - II 4, 4X 142D 2113	S2 type 200 mm 7.9 inches 1400 1020 320 mm 12.6 inches 1400 1032 400 mm 15.7 inches 1400 1040	2 P 4159 2021 3 P 4159 3021 4 P 4159 4021	Contact NO/NC 4159 0021 Low level 4159 0022	2 / 3 P 4158 3021 4 P 4158 4021
		3 P	4150 3012						
		4 P	4150 4012						
200 A*		2 P	4150 2022						
		3 P	4150 3022						
		4 P	4150 4022						
260 A*	B5	2 P	4150 2026	S2 type Black I - 0 - II 4, 4X 142D 2113 S3 type Black I - 0 - II 4, 4X 143D 3113	S2 type 200 mm 7.9 inches 1400 1020 320 mm 12.6 inches 1400 1032 400 mm 15.7 inches 1400 1040	2 P 4159 2041 3 P 4159 3041 4 P 4159 4041	Contact NO/NC 4159 0021 Low level 4159 0022	2 / 3 P 4158 3041 4 P 4158 4041	
		3 P	4150 3026						
		4 P	4150 4026						
400 A*		2 P	4150 2042						
		3 P	4150 3042						
		4 P	4150 4042						
600 A	B6	3 P	4150 3060	Black 4199 7012	S3 type Black I - 0 - II 4, 4X 143D 3113	S3, S4 type 200 mm 7.9 inches 1401 1520 320 mm 12.6 inches 1401 1532	3 P 4159 3063 4 P 4159 4063	Contact NO/NC as standard	3 P 1609 3063 4 P 1609 4063
		4 P	4150 4060						
800 A	B7	3 P	4150 3080	Black 4199 7062	S4 type Black I - 0 - II 4, 4X 144D 3813⁽¹⁾	400 mm 15.7 inches 1401 1540	3 P 4159 3080 4 P 4159 4080	Contact NO/NC as standard	3 P 1609 3080 4 P 1609 4080
		4 P	4150 4080						
1200 A		3 P	4150 3120						
		4 P	4150 4120						

Common accessories - more available on next pages.

* From 100 to 400 A, UL 98 Specific reference upon request.

Direct handle

Rating (A)	Type	Color	Handle type	Reference
100 ... 400	B3	Black	1 lever	4199 4012
600	J4	Black	2 levers	4199 7012
800 ... 1200	V1	Metal	2 levers	4199 7062



External handle

Rating (A)	Handle type	Color	Nema type	Lockable in 3 positions	Reference
100 ... 400	S2	Black	4, 4X	no	142D 2113
100 ... 400	S2	Red/Yellow	4, 4X	no	142E 2113
100 ... 400	S2	Black	1, 3R, 12	no	142F 2113
100 ... 400	S2	Red/Yellow	1, 3R, 12	no	142G 2113
100 ... 400	S2	Black	4, 4X	yes	142D 2813
100 ... 400	S2	Red/Yellow	4, 4X	yes	142E 2813
100 ... 400	S2	Black	1, 3R, 12	yes	142F 2813
100 ... 400	S2	Red/Yellow	1, 3R, 12	yes	142G 2813
260 ... 600	S3	Black	4, 4X	no	143D 3113
260 ... 600	S3	Red/Yellow	4, 4X	no	143E 3113
260 ... 600	S3	Black	1, 3R, 12	no	143F 3113
260 ... 600	S3	Red/Yellow	1, 3R, 12	no	143G 3113
260 ... 600	S3	Black	4, 4X	yes	143D 3813
260 ... 600	S3	Red/Yellow	4, 4X	yes	143E 3813
260 ... 600	S3	Black	1, 3R, 12	yes	143F 3813
260 ... 600	S3	Red/Yellow	1, 3R, 12	yes	143G 3813
800 ... 1200	S4	Black	4, 4X	no	144D 3113
800 ... 1200	S4	Black	1, 3R, 12	no	144E 3113
800 ... 1200	S4	Black	1, 3R, 12	no	144F 3113
800 ... 1200	S4	Red/Yellow	1, 3R, 12	no	144G 3113
800 ... 1200	S4	Black	4, 4X	yes	144D 3813
800 ... 1200	S4	Red/Yellow	4, 4X	yes	144E 3813
800 ... 1200	S4	Black	1, 3R, 12	yes	144F 3813
800 ... 1200	S4	Red/Yellow	1, 3R, 12	yes	144G 3813

Use

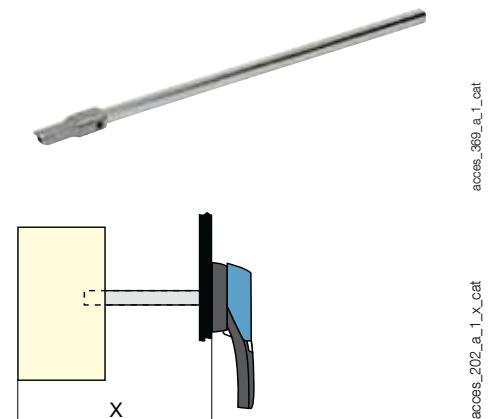
The handle interlocking function prevents the user from opening the door of the enclosure when the switch is in the "ON" position. Opening the door when the switch is in the "ON" position is possible by defeating the interlocking function (not S5 and V handles) with the use of a tool (authorized persons only).

The interlocking function is restored when the door is re-closed.



Shaft for external handle

Rating (A)	Handle type	Length (in)	Length (mm)	Dimension X (in)	Dimension X (mm)	Reference
100 ... 400	S2	7.9	200	10 ... 14.3	254 ... 362	1400 1020
100 ... 400	S2	12.6	320	10 ... 19	254 ... 482	1400 1032
100 ... 400	S2	15.7	400	10 ... 22.1	254 ... 562	1400 1040
260 ... 400	S3	7.9	200	12 ... 18.4	305 ... 467	1401 1520
260 ... 400	S3	12.6	320	12 ... 23.1	305 ... 587	1401 1532
260 ... 400	S3	15.7	400	12 ... 26.3	305 ... 667	1401 1540
260 ... 600	S3	7.9	200	20 ... 23.4	508 ... 594	1401 1520
260 ... 600	S3	12.6	320	20 ... 28.1	508 ... 714	1401 1532
260 ... 600	S3	15.7	400	20 ... 31.3	508 ... 794	1401 1540
800 ... 1200	S4	7.9	200	20 ... 23.4	508 ... 594	1401 1520
800 ... 1200	S4	12.6	320	20 ... 28.1	508 ... 714	1401 1532
800 ... 1200	S4	15.7	400	20 ... 31.3	508 ... 794	1401 1540
800 ... 1200	V1 / S5	12.6	320	20 ... 28.1	508 ... 714	4199 3018
800 ... 1200	V1 / S5	15.7	400	20 ... 31.3	508 ... 794	4199 3019



Accessories (continued)

Bridging bars

Use

Creation of a common point, above or below the switch, between positions I and II.
Please check the numbers of poles needed.

Rating (A)	No. of poles	Reference
100 ... 200	2 P	4159 2021
100 ... 200	3 P	4159 3021
100 ... 200	4 P	4159 4021
260 ... 400	2 P	4159 2041
260 ... 400	3 P	4159 3041
260 ... 400	4 P	4159 4041
600	3 P	4159 3063
600	4 P	4159 4063
800 ... 1200	3 P	4159 3080
800 ... 1200	4 P	4159 4080



access_205_a_1_cat

Terminal protection screen

Use

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

Rating (A)	No. of poles	Reference
100 ... 200	2/3 P	4158 3021
100 ... 200	4 P	4158 4021
260 ... 400	2/3 P	4158 3041
260 ... 400	4 P	4158 4041
600	3 P	1609 3063
600	4 P	1609 4063
800 ... 1200	3 P	1609 3080
800 ... 1200	4 P	1609 4080



access_207_a_1_cat

Auxiliary contacts

Use

Pre-break and signalization of positions.
For low level ACs and other ACs contact us.

Electrical characteristics

A300.

NO/NC auxiliary contact

Rating (A)	Contact (s)	Reference
100 ... 400	NO/NC on position 1 and 2	4159 0021
100 ... 400	Low level NO/NC on position 1 and 2	4159 0022
600 ... 1200	NO/NC on position 1 and 2	as standard



access_065_a_1_cat



access_065_a_1_cat

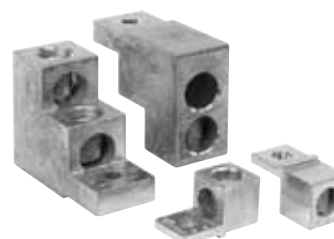
Terminal lugs

Use

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

Rating (A)	Wires range	No wires per lug	Lugs per kit	Wires	Reference
100 ... 200	6 - 300MCM	1	2	Cu / Al	3954 2020
100 ... 200	6 - 300MCM	1	3	Cu / Al	3954 3020
100 ... 200	6 - 300MCM	1	4	Cu / Al	3954 4020
260 ... 400	4 - 600MCM	1	2	Cu / Al	3954 2040
260 ... 400	4 - 600MCM	1	3	Cu / Al	3954 3040
260 ... 400	4 - 600MCM	1	4	Cu / Al	3954 4040
600	2x (#2 - 600MCM)	2	3	Cu / Al	3954 3060
600	2x (#2 - 600MCM)	2	4	Cu / Al	3954 4060
800 ... 1200 ⁽¹⁾	2x 2x(#2 - 600MCM)	2	6	Cu / Al	3954 3120
800 ... 1200 ⁽¹⁾	2x 2x(#2 - 600MCM)	2	8	Cu / Al	3954 4120

(1) To be used to connect 4 wires on one terminal. In such a case, 2 lugs are placed side-by-side on one terminal. Please refer to dimensions diagram



ul_032_a

Characteristics

Characteristics according to UL 1008

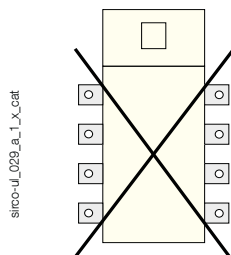
General use rating (A)	100 A	200 A	260 A	400 A	600 A	800 A	1200 A
Frame size	B4		B5		B6	B7	
Operation voltage 2 P - 3/4 P	240/600	240/600	240/600	240/600	-/600	-/600	-/600
Short circuit rating at 600 VAC with fuses (kA)							
Short circuit rating at 600 VAC (kA)	100	100	65	65	100	100	100
Type of fuse	J	J	J	J	L	L	L
Max fuse rating (A)	200	400	600	600	800	1000	1600
Short circuit rating at 600 VAC with "Specific Circuit Breaker" (kA)							
Square D JJ breaker 250 A - 2 P 240 VAC - 3/4 P 480 VAC	65	65	-	-	-	-	-
Schneider Electric NSX-F 160 A - 3/4 P 480 VAC	35	-	-	-	-	-	-
Short circuit rating at 600 VAC with "Any Breaker" (kA)							
Short circuit rating (kA)	10	10	14	14	35	35	35
Short circuit capacity (ms)	25	25	50	50	50	50	50
Rated operational current							
240 VAC "Total System" (A)	100	200	260	400	400	700	700
240 VAC resistive load (A)	100	200	260	400	600	800	1200
480 VAC "Total System" (A)	100	100	260	400	350	600	600
480 VAC resistive load (A)	100	200	260	400	600	800	1200
600 VAC "Total System" (A)	100	100	200	200	-	-	-
600 VAC resistive load (A)	100	200	260	400	600	800	1200
Mechanical endurance							
Endurance (number of operating cycles)	6050	6050	6050	4050	3050	3050	3050
Connection terminals							
Min. connection section / AWG	#6	#6	#4 / 2 X 1 / 0	#4 / 2 X 1 / 0	2 x #2	2 x #2	4 x #2
Max. connection section / AWG	300MCM	300MCM	600MCM / 2 X 250MCM	600MCM / 2 X 250MCM	2x 600MCM	2x 600MCM	4 x 600MCM

Characteristics according to UL 98/CSA 22.2#4

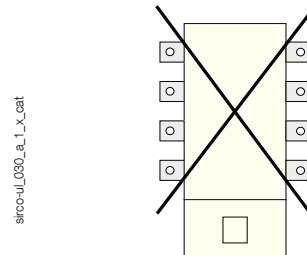
General use rating at 600 VAC and 250 VDC (A)	Specific reference upon request				600 A	800 A	1200 A
Frame size					B6	B7	
Short-circuit rating at 600 VAC (kA)	-	-	-	-	200	100	100
Type of fuse	-	-	-	-	J	L	L
Max. fuse rating (A)	-	-	-	-	600	800	1200
Max. motor, hp / FLA 3 ph motor max.							
220-240 VAC	-	-	-	-	200 / 480	-	-
440-480 VAC	-	-	-	-	400 / 477	-	-
600 VAC	-	-	-	-	500 / 472	-	-
Mechanical characteristics							
Endurance (number of operating cycles)	-	-	-	-	5000	3500	2500
Operating torque (lbs.in/Nm)	-	-	-	-	327.5/37	442.5/50	442.5/50
Auxiliary contacts							
Electrical characteristics	A300	A300	A300	A300	A300	A300	A300

Mounting orientation

100 to 400 A / B4 - B5



600 to 1200 A / B6 - B7

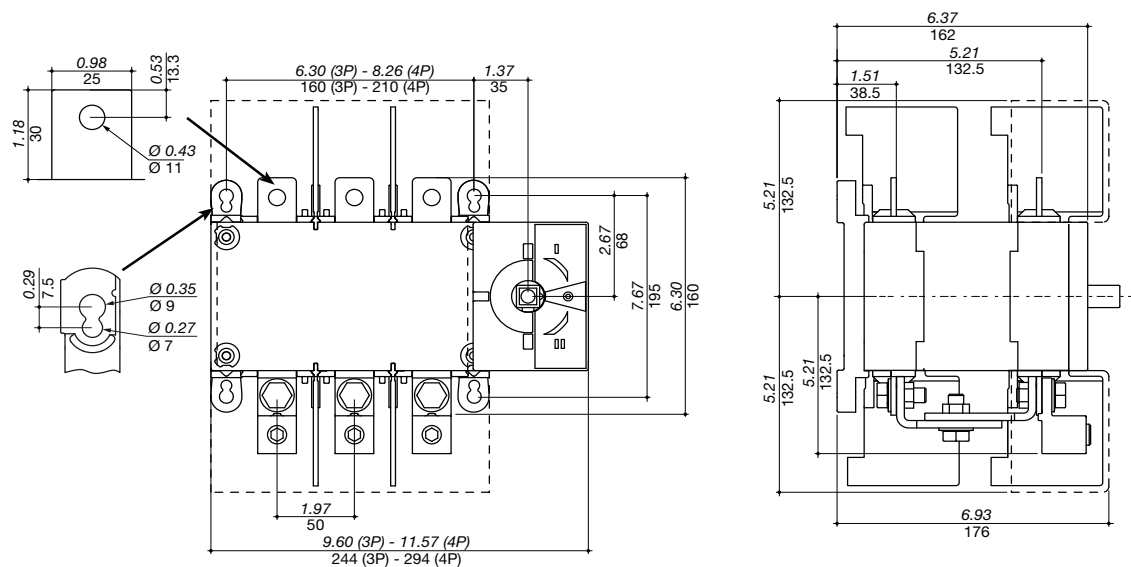


SIRCOVER UL 98/1008

Manually operated transfer switching equipment
from 100 to 1200 A

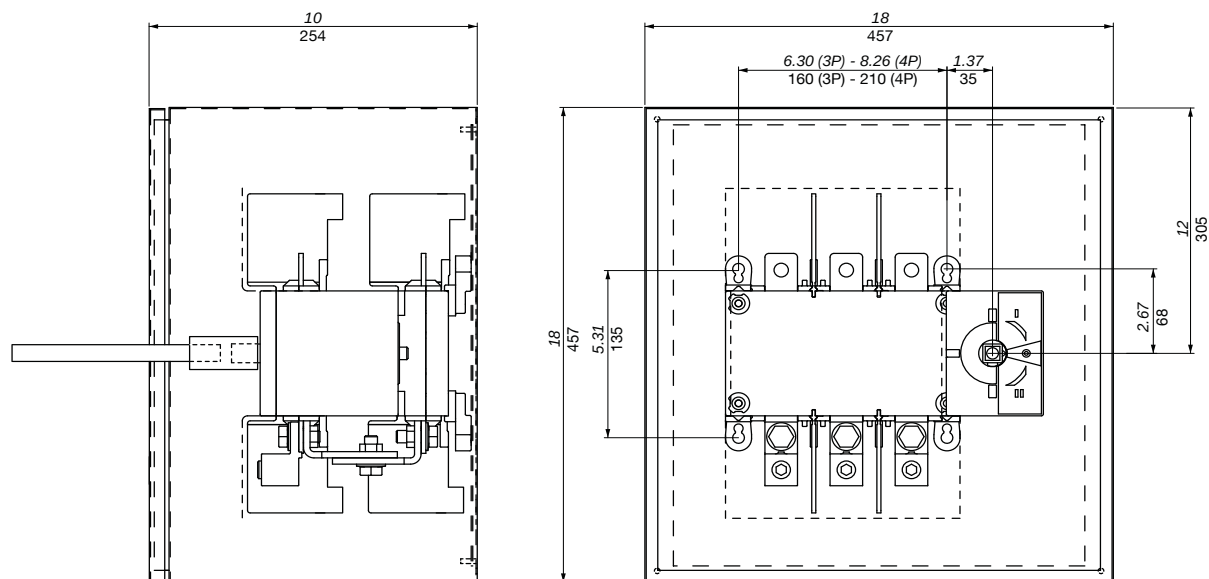
Dimensions (in/mm)

100 to 200 A / B4



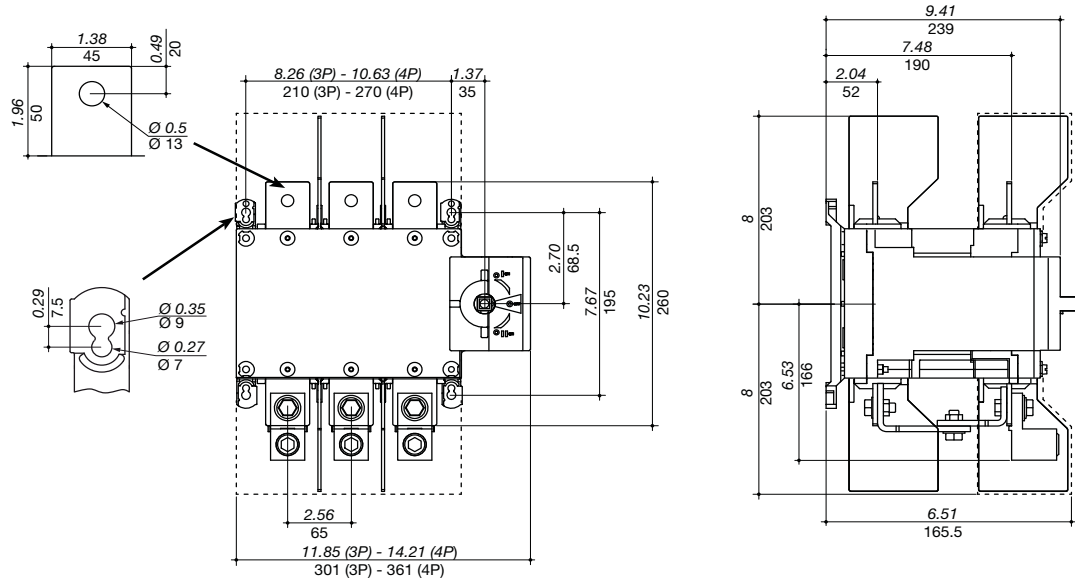
svr-ul_015_d_1_x_cat

Minimum enclosure dimensions



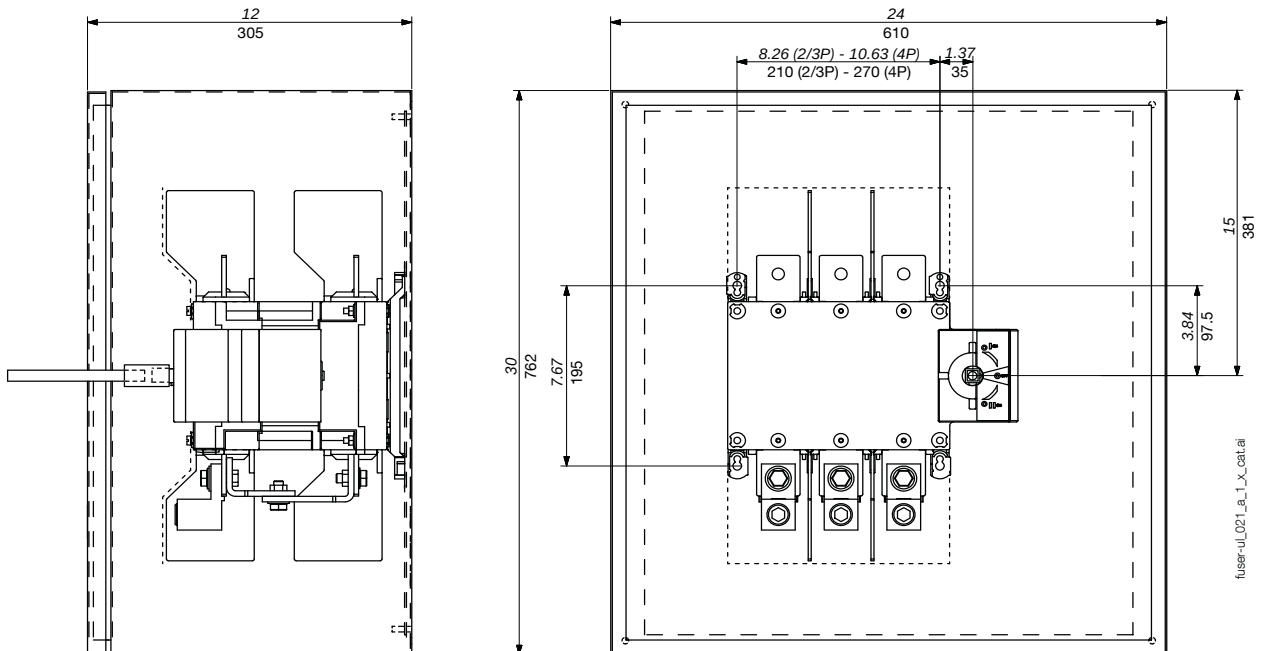
tuser-ul_020_a_1_x_cat.a

260 to 400 A / B5



svr-ul_016_b_1_x_cat

Minimum enclosure dimensions



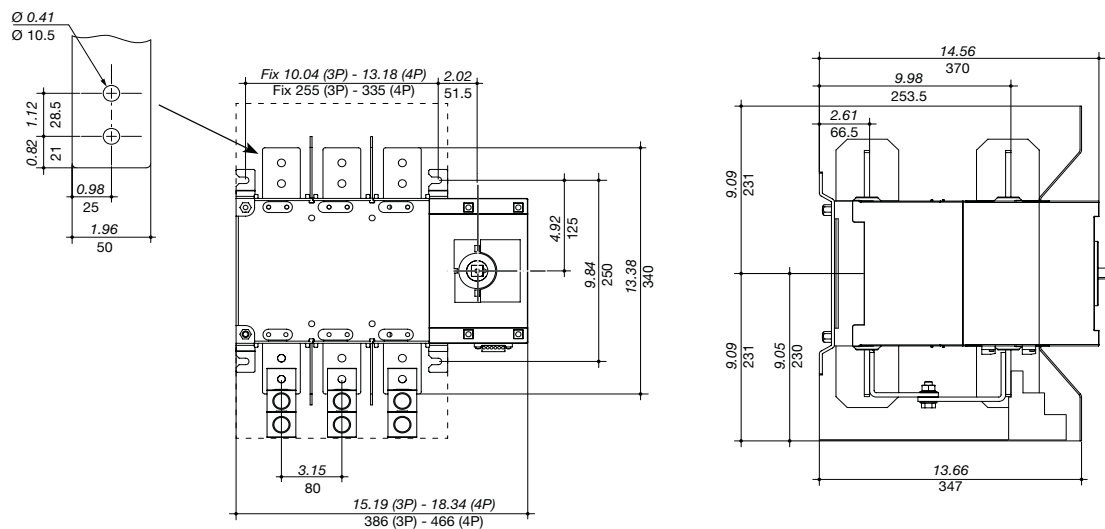
fuser-ul_021_a_1_x_cat

SIRCOVER UL 98/1008

Manually operated transfer switching equipment
from 100 to 1200 A

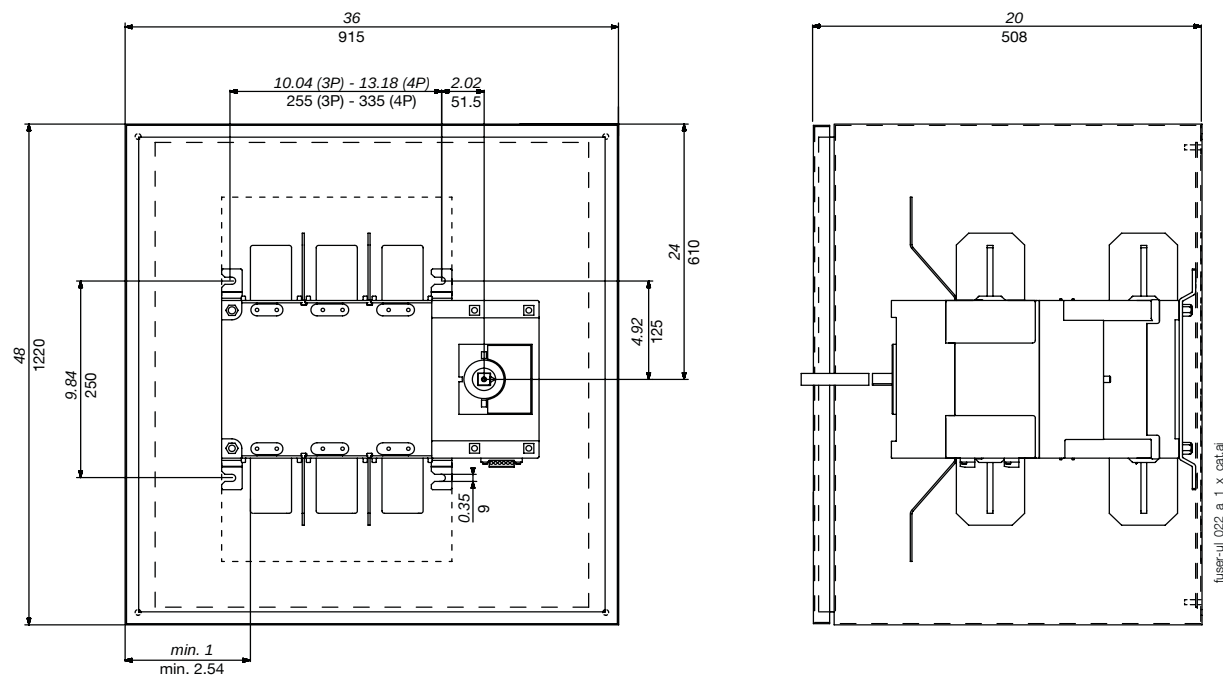
Dimensions (in/mm) (continued)

600 A / B6



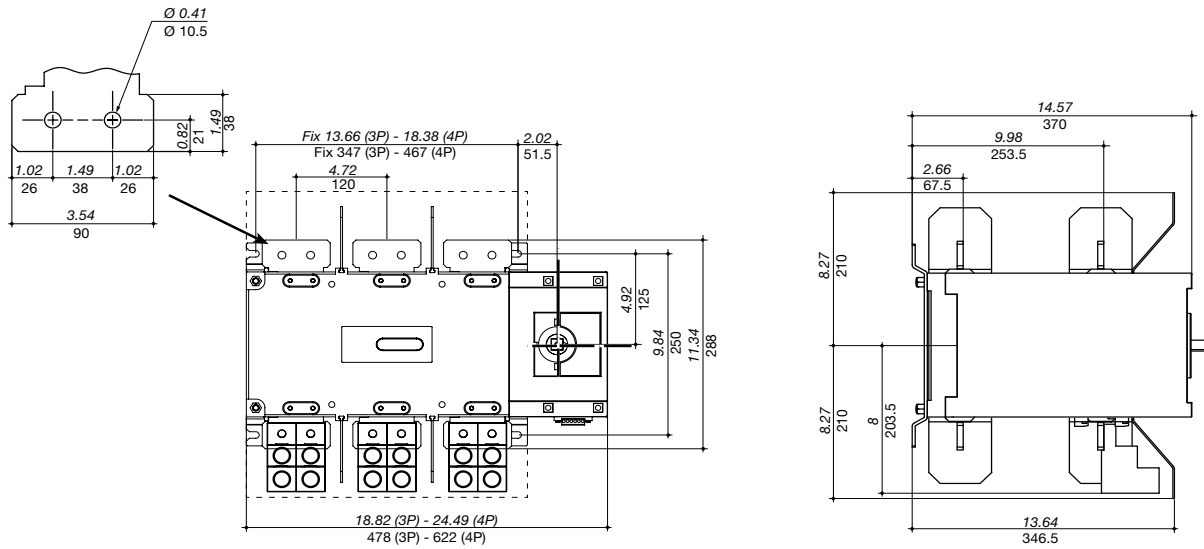
svr-ul_003_b_1_x_cat

Minimum enclosure dimensions

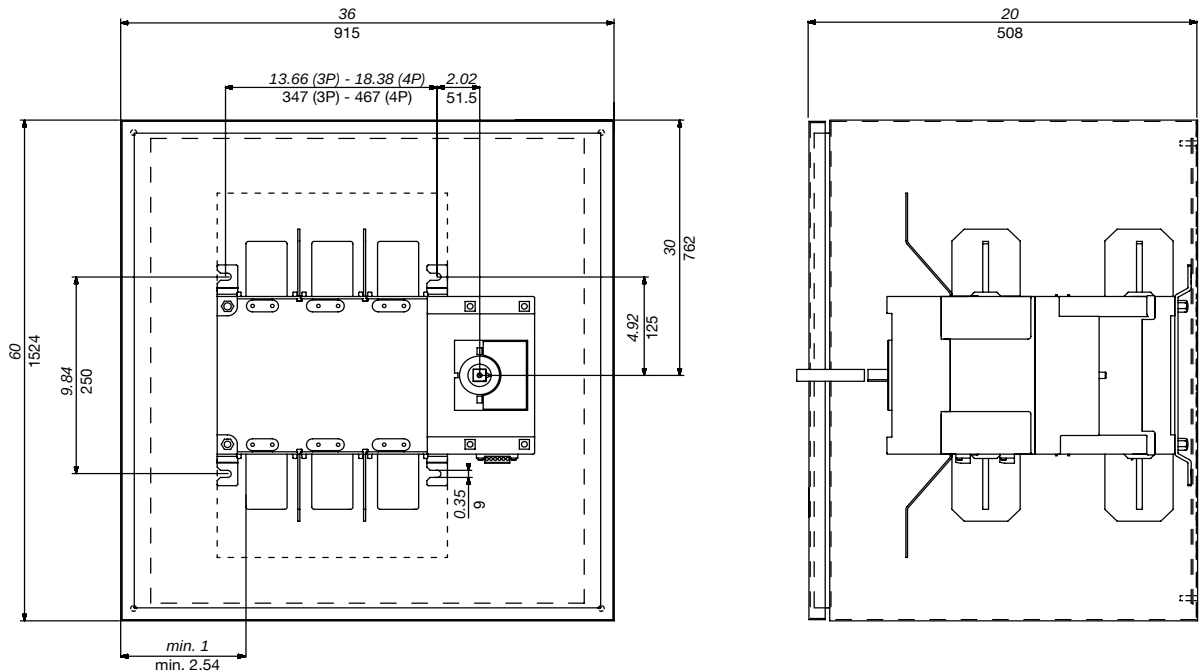


fuser-ul_022_a_1_x_cat

800 to 1200 A / B7

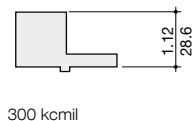
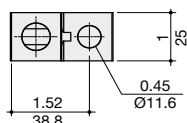


Minimum enclosure dimensions

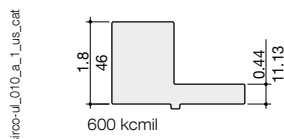
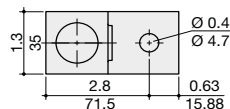


Terminal lugs (in/mm)

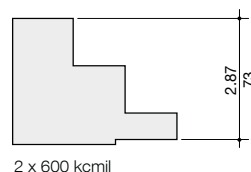
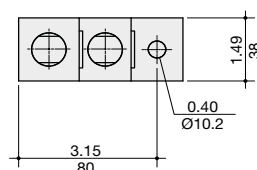
100 to 200 A / B4



260 to 400 A / B5



600 to 1200 A / B6 - B7



External handles dimensions (in/mm)

100 to 400 A / B4 - B5

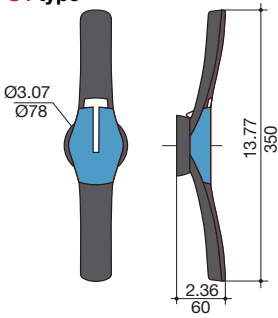
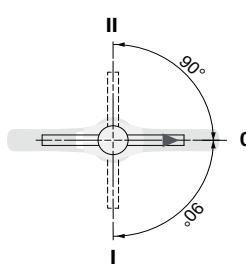
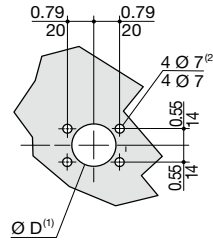
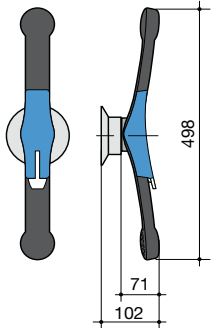
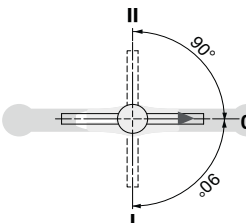
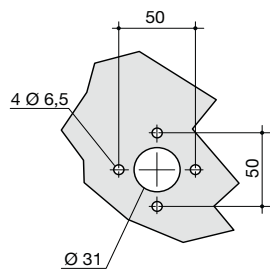
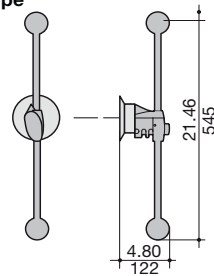
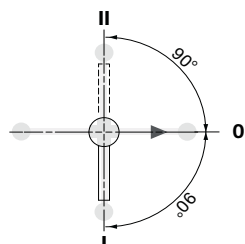
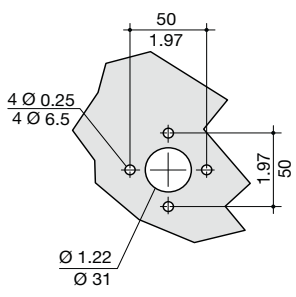
Handle type	Front operation Direction of operation	Door drilling
S2 type		

260 and 600 A / B5 - B6

Handle type	Front operation Direction of operation	Door drilling
S3 type		

External handles dimensions (in/mm) (continued)

800 to 1200 A / B7

Handle type	Front operation Direction of operation	Door drilling
S4 type 		
S5 type with V Escutcheon 		
V1 type 		

poign_065_a_1_gb_cat

poign_047_a_1_gb_cat

poign_066_a_1_us_cat



ATyS UL 1008

Non-automatic Transfer Switching Equipment
from 100 to 1200 A



Function

ATyS non-automatic transfer switches are designed for use in total system optional standby applications for the safe transfer between a normal and an alternate power source.

The changeover is done in open transition and with minimum supply interruption during transfer ensuring full compliance with UL 1008 and IEC 60947-6-1. The ATyS is a full on-load disconnect where the main components are based on proven technology also meeting requirements in UL 98 and IEC 60947-3 standards.

Advantages

Robust and Reliable design

ATyS is a remotely operated transfer switch tested in full compliance with UL 1008. The design integrates a failsafe mechanical interlock to ensure that the main source is never inadvertently connected to the alternate. The stable position design ensures that the switch is unaffected by vibration or network voltage perturbation. The ATyS also includes a removable handle for on load manual operation. This is extremely safe and easy to use. The ATyS also includes a fully rated switched neutral pole.

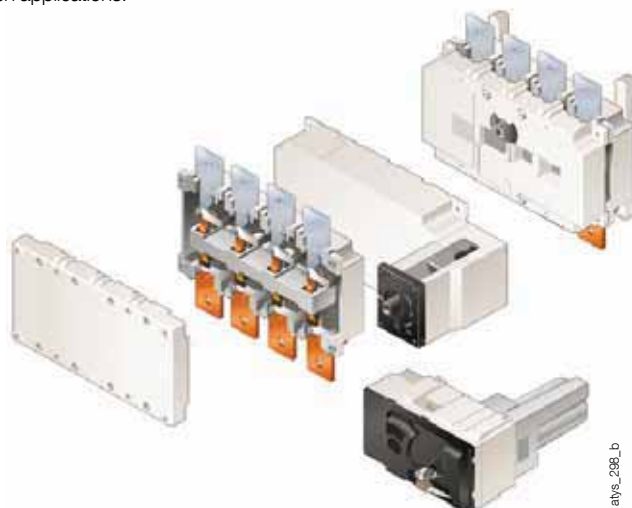
Maintenance free

The self-cleaning contacts of the ATyS allow the power section to be maintenance free. For safe downstream maintenance the ATyS includes a facility for isolation and padlocking in the zero position.

In the unlikely event of a motorization failure, the ATyS is designed in a way that the motorization can be replaced easily and very quickly. Furthermore, the ATyS remains manually operational with or without the motorization in place.

Compatible with virtually any ATS controls

The ATyS is directly compatible with virtually any transfer switching control solution that provides volt free contacts. This allows the ATyS to be combined with most ATS controls available on the market and then used in automatic transfer switch applications.



The solution for

- > Commercial
- > Light Industry
- > Residential applications



Strong points

- > Robust and reliable design
- > Compatible with virtually any ATS controller
- > On-load manual operation
- > Maintenance free

Conformity to standards

- > UL 1008
guide WPYV
file 317092



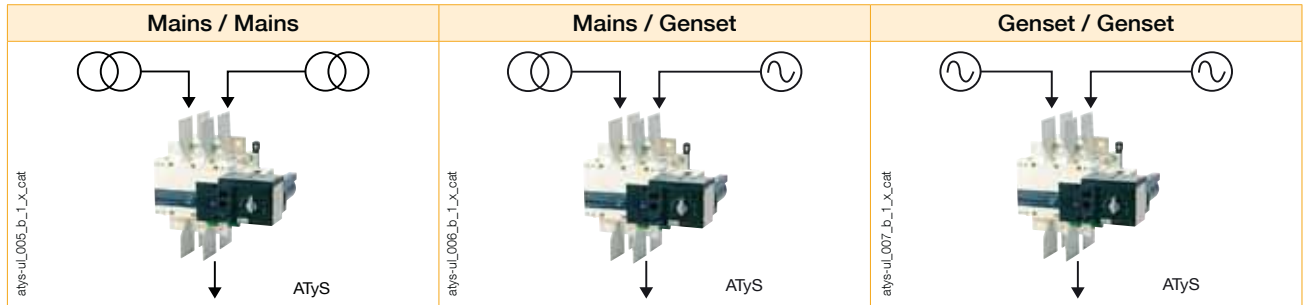
Product reference on request.

Your choice of ATS controls

- > Your preferred brand of ATS controller, genset/AMF controller or power/building management system, may easily be paired with the ATyS to provide a complete automatic transfer switch that perfectly suits your needs.

Typical applications

The ATyS UL 1008 range provides safe transfer for mains/mains, mains/genset and genset/genset applications.

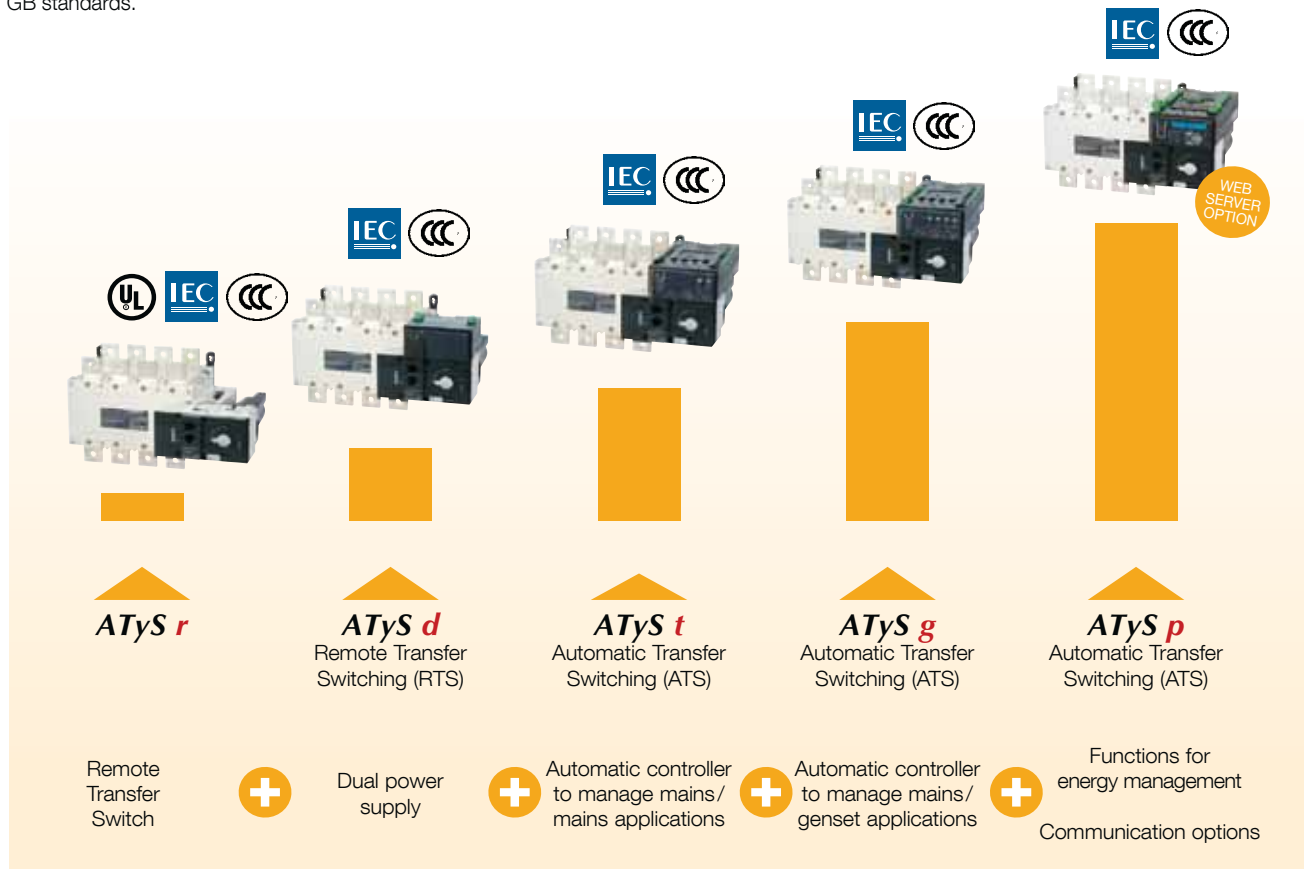


Part of a globally recognized range

The ATyS UL 1008 is part of a large family of products including a complete range of remotely operated and fully automatic transfer switches that comply to IEC and GB standards.

The ATyS range is a world renowned product family trusted by some of the largest manufacturers in the genset industry.

The key to success has been through reliable power availability provided by products that are safe and easy to use.



Please don't hesitate to contact SOCOMEC with any questions regarding the IEC ATyS range of products above rated from 125 to 3200 A.

ATyS UL 1008

Non-automatic Transfer Switching Equipment

from 100 to 1200 A

References

ATYS UL 1008

Rating (A)	Frame size	No. of poles	ATyS	Bridging bars	Terminal screens	Auxiliary contact	Lug kits
100 A	B4	2 P	9723 2010	2 P	2/3 P 4158 3021 4 P 4158 4021	NO/NC 4159 0021	2 P
		3 P	9723 3010	4159 2021			3954 2020
		4 P	9723 4010	3 P			3 P
		2 P	9723 2020	4159 3021			3954 3020
200 A		3 P	9723 3020	4 P			4 P
		4 P	9723 4020	4159 4021			3954 4020
260 A	B5	2 P	9723 2026	2 P	2 / 3 P 4158 3041 3 P 4159 3041 4 P 4158 4041	Low level 4159 0022	2 P
		3 P	9723 3026	4159 2041			3954 2040
		4 P	9723 4026	3 P			3 P
		2 P	9723 2040	4159 3041			3954 3040
400 A		3 P	9723 3040	4 P			4 P
		4 P	9723 4040	4159 4041			3954 4040
600 A	B6	3 P	9723 3060	4159 3063	1609 3063	Contact NO/NC as Standard	3954 3060
		4 P	9723 4060	4159 4063	1609 4063		3954 4060
800 A	B7	3 P	9723 3080	3 P	3 P		3 P
		4 P	9723 4080	4159 3080	1609 3080		3954 3120
		3 P	9723 3120	4 P	4 P		4 P
1200 A		4 P	9723 4120	4159 4080	1609 4080		3954 4120

Common accessories - more available on next pages.

Accessories

Terminal screens

Rating (A)	No. of poles	Reference
100 ... 200	2/3 P	4158 3021
100 ... 200	4 P	4158 4021
260 ... 400	2/3 P	4158 3041
260 ... 400	4 P	4158 4041
600	3 P	1609 3063
600	4 P	1609 4063
800 ... 1200	3 P	1609 3080
800 ... 1200	4 P	1609 4080

Use

Top and bottom protection against direct contact with terminals or connecting parts.



acces_207_a_2_cat

Bridging bars

Rating (A)	No. of poles	Reference
100 ... 200	2 P	4159 2021
100 ... 200	3 P	4159 3021
100 ... 200	4 P	4159 4021
260 ... 400	2 P	4159 2041
260 ... 400	3 P	4159 3041
260 ... 400	4 P	4159 4041
600	3 P	4159 3063
600	4 P	4159 4063
800 ... 1200	3 P	4159 3080
800 ... 1200	4 P	4159 4080

Use

For bridging power terminals on the top or bottom side of the switch. When ordering one reference is required per switch. Please check numbers of poles needed.



acces_205_a_2_cat

Auxiliary contacts

Use

Pre-break and signalling of positions I and II: each reference provides 1 NO/NC auxiliary contact for positions I and II. ATyS are supplied with 1 NO auxiliary contact for all three positions as standard.

Rating (A)	Contact (s)	Reference
100 ... 400	NO/NC on position 1 and 2	4159 0021
100 ... 400	Low level NO/NC on position 1 and 2	4159 0022
600 ... 1200	NO/NC on position 1 and 2	as standard

A maximum of 2 Aux contacts per position may be added.



acces_065_a_1_cat



acces_065_a_1_cat

Terminal lugs

Use

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

Rating (A)	Wires range	No wires per lug	Lugs per kit	Wires	Reference
100 ... 200	6 - 300MCM	1	2	Cu / Al	3954 2020
100 ... 200	6 - 300MCM	1	3	Cu / Al	3954 3020
100 ... 200	6 - 300MCM	1	4	Cu / Al	3954 4020
260 ... 400	4 - 600MCM	1	2	Cu / Al	3954 2040
260 ... 400	4 - 600MCM	1	3	Cu / Al	3954 3040
260 ... 400	4 - 600MCM	1	4	Cu / Al	3954 4040
600	2x (#2 - 600MCM)	2	3	Cu / Al	3954 3060
600	2x (#2 - 600MCM)	2	4	Cu / Al	3954 4060
800 ... 1200 ⁽¹⁾	2x 2x(#2 - 600MCM)	2	6	Cu / Al	3954 3120
800 ... 1200 ⁽¹⁾	2x 2x(#2 - 600MCM)	2	8	Cu / Al	3954 4120

(1) To be used to connect 4 wires on one terminal. In such a case, 2 lugs are placed side-by-side on one terminal. Please refer to dimensions diagram



ul_032_a

ATyS UL 1008

Non-automatic Transfer Switching Equipment
from 100 to 1200 A

Spares

Motorization module

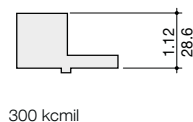
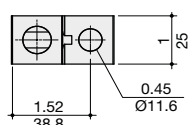
Rating (A)	No. of poles	Frame size	Used for ATyS reference	Motorization module References
100	2 / 3 / 4 P	B4	9723 2010 - 9723 3010 - 9723 4010	9709 5010
200	2 / 3 / 4 P	B4	9723 2020 - 9723 3020 - 9723 4020	9709 5020
260	2 / 3 / 4 P	B5	9723 2026 - 9723 3026 - 9723 4026	9709 5026
400	2 / 3 / 4 P	B5	9723 2040 - 9723 3040 - 9723 4040	9709 5040
600	3 / 4 P	B6	9723 3060 - 9723 4060	9709 5060
800	3 / 4 P	B7	9723 3080 - 9723 4080	9709 5080
1200	3 / 4 P	B7	9723 3120 - 9723 4120	9709 5120



atys_b71_a_1_cat.eps

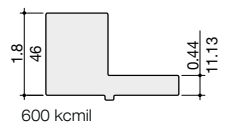
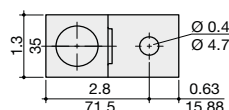
Terminal lugs (in/mm)

100 and 200 A / B4



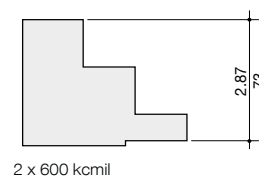
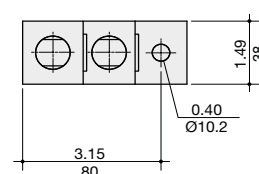
srco_115_b_1_us_cat

260 and 400 A / B5



srco-ul_010_a_1_us_cat

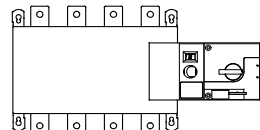
600 to 1200 A / B6 - B7



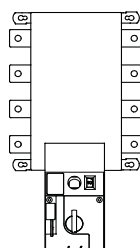
srco_116_b_1_us_cat

Mounting orientation

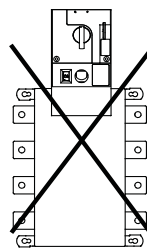
100 to 400 A / B4 - B5



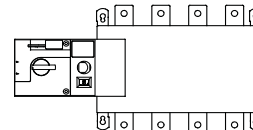
Recommended



OK



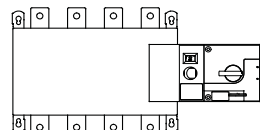
Not Allowed



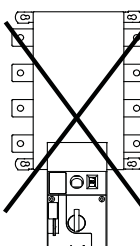
OK

atys-ul_013 ... 014_a_1_x_cat

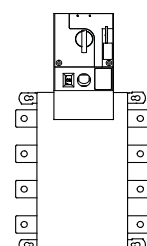
600 to 1200 A / B6 - B7



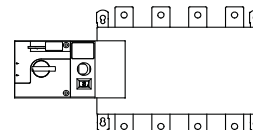
Recommended



Not Allowed



OK



OK

atys-ul_013 ... 014_a_1_x_cat

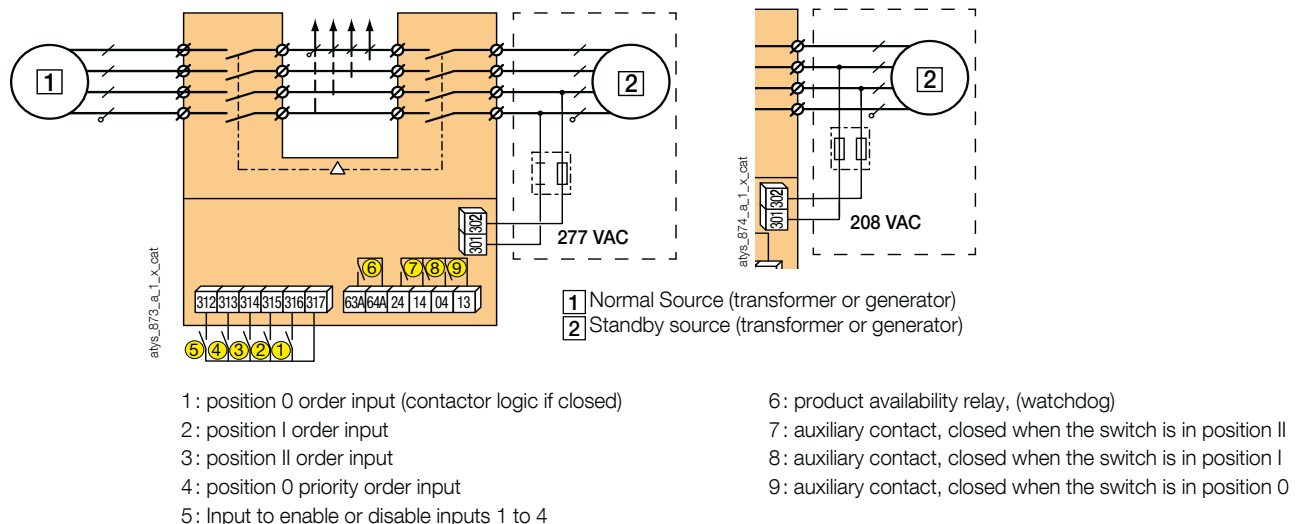
Characteristics

Characteristics according to UL 1008 (Optional standby)

General use rating (A)	100 A	200 A	260 A	400 A	600 A	800 A	1200 A
Frame size	B4		B5		B6	B7	
Operation voltage 2 P - 3/4 P	240/600	240/600	240/600	240/600	-/600	-/600	-/600
Short circuit rating at 600 VAC with fuses (kA)							
Short circuit rating at 600 VAC (kA)	100	100	65	65	100	100	100
Type of fuse	J	J	J	J	L	L	L
Short circuit rating at 600 VAC with "Specific Circuit Breaker" (kA)							
Square D JJ breaker 250 A - 2 P 240 VAC - 3/4 P 480 VAC	65	65	-	-	-	-	-
Schneider Electric NSX-F 160 A - 3/4 P 480 VAC	35	-	-	-	-	-	-
Short circuit rating at 600 VAC with "Any Breaker" (kA)							
Short circuit rating (kA)	10	10	14	14	35	35	35
Short circuit capacity (ms)	25	25	50	50	50	50	50
Rated operational current							
240 VAC "Total System" (A)	100	200	260	400	400	700	700
240 VAC resistive load (A)	100	200	260	400	600	800	1200
480 VAC "Total System" (A)	100	100	260	400	350	600	600
480 VAC resistive load (A)	100	200	260	400	600	800	1200
600 VAC "Total System" (A)	100	100	200	200	-	-	-
600 VAC resistive load (A)	100	200	260	400	600	800	1200
Mechanical endurance							
Endurance (number of operating cycles)	6050	6050	6050	4050	3050	3050	3050
Connection terminals							
Min. connection section / AWG	#6	#6	#4 / 2 X 1 / 0	#4 / 2 X 1 / 0	2 x #2	2 x #2	4 x #2
Max. connection section / AWG	300MCM	300MCM	600MCM / 2 X 250MCM	600MCM / 2 X 250MCM	2x 600MCM	2x 600MCM	4 x 600MCM
Power supply							
Supply voltage VAC 50/60 Hz	208-277 VAC ± 20%						
Switching time							
I to II or II to I (s)	1.3				3.2		
I to 0 or 0 to II (s)	0.85				1.8		
Duration of electrical blackout (s)	0.6				1.6		

Terminals and connections

Typical wiring for 277/480 VAC and 120/208 VAC networks



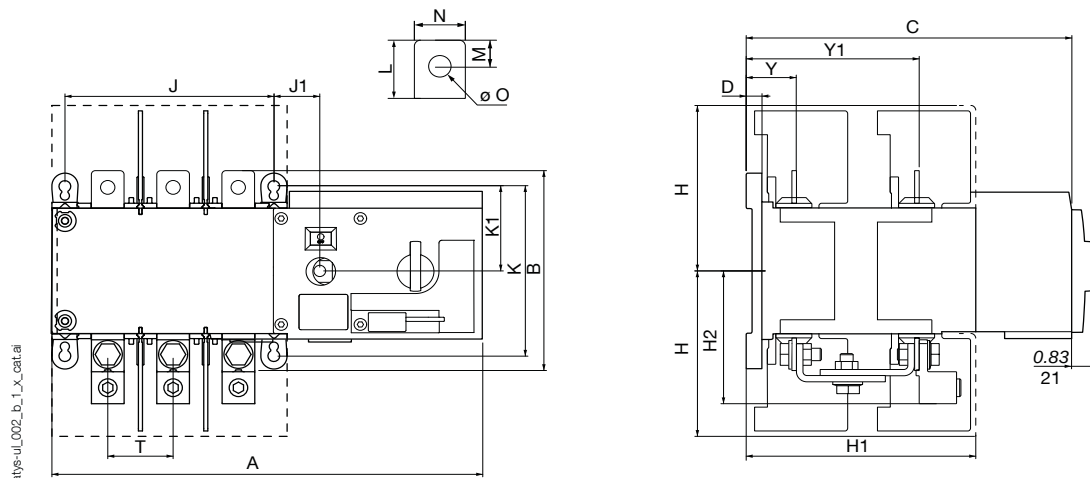
ATyS UL 1008

Non-automatic Transfer Switching Equipment
from 100 to 1200 A

Dimensions (in/mm)

