



# SIRCO MC PV

Load break switches for photovoltaic applications  
up to 1000 VDC and 40 A

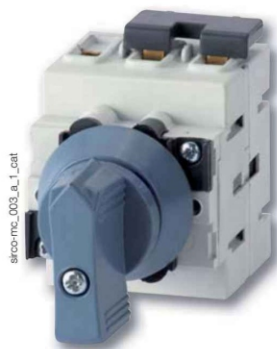


Load break  
switches

new



SIRCO MC PV 25 A - 1000 VDC  
DIN rail mounting



SIRCO MC PV 25 A - 1000 VDC  
Door 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 limitation of space 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 by standard IEC 60947-3.

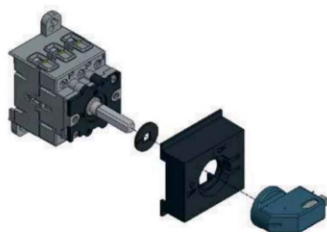
### Safety

- Pre-bridging is factory-achieved for easier, quicker and safer connection.
- Direct access to connection terminals for adequate tightening.

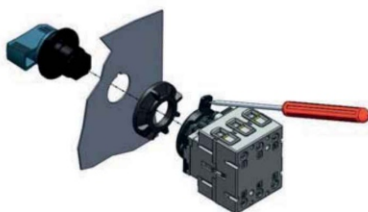
### Easy mounting

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

- DIN rail or back plate mounting.
- Door mounting.
- "Quick Fix" mounting to save time when integrating into solar inverters.



SIRCO MC PV  
DIN-rail mounting



SIRCO MC PV  
Door mounting

## The solution for

- > Residential buildings.
- > Buildings.
- > Solar parks.

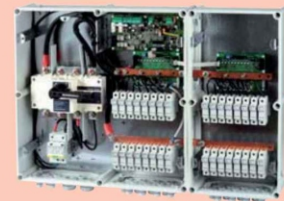


## Strong points

- > 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.



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## Conformity to standards

- > IEC 60947-3
- > UL508<sup>(1)</sup>



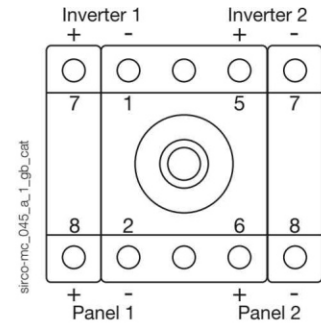
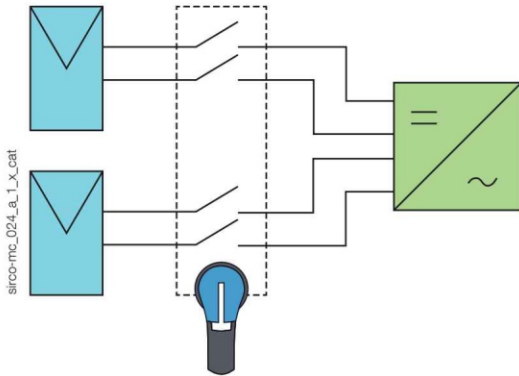
<sup>(1)</sup> Please consult us.

## Approvals and certifications



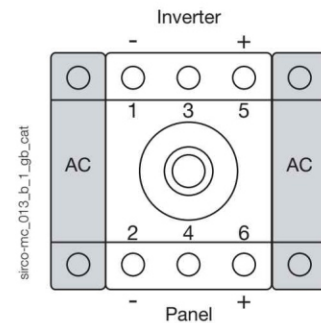
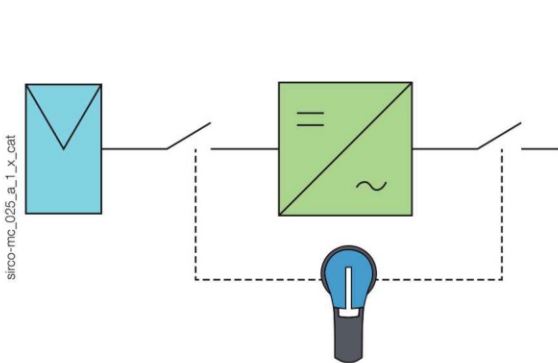
### Multi-circuit breaking

