

SIRCO MC PV IEC 60947-3

Load break switches for photovoltaic applications
from 25 to 40 A, up to 1000 VDC



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



SIRCO MC PV 25 A - 1000 VDC
Door mounting

The solution for

- > Residential buildings
- > Buildings
- > Solar parks



Strong points

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

Check it out

- > Need an enclosed switch? No problem with our specific product department. We have solutions for any requirement.



Conformity to standards

- > IEC 60947-3
- > UL508i⁽¹⁾



(1) See UL version page 174.

Approvals and certifications⁽¹⁾



(1) Product reference on request.

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 1000 VDC

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

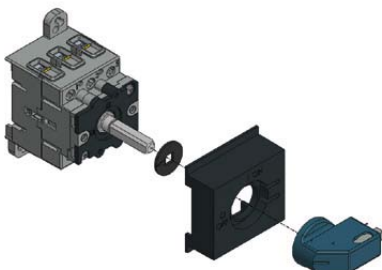
Safety

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

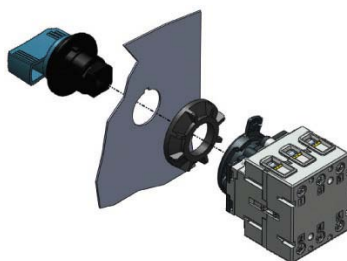
Easy mounting

Three mounting possibilities are available for optimum integration and time saving:

- DIN-rail or back plate mounting.
- Door mounting.
- "Quick Fix" mounting (quarter turn fixation without tools).



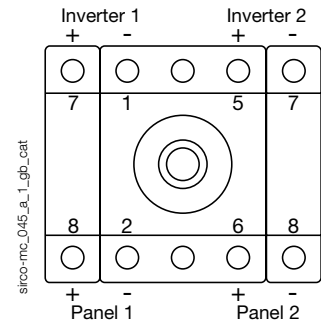
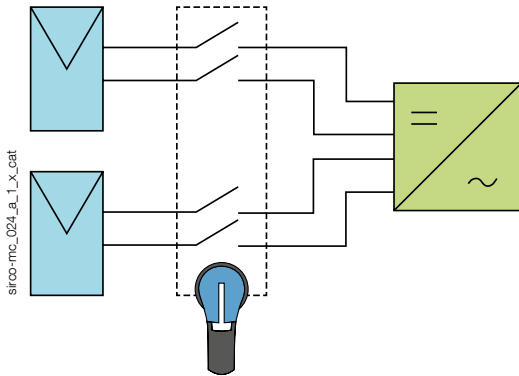
SIRCO MC PV
DIN-rail mounting



SIRCO MC PV
Door mounted

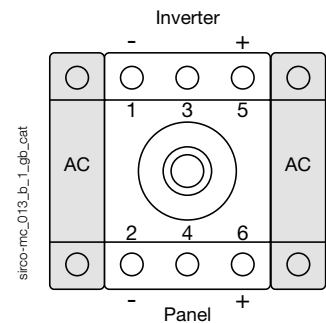
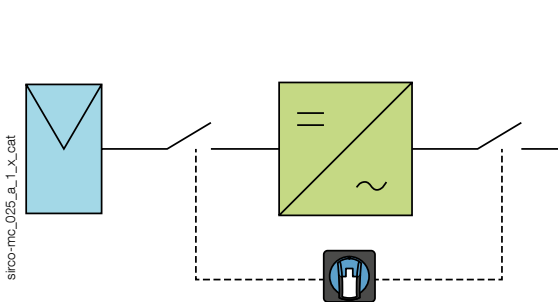
Multi-circuit switching

- 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.



Completely isolate the inverter within one operation

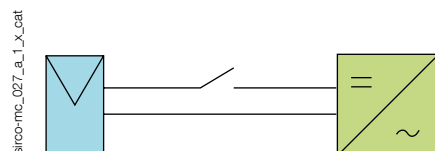
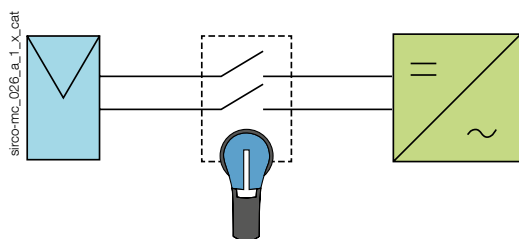
- The SIRCO MC PV with two additional AC poles can be integrated into the inverter to provide complete and simultaneous isolation of the PV and AC circuits. This improves safety and reduces the overall product size.