100 to 400 A / B4 - B5

Transfer switch dimensions

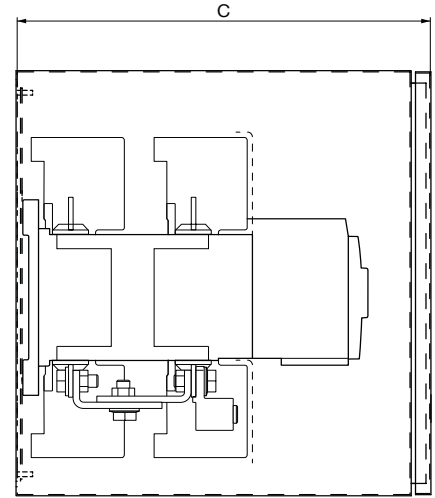
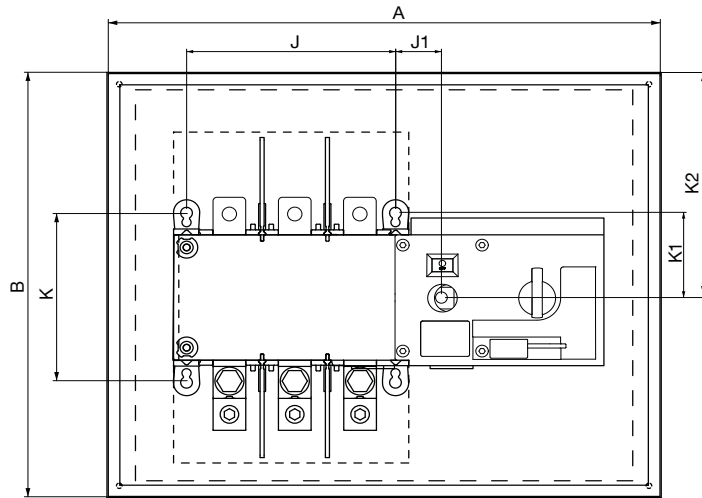


Rating (A)	Frame size	Reference	No. of poles	A		B		C		D		H		H1		H2		Y		Y1	
				in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
100 - 200	B4	9723 2010 - 9723 2020	2 P	12.91	328	6.30	160	9.60	244	0.41	10.5	5.08	129	6.93	176	4.21	107	1.51	38.5	5.21	132.5
		9723 3010 - 9723 3020	3 P																		
		9723 4010 - 9723 4020	4 P	14.88	378																
260 - 400	B5	9723 2026 - 9723 2040	2 P	14.84	377	10.23	260	12.62	320.5	0.41	10.5	8	203	6.51	165.5	6.53	166	2.04	52	7.48	190
		9723 3026 - 9723 3040	3 P																		
		9723 4026 - 9723 4040	4 P	17.20	437																

Rating (A)	Frame size	Reference	No. of poles	J		J1		K		K1		L		M		N		O		T	
				in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
100 - 200	B4	9723 2010 - 9723 2020	2 P	6.30	160			7.67	195	3.84	97.5	1.18	30	0.53	13.3	0.98	25	0.43	11	2	50
		9723 3010 - 9723 3020	3 P			1.37	35														
		9723 4010 - 9723 4020	4 P	8.26	210																
260 - 400	B5	9723 2026 - 9723 2040	2 P	8.26	210	1.37	35	7.67	195	3.84	97.5	1.96	50	0.49	20	1.38	45	0.51	13	2.6	65
		9723 3026 - 9723 3040	3 P																		
		9723 4026 - 9723 4040	4 P	10.63	270																

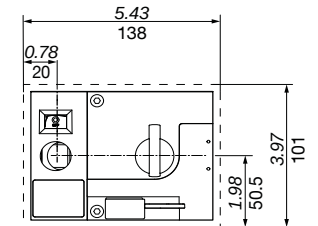
100 to 400 A / B4 - B5

Minimum enclosure dimensions



atyse-ul_009_b_1_x_cat.ai

Door cut-out for front panel



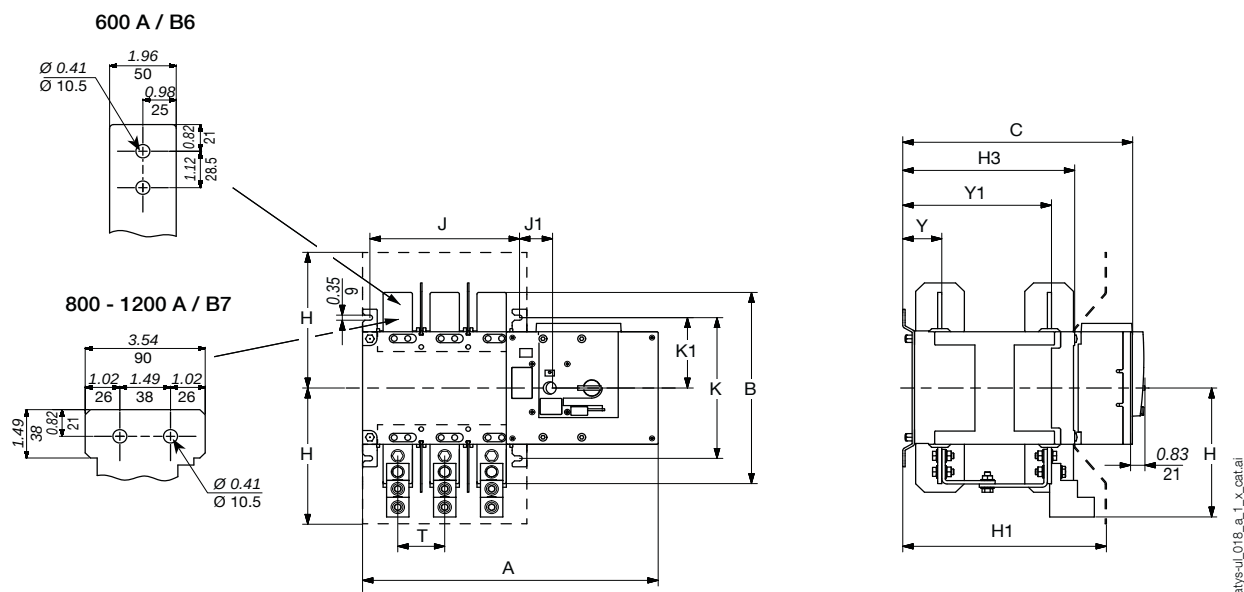
atyse-ul_017_a_1_x_cat.ai

Rating (A)	Frame size	Reference	No. of poles	A		B		C		J		J1		K		K1		K2	
				in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
100 - 200	B4	9723 2010 - 9723 2020	2 P							6.30	160	1.37	35	7.67	195	2.67	68	12	305
		9723 3010 - 9723 3020	3 P	24	610	24	610	12	305	8.26	210								
		9723 4010 - 9723 4020	4 P																
260 - 400	B5	9723 2026 - 9723 2040	2 P							8.26	210	1.37	35	7.67	195	3.84	97.5	15	381
		9723 3026 - 9723 3040	3 P	32	813	32	813	16	406	10.63	270								
		9723 4026 - 9723 4040	4 P																

Dimensions (in/mm) (continued)

600 to 1200 A / B6 - B7

Transfer switch dimensions

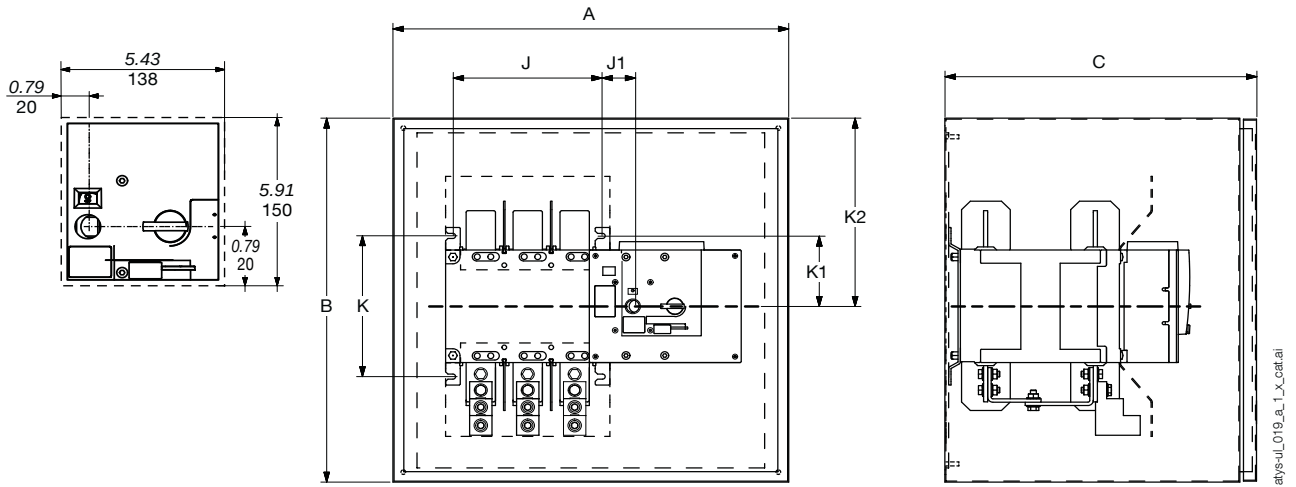


Rating (A)	Frame size	Reference	No. of poles	A		B		C		H		H1		H2		H3	
				in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
600	B6	9723 3060	3 P	19.8	504	13.38	340	15.4	392	9.09	231	13.7	347	9.05	230	11.5	293
		9723 4060	4 P	22.99	584												
800 - 1200	B7	9723 3080 - 9723 3120	3 P	23.5	596	11.34	288	15.4	392	8.30	211	13.7	347	8.03	204	11.5	293
		9723 4080 - 9723 4120	4 P	28.2	716												

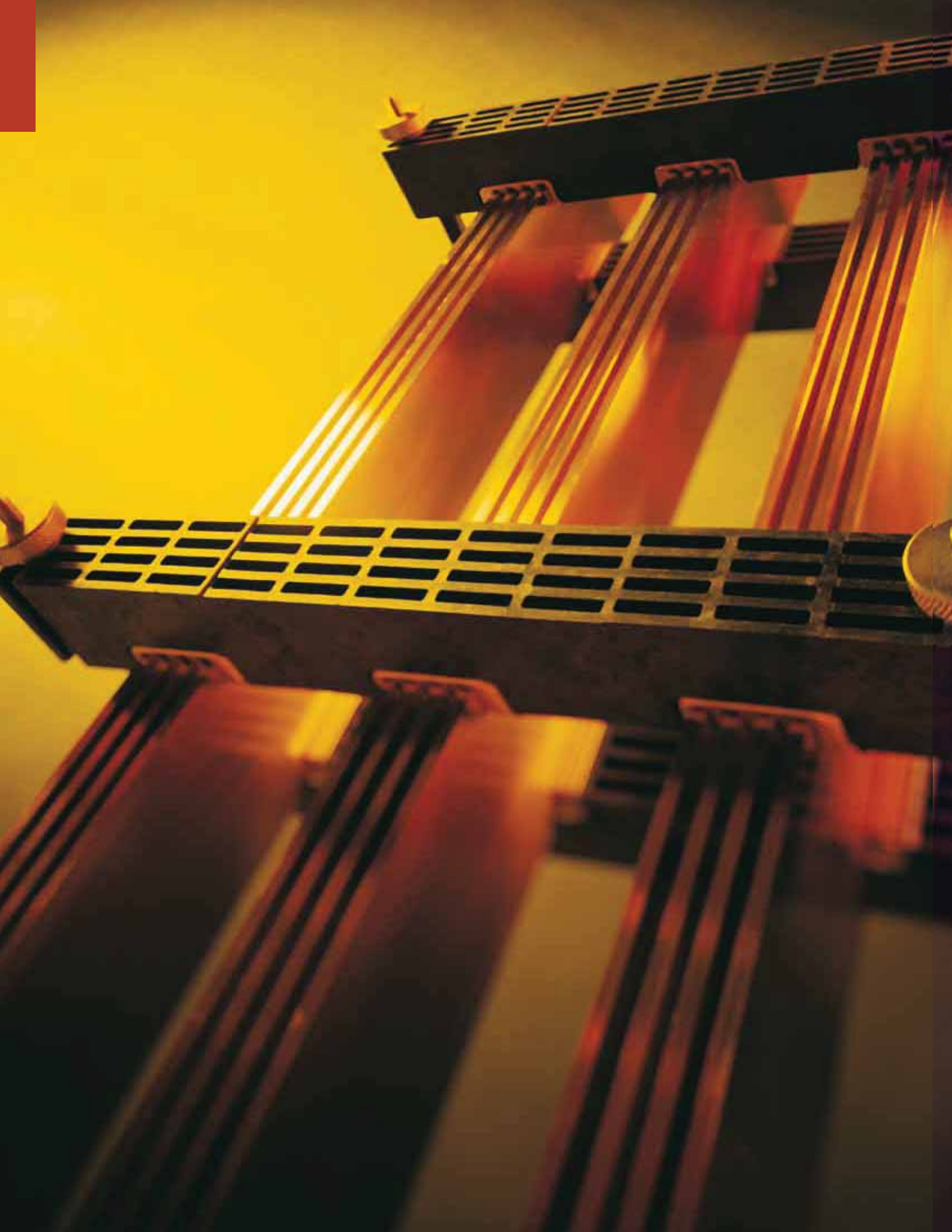
Rating (A)	Frame size	Reference	No. of poles	J		J1		K		K1		T		Y		Y1	
				in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
600	B6	9723 3060	3 P	10	255	2.02	51.5	9.84	250	4.92	125	3.15	80	2.61	66.5	9.98	254
		9723 4060	4 P	13.2	335												
800 - 1200	B7	9723 3080 - 9723 3120	3 P	13.7	347	2.02	51.5	9.84	250	4.92	125	4.72	120	2.65	67.7	9.98	254
		9723 4080 - 9723 4120	4 P	18.4	467												

600 to 1200 A / B6 - B7

Minimum enclosure dimensions

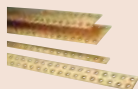


Rating (A)	Frame size	Reference	No. of poles	A		B		C		J		J1		K		K1		K2	
				in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
600	B6	9723 3060	3 P	36	915	48	1220	20	508	10.04	255	2.02	51.5	9.84	250	4.92	125	24	610
		9723 4060	4 P	36	915	48	1220	20	508	12.18	355	2.02	51.5	9.84	250	4.92	125	24	610
800 - 1200	B7	9723 3080 - 9723 3120	3 P	36	915	60	1524	20	508	13.66	347	2.02	51.5	9.84	250	4.92	125	30	762
		9723 4080 - 9723 4120	4 P	36	915	60	1524	20	508	18.38	467	2.02	51.5	9.84	250	4.92	125	30	762



Enclosures & accessories

Busbar



Rigid copper bars
p. 148



Flexible copper bars
p. 150



Insulated copper braids
p. 152



Edgewise mounting
busbar supports
p. 154

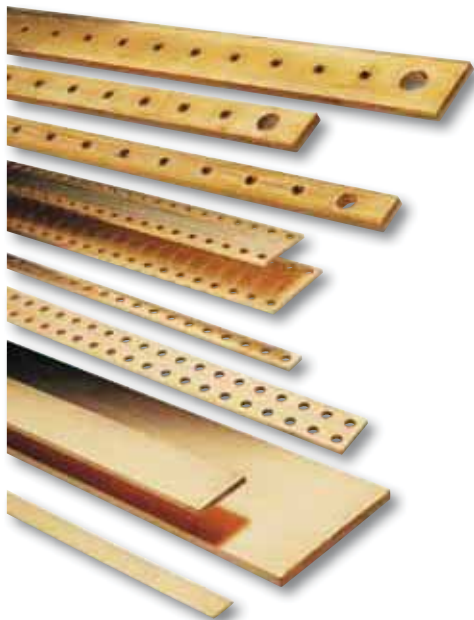


Rigid copper bars

Busbar

Enclosures
& accessories

barre_001_a_1_cat



Function

The SOCOMEC **rigid copper bars** are suitable for providing main or distribution connections.

Composition of the range

Solid bars

- Thickness: 4.5 and 10 mm.
- Width: 20 to 160 mm.
- Length: 1750, 2900, 5800 mm.

Pre-punched bars

- Thickness: 5 and 10 mm.
- Width: 25 to 125 mm.
- Length: 1750 mm.

Pre-punched and threaded bars

- Thickness: 5 mm.
- Width: 15 to 32 mm.
- Length: 990 mm.

Solid bars

- Determination of the admissible current I_z (A) for solid bars, in usual use conditions (Temperature ambient 45°C, admissible warming of the bars 35°C, 50 Hz current).

Pre-punched copper bars

- For the pre-punched bars of same dimensions as the solid bars:
pre-punched $I_z = 0.9 I_z$ solid.

Aluminium bars

- For the aluminium bars of same dimensions as the solid bars:
 I_z aluminium = 0.78 I_z solid copper.

Connector for drill-free connection on the busbar

- Bars for thickness 10 mm.

Connection Earth / Neutral

- Corner piece for Earth / Neutral connection, L = 1750 mm.
- Earth bar, L = 470 mm and L = 120 mm.

The solution for

> Electrical distribution



Amperage per number of bars

Edgewise mounting

Bar section l x e (mm)	Number of bars per phase			
	I	II	III	IIII
20 x 4	240	430	600	750
15 x 5	220	390	540	650
25 x 5	330	590	800	1000
32 x 5	410	700	1000	1250
40 x 5	500	850	1200	1500
50 x 5	600	1050	1450	1850
63 x 5	700	1250	1800	2250
80 x 5	900	1550	2200	2750
100 x 5	1100	1900	2650	3350
125 x 5	1300	2350	3250	4100
30 x 10	600	1050	1450	1800
50 x 10	850	1550	2150	2700
60 x 10	1000	1800	2400	3150
80 x 10	1300	2300	3200	4000
100 x 10	1550	2750	3850	4850
125 x 10	1900	3350	4650	5900
160 x 10	2350	4150	5800	7300

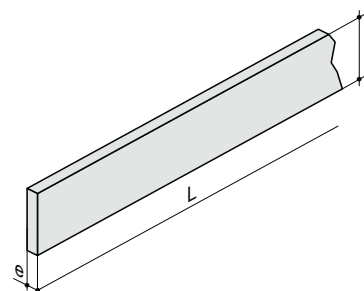
Flat mounting

Bar section l x e (mm)	Number of bars per phase			
	I	II	III	IIII
20 x 4	210	340	460	570
15 x 5	190	310	420	510
25 x 5	280	470	600	750
32 x 5	350	580	750	950
40 x 5	420	700	900	1150
50 x 5	510	850	1100	1400
63 x 5	620	1000	1350	1700
80 x 5	750	1250	1700	2100
100 x 5	900	1500	2050	2550
125 x 5	1100	1850	2500	3050
30 x 10	490	800	1100	1350
50 x 10	750	1200	1650	2050
60 x 10	850	1400	1900	2350
80 x 10	1100	1800	2450	3000
100 x 10	1350	2200	2950	3650
125 x 10	1600	2700	3600	4400
160 x 10	2000	3300	4450	5500

References

Solid bars

I x e (mm)	Weight (kg/ml)	L = 1750 mm To be ordered in multiples of 1 bar	L = 2900 mm To be ordered in multiples of 1 bar	L = 5800 mm To be ordered in multiples of 5 or 10 bars
		Reference	Reference	Reference
20 x 4	0.71	4510 2004	4513 2004	4514 2004 ⁽¹⁾
25 x 5	1.11	4510 2505	4513 2505	4514 2505 ⁽¹⁾
32 x 5	1.42	4510 3205	4513 3205	4514 3205 ⁽¹⁾
40 x 5	1.78	4510 4005	4513 4005	4514 4005 ⁽¹⁾
50 x 5	2.22	4510 5005	4513 5005	4514 5005 ⁽¹⁾
63 x 5	2.80	4510 6305	4513 6305	4514 6305 ⁽¹⁾
80 x 5	3.56	4510 8005	4513 8005	4514 8005 ⁽²⁾
100 x 5	4.45	4510 9005	4513 9005	4514 9005 ⁽²⁾
125 x 5	5.56	4510 9205	4513 9205	4514 9205 ⁽²⁾
30 x 10	2.67	4510 3010	4513 3010	4514 3010 ⁽²⁾
50 x 10	4.45	4510 5010	4513 5010	4514 5010 ⁽²⁾
60 x 10	5.33	4510 6010	4513 6010	4514 6010 ⁽²⁾
80 x 10	7.11	4510 8010	4513 8010	4514 8010 ⁽²⁾
100 x 10	8.89	4510 9010	4513 9010	4514 9010 ⁽²⁾
125 x 10	11.11	4510 9210	4513 9210	4514 9210 ⁽²⁾
160 x 10	14.22	4510 9610	4513 9610	4514 9610 ⁽²⁾

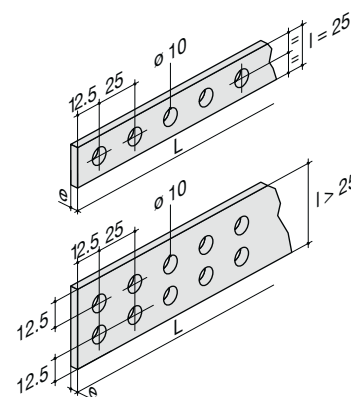


barre_002_a_1_x_cat

(1) To be ordered by multiple 10 bars
(2) To be ordered by multiple 5 bars

Pre-punched bars

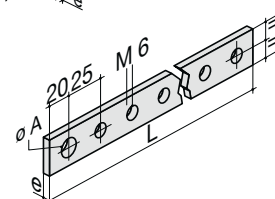
I x e (mm)	W (mm)	Weight (kg/ml)	No. of rows	To be ordered in multiples of	Reference
25 x 5	1750	1.11	1	5	4511 2505
50 x 5	1750	2.22	2	5	4511 5005
63 x 5	1750	2.80	2	5	4511 6305
80 x 5	1750	3.56	2	5	4511 8005
100 x 5	1750	4.45	2	5	4511 9005
125 x 5	1750	5.56	2	5	4511 9205
50 x 10	1750	4.45	2	5	4511 5010
60 x 10	1750	5.33	2	5	4511 6010
80 x 10	1750	7.11	2	5	4511 8010
100 x 10	1750	8.89	2	5	4511 9010
125 x 10	1750	10.70	2	5	4511 9210



barre_003_a_1_x_cat

Pre-punched and threaded bars

I x e (mm)	W (mm)	Weight (kg/ml)	Ø A (mm)	To be ordered in multiples of	Reference
15 x 5	990	0.67 kg	8.2	5	4512 1505
20 x 5	990	0.89 kg	10.2	5	4512 2005
32 x 5	990	1.42 kg	12.2	5	4512 3205



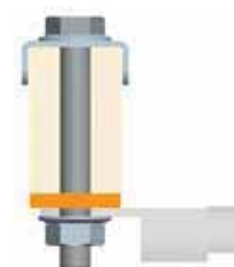
barre_004_a_1_x_cat

Accessories

Drill-free connection accessories

Use

- Allows the drill-free connection of flexible bars or cables onto a busbar.
- Connection across 2 bars, 10 mm thick, placed side by side, 10 mm apart.
- Compatible with busbar supports in the SBC range.
- For terminals or flexible bars with widths greater than 40 mm, use 2 connection accessories.
- Secured with M10 screws, tightening torque 45Nm.
- To make a connection: 1 securing clamp and 1 screw adapted to the height of the bars are required.



barre_020_a_1_x_cat

Type	Bar (mm)	To be ordered in multiples of	Reference
Securing clamp M10	all	12	5119 4423
Screw M10	30	100	5119 4503
Screw M10	50	100	5119 4505
Screw M10	60	100	5119 4506
Screw M10	80	100	5119 4508
Screw M10	100	100	5119 4510
Screw M10	125	100	5119 4512



Insulated flexible copper bars

Busbars



Function

SOCOMEK **insulated flexible** copper bars are mainly utilized for providing the power connections between series of distribution busbars and the disconnection devices within an electrical panel.

The insulated layered copper allows the flexible copper bar to be easily formed to provide a customized solution.

Advantages

Easy to install

- Compact version.
- High level of flexibility enabling easy manipulation of the busbar.
- Reduced installation time with the elimination of terminal lugs and their crimping.

Increased safety by the elimination of crimped connections

- Better behaviour under short-circuit conditions.
- Decreased number of heating points.
- More reliable connections.

Characteristics

- Width of 9 to 100 mm.
- Copper layer thickness from 0.8 to 1 mm.
- Length of 2 m.

Conductor

- Layers of electrolytic copper Cu/ETP, final annealing state.

Insulator

- High temperature co-extruded vinyl compound on the copper strips (insulation thickness: 1.5 to 2 mm).
- Self-extinguisher: NFC 32200 and UL 94 V0.
- Continuous temperature withstand: 105 °C.
- Shore hardness A: 89 +/- 2.
- Module 100 % elongation: 16 Mpa.
- Resistance to elongation: < 15 % mini.
- Breaking stress: 20 Mpa.
- Transversal volume resistivity: 6.1015 Ω.
- Oxygen index: 29.5 %.
- Scratch and tear resistant.

Insulated flexible busbar

- Operating-temperature range: from -40 °C to +105 °C.
- Maximum operating voltage: 1000 VAC / 1500 VDC.
- Alternating voltage withstand (10 minute test):
 - between core and insulation: 16.5 kV,
 - between two insulating elements in contact: 33 kV,
- Conductivity: 100 IACS,
- HV < 50,
- Resistance to traction $R_m > 200 \text{ N/cm}^2$,
- Stretch before break 35 %,
- Resistivity: 1.724 micro Ω/cm at 20 °C.

The solution for

- > Electrical distribution



Strong points

- > Easy to install
- > Increased safety by the elimination of crimped connections

Conformity to standards

- > UL 67 and UL 891 guide QEUY2 file E495516



Available on request

- > Specific lengths
- > Halogen-free
- > Tin plated on request

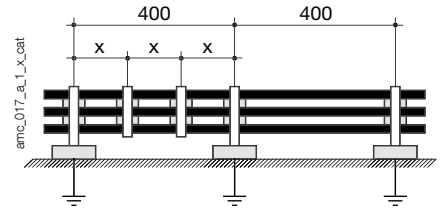
References

I x N x e (mm)	L (mm)	Permissible amperage for ΔT (°C) ⁽¹⁾			To be ordered in multiples of	Reference
		40°C (A)	50°C (A)	60°C (A)		
9 x 2 x 0.8	2000	113	129	143	1	4518 0902
9 x 3 x 0.8	2000	140	160	178	1	4518 0903
9 x 4 x 0.8	2000	165	188	209	1	4518 0904
9 x 5 x 0.8	2000	187	214	238	1	4518 0905
9 x 6 x 0.8	2000	208	238	264	1	4518 0906
13 x 3 x 0.5	2000	142	162	180	1	4518 1303
13 x 4 x 0.5	2000	165	189	210	1	4518 1304
13 x 5 x 0.5	2000	186	213	237	1	4518 1305
13 x 6 x 0.5	2000	206	235	261	1	4518 1306
15.5 x 2 x 0.8	2000	167	191	212	1	4518 1502
15.5 x 3 x 0.8	2000	207	237	263	1	4518 1503
15.5 x 4 x 0.8	2000	242	277	308	1	4518 1504
15.5 x 6 x 0.8	2000	304	347	386	1	4518 1506
15.5 x 8 x 0.8	2000	358	409	455	1	4518 1508
15.5 x 10 x 0.8	2000	408	466	519	1	4518 1510
20 x 2 x 1	2000	228	261	290	1	4518 2002
20 x 3 x 1	2000	283	324	360	1	4518 2003
20 x 4 x 1	2000	331	378	421	1	4518 2004
20 x 5 x 1	2000	374	428	476	1	4518 2005
20 x 6 x 1	2000	415	474	527	1	4518 2006
20 x 8 x 1	2000	488	558	621	1	4518 2008
20 x 10 x 1	2000	556	635	705	1	4518 2010
24 x 2 x 1	2000	263	301	335	1	4518 2402
24 x 3 x 1	2000	326	373	414	1	4518 2403
24 x 4 x 1	2000	380	435	483	1	4518 2404
24 x 5 x 1	2000	429	491	546	1	4518 2405
24 x 6 x 1	2000	475	542	603	1	4518 2406
24 x 8 x 1	2000	557	636	708	1	4518 2408
24 x 10 x 1	2000	632	722	803	1	4518 2410
32 x 2 x 1	2000	331	379	421	1	4518 3202
32 x 3 x 1	2000	409	468	520	1	4518 3203
32 x 4 x 1	2000	476	544	605	1	4518 3204
32 x 5 x 1	2000	536	612	681	1	4518 3205
32 x 6 x 1	2000	591	675	751	1	4518 3206
32 x 8 x 1	2000	689	787	876	1	4518 3208
32 x 10 x 1	2000	777	887	987 ⁽¹⁾	1	4518 3210
40 x 2 x 1	2000	398	455	506	1	4518 4002
40 x 3 x 1	2000	490	560	623	1	4518 4003
40 x 4 x 1	2000	569	650	723	1	4518 4004
40 x 5 x 1	2000	639	730	812	1	4518 4005
40 x 6 x 1	2000	703	803	893	1	4518 4006
40 x 8 x 1	2000	815	932	1036	1	4518 4008
40 x 10 x 1	2000	915	1045	1163	1	4518 4010
50 x 3 x 1	2000	589	673	749	1	4518 5003
50 x 4 x 1	2000	682	780	867	1	4518 5004
50 x 5 x 1	2000	764	873	971	1	4518 5005
50 x 6 x 1	2000	838	957	1062	1	4518 5006
50 x 8 x 1	2000	967	1105	1229	1	4518 5008
50 x 10 x 1	2000	1080	1234	1373	1	4518 5010
63 x 3 x 1	2000	715	816	908	1	4518 6303
63 x 4 x 1	2000	825	943	1048	1	4518 6304
63 x 5 x 1	2000	921	1052	1171	1	4518 6305
63 x 6 x 1	2000	1041	1187	1324	1	4518 6306
63 x 8 x 1	2000	1157	1321	1470	1	4518 6308
63 x 10 x 1	2000	1286	1469	1634	1	4518 6310
80 x 3 x 1	2000	874	998	1110	1	4518 8003
80 x 4 x 1	2000	1006	1149	1278	1	4518 8004
80 x 5 x 1	2000	1119	1279	1422	1	4518 8005
80 x 6 x 1	2000	1220	1393	1550	1	4518 8006
80 x 8 x 1	2000	1393	1592	1771	1	4518 8008
80 x 10 x 1	2000	1543	1763	1961	1	4518 8010
100 x 4 x 1	2000	1211	1383	1538	1	4518 9004
100 x 5 x 1	2000	1343	1534	1707	1	4518 9005
100 x 6 x 1	2000	1460	1668	1855	1	4518 9006
100 x 8 x 1	2000	1660	1897	2110	1	4518 9008
100 x 10 x 1	2000	1833	2094	2329	1	4518 9010
100 x 12 x 1	2000	1993	2277	2531	1	4518 9012

(1) For ambient air temperature of 40 °C
Important: max. busbar temperature = 105 °C.

L: length of bar in metres.
I: width of bare busbar in mm.
N: number of copper layers.
e: copper layer thickness in mm.

Implementation



Flexible bars should be mounted on insulated supports with a maximum distance of 400 mm. Bars should also be held together with straps, as shown in the above diagram. The distance between successive straps depends on the electro-dynamic constraints in the event of a short-circuit. The table below gives the recommended distances between straps.

I _{sc} max. (kA rms)	Distance x between straps (mm) ⁽¹⁾
20	350
25	200
35	100
45	70

(1) 9 mm straps, load 80 kg.



Insulated copper braids

Busbar

Enclosures
& accessories



Function

SOCOMECS insulated copper braids are mainly utilised for providing the power connections between distribution busbars and the devices within an electrical panel. Their flexibility is particularly suited to complex and diverse connections in confined spaces.

Technical characteristics

- Electrolytic copper, annealing state
- Operating voltage 1000 VAC - 1500 VDC
- Dielectric strength 20 KV / mm
- Operating temperature: -40°C / +105°C
- Self-extinguishing: UL 94 V0
- Contact surface: Bare copper

Advantages

Easy to install

- Compact design.
- Length and orientation are easily adapted.
- Prewired.

Wide range of applications

- Amperage up to 1000 A.
- Suitable for various connection ranges.
- Lengths from 200 to 800 mm.

Compatibility

- With SOCOMECS devices.
- With most commercial circuit breakers.

The solution for

- > Electrical distribution



Strong points

- > Easy to install
- > Wide range of applications
- > Compatibility

Compliance with standards

- > UL 67 and UL 891
guide QEU2
file E495516



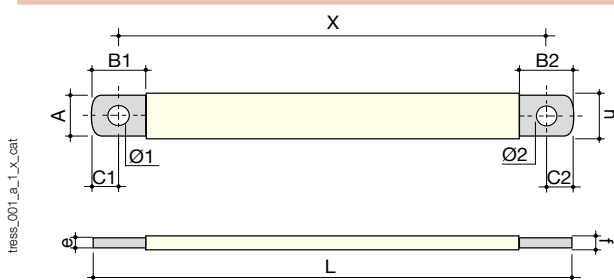
Customised solutions

- > Tin-plated contact surface
- > For any other length, please contact us

Part numbers and dimensions

Current rating at ambient temperature of 630 to 7000 A			Reference	Section mm ²	Dimensions										Range		Weight (kg)
35°C (A)	Nominal rating 45°C (A)	55°C (A)			A Width (mm)	e Thickness (mm)	X Distance (mm)	L Length (mm)	Ø 1 (mm)	Ø 2 (mm)	C1 (mm)	C2 (mm)	h Width (mm)	f Thickness (mm)	B1 (mm)	B2 (mm)	
180	160	140	4516 1620	25	20	1.5	200	220	8.5	10.5	8	12	22	3.5	25	30	0.08
180	160	140	4516 1625	25	20	1.5	250	270	8.5	10.5	8	12	22	3.5	25	30	0.09
180	160	140	4516 1630	25	20	1.5	300	320	8.5	10.5	8	12	22	3.5	25	30	0.11
180	160	140	4516 1635	25	20	1.5	350	370	8.5	10.5	8	12	22	3.5	25	30	0.12
180	160	140	4516 1640	25	20	1.5	400	420	8.5	10.5	8	12	22	3.5	25	30	0.14
180	160	140	4516 1650	25	20	1.5	500	520	8.5	10.5	8	12	22	3.5	25	30	0.17
280	250	220	4516 2520	50	20	3	200	220	8.5	10.5	8	12	22	5	25	30	0.14
280	250	220	4516 2525	50	20	3	250	270	8.5	10.5	8	12	22	5	25	30	0.16
280	250	220	4516 2530	50	20	3	300	320	8.5	10.5	8	12	22	5	25	30	0.19
280	250	220	4516 2535	50	20	3	350	370	8.5	10.5	8	12	22	5	25	30	0.22
280	250	220	4516 2540	50	20	3	400	420	8.5	10.5	8	12	22	5	25	30	0.25
280	250	220	4516 2550	50	20	3	500	520	8.5	10.5	8	12	22	5	25	30	0.30
440	400	320	4516 4020	120	32	5	200	222	10.5	10.5	10	12	34	7	25	30	0.30
440	400	320	4516 4025	120	32	5	250	272	10.5	10.5	10	12	34	7	25	30	0.36
440	400	320	4516 4030	120	32	5	300	322	10.5	10.5	10	12	34	7	25	30	0.43
440	400	320	4516 4035	120	32	5	350	372	10.5	10.5	10	12	34	7	25	30	0.49
440	400	320	4516 4040	120	32	5	400	422	10.5	10.5	10	12	34	7	25	30	0.56
440	400	320	4516 4050	120	32	5	500	522	10.5	10.5	10	12	34	7	25	30	0.69
440	400	320	4516 4060	120	32	5	600	622	10.5	10.5	10	12	34	7	25	30	0.82
440	400	320	4516 4080	120	32	5	800	822	10.5	10.5	10	12	34	7	25	30	1.07
690	630	560	4516 6325	240	32	10	250	274	12.5	10.5	12	12	34	12	35	30	0.71
690	630	560	4516 6330	240	32	10	300	324	12.5	10.5	12	12	34	12	35	30	0.84
690	630	560	4516 6335	240	32	10	350	374	12.5	10.5	12	12	34	12	35	30	0.96
690	630	560	4516 6340	240	32	10	400	424	12.5	10.5	12	12	34	12	35	30	1.09
690	630	560	4516 6350	240	32	10	500	524	12.5	10.5	12	12	34	12	35	30	1.35
690	630	560	4516 6360	240	32	10	600	624	12.5	10.5	12	12	34	12	35	30	1.60
690	630	560	4516 6380	240	32	10	800	824	12.5	10.5	12	12	34	12	35	30	2.10

Dimensions



Parallel systems

Putting braids in parallel increases the temperature of the air near the braid, which forms a reduction coefficient

Correction factor	
	Current
	2 x current x 0.8
	3 x current x 0.65



Busbar supports

Busbar

Enclosures
& accessories

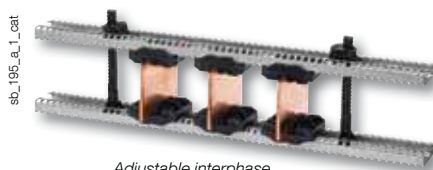
new



Fixed interphase, SB C 15



Insulators



Adjustable interphase



Stair type support

Function

SOCOMEK **insulating busbar supports** enable the fixing of copper or aluminium busbars.

Characteristics

Insulators

- Polyester without halogen.
- UL94 VO self-extinguishing.
- Colour red RAL 3002.
- Operating temperature from -40 to +130°C.
- Deformation under load temperature (ASTM D643): > 200°C.
- Dielectric constant (ASTM D150): 4/5.
- Arc resistance (ASTM D495): > 180 s.
- Water absorption (ASTM D570): < 0.3%.

Busbar supports

- High dielectric strength.
- High mechanical resistance.
- Amagnetism of assembly parts.
- High resistance to damp heat (supplied "with a conformal coating").

Stair type supports

- Thermoplastic material.
- VO self-extinguishing.
- Insulating voltage: 1000 V.

The solution for

- > Electrical distribution



Compliance with standards

- > UL94 VO self-extinguishing



- > IEC 61439-1
- > IEC 60865-1



Approvals and certifications ⁽¹⁾

- > ASEFA/LCIE



Lloyd's Register

(1) Product references on request.

Available on request

- > Please contact us

Software tool for size selection

Mechanical Systems is a software that can be utilised to size bar sets. It defines the configuration of the busbar system, including bar section and distance between supports, according to the required electrical characteristics of the panel in compliance with standard IEC 61439-1. The software runs on Windows® 95, 98, 2000, NT or XP.

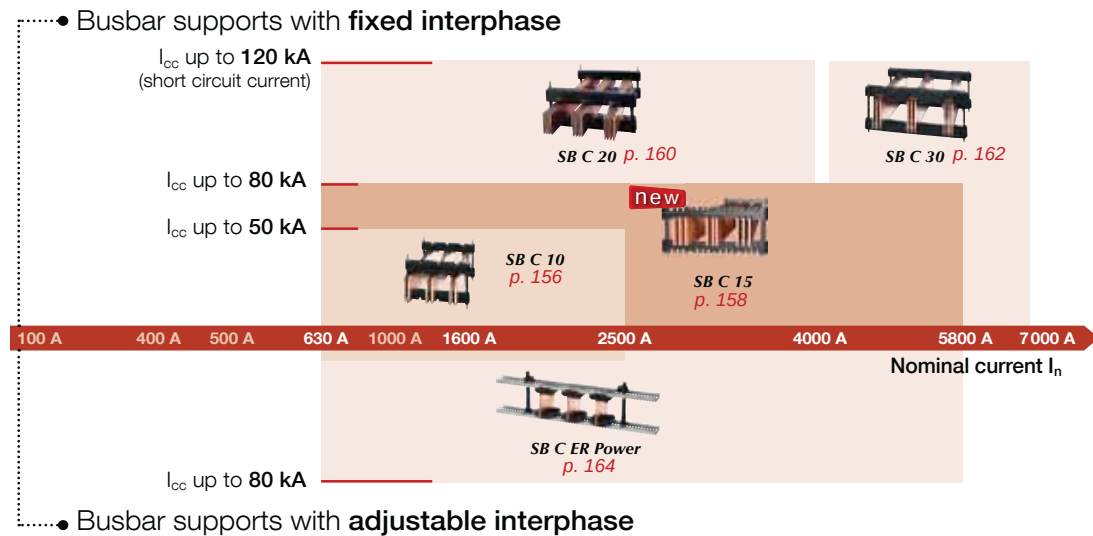
Visit our website www.socomec.com.



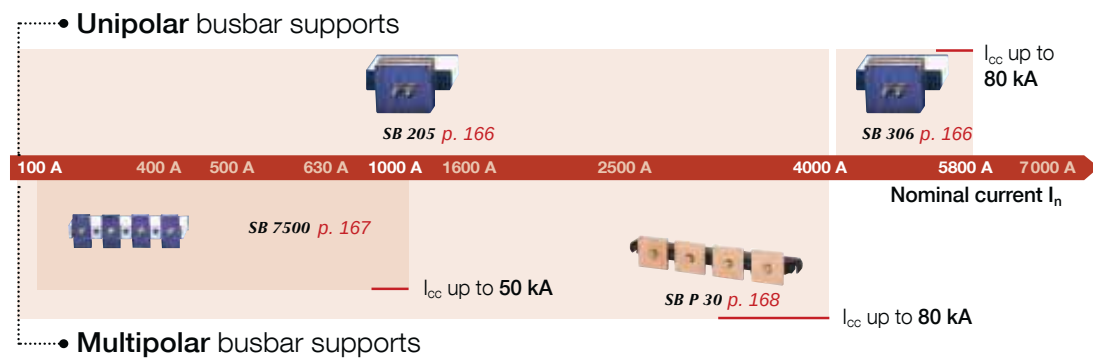
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Selection guide

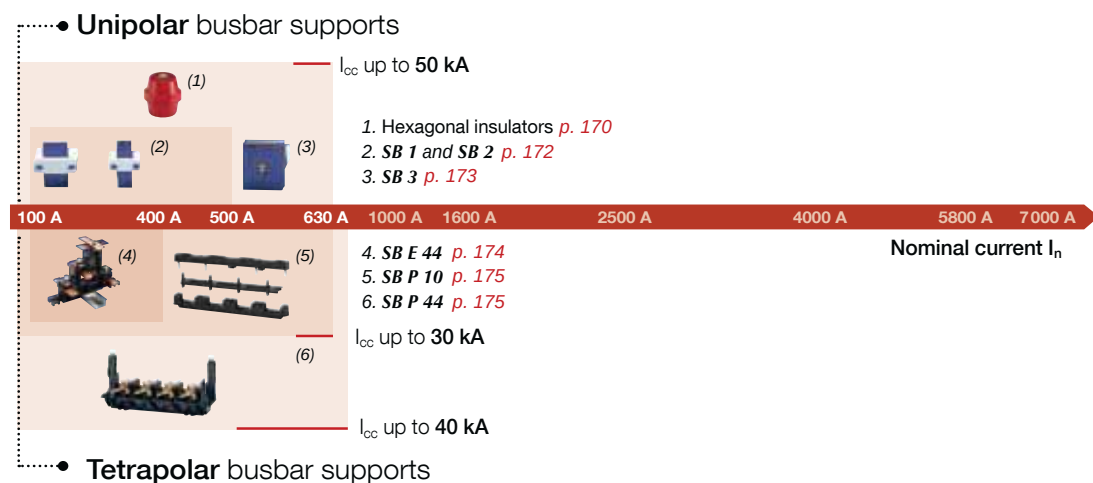
Edgewise mounting



Flat mounting



Other supports



Busbar supports

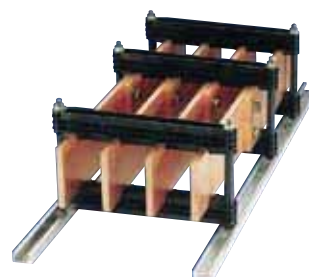
Busbar

■ **SB C 10** multipolar edgewise mounting busbar supports with fixed interphase

References

2 bars of 5 mm or 1 bar of 10 mm

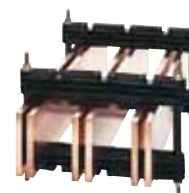
No. of poles	Insulation voltage (VAC)	Number of bars max x bar thickness (mm)	B (mm)	R bar height (mm)	Pack qty	Reference
3 P	1000	2 x 5 / 1 x 10	160	25	1	5024 6304
3 P	1000	2 x 5 / 1 x 10	160	40	1	5024 6309
3 P	1000	2 x 5 / 1 x 10	190	50	1	5024 6310
3 P	1000	2 x 5 / 1 x 10	190	60	1	5024 6312
3 P	1000	2 x 5 / 1 x 10	190	63	1	5024 6313
3 P	1000	2 x 5 / 1 x 10	220	80	1	5024 6317
4 P	1000	2 x 5 / 1 x 10	160	25	1	5024 6504
4 P	1000	2 x 5 / 1 x 10	160	40	1	5024 6509
4 P	1000	2 x 5 / 1 x 10	190	50	1	5024 6510
4 P	1000	2 x 5 / 1 x 10	190	60	1	5024 6512
4 P	1000	2 x 5 / 1 x 10	190	63	1	5024 6513
4 P	1000	2 x 5 / 1 x 10	220	80	1	5024 6517
4 P	1000	2 x 5 / 1 x 10	220	100	1	5024 6518



sb_061_b_2_cat

1 or 2 bars of 10 mm

No. of poles	Insulation voltage (VAC)	Number of bars max x bar thickness (mm)	B (mm)	R bar height (mm)	Pack qty	Reference
3 P	800	1 x 10 / 2 x 10	160	25	1	5024 6404
3 P	800	1 x 10 / 2 x 10	160	40	1	5024 6409
3 P	800	1 x 10 / 2 x 10	190	50	1	5024 6410
3 P	800	1 x 10 / 2 x 10	190	60	1	5024 6412
3 P	800	1 x 10 / 2 x 10	190	63	1	5024 6413
3 P	800	1 x 10 / 2 x 10	220	80	1	5024 6417
3 P	800	1 x 10 / 2 x 10	220	100	1	5024 6418
4 P	1000	1 x 10 / 2 x 10	160	25	1	5024 6604
4 P	1000	1 x 10 / 2 x 10	160	40	1	5024 6609
4 P	1000	1 x 10 / 2 x 10	190	50	1	5024 6610
4 P	1000	1 x 10 / 2 x 10	190	60	1	5024 6612
4 P	1000	1 x 10 / 2 x 10	190	63	1	5024 6613
4 P	1000	1 x 10 / 2 x 10	220	80	1	5024 6617
4 P	1000	1 x 10 / 2 x 10	220	100	1	5024 6618



sb_174_a_2_cat

Accessories

Use

Adjustable interfix profiles allow you to install the busbar supports at a variable depth.



sb_215_a_1_cat.psd

Adjustable interfix profile.

Adjustable interfix profile

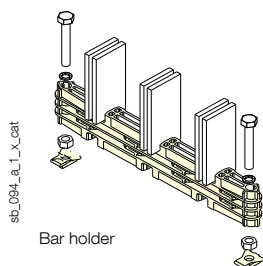
No. of bars	For Depth (mm)	Pack qty	Reference
2 x 5 / 1 x 10	Min. 575 / Max. 675	1	5024 9050
1 x 10 / 2 x 10	Min. 575 / Max. 775	1	5024 9051

Bar holder

No. of bars	No. of poles	Pack qty	Reference
2 x 5 / 1 x 10	3 P	1	5024 9031
2 x 5 / 1 x 10	4 P	1	5024 9041
1 x 10 / 2 x 10	3 P	1	5024 9034
1 x 10 / 2 x 10	4 P	1	5024 9044

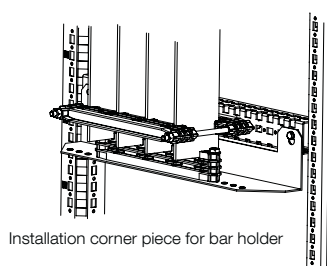
Installation corner piece

For enclosure Depth (mm)	No. of poles	Pack qty	Reference
Min. 400	3/4 P	1	5024 9000
Min. 600	3/4 P	1	5024 9001



sb_094_a_1_x_cat

Bar holder



sb_177_a_1_x_cat

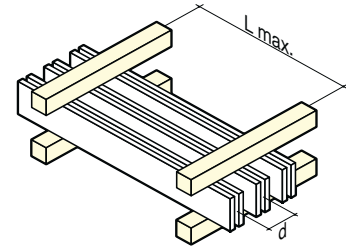
Installation corner piece for bar holder

Characteristics

Characteristics of 3 and 4 poles with bars of 5 mm for SB C 10

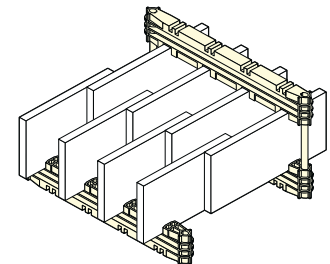
peak I_{sc}	L max. (support bars in mm) for							
	15 kA	24 kA	48 kA	63 kA	82 kA	114 kA		
rms I_{sc}	9 kA	12 kA	23 kA	30 kA	39 kA	52 kA		
Bar x qty							d (mm)	Iz (A) ⁽¹⁾
25 x 5 x 1	775	475	225	175	140	100	60	330
25 x 5 x 2	675	425	200	160	125		60	590
40 x 5 x 1	1000	625	300	225	175	130	60	500
40 x 5 x 2	950	575	275	225	170	125	60	850
50 x 5 x 1	1000	700	350	250	200	130	60	600
50 x 5 x 2	1000	675	325	250	200	145	60	1050
60 x 5 x 1	1000	775	375	300	225	130	60	700
60 x 5 x 2	1000	775	375	300	225	165	60	1200
63 x 5 x 1	1000	800	400	300	225	130	60	700
63 x 5 x 2	1000	800	400	300	225	170	60	1250
80 x 5 x 1	1000	950	475	350	225	125	60	900
80 x 5 x 2	1000	975	475	375	275	200	60	1550
100 x 5 x 1	1000	1000	550	400	225	125	60	1100
100 x 5 x 2	1000	1000	575	425	325	225	60	1900

(1) Admissible busbar nominal current with a temperature inside the panel of between 45°C and 80°C.
For other mounting configurations, please contact us.



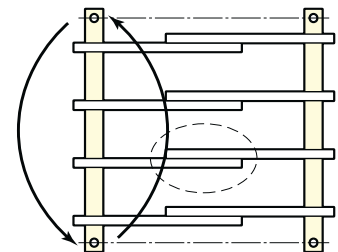
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Adhering to the **maximum distance** between two supports ensures that the busbar supports are able to withstand the given short circuit current values. At these limits, distortion of the copper bars may occur. These deformations are permitted by standard IEC 61439-1 so long as they adhere to the insulation distances.



Mounting of one or two bars per pole

sb_054_b_1_x_cat



Bars joined by reversing a support

sb_045_b_1_x_cat

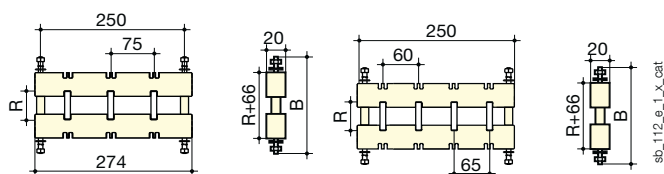
Characteristics of 3 and 4 poles with bars of 10 mm for SB C 10

peak I_{sc}	L max. (support bars in mm) for							
	15 kA	24 kA	48 kA	63 kA	82 kA	114 kA		
rms I_{sc}	9 kA	12 kA	23 kA	30 kA	39 kA	52 kA		
Bar x qty							d (mm)	Iz (A) ⁽¹⁾
25 x 10 x 1	1000	1000	500	375	275	200	65	
25 x 10 x 2	1000	1000	525	400	300	200	90	850
40 x 10 x 1	1000	1000	650	475	375	250	65	700
40 x 10 x 2	1000	1000	700	525	400	275	90	1250
50 x 10 x 1	1000	1000	725	550	425	300	65	850
50 x 10 x 2	1000	1000	800	600	475	325	90	1550
60 x 10 x 1	1000	1000	800	625	475	325	65	1000
60 x 10 x 2	1000	1000	900	675	525	350	90	1800
63 x 10 x 1	1000	1000	825	625	475	350	65	1050
63 x 10 x 2	1000	1000	925	700	550	350	90	1850
80 x 10 x 1	1000	1000	975	725	550	400	65	1300
80 x 10 x 2	1000	1000	1000	850	650	350	90	2300
100 x 10 x 1	1000	1000	1000	850	650	400	65	1550
100 x 10 x 2	1000	1000	1000	975	675	350	90	2750

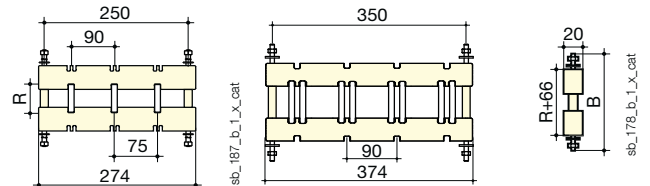
(1) Admissible busbar nominal current with a temperature inside the panel of between 45°C and 80°C.
For other mounting configurations, please contact us.

Dimensions

2 bars of 5 mm or 1 bar of 10 mm



1 or 2 bars of 10 mm



Fixed interphase:

- 3 poles 2 x 5, 1 x 10: 75 mm.
- 4 poles thickness bar 5 mm: 60 mm, thickness bar 10 mm: 65 mm.

Fixed interphase:

- 3 poles 1 bar of 10 mm: 75 mm, 2 bars of 10 mm per pole: 90 mm.
- 4 poles 1 or 2 bars of 10 mm: 90 mm.

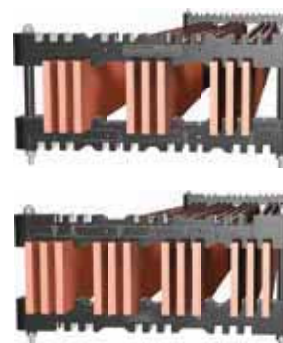
Busbar supports

Busbar

■ SB C 15 multipolar edgewise mounting busbar supports with fixed interphase

References

No. of poles	Insulation voltage (VAC)	Number of bars max x bar thickness (mm)	B (mm)	R bar height (mm)	Pack qty	Reference
3/4 P	1000	3 x 10	160	30	1	5024 4505
3/4 P	1000	3 x 10	160	32	1	5024 4506
3/4 P	1000	3 x 10	160	40	1	5024 4509
3/4 P	1000	3 x 10	190	50	1	5024 4510
3/4 P	1000	3 x 10	190	60	1	5024 4512
3/4 P	1000	3 x 10	220	80	1	5024 4517
3/4 P	1000	3 x 10	220	100	1	5024 4518
3/4 P	1000	3 x 10	245	120	1	5024 4520
3/4 P	1000	3 x 10	245	125	1	5024 4521
3/4 P	1000	3 x 10	280	160	1	5024 4524



sb_213_a_1_cat.psd

sb_214_a_1_cat.psd

The deciding details

> SB C 15 busbar supports permit the installation of 3 or 4 poles with the same support.

Accessories

Use

Adjustable interfix profiles allow you to install the busbar supports at a variable depth.

Adjustable interfix profile		
For Depth (mm)	To be ordered in multiples of	Reference
Min. 575 / Max. 775	1	5024 9052

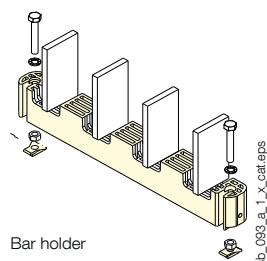
Use

Use reinforced profiles when installing high-load busbars. E.g. 3 x 125 x 10.

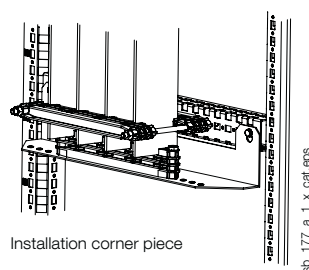
Adjustable floating profile		
For Depth (mm)	To be ordered in multiples of	Reference
Min. 575 / Max. 775	1	5024 9053

Bar holder		
No. of poles	To be ordered in multiples of	Reference
3 P	1	5024 9032
4 P	1	5024 9042

Installation corner piece		
For Depth (mm)	To be ordered in multiples of	Reference
Min. 400	1	5024 9000
Min. 600	1	5024 9001



Bar holder



Installation corner piece

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Adjustable interfix profile.

sb_217_a_1_cat.psd



Adjustable floating profile.

sb_218_a_1_cat.psd

Connection accessories

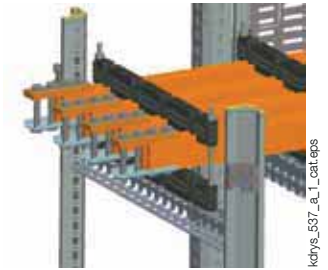
Use

Allows you to fix a horizontal busbar or connect a horizontal and a vertical busbar without having to drill the bars.