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



### Complete inverter isolation with a single operation

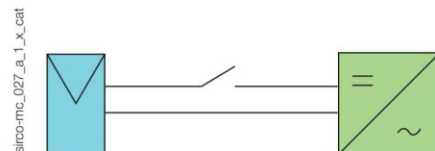
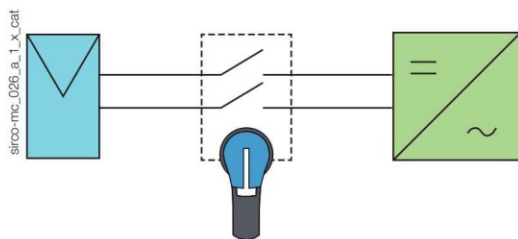
- The SIRCO MC PV with two additional AC poles can be integrated into the inverter to provide complete and simultaneous isolation of the PV and AC circuits. This improves safety and reduces the overall product size.



### 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.



# SIRCO MC PV

Load break switches for photovoltaic applications  
up to 1000 VDC and 40 A



## References

### SIRCO MC PV 600 VDC - DIN rail or back plate mounting

Rating (A)	Circuit type	Number of poles by PV polarity <sup>(3)</sup>	No of poles AC current	Switch body	Direct handle <sup>(1)</sup>	External handle	Shaft for external handle	Auxiliary contact
30 A	Single PV circuit	1 P+, 1 P-	-	21PV 2102	MCO type Blue 2119 0012 <sup>(2)</sup> Blue MC01 type 2119 1012	MC1 type Black IP65 2119 3312 <sup>(2)</sup> 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				
	Double PV circuit	2 x (1P+, 1P-)	-	21PV 5102				
40 A	Single PV circuit	2 P+, 1 P-	-	21PV 3124	Blue MC01 type 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				
	Double PV circuit	2 x (1P+, 1P-)	-	21PV 6124				

(1) 45 mm modular DIN front plate included.

(2) Standard handle.

(3) Default connected device (see "Connection of poles" page 108).

### SIRCO MC PV 1000 VDC - DIN rail or back plate mounting

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

(1) 45 mm modular DIN front plate included.

(2) Standard handle.

(3) Default connected device (see "Connection of poles" page 108).

**SIRCO MC PV 600 VDC - Door mounting**

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

(1) Default connected device (see "Connection of poles" page 108).  
(2) Standard handle.

**SIRCO MC PV 1000 VDC - Door mounting**

Rating (A)	Circuit type	Number of poles by PV polarity <sup>(1)</sup>	No of poles AC current	Switch body	External handle "switch body"	Switch body "Quick Fix"	External handle "Quick Fix"	Auxiliary contact
25 A	Single PV circuit	2 P+, 1 P-	Please consult us	21PV 3822	Blue MC2 type IP55 2129 0112	21PV 3922	MC3 type Blue IP65 2139 1212 <sup>(2)</sup>	1 contact NC+NO 2129 0001
40 A	Single PV circuit	2 P+, 1 P-		21PV 4854		21PV 4954	Black MC4 type IP65 2139 3312	
							Red/Yellow IP65 2139 3313	

(1) Default connected device (see "Connection of poles" page 108).  
(2) Standard handle.

## 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	45 mm modular DIN front plate	Reference
25 ... 40	Blue	-	MC0 type	yes	2119 0012 <sup>(1)</sup>
25 ... 40	Blue	1 padlock Ø 5 mm	MC01 type	yes	2119 1012

(1) Standard handle.

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

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



MC0 handle

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MC01 handle

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### Door interlocked external operation

#### Use

The external control will force the operator to safely disconnect and isolate the solar cell 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	Handle colour	Type of locking	External IP <sup>(1)</sup>	Reference
25 ... 40	MC1 type	Black	3 padlocks Ø9 mm	IP65	2119 3312 <sup>(2)(3)</sup>
25 ... 40	MC1 type	Red/Yellow	3 padlocks Ø9 mm	IP65	2119 3313 <sup>(3)</sup>
25 ... 40	S000 type	Black	3 padlocks Ø6 mm	IP55	1461 5111
25 ... 40	S000 type	Black	3 padlocks Ø6 mm	IP65	1463 5111
25 ... 40	S000 type	Red/Yellow	3 padlocks Ø6 mm	IP65	1464 5111

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

(2) Standard handle.

(3) No padlocking.

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

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

(2) Standard handle.