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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from 25 to 40 A, up to 1000 VDC

References

600 VDC - DIN rail or back plate mounting

Rating (A)	Circuit type	Number of poles by PV polarity ⁽³⁾	No of poles AC current	Switch body	Direct handle ⁽¹⁾	External handle	Shaft for external handle	Auxiliary contact
30 A	Single PV circuit	1 P+, 1 P-	-	21PV 2102	MC0 type Blue 2119 0012 ⁽²⁾ MC01 type Blue 2119 1012	MC1 type Black IP65 2119 3312 ⁽²⁾ Red / Yellow IP65 2119 3313	165 ... 200 mm 2107 0516	1 contact NC+NO 2119 0001
	PV + AC circuit	1 P+, 1P-	2 P	21PV 2162				
	Dual PV circuit	2 x (1P+, 1P-)	-	21PV 5102				
40 A	Single PV circuit	2 P+, 1 P-	-	21PV 3124	MC01 type Blue 2119 1412	Red / Yellow IP65 2119 3313	165 ... 200 mm 2107 0516	1 contact NC+NO 2119 0001
	PV + AC circuit	2 P+, 1 P-	2 P	21PV 3184				
	Dual PV circuit	2 x (1P+, 1P-)	-	21PV 6124				

(1) 45 mm modular DIN front plate included.

(2) Standard handle.

(3) Default connected device (see "Poles connections" page 124).

1000 VDC - DIN rail or back plate mounting

Rating (A)	Circuit type	Number of poles by PV polarity ⁽³⁾	No of poles AC current	Switch body	Direct handle ⁽¹⁾	External handle	Shaft for external handle	Auxiliary contact
25 A	Single PV circuit	2 P+, 1 P-	Please consult us	21PV 3722	MC0 type Blue 2119 0012 ⁽²⁾ MC01 type Blue 2119 1012	Black MC1 type IP65 2119 3312 ⁽²⁾	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	Red / Yellow IP65 2119 3313	165 ... 200 mm 2107 0516	1 contact NO + NC 2119 0001
	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" page 124).

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600 VDC - Door mounting

Rating (A)	Circuit type	Number of poles by PV polarity ⁽¹⁾	No of poles AC current	Switch body ⁽³⁾	External handle ⁽³⁾	Switch body "Quick Fix"	External handle "Quick Fix"	Auxiliary contact
30 A	Single PV circuit	1 P+, 1 P-	-	21PV 2202	MC2 type Blue IP55 2129 0112 ⁽²⁾	21PV 2302	MC3 type Blue IP65 2139 1212 ⁽²⁾	1 contact NC+NO 2129 0001
	PV + AC circuit	1 P+, 1 P-	2 P	21PV 2262		21PV 2362		
	Dual PV circuit	2 x (1P+, 1P-)	-	21PV 5202		21PV 5302	MC4 type Black IP65 2139 3312	
40 A	Single PV circuit	2 P+, 1 P-	-	21PV 3224		21PV 3324	Red/Yellow IP65 2139 3313	
	PV + AC circuit	2 P+, 1 P-	2 P	21PV 3284		21PV 3384		

(1) Default connected device (see "Poles connections" page 124).

(2) Standard handle.

(3) Door mounted standard.

1000 VDC - Door mounting

Rating (A)	Circuit type	Number of poles by PV polarity ⁽¹⁾	No of poles AC current	Switch body ⁽³⁾	External handle ⁽³⁾	Switch body "Quick Fix"	External handle "Quick Fix"	Auxiliary contact
25 A	Single PV circuit	2 P+, 1 P-	Please consult us	21PV 3822	MC2 type Blue IP55 2129 0112	21PV 3922	MC3 type Blue IP65 2139 1212 ⁽²⁾	1 contact NC+NO 2129 0001
40 A	Single PV circuit	2 P+, 2 P-		21PV 4854		21PV 4954	Red/Yellow IP65 2139 3313	

(1) Default connected device (see "Poles connections" page 124).

(2) Standard handle.

(3) Door mounted standard.

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Load break switches for photovoltaic applications
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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 colour	Type of locking	Handle type	45 mm modular DIN front plate	Reference
25 ... 40	Blue	-	MC0	yes	2119 0012 ⁽¹⁾
25 ... 40	Blue	1 padlock Ø 5 mm	MC01	yes	2119 1012

(1) Standard handle.