Amperage	No. of bars/ pole	To be ordered in multiples of	Horizontal connection Reference	90° connection Reference
1600 A	2	1	5119 4411	5119 4401
3200 A	2	1	5119 4412	5119 4402
5000 A	3	1	5119 4413	5119 4403

Screws

Type of screw	Bar height (mm)	To be ordered in multiples of	Reference
H M10 L80	60	1	5119 4505
H M10 L90	60	1	5119 4506
H M10 L110	80	1	5119 4508
H M10 L130	100	1	5119 4510
H M10 L150	125	1	5119 4512
H M10 L180	160	1	5119 4513



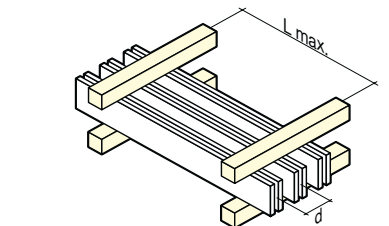
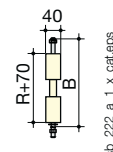
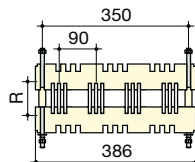
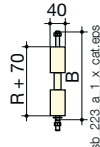
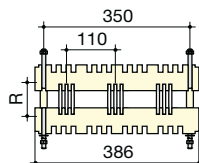
Characteristics

Characteristics of 3 and 4 poles with bars of 10 mm for SB C 15

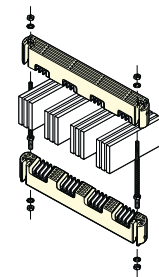
peak I_{sc}	L max. (support bars in mm) for							
	63 kA	82 kA	114 kA	152 kA	165 kA	176 kA		
rms I_{sc}	30 kA	39 kA	52 kA	69 kA	75 kA	80 kA		
Bar x qty							d (mm)	Iz (A) ⁽¹⁾
32 x 10 x 1	1000	1000	600	225	200	200	90	610
32 x 10 x 2	1000	1000	600	225	200	200	90	1050
32 x 10 x 3	1000	1000	600	225	200	200	90	1500
40 x 10 x 1	1000	1000	600	225	200	200	90	700
40 x 10 x 2	1000	1000	600	225	200	200	90	1250
40 x 10 x 3	1000	1000	600	225	225	200	90	1800
50 x 10 x 1	1000	1000	600	225	200	200	90	850
50 x 10 x 2	1000	1000	600	225	200	200	90	1550
50 x 10 x 3	1000	1000	600	250	200	200	90	2150
60 x 10 x 1	1000	1000	600	250	225	200	90	1000
60 x 10 x 2	1000	1000	600	250	225	200	90	1800
60 x 10 x 3	1000	1000	600	250	225	200	90	2500
80 x 10 x 1	1000	1000	600	275	225	225	90	1300
80 x 10 x 2	1000	1000	600	275	225	225	90	2300
80 x 10 x 3	1000	1000	600	275	225	225	90	3200
100 x 10 x 1	1000	1000	650	300	250	225	90	1550
100 x 10 x 2	1000	1000	650	300	250	225	90	2750
100 x 10 x 3	1000	1000	650	300	250	225	90	3250
125 x 10 x 1	1000	1000	700	350	300	250	90	1900
125 x 10 x 2	1000	1000	700	350	300	250	90	3350
125 x 10 x 3	1000	1000	700	350	300	250	90	4650
160 x 10 x 1	1000	1000	725	375	325	275	90	2350
160 x 10 x 2	1000	1000	725	375	325	275	90	4150
160 x 10 x 3	1000	1000	725	375	325	275	90	5800

(1) Admissible busbar nominal current with a temperature inside the panel of between 45°C and 80°C.
For other mounting configurations, please contact us.

Dimensions



Adhering to the **maximum distance** between two supports ensures that the busbar supports are able to withstand the given short circuit current values. At these limits, distortion of the copper bars may occur. These deformations are permitted by standard IEC 61439-1 so long as they adhere to the insulation distances.



Mounting of one to three bars per pole

Busbar supports

Busbar

■ SB C 20 multipolar edgewise mounting busbar supports with fixed interphase

References

No. of poles	Insulation voltage (VAC)	No. of bars	Thickness of bar (mm)	B (mm)	R bar height (mm)	Pack qty	Reference
3 P	1,000	1 - 4	5	190	50	1	5024 8310
3 P	1,000	1 - 4	5	190	60	1	5024 8312
3 P	1,000	1 - 4	5	190	63	1	5024 8313
3 P	1,000	1 - 4	5	220	80	1	5024 8317
3 P	1,000	1 - 4	5	220	100	1	5024 8318
3 P	1,000	1 - 4	5	245	120	1	5024 8320
3 P	1,000	1 - 4	5	245	125	1	5024 8321
3 P	1,000	1 - 4	5	280	160	1	5024 8324
3 P	1,000	1 - 2	10	190	50	1	5024 7310
3 P	1,000	1 - 2	10	190	60	1	5024 7312
3 P	1,000	1 - 2	10	190	63	1	5024 7313
3 P	1,000	1 - 2	10	220	80	1	5024 7317
3 P	1,000	1 - 2	10	220	100	1	5024 7318
3 P	1,000	1 - 2	10	245	120	1	5024 7320
3 P	1,000	1 - 2	10	245	125	1	5024 7321
3 P	1,000	1 - 2	10	280	160	1	5024 7324
4 P	1,000	1 - 4	5	190	50	1	5024 8410
4 P	1,000	1 - 4	5	190	60	1	5024 8412
4 P	1,000	1 - 4	5	190	63	1	5024 8413
4 P	1,000	1 - 4	5	220	80	1	5024 8417
4 P	1,000	1 - 4	5	220	100	1	5024 8418
4 P	1,000	1 - 4	5	245	120	1	5024 8420
4 P	1,000	1 - 4	5	245	125	1	5024 8421
4 P	1,000	1 - 4	5	280	160	1	5024 8424
4 P	1,000	1 - 2	10	190	50	1	5024 7410
4 P	1,000	1 - 2	10	190	60	1	5024 7412
4 P	1,000	1 - 2	10	190	63	1	5024 7413
4 P	1,000	1 - 2	10	220	80	1	5024 7417
4 P	1,000	1 - 2	10	220	100	1	5024 7418
4 P	1,000	1 - 2	10	245	120	1	5024 7420
4 P	1,000	1 - 2	10	245	125	1	5024 7421
4 P	1,000	1 - 2	10	280	160	1	5024 7424



sb_077_a_1_cat

Our advantages

- > The key details :
SB C 20 busbar supports have threaded holes which allow a protective screen to be attached.
The supports are fixed in place using threaded rods and M8 nuts.



Threaded rods and nuts, M8

SB C 20
Tapped holes

Accessories

Use

Adjustable interfix profiles allow you to install the busbar supports at a variable depth.

Adjustable interfix profile

For depth (mm)	To be ordered in multiples of	Reference
Min. 575 / Max. 775	1	5024 9052

Use

Use reinforced profiles when installing high-load busbars. E.g. 2 x 160 x 10.

Adjustable floating profile

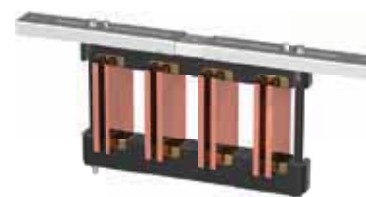
For depth (mm)	To be ordered in multiples of	Reference
Min. 575 / Max. 775	1	5024 9053

Bar holder

No. of poles	To be ordered in multiples of	Reference
3 P	1	5024 9032
4 P	1	5024 9042

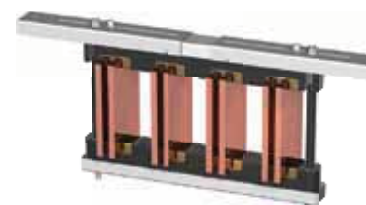
Installation corner piece

For enclosure Depth (mm)	To be ordered in multiples of	Reference
Min. 400	1	5024 9000
Min. 600	1	5024 9001



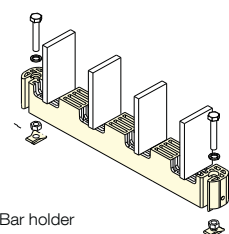
sb_219_a_1_cat.psd

Adjustable interfix profile.



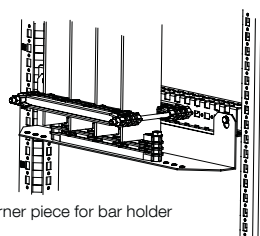
sb_220_a_1_cat.psd

Adjustable floating profile.



sb_093_a_1_x_cat

Bar holder



sb_177_a_1_x_cat

Installation corner piece for bar holder

Characteristics

Characteristics of 3 and 4 poles with bars of 5 mm for SB C 20

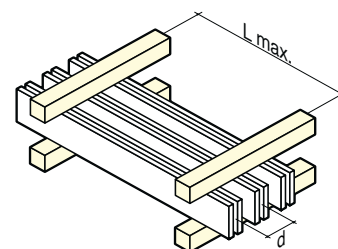
peak I_{sc}	L max. (support bars in mm) for								d (mm)	Iz (A) ⁽¹⁾
	63 kA	82 kA	114 kA	152 kA	165 kA	187 kA	220 kA	264 kA		
rms I_{sc}	30 kA	39 kA	52 kA	69 kA	75 kA	85 kA	100 kA	120 kA		
Bar x qty										
50 x 5 x 1	625	475	350	250	225	200	175	150	90	600
50 x 5 x 2	525	400	300	225	200	175	155	130	90	1,050
50 x 5 x 3	600	450	325	250	225	200	175	145	90	1,450
50 x 5 x 4	675	525	375	275	250	225	175	160	90	1,850
60 x 5 x 1	675	525	375	275	250	225	200	165	90	700
60 x 5 x 2	600	450	325	250	225	200	175	145	90	1,200
60 x 5 x 3	675	525	375	275	250	225	175	165	90	1,700
60 x 5 x 4	750	575	400	300	275	250	200	175	90	2,150
63 x 5 x 1	700	550	375	275	250	225	200	170	90	700
63 x 5 x 2	625	475	350	250	225	200	175	150	90	1,250
63 x 5 x 3	700	525	375	275	250	225	200	170	90	1,800
63 x 5 x 4	775	600	425	325	275	250	200	175	90	2,250
80 x 5 x 1	800	625	450	325	300	250	225	175	90	900
80 x 5 x 2	725	550	400	300	275	250	200	175	90	1,550
80 x 5 x 3	800	625	450	325	300	275	225	175	90	2,200
80 x 5 x 4	875	675	475	350	325	300	250	200	90	2,750
100 x 5 x 1	900	700	500	375	350	300	250	200	90	1,100
100 x 5 x 2	850	650	475	350	325	275	225	200	90	1,900
100 x 5 x 3	925	700	500	375	350	300	250	200	90	2,650
100 x 5 x 4	975	750	525	400	375	325	275	225	90	3,350
125 x 5 x 1	1000	800	575	425	400	350	300	250	90	1,300
125 x 5 x 2	975	750	550	400	375	325	275	225	90	2,350
125 x 5 x 3	1000	800	575	425	400	350	300	250	90	3,250
125 x 5 x 4	1000	825	575	425	400	350	300	250	90	4,100

(1) Admissible busbar nominal current with a temperature inside the panel of between 45°C and 80°C.
For other mounting configurations, please contact us.

Characteristics of 3 and 4 poles with bars of 10 mm for SB C 20

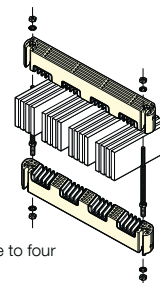
peak I_{sc}	L max. (support bars in mm) for								d (mm)	Iz (A) ⁽¹⁾
	63 kA	82 kA	114 kA	152 kA	165 kA	187 kA	220 kA	264 kA		
rms I_{sc}	30 kA	39 kA	52 kA	69 kA	75 kA	85 kA	100 kA	120 kA		
Bar x qty										
50 x 10 x 1	1000	925	675	500	450	400	350	275	90	850
50 x 10 x 2	1000	850	600	450	400	350	300	250	90	1550
60 x 10 x 1	1000	1000	725	550	500	450	375	300	90	1000
60 x 10 x 2	1000	925	675	500	450	400	350	275	90	1800
63 x 10 x 1	1000	1000	750	550	525	450	375	325	90	1050
63 x 10 x 2	1000	950	675	500	475	400	350	275	90	1890
80 x 10 x 1	1000	1000	850	625	575	525	425	350	90	1300
80 x 10 x 2	1000	1000	775	575	525	475	400	325	90	2300
100 x 10 x 1	1000	1000	950	700	650	575	475	400	90	1550
100 x 10 x 2	1000	1000	850	625	575	525	425	350	90	2750
125 x 10 x 1	1000	1000	1000	800	725	650	550	450	90	1900
125 x 10 x 2	1000	1000	925	675	625	550	475	400	90	3350
160 x 10 x 1	1000	1000	1000	900	825	725	625	500	90	2350
160 x 10 x 2	1000	1000	950	700	650	575	475	400	90	4150

(1) Admissible busbar nominal current with a temperature inside the panel of between 45°C and 80°C.
For other mounting configurations, please contact us.



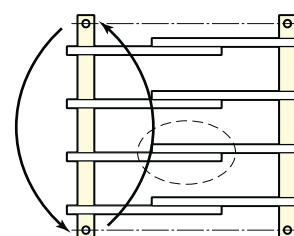
sb_021_b_1_x_cat

Adhering to the **maximum distance** between two supports ensures that the busbar supports are able to withstand the given short circuit current values. At these limits, distortion of the copper bars may occur. These deformations are permitted by standard IEC 61439-1 so long as they adhere to the insulation distances.



sb_063_a_1_x_cat

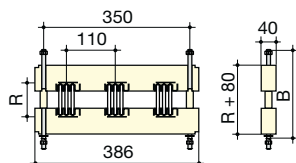
Assembly of one to four bars per pole



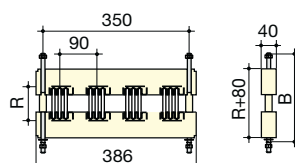
sb_045_b_1_x_cat

Bars joined by reversing a support

Dimensions



sb_066_c_1_x_cat



sb_067_c_1_x_cat

Fixed interphase:

- 3 poles: 110 mm
- 4 poles: 90 mm

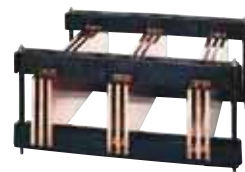
Busbar supports

Busbar

■ **SB C 30** multipolar edgewise mounting busbar supports with fixed interphase

References

No. of poles	Insulation voltage (VAC)	No. of bars	Thickness of bar (mm)	B (mm)	R bar height (mm)	Pack qty	Reference
3 P	1,000	1 - 3	10	190	50	1	5024 5310
3 P	1,000	1 - 3	10	190	60	1	5024 5312
3 P	1,000	1 - 3	10	190	63	1	5024 5313
3 P	1,000	1 - 3	10	190	70	1	5024 5315
3 P	1,000	1 - 3	10	220	80	1	5024 5317
3 P	1,000	1 - 3	10	220	100	1	5024 5318
3 P	1,000	1 - 3	10	245	120	1	5024 5320
3 P	1,000	1 - 3	10	245	125	1	5024 5321
3 P	1,000	1 - 3	10	280	160	1	5024 5324
3 P	1,000	1 - 3	10	325	200	1	5024 5325
4 P	1,000	1 - 3	10	190	50	1	5024 5510
4 P	1,000	1 - 3	10	190	60	1	5024 5512
4 P	1,000	1 - 3	10	190	63	1	5024 5513
4 P	1,000	1 - 3	10	190	70	1	5024 5515
4 P	1,000	1 - 3	10	220	80	1	5024 5517
4 P	1,000	1 - 3	10	220	100	1	5024 5518
4 P	1,000	1 - 3	10	245	120	1	5024 5520
4 P	1,000	1 - 3	10	245	125	1	5024 5521
4 P	1,000	1 - 3	10	280	160	1	5024 5524
4 P	1,000	1 - 3	10	325	200	1	5024 5525



sb_173_a_2_cat

Accessories

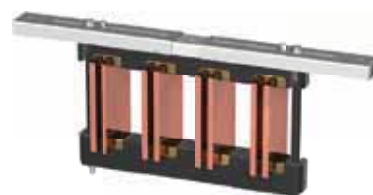
Use

Adjustable interfixed profiles allow you to install the busbar supports at a variable depth.

Adjustable interfixed profile		
For depth (mm)	To be ordered in multiples of	Reference
Min. 575 / Max. 775	1	5024 9054

Use

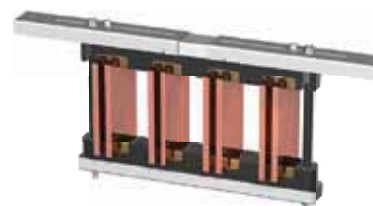
Use reinforced profiles when installing high-load busbars. E.g. 3 x 125 x 10.



sb_219_a_1_cat.psd

Adjustable interfixed profile.

Adjustable floating profile		
For depth (mm)	To be ordered in multiples of	Reference
Min. 575 / Max. 775	1	5024 9055

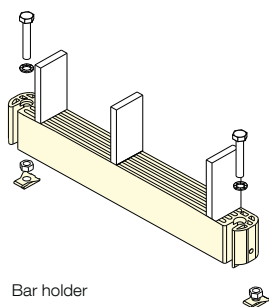


sb_220_a_1_cat.psd

Adjustable floating profile.

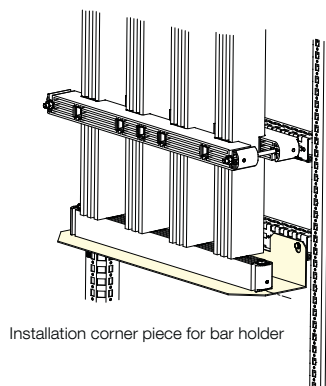
Bar holder		
No. of poles	To be ordered in multiples of	Reference
3/4 P	1	5024 9033

Installation corner piece		
For depth (mm)	To be ordered in multiples of	Reference
Min. 600	1	5024 9001



Bar holder

sb_122_b_1_x_cat



Installation corner piece for bar holder

sb_180_a_1_x_cat

Connection accessories

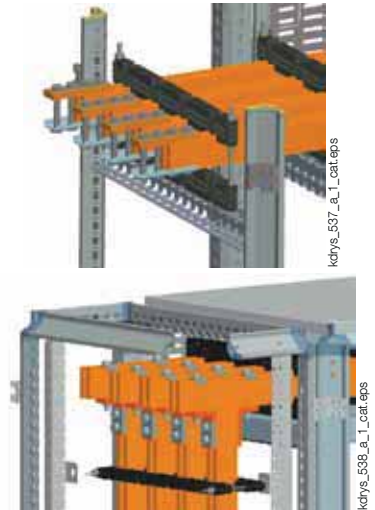
Use

Allows you to fix a horizontal busbar or connect a horizontal and a vertical busbar without having to drill the bars.

Amperage	No. of bars/ pole	To be ordered in multiples of	Horizontal connection Reference	90° connection Reference
1600 A	2	1	5119 4411	5119 4401
3200 A	2	1	5119 4412	5119 4402
5000 A	3	1	5119 4413	5119 4403

Screws

Type of screw	Bar height (mm)	To be ordered in multiples of	Reference
H M10 L80	60	1	5119 4505
H M10 L90	60	1	5119 4506
H M10 L110	80	1	5119 4508
H M10 L130	100	1	5119 4510
H M10 L150	125	1	5119 4512
H M10 L180	160	1	5119 4513

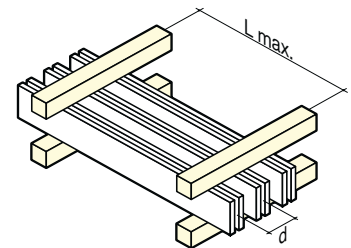


Characteristics

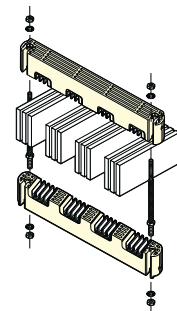
Characteristics of 3 and 4 poles with bars of 10 mm for SB C 30

peak I_{sc}	L max. (support bars in mm) for								d (mm)	Iz (A) (1)
	63 kA	82 kA	114 kA	152 kA	165 kA	187 kA	220 kA	264 kA		
rms I_{sc}	30 kA	39 kA	52 kA	69 kA	75 kA	85 kA	100 kA	120 kA		
Bar x qty										
50 x 10 x 1	1000	1000	800	600	550	475	400	350	130	850
50 x 10 x 2	1000	900	650	475	450	400	325	275	130	1,550
50 x 10 x 3	725	550	400	300	275	225	200	175	130	2,150
60 x 10 x 1	1000	1000	875	650	600	525	450	375	130	1,000
60 x 10 x 2	1000	1000	725	525	500	425	375	300	130	1,800
60 x 10 x 3	825	625	450	325	300	275	225	175	130	2,500
63 x 10 x 1	1000	1000	900	675	600	550	450	375	130	1,050
63 x 10 x 2	1000	1000	725	550	500	450	375	300	130	1,850
63 x 10 x 3	850	650	450	350	325	275	225	200	130	2,600
80 x 10 x 1	1000	1000	1000	750	675	600	500	425	130	1,300
80 x 10 x 2	1000	1000	825	625	575	500	425	350	130	2,300
80 x 10 x 3	1000	750	550	400	375	325	275	225	130	3,200
100 x 10 x 1	1000	1000	1000	825	750	675	575	475	130	1,550
100 x 10 x 2	1000	1000	925	675	625	550	475	400	130	2,750
100 x 10 x 3	1000	900	650	475	425	375	325	275	130	3,250
125 x 10 x 1	1000	1000	1000	925	850	750	625	525	130	1,900
125 x 10 x 2	1000	1000	1000	750	675	600	500	425	130	3,350
125 x 10 x 3	1000	1000	750	550	525	450	375	325	130	4,650
160 x 10 x 1	1000	1000	1000	1000	925	825	700	575	130	2,350
160 x 10 x 2	1000	1000	1000	750	700	625	525	425	130	4,150
160 x 10 x 3	1000	1000	900	675	625	550	475	375	130	5,800
200 x 10 x 1	1000	1000	1000	1000	1000	900	750	625	130	2,850
200 x 10 x 2	1000	1000	925	700	625	550	475	400	130	5,050
200 x 10 x 3	1000	1000	725	525	500	425	375	300	130	7,000

(1) Admissible busbar nominal current with a temperature inside the panel of between 45°C and 80°C.
For other mounting configurations, please contact us.

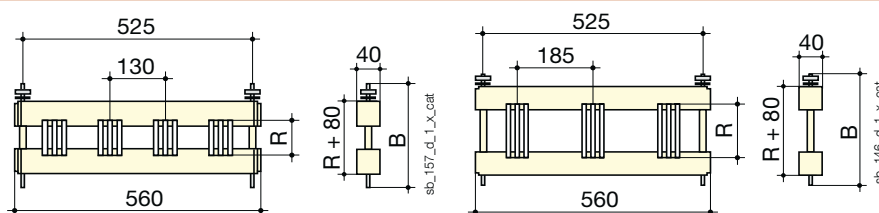


Adhering to the **maximum distance** between two supports ensures that the busbar supports are able to withstand the given short circuit current values. At these limits, distortion of the copper bars may occur. These deformations are permitted by standard IEC 61439-1 so long as they adhere to the insulation distances.



Mounting of one to three bars per pole

Dimensions



Fixed interphase:
 • 3 poles: 185 mm
 • 4 poles: 130 mm

Busbar supports

Busbar

■ **SB C ER P** multipolar edgewise mounting busbar supports with adjustable interphase

References

Complete busbar support

Designation	Thickness of bar (mm)	Width of bar (mm)	No. of bars	No. of poles	Reference
Complete support	10	480	1 ... 3	4	5025 5135

Insert

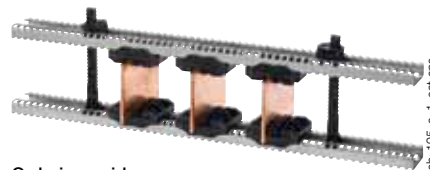
Designation	Thickness of bar (mm)	No. of bars	No. of poles	Quantity	To be ordered in multiples of	Reference
Insert for 5 mm bars	5	3	3 P	6 ⁽¹⁾	8	5025 5205
Insert for 5 mm bars	5	3	4 P	8 ⁽¹⁾	8	5025 5205
Insert for 10 mm bars	10	2	3 P	6 ⁽¹⁾	4	5025 5210
Insert for 10 mm bars	10	2	4 P	8 ⁽¹⁾	4	5025 5210
Insert for 10 mm bars	10	3	3 P	6 ⁽¹⁾	1	5025 5111
Insert for 10 mm bars	10	3	4 P	8 ⁽¹⁾	1	5025 5111

Mounting accessories

Designation	Length (mm)	Quantity	To be ordered in multiples of	Reference
Stud kit (bar height 25 to 200 mm)		2 ⁽¹⁾	4	5025 5100
Stud kit metal (bar height 0 to 100 mm)		2	2	5025 5101
Stud kit metal (bar height 0 to 200 mm)		2	2	5025 5102
380 mm profile	380	2 ⁽¹⁾	4	5025 5124
480 mm profile	480	2 ⁽¹⁾	4	5025 5125
580 mm profile	580	2 ⁽¹⁾	4	5025 5126
780 mm profile	780	2 ⁽¹⁾	4	5025 5128
2 m profile	2000		4	5025 5120
Profile for Prisma enclosure ⁽²⁾	525	1 ⁽¹⁾	1	5025 5130

(1) Quantity required for 1 busbar support inserts.

(2) Kit of 2 profiles and 4 brackets.



Ordering guide

- For three poles, order: 6 x inserts, 2 x studs, 2 x profiles.
- For four poles, order: 8 x inserts, 2 x studs, 2 x profiles.

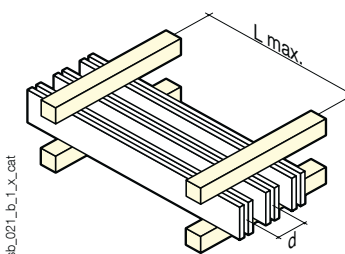
Characteristics

5 mm inserts for up to 3 bars and 10 mm inserts for up to 2 bars

peak I_{sc}	L max. (support bars in mm) for						
	82 kA	114 kA	152 kA	165 kA	187 kA		
rms I_{sc}	39 kA	52 kA	69 kA	75 kA	85 kA		
Bar x qty						d min. (mm)	lz (A) ⁽¹⁾
50 x 5 x 1	500	325	175	150		75	600
50 x 5 x 2	500	325	175	150	100	75	1050
50 x 5 x 3	500	325	175	150	100	75	1450
63 x 5 x 1	525	350	200	175		75	700
63 x 5 x 2	525	350	200	175	125	75	1250
63 x 5 x 3	525	350	200	175	125	75	1800
80 x 5 x 1	525	350	200	175	125	75	900
80 x 5 x 2	525	350	200	175	125	75	1550
80 x 5 x 3	525	350	200	175	125	75	2200
100 x 5 x 1	550	375	225	200	175	75	1100
100 x 5 x 2	550	375	225	200	175	75	1900
100 x 5 x 3	550	375	225	200	175	75	2650
125 x 5 x 1	575	400	250	225	200	75	1300
125 x 5 x 2	575	400	250	225	200	75	2350
125 x 5 x 3	575	400	250	225	200	75	3250
80 x 10 x 1	1000	750	350	300	200	75	1300
80 x 10 x 2	1000	750	350	300	200	75	2300
100 x 10 x 1	1000	750	375	325	225	75	1550
100 x 10 x 2	1000	775	375	325	225	75	2750
125 x 10 x 1	1000	775	375	325	225	75	1900
125 x 10 x 2	1000	775	375	325	225	75	3350
160 x 10 x 1	1000	775	400	350	250	75	2350
160 x 10 x 2	1000	800	400	350	250	75	4150

(1) Admissible busbar nominal current with a temperature inside the panel of between 45°C and 80°C.

For other mounting configurations, please contact us.



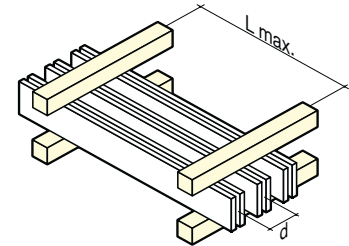
Adhering to the **maximum distance** between two supports ensures that the busbar supports are able to withstand the given short circuit current values. At these limits, distortion of the copper bars may occur. These deformations are permitted by standard IEC 61439-1 so long as they adhere to the insulation distances.

Characteristics (continued)

10 mm insert / 3 bars

peak I_{sc}	L max. (bar supports in mm)							
	63 kA	82 kA	114 kA	152 kA	165 kA	187 kA		
rms I_{sc}	30 kA	39 kA	52 kA	69 kA	75 kA	85 kA		
Bar x qty							d (mm)	Iz (A) ⁽¹⁾
50 x 10 x 1	1000	1000	650	250	200	150	70	850
50 x 10 x 2	1000	1000	650	250	200	150	70	1550
50 x 10 x 3	1000	1000	650	250	200	150	70	2150
63 x 10 x 1	1000	1000	675	275	225	175	70	1050
63 x 10 x 2	1000	1000	675	275	225	175	70	1850
63 x 10 x 3	1000	1000	675	275	225	175	70	2600
80 x 10 x 1	1000	1000	700	300	250	175	70	1300
80 x 10 x 2	1000	1000	700	300	250	175	70	2300
80 x 10 x 3	1000	1000	700	300	250	175	70	3200
100 x 10 x 1	1000	1000	725	325	275	175	70	1550
100 x 10 x 2	1000	1000	725	325	275	175	70	2750
100 x 10 x 3	1000	1000	725	325	275	175	70	3250
125 x 10 x 1	1000	1000	725	350	275	200	70	1900
125 x 10 x 2	1000	1000	725	350	275	200	70	3350
125 x 10 x 3	1000	1000	725	350	275	200	70	4650
160 x 10 x 1	1000	1000	750	350	300	200	70	2350
160 x 10 x 2	1000	1000	750	350	300	200	70	4150
160 x 10 x 3	1000	1000	750	350	300	200	70	5800

(1) Admissible busbar nominal current with a temperature inside the panel of between 45°C and 80°C.
For other mounting configurations, please contact us.



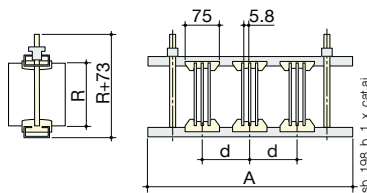
Adhering to the **maximum distance** between two supports ensures that the busbar supports are able to withstand the given short circuit current values. At these limits, distortion of the copper bars may occur. These deformations are permitted by standard IEC 61439-1 so long as they adhere to the insulation distances.

Dimensions

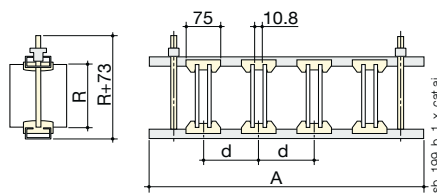
Mounting

- 1 to 3 bars of 5 mm thickness, per phase.
- 1 to 3 bars of 10 mm thickness, per phase.
- Interphase distance: min. 70 mm and max. 200 mm.
- Use 2 studs positioned symmetrically on the extremity of the poles or between the outermost poles.

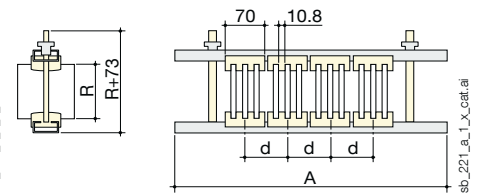
A (mm)	Enclosure (mm)
380	400
480	500
580	600
780	800



5 mm insert / 3 bars



10 mm insert / 2 bars



10 mm insert / 3 bars

Busbar supports

Busbar

■ SB 205 - SB 306 unipolar flat mounting busbar supports

References

Support	Insulation voltage (VAC)	No. of bars	Bar width (mm)	To be ordered in multiples of	Reference
SB 205	1,000	1 - 3	100	6	5022 5110
SB 306	1,000	1 - 3	160	6	5023 6110

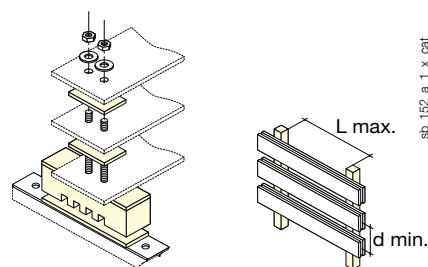


sb_117_a_1_cat.eps

Characteristics

Support	peak I _{sc}	L max. (support bars in mm) for						d min. (mm)	Iz (A) ⁽¹⁾
		48 kA	63 kA	82 kA	114 kA	152 kA	165 kA		
	rms I _{sc}	23 kA	30 kA	39 kA	52 kA	69 kA	75 kA		
	Bar x qty								
SB 205	100 x 10 x 1	1000	1000	1000	1000	1000	1000	125	1550
SB 205	100 x 10 x 2	1000	1000	1000	1000	1000	1000	125	2750
SB 205	100 x 10 x 3	1000	1000	1000	1000	1000	1000	125	3850
SB 306	160 x 10 x 1	1000	1000	1000	1000	1000	1000	175	2350
SB 306	160 x 10 x 2	1000	1000	1000	1000	1000	1000	175	4150
SB 306	160 x 10 x 3	1000	1000	1000	1000	1000	1000	175	5800

(1) Admissible busbar nominal current with a temperature inside the panel of between 45°C and 80°C.
For other mounting configurations, please contact us.

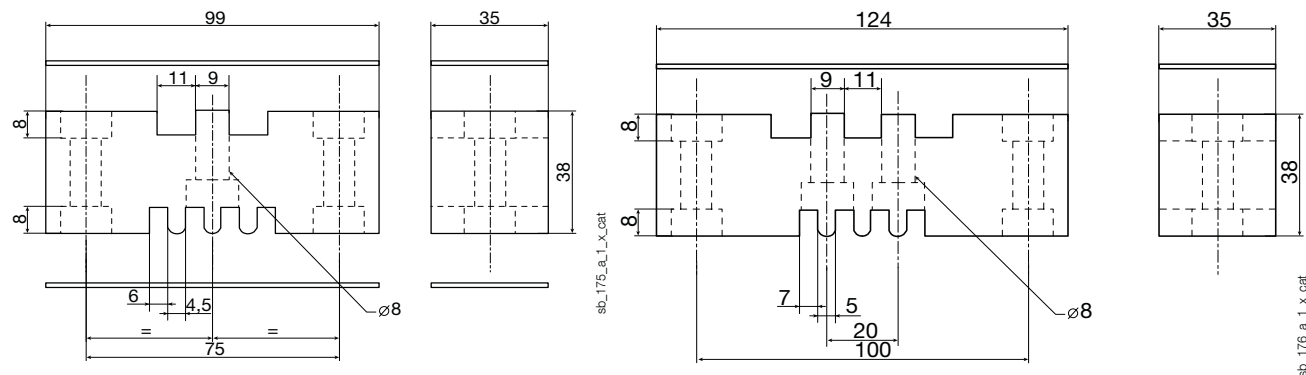


sb_152_a_1_x_cat

Mounting

- SB 205: 1 to 3 bars of max. recommended width 100 mm.
- SB 306: 1 to 3 bars of max. recommended width 160 mm.

Dimensions



sb_176_a_1_x_cat

■ SB 7500 multipolar flat mounting busbar supports with fixed interphase

References

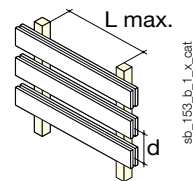
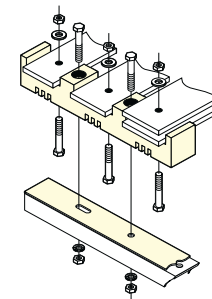
No. of poles	Insulation voltage (VAC)	Bar width (mm)	Pack qty	Reference
3 P	1,000	40 -50	1	5027 5310
4 P	1,000	40 -50	1	5027 5410



sb_136_a_3_cat.eps

Characteristics

peak I_{sc}	L max. (support bars in mm) for							
	24 kA	48 kA	63 kA	82 kA	114 kA	152 kA		
rms I_{sc}	12 kA	23 kA	30 kA	39 kA	52 kA	69 kA		
Bar x qty							d (mm)	Iz (A)
50 x 5 x 1	1000	1000	950	725	525	450	75	600
50 x 5 x 2	1000	1000	1000	1000	975	850	75	1,050

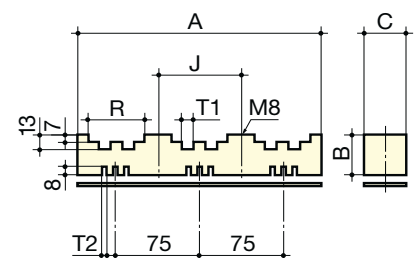


sb_153_b_1_cat

Mounting: SB 7500: 1 to 2 bars of max. width 50 mm per pole. Fixed interphase of 75 mm.

Dimensions

No. of poles	A	B	C	J	R	T ₁	T ₂
3 P	220	38	35	75	52.5	11	6
4 P	295	38	35	75	52.5	11	6



sb_149_a_1_cat

Busbar supports

Busbar

■ SB P 30 multipolar flat mounting busbar supports with fixed interphase

References

No. of poles	Insulation voltage (VAC)	Bar width (mm)	Pack qty	Reference
3 P	1000	50 -100	1	5023 0310
4 P	1000	50 -80	1	5023 0410

Mounting bracket Accessories	To be ordered in multiples of	Reference
2 mounting brackets for SB P 30	1	5024 9002

Bar fixing screws Accessories	To be ordered in multiples of	Reference
Grub screws for mounting 1 bar	25	5119 4601
Grub screws for mounting 2 bars back-to-back	25	5119 4602
Grub screws for mounting 3 back-to-back bars	25	5119 4603



Characteristics

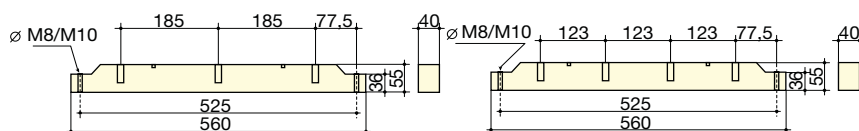
d = 123 mm

peak I _{sc}	L max. (support bars in mm) for									
	63 kA	84 kA	110 kA	143 kA	165 kA	176 kA	187 kA	220 kA		
rms I _{sc}	30 kA	40 kA	50 kA	65 kA	75 kA	80 kA	85 kA	100 kA		
Bar x qty									d (mm)	Iz (A)
50 x 5 x 1	1000	950	525	300	225	200	175	130	123	600
63 x 5 x 1	1000	925	525	300	225	200	175	130	123	700
80 x 5 x 1	1000	900	500	300	225	175	175	125	123	900
80 x 5 x 2	1000	900	500	300	225	175	175	125	123	1,550
50 x 10 x 1	1000	950	525	300	225	200	175	130	123	850
50 x 10 x 2	1000	975	525	300	225	200	175	135	123	1,550
63 x 10 x 1	1000	925	525	300	225	200	175	130	123	1,050
63 x 10 x 2	1000	950	525	300	225	200	175	130	123	1,850
80 x 10 x 1	1000	900	500	300	225	175	175	125	123	1,300
80 x 10 x 2	1000	925	500	300	225	200	175	125	123	2,300
80 x 10 x 3	1000	950	525	300	225	200	175	130	123	3,200

d = 185 mm

peak I _{sc}	L max. (support bars in mm) for									
	63 kA	84 kA	110 kA	143 kA	165 kA	176 kA	187 kA	220 kA		
rms I _{sc}	30 kA	40 kA	50 kA	65 kA	75 kA	80 kA	85 kA	100 kA		
Bar x qty									d (mm)	Iz (A)
50 x 5 x 1	1000	1000	800	475	350	300	275	200	185	
63 x 5 x 1	1000	1000	800	475	350	300	275	200	185	
80 x 5 x 1	1000	1000	800	475	350	300	275	200	185	
80 x 5 x 2	1000	1000	800	475	350	300	275	200	185	
100 x 5 x 1	1000	1000	775	450	325	300	250	175	185	1100
100 x 5 x 2	1000	1000	775	450	325	300	250	175	185	1900
100 x 5 x 3	1000	1000	775	450	350	300	250	175	185	2650
50 x 10 x 1	1000	1000	800	475	350	300	275	200	185	
50 x 10 x 2	1000	1000	800	475	350	300	275	200	185	
63 x 10 x 1	1000	1000	800	475	350	300	275	200	185	
63 x 10 x 2	1000	1000	800	475	350	300	275	200	185	
80 x 10 x 1	1000	1000	800	475	350	300	275	200	185	
80 x 10 x 2	1000	1000	800	475	350	300	275	200	185	
80 x 10 x 3	1000	1000	800	475	350	300	275	200	185	
100 x 10 x 1	1000	1000	775	450	325	300	250	175	185	1550
100 x 10 x 2	1000	1000	775	450	350	300	250	175	185	2750
100 x 10 x 3	1000	1000	775	450	350	300	275	175	185	3850

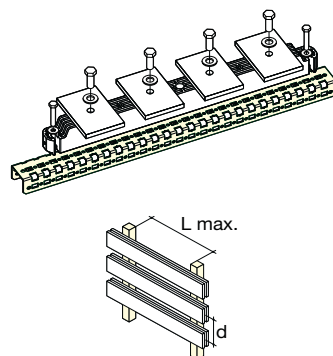
Dimensions



sb_154_c_1_x_cat

Mounting

- 3 poles: 1 to 3 bars of max. width 100 mm per pole, fixed interphase of 185 mm
- 4 poles: 1 to 3 bars of max. width 80 mm per pole, fixed interphase of 123 mm



sb_160_a_1_x_cat

sb_200_a_1_x_cat

■ *Hexagonal insulators* unipolar flat mounting busbar supports

Female to female hexagonal insulator

References

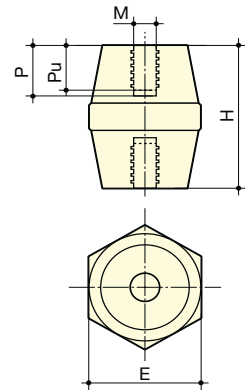
Height H (mm)	Threading M	Depth		Diameter E (mm)	Pack qty	Reference
		P (mm)	Pu (mm)			
20	M4	8	5.5	19	1	5031 2004
20	M6	8	5.5	19	1	5031 2006
25	M6	10	7	21	1	5031 2506
30	M6	10	7	33	1	5031 3006
30	M8	12	9	33	1	5031 3008
35	M6	12	9	33	1	5031 3506
35	M8	12	9	33	1	5031 3508
35	M10	12	9	33	1	5031 3510
40	M8	15	12	40	1	5031 4008
40	M10	15	12	40	1	5031 4010
45	M8	15	12	41	1	5031 4508
45	M10	15	12	41	1	5031 4510
50	M8	20	17	46	1	5031 5008
50	M10	20	17	46	1	5031 5010
50	M12	20	17	46	1	5031 5012
60	M10	20	17	50	1	5031 6010
65	M10	20	17	55	1	5031 6510
70	M12	25	21	55	1	5031 7012



sb_104_a_2_cat

Characteristics

Height H (mm)	Threading	Voltage Nominal (V) AC/DC	Insulation voltage (VAC)		Mechanical characteristics (daN)		Tightening torque max. (Nm)
			50 Hz 1 min	Peak	Flexion	Traction	
20	M4	500	3000	5500	70	170	9
20	M6	500	3000	5500	100	190	8
25	M6	500	3000	5500	170	370	12
30	M6	1000	6000	11000	200	650	22
30	M8	1000	6000	11000	360	800	40
35	M6	1400	9000	16000	230	720	25
35	M8	1400	9000	16000	380	900	42
35	M10	1400	9000	16000	320	800	44
40	M8	2000	12000	21500	620	1200	50
40	M10	2000	12000	21500	620	1100	60
45	M8	2000	12000	21500	550	1200	55
45	M10	2000	12000	21500	550	1100	65
50	M8	2000	12000	21500	650	1800	60
50	M10	2000	12000	21500	650	1700	70
50	M12	2000	12000	21500	660	13000	130
60	M10	2400	12000	27000	560	1600	85
65	M10	2400	12000	27000	750	1600	90
70	M12	2400	12000	27000	750	1500	135



sb_105_c_1_x_cat

Busbar supports

Busbar

■ Hexagonal insulators unipolar flat mounting busbar supports (continued)

Male to female hexagonal insulator

References

Height H (mm)	Threading M	Depth		Diameter E (mm)	Length W (mm)	Pack qty	Reference
		P (mm)	Pu (mm)				
16	M4	6	5	14	26	1	5038 1604
16	M5	6	5	14	26	1	5038 1605
25	M5	10	7	20	35	1	5038 2505
25	M6	10	7	20	35	1	5038 2506
35	M8	12	9	32	50	1	5038 3508
35	M10	12	9	32	65	1	5038 3510
50	M8	15	17	46	75	1	5038 5008
50	M10	20	17	46	80	1	5038 5010
60	M10	20	17	50	85	1	5038 6010



sb_106_a_2_cat

Male to male hexagonal insulator

References

Height H (mm)	Threading M	Depth		Diameter E (mm)	Length W (mm)	Pack qty	Reference
		P (mm)	Pu (mm)				
16	M4	6	5	14	26	1	5038 1604
16	M5	6	5	14	26	1	5038 1605
25	M5	10	7	20	35	1	5038 2505
25	M6	10	7	20	35	1	5038 2506
35	M8	12	9	32	50	1	5038 3508
35	M10	12	9	32	65	1	5038 3510
50	M8	15	17	46	75	1	5038 5008
50	M10	20	17	46	80	1	5038 5010
60	M10	20	17	50	85	1	5038 6010

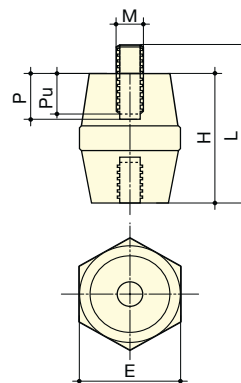


sb_107_a_2_cat

Male to female and male to male hexagonal insulator

Characteristics

Height H (mm)	Threading	Voltage Nominal (V) AC/DC	Insulating voltage		Mechanical characteristics (daN)		Tightening torque max. (Nm)
			(VAC) 50 Hz 1 min	Peak	Flexion	Traction	
16	M4	500	3000	5500	100	150	3
16	M5	500	3000	5500	100	150	6
25	M5	500	3000	11000	180	400	6
25	M6	500	3000	11000	180	400	12
35	M8	1400	9000	16000	380	900	42
35	M10	1400	9000	16000	320	800	44
50	M8	2000	12000	21500	650	1800	60
50	M10	2000	12000	21500	650	1700	70
60	M10	2400	12000	27000	560	1600	85



sb_088_d_1_x_cat

Grub screw

References

Length (mm)	Thread	To be ordered in multiples of	Reference
20	M6	20	5032 2006
20	M8	20	5032 2008
25	M6	20	5032 2506
25	M8	20	5032 2508
30	M6	20	5032 3006
30	M8	20	5032 3008
40	M8	20	5032 4008
40	M10	20	5032 4010
50	M12	20	5032 5012



sb_121_a_2_cat

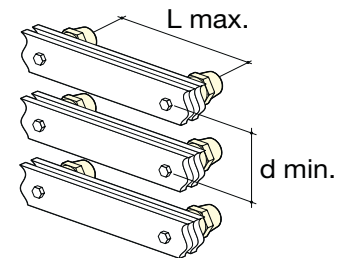
Define your exact busbar

- > For your busbar, fitted with hexagonal insulators, to be mechanically resistant to a short-circuit, it must correspond to the table below.
Values according to IEC 61439-1.

General characteristics

Height H (mm)	Threading	Bar x qty	L max. (support bars in mm) for						d min. (mm)	Iz (A) ⁽¹⁾
			peak I _{sc}	24 kA	48 kA	63 kA	82 kA	114 kA		
			rms I _{sc}	12 kA	23 kA	30 kA	39 kA	52 kA		
20	M4	15 x 5 x 1	400	100					45	220
20	M4	20 x 5 x 1	400	100					45	280
25	M6	15 x 5 x 1	550	135					45	220
25	M6	20 x 5 x 1	525	135					45	280
25	M6	25 x 5 x 1	575	145					50	330
30	M6	15 x 5 x 1	675	165					45	220
30	M6	20 x 5 x 1	650	165					45	280
30	M6	25 x 5 x 1	725	175	105				50	330
30	M8	15 x 5 x 1	850	250	155				45	220
30	M8	20 x 5 x 1	1000	250	155				45	280
30	M8	25 x 5 x 1	1000	275	170	100			50	330
35	M6	15 x 5 x 1	700	175	100				45	220
35	M6	20 x 5 x 1	675	170	100				45	280
35	M6	25 x 5 x 1	750	175	110				50	330
35	M8	15 x 5 x 1	850	275	160				45	220
35	M8	20 x 5 x 1	1000	275	160				45	280
35	M8	25 x 5 x 1	1000	300	175	105			50	330
35	M8	32 x 5 x 1	1000	325	175	110			55	410
35	M10	20 x 5 x 1	850	200	125				45	280
35	M10	25 x 5 x 1	950	225	135				50	330
35	M10	32 x 5 x 1	1000	250	150				55	410
40	M8	20 x 5 x 1	1000	325	175	110			45	280
40	M8	25 x 5 x 1	1000	350	200	125			50	330
40	M8	32 x 5 x 1	1000	375	225	135			55	410
40	M10	20 x 5 x 1	1000	325	175	110			45	280
40	M10	25 x 5 x 1	1000	350	200	125			50	330
40	M10	32 x 5 x 1	1000	375	225	135			55	410
45	M8	25 x 5 x 1	1000	425	250	150			50	330
45	M8	32 x 5 x 1	1000	475	175	160			55	410
45	M8	50 x 5 x 1	1000	625	350	200	110		75	600
45	M10	25 x 5 x 1	1000	425	250	145			50	330
45	M10	32 x 5 x 1	1000	450	250	160			55	410
45	M10	50 x 5 x 1	1000	600	350	200	110		75	600
50	M8	25 x 5 x 1	1000	450	250	155			50	330
50	M8	32 x 5 x 1	1000	475	275	170			55	410
50	M8	50 x 5 x 1	1000	650	375	225	115		75	600
50	M10	32 x 5 x 1	1000	525	300	175			55	410
50	M10	50 x 5 x 1	1000	700	400	225	125		75	600
60	M10	50 x 5 x 1	1000	700	400	225	125		75	600
65	M10	50 x 5 x 1	1000	775	450	250	135		75	600

(1) Admissible busbar nominal current with a temperature inside the panel of between 45°C and 80°C.
For other mounting configurations, please contact us.



sb_164_a_1_x_cat

Busbar supports

Busbar

■ SB 1 - SB 2 multipolar flat mounting busbar supports

References

Support	Insulation voltage (VAC)	No. of bars	Bar width (mm)	To be ordered in multiples of	Reference
SB 1	690	1	20 -25	6	5021 0110
SB 2	690	1	32 -40	6	5022 0110



sb_108_a_2_cat.eps

Ordering guide

SB 1: bar of max. width 25 mm

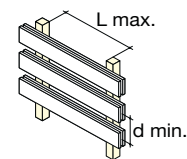
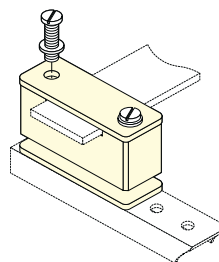
SB 2: bar of max. width 40 mm

Characteristics

Support	Bar x qty	L max. (support bars in mm) for						d min. (mm)	Iz (A) ⁽¹⁾
		peak I _{sc}	24 kA	48 kA	63 kA	82 kA	114 kA		
		rms I _{sc}	12 kA	23 kA	30 kA	39 kA	52 kA		
SB 1	20 x 3 x 1	650	325	250	175	135	50	210	
SB 1	20 x 5 x 1	850	425	325	250	175	50	280	
SB 1	25 x 5 x 1	1000	525	400	300	200	50	330	
SB 2	32 x 5 x 1	1000	750	575	450	300	70	410	
SB 2	40 x 5 x 1	1000	950	700	550	400	70	500	

(1) Admissible busbar nominal current with a temperature inside the panel of between 45°C and 80°C.

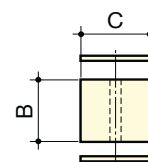
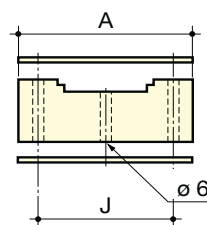
For other mounting configurations, please contact us.



sb_150_a_1_x_cat

Dimensions

Support	A	B	C	J
SB 1	50	23	20	34
SB 2	68	23	23.5	50



sb_014_e_1_x_cat

■ SB 3 multipolar flat mounting busbar supports

References

Support	Insulation voltage (VAC)	No. of bars	Bar width (mm)	To be ordered in multiples of	Reference
SB 3 without screws	690	1 - 2	32 - 63	6	5023 0111
SB 3 with screws ⁽¹⁾	690	1 - 2	32 - 63	6	5023 0110

(1) SB3 bare and with screws.



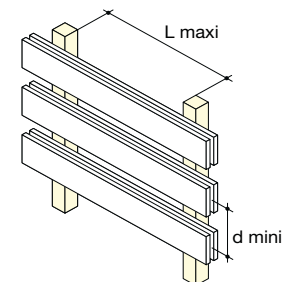
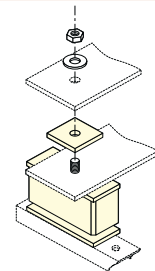
Ordering guide

SB 3: 1 to 2 bars of max. recommended width 63 mm.

Characteristics

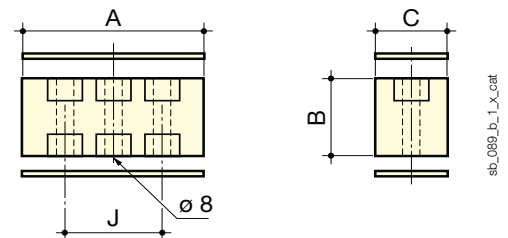
peak I_{sc}	L max. (support bars in mm) for						
	24 kA	48 kA	63 kA	82 kA	114 kA		
rms I_{sc}	12 kA	23 kA	30 kA	39 kA	52 kA		
Bar x qty						d min. (mm)	Iz (A) ⁽¹⁾
32 x 5 x 2	1000	1000	925	700	500	70	580
40 x 5 x 2	1000	1000	1000	1000	1000	70	700
50 x 5 x 2	1000	1000	1000	925	675	75	850
63 x 5 x 2	1000	1000	1000	1000	1000	85	1000

(1) Admissible busbar nominal current with a temperature inside the panel of between 45°C and 80°C.
For other mounting configurations, please contact us.



Dimensions

Support	A	B	C	J
SB 3 without screws	65	32	28	36
SB 3 with screws	65	32	28	36



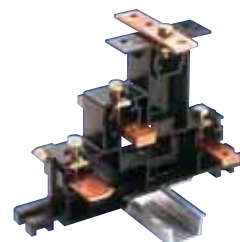
Busbar supports

Busbar

■ SB E 44 tetrapolar stair type supports

References

No. of poles	Pack qty	Reference
4 P	1	5028 0410
Accessories	Pack qty	Reference
270 mm long protection screen kit	1	5028 0411
420 mm long protection screen kit	1	5028 0412
620 mm long protection screen kit	1	5028 0413
Set of 20 protection screen adaption spacers	1	5028 0415



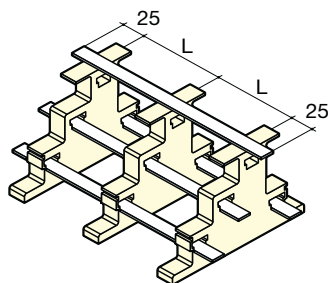
sb_038_a_3_cat.eps

Characteristics

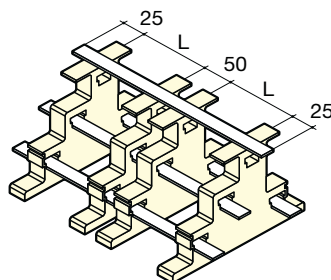
Support	Bar x qty	L max. (support bars in mm) for						Iz (A) ⁽¹⁾
		peak I _{sc}	10 kA	15 kA	24 kA	38 kA	48 kA	
		rms I _{sc}	6 kA	9 kA	12 kA	19 kA	23 kA	
Type 1	15 x 3 x 1	950	625	400	250	175		160
Type 1	15 x 5 x 1	1000	825	500	300	175		220
Type 1	15 x 6 x 1	1000	900	550	300	200		250
Type 1	15 x 8 x 1	1000	1000	650	300	200		290
Type 1	20 x 3 x 1	1000	825	525	300	175		210
Type 1	20 x 5 x 1	1000	1000	675	300	175		280
Type 1	20 x 6 x 1	1000	1000	750	300	175		310
Type 1	20 x 8 x 1	1000	1000	775	300	175		370
Type 1	32 x 5 x 1	1000	1000	675	250	170		410
Type 1	32 x 6 x 1	1000	1000	675	250	170		460
Type 2	15 x 3 x 1	950	625	400	250	200	150	160
Type 2	15 x 5 x 1	1000	825	500	325	250	175	220
Type 2	15 x 6 x 1	1000	900	550	350	275	200	250
Type 2	15 x 8 x 1	1000	1000	650	400	325	225	290
Type 2	20 x 3 x 1	1000	825	525	325	250	200	210
Type 2	20 x 5 x 1	1000	1000	675	425	325	225	280
Type 2	20 x 6 x 1	1000	1000	750	450	375	225	310
Type 2	20 x 8 x 1	1000	1000	850	525	375	225	370
Type 2	32 x 5 x 1	1000	1000	1000	525	325	175	410
Type 2	32 x 6 x 1	1000	1000	1000	525	325	175	460

(1) Admissible busbar nominal current with a temperature inside the panel of between 45°C and 80°C.
For other mounting configurations, please contact us. **N.B.:** Iz indicated is for a solid (undrilled) busbar.

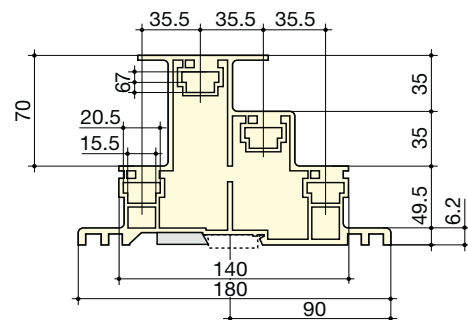
Dimensions



sb_041_b_1_x_cat



sb_047_a_1_x_cat



sb_036_e_1_x_cat

Type 1: Busbars including 3 (or more) equally spaced SB E 44 supports.

Type 2: Busbars with 3 (or more) SB E 44 supports with doubled intermediary supports.

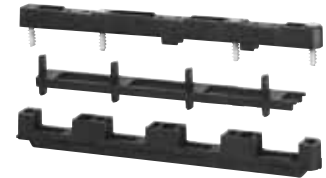
Mounting with elliptical holes: 150 to 170 mm.