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



S000 handle

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MC4 handle

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MC2 handle

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### Shaft for external handle

**Use**

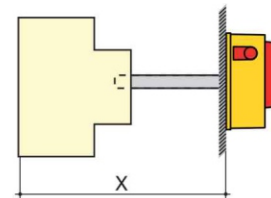
MC1 and S000 shafts can be adjusted and cut depending on the need.

**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	Dimension X (mm)	Length (mm)	Reference
25 ... 40	MC1 type	249 ... 259	165	2107 0516
25 ... 40	S000 type	234 ... 246	150	2107 0515
25 ... 40	S000 type	284 ... 496	200	2107 0520
25 ... 40	S000 type	404 ... 416	320	2107 0532

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### Terminal shrouds

**Use**

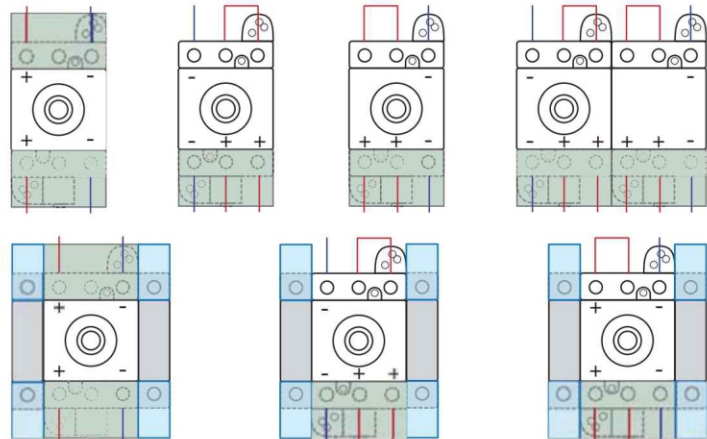
Top or bottom protection against direct contact with the terminals or connection parts. 1 and 3 poles are available.

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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Terminal shrouds 1 pole

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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 mm<sup>2</sup>/4 mm<sup>2</sup>  
Tightening torque: 0.6 Nm

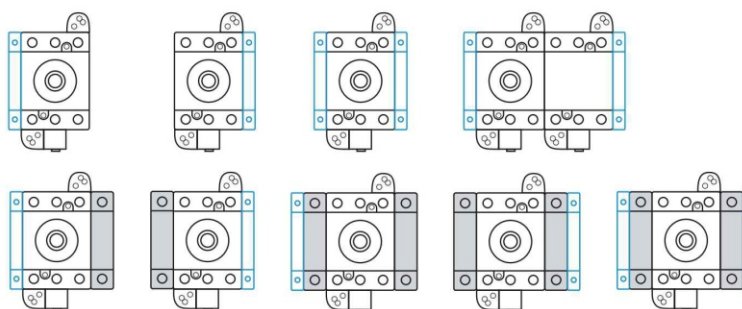


Rating (A)	Type of mounting	Contact(s)	Contact type	Reference
25 ... 40	DIN-rail / back plate mounted	1 contact	NO + NC	2119 0001
25 ... 40	Door mounted	1 contact	NO + NC	2129 0001

#### Characteristics according to IEC 60947-5-1

Rating (A)	Contact type	Thermal current I <sub>th</sub> (A)	Operating current I <sub>o</sub> (A)		
			230 VAC	400 VAC	690 VAC
25 ... 40	NO + NC	16	AC-15	AC-15	AC-15
			6	4	2

#### Auxiliary contacts configurations



## Characteristics according to IEC 60947-3

### 25 to 40 A

Thermal current I <sub>th</sub> at 40°C <sup>(1)</sup>	25 A	30 A	40 A
Rated insulation voltage U <sub>i</sub> (V)	1000	1000	1000
Rated impulse withstand voltage U <sub>imp</sub> (kV)	8	8	8

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

Rated voltage	Utilization 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	Double PV circuit	4 P	2 x (1 P+ and 1 P-)	-	30	-
600 VDC	DC-21 B	Double 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	Double PV circuit	6 P	2 x (2 P+ and 1 P-)	25	-	-

#### Connection

Minimum Cu cable cross-section	1.5	1.5	1.5
Maximum Cu cable cross-section (mm <sup>2</sup> )	10	10	10
Tightening torque mini / maxi (Nm)	1.2	1.2	1.2