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

2 MPPT 1000 V					
Rating (A)	Handle colour	Type of locking	Handle type	45 mm modular DIN front plate	Reference
25 ... 40	Blue	1 padlock Ø 5 mm	MC01	yes	2119 1412



MC0 handle



MC01 handle

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access_293_a_1_cat

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
25 ... 40	MC1	Black	3 padlocks Ø9 mm	IP65	2119 3312 ⁽²⁾⁽³⁾
25 ... 40	MC1	Red/Yellow	3 padlocks Ø9 mm	IP65	2119 3313 ⁽³⁾
25 ... 40	S000	Black	3 padlocks Ø6 mm	IP55	1461 5111
25 ... 40	S000	Black	3 padlocks Ø6 mm	IP65	1463 5111
25 ... 40	S000	Red/Yellow	3 padlocks Ø6 mm	IP65	1464 5111

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

(2) Standard handle.
(3) No padlocking.



S000 handle



MC4 handle



MC2 handle

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access_302_a_1_cat

access_306_a_1_cat

Door mounting					
Rating (A)	Handle type	Handle colour	Type of locking	External IP ⁽¹⁾	Reference
25 ... 40	MC2	Blue	-	IP55	2129 0112 ⁽²⁾

(1) IP: protection degree according to IEC 60529 standard.
(2) Standard handle

"Quick Fix" door mounting					
Rating (A)	Handle type	Handle colour	Type of locking	External IP ⁽¹⁾	Reference
25 ... 40	MC3	Blue	1 padlock Ø5 mm	IP65	2139 1212 ⁽²⁾
25 ... 40	MC4	Black	3 padlocks Ø9 mm	IP65	2139 3312
25 ... 40	MC4	Red/Yellow	3 padlocks Ø9 mm	IP65	2139 3313

Shaft for external handle

Use

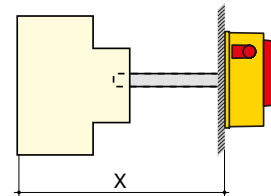
MC1 and S000 shafts can be adjusted and cut depending on the need.

Shaft length

- MC1 type:
- 165 mm (adjustable up to 177 mm)
S000 type:
- 150 mm
- 200 mm
- 320 mm



S000 type shaft



access_297_a_1_cat

access_308_a_1_X_cat

DIN-rail or back plate mounting				
Rating (A)	Handle type	Dimension X (mm)	Length (mm)	Reference
25 ... 40	MC1	249 ... 259	165	2107 0516
25 ... 40	S000	234 ... 246	150	2107 0515
25 ... 40	S000	284 ... 496	200	2107 0520
25 ... 40	S000	404 ... 416	320	2107 0532

Terminal shrouds

Use

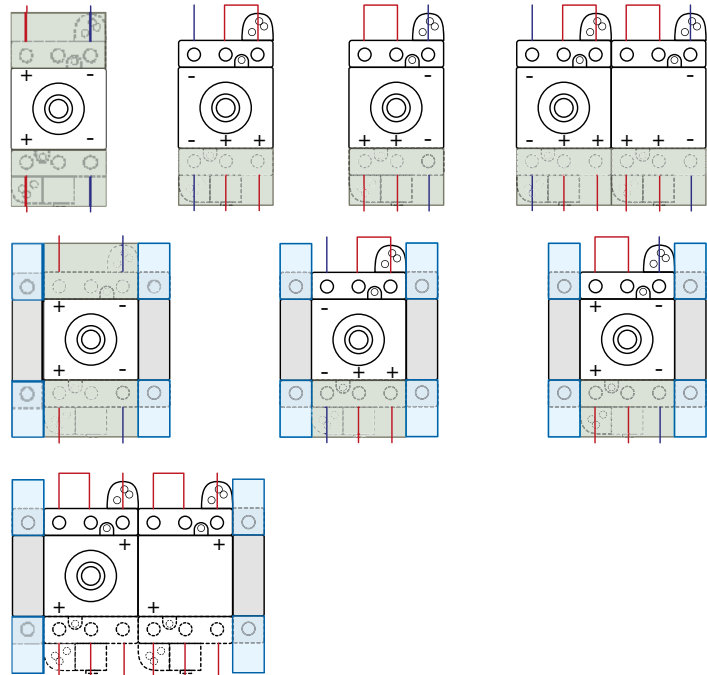
Top or bottom protection against direct contact with the terminals or connection parts.
1 and 3 poles are available.

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).