■ **SB P 10** tetrapolar flat mounting busbar supports with fixed interphase

References

No. of poles	Insulation voltage (VAC)	Bar width (mm)	Pack qty	Reference
4 P	690	12 -30	1	5026 0460

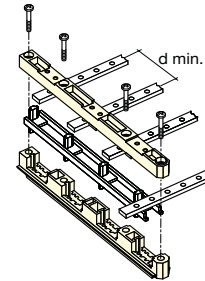
SB P 10: 1 bar of 5 or 10 mm thickness with a width of 12, 20, 25 or 30 mm.



sb_130_a_3_cat.eps

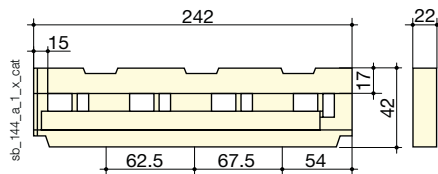
Characteristics

peak I_{sc}	L max. (support bars in mm) for					d min. (mm)	Iz (A)
	10 kA	15 kA	24 kA	48 kA	63 kA		
rms I_{sc}	6 kA	9 kA	12 kA	23 kA	30 kA		
Bar x qty							
12 x 5 x 1	1000	475	175			60	180
20 x 5 x 1	1000	1000	650	165		60	280
25 x 5 x 1	1000	1000	650	160		60	338
30 x 5 x 1	1000	1000	850	200	120	60	390
25 x 10 x 1	1000	1000	1000	250	150	60	508
30 x 10 x 1	1000	1000	1000	350	200	60	580



sb_159_b_1_x_cat

Dimensions



sb_144_a_1_x_cat

■ **SB P 44** tetrapolar flat mounting busbar support with fixed interphase, for mounting angled bars

References

No. of poles	Insulation voltage (VAC)	Bar width (mm)	Pack qty	Reference
4 P	1,000	20 -32	1	5026 0450

SB P 44: 1 bar of 5 or 10 mm thickness with a width of 20, 25, 30 or 32 mm.

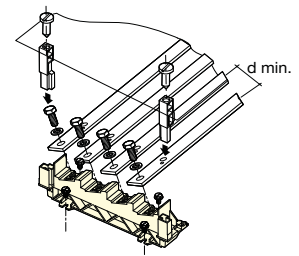
Please note: protection cover not supplied.



sb_170_a_3_cat.eps

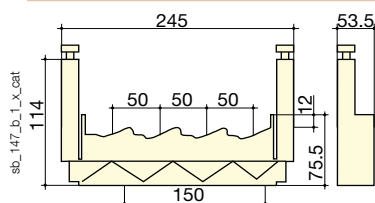
Characteristics

peak I_{sc}	L max. (support bars in mm) for						d min. (mm)	Iz (A)
	10 kA	15 kA	24 kA	48 kA	63 kA	82 kA		
rms I_{sc}	6 kA	9 kA	12 kA	23 kA	30 kA	39 kA		
Bar x qty								
20 x 5 x 1	1000	1000	800	350	200	125	50	280
25 x 5 x 1	1000	1000	1000	350	200	125	50	330
32 x 5 x 1	1000	1000	1000	350	200	120	50	390
25 x 10 x 1	1000	1000	1000	350	200	125	50	500
30 x 10 x 1	1000	1000	1000	350	200	120	50	580
32 x 10 x 1	1000	1000	1000	350	200	120	50	610



sb_165_c_1_x_cat

Dimensions



sb_147_b_1_x_cat



Enclosed disconnect solutions

Enclosed disconnect switches

Enclosed non-fusible disconnect switches, fusible switches & transfer switches



UL / NEMA 3R/12
Painted steel

p. 178



UL / NEMA 4, 4X
Glass reinforced polyester

p. 178



UL / NEMA 4, 4X
Stainless steel (304)

p. 178



UL / NEMA 1, 3, 3R, 12, 4, 4X
Polycarbonate

p. 178



Enclosed disconnect switches

Non-fusible disconnect switches, fusible disconnect switches & transfer switches
up to 1200 A



UL / NEMA 4, 4X
Glass reinforced polyester
Ref. 221E 3903

coff-ul-004.eps



UL / NEMA 1, 3, 3R, 12, 4, 4X
Polycarbonate
Ref. 221A 3503

coff-ul-008.eps



UL / NEMA 4, 4X
Stainless steel
Ref. 221X 3903

coff-ul-004.eps



UL / NEMA 3R, 12
Painted steel
Ref. 30VC 3003

coff-ul-032.eps

The solution for

- > Industrial control systems



Strong points

- Suitable for use as :
- > Manual motor controller
 - > OSHA Lockout/Tagout disconnects
 - > Safety switches
 - > Emergency power electrical installations

Conformity to standards⁽¹⁾

- > UL 508A
- > UL 508 listed guide NLRV file E173959
- > UL489 guide WJAZ file E255272
- > UL98 guide WHTY file E201138



- > CSA



- > IEC versions available



⁽¹⁾ Product reference on request.

Function

Enclosed disconnect switches range are used as:

- The NEC required motor disconnect upstream from the motor.
- Main disconnecting means, fusible and non-fusible.
- OSHA Lock Out / Tag Out devices to isolate a load for maintenance, service or repair.
- Transferring low voltage circuits on load.

Advantages

A flexible range

- Designed for normal as well as difficult or harsh environments (wash down, mechanical impacts, corrosion...).
- UL / NEMA rated enclosures up to 1, 3R, 12, 4, 4X.
- Metallic and nonmetallic enclosures.
- Compact design.
- For applications up to 1200 A.

High switching performance, simple wiring

- High short-circuit rating.
- Reliable switching technology.
- Large terminals.

Robust and ergonomic handle

- Red/Yellow handle (available in black).
- Painted steel enclosure are equipped with heavy duty handle with metallic padlock hasp.
- Clear On - Off positions indication.
- 3 padlocks capability.
- Door interlocking in ON position and padlocked in OFF position.
- Defeatable door interlock in ON position. (The interlocking is automatically reactivated when the door is closed, except for polycarbonate boxes up to 60A).

Enclosed disconnect switches

Non-fusible disconnect switches, fusible disconnect switches and transfer switches
up to 1200 A

Applications and range overview



Heavy duty industry



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Food and beverage processing



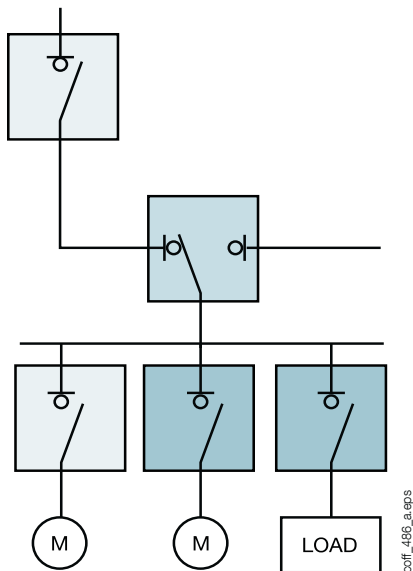
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Machinery and safety



corpo_207_a.eps



conf_486_a.eps

	Rating (A)	Switch	Enclosure	UL / NEMA
Service Entrance Disconnect or Branch Disconnect	100 A non-fusible	SIRCO M (UL 98)	Polycarbonate	1, 3, 3R, 12, 4, 4X
	Up to 1200 A non-fusible	SIRCO (UL 98)	Polyester	4, 4X
	Up to 800 A fusible	FUSERBLOC (UL 98)	Stainless steel	4, 4X
Transfer switch	Up to 400 A non-fusible	SIRCOVER (UL 98)	Painted steel	3R, 12
	Up to 1200 A non-fusible	SIRCOVER (UL 98)		
Manual motor Disconnect	Up to 60 A non-fusible	SIRCO M (UL 60947-4-1) ⁽¹⁾	Painted steel	3R, 12
			Polycarbonate	1, 3, 3R, 12, 4, 4X
			Polyester	4, 4X
			Stainless steel	4, 4X

(1) Meets the requirements of the standard UL508.

Enclosed disconnect switches

Non-fusible disconnect switches, fusible disconnect switches and transfer switches
up to 1200 A

References

Non-fusible disconnect switch, suitable for use as motor disconnect and service entrance disconnect

UL / NEMA enclosure, 3-pole, 600 VAC, non-fusible

					
Approvals	Rating (A)	UL / NEMA 3R, 12 ⁽²⁾ Painted steel color ANSI 61 gray	UL / NEMA 1, 3R, 12, 4, 4X Glass reinforced polyester color RAL 7035 light-gray	UL / NEMA 1, 3R, 12, 4, 4X Stainless steel (304) brushed finish	UL / NEMA 1, 3, 3R, 12, 4, 4X Polycarbonate color RAL 7035 light-gray
UL 60947-4-1	30 ⁽¹⁾	221M 3703	221E 3903	221X 3903	2214 3503
	60 ⁽¹⁾	222M 3706	222E 3906	222X 3906	2224 3506
UL 508A	100	30UC 3010	30UL 3010	30UF 3010	30UJ 3010
	200	30UC 3020	-	-	-
	400	30UC 3040	-	-	-
	600	30UC 3060	-	-	-
	800	30UC 3080	-	-	-
	1200	30UC 3120	-	-	-

(1) Suitable for motor disconnect.

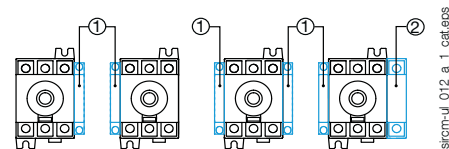
(2) Handle with metallic padlocking hasp.

(3) UL 98

(4) 30 A in large 60 A enclosure

Standard accessories - when ordered separately

						
Approvals	Rating (A)	Auxiliary contacts	Unswitched neutral pole	Switched fourth pole	Terminal shrouds / screens	
UL 60947-4-1	30	1 AC NO + NC 2299 0001 ⁽⁶⁾	2200 5005	2200 1003	2294 3005 ⁽²⁾	2294 1005 ⁽²⁾
	60		2200 5009	2200 1006 ⁽¹⁾	2294 3009 ⁽²⁾	2294 1009 ⁽²⁾
UL508A	100	1 AC 2 NC 2299 0011 ⁽⁶⁾	2200 5011	2200 1010	2294 3016 ⁽²⁾	2294 1011 ⁽²⁾
	200	1 st AC NO + NC 2799 0021	30AC 0102 ⁽⁷⁾	-	2798 3021 ⁽³⁾ 2798 8021 ⁽⁴⁾	
	400		30AC 0104 ⁽⁷⁾		2798 3041 ⁽³⁾ 2798 8041 ⁽⁴⁾	
	600	2 nd AC NO + NC 2799 0022	30AC 0106 ⁽⁷⁾		2798 3060 ⁽⁵⁾	
	800		30AC 0108 ⁽⁷⁾		2798 3120 ⁽⁵⁾	
	1200					



Configuration of the auxiliary contacts for enclosed SIRCO M.

1. M type auxiliary contacts.

2. Additional pole.

(1) Not UL.

(2) Top or bottom.

(3) Top.

(4) Bottom.

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

(6) Not UL only for rating 100 A.

(7) UL components

Enclosed disconnect switches

Non-fusible disconnect switches, fusible disconnect switches and transfer switches
up to 1200 A

Fusible disconnect switch, fuse class CC, J and L suitable for use as motor disconnect and service entrance disconnect

UL / NEMA enclosure, 3-pole, 600 VAC, fusible⁽¹⁾

Standard accessories - when ordered separately

			
Approvals	Rating (A)	Fuse type	UL / NEMA 3R, 12 ⁽²⁾ Painted Steel color ANSI 61 gray
UL 508A	30	CC	30VC 3A03
	30	J	30VC 3003
	60		30VC 3006
	100		30VC 3010
	200		30VC 3020
	400		30WC 3040
	600		30WC 3060
	800	L	30WC 3080

			
Unswitched neutral pole	Class T fuses adapter	U-type auxiliary contacts	Terminal shrouds / screens
-	-	1 AC NO 3999 0701 1 AC NC 3999 0702	As standard
-	-		
-	-		
30AC 0102	3729 8010		
30AC 0104	3729 8020		3898 3020 ⁽³⁾
30AC 0106	3729 8040		3898 3040 ⁽³⁾
30AC 0108	3729 8060		
	3729 8080		3898 3080 ⁽⁴⁾

(1) Fuses not included.

(2) Handle with metallic padlocking hasp.

(3) Top or bottom.

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

Transfer switch

UL / NEMA enclosure, 3-4 poles, 600 V, non-fusible

Standard accessories - when ordered separately

			
Approvals	Rating (A)	UL / NEMA 3R, 12 ⁽¹⁾ Painted Steel color ANSI 61 gray	
		3 P	4 P
UL1008	100	30WC 3010	30WC 4010
	200	30WC 3020	30WC 4020
	400	30WC 3040	30WC 4040
UL508A	600	30WC 3060	30WC 4060
	800	30WC 3080	30WC 4080
	1200	30WC 3120	30WC 4120

			
Unswitched neutral pole	Auxiliary contacts	Terminal screens	
		3 P	4 P
30AC 0102	1 AC NO/NC on position 1 and 2 4159 0021	4158 3021	4158 4021
30AC 0104		4158 3041	4158 4041
30AC 0106	NO/NC on position 1 and 2	1609 3063	1609 4063
30AC 0108	As standard	1609 3080	1609 4080
30AC 0112			

(1) Handle with metallic padlocking hasp.

Enclosed disconnect switches

Non-fusible disconnect switches, fusible disconnect switches and transfer switches
up to 1200 A

Characteristics

Non-fusible disconnect switch - Characteristics according to UL 60947-4-1 and UL 98

	Motor disconnect		Service disconnect, non-fusible					
General use rating (A)	30	60	100	200	400	600	800	1200
Short circuit at 600 VAC (kA)	65	50/65	25 (100)	200	200	200	100	100
Type of fuse	J	J	J	J	J	J	L	L
Max rating (A)	30	100/60	100	200	400	600	800	1200
Max. motor hp / FLA 3 ph motor max.								
208 VAC	7.5 / 24.2	15 / 46.2	-	-	-	-	-	-
220-240 VAC	7.5 / 22	20 / 54	20 / 54	75 / 192	125 / 312	200 / 480	200 / 480	200 / 480
440-480 VAC	20 / 27	40 / 52	50 / 65	150 / 180	250 / 302	400 / 477	500 / 590	500 / 590
600 VAC	25 / 27	40 / 41	50 / 52	200 / 192	350 / 336	350 / 336	500 / 472	500 / 472
Connection terminals								
Min. connection section / AWG	#14 - #14	#14 - #1	#12 - #10	#6 - 300MCM	#2 - 600MCM	#2 - 600MCM	#2 - 600MCM	#2 - 600MCM
Max. connection section / AWG	2x (#14 - #12)	2x (#10 - #6)	-	-	2x (#6-350MCM)	2x (#2-600MCM)	4x (#2-600MCM)	4x (#2-600MCM)
Mechanical characteristics								
Endurance (number of cycles)	10 000	10 000	10 000	8 000	6 000	6 000	3 500	3 500
Operating torque (lbs.in/Nm)	7 / 0.8	8.9 / 1	12.4 / 1.4	88.5 / 10	128.3 / 14.5	327.5 / 37	442.5 / 50	442.5 / 50
Auxiliary contacts								
Electrical characteristics	A300	A300	A300	A300	A300	A600	A600	A600

Fusible disconnect switch - Characteristics according to UL 98

General use rating (A)	30 ⁽¹⁾	30	60	100	200	400	600	800
Short circuit at 600 VAC (kA)	100	100	200	200	200	200	200	200
Type of fuse	CC	J	J	J	J	J	J	L
Max rating (A)	30	30	60	100	200	400	600	800
Max. motor hp / FLA 3 ph motor max.								
220-240 VAC	7.5 / 22	7.5 / 22	15 / 42	30 / 80	60 / 154	125 / 312	200 / 480	200 / 480
440-480 VAC	15 / 21	15 / 21	30 / 40	60 / 77	125 / 156	250 / 302	500 / 590	500 / 590
600 VAC	20 / 22	20 / 22	50 / 52	75 / 77	150 / 144	350 / 336	500 / 472	500 / 472
Connection terminals								
Min. connection section / AWG	#14 - #10	#14 - #10	#10 - #6	#10 - 2/0	#6 - 300MCM	#2 - 600MCM	#2 - 600MCM	#2 - 600MCM
Max. connection section / AWG	-	-	-	-	-	2x (#6-350MCM)	2x (#2-600MCM)	2x (#2-600MCM)
Mechanical characteristics								
Endurance (number of cycles)	10 000	10 000	10 000	10 000	8 000	6 000	5 000	5 000
Operating torque (lbs.in/Nm)	31 / 3.5	31 / 3.5	71 / 8	71 / 8	90 / 10.2	150 / 17	586 / 66.2	586 / 66.2
Auxiliary contacts								
Electrical characteristics	A600	A600	A600	A600	A600	A600	A600	A600

(1) UL 489.

Enclosed disconnect switches

Non-fusible disconnect switches, fusible disconnect switches and transfer switches
up to 1200 A

Transfer switch - Characteristics according to UL 1008

General use rating (A)	100 A	200 A	260 A	400 A	600 A	800 A	1200 A
Frame size	B4		B5		B6	B7	
Operation voltage 2 P - 3/4 P	240/600	240/600	240/600	240/600	-/600	-/600	-/600
Short circuit rating at 600 VAC with fuses (kA)							
Short circuit rating at 600 VAC (kA)	100	100	65	65	100	100	100
Type of fuse	J	J	J	J	L	L	L
Max fuse rating (A)	200	400	600	600	800	1000	1600
Short circuit rating at 600 VAC with "Specific Circuit Breaker" (kA)							
Square D JJ breaker 250 A - 2 P 240 VAC - 3/4 P 480 VAC	65	65	-	-	-	-	-
Schneider Electric NSX-F 160 A - 3/4 P 480 VAC	35	-	-	-	-	-	-
Short circuit rating at 600 VAC with "Any Breaker" (kA)							
Short circuit rating (kA)	10	10	14	14	35	35	35
Short circuit capacity (ms)	25	25	50	50	50	50	50
Rated operational current							
240 VAC "Total System" (A)	100	200	260	400	400	700	700
240 VAC resistive load (A)	100	200	260	400	600	800	1200
480 VAC "Total System" (A)	100	100	260	400	350	600	600
480 VAC resistive load (A)	100	200	260	400	600	800	1200
600 VAC "Total System" (A)	100	100	200	200	-	-	-
600 VAC resistive load (A)	100	200	260	400	600	800	1200
Mechanical endurance							
Endurance (number of operating cycles)	6050	6050	6050	4050	3050	3050	3050
Connection terminals							
Min. connection section / AWG	#6	#6	#4 / 2 X 1 / 0	#4 / 2 X 1 / 0	2 x #2	2 x #2	4 x #2
Max. connection section / AWG	300MCM	300MCM	600MCM / 2 X 250MCM	600MCM / 2 X 250MCM	2x 600MCM	2x 600MCM	4 x 600MCM

Transfer switch - Characteristics according to UL 98/CSA 22.2#4

General use rating at 600 VAC and 250 VDC (A)	Specific reference upon request				600 A	800 A	1200 A
Frame size					B6	B7	
Short-circuit rating at 600 VAC (kA)	-	-	-	-	200	100	100
Type of fuse	-	-	-	-	J	L	L
Max. fuse rating (A)	-	-	-	-	600	800	1200
Max. motor, hp / FLA 3 ph motor max.							
220-240 VAC	-	-	-	-	200 / 480	-	-
440-480 VAC	-	-	-	-	400 / 477	-	-
600 VAC	-	-	-	-	500 / 472	-	-
Mechanical characteristics							
Endurance (number of operating cycles)	-	-	-	-	5000	3500	2500
Operating torque (lbs.in/Nm)	-	-	-	-	327.5/37	442.5/50	442.5/50
Auxiliary contacts							
Electrical characteristics	A300	A300	A300	A300	A300	A300	A300

Enclosed disconnect switches

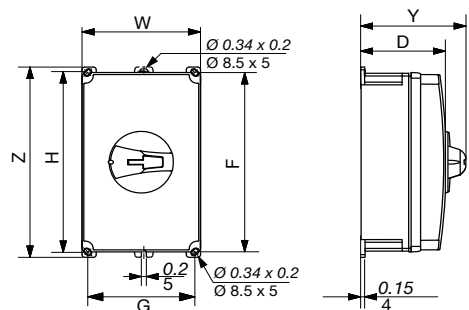
Non-fusible disconnect switches, fusible disconnect switches and transfer switches
up to 1200 A

Dimensions (in/mm)

UL / NEMA enclosure 1, 3, 3R, 12, 4, 4X - polycarbonate

Non-fusible disconnect switch up to 100 A

Rating (A)	Unit	H	W	D	G	F	Y	Z	Weight (lbs)
0 ... 30	in	5.9	3.9	3.62	0	6	4.37	6.38	4.4
	mm	150	99	92	0	152.5	111	162	
0 ... 60	in	7.8	4.94	3.62	4.45	7.32	4.37	8.27	6.6
	mm	198	125.5	92	113	186	111	210	
0 ... 100	in	11.81	8.27	5.35	7.44	9.37	7.12	11.81	9
	mm	300	210	136	189	238	181	300	

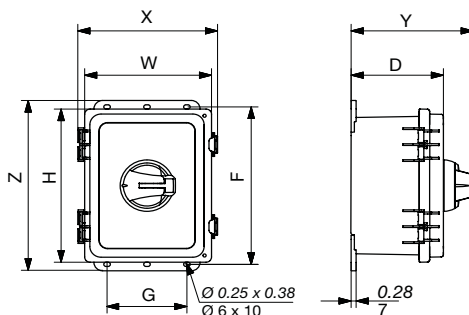


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UL / NEMA enclosure 1, 3R, 12, 4, 4X - glass reinforced polyester

Non-fusible disconnect switch up to 100 A

Rating (A)	Unit	H	W	D	G	F	X	Y	Z	Weight (lbs)
0 ... 30	in	7.12	7.24	5.27	4.56	7.36	7.99	6.97	8.15	4.4
	mm	181	184	134	116	187	203	177	207	
0 ... 60	in	9.13	7.24	5.27	4.56	9.37	7.99	6.97	10.16	6.6
	mm	232	184	134	116	238	203	177	258	
0 ... 100	in	12.08	11.23	7.28	8.56	13.34	12.05	8.97	14.08	11
	mm	307	285	185	217	339	306	228	358	

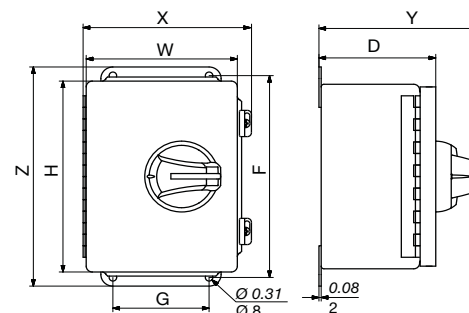


coff_487_a.eps

UL / NEMA enclosure 1, 3R, 12, 4, 4X - stainless steel (304)

Non-fusible disconnect switch up to 100 A

Rating (A)	Unit	H	W	D	G	F	X	Y	Z	Weight (lbs)
0 ... 30	in	6.29	6.26	4.84	4	6.75	6.97	6.38	7.50	4.4
	mm	159	159	123	102	171	177	162	191	
0 ... 60	in	8.26	6.26	4.84	4	8.75	6.97	6.38	9.50	6.6
	mm	210	159	123	102	222	177	162	241	
0 ... 100	in	12	10	6	8	12.75	11	8.4	13.5	12
	mm	305	254	152	203	324	280	213	343	



coff_489_a.eps

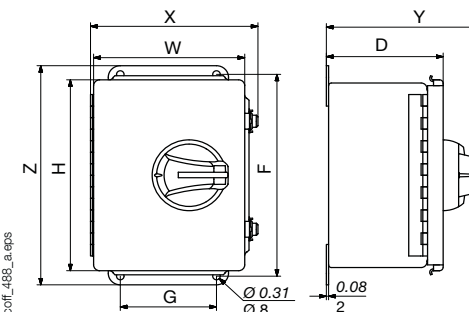
UL / NEMA enclosure 1, 3R, 12 - painted steel

Non-fusible disconnect switch up to 100 A

Rating (A)	Unit	H	W	D	G	F	X	Y	Z	Weight (lbs)
0 ... 30	in	6.0	6.0	4.8	4.0	6.8	6.9	6.6	7.5	6
	mm	152.4	152.4	120.7	101.6	171.5	176.3	167.6	190.5	
0 ... 60	in	8.0	6.0	4.8	4.0	8.8	6.9	6.6	9.5	7
	mm	203.2	152.4	120.7	101.6	222.3	176.3	167.6	241.3	
0 ... 100	in	12.0	10.0	6.8	8.0	12.8	10.9	8.6	13.5	16
	mm	304.8	254.0	171.5	203.2	323.9	277.9	218.4	342.9	

Fusible disconnect switch up to 100 A

Rating (A)	Unit	H	W	D	G	F	X	Y	Z	Weight (lbs)
0 ... 30	in	10.0	8.0	6.8	6.0	10.8	8.9	8.8	11.5	11
	mm	254.0	203.2	171.5	152.4	273.1	227.1	223.5	292.1	
0 ... 60	in	12.0	10.0	8.8	8.0	12.8	10.9	10.4	13.5	18
	mm	304.8	254.0	222.3	203.2	323.9	277.9	264.2	342.9	
0 ... 100	in	14.0	12.0	8.8	10.0	14.8	12.9	10.4	15.5	24
	mm	355.6	304.8	222.3	254.0	374.7	328.7	264.2	393.7	



coff_488_a.eps

Enclosed disconnect switches

Non-fusible disconnect switches, fusible disconnect switches and transfer switches
up to 1200 A

UL / NEMA enclosure 1, 3R, 12 - painted steel

Non-fusible disconnect switch > 100 A

Rating (A)	Unit	H	W	D	G	F	X	Y	Z	Weight (lbs)
200	in	24.0	16.0	6.8	14.0	24.8	16.9	8.6	25.5	80
	mm	609.6	406.4	171.5	355.6	628.7	430.3	218.4	647.7	
400	in	30.0	20.0	10.8	18.0	30.8	20.9	12.6	31.5	115
	mm	762.0	508.0	273.1	457.2	781.1	531.9	320.0	800.1	
600	in	42.0	24.0	12.8	22.0	42.8	24.9	15.3	43.5	230
	mm	1066.8	609.6	323.9	558.8	1085.9	633.5	387.9	1104.9	
800 ... 1200	in	60.0	36.0	12.8	34.0	60.8	36.9	15.3	61.5	332
	mm	1524.0	914.4	323.9	863.6	1543.1	938.3	387.9	1562.1	

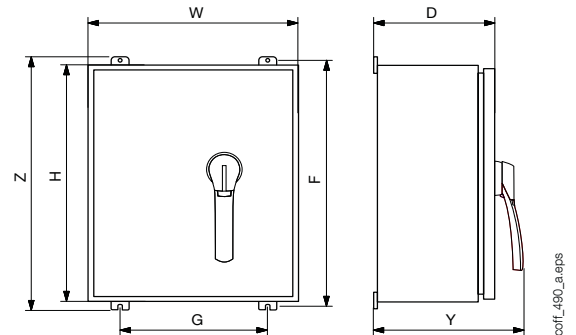
Fusible disconnect switch > 100 A

Rating (A)	Unit	H	W	D	G	F		Y	Z	Weight (lbs)
200 A	in	24.0	20.0	10.8	18.0	24.8		12.6	25.5	92
	mm	609.6	508.0	273.1	457.2	628.7		320.0	647.7	
400 A	in	42.0	32.0	12.8	30.0	42.8		14.6	43.5	200
	mm	1066.8	812.8	323.9	762.0	1085.9		370.8	1104.9	
600 A	in	48.0	36.0	12.8	34.0	48.8		15.3	49.5	268
	mm	1219.2	914.4	323.9	863.6	1238.3		387.9	1257.3	
800 A	in	60.0	36.0	12.8	34.0	60.8		15.3	61.5	332
	mm	1524.0	914.4	323.9	863.6	1543.1		387.9	1562.1	

Transfer switch ≥ 100 A

Rating (A)	Unit	H	W	D	G	F		Y	Z	Weight (lbs)
100 ... 200	in	24.0	20.0	10.8	18.0	24.8		12.6	25.5	95
	mm	609.6	508.0	273.1	457.2	628.7		320.0	647.7	
400	in	30.0	24.0	16.8	22.0	30.8		19.3	31.5	185
	mm	762.0	609.6	425.5	558.8	781.1		489.5	800.1	
600	in	48.0	36.0	20.8	34.0	48.8		23.3	49.5	321
	mm	1219.2	914.4	527.1	863.6	1238.3		591.1	1257.3	
800 ... 1200	in	60.0	36.0	20.8	34.0	60.8		23.3	61.5	460
	mm	1524.0	914.4	527.1	863.6	1543.1		591.1	1562.1	

Note: dimensions are subject to change. Please consult us for verification.





Metering, monitoring & power quality

Integrated technologies	p. 188
Selection guide measurement and monitoring system for electrical installations AC	p. 190
Selection guide measurement and monitoring system for electrical installations DC ...	p. 196
Selection guide multifunction meters	p. 200
Selection guide software solutions	p. 202

Multi-circuit metering & measurement

DIRIS Digiware AC



DIRIS Digiware D and C
p. 204



DIRIS Digiware U
p. 210



DIRIS Digiware S
p. 212



DIRIS Digiware I
p. 216

DIRIS Digiware DC



DIRIS Digiware Udc
p. 228



DIRIS Digiware Idc
p. 232



DIRIS Digiware IO
p. 240

Single-circuit metering, measurement & analysis



DIRIS A-40
p. 242



DIRIS A-30
p. 256



DIRIS A-20
p. 262



DIRIS A-10
p. 266



DIRIS B
p. 248

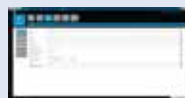
Software suite

WEBVIEW
Embedded web server



p. 278

DIRIS
Management software tools



p. 280

Current sensors



AC current sensors
TE, TR, TF
p. 220



DC current sensors
p. 236

Current transformers



new
Current
transformers
p. 270

Communication interfaces



DIRIS G
p. 272



new
Datalogger
p. 276

Enclosed metering solutions



DIRIS DigiBOX
p. 246



Integrated technologies

Groundbreaking technologies for greater simplicity
and performance



PreciSense

Products that are setting new standards
in measurement accuracy

PreciSense technology ensures
100% reliable accuracy over the entire
measuring chain.

Be guaranteed of the accuracy of your
measurements:

- For the global measurement chain.
- For reliable measurements.
- For relevant corrective actions.

PreciSense technology offers the best
accuracy on the market regardless of the
type of current sensors used (closed,
split-core, flexible or embedded in the
DIRIS Digiware S module).



VirtualMonitor

The simple and cost-saving solution
for monitoring your protective devices

Virtual Monitor technology enables a
monitoring solution to be installed simply
and at all levels of the installation.

Virtual Monitor:

- Detects the position and status
of the device.
- Detects tripping of the protective device.
- Meters the number of operations.

VirtualMonitor technology monitors
the status of protective devices:

- On your entire electrical installation
(without additional space).
- Remotely and in real-time.
- Without additional hardware or wiring
(without adding an auxiliary contact).



AutoCorrect

The software that
eliminates wiring errors

AutoCorrect technology ensures that the
equipment is properly wired at all times,
thus avoiding on-site inspections.

AutoCorrect technology ensures the
operation of the measuring system thanks
to simple and rapid detection of connection
errors:

- Automatic wiring control (phase sequence
detection and automatic configuration of
the direction of the current).
- Correction of errors with a single click.
- Feature available off-load.

Error correction is carried out without
any modification to the wiring.



Discover the video



Discover the video



Discover the video



PreciSense, VirtualMonitor and AutoCorrect technologies are embedded in Socomec's power monitoring devices.

Power metering and monitoring system for AC electrical installations

- DIRIS Digiware S with its 3 integrated sensors and DIRIS Digiware I associated with iTR sensors.



Multifunction meters

- DIRIS A-40 with iTR sensors.





Selection guide

Measurement and monitoring system for electrical installations
DIRIS Digiware

Build your own AC system

Control and power supply interface
(24 VDC)



DIRIS Digiware D
with display

or



DIRIS Digiware C
without screen

+

Voltage acquisition
module



DIRIS Digiware U-x

+

Current acquisition module
with integrated sensors



DIRIS Digiware S

Current acquisition modules



DIRIS Digiware I-3x
3 inputs



DIRIS Digiware I-4x
4 inputs



DIRIS Digiware I-6x
6 inputs

+

Current sensors



TE
Solid



TR/iTR
Split-core



TF
Flexible

+

Digital and analog
input/output modules



DIRIS Digiware IO-x

Find the best DIRIS Digiware configuration!



The Socomec Meter Selector is your digital assistant, helping you find the best DIRIS Digiware configuration for your energy performance projects, and all in just a few clicks!

- Fill in information regarding your project.
- Download the electrical diagram and bill of material.
- Find all your archived projects in your personal account.

Control and power supply interface

Application	Centralisation and display of data			Data centralisation	Repeater
					
DIRIS Digiware	D-40 <i>p. 204</i>	D-50 <i>p. 204</i>	D-70 <i>p. 204</i>	C-31 <i>p. 204</i>	C-32 <i>p. 204</i>
Function					
Centralising measurement points:	•	•	•	•	•
High-resolution LCD display (configuration, selection and visualisation display of circuits)	•	•	•		
Repeater					•
Power supply					
24 VDC	•	•	•	•	•
Communication					
RS485 Modbus	output	input	input	•	
Bus Digiware	•	•	•	•	•
Ethernet		Modbus TCP	Modbus TCP BACnet IP SNMP		
Embedded web server			•		

Voltage acquisition module

Application	Metering	Monitoring	Analysis
			
DIRIS Digiware U	U-10 <i>p. 210</i>	U-20 <i>p. 210</i>	U-30 <i>p. 210</i>
Multi-measurement			
U12, U23, U31, V1, V2, V3, f	•	•	•
U system, V system			•
Ph/N unbalance			•
Ph/Ph unbalance			•
Quality analysis			
THDv1, THDv2, THDv3, THDu12, THDu23, THDu31		•	•
Crest factors V1, V2, V3, U12, U23, U31			•
Individual harmonics U & V (up to rank 63)			•
Voltage dips, cutoffs and surges (EN50160)			•
Alarms			
On threshold			•
History			
Average values			•
Format			
Width/number of modules	18 mm / 1	18 mm / 1	18 mm / 1

Selection guide

Measurement and monitoring system for electrical installations

DIRIS Digiware

Current acquisition modules

Application	Metering		Monitoring	Analysis	Monitoring	Analysis	Metering	
								
DIRIS Digiware I	I-30 <i>p. 216</i>	I-31 <i>p. 216</i>	I-33 <i>p. 216</i>	I-35 <i>p. 216</i>	I-43 <i>p. 216</i>	I-45 <i>p. 216</i>	I-60 <i>p. 216</i>	I-61 <i>p. 216</i>
Number of current inputs	3	3	3	3	4	4	6	6
Metering								
± kWh, ± kvarh, kVAh	•	•	•	•	•	•	•	•
Load curves		•		•		•		•
Multi-tariff		•		•		•		•
Multi-measurement								
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•	•	•	•	•	•	•
P, Q, S, PF per phase			•	•	•	•		
Predictive power				•		•		
Current unbalance (Inba, Idir, Iinv, Ihom, Inb)				•		•		
Phi, cos Phi, tan Phi				•		•		
Quality								
THDi1, THDi2, THDi3, THDin			•	•	•	•		
Individual harmonics I (up to level 63)				•		•		
Crest factors I1, I2, I3, In				•		•		
Overcurrents				•		•		
Alarms								
On threshold				•		•		
Inputs/outputs					2/2	2/2		
History								
Average values				•		•		
Format								
Width/number of modules	18 mm / 1	18 mm / 1	18 mm / 1	18 mm / 1	27 mm / 1.5	27 mm / 1.5	36 mm / 2	36 mm / 2

Current acquisition module with integrated sensors

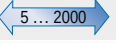
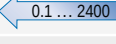
Application	Metering	Analysis	Monitoring
			
DIRIS Digiware S	S-130 <i>p. 212</i>	S-135 <i>p. 212</i>	S-Datacenter <i>p. 212</i>
Number of current inputs	3	3	3
Base current I_b	10 A	10 A	10 A
Maximum current I_{max}	63 A	63 A	63 A
Load type accepted	1P + N 2P / 2P + N 3P / 3P + N	1P + N 2P / 2P + N 3P / 3P + N	1P + N
Metering			
± kWh, ± kvarh, kVAh	•	•	•
Multi-tariff (max 8)		•	
Load curves		•	•
Multi-measurement			
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•	•
P, Q, S, PF per phase		•	•
Predictive power		•	
Current unbalance (Inba, Inb, Idir, linv, lthom)		•	
Phi, cos Phi, tan Phi		•	•
Quality			
THDi1, THDi2, THDi3, THDin		•	•
Individual harmonics I (up to level 63rd)		•	
Crest factors U, V, I		•	
K factor		•	
Overcurrents		•	
Alarms			
Thresholds and combinations		•	•
Load level			•
Wiring errors		•	•
Protective device		•	•
Trends			
Average values		•	•
Format			
Width	54 mm	54 mm	54 mm

Selection guide

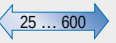
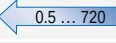
Measurement and monitoring system for electrical installations

DIRIS Digiware

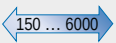
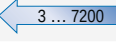
Current sensors

Suitable for new installations match the pitch of protective devices	Solid-core current sensors						
							
	TE-18 <i>p. 220</i>	TE-25 <i>p. 220</i>	TE-35 <i>p. 220</i>	TE-45 <i>p. 220</i>	TE-55 <i>p. 220</i>	TE-90 <i>p. 220</i>	
Nominal current I_n (A) 	5 ... 20	25 ... 63	40 ... 160	63 ... 250	160 ... 630	400 ... 1000	600 ... 2000
Actual coverage range (A) 	0.1 ... 24	0.5 ... 75.6	0.8 ... 192	1.26 ... 300	3.2 ... 756	8 ... 1200	12 ... 2400
Aperture (mm)	Ø 8.4	Ø 8.4	13.5 x 13.5	21 x 21	31 x 31	41 x 41	64 x 64
Dimensions (mm)	28 x 20 x 45	28 x 20 x 45	25 x 32.5 x 65	35 x 32.5 x 71	45 x 32.5 x 86	55 x 32.5 x 100	90 x 126 x 24.6
Connection	RJ12	RJ12	RJ12	RJ12	RJ12	RJ12	RJ12

For demands greater than 2000 A, the 5 A / RJ12 adapter guarantees the compatibility of the TCs.

Suitable for existing installations	Split-core current sensors			
				
	TR/iTR-10 <i>p. 224</i>	TR/iTR-14 <i>p. 224</i>	TR/iTR-21 <i>p. 224</i>	TR/iTR-32 <i>p. 224</i>
Nominal current I_n (A) 	25 ... 63	40 ... 160	63 ... 250	160 ... 600
Actual coverage range (A) 	0.5 ... 90	0.64 ... 120	1.26 ... 200	4 ... 720
Aperture (mm)	Ø 10	Ø 14	Ø 21	Ø 32
Dimensions (mm)	26 x 44 x 28	29 x 67 x 28	37 x 65 x 43	53 x 86 x 47
Connection	RJ12	RJ12	RJ12	RJ12

For demands greater than 600 A, the 5 A / RJ12 adapter guarantees the compatibility of the TCs.

Suitable for existing installations with space restrictions or with a high-intensity current	Flexible current sensors		
			
	TF-55 <i>p. 226</i>	TF-120 <i>p. 226</i>	TF-300 <i>p. 226</i>
Nominal current I_n (A) 	150 ... 600	500 ... 2000	1600 ... 6000
Actual coverage range (A) 	3 ... 720	10 ... 2400	32 ... 7200
Aperture (mm)	Ø 55	Ø 120	Ø 300
Connection	RJ12	RJ12	RJ12

Input/output modules

Application	Metering / monitoring / control	
		
DIRIS Digiware IO	IO-10 <i>p. 240</i>	IO-20 <i>p. 240</i>
Number of digital inputs/outputs	4/2	
Number of analog inputs		2
Format		
Width/number of modules	18 mm / 1	18 mm / 1



Selection guide

Measurement and monitoring system for DC electrical installations
DIRIS Digiware

Build your own DC system

Control and power supply interface (24 VDC)



DIRIS Digiware D-x
with display

ou



DIRIS Digiware C
without screen

+

Direct voltage
acquisition module



DIRIS Digiware Udc

+

DC voltage adaptors



DIRIS Digiware
U500dc/U1000dc/U1500dc

DC current acquisition
module

+



DIRIS Digiware Idc
3 current sensor
inputs

+

DC current sensors



Solid-core sensors
50 ... 5000 A



Split-core sensors
50 ... 2000 A

Control and power supply interface

Application	Centralisation and display of data			Data centralisation	Repeater
					
DIRIS Digiware	D-40 <i>p. 204</i>	D-50 <i>p. 204</i>	D-70 <i>p. 204</i>	C-31 <i>p. 204</i>	C-32 <i>p. 204</i>
Function					
Centralising measurement points	•	•	•	•	•
High-resolution LCD display (configuration, selection and visualisation display of circuits)	•	•	•		
Repeater					•
Power supply					
24 VDC	•	•	•	•	•
Communication					
RS485 Modbus	OUT	IN	IN	•	
Digiware Bus	•	•	•	•	•
Ethernet		Modbus TCP	Modbus TCP BACnet IP SNMP		
Embedded web server			•		

Selection guide

Measurement and monitoring system for DC electrical installations

DIRIS Digiware

Direct voltage acquisition module (DC)

Application	DC voltage measurement	
		
DIRIS Digiware Udc	U-31dc <i>p. 228</i>	U-32dc <i>p. 228</i>
Nominal voltage range	24 ... 48 VDC	60 ... 150 VDC
Measuring range (min-max)	19,2 ... 60 VDC	48 ... 180 VDC
Multi-measurement		
DC voltage (VDC)	•	•
Power quality		
V ripple (voltage ripple)	•	•
V _{rms}	•	•
Alarms		
Thresholds and combinations	•	•
Trends		
Average values	•	•
Format		
Width/number of modules	18 mm / 1	

Application	DC voltage adaptors		
			
DIRIS Digiware Udc	U500dc <i>p. 228</i>	U1000dc <i>p. 228</i>	U1500dc <i>p. 228</i>
Max. voltage range	200 ... 600 VDC	400 ... 1200 VDC	1200 ... 1650 VDC
Association			
U-32dc	•	•	•
Format			
Width/number of modules	54 mm / 3		

Direct current acquisition module (DC)

Application	Direct current (DC) measurement modules	
		
DIRIS Digiware Idc	I-30dc <i>p. 232</i>	I-35dc <i>p. 232</i>
Number of current inputs	3	3
Metering		
± kWh	•	•
Load curves		•
Multi-measurement		
DC current (I DC)	•	•
DC power (P DC)	•	•
Predictive power		•
Measurement of current quality		
I ripple (current ripple)		•
I rms		•
Alarms		
Thresholds and combinations		•
Trends		
Average values		•
Format		
Width/number of modules	18 mm / 1	

DC current sensors



DC current sensors measure the load currents of a DC electrical installation and transmit the information to DIRIS Digiware Idc modules via a quick RJ12 connection with color-coded cables for an easy identification of circuits.

The range comprises solid-core and split-core sensors, from 50 to 5000 A in various sizes, suitable for new or retrofit applications.

- Easy connection to prevent wiring errors.
- Up to 3 sensors on each DIRIS Digiware Idc measurement module.



Selection guide

Multifunction meters

DIRIS A

Which
application?



Which
functions?

					
		DIRIS A-10 <i>p. 266</i>	DIRIS A-20 <i>p. 262</i>	DIRIS A-30 <i>p. 256</i>	
	Functions	CURRENT TRANSFORMERS			
General characteristics	Remote display				
	Number of loads	1	1	1	
	Mounting	DIN	96 x 96	96 x 96	
	Power supply	AC	AC	AC/DC	
	All In One	•			
	Optional modules		•	•	
	Ethernet (Modbus TCP / Bacnet IP)	o / -	o / -	o / -	
	RS485 (Modbus / Bacnet MSTP)	• / -	• / -	• / -	
	Profibus DPV1			o	
	Webserver / File export	o / -	o / o	o / o	
Manage energy consumptions	4-quadrant energy metering	•	•	•	
	Load curves (local memory)			o	
	Rebilling of energy (MID approved)				
	Multi-tariff management	2			
Monitor the electrical installation	Instantaneous, average, min and max values	•	•	•	
	Voltage unbalance measurement			•	
	Neutral current (measured / calculated)	- / •	- / •	- / •	
Check the power quality	Harmonic analysis (THD / Individual)	• / -	• / -	• / •	
	Dip and swell detection				
	Overcurrent detection				
Manage the loads	Operating hours	•	•	•	
	Number of operations (info / alarm)		• / -	• / -	
	Protective device monitoring (on / off / tripped)	•	•	•	
	Predictive power analysis and load shedding			•	

•: integrated in the product.

o: optional via DIRIS-G or modules.

Which
dimensions?

Which
communication
protocol?

Which
options?

		
DIRIS B-10 <i>p. 248</i>	DIRIS B-30 <i>p. 248</i>	DIRIS A-40 Modbus <i>p. 242</i> DIRIS A-40 Modbus + Profibus <i>p. 242</i> DIRIS A-40 Modbus + Ethernet <i>p. 242</i>
SMART SENSORS		
•	•	
1 to 4	1 to 4	1
DIN	DIN	96 x 96
AC	AC	AC
		•
•	•	
•/0	•/0	-/-
•/0	•/0	•/-
0	0	-
0/0	0/0	0/0
2/2		3/-
2/2		2/-
•	•	•
	•	•
8	8	4
•	•	•
•	•	•
•/•	•/•	-/•
•/-	•/•	•/•
	•	•
	•	•
•	•	•
•/-	•/•	•/•
•	•	•
	•	•



Selection guide

Software solutions for energy monitoring and analysis

What are the features?

For what size of project?

Where is the data stored?

	WEBVIEW-S	WEBVIEW-M		WEBVIEW-L
				
Hosting of the application ⁽¹⁾	DIRIS A-40 Ethernet <i>p. 278</i>	DIRIS G <i>p. 278</i>	DIRIS Digiware D-70 <i>p. 278</i>	DATALOG H80/H81 <i>p. 278</i>
Data collection				
Maximum number of connected measurement devices	1	32	32	100 (WEBVIEW-L100) 200 (WEBVIEW-L200)
Interfacing to third-party applications				via connector
Export of data in CSV format	•	DIRIS G-50	•	•
Real time monitoring				
U/V voltages and currents I	•	•	•	•
Powers P, Q, S, Power factor	•	•	•	•
Quality monitoring THDi, THDu, THDv, K factor, Harmonic analysis up to 63 rd	•	•	•	•
Energy metering Ea+, Ea-, Er+, Er-, Es	•	•	•	•
Pulse counting	•	•	•	•
Input/Output monitoring	•	•	•	•
Measurement history U, V, I, P, Q, S,	•	DIRIS G-50	•	•
Energy analysis				
Energy consumption analysis	•	DIRIS G-50	•	•
Multi-parameter analysis				•
Alarm management				
Product alarms	•	•	•	•
Alarms history	•	•	•	•
Transmission of alarms	e-mail	e-mail	e-mail	e-mail
Reporting management				
Customizable user interface			Photoview	Photoview
Hierarchy management		DIRIS G-50	•	•

(1) For more information on the hardware please refer to the appropriate catalogue pages.

Architecture

Level 4

Cloud hosting



Level 3

Long-distance communication network (WAN)



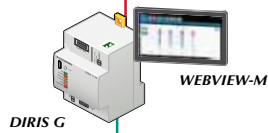
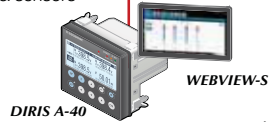
Level 2

Local communication network (LAN)

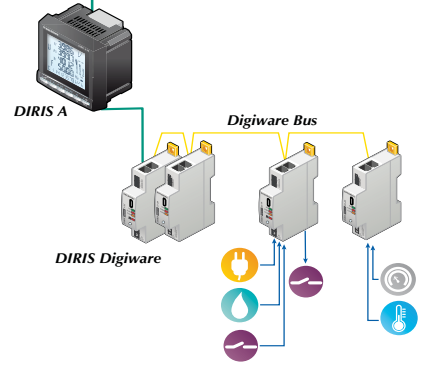


Level 1

PMD & sensors



RS485



Isolated or single metering points

DIRIS Digiware measurement system multi-point and multi-fluid

DIRIS Digiware measurement system multi-point connected over RS485

DIRIS Digiware **D** and **C**

Communication and control power interfaces



DIRIS Digiware D-40/D-50/D-70
Centralization and display of data

diris-dw_006_a_us_cat



DIRIS Digiware C-31
Centralization

diris-dw_142_a



Configuration
with EasyConfig,
see page 280.

Function

DIRIS Digiware D-40, D-50 and D-70

DIRIS Digiware D remote displays allow:

- a local view of the data from DIRIS Digiware U, I, S and IO modules
- a power supply to the DIRIS Digiware modules,
- access to this data over Ethernet (D-50/D-70) or RS485 (D-40).

DIRIS Digiware D-50 and D-70 displays also act as a gateway, centralising measurements from DIRIS Digiware, DIRIS A and DIRIS B devices and making them available over Ethernet.

With the DIRIS Digiware D-70 display, data can be visualized on Webview, the "Power & Energy monitoring" embedded web server.

DIRIS Digiware screens are 24 VDC powered.

DIRIS Digiware C-31

For applications without a local display DIRIS Digiware C-31 interfaces centralize data for the entire system.

An RS485 Modbus output allows them to provide all this information to energy efficiency software (DIRIS G communication gateways are available for communication via Ethernet - Modbus TCP).

DIRIS Digiware C-31 interfaces and C-32 repeaters are 24 VDC powered.

Advantages

DIRIS Digiware D

- High-resolution graphic screen
- Embedded web server (DIRIS Digiware D-70)
- Multi-protocols (Modbus, BACnet, SNMP)
- 24 VDC SELV (Safety Extra Low Voltage) power supply means elimination of hazardous voltage on cabinet doors.
- Ergonomic and easy to use with 10 direct access buttons for:
 - measurement information,
 - circuit selection,
 - equipment configuration.
- Centralizing measurement points:
 - circuit selection,
 - displaying data.

DIRIS Digiware C-31

Compact: Centralize your measurement data on 1 module without a local screen, for a complete system:

- single 24 V power supply (no dangerous voltage on DIRIS Digiware modules for a connection with no interruption),
- a single RS485 communication.

The solution for

- > Industry
- > Building
- > Infrastructure
- > Data centers



Strong points

- > Centralizing and displaying measurement data
- > A single power supply for the entire system
- > A single RS485 or Ethernet output for the entire system
- > Webview embedded web server

Compliance with standards

- > UL 61010
guide FTRZ/PICQ
file E257746



- > IEC 61557-12



- > ISO 14025



Create your project

- > Find the best DIRIS Digiware configuration:
www.meter-selector.com



Application	Control and power supply interface			
				
DIRIS Digiware	C-31	D-40	D-50	D-70
Digiware input	•	•	•	•
RS485 input	•	•	•	•
RS485 Modbus output	•	•		
Ethernet output			Modbus	Modbus BACnet IP SNMP
Webview web server				•

Functions



Webview

Embedded web server in the DIRIS Digiware D-70 display

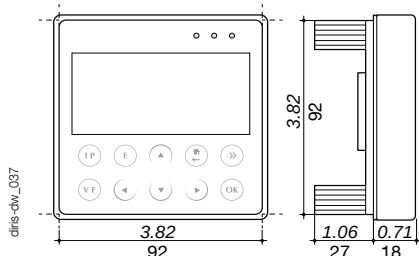
Webview allows the display and remote monitoring of all the electric parameters measured by up to 32 devices. They are displayed in the form of overview screens, graphs or tables for clear and user-friendly analysis.

Access to Webview is made by a web browser on a PC or tablet and offers multiple features such as the automatic export of data by FTP or e-mail notification in the presence of alarms (SMTP).

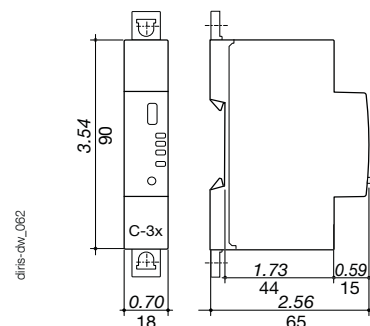
The Photoview application is available via the Webview interface embedded in the DIRIS Digiware D-70 display. It allows the display of electrical quantities on a customized background picture such as a cabinet, a wiring diagram or the map of a site.

Dimensions (in/mm)

DIRIS Digiware D-40/D-50



DIRIS Digiware C-31



Configuration

Equipment consumption

Product	Power delivered (W)	Power consumed (W)
Power supply		
P15 100-240 VAC / 24 VDC	15	
Cables		
164-foot package		1,5
System interfaces		
DIRIS Digiware D-40/D-50		2
DIRIS Digiware D-70		2,5
DIRIS Digiware C-31		0,8
Module voltage		
DIRIS Digiware U-xx		0,72
DIRIS Digiware U-3xdc		0,6
Current modules		
DIRIS Digiware I-3x		0,52
DIRIS Digiware I-4x		1,125
DIRIS Digiware I-6x		0,7
DIRIS Digiware I-3xdc (+ 3 DC current sensors)		2
DIRIS Digiware S-xx		0,35
Input/output modules		
DIRIS Digiware IO-10/IO-20		0,5
Repeater		
DIRIS Digiware C-32		1,5

Calculation rules for the max. number of products on the Digiware Bus

The total power consumed by the equipment connected to the Digiware Bus must not exceed the power from the 24 VDC supply.

The power supply must not exceed 20 W/70°C or 27 W/40°C.

Size with P15 power supply (ref: 4829 0120) delivering 15 W

For example, it is possible to use

- 1 DIRIS Digiware D-50 display (2W)
- 1 DIRIS Digiware voltage module U-xx (0.72 W)
- 50 metres of cable (1.5 W)

and

- 20 DIRIS Digiware current modules I-3x (20 x 0.52 = 10.4 W)

→ **Total power = 14.62 W**

or

- 9 DIRIS Digiware current modules I-4x (9 x 1.125 = 10.125 W)

→ **Total power = 14.345 W.**

Size with a 24 VDC power supply delivering a maximum of 20 W

For example, it is possible to use

- 1 DIRIS Digiware D-50 display (2W)
- 1 DIRIS Digiware voltage module U-xx (0.72 W)
- 164 feet of cable (1.5 W)

and

- 30 DIRIS Digiware current modules I-3x (30 x 0.52 = 15.6 W)

→ **Total power = 19.82 W**

or

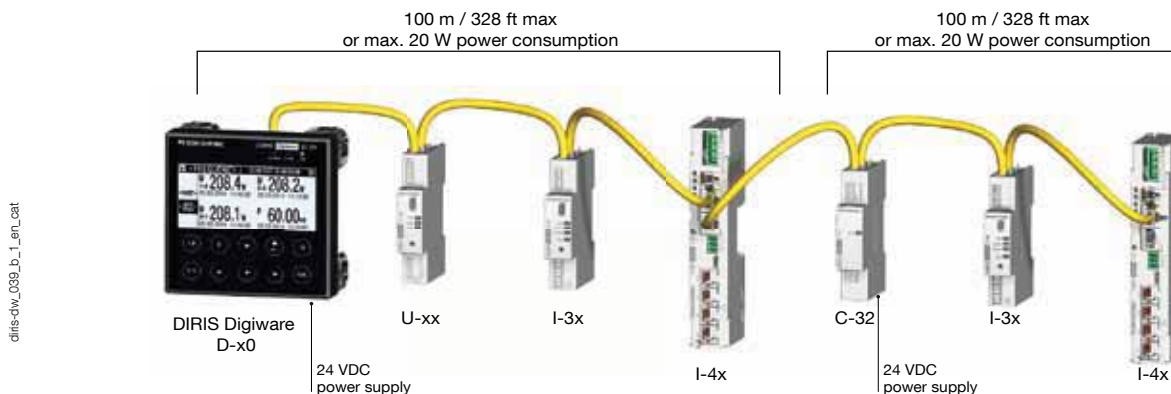
- 14 DIRIS Digiware current modules I-4x (14 x 1.125 = 15.72)

→ **Total power = 19.97 W.**

Repeater

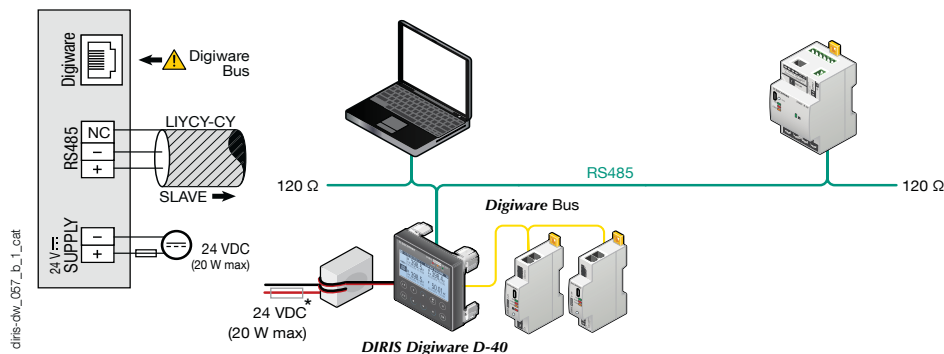
Whenever the power consumption is higher than 20 W or the distance is greater than 100 m / 328 ft, a DIRIS Digiware C-32 repeater is required.

In a DIRIS Digiware system, a maximum of 2 repeaters may be used.