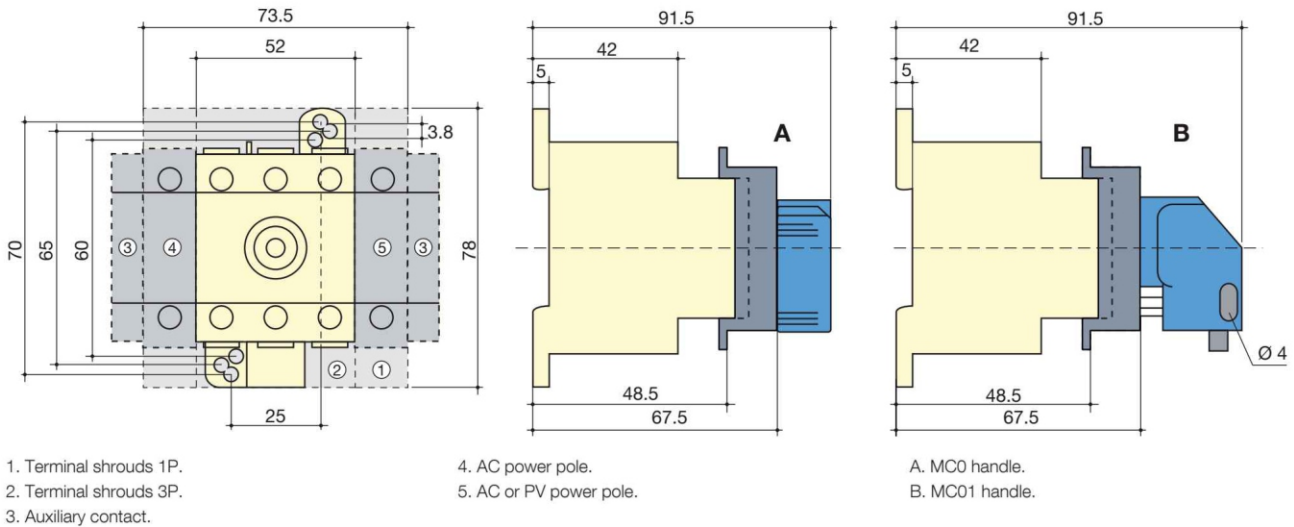
#### Mechanical characteristics

Durability (number of operating cycles)	30000	30000	30000
Operating effort (Nm)	0.8	0.8	0.8
Weight of 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 2 a 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, 2 double PV circuit (kg)	0.145	0.145	-
Weight of a 6 pole PV device, 2 double PV circuit (kg)	-	-	0.250

<sup>(1)</sup> For other temperatures: Please consult us.