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



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access_299_a_1_cat



Terminal shrouds 1 pole

access_300_a_1_cat



Terminal shrouds 3 pole

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Accessories (continued)

Auxiliary contact

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

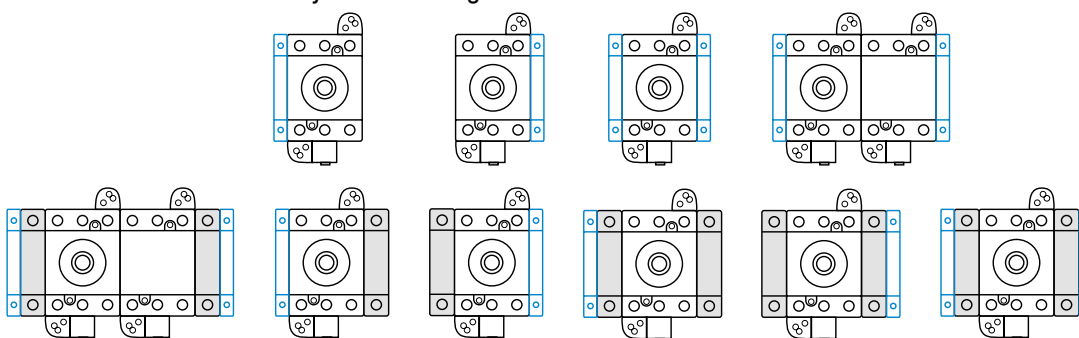
Rating (A)	Type of mounting	Contact(s)	Contact type	Reference
25 ... 40	DIN-rail / back plate mounted	1 contact	NO + NC	2119 0001
25 ... 40	Door mounted	1 contact	NO + NC	2129 0001

Characteristics according to IEC 60947-5-1

Rating (A)	Contact type	Thermal current I _{th} (A)	Operating current I _o (A)		
			230 VAC AC-15	400 VAC AC-15	690 VAC AC-15
25 ... 40	NO + NC	16	6	4	2



Auxiliary contacts configurations



Characteristics according to IEC 60947-3

25 to 40 A

Rated current	25 A	30 A	40 A
Thermal current I _{th} at 40°C (A)	25	30	40
Thermal current at 50°C (A)	25	30	40
Thermal current at 60°C (A)	25	30	40
Rated insulation voltage U _i (V)	1000	1000	1000
Rated impulse withstand voltage U _{imp} (kV)	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)
600 VDC	DC-21 B	Single PV circuit	2 P	1 P+ and 1 P-	-	30	-
600 VDC	DC-21 B	Single PV circuit	3 P	2 P+ and 1 P-	-	-	40
600 VDC	DC-21 B	Dual PV circuit	4 P	2 x (1 P+ and 1 P-)	-	30	-
600 VDC	DC-21 B	Dual PV circuit	6 P	2 x (2 P+ and 1 P-)	-	-	40
1000 VDC	DC-21 B	Single PV circuit	3 P	2 P+ and 1 P-	25	-	-
1000 VDC	DC-21 B	Single PV circuit	4 P	2 P+ and 2 P-	-	-	40
1000 VDC	DC-21 B	Dual PV circuit	6 P	2 x (2 P+ and 1 P-)	25	-	-
1000 VDC	DC-21 B	Dual PV circuit	8 P	2 x (2 P+ and 2 P-)	-	-	40

Connection

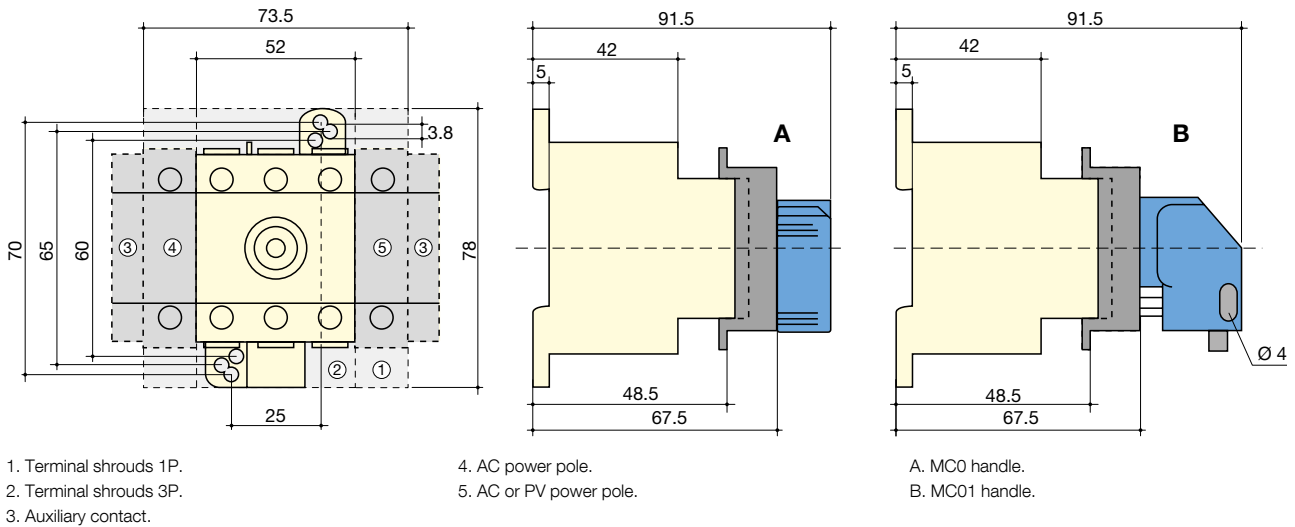
	1.5	1.5	1.5
Minimum Cu cable cross-section			
Maximum Cu cable cross-section (mm ²)	10	10	10
Tightening torque mini / maxi (Nm)	2	2	2

