

SIRCO MC PV IEC 60947-3

Load break switches for photovoltaic applications
from 20 to 50 A, up to 1500 VDC



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



SIRCO MC PV 32 A - 1500 VDC
DIN-rail mounting

Function

SIRCO MC PV are DC load break switches. They make and break under load conditions and provide optimum safety isolation for any PV circuit.

Advantages

Compact

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

High breaking capacity up to 1500 VDC

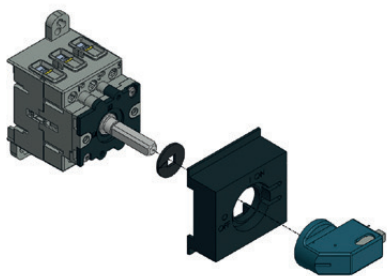
- Making and breaking capacity under load conditions up to 1500 VDC.
- Specific photovoltaic test beyond requirements of IEC 60947-3 standard.

Safety

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

Easy installation

Easy mounting products which are available in DIN-rail mounting or directly in an enclosed configuration.



SIRCO MC PV
DIN-rail mounting

The solution for

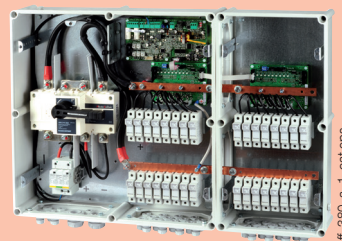
- > Residential
- > Building
- > Solar parc

Strong points

- > Compact
- > High breaking capacity up to 1500 VDC
- > Safety
- > Easy installation

Check it out

- > Need an enclosed solution? Our specific products department can provide solutions for any application.



Conformity to standards

- > IEC 60947-3
- > UL508i⁽¹⁾



⁽¹⁾ See UL version.

Approvals and certifications⁽¹⁾



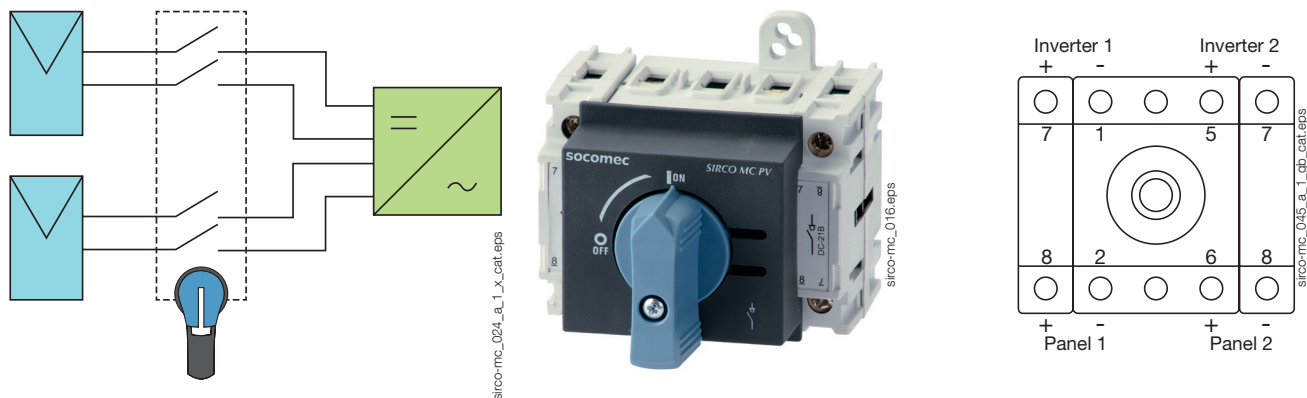
⁽¹⁾ Product reference on request.