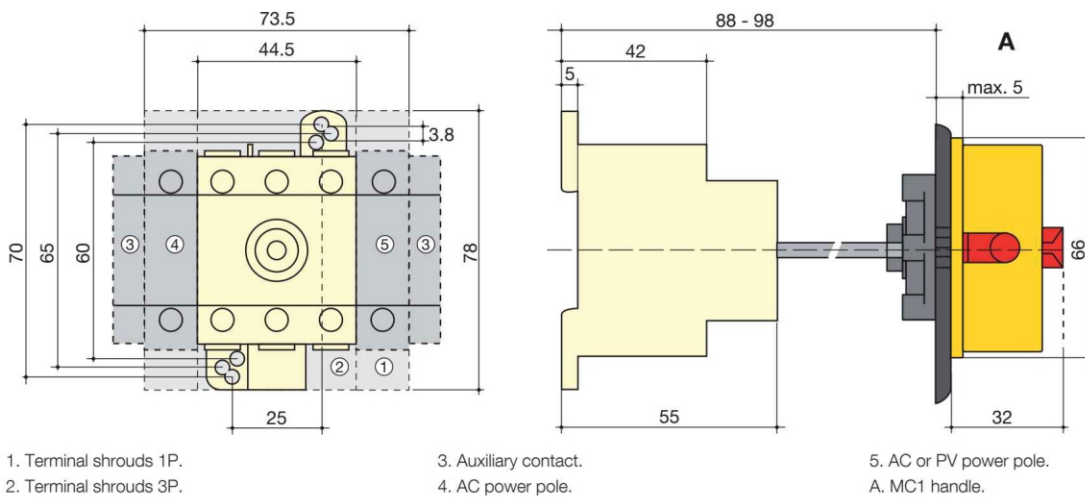
## Dimensions

### DIN rail mounting - Direct operation



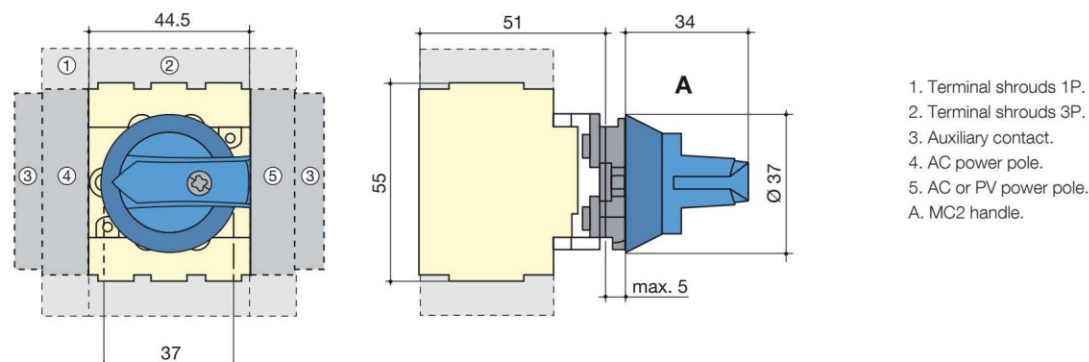
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### DIN rail mounting - External operation



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### Door mounting



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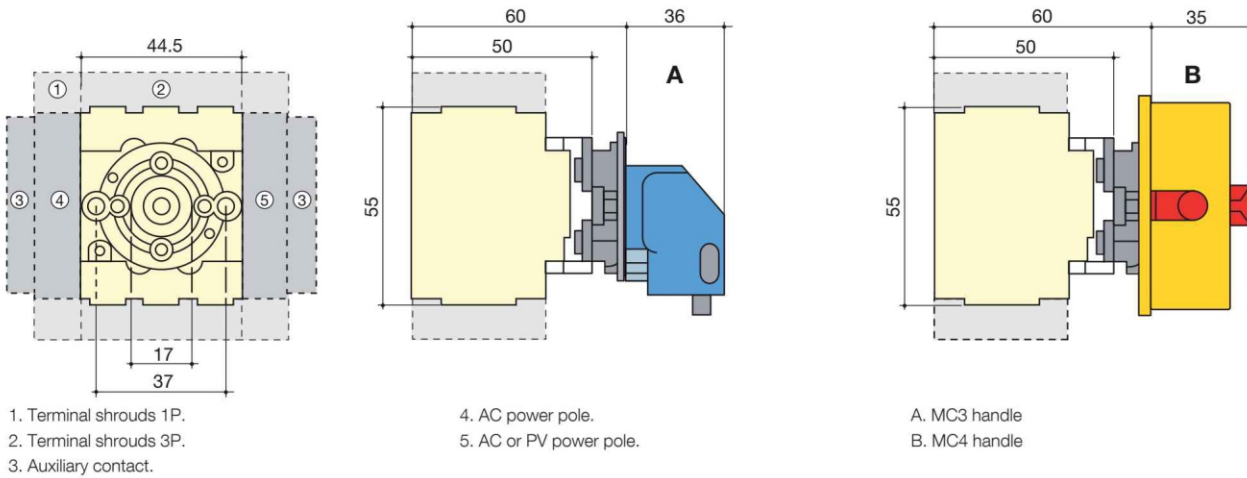
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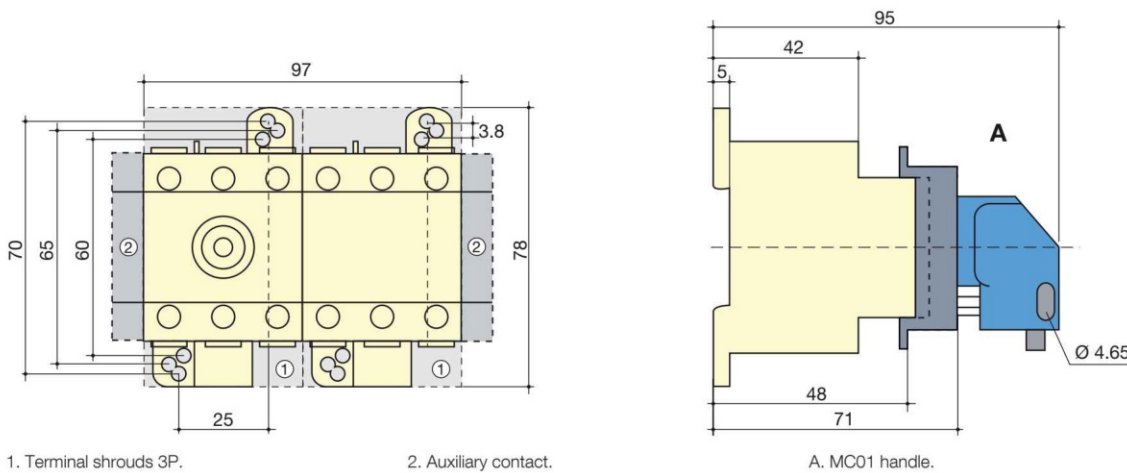
## Dimensions