Mechanical characteristics

	30000	30000	30000
Durability (number of operating cycles)			
Operating torque (Nm)	0.8	0.8	0.8
Weight of a 2 pole PV device (kg)	0.110	0.110	-
Weight of a 3 pole PV device (kg)	0.125	0.125	0.125
Weight of a 2 pole PV and 2 pole AC device (kg)	0.180	0.180	-
Weight of a 3 pole PV and 2 pole AC device (kg)	-	-	0.195
Weight of a 4 pole PV device (kg)	-	-	0.160
Weight of a 4 pole PV device, dual PV circuit (kg)	0.145	0.145	-
Weight of a 6 pole PV device, dual PV circuit (kg)	-	-	0.250
Weight of an 8 pole PV device, dual PV circuit (kg)	-	-	0.320

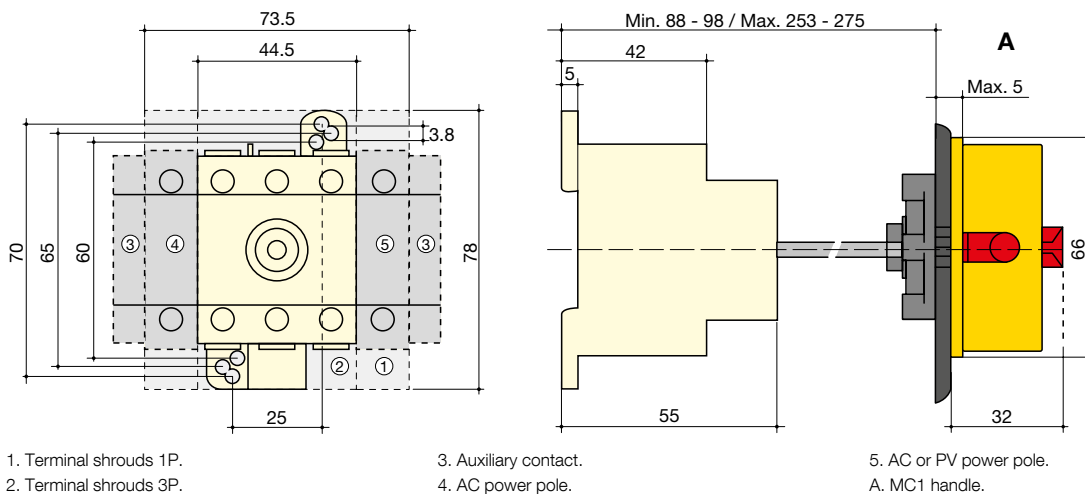
Dimensions

DIN-rail mounting - Direct operation



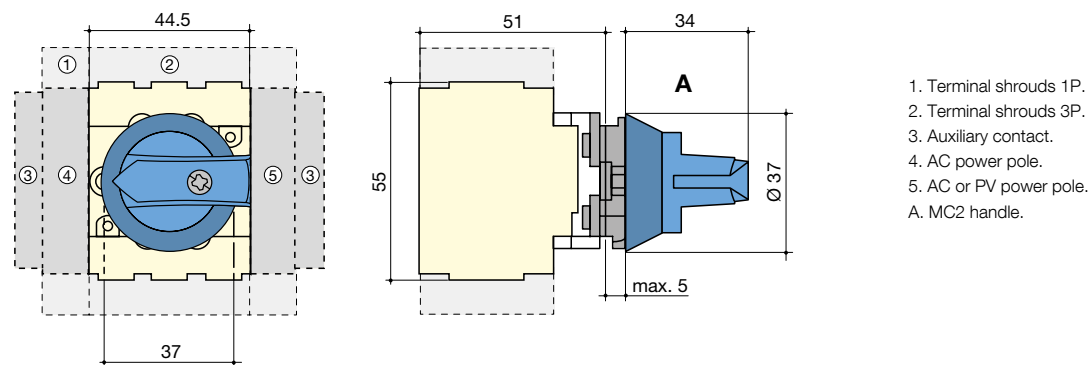
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DIN-rail mounting - External operation