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Multi-circuit switching

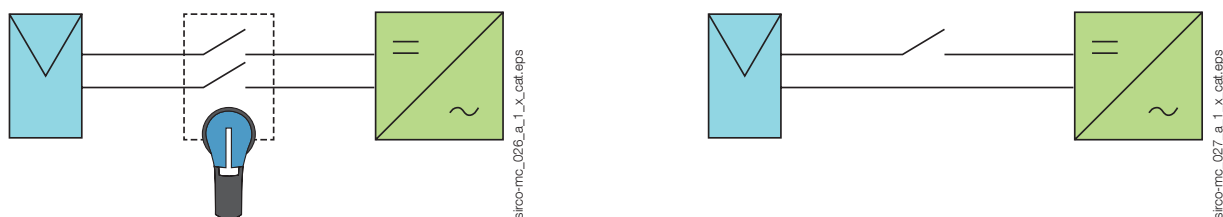
The **SIRCO MC PV** for dual circuits (2 MPPT: Maximum Power Point Tracking) enables connection of two independent photovoltaic circuits to a single switch in order to reduce the costs of the global solution.



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.



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References

1000 VDC - DIN rail or back plate mounting

Rating (A)	Circuit type	Number of poles by PV polarity ⁽³⁾	Switch body	Direct handle ⁽¹⁾	External handle	Shaft for external handle	Auxiliary contact
25 A	Single PV circuit	2 P+, 1 P-	21PV 3722	MC0 type Blue 2119 0012 ⁽²⁾ MC01 type Blue 2119 1012	Black MC1 type IP65 2119 3312 ⁽²⁾ Red / Yellow IP65 2119 3313	165 ... 200 mm 2107 0516	1 contact NO + NC 2119 0001
	Dual PV circuit	2 x (1P+, 1P-)	21PV 6722	MC01 type Blue 2119 1412			
40 A	Single PV circuit	2 P+, 2 P-	21PV 4754	MC0 type Blue 2119 0012 ⁽²⁾ MC01 type Blue 2119 1012			
	Dual PV circuit	2 x (2 P+, 2 P-)	21PV 8154	MC01 type Blue 2119 1412			

(1) 45 mm modular DIN front plate included.

(2) Standard handle.

(3) Default connected device (see "Poles connections").

1500 VDC - DIN rail or back plate mounting

Rating (A)	Circuit type	Number of poles in series per polarity ⁽³⁾	Switch body	Direct handle ⁽¹⁾	External handle	Shaft for external handle	Auxiliary contact
20 A	Dual PV circuit	2 x (2 P+ and 1 P-)	21PV 6220	MC0 type Blue 2119 0012 ⁽²⁾ MC01 type Blue 2119 1012	Black MC1 type IP65 2119 3312 ⁽²⁾ Red / Yellow IP65 2119 3313	165 ... 200 mm 2107 0516	1 contact NO + NC 2119 0002
				MC01 type Blue 2119 1412			
32 A	Single PV circuit	2 P+ and 2 P-	21PV 4132	MC0 type Blue 2119 0012 ⁽²⁾ MC01 type Blue 2119 1012			
	Enclosed Single PV circuit		21PV 4133				

(1) 45 mm modular DIN front plate included.

(2) Standard handle.

(3) Default connected device (see "Poles connections").

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Accessories

Direct operation handle

Use

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

Rating (A)	Handle colour	Type of locking	Handle type	45 mm modular DIN front plate	Reference
20 ... 50	Blue	-	MC0	yes	2119 0012 ⁽¹⁾
20 ... 50	Blue	1 padlock Ø 5 mm	MC01	yes	2119 1012

(1) Standard handle.

2 MPPT up to 1500 VDC

Rating (A)	Handle colour	Type of locking	Handle type	45 mm modular DIN front plate	Reference
20 ... 50	Blue	-	MC0	yes	2119 0012
20 ... 50	Blue	1 padlock Ø 5 mm	MC01	yes	2119 1012
20 ... 50	Blue	1 padlock Ø 5 mm	MC01	yes	2119 1412



MC0 handle



MC01 handle

Door interlocked 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.