Connections (continued)

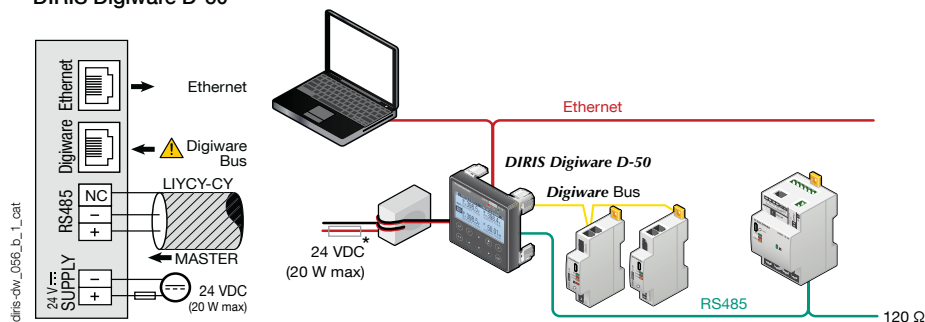
DIRIS Digiware D-40



(*) 1A / 24 VDC fuse protection is recommended if the 24 VDC power supply is not provided by Socomec.

(**) On DIRIS Digiware D-40 and D-50 displays, class B radiated power is obtained using ferrites (ref. 4829 0048) on the power supply (two turns).

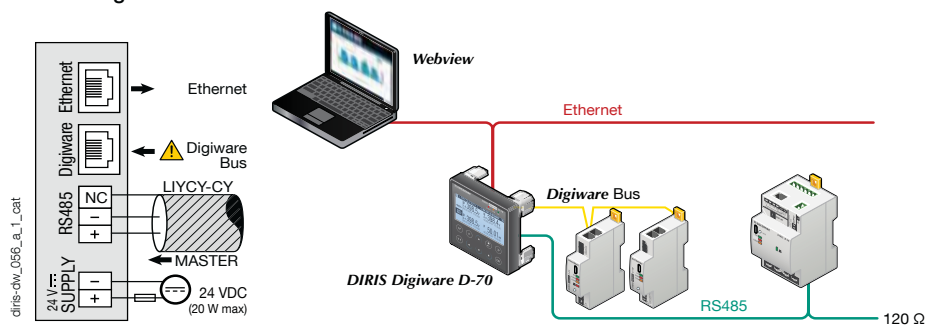
DIRIS Digiware D-50



(*) 1A / 24 VDC fuse protection is recommended if the 24 VDC power supply is not provided by Socomec.

(**) On DIRIS Digiware D-40 and D-50 displays, class B radiated power is obtained using ferrites (ref. 4829 0048) on the power supply (two turns).

DIRIS Digiware D-70

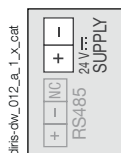


(*) 1A / 24 VDC fuse protection is recommended if the 24 VDC power supply is not provided by Socomec.

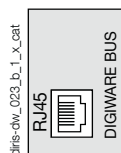
Connections

DIRIS Digiware C-31

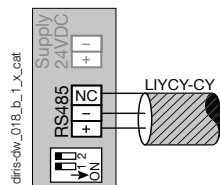
Power supply



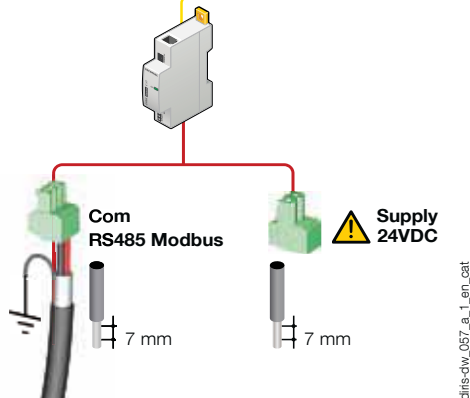
Digiware bus



Communication

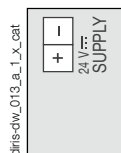


DIRIS Digiware C-31

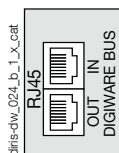


DIRIS Digiware C-32

Power supply



Digiware bus



Technical characteristics

Electrical characteristics

DIRIS Digiware C-31	
Input voltage	24 VDC $\pm$ 20 % - 20 W max
Connection	Removable screw terminal block, 2 positions, stranded or solid 0.2-2.5 mm ² cable
P15 power supply	Specifications 100-240 VAC/ 24 VDC - 0.63 A - 15 W Modular format - Dimensions (H x L): 3.5 x 1 in/90 x 25 mm

Communication specifications

Digiware Bus	
Function	Connection between DIRIS Digiware modules
Cable type	Specific Socomec cable with RJ45 connections

RS485	
Connection type	2 to 3 half duplex wires
Protocol	Modbus RTU
Baudrate	1200 to 115200 bauds
Function	Data configuration and reading
Location	Single-point on DIRIS Digiware C

Mechanical features

Casing type	DIN-rail mounting module and base
Casing protection index	IP20 / IK06
Front panel protection index	IP40 on the nose in modular assembly / IK06

Environmental specifications

Ambient operating temperature	-10 ... +70 °C/+14 °F ... +158 °F
Storage temperature	-25 ... +70 °C/-13 °F ... +158 °F
Operating humidity	55 °C / 131 °F / 97% relative humidity
Operating altitude	6560 feet / 2000 m

DIRIS Digiware D-40/D-50/D-70 features

Mechanical characteristics		
Type of screen	Capacitive touch-screen technology, 10 keys	
Screen resolution	350 x 160 pixels	
Front panel protection index	IP65	
Communication		
Ethernet RJ45 10/100 Mbps	Gateway function: Modbus TCP (D-50/D-70) BACnet IP (D-70) SNMP v1, v2, v3 (D-70)	
RJ45 Digiware	Control and power supply interface function	
RS485 2-3 wires	Modbus RTU communication function (input D-50/D-70/output D-40)	
USB	Upgrade and configuration via type B micro USB connector	
Electrical characteristics		
Power supply	24 VDC +10 % / -20%	
Power consumption	2 VA (D-40/D-50) / 2.5 VA (D-70)	
Environmental specifications		
Storage temperature	-20 ... +70 °C/-4 °F ... +158 °F	
Operating temperature	-10 ... +55 °C/+14 °F ... +131 °F	
Humidity	95 % at 40 °C/104 °F	
Installation category, degree of pollution	CAT III, 2	
Ports	D-40	D-50/D-70
Inputs	Digiware	Digiware RS485
Outputs	RS485	Ethernet

References

DIRIS Digiware		Part number
D-40	Multipoint display, RS485 output	4829 0199
D-50	Multipoint display, Ethernet output	4829 0201
D-70	Multipoint display, Ethernet output + embedded web server	4829 0202
C-31	System interface	4829 0101
C-32	Repeater	4829 0103
Power supply		Part number
P15	Powers supply 100-240 VAC/ 24 VDC 15 W	4829 0120
Digiware connection cables		Part number
RJ45 cables for Digiware Bus	0.20 feet / 0.06 m length	4829 0189
	0.32 feet / 0.10 m length	4829 0181
	0.66 feet / 0.20 m length	4829 0188
	1.64 feet / 0.50 m length	4829 0182
	3.28 feet / 1 m length	4829 0183
	6.56 feet / 2 m length	4829 0184
	16.4 feet / 5 m length	4829 0186
	32.8 feet / 10 m length	4829 0187
164 feet / 50 m + 100 connectors		4829 0185
Termination for Digiware Bus (supplied with interfaces C and D)		4829 0180
USB configuration cable		4829 0050
Single-point display		Part number
DIRIS D-30 ⁽¹⁾	Single-point display for DIRIS Digiware I-4x	4829 0200

(1) DIRIS D-30 display characteristics see page 254.

Accessories		
Description	To be ordered in multiples of	Part number
Fuse circuit breakers to protect voltage inputs (type RM) 1 pole + neutral	4	5701 0017
gG 10x38 0.5 A fuses	10	6012 0000
Fuse holder Class CC to protect voltage inputs 3 pole	4	5705 0003
Class CC 0.5 A fuses	10	6000 5000



DIRIS Digiware U

Voltage measurement module



DIRIS Digiware U-10/U-20/ U-30



Configuration
with EasyConfig,
see page 280.

Function

The **DIRIS Digiware U** module measures voltage for the entire system.
This pools together all voltage measurements.

The Digiware RJ45 Bus allows you to pass voltage measurements as well as power supply and communication to all connected products.

Advantages

- 1 single voltage measurement point for the entire system.
- Single point of protection for voltage measuring.
- A complete, dedicated solution:
 - metering,
 - monitoring voltage,
 - quality analysis of the supplied voltage.
- No hazardous voltage on cabinet doors.
- Adapted to all types of network: single-phase, three-phase.

The solution for

- > Industry
- > Building
- > Infrastructures
- > Data center



Strong points

- > 1 single voltage measurement point for the entire system
- > Plug & Play
- > Compact



RJ45 (Digiware Bus) cables are available.

Conformity to standards

- > UL 61010
guide PICQ
file E257746



- > IEC 61557-12



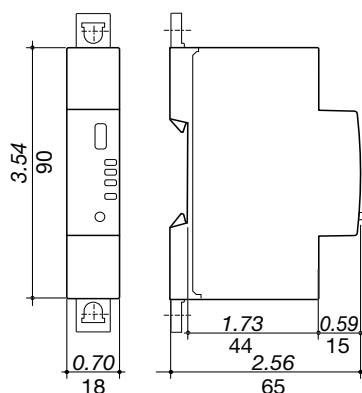
- > ISO 14025



Application	Voltage measurement module		
	Metering	Monitoring	Analysis
			
DIRIS Digiware U	U-10	U-20	U-30
Multi-measurement			
U12, U23, U31, V1, V2, V3, f	•	•	•
U system, V system			•
Ph/N unbalance			•
Ph/Ph unbalance			•
Quality analysis			
THDv1, THDv2, THDv3, THDu12, THDu23, THDu31		•	•
Individual harmonics U & V (up to rank 63)			•
Voltage dips, cutoffs and surges (EN 50160)			•
Alarms			
On threshold			•
History of average values			
45 days (max)			•
Format			
Width/number of modules	0.71 in / 1		

Dimensions (in/mm)

DIRIS Digiware U



dirisdw_069_a_1_us_cat

Specifications

Measuring characteristics

Voltage measurement - DIRIS Digiware U	
Characteristics of the network measured	50-300 VAC (Ph/N) - 87-520 VAC (Ph/Ph) - CAT III
Frequency range	45 ... 65 Hz
Frequency accuracy	Class 0.02
Network type	Single-phase/ Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral
Measurement by voltage transformer	Primary: 400 000 VAC Secondary: 60, 100, 110, 173, 190 VAC
Input consumption	≤ 0.1 VA
Permanent overload	300 VAC Ph/N
Accuracy of voltage measurement	Class 0.2
Connection	Removable screw terminal block, 4 positions, stranded or solid AWG 10 to AWG 32 or 0.2 ... 2.5 mm ² cable

Communication specifications

USB	
Protocol	Modbus RTU on USB
Function	Configuration of DIRIS Digiware U and I modules
Location	On each DIRIS Digiware U and I measurement module
Connection	Type B micro USB connector

References

Digiware connection cables		Reference
RJ45 cables for Digiware Bus	0.20 feet / 0.06 m length	4829 0189
	0.32 feet / 0.10 m length	4829 0181
	0.66 feet / 0.20 m length	4829 0188
	1.64 feet / 0.50 m length	4829 0182
	3.28 feet / 1 m length	4829 0183
	6.56 feet / 2 m length	4829 0184
	16.4 feet / 5 m length	4829 0186
	32.8 feet / 10 m length	4829 0187
164 feet / 50 m + 100 connectors		4829 0185
Replacement reference: Digiware bus terminating resistor (supplied with C and D devices)		4829 0180
USB configuration cable		4829 0050

DIRIS Digiware		Reference
U-10	Metering	4829 0105
U-20	Monitoring	4829 0106
U-30	Analysis	4829 0102

Accessories		
Description of accessories	To be ordered in multiples of	Reference
Fuse holder Class CC to protect voltage inputs 3 pole	4	5705 0003
Class CC 0.5 A fuses	10	6000 5000

DIRIS Digiware S

Current measurement module with integrated sensors



DIRIS Digiware S



Configuration
with EasyConfig,
see page 280.

Function

DIRIS Digiware S current acquisition modules have 3 integrated current sensors for the measurement of electrical circuits up to 63 A.

Positioned directly above or below the protective devices, they are associated with the DIRIS Digiware U voltage measurement module to measure consumption, and to monitor the electrical installation and the quality of the power supply.

Advantages

Plug & Play

- Save wiring time: the current sensors are integrated in the module.
- Quick RJ45 connection between modules.
- Positioning possible upstream or downstream of the protective device.

Multi-circuit

Multiple DIRIS Digiware S modules can be used within the measurement system enabling the monitoring of a large number of loads.

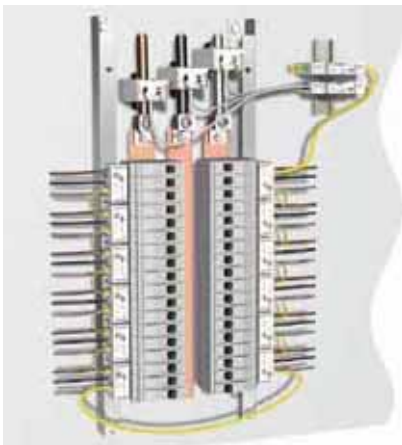
Compact

- A measurement module offering the best compactness/performance ratio of the market.
- Current inputs spaced at 3/4" center intervals to align appropriately with the panelboard branch circuit breakers.

Accurate

- Better than revenue grade: Class 0.5 for active energy (kWh) for the global measurement chain and on the full scale.

Functional diagram



DIRIS Digiware S modules can be mounted directly on protective devices, on the left side or right side of the panelboard, solving issues of space constraints.

The solution for

Panelboards in:

- > Data center
- > Building
- > Industry



Strong points

- > Plug & Play
- > Multi-circuit
- > Compact



RJ45 (Digiware Bus)
cables are available.

Integrated technologies



PreciSense



AutoCorrect



VirtualMonitor

For more information, see page 188.

Conformity to standards

- > UL 61010
Guide FTRZ/PICQ
file E257746



- > IEC 61557-12



- > ISO 14025



Application	Current measurement module with integrated sensors		
	Metering	Analysis	Monitoring
			
DIRIS Digiware S	S-130	S-135	S-Datcenter
Number of current inputs	3	3	3
Basic current I_b	10 A	10 A	10 A
Maximum current I_{max}	63 A	63 A	63 A
Load type accepted	1P + N 2P / 2P + N 3P / 3P + N	1P + N 2P / 2P + N 3P / 3P + N	1P + N
Metering			
$\pm$ kWh, $\pm$ kvarh, kVAh	•	•	•
Multi-tariff (max 8)		•	
Demand profiles		•	•
Multi-measurement			
I_1 , I_2 , I_3 , I_n , ΣP , ΣQ , ΣS , ΣPF	•	•	•
P, Q, S, PF per phase		•	•
Predictive power		•	
Current unbalance (I_{nba} , I_{nb} , I_{dir} , I_{linv} , I_{hom})		•	
Φ , $\cos \Phi$, $\tan \Phi$		•	•
Quality			
THDi1, THDi2, THDi3, THDin		•	•
Individual harmonics I (up to 63rd)		•	
Crest factors U, V, I		•	
K factor		•	
Overcurrents		•	
Alarms			
Thresholds and combinations		•	•
Load level			•
Wiring errors		•	•
Protective device		•	•
Trends			
Average values		•	•
Format			
Width	2.13 in		

Mounting accessories

Temporary MCB insert
(for use during panel assembly)



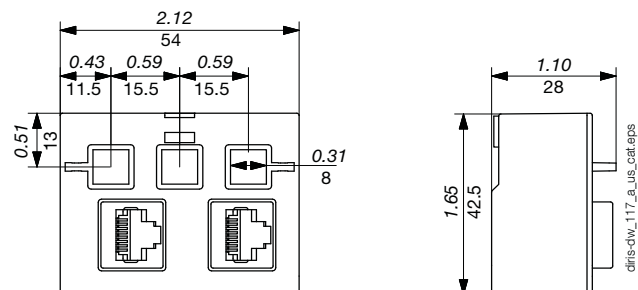
DIN rail and back plate mounting



Cable tie tether



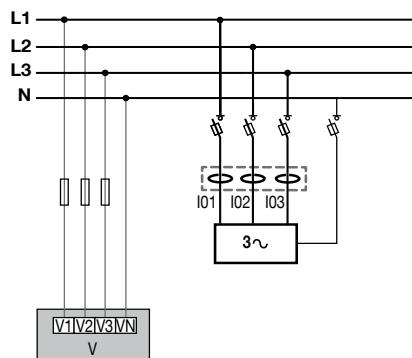
Dimensions (in/mm)



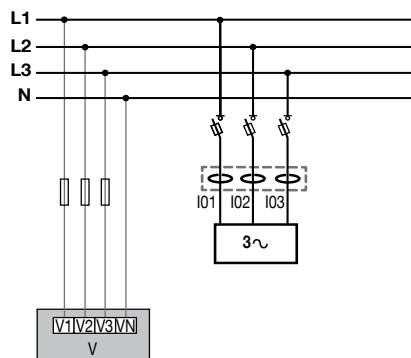
Connections

Current is measured by the integrated inputs I01, I02 and I03 on the DIRIS Digiware S module.

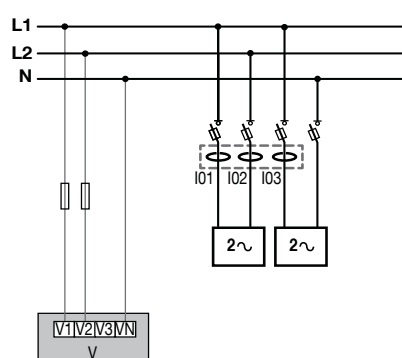
3P+N - 3CT



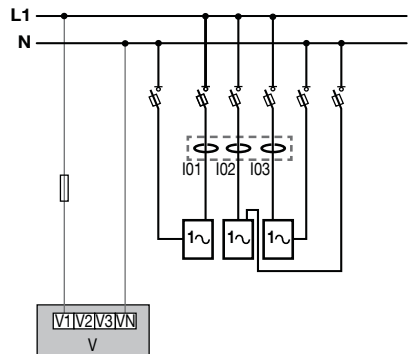
3P - 3 CT



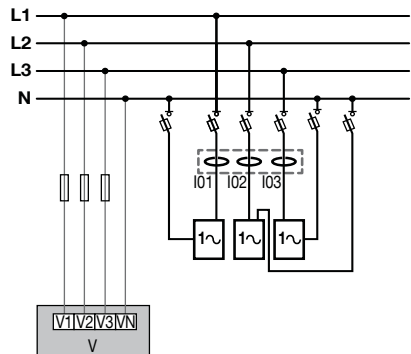
2P+N - 2CT & 2P+N - 1CT



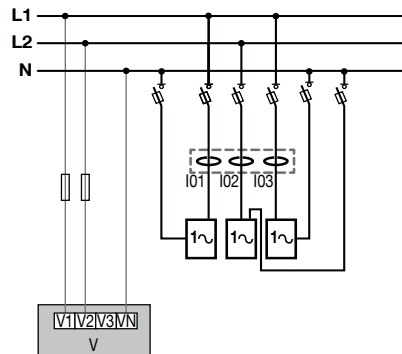
1P+N - 1 CT (3x)



3P+N - 1CT (3x)



2P+N - 1CT (3x)



DIRIS Digiware S 3~ Load Fuses: 0.5 A gG/BS 88 2 A gG/0.5 A class CC

Technical characteristics

Measurement characteristics

Measurement of current	
Number of current inputs	3
Associated current sensors	Integrated in the product
Basic current I _b	10 A
Maximum current I _{max}	63 A
Current measurement accuracy	Class 0.5 IEC 61557-12
Measurement of energy	
Accuracy of active energy	Class 0.5 IEC 61557-12
Accuracy of reactive energy	Class 1 IEC 61557-12

Mechanical characteristics

Casing type	DIN rail or back plate mounting
Casing protection index	IP20 / IK08
Weight	63 g / 2.22 oz
Module power consumption	0.35 VA

Communication specifications

Digiware BUS	
Function	Connection between DIRIS Digiware S, U, I modules and system interfaces
Cable type	Specific Socomec cable with RJ45 connections
USB	
Protocol	MODBUS RTU on USB
Function	Configuration of DIRIS Digiware modules
Location	On each DIRIS Digiware module
Connection	Type B micro USB connector

Environmental specifications

Ambient operating temperature	-10 ... +55 °C / +14 °F ... +131 °F
Storage temperature	-25 ... +70 °C / -13 °F ... + 158 °F
Operating humidity	40 °C / 104 °F / 95% RH
Operating altitude	< 6560 feet / 2000 m

References

DIRIS Digiware S		Reference
S-130	Metering - 3 integrated current inputs	4829 0160
S-135	Analysis - 3 integrated current inputs	4829 0161
S-Datcenter	Single-phase monitoring - 3 integrated current inputs	4829 0162
Accessories		Reference
DIN rail and back plate mounting clip (x10)		4829 0195
Temporary MCB insert (x10)		4829 0196

Digiware connection cables		Part number
RJ45 cables for Digiware Bus	Length 0.20 feet / 0.06 m ⁽¹⁾	4829 0189
	Length 0.32 feet / 0.10 m	4829 0181
	Length 0.64 feet / 0.20 m	4829 0188
	Length 1.64 feet / 0.50 m	4829 0182
	Length 3.28 feet / 1 m	4829 0183
	Length 6.56 feet / 2 m	4829 0184
	Length 16.4 feet / 5 m	4829 0186
	Length 32.8 feet / 10 m	4829 0187
164 feet / 50 m reel + 100 connectors		4829 0185
Termination for Digiware Bus (supplied with interfaces C and D)		4829 0180
USB configuration cable		4829 0050

(1) The RJ45 0.20-ft cables can be used on 3-pole or 4-pole protective devices.

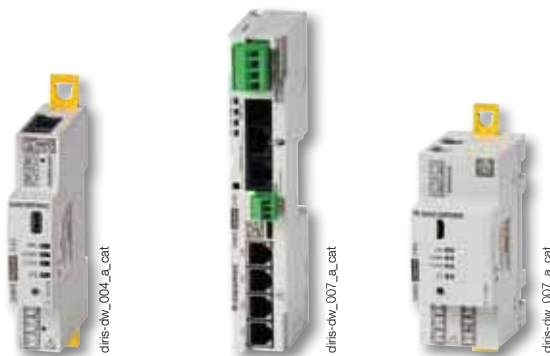
Expert Services

Do you require services for your metering system?

No problem for our local team. They will fully integrate all your Socomec devices, **audit** your system, **commission** selected equipment and **train** your staff on its use. For further information, please contact us.

DIRIS Digiware I

Current acquisition modules



DIRIS Digiware I-3x

DIRIS Digiware I-4x

DIRIS Digiware I-6x



Configuration
with EasyConfig,
see page 280.

Function

DIRIS Digiware I modules measure consumptions and monitor the system at the closest point to the loads. The flexibility of these modules allow you to allocate the loads to be measured or monitored through independent current inputs.

For example:

- 1 three-phase load,
- 3 single-phase loads.

The RJ45 and RJ12 connections allow you to connect modules very quickly and to automatically configure connected current sensors:

- communication address,
- load type,
- sensor type and ratio,
- automatic rating detection and verification of current flow direction.

Wiring errors are also prevented and installation is simplified.

Advantages

- RJ45 and RJ12 rapid connection.
- Available with 3, 4 or 6 inputs.
- Single-output or multi-output for maximum optimization of the number of products.
- Compact format: 1 or 2 modules sized for integration at the closest point to the loads.
- A complete, dedicated solution:
 - metering,
 - monitoring,
 - quality analysis.
- Better than revenue grade.
- Compliant with standard ANSI C12.20 and IEC 61557-12 standards, guaranteeing the quality and accuracy of the system:
 - Class 0.2 for the meter alone
 - Class 0.5 from 2% to 120% of the rated current (full scale), for the global measurement chain (with TE/TF current sensors)

The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



Strong points

- > Multi-circuit
- > Plug and Play
- > Compact
- > High-precision measurement chain

Integrated technologies



For more information, see page 188.

Conformity to standards

- > UL 61010
guide PICQ
file E257746



- > IEC 61557-12



- > ISO 14025



Create your project

- > Find the best DIRIS Digiware configuration:
www.meter-selector.com



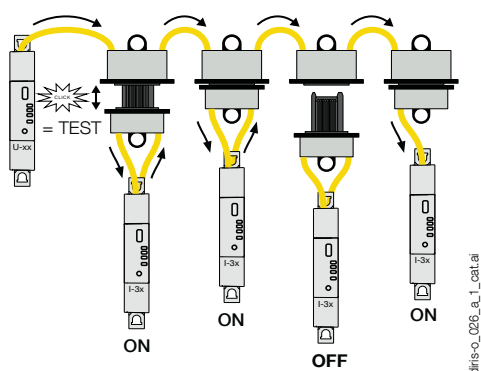
Application	Current measurement modules							
	Metering		Monitoring	Analysis	Monitoring	Analysis	Metering	
								
DIRIS Digiware I	I-30	I-31	I-33	I-35	I-43	I-45	I-60	I-61
Number of current inputs	3	3	3	3	4	4	6	6
Metering								
± kWh, ± kvarh, kVAh	•	•	•	•	•	•	•	•
Demand profiles		•		•		•		•
Multi-tariff		•		•		•		•
Multi-measurement								
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•	•	•	•	•	•	•
P, Q, S, PF per phase			•	•	•	•		
Predictive power				•		•		
Current unbalance (Inba, Idir, Iinv, Ihom, Inb)				•		•		
Phi, cos Phi, tan Phi				•		•		
Quality								
THDi1, THDi2, THDi3, THDin			•	•	•	•		
Individual harmonics I (up to 63 rd)				•		•		
Overcurrents				•		•		
Alarms								
On threshold				•		•		
Inputs/outputs					2/2	2/2		
History								
Average values				•		•		
Format								
Width/number of modules	0.71 in / 1	0.71 in / 1	0.71 in / 1	0.71 in / 1	1.06 in / 1.5	1.06 in / 1.5	1.42 in / 2	1.42 in / 2

Accessories

Digiware plug-in connector

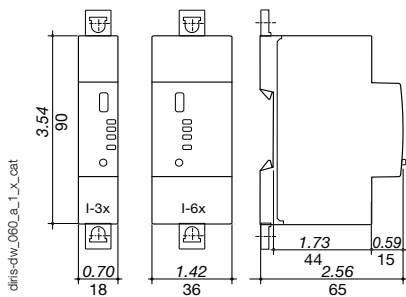
With the Digiware plug-in connector you can disconnect a DIRIS Digiware module from the Bus while ensuring the DIRIS Digiware system continues to run downstream.

This accessory is particularly useful in applications with retractable drawers or critical applications such as data centers.

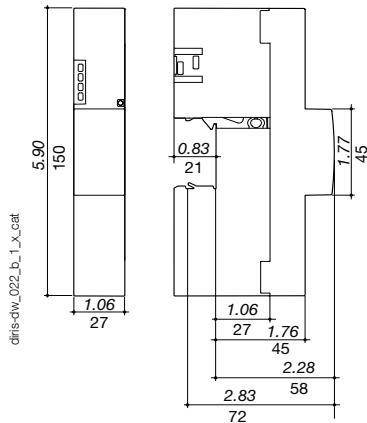


Dimensions (in/mm)

DIRIS Digiware I-3x / I-6x



DIRIS Digiware I-4x



Connections

Associated current sensors

Various types of current sensors are connected to the DIRIS Digiware: closed (TE), split core (TR) or flexible (TF). This range of sensors can be adapted to all types of new or existing installations. A rapid RJ12 connection makes wiring easy, reliable, and error-free. The DIRIS Digiware system automatically recognizes the sensor size and type. This guarantees the overall accuracy of the DIRIS Digiware + current sensor measurement chain.

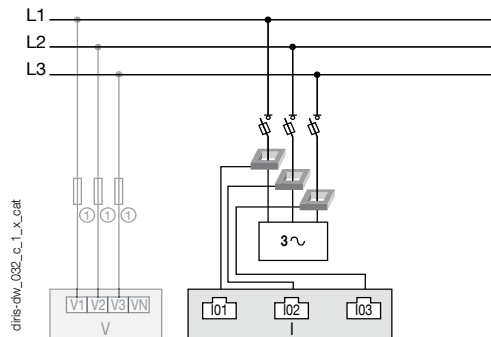
For more information: see page 220.

Network and connection examples

I3x

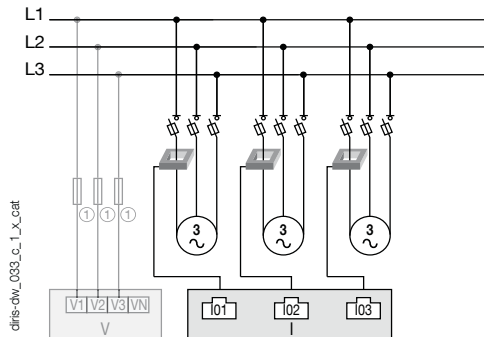
Three-phase

3P - 3CT (1 three-phase load)



Three-phase

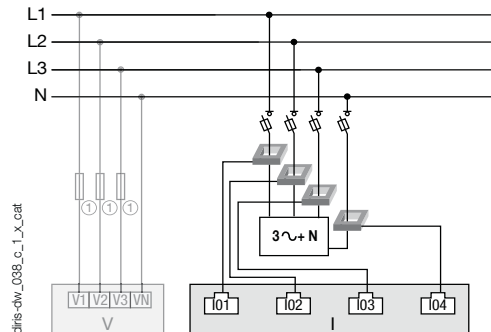
3P - 1CT (3 balanced, three-phase loads)



I4x

Three phase + neutral

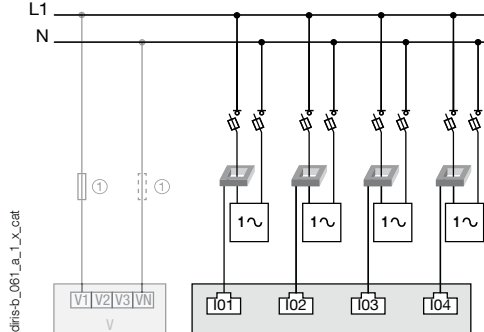
3P+N - 4CT (1 three-phase load + Neutral measured)



1. 0.5 A gG / 0.5 A class CC fuses.

Single-phase

1P+N-1CT (4 single-phase loads)



CT: Current sensor

3~ Load

Specifications

Measuring characteristics

Current measurement - DIRIS Digiware I	
Number of current inputs	I-3x: 3 / I-45: 4 / I-6x: 6
Associated current sensors	Solid TE, split-core TR, flexible TF current sensors
Accuracy of current measurement	0.2 DIRIS Digiware class only Class 0.5 with TE or TF sensors Class 1 with TR sensors
Connection	Specific Socomec cable with RJ12 connectors
Inputs - DIRIS Digiware I-45	
Number of inputs	2
Type / Power supply	Non-insulated input, internal polarisation 12 VDC max, 1mA
Input functions	Logical status, pulse meter, multi-tariff
Connection	Removable screw terminal block, stranded or solid AWG 15 to AWG 35 or 0.14-1.5 mm ² cable

Outputs - DIRIS Digiware I-45

Number of outputs	2
Relay type	230 VAC ±15 % - 1 A
Function	Configurable alarm (current, power, etc.) when a threshold is exceeded or remote controlled status
Connection	Removable screw terminal block, stranded or solid AWG 10 to AWG 32 or 0.2-2.5 mm ² cable

Communication specifications

USB	
Protocol	Modbus RTU on USB
Function	Configuration of DIRIS Digiware U and I modules
Location	On each DIRIS Digiware U and I measurement module
Connection	Type B micro USB connector

References

DIRIS Digiware		Reference
I-30	Metering - 3 current inputs	4829 0110
I-31	Metering + demand profiles - 3 current inputs	4829 0111
I-33	Monitoring - 3 current inputs	4829 0128
I-35	Analysis - 3 current inputs	4829 0130
I-43	Monitoring - 2 inputs/ 2 outputs - 4 current inputs	4829 0129
I-45	Analysis - 2 inputs/ 2 outputs - 4 current inputs	4829 0131
I-60	Metering - 6 current inputs	4829 0112
I-61	Metering + demand profiles - 6 current inputs	4829 0113
Accessories		Reference
Digiware x 5 plug-in connector		4829 0605

Digiware connection cables		Reference
RJ45 cables for Digiware Bus	Length 0.20 feet / 0.06 m ⁽¹⁾	4829 0189
	Length 0.32 feet / 0.10 m	4829 0181
	Length 0.64 feet / 0.20 m	4829 0188
	Length 1.64 feet / 0.50 m	4829 0182
	Length 3.28 feet / 1 m	4829 0183
	Length 6.56 feet / 2 m	4829 0184
	Length 16.4 feet / 5 m	4829 0186
	Length 32.8 feet / 10 m	4829 0187
164 feet / 50 m reel + 100 connectors		4829 0185
Termination for Digiware Bus (supplied with interfaces C and D)		4829 0180
USB configuration cable		4829 0050

(1) DIRIS D-30 display characteristics



TE sensors

Solid current sensors

used with DIRIS Digiware, DIRIS A-40 and DIRIS B



TE solid sensors

The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



Strong points

- > Plug & Play
- > Accuracy as per standard IEC 61557-12
- > Installation

Conformity to standards

- > UL 61010 guide PICQ file E257746



- > IEC 61557-12



- > ISO 14025



Function

TE smart **current sensors** measure the load currents of an electrical system and send the data to meters and measurement hubs via an RJ12 plug-and-play output. Thanks to a wide measurement range, TE current sensors cover the full current range of 5 to 2000 A, with 7 references. TE solid current sensors can be connected to DIRIS Digiware, DIRIS A-40, or DIRIS B Power Monitoring Devices via a rapid RJ12 connection.

Numerous accessories are available to aid the installation of sensors in any type of cabinet.

Advantages

Plug & Play

- A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. This also allows automatic detection of the sensor type and size/transformation ratio.
- The sensors can be installed in both directions.

Installation

- The TE solid sensor range is specially designed for new installations, and has the same pitch as the most common protective devices.

Accuracy as per standard IEC 61557-12

- Class 0.5 for the global measuring chain (measurement hub + TE current sensors) from 2 to 120% of the nominal current I_n .

Mounting

Linear assembly with the protective devices

TE-25 / TE-35 / TE-45 / TE-55 / TE-90



DIN rail mounted



TE-90 clamps



Staggered assembly

TE-18 / TE-35 / TE-45 / TE-55



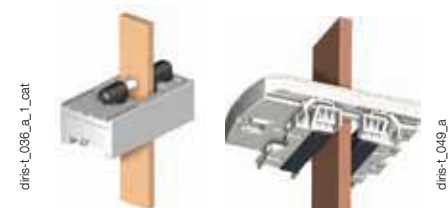
Back-plate mounting



Cable mounting

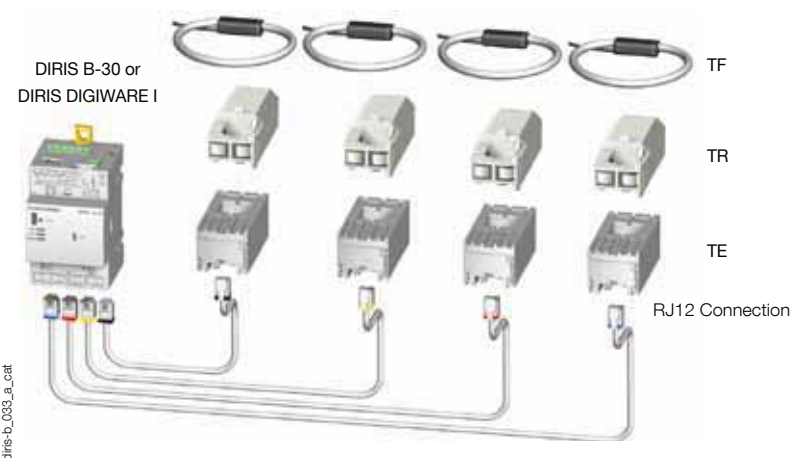


Bar mounting



Connections

TE / TR / TF current sensors



Mounting accessories

Mounting accessories delivered with TE sensors:

Switch mounting		TE-18	TE-25	TE-35 TE-45 TE-55	TE-90
	DIN rail and back-plate	1 pc			2 pcs
	DIN rail		2 pcs	2 pcs	
	Back-plate		4 pcs	4 pcs	6 pcs
	Busbar			2 pcs	

Compatible accessories

Adapter for CT with 5A secondary

- With this adapter you can use a current transformer with a 5 A output on the DIRIS Digiware and DIRIS B-30.
- For use with standard 5 A sensors for measuring applications of > 2000 A. The dimensions are the same as the TE-18.

Coupling link

- Associated with the TE range, this accessory is for inter-connecting the sensors when linear or staggered mounted.

Sealable cover

- Using a sealable cover guarantees the immunity of the sensor connection on TE/TR/TF current sensors.

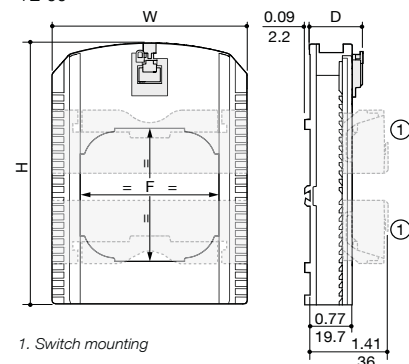
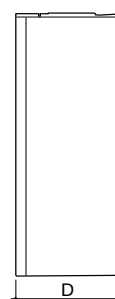
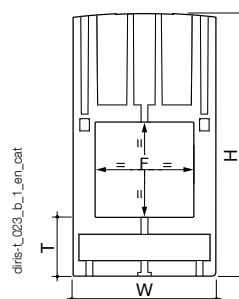
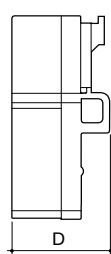
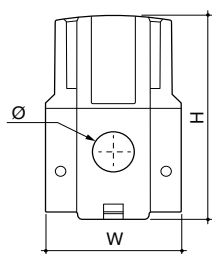
Dimensions (in/mm)

TE - Solid current sensors

TE-18

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

TE-90



Model	Nominal current range (A)	Actual coverage range (A)	Pitch (in/mm)	H x W x D (in/mm)	F (in/mm)	T (in/mm)
TE-18	5 ... 20/25 ... 63	0.1 ... 24/0.5 ... 75	0.7/18	1.77 x 1.10 x 0.79/45 x 28 x 20	Ø 0.33/8.6	-
TE-25	40 ... 160	0.8 ... 192	0.98/25	2.56 x 0.98 x 1.28/65 x 25 x 32.5	0.53 x 0.53/13.5 x 13.5	0.69/17.5
TE-35	63 ... 250	1.26 ... 300	1.37/35	2.79 x 1.37 x 1.28/71 x 35 x 32.5	0.82 x 0.82 / 21 x 21	0.69/17.5
TE-45	160 ... 630	3.2 ... 756	1.77/45	3.38 x 1.77 x 1.28/86 x 45 x 32.5	1.22 x 1.22 / 31 x 31	0.77/19.5
TE-55	400 ... 1000	8 ... 1200	2.16/55	3.93 x 2.16 x 1.28/100 x 55 x 32.5	1.61 x 1.61 / 41 x 41	0.85/21.5
TE-90	600 ... 2000	12 ... 2400	3.54/90	4.96 x 3.54 x 0.97/126 x 90 x 24.6	2.52 x 2.52 / 64 x 64	-

Specifications

TE - Solid current sensors							
Model	TE-18	TE-18	TE-25	TE-35	TE-45	TE-55	TE-90
Nominal current range I _n (A)	5 ... 20	25 ... 63	40 ... 160	63 ... 250	160 ... 630	400 ... 1000	600 ... 2000
Actual coverage range (A)	0.1 ... 24	0.5 ... 75	0.8 ... 192	1.26 ... 300	3.2 ... 756	8 ... 1200	12 ... 2400
Max. current (A)	24	75.6	192	300	756	1200	2400
Weight (oz/g)	0.84/24	0.84/24	2.4/69	3.1/89	4.9/140	6.6/187	5.75/163
Max. voltage (phase/neutral)	300 V					600 V	
Rated withstand voltage	3 kV						
Frequency	50/60 Hz						
Intermittent overload	10 x I _n over 1 sec						
Measurement category	CAT III						
Protection degree	IP30 / IK06						
Operating temperature	-10 ... +70 °C / +14 °F ... +158 °F						
Storage temperature	-25 ... +85 °C / -13 °F ... +185 °F						
Relative humidity	95 % non-condensing						
Altitude	< 6560 feet / 2000 m						
Connection	SOCOMECE cable or equivalent RJ12 straight, twisted pair, unshielded 300 V cat. III UL 61010 cable. -40 °C ... +85 °C / -40 °F ... +185 °F						

References

Model	Nominal current range (A)	Actual coverage range (A)	Pitch (mm)	Reference
TE-18	5 ... 20	0.1 ... 24	0.7/18	4829 0500
TE-18	25 ... 63	0.5 ... 75	0.7/18	4829 0501
TE-25	40 ... 160	0.8 ... 192	0.98/25	4829 0502
TE-35	63 ... 250	1.26 ... 300	1.37/35	4829 0503
TE-45	160 ... 630	3.2 ... 756	1.77/45	4829 0504
TE-55	400 ... 1000	8 ... 1200	2.16/55	4829 0505
TE-90	600 ... 2000	12 ... 2400	3.54/90	4829 0506

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

RJ12 connection cables	Cable length (ft/m)								
	0.32/0.1	0.64/0.2	0.96/0.3	1.64/0.5	3.3/1	6.5/2	16.4/5	32.8/10	164/50 + 100 connectors
Number of cables	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
1	-	-	-	-	-	-	4829 0602	4829 0603	4829 0601
3	4829 0580	4829 0581	4829 0582	4829 0595	4829 0583	4829 0584	-	-	-
4	-	-	-	4829 0596	4829 0588	4829 0589	-	-	-
6	4829 0590	4829 0591	4829 0592	4829 0597	4829 0593	4829 0594	-	-	-



TR/iTR sensors

Split-core AC current sensors

used with DIRIS Digiware, DIRIS A-40 and DIRIS B

Current sensors



TR Split-core current sensors

Function

The range of **TR and iTR split-core current sensors** measures the current of electrical installations. Used with DIRIS Digiware, DIRIS A-40, or DIRIS B Power Monitoring Devices, they can measure currents between 25 and 600 A, with the same guaranteed accuracy. The quick RJ12 connection, and the integrated intelligence prevent, any configuration errors.

The range of iTR current sensors revolutionizes the world of measurement and provides access to VirtualMonitor (monitoring of protective devices) and AutoCorrect (automatic wiring control) technologies.

Advantages of the TR and iTR ranges

Smart sensors

- Sensors with an extended operational range.
- Automatic rating detection.
- Safe on-load disconnection.
- Quick connection via RJ12 color-coded identification of cable.

Accurate

- Measurement accuracy is guaranteed according to the most demanding standard (IEC 61557-12): class 0.5 (iTR) or class 1 (TR) for the global measuring chain and on the full scale (from 2% to 120% of In)

Unique advantages of the iTR range

VirtualMonitor technology

The VirtualMonitor technology provides monitoring of protective devices:

- Across the entire electrical installation.
- Remotely and in real-time.
- Without additional hardware or wiring.

AutoCorrect technology

The AutoCorrect technology guarantees that the measurement system is working correctly, with:

- Automatic identification of wiring errors (verification of phase associations and current flow direction).
- Software correction of errors.
- Available even off-load.

The solution for

- > Retrofit applications
- > Industry
- > Building
- > Infrastructure
- > Data centers



Strong points

- > Smart sensors
- > PreciSense technology: Global accuracy in accordance with the IEC 61557-12 standard.
- > Easy installation and configuration.

Integrated technologies⁽¹⁾



⁽¹⁾ AutoCorrect and VirtualMonitor are only available with iTR sensors.

For more information, see page 188.

Compliance with standards

- > UL 61010 guide PICQ file E257746



- > IEC 61557-12



- > ISO 14025



Create your project

- > Find the best DIRIS Digiware configuration:
www.meter-selector.com

METER SELECTOR
DIGITAL TOOL AVAILABLE

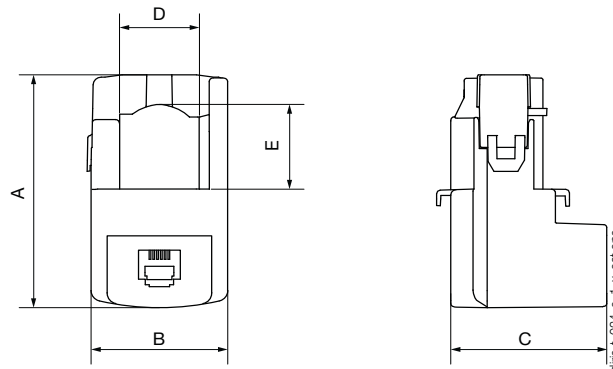
Installation

Cable mounting



Dimensions (in/mm)

TR-10 / TR-14 / TR-21 / TR-32



Model	Nominal current range (A)	Actual coverage range (A)	A (in/mm)	B (in/mm)	C (in/mm)	D (in/mm)	E (in/mm)	Ø (in/mm)
TR/iTR-10	25 ... 63	0.5 ... 75.6	1.73/44	1.02/26	1.10/28	-	-	0.39/10
TR/iTR-14	40 ... 160	0.8 ... 192	2.64/67	1.14/29	1.10/28	0.55/14	0.59/15	0.55/14
TR/iTR-21	63 ... 250	1.26 ... 300	2.56/65	1.46/37	1.69/43	0.83/21	0.91/23	0.83/21
TR/iTR-32	160 ... 600	3.2 ... 720	3.39/86	2.09/53	1.85/47	1.26/32	1.30/33	1.26/32

Technical characteristics

Model	TR-10		iTR-10		TR-14		iTR-14		TR-21		iTR-21		TR-32		iTR-32	
Nominal current range I _n (A)	25 ... 63				40 ... 160				63 ... 250				160 ... 600			
Actual coverage range (A)	0.5 ... 75.6				0.8 ... 192				1.26 ... 300				3.2 ... 720			
Max. current (A)	75.6				192				300				720			
Weight (oz/g)	2.6/74				4.1/117				7.4/211				10.9/311			
Max. voltage (phase/neutral)	300 V															
Rated withstand voltage	3 kV															
Frequency	50/60 Hz															
Intermittent overload	10 x I _n for 1 s															
Measurement category	CAT III															
Global class used with Diris Digiware/A-40/B-10/B-30	Class 1	Class 0.5	Class 1	Class 0.5	Class 1	Class 0.5	Class 1	Class 0.5	Class 1	Class 0.5	Class 1	Class 0.5	Class 1	Class 0.5	Class 1	Class 0.5
Protection degree	IP20 / IK07															
Operating temperature range	-10 ... +70 °C / +14 °F ... +158 °F												-10 ... +70 °C / +14 °F ... +131 °F			
Storage temperature range	-25 to +85°C / -13 °F ... +185 °F															
Relative humidity	95% RH non-condensing															
Altitude	< 6560 feet / 2000 m															
Connection	SOCOMECS RJ12 cable, straight, twisted pair, unshielded, 600 V, -10 °C ... +70 °C / +14 °F ... +158 °F - SELV															

References

Model	Nominal current range (A)	Actual coverage range (A)	Ø (in/mm)	Part number
TR-10	25 ... 63	0.5 ... 75	0.39/10	4829 0555
TR-14	40 ... 160	0.8 ... 192	0.55/14	4829 0556
TR-21	63 ... 250	1.26 ... 300	0.83/21	4829 0557
TR-32	160 ... 600	3.2 ... 720	1.26/32	4829 0558

Model	Nominal current range (A)	Actual coverage range (A)	Ø (in/mm)	Part number
iTR-10	25 ... 63	0.5 ... 75	0.39/10	4829 0655
iTR-14	40 ... 160	0.8 ... 192	0.55/14	4829 0656
iTR-21	63 ... 250	1.26 ... 300	0.83/21	4829 0657
iTR-32	160 ... 600	3.2 ... 720	1.26/32	4829 0658

RJ12 connection cables	Cable length (ft/m)								
	0.32/0.1	0.64/0.2	0.96/0.3	1.64/0.5	3.3/1	6.5/2	16.4/5	32.8/10	164/50 + 100 connectors
Number of cables	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
1	-	-	-	-	-	-	4829 0602	4829 0603	4829 0601
3	4829 0580	4829 0581	4829 0582	4829 0595	4829 0583	4829 0584	-	-	-
4	-	-	-	4829 0596	4829 0588	4829 0589	-	-	-
6	4829 0590	4829 0591	4829 0592	4829 0597	4829 0593	4829 0594	-	-	-



TF sensors

Flexible current sensors

used with DIRIS Digiware, DIRIS A-40 and DIRIS B

Current sensors



TF Flexible current sensors

diris-016_a_1_cat

The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



Strong points

- > Plug & Play
- > Accuracy as per standard IEC 61557-12
- > Installation

Conformity to standards

- > UL 61010
guide PICQ
file E257746



- > IEC 61557-12



- > ISO 14025



Function

TF smart **current sensors** measure the load currents of an electrical system and send the data to meters and measurement hubs via an RJ12 plug-and-play output. Thanks to a wide measurement range, TF current sensors cover the full current range of 150 to 6000 A, with 3 references. TF flexible current sensors can be connected to DIRIS Digiware, DIRIS A-40, or DIRIS B Power Monitoring Devices via a rapid RJ12 connection.

Advantages

Plug & Play

- A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. This also allows automatic detection of the sensor type and size/transformation ratio.
- The sensors can be installed in both directions.

Installation

- The TF flexible sensor range is specially designed for existing installations restricted by strict integration constraints or with high-intensity currents.

Accuracy as per standard IEC 61557-12

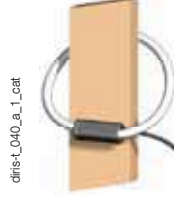
- Class 0.5 for the global measuring chain (measurement hub + TF current sensors) from 2 to 120% of the nominal current I_n .

Mounting

Cable mounting



Bar mounting



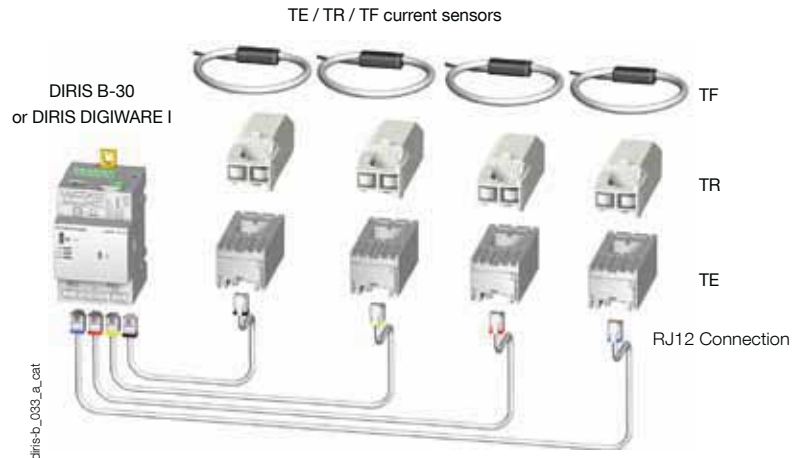
Accessories

Sealable cover

- Using a sealable cover guarantees the immunity of the sensor connection on TE/TR/TF current sensors.

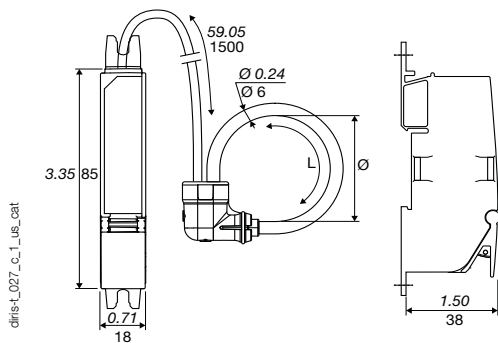


Connections

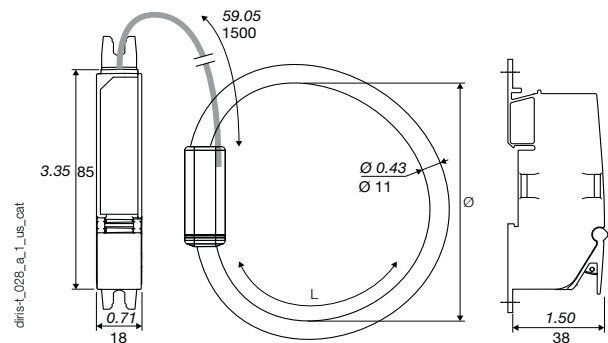


Dimensions (in/mm)

TF-55



TF-120 / TF-300



Model	Nominal current range (A)	Actual coverage range (A)	Ø loop (in/mm)	L = Loop length (in/mm)
TF-55	150 ... 600	3 ... 720	2.16/55	6.77/172
TF-120	500 ... 2000	10 ... 2400	4.72/120	14.80/376
TF-300	1600 ... 6000	32 ... 7200	11.81/300	37.08/942

Specifications

Model	TF-55	TF-120	TF-300
Nominal current range I_n (A)	150 ... 600	500 ... 2000	1600 ... 6000
Actual coverage range (A)	3 ... 720	10 ... 2400	32 ... 7200
Weight (oz/g)	4/114	5/142	7.8/220
Max. voltage (phase/neutral)	600 V		
Rated withstand voltage	3.6 kV		
Frequency	50 / 60 Hz		
Intermittent overload	10 x I_n for 1 s		
Measurement category	CAT III		
Protection degree	IP30 / IK07		
Operating temperature	-10 ... +70 °C / +14 °F ... +158 °F		
Storage temperature	-25 ... +85 °C / -13 °F ... +185 °F		
Relative humidity	95 % non-condensing		
Altitude	< 6560 feet / 2000 m		
Connection	SOCOMECA cable or equivalent RJ12 straight, twisted pair, unshielded 300 V cat. III cable. -40 °C ... +85 °C / +40 °F ... +185 °F		

References

Model	Nominal current range (A)	Actual coverage range (A)	Ø loop (in/mm)	Reference
TF-55	150 ... 600	3 ... 720	2.16/55	4829 0570
TF-120	500 ... 2000	10 ... 2400	4.72/120	4829 0571
TF-300	1600 ... 6000	32 ... 7200	11.81/300	4829 0572

Accessories	Reference
Sealable caps (20 pieces)	4829 0600

RJ12 connection cables	Cable length (ft/m)								
	0.32/0.1	0.64/0.2	0.96/0.3	1.64/0.5	3.3/1	6.5/2	16.4/5	32.8/10	164/50 + 100 connectors
Number of cables	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
1	-	-	-	-	-	-	4829 0602	4829 0603	4829 0601
3	4829 0580	4829 0581	4829 0582	4829 0595	4829 0583	4829 0584	-	-	-
4	-	-	-	4829 0596	4829 0588	4829 0589	-	-	-
6	4829 0590	4829 0591	4829 0592	4829 0597	4829 0593	4829 0594	-	-	-



DIRIS Digiware Udc

DC voltage measurement module

new



diris-dw_116_a



diris-dw_005_a_cat

DIRIS Digiware U-31dc/U-32dc

DIRIS Digiware U500dc/U1000dc/U1500dc
adaptor



Configuration
with EasyConfig,
see page 280.

Function

The **DIRIS Digiware U-3xdc** module measures DC voltage for the entire system. It measures up to 180 VDC with a direct connection and is therefore compatible with typical nominal voltages (24 VDC, 48 VDC...).

The voltage adaptors make the system compatible with all voltage levels up to 1650 VDC to respond to the needs of all applications.

The RJ45 Digiware Bus transmits voltage measurements along with power supply and communication to all connected products.

Advantages

Single voltage measurement

- 1 single voltage measurement point for the entire system.
- Single point of protection for the voltage measurement.
- No hazardous voltage on panel doors.

Flexible

- The voltage adaptors make the measurement system compatible with all DC electrical networks.

Plug & Play

- Easy to configure from DIRIS Digiware D interfaces or from the Easy Config configuration software.

The solution for

- > Data center
- > Telecommunication
- > Renewable power
- > Transportation



Strong points

- > Centralization of voltage measurement
- > Flexible
- > Plug & Play



RJ45 (Digiware Bus) cables
are available.