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Door mounting



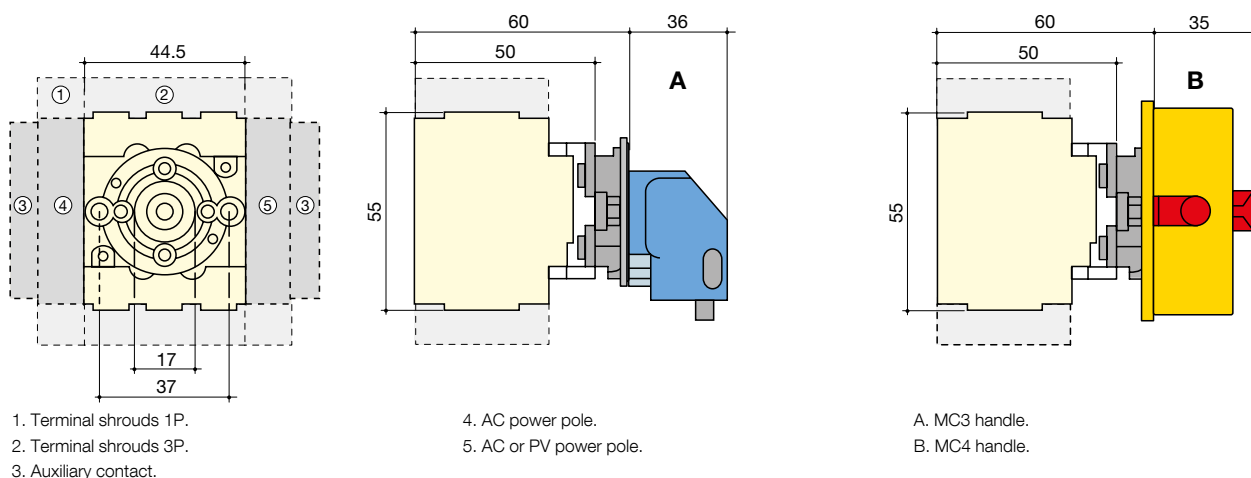
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SIRCO MC PV IEC 60947-3

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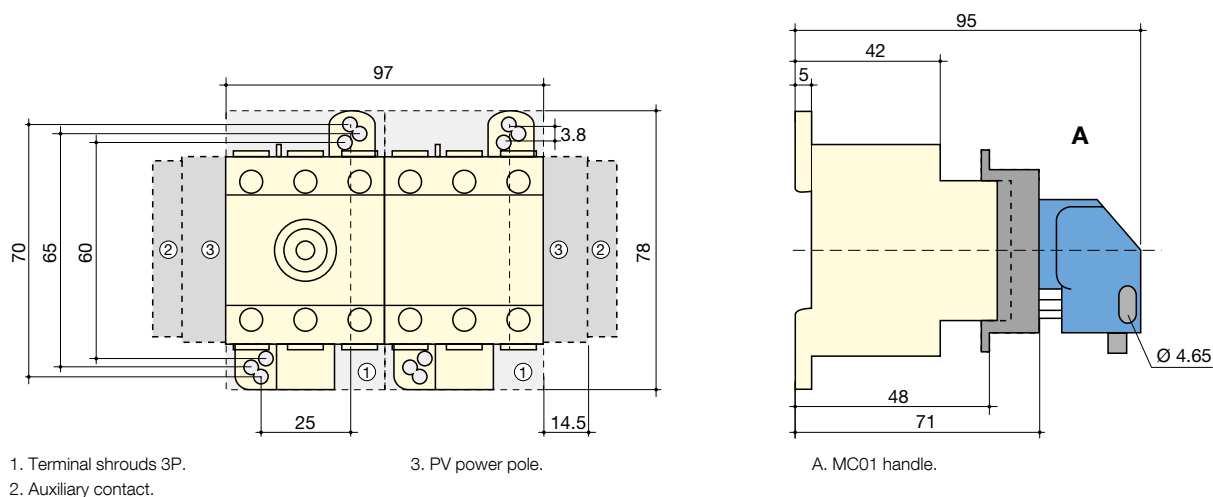
Dimensions