DIN-rail or back plate mounting

Rating (A)	Handle type	Handle colour	Type of locking	External IP ⁽¹⁾	Reference
20 ... 50	MC1	Black	3 padlocks Ø 9 mm	IP65	2119 3312 ⁽²⁾⁽³⁾
20 ... 50	MC1	Red/Yellow	3 padlocks Ø 9 mm	IP65	2119 3313 ⁽³⁾
20 ... 50	S000	Black	3 padlocks Ø 6 mm	IP65	1463 5111
20 ... 50	S000	Red/Yellow	3 padlocks Ø 6 mm	IP65	1464 5111



S000 handle



MC1 handfl

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Accessories (continued)

Shaft for external handle

Use

MC1 and S000 shafts can be adjusted and cut depending on the need.

Shaft length

MC1 type:

- 165 mm (adjustable up to 177 mm)

S000 type:

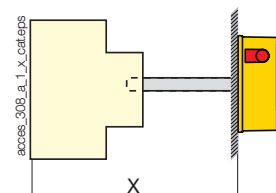
- 150 mm
- 200 mm
- 320 mm



S000 type shaft

DIN-rail or back plate mounting

Rating (A)	Handle type	Dimension X (mm)	Length (mm)	Reference
20 ... 50	MC1	249 ... 259	165	2107 0516
20 ... 50	S000	234 ... 246	150	2107 0515
20 ... 50	S000	284 ... 496	200	2107 0520
20 ... 50	S000	404 ... 416	320	2107 0532



Terminal shrouds

Use

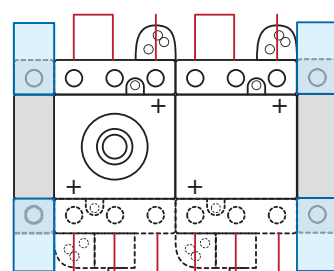
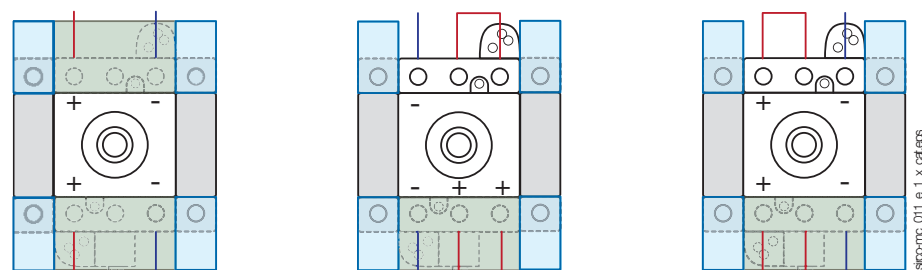
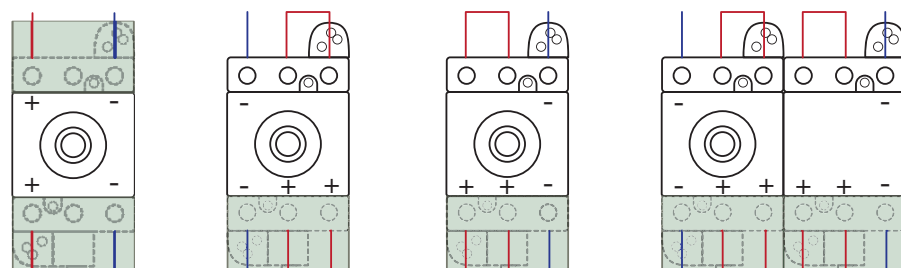
Top or bottom protection against direct contact with the terminals or connection parts. 1 and 3 poles are available. The SIRCO MC PV load break switch is pre-bridged. Terminal covers are mounted on the top or bottom free space of the device.

Possibility to assemble a terminal shroud on the bridge side by removing the insulating material of the series connection bar (irreversible step). Only for 1000 VDC devices.



For SIRCO MC PV

Rating (A)	Type of mounting	No. of poles	Position	Reference
25 ... 40	rail / door mounting	1 P	top or bottom	2194 1004
25 ... 40	rail / door mounting	3 P	top or bottom	2194 3004



Terminal shrouds 1 pole



Terminal shrouds 3 pole



Accessories (continued)

Shaft for external handle

Use

These auxiliary contacts signalling position 0 and 1 can be normally open or normally closed contacts. They can be fixed on the left or right side of the switch body and/or on the power additional pole.