Conformity to standards

- > UL 61010
guide FTRZ/PICQ
file E257746



- > IEC 61557-12



- > ISO 14025

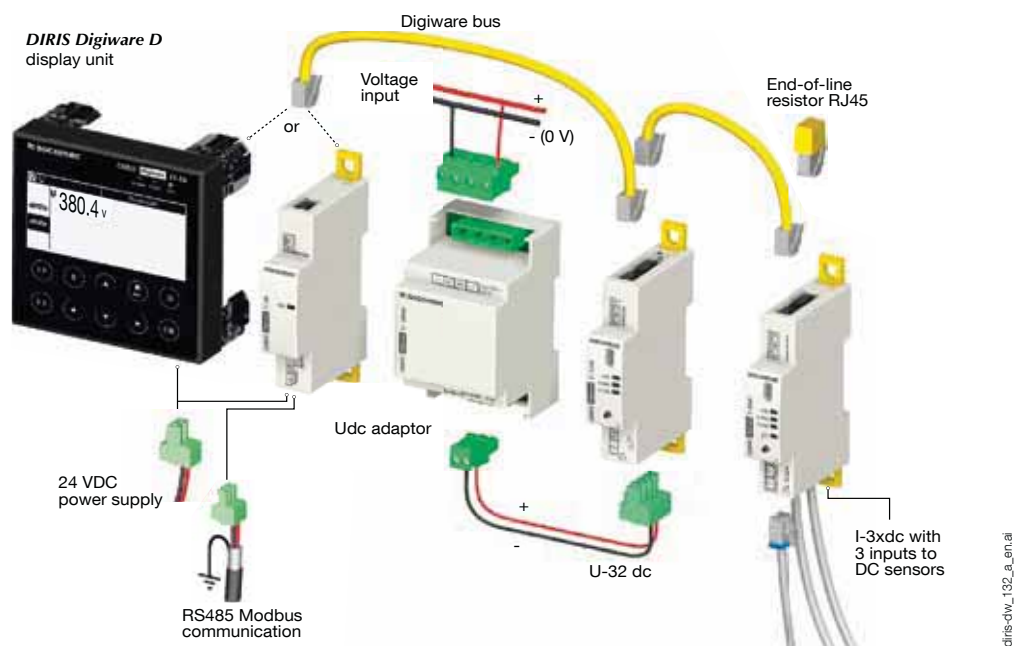


Application	DC voltage measurement	
		
DIRIS Digiware Udc	U-31dc	U-32dc
Nominal voltage range	24 ... 48 VDC	60 ... 150 VDC
Measuring range (min-max)	19.2 ... 60 VDC	48 ... 180 VDC
Multi-measurement		
DC voltage (VDC)	•	•
Power quality		
V ripple (voltage ripple)	•	•
V _{rms}	•	•
Alarms		
Thresholds and combinations	•	•
Trends		
Average values	•	•
Format		
Width/number of modules	0.71 in / 1	

Application	DC voltage adaptors		
			
DIRIS Digiware Udc	U500dc	U1000dc	U1500dc
Max. voltage range	200 ... 600 VDC	400 ... 1200 VDC	1200 ... 1650 VDC
Association			
U-32dc	•	•	•
Format			
Width/number of modules	2.13 in / 3		

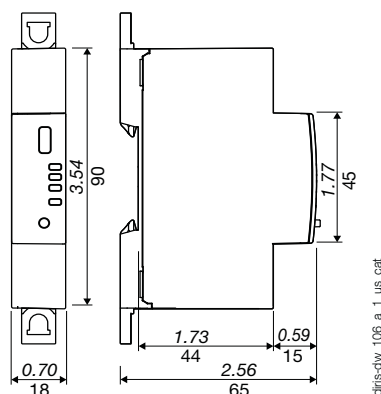
Connections

DIRIS Digiware DC wiring with optional Udc voltage adaptors

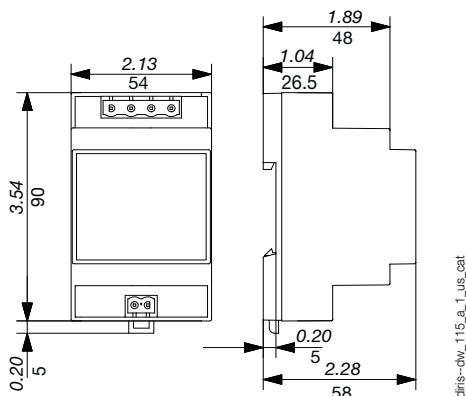


Dimensions (in/mm)

DIRIS Digiware U-3xdc



DIRIS Digiware adaptors U500dc/U1000dc/U1500dc



Technical characteristics

Measurement characteristics

DC voltage measurement - DIRIS Digiware U	
Features of the network measured (min-max)	Without adaptors: U-31dc : 19.2 - 60 VDC U-32dc : 48 - 180 VDC With adaptor: U-32dc + adaptor U500dc : 200 - 600 VDC U-32dc + adaptor U1000dc : 400 - 1200 VDC U-32dc + adaptor U1500dc : 1200 - 1650 VDC
Voltage measurement accuracy without adaptor	Class 0.5 IEC 61557-12
Voltage measurement accuracy with adaptor	Class 1 IEC 61557-12
Connection without adaptor	Removable screw terminal block, 2 positions, AWG 10 ... AWG 32 or 0.2 ... 2.5 mm ² stranded or solid cable
Connection with adaptor	Adaptor input: Removable screw terminal block, 2 positions, AWG 10 ... AWG 32 or 0.2 ... 2.5 mm ² stranded or solid cable Adaptor output: Removable screw terminal block, 2 positions, AWG 10 ... AWG 32 or 0.2 ... 2.5 mm ² stranded or solid cable
Module power consumption	0.6 VA

Mechanical features

Casing type	DIN-rail mounting module and base
Casing protection index	IP20 / IK06
Front panel protection index	IP40 front face in modular assembly / IK06
Weight	64 g / 2.26 oz

Environmental specifications

Ambient operating temperature	-10 ... +70 °C / +14 °F ... +158 °F
Storage temperature	-25 ... +70 °C / -13 °F ... +158 °F
Operating humidity	55 °C / 131 °F / 97% relative humidity
Operating altitude	6560 feet / < 2000 m

Communication specifications

USB	
Protocol	Modbus RTU on USB
Function	Configuration of DIRIS Digiware modules
Location	On each DIRIS Digiware measurement module
Connection	Type B micro USB connector
Digiware bus	
Function	Connection between DIRIS Digiware modules
Cable type	Specific Socomec cable with RJ45 connections

References

Digiware connection cables		Part number
RJ45 cables for Digiware Bus	Length 0.20 feet / 0.06 m	4829 0189
	Length 0.32 feet / 0.10 m	4829 0181
	Length 1.64 feet / 0.50 m	4829 0182
	Length 3.28 feet / 1 m	4829 0183
	Length 6.56 feet / 2 m	4829 0184
	Length 16.4 feet / 5 m	4829 0186
	Length 32.8 feet / 10 m	4829 0187
	164 feet / 50 m reel + 100 connectors	4829 0185
Termination for Digiware Bus (supplied with interfaces C and D)		4829 0180
USB configuration cable		4829 0050

DIRIS Digiware		Part number
U-31dc	Voltage measurement 19.2 ... 60 VDC	4829 0150
U-32dc	Voltage measurement 48 ... 180 VDC	4829 0151
U500dc	Voltage adaptor 200 ... 600 VDC	4829 0153
U1000dc	Voltage adaptor 400 ... 1200 VDC	4829 0154
U1500dc	Voltage adaptor 1200 ... 1650 VDC	4829 0155



DIRIS Digiware Idc

Direct current measurement module

Multi-circuit metering
& measurement

new



diris-dw_095_b.eps

DIRIS Digiware I-30dc/I-35dc



Configuration
with EasyConfig,
see page 280.

Function

DIRIS Digiware Idc modules measure consumption and monitor the DC electrical installation. Several Idc modules can be used within the same system, allowing the measurement of a large number of DC circuits. They are associated with DIRIS Digiware Udc voltage measurement modules.

Direct current is measured using external sensors connected by RJ12-Molex cables, available in multiple lengths. These cables are color coded (brown, orange, white) to easily identify circuits.

Advantages

Multi-circuit

- Measurement of up to 3 DC circuits per Idc module.
- Multiple Idc modules can be included. This allows the measurement of a large number of DC loads simultaneously.

Flexible

- Adapted to suit metering and quality analysis of the direct current.
- A complete range of solid core and split core DC current sensors from 50 to 5000 A.

The associated DIRIS Digiware D screen and the embedded webserver Webview can display electrical measurements from both DIRIS Digiware AC and DC systems simultaneously.

Plug & Play

- Quick RJ45 connection between modules and RJ12-Molex to current sensors.
- Easy to configure from DIRIS Digiware D interfaces or from the Easy Config software.

Compact

One module wide to address space constraints inside electrical panels.

The solution for

- > Data center
- > Telecommunication
- > Renewable power
- > Transportation



Strong points

- > Multi-circuit
- > Plug & Play
- > Flexible
- > Compact



RJ45 (Digiware Bus) cables are available.

Conformity to standards

- > UL 61010
guide FTRZ/PICQ
file E257746



- > IEC 61557-12



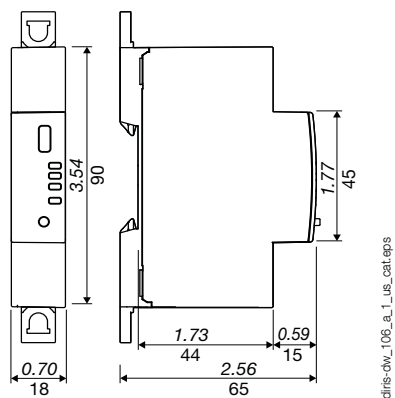
- > ISO 14025



Application	Direct current (DC) measurement modules	
		
<i>DIRIS Digiware Idc</i>	<i>I-30dc</i>	<i>I-35dc</i>
Number of current inputs	3	3
Metering		
± kWh	•	•
Demand profiles		•
Multi-measurement		
DC current (I DC)	•	•
DC power (P DC)	•	•
Predictive power		•
Measurement of current quality		
I ripple (current ripple)		•
I rms		•
Alarms		
Thresholds and combinations		•
Trends		
Average values		•
Format		
Width/number of modules	0.71 in / 1	

Dimensions (in/mm)

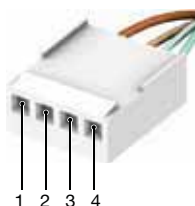
DIRIS Digiware Idc



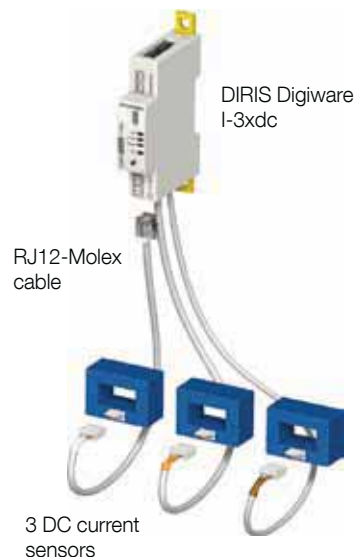
Connections

DC current is measured by external sensors connected to the DIRIS Digiware I-3xdc modules via RJ12-Molex cables. Connection of the current sensors is quick and error-free. A wide range of current sensors is available from Socomec to suit all installations and applications including split-core current sensors for retrofit applications.

- Open-loop Hall effect sensors
- Solid core or split core.
- Power supply voltage: ± 15 V.
- Power supply current: ± 25 mA depending on sensor.
- Output voltage: ± 4 V.
- 4-point male Molex terminal strip.
- Measuring range: 16 to 6000 A.
- Category III overvoltage.



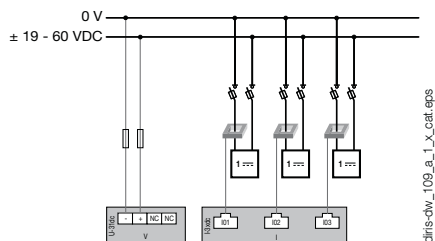
- PIN 1: + 15 V (+ Vc)
- PIN 2: - 15 V (- Vc)
- PIN 3: sensor input (M)
- PIN 4: 0 V sensor (0)



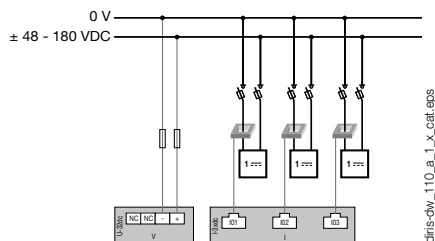
Network and connection examples

Measurement of 3 DC loads

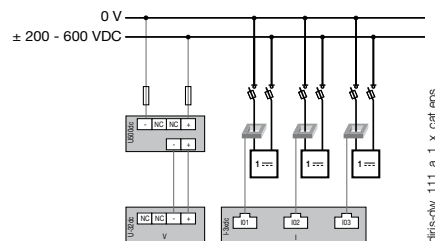
DIRIS Digiware U-31dc
Voltage (VDC): 19 - 60 V



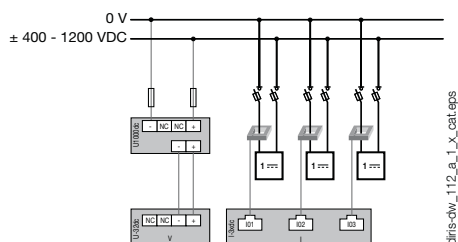
DIRIS Digiware U-32dc
Voltage (VDC): 48 - 180 V



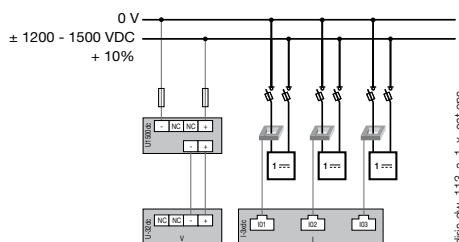
DIRIS Digiware U-32dc + adaptor U500dc
Voltage (VDC): 200 - 600 V



DIRIS Digiware U-32dc + adaptor U1000dc
Voltage (VDC): 400 - 1200 V



DIRIS Digiware U-32dc + adaptor U1500dc
VDC voltage: 1200 - 1500 V +10%



1. Fuse: 2A gPV



Technical characteristics

Measurement characteristics

DC current measurement - DIRIS Digiware Idc	
Number of current inputs	3
Associated current sensors	Open-loop Hall effect
Accuracy of current measurement	Class 0.5 IEC 61557-12
Precision measurement of power and energy	With U-31dc/U-32dc only: class 1 IEC 61557-12 With U-32dc + adaptor: class 2 IEC 61557-12
Connection	Specific Socomec cable with RJ12-Molex connectors
Power consumption of module	2 VA

Mechanical features

Casing type	DIN-rail mounting module and base
Casing protection index	IP20 / IK06
Front panel protection index	IP40 front face in modular assembly / IK06
Weight	69 g / 2.43 oz

Environmental specifications

Ambient operating temperature	-10 ... +70 °C / +14 °F ... +158 °F
Storage temperature	-20 ... +70 °C / -4 °F ... +158 °F
Operating humidity	55 °C / 131 °F / 97% relative humidity
Operating altitude	< 6560 feet / 2000 m

Communication specifications

USB	
Protocol	Modbus RTU on USB
Function	Configuration of DIRIS Digiware U and I modules
Location	On each DIRIS Digiware U and I measurement module
Connection	Type B micro USB connector
Digiware bus	
Function	Connection between DIRIS Digiware modules
Cable type	Specific Socomec cable with RJ45 connections

References

DIRIS Digiware I-3xdc		Part number
I-30dc	Metering - 3 current inputs	4829 0156
I-35dc	Analysis - 3 current inputs	4829 0157
RJ12-Molex cables		
Number of cables	Length of cables	Part number
3	0.98 feet / 0.3 m	4829 0782
3	1.64 feet / 0.50 m	4829 0783
3	3.28 feet / 1 m	4829 0784
3	6.56 feet / 2 m	4829 0785
1	16.4 feet / 5 m	4829 0786

Digiware connection cables		Part number
RJ45 cables for Digiware Bus	Length 0.20 feet / 0.06 m	4829 0189
	Length 0.32 feet / 0.10 m	4829 0181
	Length 1.64 feet / 0.50 m	4829 0182
	Length 3.28 feet / 1 m	4829 0183
	Length 6.56 feet / 2 m	4829 0184
	Length 16.4 feet / 5 m	4829 0186
	Length 32.8 feet / 10 m	4829 0187
164 feet / 50 m reel + 100 connectors		4829 0185
Termination for Digiware Bus (supplied with interfaces C and D)		4829 0180
USB configuration cable		4829 0050

Expert Services

Do you require services for your metering system?

No problem for our local team. They will fully integrate all your Socomec devices, **audit** your system, **commission** selected equipment and **train** your staff on its use. For further information, please contact us.



DC current sensors

Associated with DIRIS Digiware DC

Current sensors

new



Solid-core sensors 50 ... 600 A



Split-core sensors 50 ... 600 A



Solid-core sensors 850 ... 5000 A



Split-core sensors 800 ... 2000 A

Function

The **DC current sensors** measure the DC load currents of an electrical installation and transmit information to the DIRIS Digiware Idc measurement modules via an RJ12 cable.

The range comprises solid-core and split-core sensors ranging from 50 to 5000 A in various sizes allowing them to be used in new or existing electrical installations.

Up to 3 different DC sensors can be connected to the same DIRIS Digiware Idc module.

Advantages

Plug & Play

- A quick RJ12 connection makes wiring easy and reliable.
- Fast configuration of the sensor's rating.

Flexible

- A complete range of solid-core and split-core sensors from 50 to 5000 A designed for new or existing electrical installations.

Installation

- Easy to install.
- Ideal for installations with limited space available.
- Only 4 different frame sizes cover a wide measurement range.
- Color-coded cables for ease of identification, and to prevent wiring errors.

The solution for

- > Data center
- > Telecommunication
- > Renewable power
- > Transportation



Strong points

- > Plug & Play
- > Wide selection of ratings
- > Simplified installation

Compliance with standards

- > UL 61010 guide NMTR file E189713

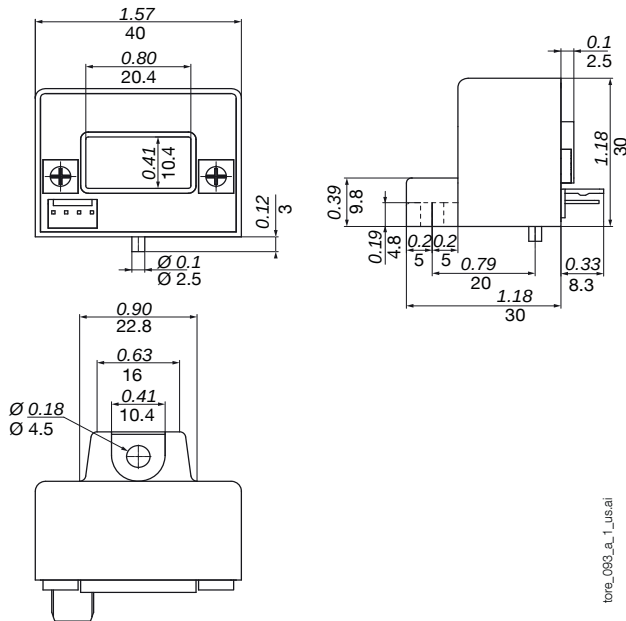


- > IEC 61010-1

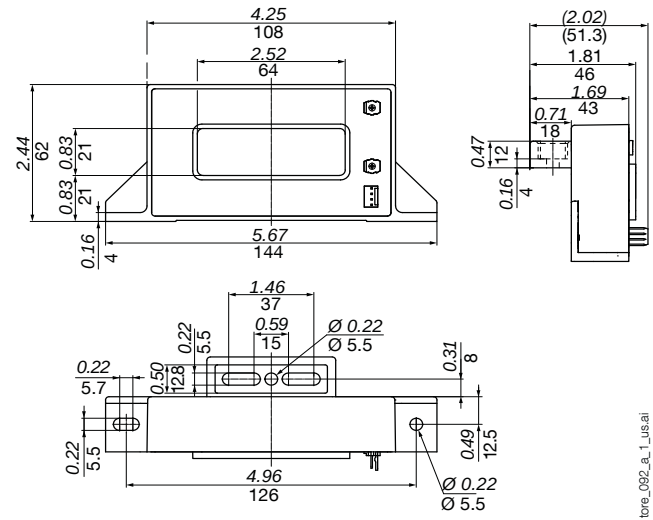


Dimensions (in/mm)

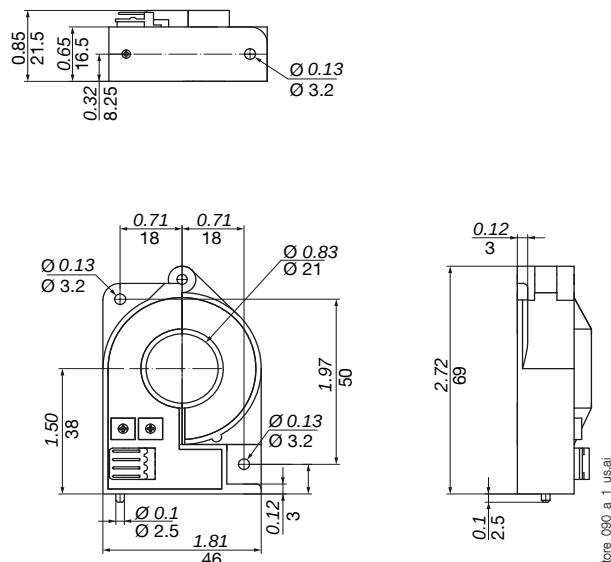
Solid-core sensors 50 ... 600 A (frame size 1)



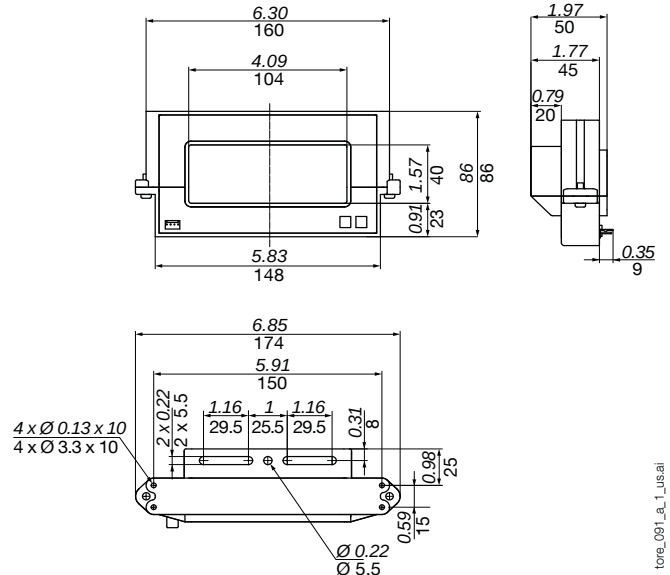
Solid-core sensors 850 ... 5000 A (frame size 2)



Split-core sensors 50 ... 500 A (frame size 1)



Split-core sensors 800 ... 2000 A (frame size 2)



DC current sensors

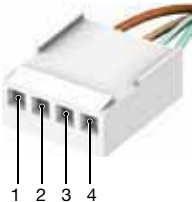
Associated with DIRIS Digiware DC

Connections

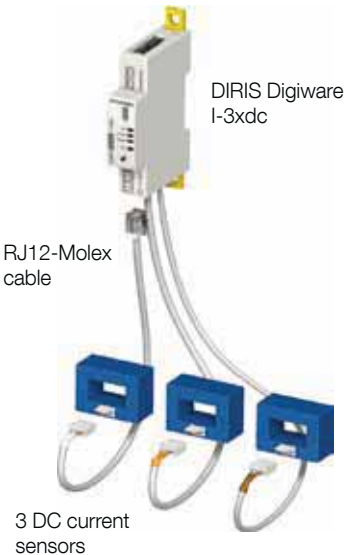
DC current is measured by external sensors connected to the DIRIS Digiware I-3xdc modules via RJ12-Molex cables. Connection of the current sensors is quick and error-free. A wide range of current sensors is available from Socomec to suit all installations and applications including split-core current sensors for retrofit applications.

The DC current sensors have the following technical characteristics:

- Open-loop Hall effect sensors.
- Solid-core or split-core.
- Power supply voltage: $\pm 15\text{ V}$.
- Power supply current: $\pm 25\text{ mA}$ depending on the sensor.
- Output voltage: $\pm 4\text{ V}$.
- 4-point male Molex terminal strip.
- Measurement range: 16 to 5000 A.
- Category III overvoltage.



- PIN 1: $+15\text{ V}$ (+ Vc)
- PIN 2: -15 V (- Vc)
- PIN 3: sensor input (M)
- PIN 4: 0 V sensor (0)



Technical characteristics

Type of current sensor	Open-loop Hall effect	Weight	Solid-core sensors 50 ... 600 A	60 g / 2.12 oz
Connection	Specific Socomec cable with RJ12-Molex connectors		Solid-core sensors 850 ... 5000 A	450 g / 15.87 oz
Accuracy of current measurement	Solid-core sensors: 50 ... 600 A: < 1% Solid-core sensors: 850 ... 5000 A: < 1% Split-core sensors: 50 ... 500 A: < 2% Split-core sensors: 800 ... 2000 A: < 2%		Split-core sensors 50 ... 500 A	80 g / 2.82 oz
			Split-core sensors 800 ... 2000 A	590 g / 20.8 oz
Operating temperature			Solid-core sensors 50 ... 600 A	-10 ... +80 °C / +14 °F ... +176 °F
			Solid-core sensors 850 ... 5000 A	-25 ... +85 °C / -13 °F ... +185 °F
			Split-core sensors 50 ... 500 A	-10 ... +70 °C / +14 °F ... +158 °F
			Split-core sensors 800 ... 2000 A	-10 ... +70 °C / +14 °F ... +158 °F
Storage temperature			Solid-core sensors 50 ... 600 A	-25 ... +80 °C / -13 °F ... +176 °F
			Solid-core sensors 850 ... 5000 A	-25 ... +85 °C / -13 °F ... +185 °F
			Split-core sensors 50 ... 500 A	-20 ... +85 °C / -4 °F ... +185 °F
			Split-core sensors 800 ... 2000 A	-25 ... +85 °C / -13 °F ... +185 °F

References

DC current sensors	Reference
Solid-core sensors (frame size 1)	
50 A	4829 0700
100 A	4829 0701
200 A	4829 0702
300 A	4829 0703
400 A	4829 0704
500 A	4829 0705
600 A	4829 0706
Solid-core sensors (frame size 2)	
850 A	4829 0707
1000 A	4829 0708
1500 A	4829 0709
2000 A	4829 0710
2500 A	4829 0711
5000 A	4829 0712
Split-core sensors (frame size 1)	
50 A	4829 0750
100 A	4829 0751
200 A	4829 0752
300 A	4829 0753
400 A	4829 0754
500 A	4829 0755
Split-core sensors (frame size 2)	
800 A	4829 0756
1000 A	4829 0757
1500 A	4829 0758
2000 A	4829 0759

RJ12-MOLEX cables		
Number of cables	Length of cables	Reference
3	0.98 feet / 0.3 m	4829 0782
3	1.64 feet / 0.50 m	4829 0783
3	3.28 feet / 1 m	4829 0784
3	6.56 feet / 2 m	4829 0785
1	16.4 feet / 5 m	4829 0786



DIRIS Digiware IO

Digital and analog input/output modules

new



DIRIS Digiware IO-10
4 digital inputs/2 digital outputs



DIRIS Digiware IO-20
2 analog inputs



Configuration
with EasyConfig,
see page 280.

Function

DIRIS Digiware IO modules enrich the measurement system with multiple features:

- DIRIS Digiware IO-10 modules have 4 digital inputs and 2 digital outputs.

The 4 digital inputs can be used to monitor the status of protection devices and withdrawable drawers (ON/OFF, trip counter) or to collect pulses from multi-fluid meters. The 2 digital outputs allow the remote control of switching devices by sending a binary output signal. Alarms can be configured and assigned to the digital outputs.

- Thanks to their 2 analog inputs, DIRIS Digiware IO-20 modules can collect the data from analog sensors (pressure, humidity, temperature...).

All the information reported by the IO-10 and IO-20 modules can be viewed on DIRIS Digiware D-xx displays and on Webview, the web server embedded in DIRIS G gateways and in the DIRIS Digiware D-70 display unit.

Advantages

Plug & Play

The IO modules can be easily added anywhere within the measurement system thanks to a quick RJ45 connection.

Multifunction

The combination of voltage measuring modules, current measuring modules, and input/output modules makes DIRIS Digiware a complete and versatile system.

Connected

All the reported information is accessible from the displays, from Webview or any other centralized management software.

Compact

The modular format allows the quick connection of a large number of IO-10 and IO-20 modules.

The solution for

- > Industry
- > Building
- > Data center



Strong points

- > Plug & Play
- > Multifunction
- > Connected
- > Compact

Compliance with standards

- > UL 61010
guide FTRZ
file E257746



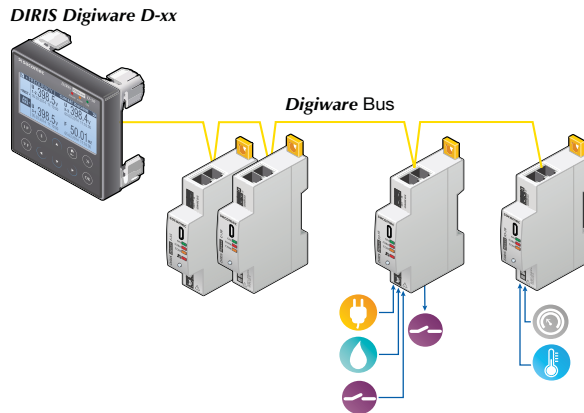
- > IEC 61557-12



- > ISO 14025



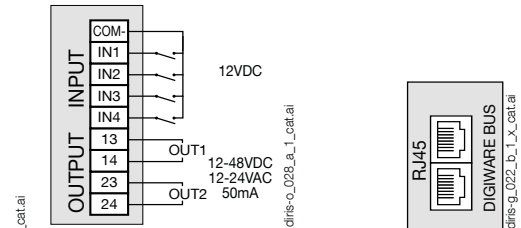
Application diagram



Connections

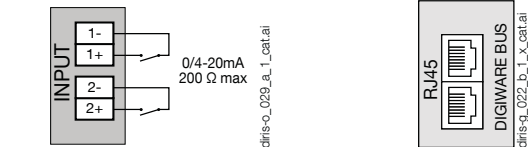
DIRIS Digiware IO-10

Digital inputs/outputs

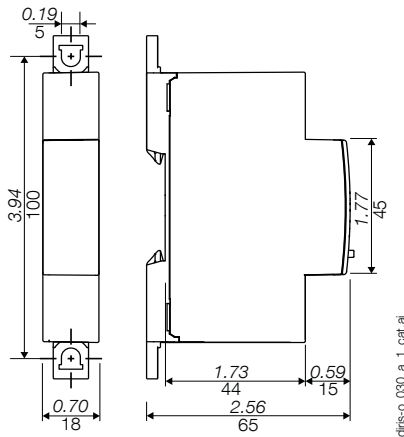


DIRIS Digiware IO-20

Analog inputs



Dimensions (in/mm)



Technical characteristics

Measuring characteristics

Digital inputs/outputs- DIRIS Digiware IO-10	
Number of inputs	4
Type/power supply	Insulated input, internal polarisation 12 VDC max., 3 mA
Input function	- Logical status - Status of the circuit breaker, of the drawer (ON/OFF, trip counter) - Pulse counter
Number of outputs	2
Type	Insulated output, 48 VDC max., 50 mA and 24 VAC max.
Output function	- Remote control of status - Alarm signal linked to the inputs (exceeding threshold, status...)
Input/output connection	Removable screw terminal block, 9 positions (5 dedicated to inputs, 4 dedicated to outputs) Stranded or solid 0.14 to 1.5 mm ² cable
Analog inputs - DIRIS Digiware IO-20	
Number of inputs	2
Type/power supply	0/4-20 mA, 200 Ω max
Accuracy	0.5% full scale
Function	Connection of analog sensors (pressure, humidity, temperature...) with choice of interpolation (linear or quadratic)
Input connection	Removable screw terminal block 2x2 positions, AWG15 to AWG35 or 0.14 to 1.5 mm ² stranded or solid cable

References

Digiware connection cables		Reference
RJ45 cables for Digiware Bus	Length 0.32 feet / 0.10 m	4829 0181
	Length 0.66 feet / 0.20 m	4829 0188
	Length 1.64 feet / 0.50 m	4829 0182
	Length 3.28 feet / 1 m	4829 0183
	Length 6.56 feet / 2 m	4829 0184
	Length 16.4 feet / 5 m	4829 0186
	Length 32.8 feet / 10 m	4829 0187
164 feet / 50 m reel + 100 connectors		4829 0185
Termination for Digiware Bus (supplied with interfaces C and D)		4829 0180
USB configuration cable		4829 0050

DIRIS Digiware input/output modules		Reference
IO-10	4 digital inputs/2 outputs module	4829 0140
IO-20	2 analog input module	4829 0145

DIRIS A-40

Multi-function meters



DIRIS A-40

Function

The **DIRIS A-40** is a panel-mounted power monitoring device (PMD). It is designed for measuring, monitoring and reporting electrical energy.

The DIRIS A-40 offers a range of functions for measuring voltage, current, power, energy and quality. It allows the analysis of a single-phase or three-phase load.

Advantages

Assisted configuration

The configuration wizard guides the user step by step. It also detects and corrects configuration errors. This cuts the commissioning time in half and always delivers a reliable result.

Smart sensors

Three current sensor formats (solid-core TE, split-core TR/ITR and Rogowski coil TF) allow integration of the DIRIS A-40 into new and existing electrical installations.

See page 220.

Connected to the Cloud

The range comprises IoT ready connected products that enable data to be exported automatically for remote operation without any limit on time, distance and time in storage.

Better than revenue grade

Compliant with the IEC 61557-12 standard, guaranteeing the quality and accuracy of the Power Meter:

- Class 0.2 for the meter alone.
- Class 0.5 from 2% to 120% of the rated current (full scale), for the global measurement chain (with TE/ITR/TF current sensors).

The solution for

- > Industry
- > Building
- > Infrastructure



Strong points

- > Assisted configuration
- > Connected to the Cloud
- > Compliant with IEC 61557-12
- > Smart sensors

Integrated technologies



PreciSense



AutoCorrect



VirtualMonitor

For more information, see page 188.

Conformity to standards

- > UL 61010 guide FTRZ/PICQ file E257746
- > IEC 61557-12
- > EN 50160



Functions

Multi-measurement

- Currents
 - I1, I2, I3, In, Isystem
- Voltages & frequency
 - V1, V2, V3, VN, Vsystem, U12, U23, U31, Usystem, f
- Powers
 - P1, P2, P3, ΣP, Q1, Q2, Q3, ΣQ, S1, S2, S3, ΣS
 - Predictive powers ΣP, ΣQ, ΣS
- Power factor
 - PF1, PF2, PF3, ΣPF
- Cos φ & tangent φ
 - Instantaneous values per phase

Metering

- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Apparent power: kVAh
- Multi-tariff (8 max.)
- Hour Meter

Quality

- Voltage Unbalance
 - Vdir, Vinv, Vhom, Udir, Uinv, Unba, Vnba, Vnb, Unb
- Current unbalance
 - Idir, linv, lhom, Inba, Inb
- Total harmonic distortion
 - Currents THDi1, THDi2, THDi3, THDiN, TDDI
 - Phase-to-neutral voltage THDv1, THDv2, THDv3
 - Phase-to-phase voltage THDu12, THDu23, THDu31
- Individual harmonics up to 63rd
 - Currents: I1h, I2h, I3h, INh
 - Phase-to-neutral voltage: V1h, V2h, V3h
 - Phase-to-phase voltage: U12h, U23h, U31h
- Quality events
 - Voltage sags, interruptions and swells EN50160
 - Kfactor & Crest factor
- Events according to EN 50160
 - Voltage sags, interruptions, voltage swells

Monitoring of protective devices

- Auxiliary contact monitoring
- Report and alarm on trips
- Number of operations

Demand profiles and historical records

- Active, reactive and apparent power
- Currents, voltages and frequency

Alarms

- Alarms for all electrical values, events and input status changes, boolean combinations of multiple alarms
- Time-stamping of events

Communication

- DIRIS A-40 RS485 Modbus as standard
- DIRIS A-40 Ethernet Modbus
- DIRIS A-40 PROFIBUS DPV1

Inputs

- 3 digital inputs
 - Power supplied from DIRIS A-40 or an external source
 - Function: logical status, status of circuit breaker, pulse metering of multifluid meters.
- 2 logical outputs
 - Function: Command, energy pulse output, load shedding, alarm

Functions

Monitoring

- Real-time measurement of electrical values.
- View data as graphs or tables.
- Power quality analysis of the utility supply and of loads.



Metering

- Measurement of active, reactive and apparent energies.
- Historical record of measurements.
- Graphic display on monthly, weekly, daily or hourly basis.

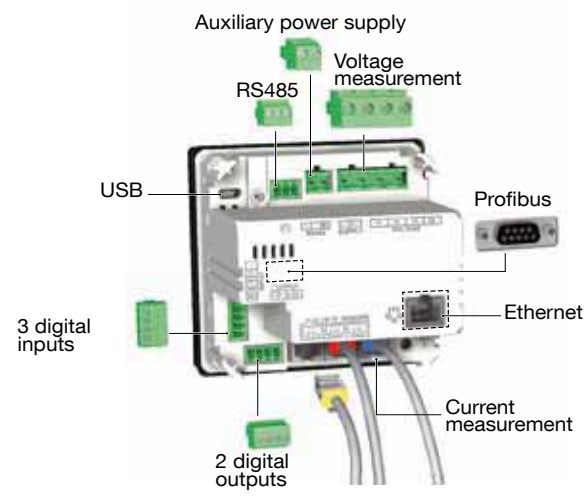


Alarming

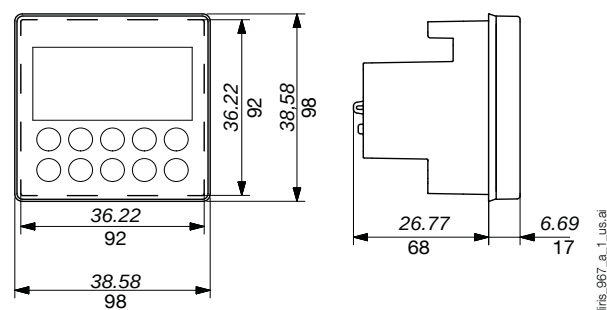
- Display of alarms.
- History of alarms.



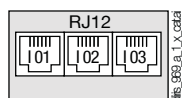
Terminals



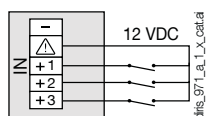
Dimensions (in/mm)



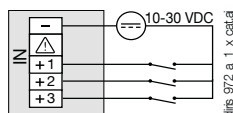
Current measurement



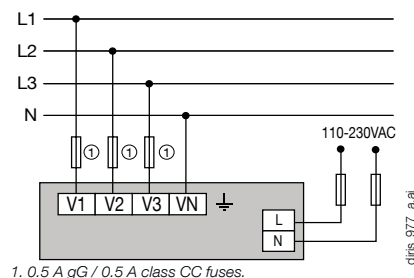
3 inputs supplied by the product



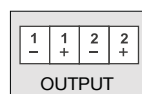
3 inputs with external power supply



Voltage connections inc auxiliary power supply



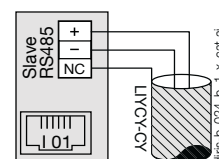
2 outputs



Earth



RS485



Connections

Associated current sensors

Various types of current sensors can be connected to the DIRIS A-40: solid-core (TE), split-core (TR/ITR) or Rogowski (TF). This range of sensors is suitable for all types of new or existing installations. A quick RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS A-40 automatically recognizes the sensor type and rating. This guarantees the overall accuracy of the DIRIS A-40 + current sensor measurement chain.

For more information:

TE solid current sensors



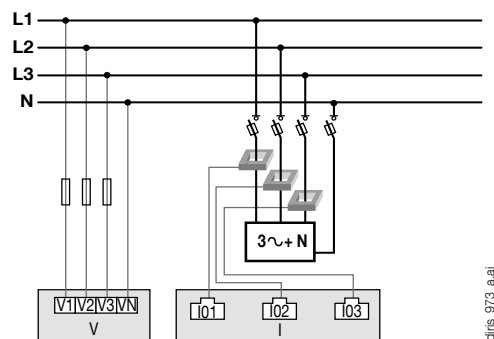
TE / TR/ITR / TF current sensors



Network and connection examples

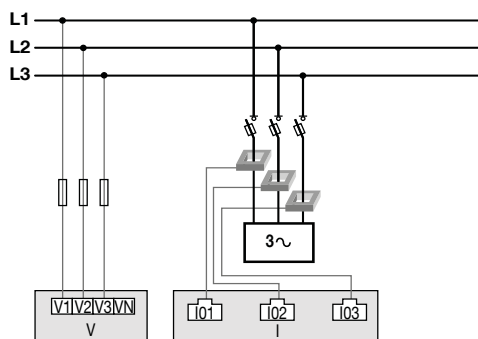
Three phase + Neutral

3P+N - 3 CT (1 three-phase load + calculated Neutral)



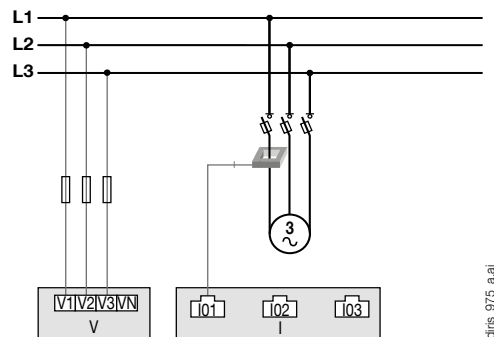
Three-phase

3P - 3CT (1 three-phase load)



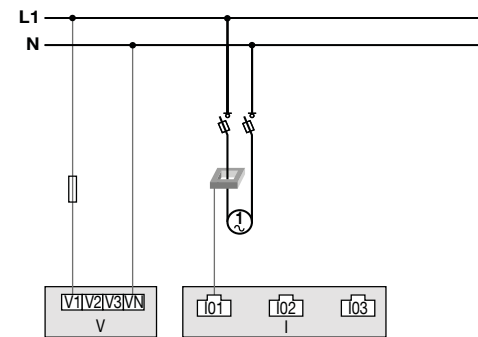
Three-phase

3P - 1CT (1 balanced three-phase load)



Single-phase

1P+N - 1CT (1 single-phase load)



1. 0.5 A gG / 0.5 A class CC fuses.

If self-supplied, a fuse must always be added to the Neutral.

CT: Current sensor 3~ Load

DIRIS A-40 characteristics

Electrical characteristics

Auxiliary power supply	
Alternative voltage	110/400 VAC or 120/300 VDC - Cat III
Frequency	50/60 Hz
Power consumption	5 VA AC / 1.5 VA DC (4825 0500) 8 VA AC / 2.5 VA DC (4825 0501 & 4825 0502)
Connection	Removable spring-cage terminal block, 2 x 2 positions, AWG 10 ... 24 / 0.5 ... 2.5 mm ² solid cable or AWG 15 ... 30 / 0.25 ... 1.5 mm ² stranded cable with ferrule

Measurement characteristics

Power and energy measurement	
Accuracy	Class 0.2 for the DIRIS A-40 only
Active energy and active power	Class 0.5 with TE, TF or ITR sensors Class 1 with TR sensors
Accuracy of reactive energy	Class 2 with TE, TR or TF sensors
Power factor measurement	
Accuracy	Class 0.5 with TE, TF or ITR sensors Class 1 with TR sensors
Voltage measurement	
Characteristics of the network measured	50-300VAC (Ph/N) - 87-520VAC (Ph/Ph) - CAT III
Frequency range	45 to 65Hz
Frequency accuracy	Class 0.02
Network type	Single-phase/ Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral
Measurement by voltage transformer	Primary: 400 000 VAC Secondary: 60, 100, 110, 173, 190 VAC
Input consumption	≤ 0.1 VA
Accuracy of voltage measurement	Class 0.2
Connection	Removable spring-cage terminal block, 4 positions, AWG 10 ... 24 / 0.5 ... 2.5 mm ² solid cable or AWG 15 ... 30 / 0.25 ... 1.5 mm ² stranded cable with ferrule
Current measurement	
Number of current inputs	3
Associated current sensors	Solid TE, split-core TR/ITR, flexible TF current sensors
Accuracy	0.2 DIRIS A-40 class only Class 0.5 with TE, TF or ITR sensors Class 1 with TR sensors
Connection	Specific Socomec cable with RJ12 connectors

Input characteristics

Number	3
Type / Power supply	Optocoupler with internal (12 VDC ± 10%) or external (12-24 VDC ± 20%) polarisation
Input function	Logical status, protective device monitoring, pulse metering of multifluid meters.
Connection	Removable screw terminal block, 5 positions, AWG 15 ... 35 / 0.14 to 1.5 mm ² stranded or solid cable

Output characteristics

Number	2
Type	Optocoupler 30 Vd.c. max 20mA max - SELV
Output function	Command, energy pulse output, load shedding, alarm
Connection	Removable screw terminal block, 4 positions, AWG 15 ... 35 / 0.14 to 1.5 mm ² stranded or solid cable

Communication characteristics

DIRIS A-40 RS485	
Link	RS485
Connection type	2 to 3 half duplex wires
Protocol	Modbus RTU
Baud rate	1200 to 115 200 baud
USB	Configuration of DIRIS A-40

References

DIRIS A-40 monitoring devices		Reference
DIRIS A-40	RS485 Modbus - 3 inputs / 2 outputs	4825 0500
DIRIS A-40	Ethernet Modbus TCP or Bacnet IP - webserver - RS485 Modbus - 3 inputs / 2 outputs	4825 0501
DIRIS A-40	Profibus DPV1 - RS485 Modbus - 3 inputs / 2 outputs	4825 0502

Expert Services

- > Our local team offers complete support to ensure the success of your project, from consultation to implementation of your metering system.





DIRIS DigiBOX

Enclosed solution for retrofit metering applications

Single and multi-circuit applications



DIRIS DigiBOX 8
Centralization and display of data



DIRIS DigiBOX 1
Centralization

The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



Strong points

- > Plug & Play
- > Accurate
- > Safe & reliable

Conformity to standards

- > UL 508A
- > UL 61010
guide FTRZ
file E257746
- > IEC 61557-12



Function

Socomec's enclosed metering line **DIRIS DigiBOX** is designed to offer a complete and modular metering solution in NEMA1/3R enclosures for indoor and outdoor use. With ease of installation for retrofit applications and factory pre-wired Plug & Play technology, DIRIS DigiBOX solutions provide considerable savings in installation costs. The solution offers the benefits of the Digiware technology.

Advantages

Plug & Play

- Factory pre-wired internally.
- RJ12 current sensor connection.
- Automatic detection of ratings and verification of current flow direction.
- Disconnection of the current sensor secondary under load.

(1) See page 278.

Accurate

Accuracy of measurements guaranteed according to ANSI C12.20 and IEC standard 61557-12:

- Better than revenue grade:
class 0.5 from 2 % to 120 % of rated current for the global measurement chain (associated with TE / TF current sensors).
- Class 0.2 for the meter alone.

Safe & reliable

- Durable NEMA 1/3R.
- UL listed enclosures and components.
- UL 508A assembly facility.
- Fused voltage connections.
- Reliable detailed wiring instructions.

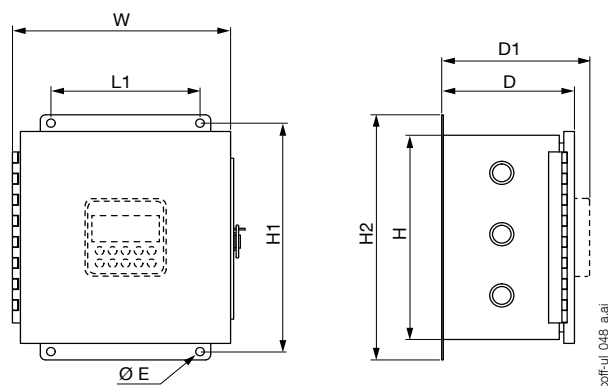
Specifications

	DigiBOX				DigiBOX Pro				DigiBOX Flex	
Number of metered points	1	4	6	8	1	4	6	8	Customized solution	
Number of current inputs	4	12	18	24	4	12	18	24		
Metering modules	DIRIS B10	DIRIS Digiware	DIRIS Digiware	DIRIS Digiware	DIRIS B30	DIRIS Digiware	DIRIS Digiware	DIRIS Digiware		
Multi-measurement										
Currents, voltages (ph/ph and ph/n), active/reactive/apparent powers, power factor, frequency	•	•	•	•	•	•	•	•		
Voltage/current unbalance	•				•	•	•	•		
Power factor, cos Phi, tan Phi	•				•	•	•	•		
Metering										
kWh(+/-), kvarh (+/-), kVAh	•	•	•	•	•	•	•	•		
Multi-tariff	•				•	•	•	•		
Load curves					•	•	•	•		
Power Quality										
THDV, THDU, THDI	•				•	•	•	•		
Individual harmonics V, U & I (up to rank 63)					•	•	•	•		
Voltage dips, cut-offs and surges (EN50160)					•	•	•	•		
Overcurrents					•	•	•	•		
Alarms					•	•	•	•		
Communication	RS485/Ethernet									
Enclosure rating	NEMA 1/3R									
Display & gateway	Optional									
Dimensions										
H x W x D (inches)	10 x 10 x 6.2	12 x 12 x 6.6	12 x 12 x 6.6	12 x 12 x 6.6	10 x 10 x 6.2	12 x 12 x 6.6	12 x 12 x 6.6	12 x 12 x 6.6		
References										
No display	USDBB01ND0	USDBB04ND0	USDBB06ND0	USDBB08ND0	USDBP01ND0	USDBP04ND0	USDBP06ND0	USDBP08ND0		
With display	USDBB01D30	USDBB04D50	USDBB06D50	USDBB08D50	USDBP01D30	USDBP04D50	USDBP06D50	USDBP08D50		
Display & gateway					USDBP01D50		USDBP06D70	USDBP08D70		
Customized metering and communication solution	Made to order - contact us									

DigiBOX accessory enclosures

Description	Reference
12 x 12 x 6.6 - NEMA 3R - Enclosure only with back-plate and 2 DIN rails	USDBENC-001
10 x 10 x 6.2 - NEMA 1 - Enclosure only with back-plate and 1 DIN rail	USDBENC-002
12 x 10 x 6.2 - NEMA 3R - Polycarbonate Enclosure with display cutout	USDBENC-003

Dimensions (in)



	H	H1	H2	D	D1	L1	W	Ø E
DigiBOX and DigiBOX Pro 1 without display	10	11	12	6.2	-	7	10	0.28
DigiBOX and DigiBOX Pro 1 with display	10	11	12	6.2	7	7	10	0.28
DigiBOX and DigiBOX Pro 4, 6 & 8 without display	12	13.5	14.6	6.6	-	3	12	0.25
DigiBOX and DigiBOX Pro 4, 6 & 8 with display	12	13.5	14.6	6.6	7	3	12	0.25

DIRIS B

Multifunction power monitoring devices



Configuration
with EasyConfig,
see page 280.



DIRIS B-xx
RS485

dirs-b_038_a_1_cat.eps

Function

The **DIRIS B-30** is a power monitoring device in a modular format that communicates wirelessly or via RS485. The 4 RJ12 independent current inputs of the device allow it to manage several types and number of circuits: for example, 4 single-phase loads or 1 three-phase load + 1 single-phase load.

The DIRIS B-30 is connected to current sensors⁽¹⁾ (RJ12 connection) that are suitable for all types of installation: solid TE, split-core TR, and flexible TF current sensors.

Advantages

Plug & Play

A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. Automatically addressing and configuring the product (communication address, load type, type and ratio of current sensor) allow you to simplify implementation and to save time.

Class 0.5 in accordance with IEC 61557-12

- Class 0.2 for the meter alone.
- Class 0.5 from 2% to 120% of nominal current for the global measurement chain (associated with TE/TF current sensors).

Multi-circuit

- 4 current measurement inputs allow you to configure multiple circuits in order to optimise the number of measurement devices per installation.

Communication

- The DIRIS B-30 can be connected to:
 - a remote DIRIS D-30 screen for displaying measurement and metering data.
 - a DIRIS G⁽¹⁾ gateway for centralisation and communication of data wirelessly or via RS485 and Ethernet.
 - optional modules to communicate in BACnet IP, BACnet MSTP and PROFIBUS DP protocol. Digital or analogue input/output modules can also be connected.

The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



Strong points

- > Plug & Play
- > Global accuracy class 0.5 in accordance with IEC 61557-12
- > Multi-circuit
- > Communication

Integrated technologies



PreciSense



AutoCorrect



VirtualMonitor

For more information, see page

Conformity to standards

- > UL 61010 guide PICQ file E257746
- > IEC 61557-12
- > EN 50160
- > ISO 14025



Application	Local metering	Local analysis
		
DIRIS B	B-10 RS485	B-30 RS485
Number of current inputs	4	4
Metering		
± kWh, ± kvarh, kVAh	•	•
Load curves		•
Multi-tariff	•	•
Multi-measurement		
U12, U23, U31, V1, V2, V3, f	•	•
U system, V system	•	•
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•
P, Q, S, PF per phase	•	•
Predictive power	•	•
Ph/N unbalance	•	•
Ph/Ph unbalance	•	•
Current unbalance (Inba, Idir, Iinv, Ihom, Inb)	•	•
Phi, cos Phi, tan Phi	•	•
Quality analysis		
THDv1, THDv2, THDv3, THDu12, THDu23, THDu31	•	•
THDi1, THDi2, THDi3, THDin	•	•
Individual harmonics U & V (up to rank 63)		•
Individual harmonics I (up to rank 63)		•
Crest factor I1, I2, I3, In		•
Crest factor V1, V2, V3, U12, U23, U31		•
Sags, interruptions, swells (EN 50160)		•
Overcurrents		•
Alarms		
On threshold		•
Inputs/outputs	•	•
History of average values		
45 days (max)		•
Communication		
RS485 Modbus	•	•
868 Mhz radio-frequency		
2 inputs (status/pulse)	•	•

Accessories

DIRIS B sealing cover

- Prevents access to the cabling of the monitoring device.



USB configuration cable (2 m)

- Advanced configuration of DIRIS B gateways can be achieved using the EASY CONFIG software via Ethernet or direct USB connection.

DIRIS D-30 display

DIRIS D-30

Connection



Optional modules

DIRIS O



Optional modules (4 max.)*

- Digital inputs/outputs
- Analogue inputs/outputs
- Temperature inputs
- Communication protocols

* maximum 4 optional modules with maximum 1 temperature module and 1 communication module (Modbus, PROFIBUS, BACnet IP or BACnet MSTP).



DIRIS O-iod

- 2 digital inputs centralises the metering pulses or the input status changes of the auxiliary contacts.
- 2 digital outputs can be connected to configurable alarms warning of exceeded thresholds (power, current, etc.) or can be piloted remotely.



DIRIS O-ioa

- 2 inputs (4-20 mA) centralise analogue sensors (pressure, humidity, temperature, etc.)
- 2 outputs (4-20 mA) report the measurements (power, currents, etc.) to PLCs.



DIRIS O-it

- 3 temperature inputs to be connected to PT100 or PT1000 sensors.
- Ambient air temperature:



DIRIS O-m

- Provides a second RS485 Modbus communication port to the DIRIS B for simultaneous sending of information via RS485 to two supervision stations.



DIRIS O-p

- Adds a PROFIBUS DPV1 communication port to the DIRIS B.



DIRIS O-b/ip

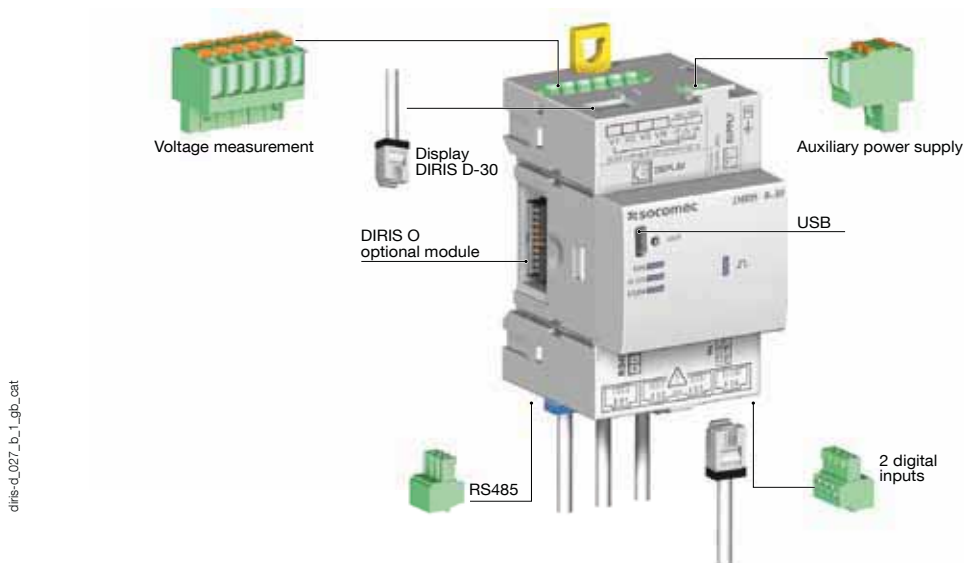
- Adds a BACnet IP communication port to the DIRIS B.



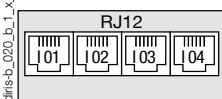
DIRIS O-b/mstp

- Adds a BACnet MSTP communication port to the DIRIS B.

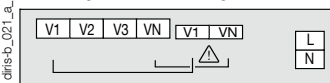
DIRIS B terminals



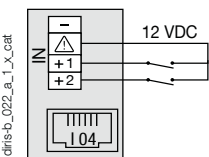
Current measurement



Voltage measurement and auxiliary power supply

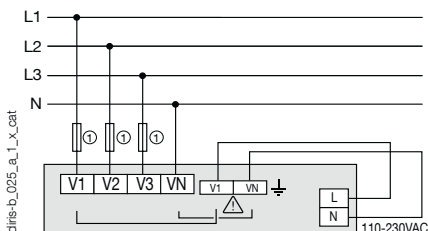


2 inputs supplied by the product



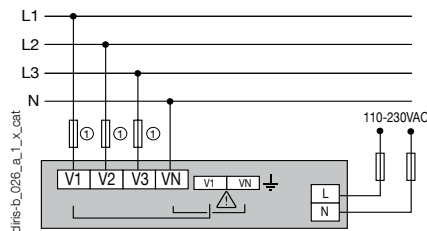
Self supply

Easy connection of the power supply from the measurement terminal (specific terminals)



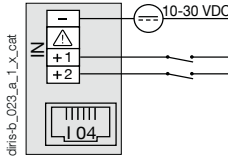
1. Fuses 0.5 A gG / 0.5 A class CC.