"Quick Fix" door mounting



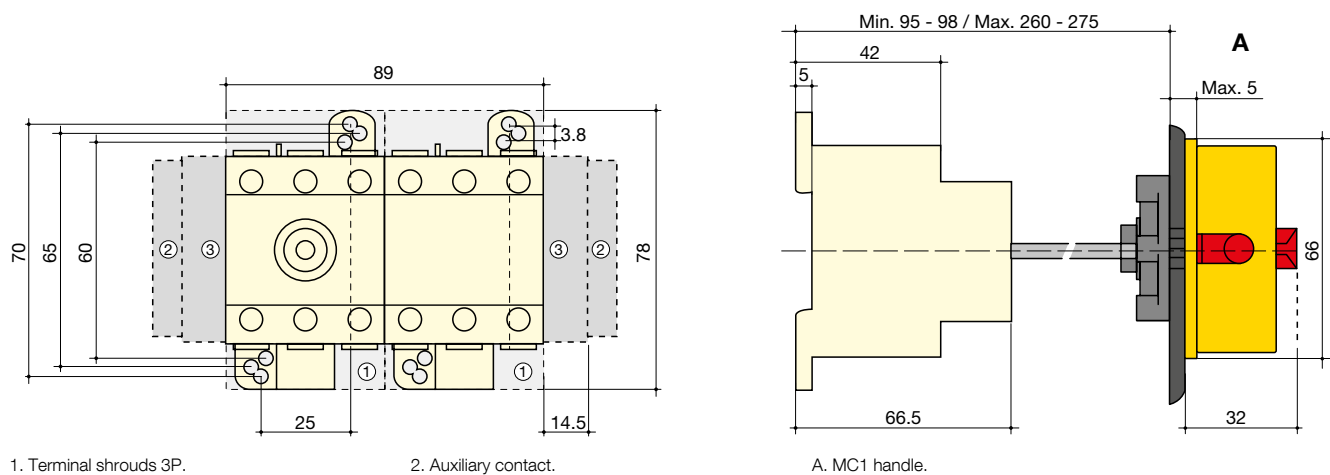
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2 MPPT - 40 A - 600 VDC and 25 and 40 A - 1000 VDC - DIN-rail mounting - Direct operation



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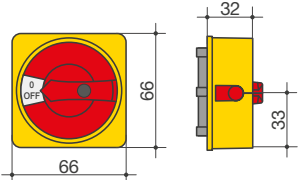
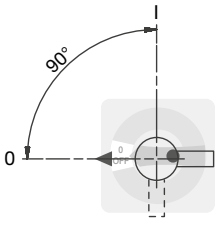
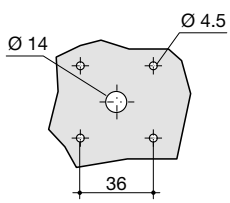
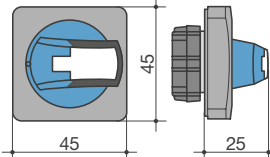
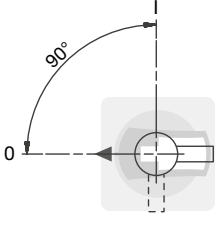
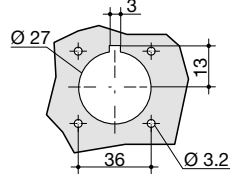
DIN-rail mounting - External operation



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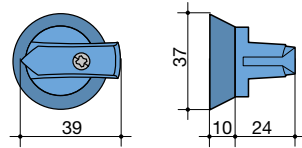
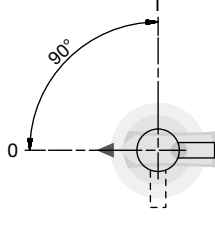
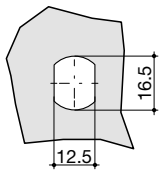
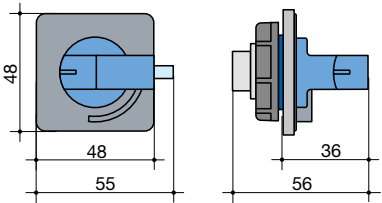
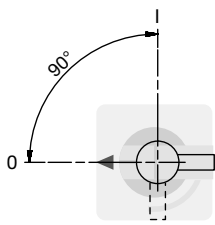
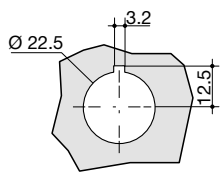
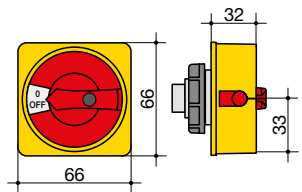
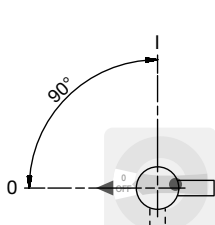
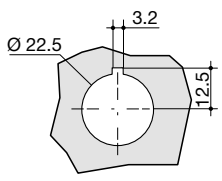
Dimensions for external handles

DIN-rail or back plate mounting

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

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Door mounting

Handle type	Front operation Direction of operation	Door drilling
MC2 type 		
MC3 type Quick Fix 		
MC4 type Quick Fix 		