Connections

Min./max cross-sections: 1 mm²/4 mm²

Tightening torque: 0.6 Nm



For 1000 VDC

Rating (A)	Type of mounting	Contact(s)	Contact type	Reference
25 ... 40	DIN-rail / back plate mounted	1 contact	NO + NC	2119 0001

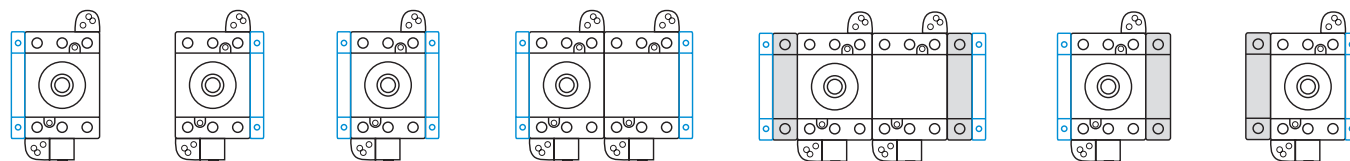
For 1500 VDC

Rating (A)	Type of mounting	Contact(s)	Contact type	Reference
20 ... 32	DIN-rail / back plate mounting	1 contact	NO + NC	2119 0002

Characteristics according to IEC 60947-5-1

Rating (A)	Contact type	Thermal current I _{th} (A)	Operating current I _e (A)		
			230 VAC	400 VAC	690 VAC
20 ... 40	NO + NC	16	AC-15	AC-15	AC-15
			6	4	2

Auxiliary contacts configurations



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Characteristics according to IEC 60947-3

20 to 50 A

Rated current					20 A	25 A	32 A	40 A
Thermal current I _{th} at 40°C (A)					20 A	25 A	32 A	40 A
Thermal current at 50°C (A)					20 A	25 A	32 A	40 A
Thermal current at 60°C (A)					20 A	25 A	32 A	40 A
Rated insulation voltage U _i (V)					1500	1000	1500	1000
Rated impulse withstand voltage U _{imp} (kV)					8	8	8	8
Rated operational currents I _o (A)								
Rated voltage	Utilisation category	Circuit type	Number of poles of the device	Number of pole(s) in series per polarity	(A)	(A)	(A)	(A)
1000 VDC	DC-21 B	Single PV circuit	3 P	2 P+ and 1 P-	-	25	-	-
		Single PV circuit	4 P	2 P+ and 2 P-	-	-	50	40
		Dual PV circuit	6 P	2 x (2 P+ and 1 P-)	50	-	-	-
		Dual PV circuit	8 P	2 x (2 P+ and 2 P-)	-	-	-	40
1500 VDC	DC-21 B	Single PV circuit	4 P	2 P+ and 2 P-	-	-	32	-
		Dual PV circuit	6 P	2 x (2 P+ and 1 P-)	20	-	-	-
Rated voltage	Utilisation category	Circuit type	Number of poles of the device	Number of pole(s) in series per polarity	(A)	(A)	(A)	(A)
1000 VDC	DC-PV2	Single PV circuit	4 P	2 P+ and 2 P-	-	-	25	-
		Dual PV circuit	6 P	2 x (2 P+ and 1 P-)	18	-	-	-
1500 VDC	DC-21 B	Single PV circuit	4 P	2 P+ and 2 P-	-	-	15	-
		Dual PV circuit	6 P	2 x (2 P+ and 1 P-)	5	-	-	-
Short circuit capacity								
Rated short time withstand current I _{cw} 1s (A)			IEC 60947-3		600	300	600	480
Rated short-circuit making capacity I _{cm} (A)			IEC 60947-3		600	300	600	480
Connection								
Minimum Cu cable cross-section (mm²)					1.5	1.5	1.5	1.5
MaximumCu cable cross-section (mm²)					10	10	10	10
Tightening torque mini / maxi (Nm)					1.2 / 2	1.2 / 2	1.2 / 2	1.2 / 2
Operating torque								
Durability (number of operating cycles)					30000	30000	30000	30000
Operating torque (Nm)					0.8	0.8	0.8	0.8