### "Quick Fix" door mounting



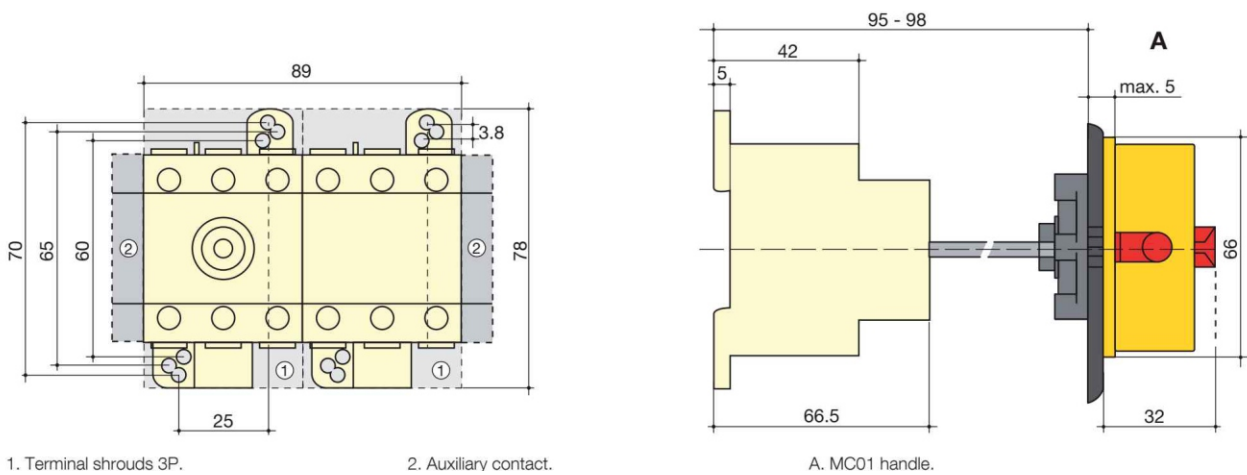
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### 2 MPPT - 40 A - 600 VDC and 25 A - 1000 VDC - DIN-rail mounting - Direct operation



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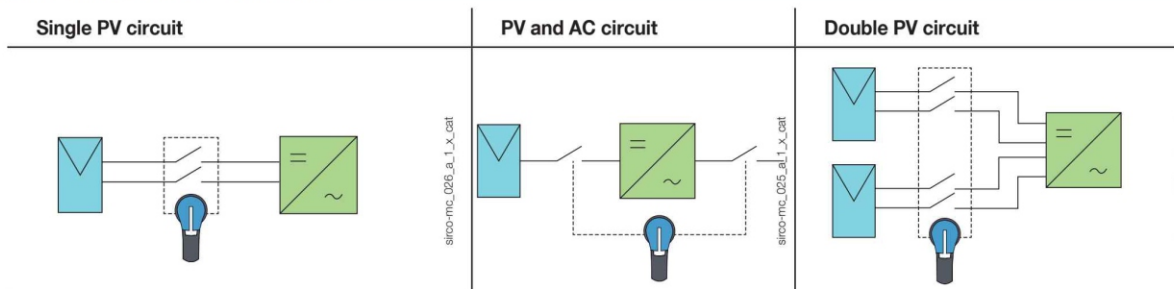
### DIN-rail mounting - External operation