Separate power supply

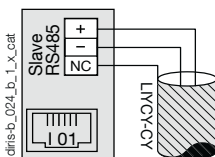


1. Fuses 0.5 A gG / 0.5 A class CC.

2 inputs with external power supply



RS485

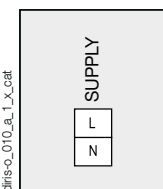


RJ9 for DIRIS D-30 (self-supply and data)

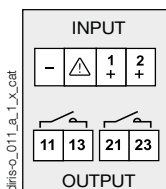


Terminals of optional DIRIS O modules

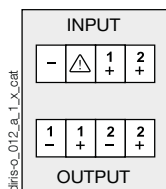
Optional module power supply



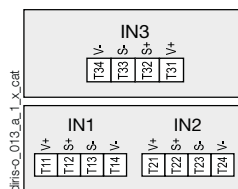
DIRIS O-iod



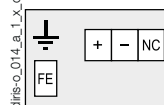
DIRIS O-ioa



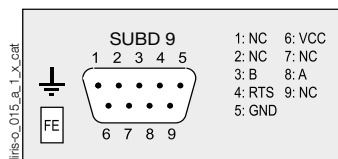
DIRIS O-it



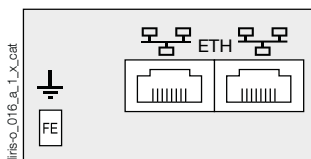
DIRIS O-m RS485



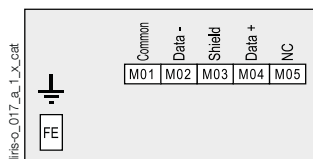
DIRIS O-p



DIRIS O-b/ip



DIRIS O-b/mstp



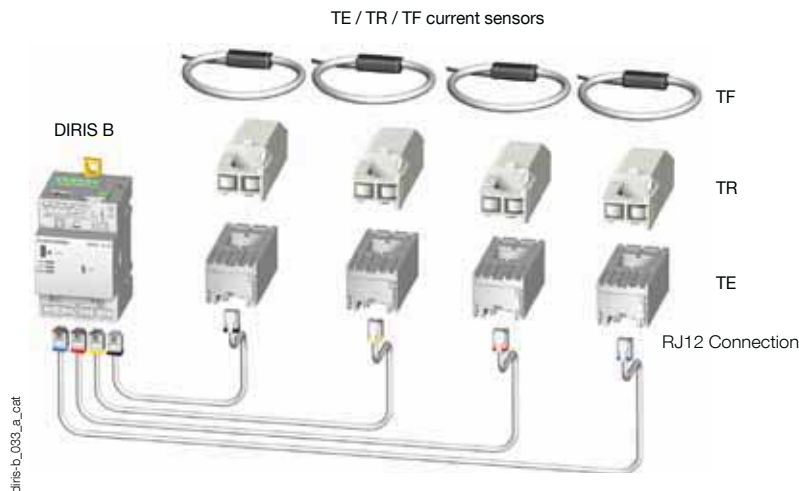
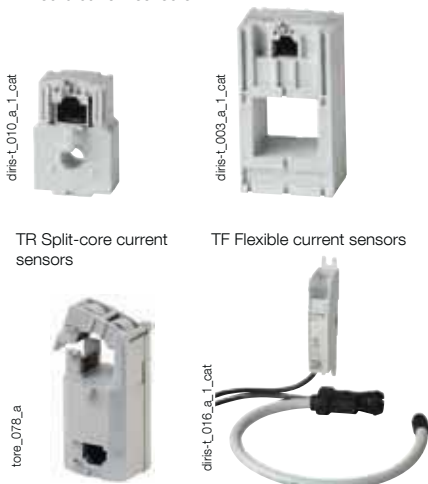
Connections

Associated current sensors

Various types of current sensors can be connected to the DIRIS B: Solid TE, split-core TR, flexible TF current sensors. This range of sensors can be adapted to all types of new or existing installations. A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS B automatically recognises the sensor size and type. This guarantees the overall accuracy of the DIRIS B + current sensor measurement chain.

For more information:

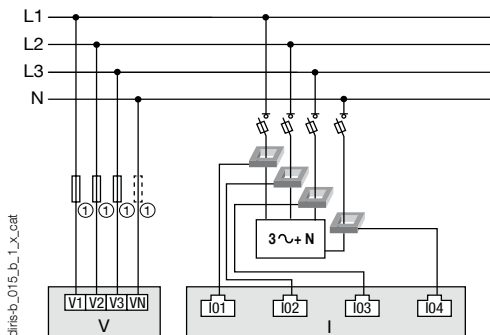
TE solid current sensors



Network and connection examples

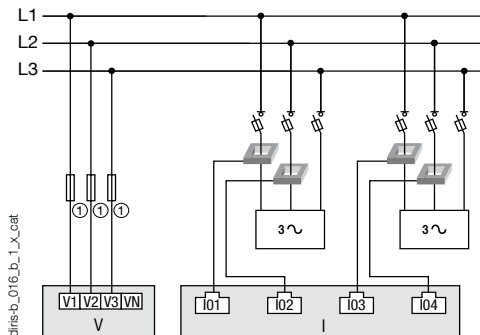
Three phase + neutral

3P+N - 4CTs (measurement for 1 three-phase load + Neutral)



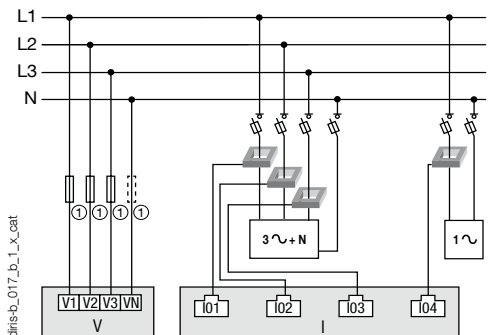
Three-phase

3P - 2CTs (2 three-phase loads without neutral)



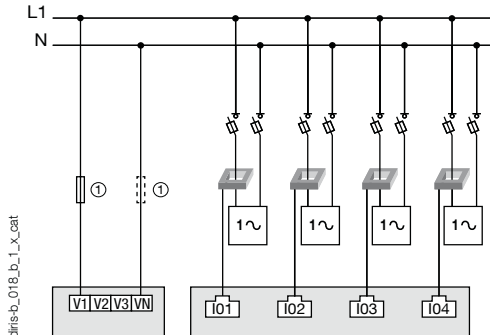
Three-phase

3P+N - 3CTs & 1P+N - 1CT (1 three-phase load & 1 single-phase load)



Single-phase

1P+N-1CT (4 single-phase loads)

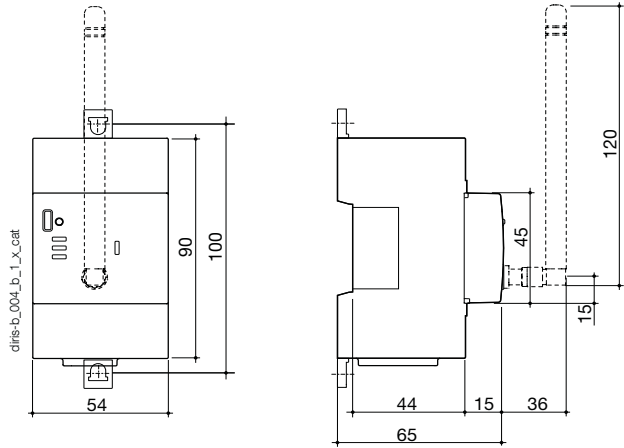


1. Fuses 0.5 A gG / 0.5 A class CC.
In case of self-supply, a fuse must be added on the neutral.

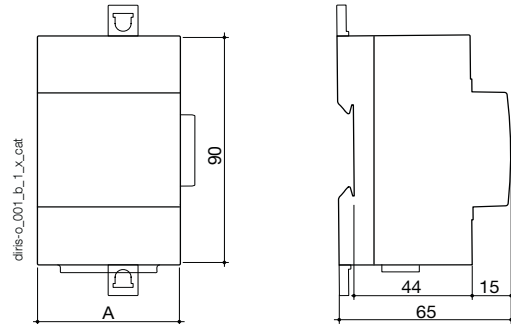
CT: Current sensors 3~ Load

Dimensions (mm)

DIRIS B

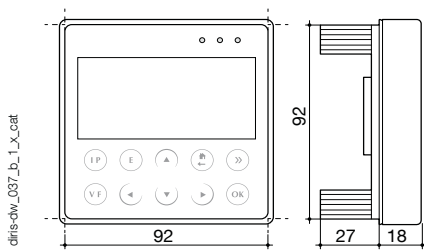


DIRIS O optional modules



DIRIS O optional modules	A
DIRIS O-iod - DIRIS O-ica - DIRIS O-it	45 mm
DIRIS O-m - DIRIS O-p - DIRIS O-b/ip - DIRIS O-b/mstp	54 mm

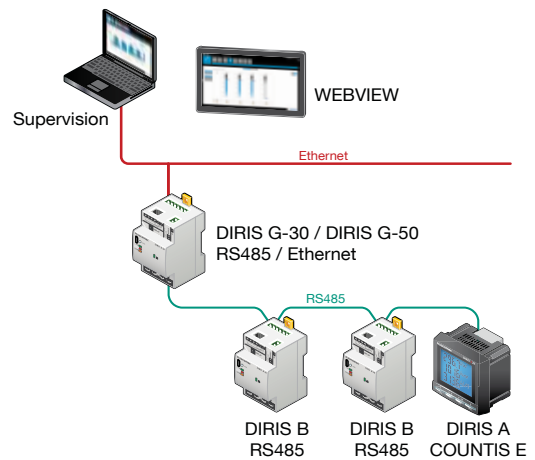
DIRIS D-30



Communication architecture

Example of communication architecture with DIRIS G gateway and WEBVIEW embedded WEB server

For more information about DIRIS G,



DIRIS B characteristics

Electrical characteristics

Auxiliary power supply	
AC voltage	110-230VAC $\pm 15\%$ (Ph/N ou Ph/Ph) Cat III
Frequency	50/60 Hz
Consumption	< 2VA without display < 6VA with display
Connection	Removable spring-cage terminal, 2 x 2 positions, 0.5 ... 2.5 mm ² solid cable or 0.25 ... 1.5 mm ² stranded cable with ferrule

Measurement characteristics

Energy and power measurement	
Accuracy	Class 0.2 DIRIS B alone
Active energy and active power	Class 0.5 with TE or TF current sensors Class 1 with TR current sensors
Reactive energy accuracy	Class 2 with TE, TR or TF current sensors

Power factor measurement	
Accuracy	Class 0.5 with TE or TF current sensors Class 1 with TR current sensors

Voltage measurement	
Network characteristics measured	50-300VAC (Ph/N) - 87-520VAC (Ph/Ph) - CAT III
Frequency range	45 ... 65Hz
Frequency accuracy	Class 0.02
Network type	Single-phase / Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral
Measurement by voltage transformer	Primary: 400 000 VAC Secondary: 60, 100, 110, 173, 190 VAC
Input consumption	≤ 0.1 VA
Permanent overload	300VAC Ph/N
Voltage measurement accuracy	Class 0.2
Connection	Removable spring-cage terminal, 2 x 6 positions, 0.5 ... 2.5 mm ² solid cable or 0.25 ... 1.5 mm ² stranded cable with ferrule

Current measurement	
Number of current inputs	4
Associated current sensors	Solid TE, split-core TR, flexible TF current sensors
Accuracy	Class 0.2 DIRIS B alone Class 0.5 with TE or TF current sensors Class 1 with TR current sensors
Connection	RJ12 connectors with specific SOCOMEC cable

Input characteristics

Number	2
Type / Power supply	Optocoupler internal polarisation (12 VDC $\pm 10\%$) or external polarisation (10-30 VDC $\pm 10\%$)
Input function	Logic status, pulse meter or synchronisation pulse status (input 1)

Communication characteristics

DIRIS B RS485	
Link	RS485
Connection type	2 ... 3 half duplex wires
Protocol	Modbus RTU
Speed	1200 ... 115200 bauds
USB	DIRIS B RS485 configuration

DIRIS B-30 RF	
Link	Wireless radio frequency
Frequency band	868 MHz (low frequency; 868.1 MHz and high frequency; 869.5875 MHz)
Speed	38400 bauds
USB	DIRIS B-30 RF configuration

Environment characteristics

Operating temperature	-10 ... +70 °C
Storage temperature	-25 ... +85 °C
Operating humidity	55 °C / 97% relative humidity
Operating altitude	2000 m
Vibration	1G from 10 Hz to 100Hz

DIRIS D-30 display characteristics

Mechanical characteristics	
Screen type	Capacitive touch-screen technology, 10 keys
Screen resolution	350 x 160 pixels
Single product connection	
RJ9	Self-supply and data
Micro-USB	Updating
Degree of protection	IP65 (front face)
Environment	
Storage temperature (°C)	-20 ... +70°C
Operating temperature (°C)	-20 ... +70°C
Humidity	95 % to 40°C
Installation category	CAT III
Degree of pollution	2

DIRIS O optional modules characteristics

Power supply ⁽¹⁾	
AC voltage	110-230 VAC $\pm 15\%$
Frequency	50/60 Hz

(1) No power supply on DIRIS O-it.

DIRIS O-iod - 2 digital inputs/2 digital outputs	
Number of inputs	2 per optional modules - max. 4 optional modules
Type	Optocoupler internal polarisation (12 VDC $\pm 10\%$) or external polarisation (10-30 VDC $\pm 10\%$)
Function	Logic status or pulse meter
Number of outputs	2 per optional modules - max. 4 optional modules
Type	Relay / 230VAC $\pm 15\%$ - 1 A
Function	Configurable alarm (current, power,...) on threshold overruns or remote controlled status
Inputs/Outputs connection	Removable screw terminal, 4 positions, 0.14 to 1.5 mm ² stranded or solid cable

DIRIS O-ioa - 2 analogue inputs/2 analogue outputs	
Number of inputs	2 per optional modules - max. 4 optional modules
Type	4-20 mA
Function	Connection of analogue sensors (pressure, humidity, temperature...)
Number of outputs	2 per optional modules - max. 4 optional modules
Type	4-20 mA
Function	Transmission of measurement image (current, power...) to PLCs

DIRIS O-it - 3 temperature inputs	
Number of inputs	3 external inputs + 1 measurement for ambient temperature
Dynamic	-20 °C to 150 °C
Type	PT100 or PT1000
Function inputs 1, 2 and 3	Temperature measurement

DIRIS O-m - RS485 communication	
Link	RS485 2 ... 3 half duplex wires
Protocol	Modbus RTU
Speed	1200 ... 115200 bauds
Connection	Removable screw terminal, 3 positions, 0.14 to 1.5 mm ² stranded or solid cable

DIRIS O-p - PROFIBUS communication	
Protocol	PROFIBUS DPV1

DIRIS O-b/ip - BACnet IP communication	
Protocol	BACnet IP
Speed	10 ... 100 Mbit/s

DIRIS O-b/mstp - BACnet MSTP communication	
Protocol	BACnet MSTP
Speed	9600 ... 76800 bauds

References

DIRIS B monitoring devices		Reference
DIRIS B-10	RS485 - Modbus - 230 VAC	4829 0010
DIRIS B-30	RS485 - Modbus - 230 VAC	4829 0000
DIRIS O optional modules		Reference
DIRIS O-iod	2 digital inputs / 2 digital outputs	4829 0030
DIRIS O-ioa	2 analogue inputs/2 analogue outputs 4-20 mA	4829 0031
DIRIS O-it	3 temperature inputs PT 100 / PT 1000	4829 0032
DIRIS O-m	RS485 Modbus communication	4829 0033
DIRIS O-p	PROFIBUS communication	4829 0034
DIRIS O-b/ip	BACnet IP communication	4829 0035
DIRIS O-b/mstp	BACnet MSTP communication	4829 0036
Accessories		Reference
DIRIS D-30 - Single-point display		4829 0200
RJ9 cable for DIRIS D-30 display - 1.5 m		4829 0280
RJ9 cable for DIRIS D-30 display - 3 m		4829 0281
DIRIS B-30 sealing cover for I/O terminals		4829 0049
USB configuration cable		4829 0050

DIRIS A-30

Multifunction power metering & monitoring device - PMD

Single-circuit metering,
measurement &
analysis



DIRIS A-30

The solution for

- > Industry
- > Building
- > Infrastructures



Strong points

- > User-friendly operation
- > Detects wiring errors.
- > Customizable
- > Web server function
- > Compliant with ANSI C12.20

Compliance with standards

- > UL 61010
guide PICQ
file E257746
- > ANSI C12.20
- > IEC 61557-12
- > IEC 62053-22
class 0.5 S
- > IEC 62053-23
class 2



Function

The **DIRIS A-30** is a power metering and monitoring device that provides the user with all of the measurements needed to complete energy efficiency projects and to ensure the monitoring of electrical distribution.

All the information can be used and analyzed remotely using energy efficiency software packages.

Advantages

User-friendly operation

With its large backlit multiple-display screen with 6 hot keys, the DIRIS A-30 is easy to use.

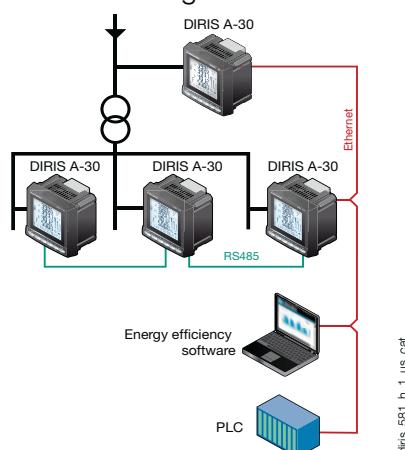
Detects wiring errors.

The DIRIS A-30 is provided with a correction function for CT wiring errors.

Customizable

The DIRIS A-30 can be equipped with additional modules that give the user flexibility throughout the service life of the product. Communication modules and additional digital or analog inputs/outputs can be used to increase its range of functionality.

Functional diagram



Compliant with ANSI C12.20

Reference standard for PMDs (Power metering & monitoring devices), IEC 61557-12 guarantees performance levels and satisfactory performance from the PMDs under the environmental conditions typical of industrial and tertiary applications.

Functions

Multi-measurement

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

Metering

- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Effective power: kVAh
- Timetable: ⌚

Harmonic analysis

- Total Harmonic Distortion
- Currents: thd I1, thd I2, thd I3, thd In
- Phase-to-neutral voltage: thd V1, thd V2, thd V3
- Phase-to-phase voltage: thd U12, thd U23, thd U31

- Individual harmonics up to 63rd
- Currents: HI1, HI2, HI3, HIn
- Phase-to-neutral voltage: HV1, HV2, HV3,
- Phase-to-phase voltages: HU12, HU23, HU31

Demand profiles ⁽¹⁾

- Active & reactive power: ΣP+/-; ΣQ+/-
- Voltages & frequency: V1, V2, V3, U12, U23, U31, F

Events ⁽¹⁾

- Alarms on all electrical parameters.

Communications ⁽¹⁾

- RS485 (Modbus & Profibus-DP)
- Ethernet (Modbus/TCP or Modbus RTU over TCP and Web server)
- Ethernet with RS485 Modbus RTU gateway over TCP

Inputs/Outputs ⁽¹⁾

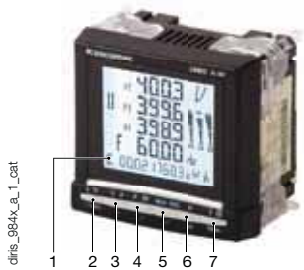
- Pulse metering
- Remote control/command
- Alarm report
- Pulse report

Analog output

- Analog 0/4- 20 mA

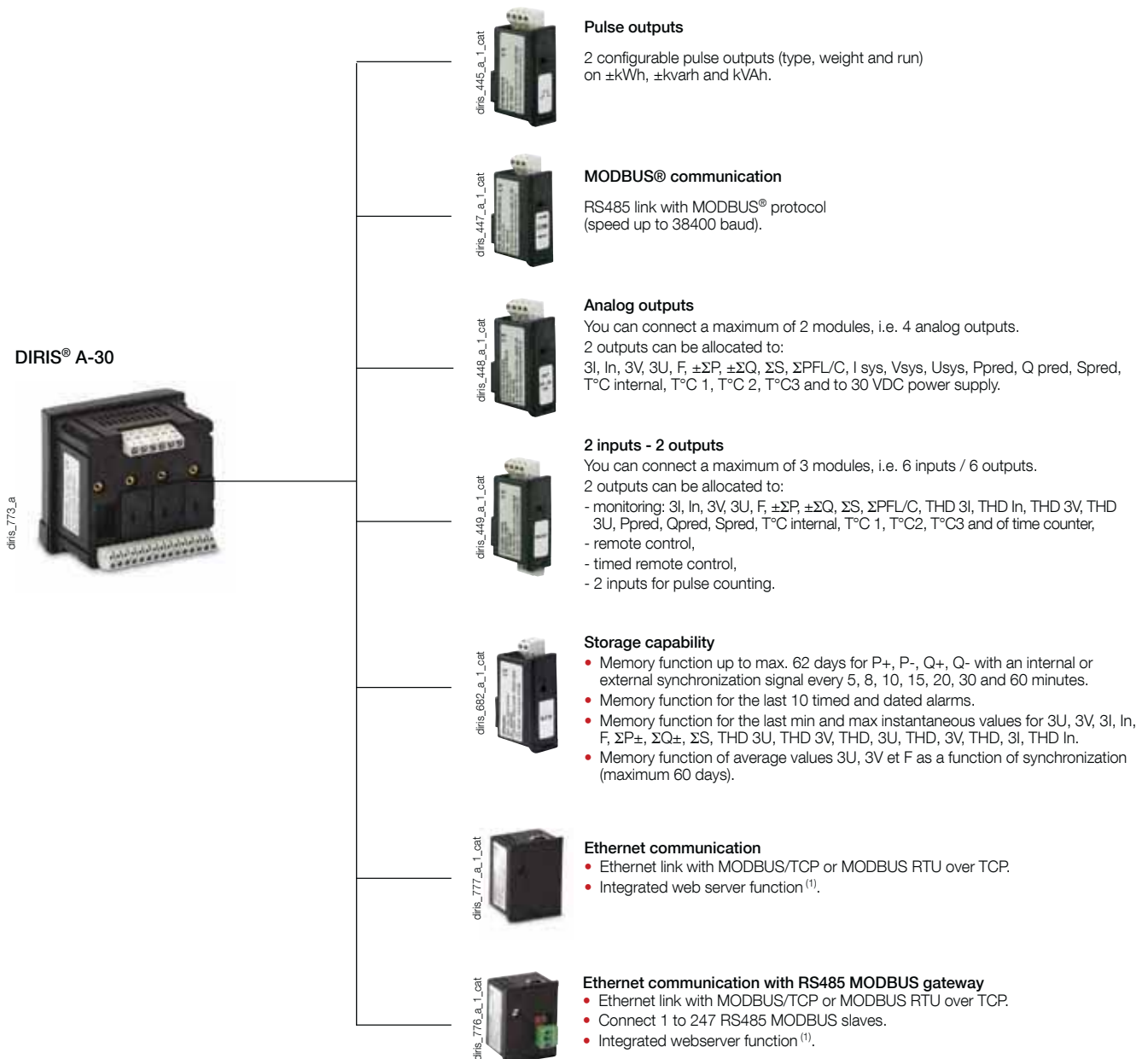
⁽¹⁾ Available with additional storage module (see following pages).

Front panel



1. Backlit LCD display
2. Pushbutton for currents and for connection correction function
3. Pushbutton for voltages and frequency..
4. Pushbutton for active, reactive and effective powers and for power factor.
5. Pushbutton for maximum and average values for currents and power levels.
6. Pushbutton for harmonics.
7. Pushbutton for electrical energy meters, timers and impulse counters

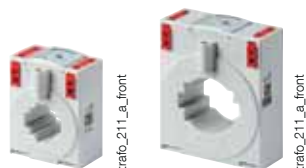
Integratable modules



Accessories

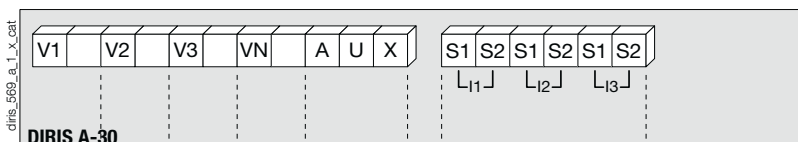
UL recognized Current Transformers

IP65 protection



Terminals

DIRIS A-30

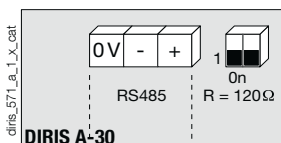


S1 - S2: current inputs

AUX: auxiliary power supplies U_s

V1 - V2 - V3 - VN: voltage inputs

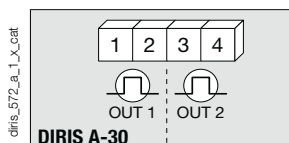
Communication module



RS485 link.

$R = 120 \Omega$: internal resistance for the RS485 end of line termination.

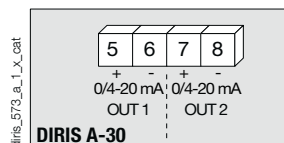
Pulse output module



1 - 2: pulse output n°1.

3 - 4: relay output n°2.

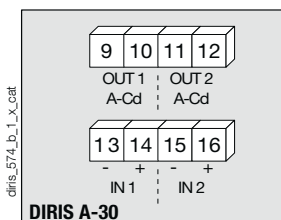
Analog output module



5 - 6: analog output n°1.

7 - 8: analog output n°2.

2 input / 2 output module



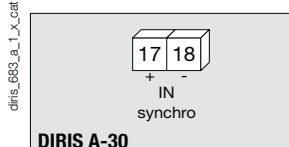
9 - 10: relay output n°1.

11 - 12: relay output n°2.

13 - 14: optical input n°1.

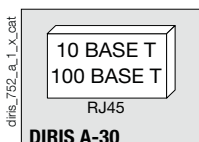
15 - 16: optical input n°2.

Memory module

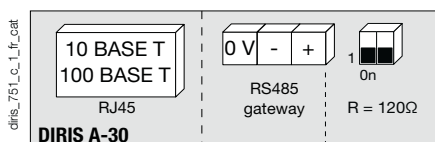


17 - 18: synchronization input.

Ethernet module



Ethernet module + RS485 MODBUS gateway



Electrical characteristics

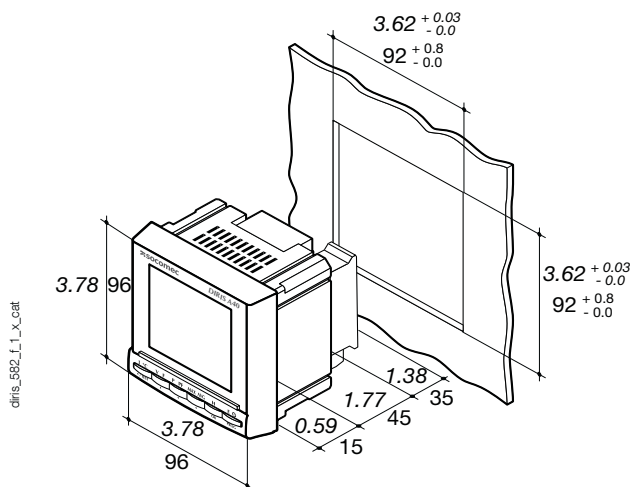
Measurement of currents on insulated inputs (TRMS)	
Via CT primary	9,999 A
Via CT secondary	1 or 5 A
Measurement range	0 ... 11 kA
Input consumption	≤ 0,1 VA
Measurement updating period	1 s
Accuracy	0.2%
Permanent overload	6 A
Intermittent overload	10 I _n for 1 s
Voltage measurements (TRMS)	
Direct measurement between phases	50 to 500 VAC
Direct measurement between phase and neutral	28 to 289 VAC
VT primary measurement	500,000 VAC
VT secondary measurement	60, 100, 110, 173, 190 VAC
Frequency	50 / 60 Hz
Input consumption	≤ 0,1 VA
Measurement updating period	1 s
Accuracy	0.2%
Current - voltage product	
Limitation for CT 1 A	10,000,000
Limitation for CT 5 A	10,000,000
Power measurement	
Measurement updating period	1 s
Accuracy	0.5%
Power factor measurement	
Measurement updating period	1 s
Accuracy	0.5%
Frequency measurement	
Measurement range	45 ... 65 Hz
Measurement updating period	1 s
Accuracy	0.1%
Energy accuracy	
Active (according to IEC 62053-22)	Class 0.5 S
Reactive (according to IEC 62053-23)	Class 2
Auxiliary power supply	
Alternative voltage	110 ... 400 VAC
AC tolerance	± 10 %
Direct current	120 ... 350 VDC / 12 ... 48 VDC
DC tolerance	± 20 % / - 6 ... + 20 %
Frequency	50 / 60 Hz
Power consumption	≤ 10 VA

Module 2 inputs - 2 outputs: outputs (alarms / control)	
Number of relays	2 ⁽¹⁾
Type	250 VAC - 5 A - 1150 VA
Module 2 inputs - 2 outputs: optical coupler inputs	
Number	2 ⁽¹⁾
Power supply	10 ... 30 VDC
Minimum width of signal	10 ms
Minimum length between 2 pulses	18 ms
Type	Optical couplers
Pulse output module	
Number of relays	2
Type	100 VDC - 0.5 A - 10 VA
Max. number of manoeuvres	≤ 10 ⁸
Analog output module	
Number of outputs	2 ⁽²⁾
Type	Insulated
Scale	0 / 4 ... 20 mA
Load resistance	600 Ω
Maximum current	30 mA
MODBUS communication module	
Link	RS485
Type	2 to 3 half duplex wires
Protocol	MODBUS® RTU
MODBUS® speed	4800 to 38400 baud
PROFIBUS DP communication module	
Link	SUB-D9
Protocol	PROFIBUS® DP
PROFIBUS® speed	9.8 kbaud ... 12 Mbaud
Ethernet communication module	
Connection technology	RJ45
Baud rate	10 base T / 100 base T
Protocol	MODBUS TCP or MODBUS RTU on TCP
Operating conditions	
Operating temperature range	- 10 ... + 55 °C / +14 °F ... +131 °F
Storage temperature	- 20 ... + 85 °C / - 4 °F ... +185 °F
Relative humidity	95%

(1) Max. 3 modules / DIRIS.

(2) Max. 2 modules / DIRIS.

Dimensions (in/mm)



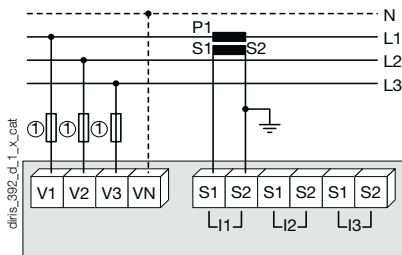
Type	Panel mounting
Dimensions W x H x D	3.78 x 3.78 x 2.36 in / 96 x 96 x 60 mm
Case degree of protection	IP30
Front degree of protection	IP52
Display type	Backlit LCD display
Type of terminal strips	Fixed or detachable
Section of connection for voltages and other terminals	AWG 34 ... 10 / 0.2 ... 2.5 mm ²
Section of connection for currents	AWG 20 ... 9 / 0.5 ... 6 mm ²
Weight	14.11 oz / 400 g

Connections

Balanced low-voltage network for DIRIS A-30

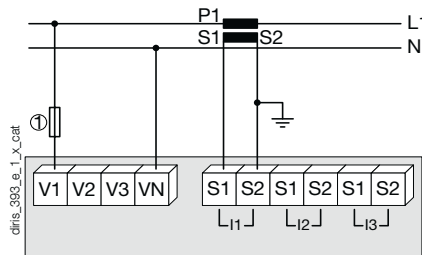
Recommendation: When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI: please consult us. In TNC mode, it is advisable to connect the DIRIS A-30 to earth using the functional earth module.

3/4 wires with 1 CTs



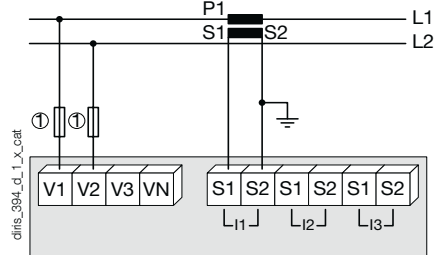
The use of 1 CT reduces by 0.5% the accuracy of the phases, the current for which is worked out by vector calculation.
1. 0.5 A gG / 0.5 A class CC fuses.

Single-phase



1. 0.5 A gG / 0.5 A class CC fuses.

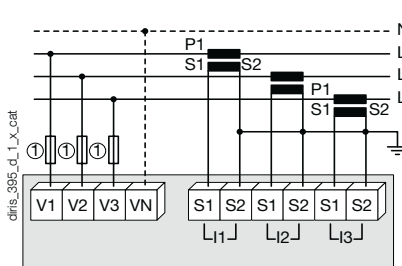
Two-phase



1. 0.5 A gG / 0.5 A class CC fuses.

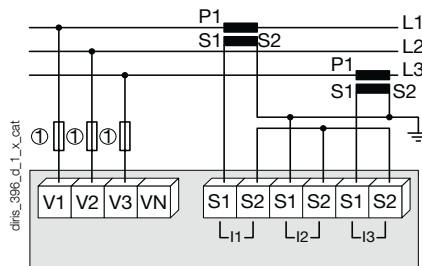
Balanced low-voltage network for DIRIS A-30

3/4 wires with 3 CTs



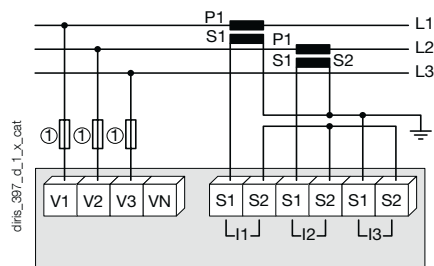
1. 0.5 A gG / 0.5 A class CC fuses.

3 wires with 2 CTs



The use of 2 CTs reduces by 0.5% the accuracy of the phase, the current for which is worked out by vector calculation.
1. 0.5 A gG / 0.5 A class CC fuses.

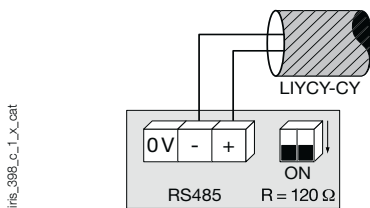
3 wires with 2 CTs



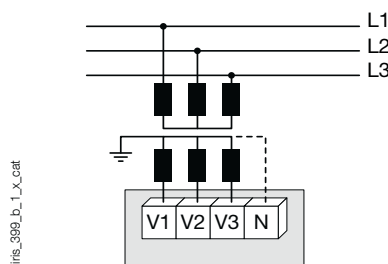
The use of 2 CTs reduces by 0.5% the accuracy of the phase, the current for which is worked out by vector calculation.
1. 0.5 A gG / 0.5 A class CC fuses.

Additional information

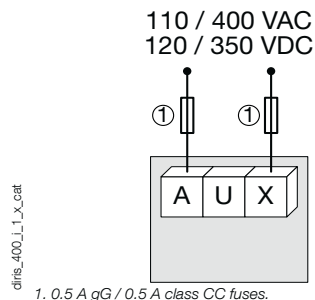
Communication via RS485 link



Connection of potential transformer for HV networks



AC and DC auxiliary power supply



References

Basic device	DIRIS A-30
Auxiliary power supply U_s	Part number
110 ... 400 VAC / 120 ... 350 VDC	4825 0403
12 ... 48 VDC	4825 0405

Options	Part number
Plug-in modules⁽¹⁾	
Pulse outputs	4825 0090
RS485 MODBUS® communication	4825 0092
Analog outputs	4825 0093
2 inputs - 2 outputs	4825 0094
Storage capability	4825 0097
Ethernet communication (integrated web server function) ⁽²⁾	4825 0203
Ethernet communication + RS485 gateway (integrated web server function) ⁽²⁾	4825 0204

(1) Ease of integration of additional functions (maximum 4 slots on A-30).
(2) Dimensions: 2 slots.

Accessories	To be ordered in multiples of	Part number
IP65 protection.	1	4825 0089
Integration kit for 144 x 96 mm cutout	1	4825 0088
Fuse circuit breakers to protect voltage inputs (type RM) 3 pole	4	5701 0018
Fuse circuit breakers to protect the auxiliary power supply (type RM) 1 pole + neutral	6	5701 0017
gG 10x38 0.5 A fuses	10	6012 0000
Range of UL recognized current transformers	1	See 188.
Management software for DIRIS		See 188.

Expert Services

- > Our local team offers complete support to ensure the success of your project, from consultation to implementation of your metering system.



DIRIS A-20

Multifunction power metering & monitoring device - PMD
Multi-measurement

Single-circuit metering,
measurement &
analysis



DIRIS A-20

diris_981_a_front.eps

The solution for

- > Industry
- > Infrastructures
- > Building



Strong points

- > User-friendly operation
- > Compliant with ANSI C12.20 and IEC 61557-12
- > Detects wiring errors
- > Customizable

Compliance with standards

- > UL 61010 guide PICQ file E257746
- > ANSI C12.20
- > IEC 61557-12
- > IEC 62053-22 class 0.5S
- > IEC 62053-23 class 2



Related software

- > To use Socomec PMDs effectively, we can offer you several dedicated software tools.
See page 280.

Function

DIRIS A-20 units are power metering and monitoring devices that provide the user with all of the measurements needed to complete energy efficient projects successfully and to provide assured monitoring of electrical distribution.

All of this information can be used and analyzed remotely with the help of energy efficiency software programs.

Advantages

User-friendly operation

With its large backlit multiple-display screen with 4 hot keys, the DIRIS A-20 is easy to use.

Compliant with ANSI C12.20 and IEC 61557-12

Reference standard for PMDs (Performance metering & monitoring devices), IEC 61557-12 guarantees performance levels and satisfactory performance from the PMDs under the environmental conditions typical of industrial and tertiary applications.

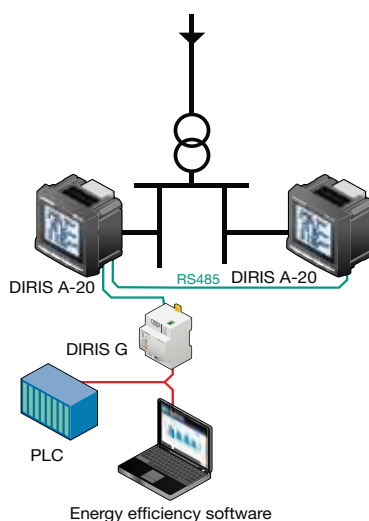
Detects wiring errors

The DIRIS A-20 is equipped with an error correction function for TC connection.

Customizable

Additional communication and input/output modules can extend the basic functional scope of this product. Equipped with additional modules, the DIRIS A-20 can provide the user with flexibility and expandability throughout the service life of the product.

Functional diagram



DIRIS_576_L1_en_cat

Functions

Multi-measurement

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

Metering

- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Timetable: ⌚

Harmonic analysis

- Total harmonic distortion (rank 51)
 - Currents: thd I1, thd I2, thd I3
 - Phase-to-neutral voltage: thd V1, thd V2, thd V3
 - Phase-to-phase voltage: thd U12, thd U23, thd U31

Events

Alarms on all electrical parameters

Communications⁽¹⁾

RS485 with MODBUS protocol

Output

- Equipment control
- Alarm report
- Pulse report

Input

- Information report from a dry external contact

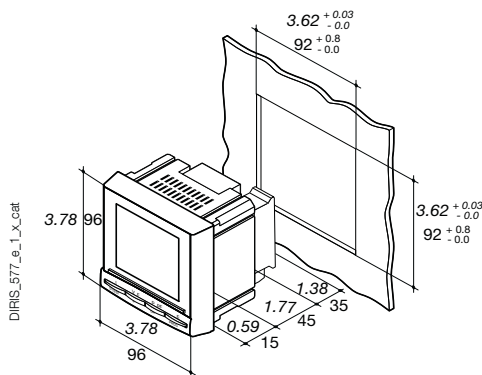
(1) Available as an option (see the following pages).

Front panel



1. Backlit LCD display
2. Pushbutton for currents (instantaneous and maximum), THD currents and the connection correction function.
3. Pushbutton for voltages, frequency and THD voltages.
4. Pushbutton for power (instantaneous and maximum), active, reactive and effective, power factor.
5. Pushbutton for energy sources and timer counter.

Dimensions (in/mm)



Type	Plug-in
Dimensions L x H x P	3.78 x 3.78 x 2.36 in / 96 x 96 x 60 mm
Case degree of protection	IP30
Front degree of protection	IP52
Display type	Backlit LCD
Type of terminal strips	Fixed or removable
Section for connection of voltages and other terminals	AWG 34 ... 10 / 0.2 ... 2.5 mm ²
Section for connection of currents	AWG 34 ... 10 / 0.2 ... 2.5 mm ²
Weight	14.11 oz / 400 g

Plug-in optional modules



1 output

- 1 output that can be configured for:
- pulses: configurable (type, weight, duration) to kWh or kVarh.
 - Monitoring: 3I, In, 3V, 3U, F, ΣP, ΣQ, ΣS, ΣPFL/C, THD 3I, THD 3V, THD 3U and timer meter.
 - Equipment control

Communication

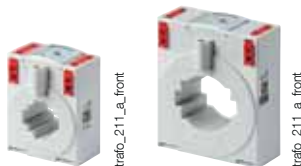
RS485 link with MODBUS protocol (speed up to 38 400 baud).

3 inputs , 1 output

- 3 inputs can be configured into:
- Information report from an external contact.
- 1 output that can be configured for:
- pulses: configurable (type, weight, duration) to kWh or kVarh.
 - Monitoring: 3I, In, 3V, 3U, F, ΣP, ΣQ, ΣS, ΣPFL/C, THD 3I, THD 3V, THD 3U and timer meter.
 - Equipment control

Accessories

UL recognized Current Transformers
See page 270



IP65 protection



Accessories	To be ordered in multiples of	Part number
Description		
Fuse holder Class CC to protect voltage inputs 3 pole	4	5705 0003
Class CC 0.5 A fuses	10	6CC0 5000

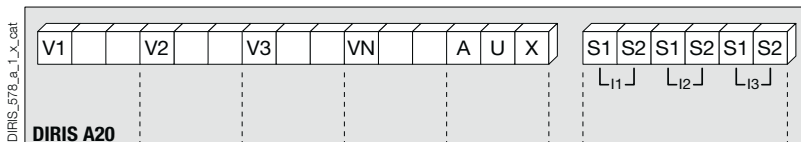
DIRIS A-20

Multifunction power metering & monitoring device - PMD
Multi-measurement

Electrical characteristics

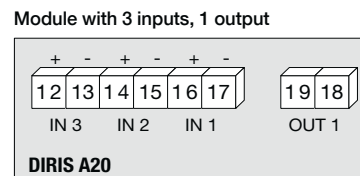
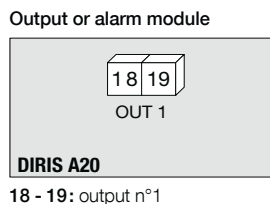
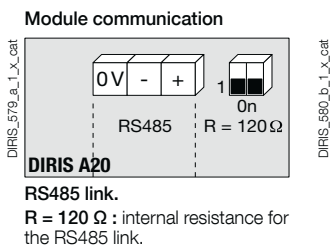
Current measurement (TRMS)	
Via CT primary	9 999 A
Via CT secondary	5 A
Measurement range	0 ... 11 kA
Input consumption	0.6 VA
Measurement updating period	1 s
Accuracy	0.2%
Permanent overload	6 A
Intermittent overload	10 I _n over 1 sec
Voltage measurements (TRMS)	
Direct measurement between phases	50 ... 500 VAC
Direct measurement between phase and neutral	28 ... 289 VAC
Input consumption	≤ 0.1 VA
Measurement updating period	1 s
Accuracy	0.2%
Power measurement	
Measurement updating period	1 s
Accuracy	0.5%
Power factor measurement	
Measurement updating period	1 s
Accuracy	0.5%
Frequency measurement	
Measurement range	45 ... 65 Hz
Measurement updating period	1 s
Accuracy	0.1%
Energy accuracy	
Active (according to IEC 62053-22)	Class 0.5 S
Reactive (in acc. with CEI 62053-23)	Class 2
Auxiliary power supply	
Alternative voltage	110 ... 400 VAC
AC tolerance	± 10%
DC voltage	120 ... 289 VDC
DC tolerance	± 20%
Frequency	50 / 60 Hz
Power consumption	10 VA
Pulse or alarm output	
Number	1
Type	100 VDC - 0.5 A - 10 VA
Max. number of manoeuvres	≤ 10 ⁵
Inputs	
Number	3
Power supply	10 ... 30 VDC
Minimum width of signal	10 ms
Minimum length between 2 pulses	18 ms
Type	Optical couplers
Communication	
Link	RS485
Type	2 to 3 half duplex wires
Protocol	MODBUS® in RTU mode
MODBUS® speed	1400 ... 38400 baud
Operating conditions	
Operating temperature range	- 10 ... + 55 °C / +14 °F ... +131 °F
Storage temperature	- 20 ... + 70 °C / -4 °F ... +158 °F
Relative humidity	95%

Terminals



S1 - S2: current inputs.

AUX: auxiliary power supply U_s.
V1, V2, V3 & VN: voltage inputs.



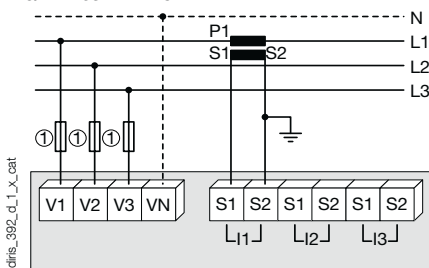
Connection

Low voltage balanced network

Recommendation

- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI: please consult us.

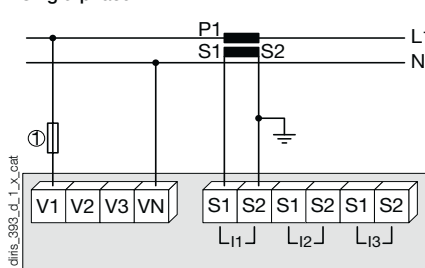
3/4 wires with 1 CT



The 1CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.

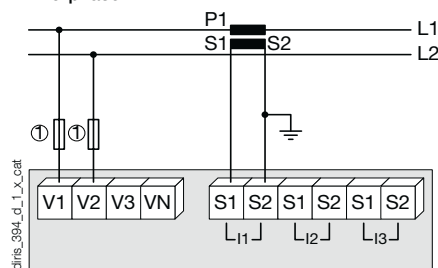
1. 0.5 A gG / 0.5 A class CC fuses.

Single-phase



1. 0.5 A gG / 0.5 A class CC fuses.

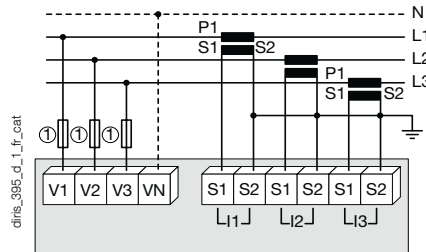
Two-phase



1. 0.5 A gG / 0.5 A class CC fuses.

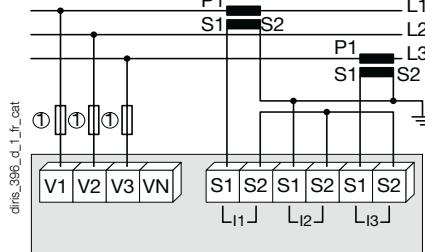
Low voltage unbalanced network

3/4 wires with 3 CTs



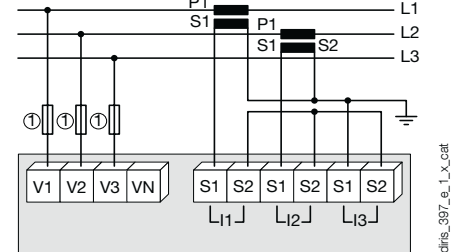
1. 0.5 A gG / 0.5 A class CC fuses.

3 wires with 2 CTs



The 2CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.
1. 0.5 A gG / 0.5 A class CC fuses.

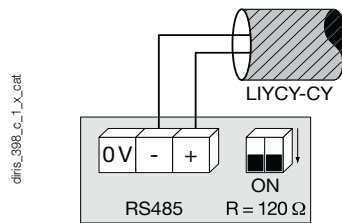
3 wires with 2 CTs



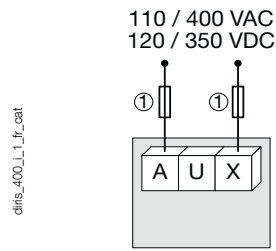
The 2CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.
1. 0.5 A gG / 0.5 A class CC fuses.

Additional information

Communication via RS485 link



AC and DC auxiliary power supply



1. 0.5 A gG / 0.5 A class CC fuses.

References

Basic device		DIRIS A-20
Auxiliary power supply U_s		Part number
110 ... 400 VAC / 120 ... 350 VDC		4825 0402
Options		
Plug-in optional modules		Part number
On/Off output.		4825 0080
RS485 MODBUS® communication		4825 0082
3 inputs, 1 output		4825 0083
Accessories		
Designation of accessories		Part number
Protection IP65	To be ordered in multiples of	4825 0089
Plug-in kit for cutout 144 x 96 mm	1	4825 0088
Fuse holder Class CC to protect voltage inputs 3 pole	1	5705 0003
Class CC 0.5 A fuses	4	6CC0 5000
Ferrite for use with communication modules	10	4899 0011
Range of UL recognized current transformers	1	See page 270
Software associated with DIRIS	1	See page 280

Expert Services

- > Our local team offers complete support to ensure the success of your project, from consultation to implementation of your metering system.



DIRIS A-10

Multifunction meters - PMD
modular multifunction meter

Single-circuit metering,
measurement &
analysis



DIRIS A-10

The solution for

- > Industry
- > Infrastructures
- > Building



Strong points

- > Easy to use
- > Integrated temperature sensor
- > Detects wiring errors
- > Compliant with ANSI C12.20 and IEC 61557-12

Conformity to standards

- > UL 61010 guide PICQ file E257746
- > ANSI C12.20
- > IEC 61557-12
- > IEC 62053-22 class 0.5S
- > IEC 62053-23 class 2



Function

The **DIRIS A-10** is a modular multifunction meter for measuring electrical values in low voltage networks.

It allows all electrical parameters to be displayed and utilized for communication and/or output functions.

Advantages

Easy to use

Five direct access pushbuttons enable all measurements to be clearly viewed on the backlit LCD display.

Integrated temperature sensor

It allows variations in temperature to be detected.

Detects wiring errors

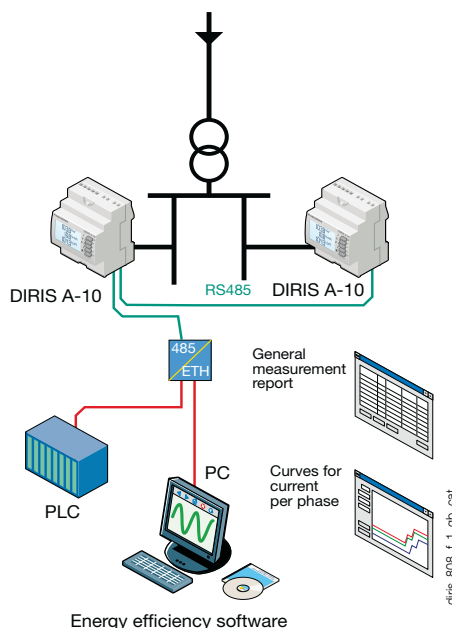
An integrated test function can be utilized to detect incorrect wiring and to automatically correct CT installation errors.

Compliant with ANSI C12.20 and IEC 61557-12

IEC 61557-12 is a high-level standard for all PMDs (Performance Monitoring Devices) that are designed to measure and monitor electrical parameters in distribution networks.

Compliance with IEC 61557-12 ensures a high level of equipment performance, in terms of metrology, as well as mechanical and environmental aspects (EMC, temperature, etc.).

Principle diagram



Functions

Multi-measurement

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

Metering

- Active energy: +/- kWh
- Reactive energy: +/- kVarh
- Hours: ☉

Harmonic analysis

- Total harmonic distortion (level 51)
 - Currents: thd I1, thd I2, thd I3
 - Phase-to-neutral voltage: thd V1, thd V2, thd V3
 - Phase-to-phase voltage: thd U12, thd U23, thd U31

Dual tariff function

Selection of one out of 2 billing tariffs

Events

Alarms on all electrical values

Communications⁽¹⁾

RS485 with MODBUS protocol

Input

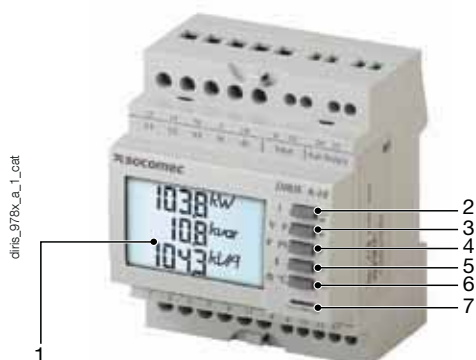
- Tariff selection
- Remote device status

Output

- Remote command of device
- Alarm report
- Pulse report

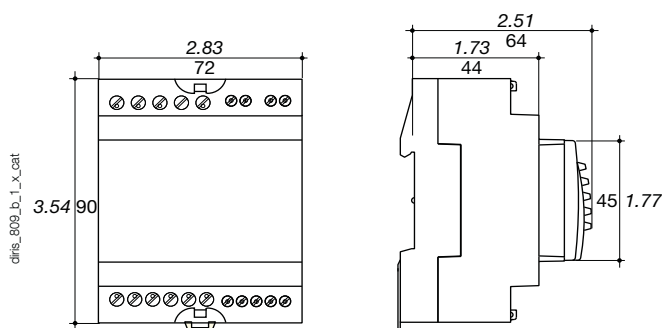
⁽¹⁾ Available on specific version (see the following pages).

Front panel



1. Backlit LCD display.
2. Direct access key for currents (instant and maximum), current THD and test function.
3. Direct access key for voltages, frequency and voltage THD.
4. Direct access key for active, reactive and apparent power (instantaneous and max. values) and power factor.
5. Direct access key for energies.
6. Pushbutton for hour meter, temperature and programming menu access.
7. Metrological LED.

Dimensions (in/mm)



Type	modular
Number of modules	4
Dimensions W x H x D	2.83 x 3.54 x 2.51 in / 72 x 90 x 64 mm
Case degree of protection	IP 30
Front degree of protection	IP 52
Display type	backlit LCD display
Voltage and current connection cross-section	AWG 6 / 4 mm ²
Connection cross-section for AUX supply, input, output and comms.	AWG 10 / 2.5 mm ²
Weight	7.23 oz / 205 g (4825 0400) 7.58 oz / 215 g (4825 0401)

Electrical characteristics

Current measurement (TRMS)	
Via CT primary	9 999 A
Via CT secondary	5 A
Measurement range	0 ... 11 kA
Input consumption	0.6 VA
Measurement updating period	1 s
Accuracy	0.2 %
Permanent overload	6 A
Intermittent overload	10 I _n for 1 s
Voltage measurements (TRMS)	
Direct measurement between phases	50 ... 500 VAC
Direct measurement between phase and neutral	28 ... 289 VAC
Input consumption	≤ 0.1 VA
Measurement updating period	1 s
Accuracy	0.2 %
Power measurement	
Measurement updating period	1 s
Accuracy	0.5 %
Power factor measurement	
Measurement updating period	1 s
Accuracy	0.5 %
Frequency measurement	
Measurement range	45 ... 65 Hz
Measurement updating period	1 s
Accuracy	0.1 %

Energy accuracy	
Active (according to IEC 62053-22)	Class 0.5 S
Reactive (according to IEC 62053-23)	Class 2
Auxiliary power supply	
Alternating voltage	110 ... 277 VAC
AC tolerance	± 15 %
Frequency	50 / 60 Hz
Consumption	< 3 VA
Digital output (pulses or on/off)	
Number	1
Type	20 / 30 VDC - 0.5 A - 10 VA
Max. number of operations	≤ 10 ⁸
Input (tariff)	
Number	1
Type	0 VAC: T1 / 200-277 VAC: T2
Communication	
Link	RS485
Type	2 ... 3 half duplex wires
Protocol	MODBUS RTU
MODBUS® speed	2400 ... 38400 bauds
Operating conditions	
Operating temperature	- 10 ... + 55 °C / +14 °F ... +131 °F
Storage temperature	- 20 ... + 70 °C / -4 °F ... +158 °F
Relative humidity	85 %

Accessories		
Description	To be ordered in multiples of	Reference
Fuse holder Class CC to protect voltage inputs 3 pole	4	5705 0003
Class CC 0.5 A fuses	10	60C0 5000

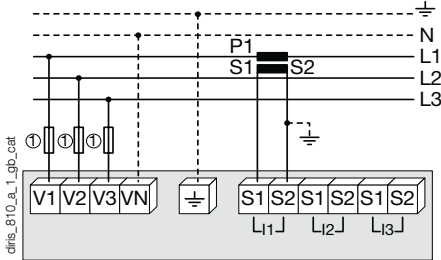
Connection

Recommendation:

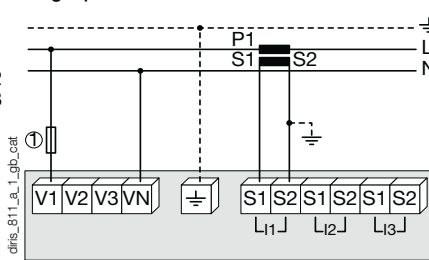
- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI: please consult us.
- It is recommended that the earthing point for the DIRIS A-10 and the current transformer secondaries are not earthed at the same time.