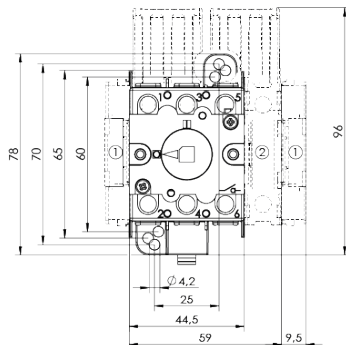
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Dimensions

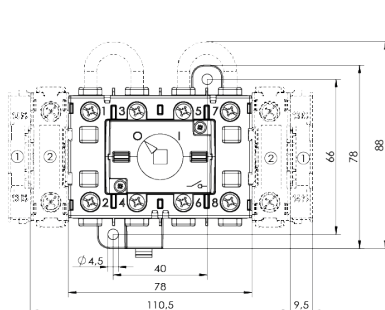
DIN-rail mounting - Direct operation

3-4P – 1000 VDC



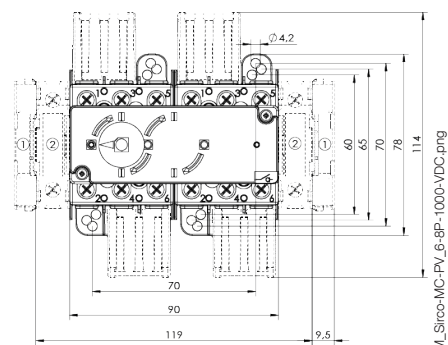
DIM_Sirco-MC-PV_3-4P-1000-VDC-Commande-directe.png

4-6P – 1500 VDC



DIM_Sirco-MC-PV_4-6P-1500-VDC-Commande-directe.png

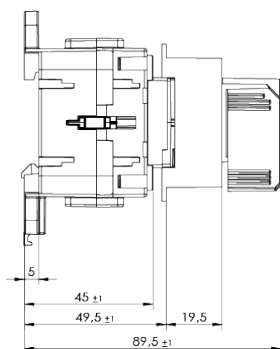
6-8P – 1000 VDC



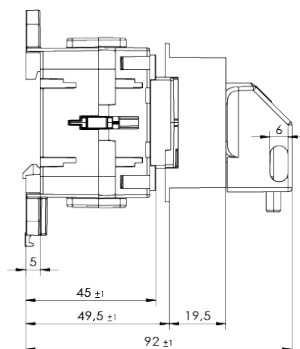
DIM_Sirco-MC-PV_6-8P-1000-VDC.png

A

B



DIM_Sirco-MC-PV_Poignee-MC0-Commande-directe.png



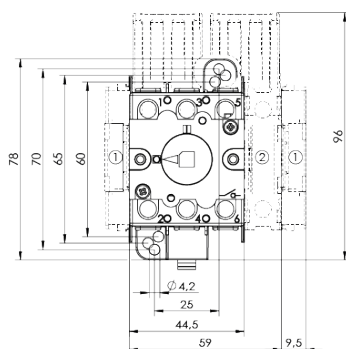
DIM_Sirco-MC-PV_Poignee-MC01-Commande-directe.png

1. Auxiliary contact
A. MC0 Handle

2. Additional PV Power Pole
B. MC01 Handle

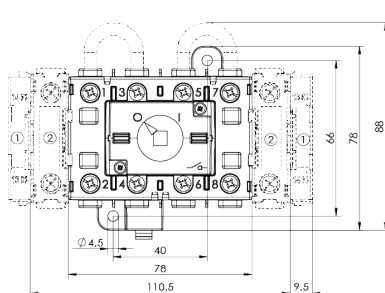
DIN-rail mounting - External operation

3-4P – 1000 VDC



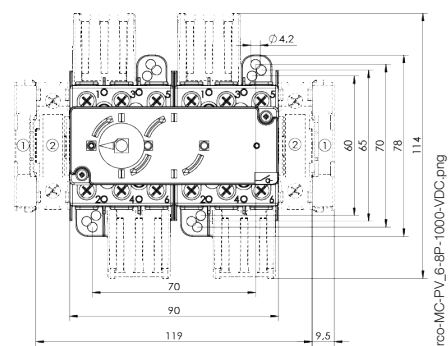
DIM_Sirco-MC-PV_3-4P-1000-VDC-Commande-directe.png