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## Poles connections

### Switching of polarities + and -

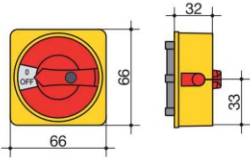
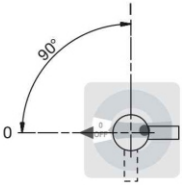
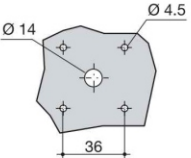
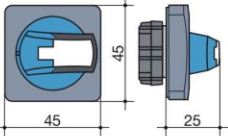
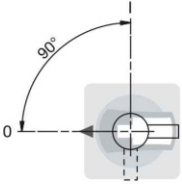
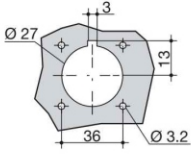


### Direct operation

Rating	Single PV circuit	PV and AC circuit	Double PV circuit
25 A - 600 VDC	<b>21PV 2102</b> 	<b>21PV 2162</b> 	<b>21PV 5102</b> 
40 A - 600 VDC 25 A - 1000 VDC	<b>21PV 3421</b> <b>21PV 3722</b> 	<b>21PV 3184</b> 	<b>21PV 6124</b> <b>21PV 6722</b> 
40 A - 1000 VDC	<b>21PV 4754</b> 		

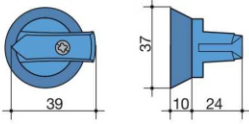
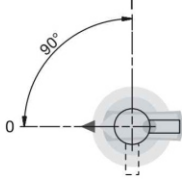
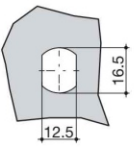
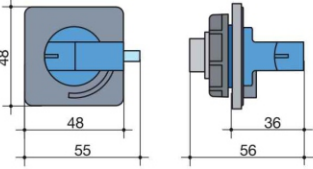
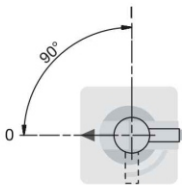
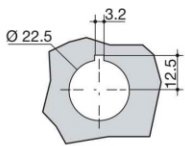
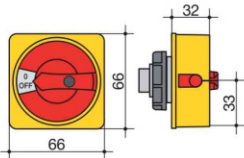
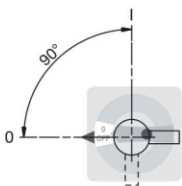
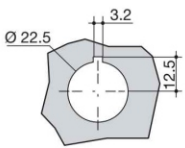
Dimensions for external handles

DIN rail or back plate mounting

Handle type	Front operation Direction of operation	Door drilling
<b>MC1 type</b> 		
<b>S000 type</b> 		

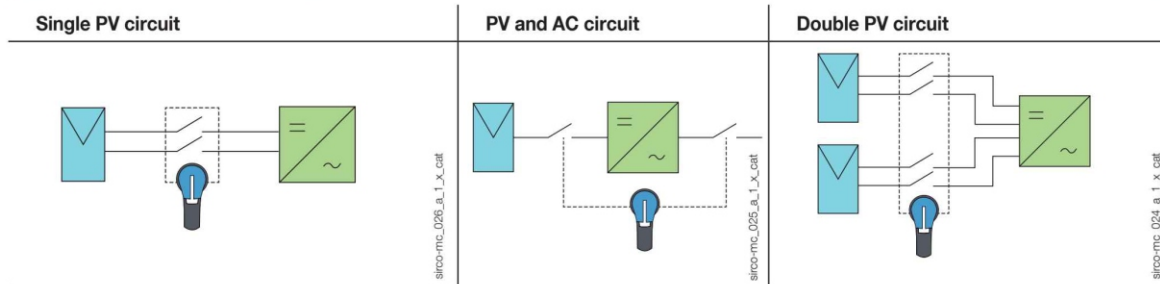
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Door mounting

Handle type	Front operation Direction of operation	Door drilling
<b>MC2 type</b> 		
<b>MC3 type Quick Fix</b> 		
<b>MC4 type Quick Fix</b> 		

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Switching of polarities + and -



Door mounting

Rating	Single PV circuit	PV and AC circuit	Double PV circuit
25 A - 600 VDC	<p>21PV 2202 21PV 2302</p> <p>Inverter</p>	<p>21PV 2262 21PV 2362</p> <p>Inverter</p>	<p>21PV 5202 21PV 5302</p> <p>Inverter 1      Inverter 2</p>
40 A - 600 VDC 25 A - 1000 VDC	<p>21PV 3224 21PV 3324</p> <p>Inverter</p>	<p>21PV 3284 21PV 3384</p> <p>Panel</p>	
40 A - 1000 VDC	<p>21PV 4854 21PV 4954</p>		