Low voltage balanced network

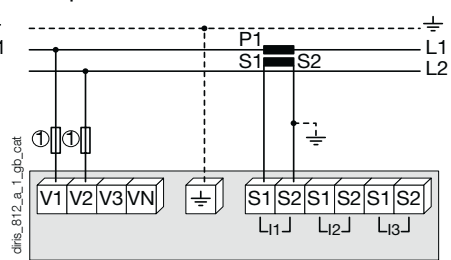
3/4 wires with 1 CT



Single-phase

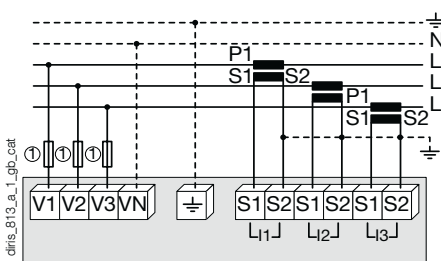


Two-phase

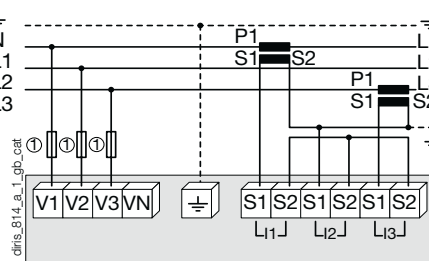


Low voltage unbalanced network

3/4 wires with 3 CTs



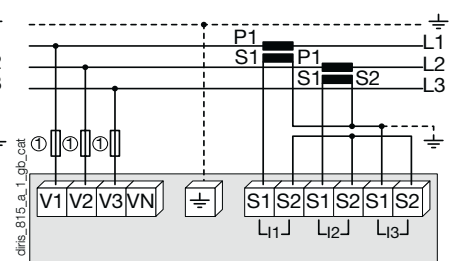
3 wires with 2 CTs



Use of 2 CTs reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

1. Fuses 0.5 A gG / 0.5 A class CC.

3 wires with 2 CTs

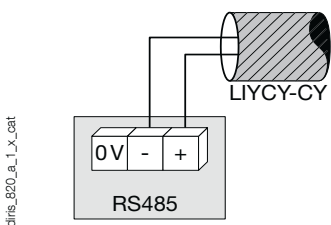


Use of 2 CTs reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

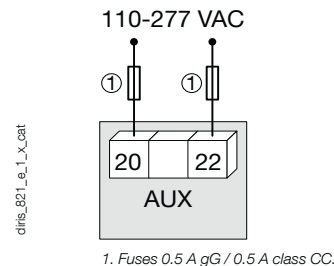
1. Fuses 0.5 A gG / 0.5 A class CC.

Additional information

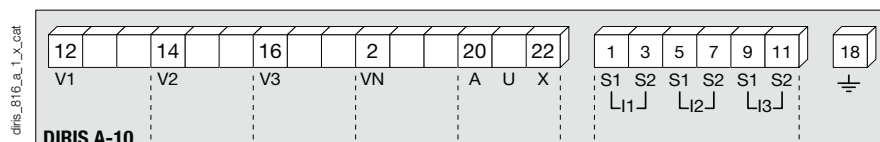
Communication via RS485 link



AC auxiliary power supply



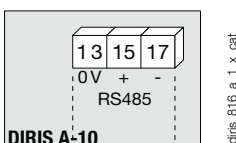
Terminals



AUX: auxiliary power supply U_s .
V1, V2, V3 & VN: voltage inputs.

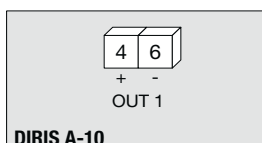
S1 - S2: current inputs.

Communication terminals



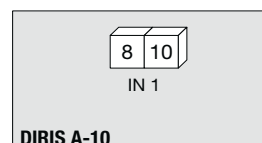
RS485 link.

Pulse or alarm output terminals



4 - 6: output n°1

Input terminals



8 - 10: input n°1

References

Basic device		DIRIS A-10
Description		Reference
DIRIS A-10		4825 0400
DIRIS A-10 with RS485 MODBUS communication		4825 0401
Description of accessories		Reference
Fuse disconnect switches for the protection of voltage inputs (type RM) 3 poles	To be ordered in multiples of 4	5701 0018
Fuse disconnect switches for the protection of the auxiliary supply (type RM) 1 pole + neutral	6	5701 0017
Fuses type gG 10x38 0.5 A	10	6012 0000
Range of UL recognized current transformers	1	See page 270
Management software for DIRIS		See page 280

Expert Services

- > Our local team offers complete support to ensure the success of your project, from consultation to implementation of your metering system.





Current transformers

Measurement devices

from 50 to 2000 A

Current
transformers

new



TCB 26-30 UL



TCB 44-50 UL



TCB 70-100 UL

Function

SOCOMEc current transformers deliver to the secondary a standard current proportional to the primary current and adapted to the rating of the associated device.

- Accuracy class 1.
- Secondary rated current 5 A.
- Maximum voltage 1.2 kV Phase to phase.
- Dielectric strength 6 kV 50 Hz 1 min.
- Permanent overload 1.2 I_n .
- Operating voltage up to 690 V.
- Housing UL94-V0.

Advantages

Quick and easy to mount

Our current transformers are adapted to any type of mounting: edgewise or flat mounting, DIN-rail or back-plate mounting. Primary and secondary are equipped with terminal cage clamp to make installation fast and easy.

An adapted accuracy class

In order to get the best of your DIRIS multifunction meters and energy meters, we can provide current transformers with the following accuracy classes: 1 or 3.

A wide range of ratings and dimensions

Your measurement process can be optimized whatever your needs in terms of ratings, space requirements, conductor sizing or accuracy class. A wide range of combinations are available in our standard range with specific versions available on request (other ratios, tropicalization and specific frequency, class or burden). SOCOMEc current transformers are compatible for 600V network.

The solution for

- > Industry
- > Office buildings



Strong points

- > Quick and easy to mount

Conformity to standards

- > Guide XODW2
file E487234



- > IEC 61869-2



Cable or bar through CT

References

Primary	Secondary	TCB 26-30 UL			TCB 32-40 UL		TCB 44-50 UL		TCB 44-63 UL		TCB 55-80 UL		TCB 70-100 UL	
		Class 3	Class 1	Reference	Class 1	Reference	Class 1	Reference	Class 1	Reference	Class 1	Reference	Class 1	Reference
50 A	5 A	1.25		193T 2305										
60 A	5 A		1.25	193T 2306										
75 A	5 A		2.5	193T 2307										
80 A	5 A		2.5	193T 2308										
100 A	5 A		2.5	193T 2310			1.25	193T 5010						
150 A	5 A		5	193T 2315	2.5	193T 4015	2.5	193T 5015						
200 A	5 A		5	193T 2320	5	193T 4020	5	193T 5020						
250 A	5 A		5	193T 2325	5	193T 4025	5	193T 5025	5	193T 6425				
300 A	5 A		5	193T 2330	5	193T 4030	5	193T 5030	5	193T 6430				
400 A	5 A		5	193T 2340	5	193T 4040	10	193T 5040	5	193T 6440	5	193T 8140	5	193T 9640
500 A	5 A		5	193T 2350	10	193T 4050	10	193T 5050	5	193T 6450	5	193T 8150	5	193T 9650
600 A	5 A				10	193T 4060	10	193T 5060	5	193T 6460	5	193T 8160	10	193T 9660
750 A	5 A				10	193T 4075	10	193T 5075	5	193T 6475	10	193T 8175	5	193T 9675
800 A	5 A				10	193T 4080	10	193T 5080	5	193T 6480	10	193T 8180	5	193T 9680
1000 A	5 A				10	193T 4090	10	193T 5090	5	193T 6490	10	193T 8190	5	193T 9690
1200 A	5 A						10	193T 5092	5	193T 6492	10	193T 8192	5	193T 9692
1250 A	5 A						10	193T 5095						
1500 A	5 A								5	193T 6495	10	193T 8195	10	193T 9695
1600 A	5 A										10	193T 8194	10	193T 9694
2000 A	5 A												10	193T 9696

Description of accessories

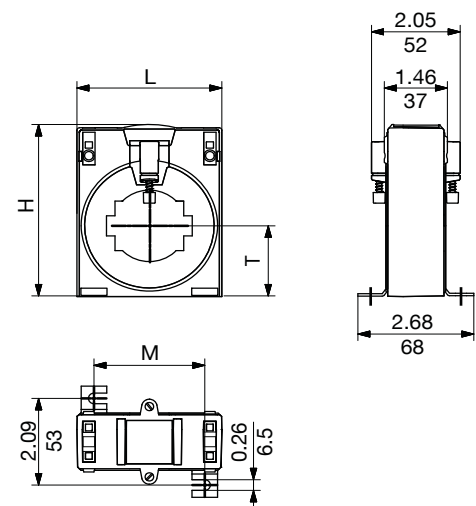
Quick fix fastening for busbars up to 85°	193T 0001	193T 0001	193T 0001	193T 0001	193T 0001	193T 0001
Quick fix fastening for busbars up to 130°	193T 0002	193T 0002	193T 0002	193T 0002	193T 0002	193T 0002
Din fix ⁽¹⁾	193T 0003	193T 0003				

(1) DIN fix accessories is included in the product package.

Dimensions

	TCB 26-30 UL (in/mm)	TCB 32-40 UL (in/mm)	TCB 44-50 UL (in/mm)	TCB 44-63 UL (in/mm)	TCB 55-80 UL (in/mm)	TCB 70-100 UL (in/mm)
Busbar 1	1.18 x 0.39 30 x 10	1.57 x 0.39 40 x 10	1.97 x 0.47 50 x 12	2.48 x 0.39 63 x 10	3.15 x 0.39 80 x 10	3.94 x 0.39 100 x 10
Busbar 2	0.98 x 0.47 25 x 12	1.18 x 0.59 30 x 15	1.57 x 1.18 40 x 30	1.97 x 1.18 50 x 30	2.36 x 1.18 60 x 30	3.15 x 1.18 80 x 30
Busbar 3	0.79 x 0.79 20 x 20					
Ø cable	0.98 25.7	1.22 31.8	1.69 43.7	1.69 43.7	2.12 54.7	2.76 70

Model	L (in/mm)	H (in/mm)	M (in/mm)	T (in/mm)
TCB 26-30 UL	3.36 / 60	3.15 / 80.5	1.57 / 40	1.22 / 31.5
TCB 32-40 UL	2.75 / 70	3.58 / 91.15	1.57 / 40	1.45 / 37
TCB 44-50 UL	3.35 / 85	4.13 / 105.25	2.55 / 65	1.71 / 43.5
TCB 44-63 UL	3.74 / 95	4.48 / 115	2.55 / 65	1.90 / 48.5
TCB 55-80 UL	4.72 / 120	5.27 / 135	3.74 / 95	2.40 / 61
TCB 70-100 UL	5.12 / 130	5.8 / 147.5	3.74 / 95	2.59 / 66



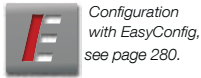
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DIRIS G

RS485 to Ethernet communication gateways



DIRIS G-30/G-50
RS485/Ethernet



Configuration
with EasyConfig,
see page 280.

Function

With communication gateways **DIRIS G** all the information from meters and power monitors, communicating by RS485, is centralized and made available on the Ethernet Modbus (TCP).

DIRIS G gateways can retrieve data from meters or Socomec remote measuring points via Ethernet.

The gateway has an embedded WEBVIEW web server, allowing real time monitoring of electrical values and analysis of consumption data. The user can be alerted of any alarms via email.

Advantages

WEBVIEW⁽¹⁾ embedded web server

DIRIS G gateways include an embedded web server. Two versions are available:

- Power Monitoring:
 - Realtime measurements and alerts.
- Power & Energy Monitoring:
 - Realtime measurements and alerts.
 - Trends for selected parameters and energy consumption history and analysis.

Scalable

Several 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 DIRIS G gateway. These integrate the following:
 - Automatic time synchronization (SNTP) with battery recording
 - Synchronization of connected devices
 - Warning messages in the event of an alert (e-mail SMTP)
 - Automatic recording and storage of measurements and consumption data
 - Automatic tariff changes (multi-tariff).
- Data exported automatically via FTP server.

(1) See page 278.

Selection guide

	Gateway	DIRIS G-30	DIRIS G-50
Communication	RS485 Modbus	•	•
	Ethernet	•	•
WEBVIEW embedded web server	Power Monitoring	•	•
	Power & Energy Monitoring		•

The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



Strong points

- > WEBVIEW embedded web server
- > Scalable
- > Plug & Play

Compliance with standards

- > UL 61010
guide PICQ
file E257746



- > IEC 61010



- > ISO 14025



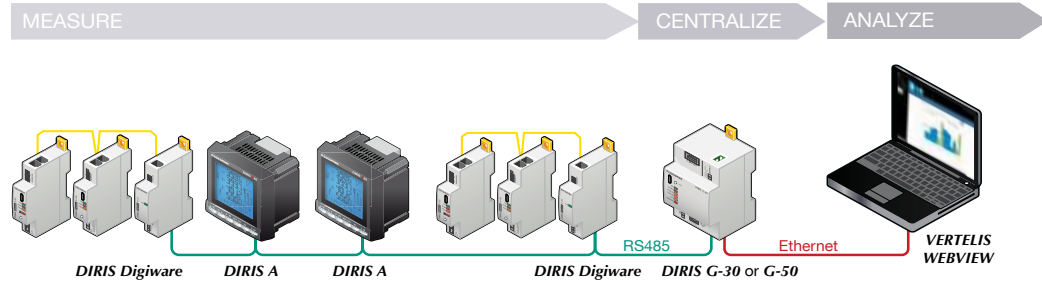
Functions

DIRIS G-30 / DIRIS G-50

- RS485 and Ethernet ports (2 ports with integrated switch)
- Automatic addressing and detection of connected devices.
- Historical of measurements: max 1 year (DIRIS G-50 only)
- Internal clock (SNTP synchronization)
- Sending of alarm by email (SMTP)
- WEBVIEW embedded web server

Architecture

Example of communication architecture with DIRIS G gateway and WEBVIEW embedded WEB server



Embedded web server

WEBVIEW⁽¹⁾ embedded web server

- Version Power Monitoring: embedded in DIRIS G-30
- Version Power & Energy Monitoring: embedded in DIRIS G-50
- 32 devices max



(1) For further details see page 278.

DIRIS O optional modules

a maximum of 4 optional modules can be connected to a DIRIS G gateway in order to integrate controls/ commands.

DIRIS O-iod	2 digital inputs / 2 digital outputs
DIRIS O-ioa	2 analogue inputs / 2 analogue outputs
DIRIS O-it	3 temperature inputs

For more information see "DIRIS O optional modules"



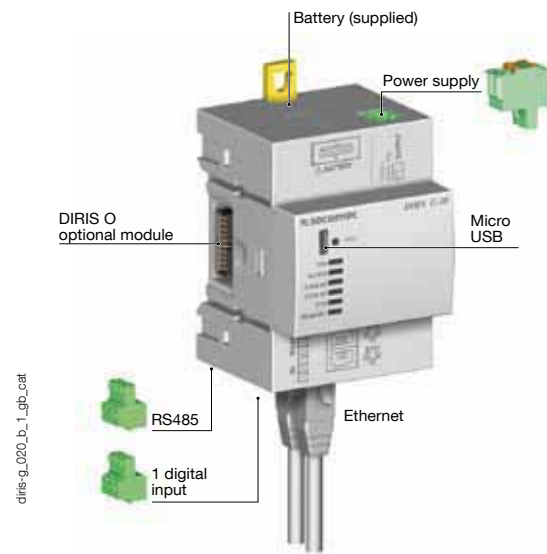
Accessories

USB configuration cable

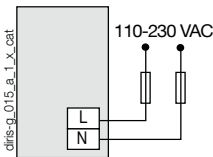
- Configuration of DIRIS G gateways can be achieved using EASY CONFIG software via Ethernet or direct USB connection.

Accessories Description	To be ordered in multiples of	Part number
Fuse holder Class CC to protect voltage inputs 3 pole	4	5705 0003
Class CC 0.5 A fuses	10	6CC0 5000

DIRIS G terminals

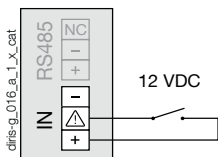


Power supply

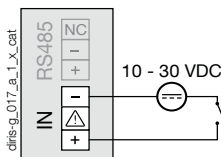


NC: not connected

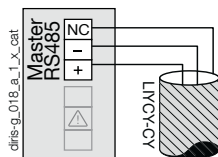
Input powered by the product



Input with external power supply



RS485

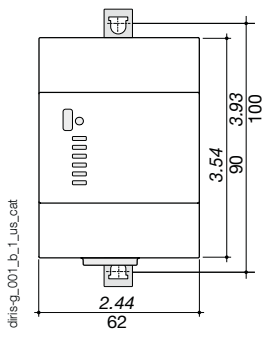


Terminals of DIRIS O optional modules

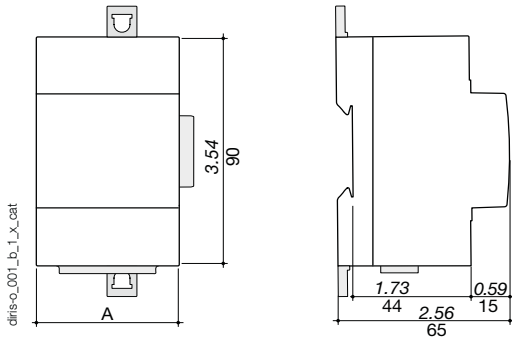
Optional modules are common to the DIRIS B-30 monitoring device.
For a description of the terminals see page 270.

Dimensions (in/mm)

DIRIS G-30 / G-50



DIRIS O optional modules



DIRIS O optional modules	A
DIRIS O-iod - DIRIS O-ioa - DIRIS O-it	45 mm

Specifications

Mechanical specifications	
Casing type	DIN-rail mounting module and base
Case degree of protection	IP20 / IK06
Front degree of protection	IP40 on the nose in modular assembly / IK08
Weight	DIRIS G-30, G-50 = 6.7 oz / 190 g
Electrical characteristics	
Power supply	
Alternative voltage	110-230 VAC ±15% (Ph/N or Ph/Ph) Cat III
Frequency	50/60 Hz
Power consumption	6 VA
Battery	CR 1220 3 V lithium button cell battery
Input	
Number	1
Type / Power supply	Optocoupler internal polarization (12 VDC ±10%) or external (10-30 VDC ±10%)
Input function	Logic status, pulse meter or synchronization pulse status
Communication specifications	
DIRIS G	
Link	RS485
Connection type	2 ... 3 half duplex wires
Protocol	Modbus RTU
Baudrate	2400 ... 115200 bauds
Function	Communication with PMDs and meters
Ethernet	
Link	Ethernet 10/100 base-T, 2 RJ45 bases with integrated switch
Protocol	Modbus TCP (port 502), Modbus RTU over TCP (port 503), HTTP, SMTP, SNTP, DHCP, FTP (G-50)
Clock	Internal
Sntp protocol	Gateway time updating from an NTP server. Connected PMDs time updating.
SMTP protocol	Sending of alarm emails from the gateway
Function	Configuration of the gateway, connected PMDs and meters Access to the WEBVIEW web server, data centralization
USB	
Connection type	USB 2 (required installation of Easy Config)
Protocol	Modbus RTU on USB
Function	Configuration of the gateway, connected PMDs and meters
Connection	Type B micro USB connector
Memory characteristics	
Consumption history (memory extension for meters and measurement units)	1 year (1 hour period)
Electrical values	2 months (10 min period)
Number of events	Alarms 1000 Network quality according to EN 50160: 1000
Environmental specifications	
Ambient operating temperature	-10 ... +70 °C / +14 °F ... +158 °F
Storage temperature	-25 ... +85 °C / -13 °F ... +185 °F
Operating humidity	55 °C / 131 °F / 97% relative humidity

References

DIRIS G gateways		Reference
DIRIS G-30	RS485 / Ethernet - WEBVIEW Power Monitoring	4829 0300
DIRIS G-50	RS485 / Ethernet - WEBVIEW Power & Energy Monitoring	4829 0302
DIRIS O optional modules		Reference
DIRIS O-iod	2 digital inputs / 2 digital outputs	4829 0030
DIRIS O-ioa	2x 4-20 mA analogue inputs / 2x 4-20 mA analogue outputs	4829 0031
DIRIS O-it	3 temperature inputs, PT100/PT1000	4829 0032
Accessories		To be ordered in multiples of
USB configuration cable		Reference
Fuse circuit breakers to protect the auxiliary power supply (type RM) 1 pole + neutral		4829 0050
gG 10x38 0.5 A fuses		6 5601 0017
		10 6012 0000



Datalogger

Communication
interfaces

new



DATALOG H80

The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



Strong points

- > Easy to install
- > Reliable collection and transmission
- > Advanced functions

Expert Services

- > Study, definition, advice, commissioning, maintenance and training... Our experts "Expert Services" offer complete support for the success of your project.

Function

DATALOG H60 and H80 dataloggers associated with Socomec wireless interfaces enable you to create a smart energy data communication network in order to:

- Remotely and automatically read multi-fluid energy meters and multi-function meters, isolated or not.
- Pool, secure, store and provide the data to a computer application.
- Connect your meters and multi-function measurement units in a 2G/3G/GPRS network.

Advantages

Easy to install

- Quick installation on DIN rail or door mounting.
- Compact.
- Remote configuration.
- Configuration services (SOCOMECS services).

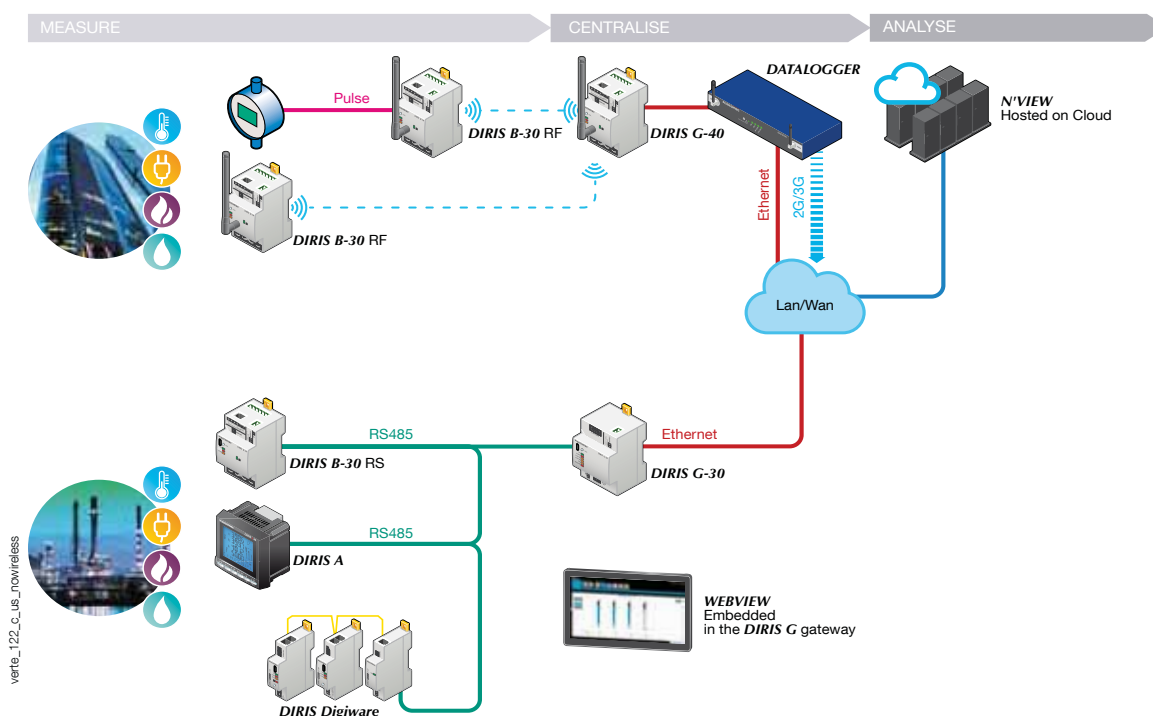
Reliable collection and transmission

- Configurable collection frequency for each energy and multi-function meter.
- Secure, regular transmission (daily, weekly, etc.).
- Multiple communication protocols (Modbus RTU/TCP, Wireless M-Bus, HTTP(s), FTP(s)).
- Collection interfaces: Ethernet - RS232/485 or Wireless.
- Transmission interface: Ethernet or 2G/3G/GPRS.

Advanced functions

- Extended data storage capacity (1 year for index data and 2 months for load curves).
- Auto-detects meters and measuring equipment.
- Sends regular activity reports.
- Event alerts (communication errors, data quality, remote server connection).

The SOCOMEC communicating energy-efficiency solution



Specifications

	DATALOG H60	DATALOG H80
Input/output interfaces		
Input	3 digital or pulse inputs	
Output	1 digital output (relay)	
Serial interfaces		
Input	1 port (Modbus)	
Output	1 port (Modbus or M-Bus)	
Wireless interface		
Wireless M-Bus	868.3 - 868.95 MHz	
Network interface		
Ethernet	1 10/100 Mb port	2 10/100/1000 Mb port
GSM/GPRS	850/900/1800/1900 MHz	850/900/1800/1900 MHz
3G	900/2100 MHz	900/2100 MHz
Protocols		
Data collection	Modbus RTU and TCP/Wireless Mbus	Ethernet/Modbus TCP:
Data transmission	FTP	FTP(s)/ HTTP(s)
Configuration		
Local	Yes	Yes
Distant	by text message	by FTP

References

Datalogger	Reference
DATALOG H60 (power supply included)	4854 0001
DATALOG H80 (without 3G connection)	4854 0010
DATALOG H81 (with 3G connection)	4854 0011
DATALOG H60 accessory description	Reference
5 m remote antenna extension	4854 0105
10 m remote antenna extension	4854 0110
20 m remote antenna extension	4854 0120



WEBVIEW

Monitoring software for energy measurement and analysis

Software suite



soft_027_a_1_fr_cat

The solution for

- > Industry
- > Building
- > Infrastructures
- > Local authority



Strong points

- > Plug & Play
- > Easy to use
- > Various functions

Compliance with standards

- > IEC 62974-1⁽¹⁾



(1) Energy Server standard applicable to WEBVIEW-M and L versions hosted on DIRIS G, DIRIS Digiware D-70 and DATALOG H80.

Function

The **WEBVIEW** web server embedded in DIRIS A-40 meters and in communication gateways (DIRIS G, DIRIS Digiware D-70, DATALOG H80/H81) delivers real-time monitoring of all measurements from up to 200 devices and displays the breakdown of energy consumption.

Uncover the causes of electrical disturbances and anticipate maintenance requirements thanks to historical records of multiple electrical parameters.

Pre-set alarms defined by the user can be sent by e-mail. Users can access WEBVIEW via a web browser on a laptop or a tablet.

Advantages

Plug & Play

Quickly configure WEBVIEW thanks to the automatic detection of Socomec devices. Create geographical and electrical hierarchies to reflect your installation and your processes.

Easy to use

WEBVIEW centralizes all the device measurements via a single clear and user friendly interface. The ergonomics of the display screens allow users to easily and quickly analyse the parameters and the behaviour of the installation.

Various functions

Very easy to configure and to use, WEBVIEW offers a wide range of features including real-time monitoring, alarm management and transmission by e-mail, multi-utility analysis (electricity, water, gas), power parameter logging and allocation of consumption by end-use and location.

Characteristics

Type	Hosting	Functions	Number of measurement devices
WEBVIEW-S	DIRIS A-40	Monitor, Alarm, View	1
WEBVIEW-M	DIRIS G-30	Monitor, View	32
	DIRIS G-50	Monitor, Alarm, View,	32
	DIRIS Digiware D-70	Monitor, Alarm, View, Represent	32
WEBVIEW-L	DATALOG H80/H81	Monitor, Alarm, View, Represent	100/200

Functions

Monitor

- Automatic detection of connected devices.
- Summary of the parameters measured for the electrical network and loads.
- Display of voltage, current, power, power factor, total harmonic distortion (THD) and harmonics per rank.
- Display of average/instantaneous values with min/max limits depending on the devices.
- Total and partial energy consumption per load.
- Input/output status.
- Synchronization of device clocks.
- Graphical or table representation.



Alarm

- Alarms for overloads, events and input status changes.
- Display of alarms history.
- Sorting by type, nature, criticality or state.
- Alarms displayed on the main page.
- Transmission of alarms by e-mail (SMTP).



View

- Historical measurements and consumption.
- Historical records of multiple power parameters.
- Distribution of consumption by location, by end-use and by utility (water, gas, electricity...).
- Export of consumption data in a CSV format.



Represent

- Photoview: customized synoptic of the WEBVIEW environment via the upload of graphical files (building plans, electrical circuit diagrams, production processes...)
- Real time data tracking via the insertion of parameters on the background pictures (measurement points, alarms, text...).
- Display of the mapping of the measurement plan by cascading of several images.



References

Type	Hosting	Part number
WEBVIEW-S	DIRIS A-40	4825 0501
WEBVIEW-M	DIRIS Digiware D-70	4829 0202
	DIRIS G-30	4829 0300
	DIRIS G-50	4829 0302
WEBVIEW-L 100	DATALOG H80	4854 0020
	DATALOG H81 (3G network)	4854 0021
WEBVIEW-L 200	DATALOG H80	4854 0030
	DATALOG H81 (3G network)	4854 0031



DIRIS management software tools

Software suite



Easy Config software



Webserver function

Compatible with:



DIRIS A



DIRIS Digiware



DIRIS B



DIRIS G

Function

To get the most effective use from your Socomec measurement and metering devices, we can provide dedicated software tools:

Easy Config software

The Easy Config software enables quick and easy remote device configuration for DIRIS Digiware, DIRIS B, DIRIS G and DIRIS A devices. Configuration files can be copied from and sent to these devices, or they can be created without communication and sent at a later time.

Multiple devices can be configured from a single file which is especially useful for OEMs and panel builders, saving time when having to program many devices with the same configuration.

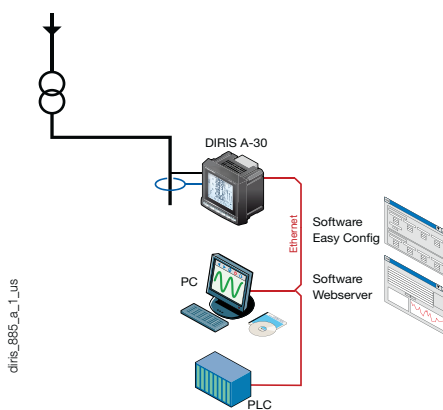
Webserver function

The DIRIS A's optional Ethernet modules integrate HTML pages, enabling the Webserver function to be directly accessed through a standard web browser (Internet Explorer, Firefox....), eliminating the need for software installation.

The Webserver function enables:

- monitoring of electrical values,
- viewing of energy consumption,
- managing alarms,
- configuration of the main parameters of installation
- viewing and extracting load curves (through a .CSV file).

Principle diagram



	Easy Config	Webserver	WEBVIEW See page 278
DIRIS A10 and A20 with RS485 communication	•	• ⁽¹⁾	•
DIRIS A40 with RS485 communication	•	• ⁽¹⁾	•
DIRIS A40 with Ethernet communication module	•	•	•
DIRIS B	•		•
DIRIS Digiware	•		•
DIRIS G	•		•

(1) through DIRISA fitted with an Ethernet communication module with RS485 gateway.

Easy Config software



The Easy Config software enables quick and easy remote configuration of DIRIS Digiware, DIRIS B, DIRIS G and DIRIS A devices.

It offers the following functions:

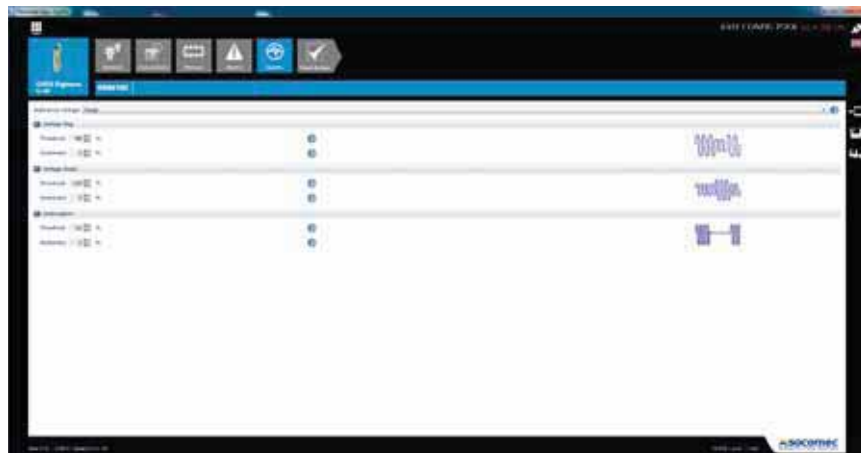
- Creating the configuration of devices prior to their connection (configuration template).
- Saving a configuration to a PC.
- Loading the configuration to devices through USB, RS485 or Ethernet.
- Retrieving the configuration of a device through USB, RS485 or Ethernet for saving, copying or modification purposes.



Configuration of loads



Configuration of Quality events



Webserver function



DIRIS A Ethernet communication module with RS485 gateway

The Webserver function comprises HTML pages embedded within the optional Ethernet communication module of the DIRIS A's multifunction meter. These pages can be accessed via an internet browser, simply by entering the DIRIS A IP address.

The Webserver offers the following functions:

- Monitoring of electrical values.
- Viewing of energy consumption.
- Management of alarms.
- Remote configuration of the main parameters for meters within the installation.
- Viewing and extracting load curves (through a .CSV file).

Instantaneous report of measurements



Display for viewing instantaneous and average electrical values.

Power and energy



Display for viewing instantaneous and average power measurements and energy consumption.

Webserver function (continued)

Configuration of the devices



Alarms



The latest alarms are date and time registered. The duration and value for each alarm (low limit value / high limit value), as well as the related output alarm number, are also displayed. Data can be extracted in *.csv format.



Power Conversion

On-Grid Energy Storage

Power Conversion System for energy storage



SUNSYS PCS²
33 kW up to MW
p. 288

Smart Grid LV Energy Storage

Energy Storage System architecture



SUNSYS Xtend ESS
33 kW up to MW
p. 288

Single-phase UPS



new
NETYS PL-120V
350 and 750 VA
p. 290



new
NETYS RT-120V
1000 to 3000 VA
p. 292



SUNSYS PCS²

Power Conversion System for energy storage
from 33 kW up to MW - UL 1741 SA



The SUNSYS PCS² is a modular bidirectional power converter for energy storage. Thanks to its modular parallel configuration, several MW can be reached.

High performance

- The SUNSYS PCS² modular design provides high output efficiency even with low power thanks to its Dynamic Power Control function.

Total flexibility

- The SUNSYS PCS² is a modular and scalable solution making it easy to adapt to future evolution. Its design also enables it to be used to update existing photovoltaic installations.
- What's more, its compatibility with multiple battery technologies provides a lot of flexibility to the installation.

Maximum availability

- Its modular design enables fully secure "hot swapping" of conversion modules, allowing the rest of the installation to continue working. This operation can be performed without special clearance.

Easy to manage and maintain

- The SUNSYS PCS² is a full front access solution allowing quick and easy, comfortable, safe and risk-free installation and maintenance.
- Thanks to its display on the front face, it also enables ergonomic operation and monitoring.

The solution for

- MV/LV grids with:
- > A high proportion of renewable energy
 - > High peak demands

Strong points

- > High performance
- > Total flexibility
- > Maximum availability
- > Easy to manage and maintain

Compliance with specifications

- > UL 1741 SA

Grid code & rules compliance

- > IEEE 1547
- > HECO Rule 14H
- > California rule 21

Complementary solutions

We can also offer you SUNSYS XTEND ESS, UL 9540 certified Energy Storage System Architecture including batteries and AC and DC distribution modules.



The manufacturer's guarantee

We offer a comprehensive support service package: commissioning, on-site testing, preventive maintenance visits, 24-hour call out and rapid on-site repairs, genuine spare parts, etc.

References



www.socomec.com/references-smart-solutions_en.html

Technical data

SUNSYS PCS²							
Configuration	With transformer			Without transformer			
Model	SUN-ES33KTR20UL	SUN-ES66KTR20UL	SUN-ES100TR20UL	SUN-ES33KET20UL	SUN-ES66KET20UL	SUN-ES100ET20UL	
INPUT (DC)							
Battery voltage	Full power from 450 to 800 VDC - 350 to 850 VDC possible with derating						
Number of independent power modules	1	2	3	1	2	3	
Maximum discharging current	80 A	160 A	240 A	80 A	160 A	240 A	
Maximum recharging current	80 A	160 A	240 A	80 A	160 A	240 A	
OUTPUT (AC)							
Rated power	33.0 kW	66.0 kW	100.0 kW	33.0 kW	66.0 kW	100.0 kW	
Maximum power	36.3 kW	72.6 kW	110.0 kW	36.3 kW	72.6 kW	110.0 kW	
Rated apparent power	33.0 kVA	66.0 kVA	100.0 kVA	33.0 kVA	66.0 kVA	100.0 kVA	
Maximum apparent power	36.3 kVA	72.6 kVA	110.0 kVA	36.3 kVA	72.6 kVA	110.0 kVA	
Rated voltage	480 Vrms ⁽¹⁾ 3ph			280 Vrms ⁽¹⁾ 3ph			
Voltage tolerance	423 to 528 Vrms ⁽¹⁾ 3ph			252 - 308 Vrms ⁽¹⁾ 3ph			
Rated frequency	60 Hz						
Frequency range	59.3 - 60.5 Hz						
Rated current	40 Arms	80 Arms	120 Arms	69 Arms	137 Arms	206 Arms	
Maximum current	46 Arms	91 Arms	137 Arms	78 Arms	157 Arms	235 Arms	
THDI (%)	< 3%						
Topology	Single conversion						
EFFICIENCY							
Maximum efficiency	96.0%	96.2%	96.3%	97.6%			
ENVIRONMENT							
Environment category	Non air-conditioned indoor space						
Degree of protection	NEMA 1						
Operating ambient temperature	23 to 122 °F / -5 to +50 °C						
Rated temperature	32 to 104 °F / 0 to +40 °C						
Storage temperature	23 °F to 140 °F / -5 °C to +60 °C						
Relative humidity	5 % to 95 % without condensation						
Cooling system	Smart cooling						
Acoustic level at 1 m	< 60 dB	< 64 dB		< 60 dB	< 64 dB		
Altitude	0 to 3300 ft. (full power) / 0 to 1000 m (full power)						
MECHANICAL SPECIFICATIONS							
Dimensions (W x D x H)	in.	23.62 x 31.30 x 55.12		47.24 x 31.30 x 55.12		23.62 x 31.30 x 55.12	
	mm	600 x 795 x 1400		1200 x 795 x 1400		600 x 795 x 1400	
Weight	lbs.	782.64	1168.45	1798.97	326.28	390.22	454.15
	kg	355	530	816	148	177	206

(1) Depending on the specific country and regulations.



SUNSYS Xtend **ESS**

UL 9540 certified Energy Storage System architecture



SUNSYS XTEND ESS - UL 9540 certified Energy Storage System architecture - combines lithium ion batteries with Socomec's Power Converters to offer a completely integrated Energy Storage System, optimized for use in commercial and industrial applications. This architecture can be combined with third-party software to provide the widest range of energy services.

Extendable installation

SUNSYS XTEND ESS enables modular flexibility later on. This solution may evolve and extend at a later date by adding additional SUNSYS PCS² and/or batteries with their associated protection equipment.

Because the architecture is certified UL 9540, no further certifications will be needed in case of future growth.

Compact design

SUNSYS XTEND ESS is designed compact installation, either indoors, or in a weather-tight outdoor enclosure.

The complete system includes:

- SUNSYS PCS² bidirectional power converters
- Batteries
- AC distribution cabinet
- String Battery Coupling Panel (SBCP)

Customer oriented services

SUNSYS XTEND ESS offers services dedicated to commercial and industrial installations.

This system is a fundamental component in providing peak shaving, load shifting and photovoltaic self-consumption functionalities in association with a third party EMS.

The solution for

- > Commercial applications
- > Industrial applications

Strong points

- > Extendable installation
- > Compact design
- > Customer oriented services
- > Simplified logistics

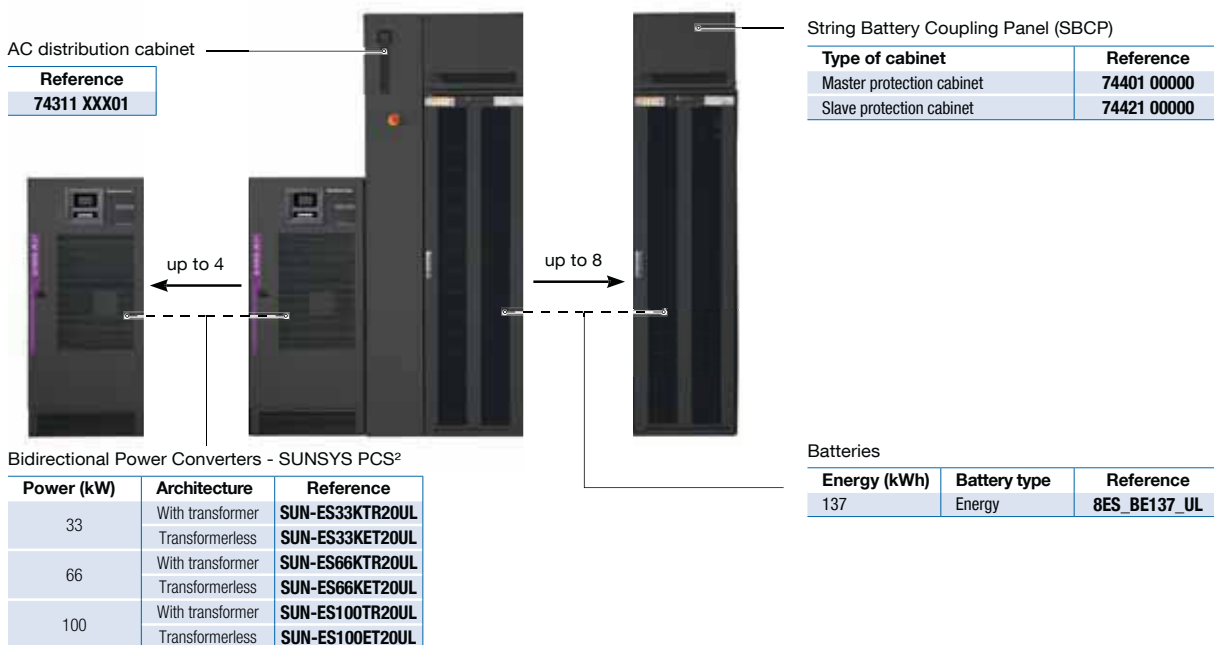
Conformity to standards

- > UL 1741 SA: Standard for Grid Support Inverters
- > UL 1642: Standard for Lithium Batteries
- > UN38.3: Transport of Dangerous Goods – Lithium-ion batteries
- > UL 1973RU: Standard for Batteries for Use in Light Electric Rail Applications and Stationary Applications
- > UL 9540 certified solution: Standard for Energy Storage Systems and Equipment
- > IEEE 1547: Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces



Simplified logistics

SUNSYS XTEND ESS creates a complete solution with a limited number of references for easy ordering and covering a wide range of configurations, power and back-up time.



Possible SUNSYS Xtend ESS architectures

		Batteries							
		1 x 137 kWh	2 x 137 kWh	3 x 137 kWh	4 x 137 kWh	5 x 137 kWh	6 x 137 kWh	7 x 137 kWh	8 x 137 kWh
SUNSYS PCS²	1 x 33 kW	3.5 hours	-	-	-	-	-	-	-
	1 x 66 kW	1.5 hours	3.5 hours	-	-	-	-	-	-
	2 x 66 kW	-	1.5 hours	2.5 hours	3.5 hours	-	-	-	-
	3 x 66 kW	-	1 hour	1.5 hours	2.5 hours	3 hours	3.5 hours	4 hours	-
	4 x 66 kW	-	-	1 hour	1.5 hours	2 hours	2.5 hours	3 hours	3.5 hours
	1 x 100 kW	1 hour	2 hours	3.5 hours	4.5 hours	-	-	-	-
	2 x 100 kW	-	1 hour	1.5 hours	2 hours	3 hours	3.5 hours	4 hours	-
	3 x 100 kW	-	-	1 hour	1.5 hours	2 hours	-	2.5 hours	3 hours
	4 x 100 kW	-	-	-	1 hour	1.5 hours	-	2 hours	-

Characteristics

Architecture based on	SUNSYS PCS² 33TR	SUNSYS PCS² 66TR	SUNSYS PCS² 100TR	SUNSYS PCS² 33TL	SUNSYS PCS² 66TL	SUNSYS PCS² 100TL
INPUT (DC)						
Battery chemistry	Lithium-Ion					
Number of independent power modules	1	2	3	1	2	3
OUTPUT (AC)						
Rated apparent power	33.000 VA	66.000 VA	100.000 VA	33.000 VA	66.000 VA	100.000 VA
Rated voltage (Un)	480 V rms 3ph			288 V rms 3ph		
Voltage range	423 - 528 V rms 3ph			252 - 308 V rms 3ph		
Rated frequency (Fn)	60 Hz					
Frequency range	59.3 - 60.5 Hz					
Efficiency	-					
Maximum efficiency	≥ 96 %					
ENVIRONMENT						
Environmental category	Non-air-conditioned indoor space					
Degree of protection	NEMA 1					
Operating ambient temperature	0 to + 40 °C					
CERTIFICATIONS						
Power converter	UL1741 SA - IEEE 1557					
Battery	UL 1642- UN 38.3 - UL 1973 RU					
Product certification	UL 9540					

Dimensions

Number of SUNSYS PCS²	Number of batteries	Dimensions (W x D x H) (inch)
1	1	55.9 x 36.6 x 90.5
1	2	76.3 x 36.6 x 90.5
1	3	96.8 x 36.6 x 90.5
1	4	117.3 x 36.6 x 90.5
2	2	100 x 36.6 x 90.5
2	3	120.5 x 36.6 x 90.5
2	4	141 x 36.6 x 90.5
2	5	161.4 x 36.6 x 90.5
2	6	181.9 x 36.6 x 90.5
2	7	202.4 x 36.6 x 90.5
3	2	123.6 x 36.6 x 90.5
3	4	164.6 x 36.6 x 90.5
3	5	185 x 36.6 x 90.5
3	6	205.5 x 36.6 x 90.5
3	7	226 x 36.6 x 90.5
3	8	246.5 x 36.6 x 90.5
4	3	167.8 x 36.6 x 90.5
4	4	188.2 x 36.6 x 90.5
4	5	208.7 x 36.6 x 90.5
4	6	229.2 x 36.6 x 90.5
4	7	249.6 x 36.6 x 90.5
4	8	270.1 x 36.6 x 90.5



NETYS *PL-120V*

User-friendly multi-socket protection
350 and 750 VA

new



NETYS *PL-120V*
350 VA

NETYS *PL-120V*
750 VA

An innovative solution and superior design

- Compact and practical pluggable power protection integrating a larger number of sockets adapted to computer and IT peripherals in small office and home office environments, facilitating connection and tidier cabling.
- Modern design suitable for desk positioning, floor installation and wall mounting.

Adapted protection to meet all your needs

- 8 NEMA standard sockets for easy distribution directly to your applications:
 - 4 sockets protected against power cuts and overvoltages, aimed at your most sensitive applications (professional desk top systems, workstation and monitors).
 - 4 sockets protected against overvoltage alone for use with less critical applications and high absorption consumers (e.g. laser printers).

Easy to use

- Operating mode indicated by means of either a LCD touch screen display (750 VA model) or smart LED indicator lights (350 VA model).
- Integrated mains input cable on the side, allowing all eight sockets to be used.

The solution for

- > PC: LCD monitors, scanners, printers, etc.
- > Cash registers, POS
- > Interactive terminals

Technology

- > VFD "offline"

Conformance



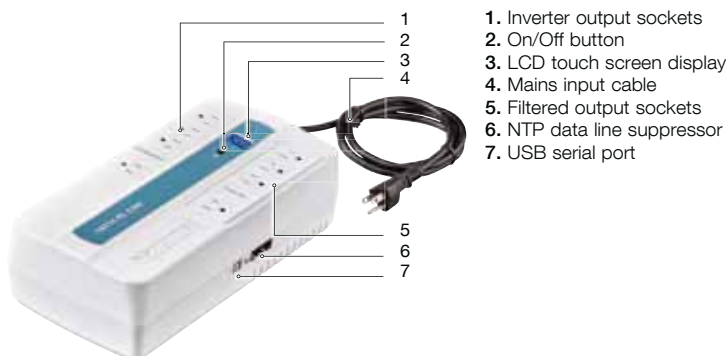
To find out more

- > For more information on our UPS solutions, please visit our website:



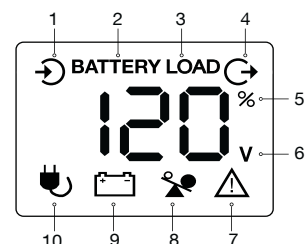
GAMME 255 A

Connections



Control panel

- The LCD touch screen display allows the easy monitoring of the UPS operating modes.



- | | |
|--------------------|-------------------|
| 1. Input measure | 6. Voltage |
| 2. Battery measure | 7. UPS fault |
| 3. Load measure | 8. Overload |
| 4. Output measure | 9. Battery mode |
| 5. Rate | 10. Mains present |

Technical data

NETYS PL-120V		
Reference	NPL-350-NA	NPL-750-NA
Sn	350 VA	750 VA
Pn	210 W	450 W
Input/output	1/1	
INPUT		
Rated voltage	120 V	
Voltage	90-145 V	
Rated frequency	50/60 Hz with automatic selection	
Mains connection	Cable with NEMA 5-15P plug	
OUTPUT		
Voltage	120 V ±10%	
Rated frequency	50/60 Hz ±1%	
Efficiency	Energy Star certified	
Wave form	Step wave	
Protection	Overload, overcharge, deep discharge and short circuit	
Sockets	4 NEMA 5-15R sockets for battery backup and surge protection, 4 NEMA 5-15R sockets for surge protection	
BATTERIES		
Type	Sealed lead-acid maintenance free - expected life 3/5	
Back-up time ⁽¹⁾	10 min	15 min
COMMUNICATION		
Interfaces	-	USB
Local communication software	-	Local View
UPS CABINET		
Dimensions W x D x H	6.24 x 12.01 x 3.74 in / 158.5 x 305 x 95 mm	
Weight	5.51 lbs / 2.5 kg	6.39 lbs / 2.9 kg
Colour	Black	White
STANDARDS		
Safety	UL 1778; CSA C22.2 107.3	
EMC	FCC part 15 class A; ICES-0003 class B	
Product certification	cULus; Energy Star	
ENVIRONMENT		
Operating ambient temperature	from 32 to 104 °F / 0 to +40 °C (from 59 to 77 °F / 15 to 25 °C for best battery life)	
Storage temperature range	from 5 to 122 °F / -15 to +50 °C (from 59 to 77 °F / 15 to 25 °C for best battery life)	
Relative Humidity	20-90 % non-condensing	
Noise level at 1 meter	< 40 dB	

(1) Desktop PC + 20" LCD monitor (~100 W).

Standard communication features

- LOCAL VIEW: ideal UPS monitoring and shutdown point-to-point solution for Windows®, Linux and Mac OS X® operating systems.



Easy to adapt



Example of wall mounting



NETYS RT-120V

Professional solution for IT infrastructures
from 1000 to 3000 VA - Rack/Tower

Single-phase UPS

new



NETYS 267 C - NETYS 268 C

A professional solution for total power protection

- Ideal solution for protecting small servers, networking devices and peripherals.
- Assures service continuity to critical applications.
- Designed for professional applications: the sinewave inverter technology assures full compatibility with any kind of load and power supply.

High protection and high availability

- True online double conversion technology with sinusoidal waveform, completely filters out all disturbances from/to the mains power supply and ensures maximum protection of the utility.
- Permanent regulation of output voltage and frequency.
- Wide tolerance of the input voltage limits the number of switchovers to battery mode, prolonging the battery life.
- The automatic bypass takes over immediately in the event of overloads or faults, ensuring continuous power supply to the loads.

Simple to install

- No configuration needed on first startup.
- USB port as standard for direct interfacing with Windows systems®, without the need for additional specialist software.
- Space and time-saving tower/rack conversion mode.

Easy to use

- Wide range of communication protocols for remote monitoring and integration into LAN networks.
- Clear and uncluttered LCD interface, with buzzers that immediately indicate the operating status of the UPS, even for less specialist users.
- Easy connections to the applications (depending on power) via NEMA standard sockets.
- EPO (Emergency Power Off) emergency stop.

The solution for

- > Data storage
- > Servers and networking devices
- > VoIP communication systems
- > Structured cabling systems
- > Control systems
- > Video surveillance systems

Technology

- > VFI "online double conversion"

Conformance



To find out more

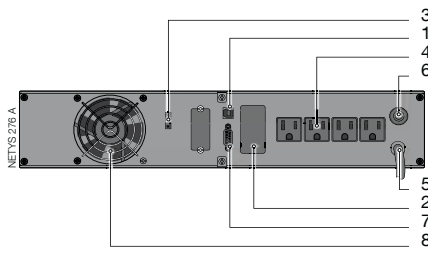
- > For more information on our UPS solutions, please visit our website:



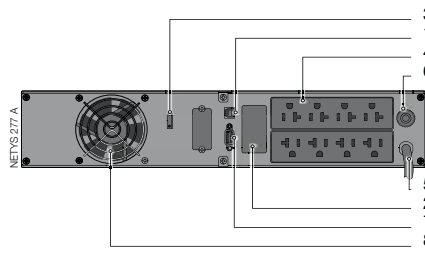
NETYS RT-120V

Single-phase UPS
from 1000 to 3000 VA - Rack/Tower

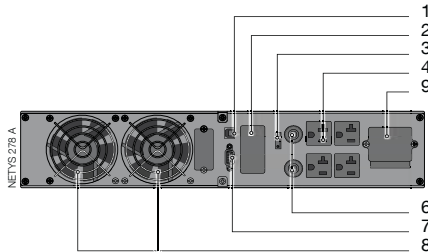
Connections



1000-1500 VA



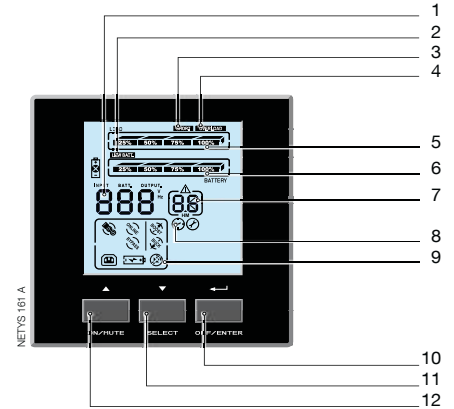
2200 VA



3000 VA

1. USB serial port
2. Slot for optional boards
3. EPO Emergency Power Off
4. UPS output sockets
5. Input
6. AC input protection
7. RS232 serial port
8. Fan / air vents
9. Input/output cords

Control panel



1. Input, output or battery value
2. Low battery
3. Short circuit
4. Overload
5. Load level
6. Battery capacity
7. General Alarm/Setting configuration
8. Backup time
9. UPS status
10. Off/Enter
11. Select/Down
12. On/Buzzer off/Up

Technical data

NETYS RT-120V				
Reference	NRT-U1000-NA	NRT-U1500-NA	NRT-U2200-NA	NRT-U3000-NA
Sn	1000 VA	1500 VA	2200 VA	3000 VA
Pn with battery	900 W	1350 W	1800 W	2700 W
Architecture	online double conversion VFI with input PFC and automatic bypass			
Input/output	1 / 1			
INPUT				
Rated voltage	120 V			
Voltage tolerance	80 to 150 VAC; up to 55 VAC @ 50% load			
Rated frequency	50 / 60 Hz with automatic selection			
Power factor	> 0.99			
Mains connection	NEMA 5-15P		NEMA 5-20P	NEMA L5-30P
OUTPUT				
Rated voltage	120 V			
Rated frequency	50 / 60 Hz ± 3 % (± 0.5% in battery mode)			
Efficiency in VFI mode	Energy Star certified			
Crest factor	3:1			
Connections	NEMA 5-15R x4		NEMA 5-15/20R x8	NEMA 5-15/20R x4 L5-30R x1
BATTERIES				
Type	Sealed lead-acid maintenance free - expected life 3/5 years			
Back-up time ⁽¹⁾	8 min			
COMMUNICATION				
Interfaces	RS232 - USB			
Local communication software	Local View			
UPS CABINET				
Dimensions W x D x H	17.24 x 16.53 x 3.46 in / 438 x 410 x 88 mm	17.24 x 20.47 x 3.46 in / 438 x 510 x 88 mm		17.24 x 27.16 x 3.46 in / 438 x 630 x 88 mm
Weight	28.66 lbs / 13.0 kg	40.78 lbs / 18.5 kg	48.50 lbs / 22.0 kg	66.14 lbs / 30.0 kg
STANDARDS				
Safety	UL 1778; CSA C22.2 107.3			
EMC	FCC part 15 class A; ICES-0003 class A			
Product certification	cULus; Energy Star			
ENVIRONMENT				
Operating ambient temperature	from 32 to 104 °F / 0 to +40 °C (from 59 to 77 °F / 15 to 25 °C for best battery life)			
Storage temperature range	from 5 to 122 °F / -15 to +50 °C (from 59 to 77 °F / 15 to 25 °C for best battery life)			
Relative Humidity	20-90 % non-condensing			
Noise level (ISO 7779)	< 50 dB			

(1) @ 75% of rated load PF 0.7.

Standard communication features

- LOCAL VIEW: ideal UPS monitoring and shutdown point-to-point solution for Windows®, Linux and Mac OS X operating systems.



LOGIC 023 A

Communication options

- Dry-contact interface.

References list

References	Pages	References	Pages	References	Pages	References	Pages
1400 102x	29, 30, 37, 52 to 54, 77, 78, 95, 96, 99, 126, 127	143G 3113	127	2299 3409	15, 18	27PV 42xx	56
1400 103x	29, 30, 37, 52 to 54, 77, 78, 95, 96, 99, 126, 127	143G 38xx	127	2299 5012	15, 16	27PV 500x	52, 58
1400 1040	29, 30, 37, 52 to 54, 78, 95, 96, 99, 126, 127	144D 3111	30, 52, 54	2299 5032	22, 23	27PV 502x	52, 58
1400 1050	30, 99	144D 3113	118, 127	2299 6009	18	27PV 505x	77
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1400 123x	96, 99	144D 3911	30, 54	2694 xxxx	37	27PV 60xx	53, 60
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141D 2115	95, 98	149D 0111	95, 98	2709 0062	56, 58, 60	381x xxxx	96
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141E 2115	98	1529 0080	86	2709 0121	56, 58, 60	3851 xxxx	96
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142G 28xx	127	2200 3010	22	2799 01xx	31, 55, 79	3899 0400	100
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