4-6P – 1500 VDC



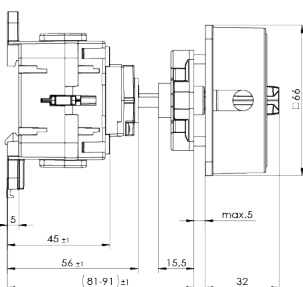
DIM_Sirco-MC-PV_4-6P-1500-VDC-Commande-directe.png

6-8P – 1000 VDC



DIM_Sirco-MC-PV_6-8P-1000-VDC.png

A



DIM_Sirco-MC-PV_Poignee-MC1-Commande-externe.png

1. Auxiliary contact
2. Additional PV Power Pole
A. MC1 Handle

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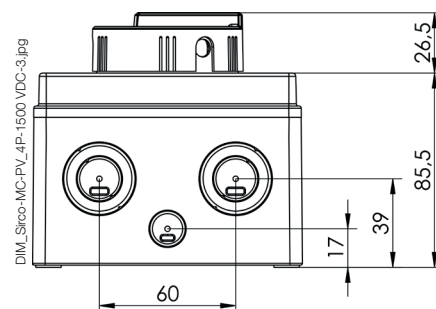
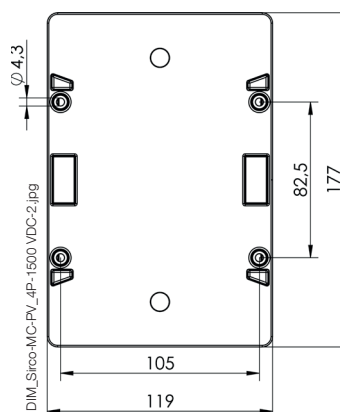
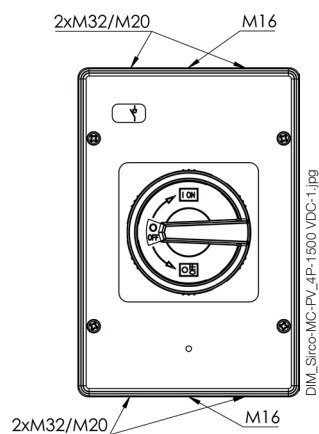
from 20 to 50 A, up to 1500 VDC

Dimensions (continued)

In an enclosure

Rating

4P - 1500 VDC



Dimensions for external handles

DIN-rail or back plate mounting

Handle type	Front operation Direction of operation	Door drilling
MC1 type 		
S000 type 		

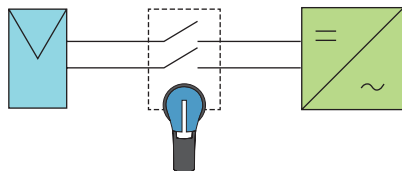
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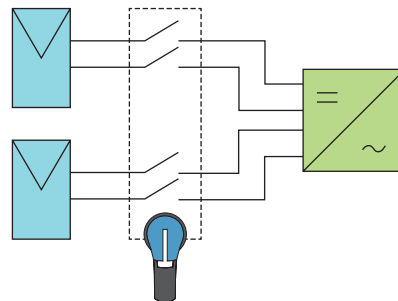
Poles connections

Switching of polarities + and -

Single PV circuit



Dual PV circuit



Direct operation

Rating	Single PV circuit	Dual PV circuit
25 A - 1000 VDC	21PV 3722	21PV 6722
40 A - 1000 VDC	21PV 4754	21PV 8154
20 A (6P) - 1500 VDC 32 A (4P) - 1500 VDC	21PV 4132 21PV 4133	21PV 6220