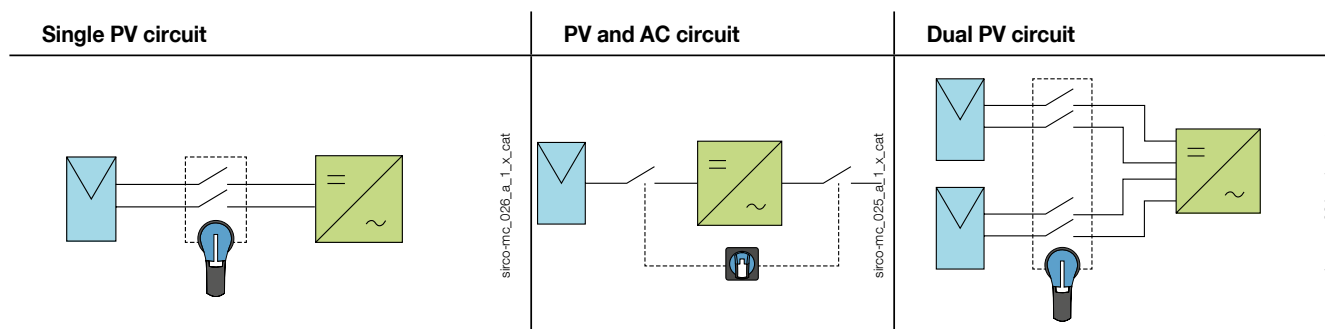
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Poles connections

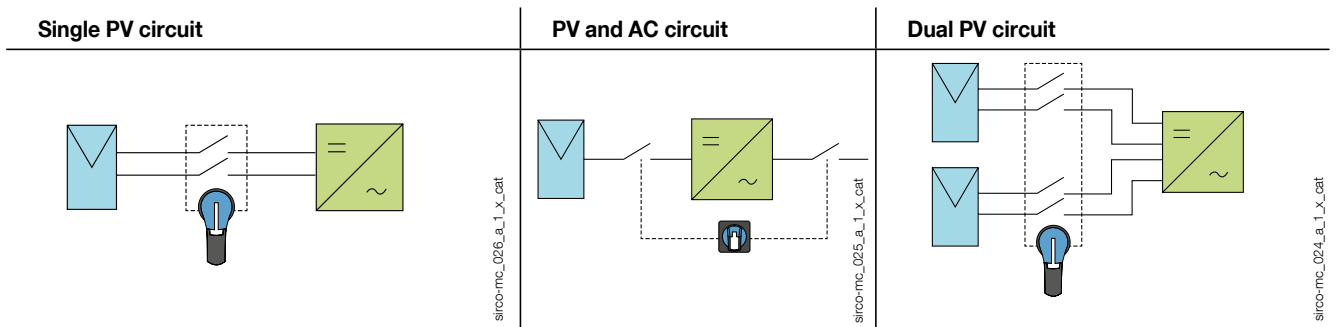
Switching of polarities + and -



Direct operation

Rating	Single PV circuit	PV and AC circuit	Dual PV circuit
25 A - 600 VDC	21PV 2102 	21PV 2162 	21PV 5102
40 A - 600 VDC 25 A - 1000 VDC	21PV 3124 21PV 3722 	21PV 3184 	21PV 6124 21PV 6722
40 A - 1000 VDC	21PV 4754 		21PV 8154

Switching of polarities + and -



Door mounting

Rating	Single PV circuit	PV and AC circuit	Dual PV circuit
25 A - 600 VDC	<p>21PV 2202 21PV 2302</p> <p style="text-align: right; vertical-align: bottom;">sirco-mc_049_a_1_gb_cat</p>	<p>21PV 2262 21PV 2362</p> <p style="text-align: right; vertical-align: bottom;">sirco-mc_008_a_1_gb_cat</p>	<p>21PV 5202 21PV 5302</p> <p style="text-align: right; vertical-align: bottom;">sirco-mc_050_a_1_gb_cat</p>
40 A - 600 VDC 25 A - 1000 VDC	<p>21PV 3224 21PV 3324 21PV 3822 21PV 3922</p> <p style="text-align: right; vertical-align: bottom;">sirco-mc_051_a_1_gb_cat</p>	<p>21PV 3284 21PV 3384</p> <p style="text-align: right; vertical-align: bottom;">sirco-mc_010_a_1_gb_cat</p>	
40 A - 1000 VDC	<p>21PV 4854 21PV 4954</p> <p style="text-align: right; vertical-align: bottom;">sirco-mc_052_a_1_gb_cat</p>		