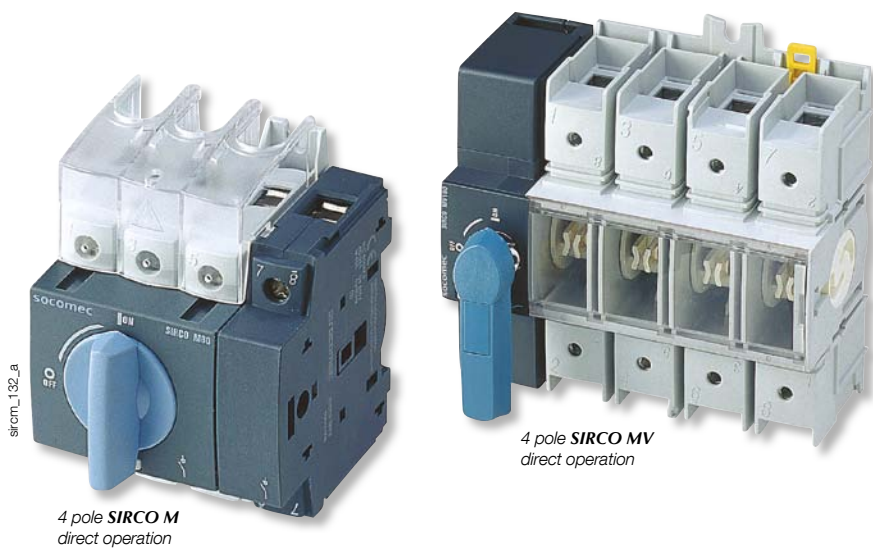


# SIRCO M and MV

## Universal load break switches

from 16 to 160 A



### Function

**SIRCO M** and **MV** are manually operated and modular multipolar load break switches. They make and break under load conditions and provide safety isolation for any low voltage circuit, particularly for machine control circuits.

Through the use of accessories, can be transformed into multipolar load break changeover switches provide on load changeover switching between two sources or two low voltage power circuits, as well as their safety isolation.

### References

SIRCO M			
Rating (A)	No. of pole	Operation type	Reference
16 ... 80 A	3 P	Front toggle	2205 3***
16 ... 125 A	3 P	Front or side	2200 3***
SIRCO MV			
Rating (A)	No. of pole	Operation type	Reference
100 ... 160 A	3 P	Front or side	2200 3***
	4 P	Front or side	2200 4***

\* Stands for an alphanumeric character depending on the rating and configuration of the switch.

SIRCO M - Characteristics according to IEC 60947-3

		SIRCO M - from 16 to 125 A								
Thermal current I <sub>th</sub> (40 °C)		16 A	20 A	25 A	32 A	40 A	63 A	80 A	100 A	125 A
Frame size		M1	M1	M1	M1	M1	M2	M2	M3	M3
Rated insulation voltage U <sub>i</sub> (V)		800	800	800	800	800	800	800	800	800
Rated impulse withstand voltage U <sub>imp</sub> (kV)		8	8	8	8	8	8	8	8	8
Rated operational currents I <sub>e</sub> (A)										
Rated voltage	Utilisation category	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>
415 VAC	AC-20 A / AC-20 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100	125/125
415 VAC	AC-21 A / AC-21 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100	125/125
415 VAC	AC-22 A / AC-22 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100	125/125
415 VAC	AC-23 A / AC-23 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100	125/125
500 VAC	AC-20 A / AC-20 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100	125/125
500 VAC	AC-21 A / AC-21 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100	125/125
500 VAC	AC-22 A / AC-22 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100	125/125
500 VAC	AC-23 A / AC-23 B	16/16	20/20	25/25	25/25	25/25	63/63	63/63	80/80	100/100
690 VAC	AC-20 A / AC-20 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100	125/125
690 VAC	AC-21 A / AC-21 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100	125/125
690 VAC	AC-22 A / AC-22 B	16/16	20/20	25/25	32/32	32/40	40/63	63/80	80/100	100/125
690 VAC	AC-23 A / AC-23 B	16/16	20/20	25/25	25/25	25/25	40/40	40/40	63/63	63/63
110 VDC	DC-20 A / DC-20 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100	125/125
110 VDC	DC-21 A / DC-21 B	16/16 <sup>(2)</sup>	20/20 <sup>(2)</sup>	25/25 <sup>(2)</sup>	32/32 <sup>(2)</sup>	40/40 <sup>(2)</sup>	63/63 <sup>(2)</sup>	80/80 <sup>(2)</sup>	100/100 <sup>(2)</sup>	125/125 <sup>(2)</sup>
250 VDC	DC-20 A / DC-20 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100	125/125
250 VDC	DC-21 A / DC-21 B	16/16 <sup>(3)</sup>	20/20 <sup>(3)</sup>	25/25 <sup>(3)</sup>	32/32 <sup>(3)</sup>	40/40 <sup>(3)</sup>	63/63 <sup>(3)</sup>	80/80 <sup>(3)</sup>	100/100 <sup>(3)</sup>	125/125 <sup>(3)</sup>
400 VDC	DC-20 A / DC-20 B	16/16	20/20	25/25	32/32	40/40	63/63	80/80	100/100	125/125
400 VDC	DC-21 A / DC-21 B	16/16 <sup>(4)</sup>	20/20 <sup>(4)</sup>	25/25 <sup>(4)</sup>	25/25 <sup>(4)</sup>	25/25 <sup>(4)</sup>	40/40 <sup>(4)</sup>	40/40 <sup>(4)</sup>	63/63 <sup>(4)</sup>	63/63 <sup>(4)</sup>
Operational power in AC-23 (kW)										
400 VAC without pre-break AC(kW) <sup>(5)</sup>		7.5	9	11	15	18.5	30	37	45	55
500 VAC without pre-break AC(kW) <sup>(5)</sup>		7.5	9	11	15	18.5	30	37	45	55
690 VAC without pre-break AC(kW) <sup>(5)</sup>		7.5	11	15	15	15	30	37	45	55
Fuse protected short-circuit withstand (kA rms prospective) <sup>(6)</sup>										
Prospective short-circuit current (kA rms)		50	50	50	50	50	50	50	25	25
Associated fuse rating (A)		16	20	25	32	40	63	80	100	125
Circuit breaker protected short-circuit withstand with any circuit breaker that ensures tripping in less than 0.3s										
Rated short-time withstand current 0.3s. I <sub>cw</sub> (kA rms)		2.5	2.5	2.5	2.5	2.5	3	3	5	5
Short-circuit capacity (without protection)										
Rated short-time withstand current 1s. I <sub>cw</sub> (kA rms)		1.26	1.26	1.26	1.26	1.26	1.5	1.5	2.75	2.75
Rated peak withstand current (kA peak) <sup>(6)</sup>		6	6	6	6	6	9	9	12	12
Connection										
Maximum Cu cable cross-section (mm <sup>2</sup> )		1.5	1.5	1.5	1.5	1.5	2.5	2.5	10	10
Maximum Cu cable cross-section (mm <sup>2</sup> )		16	16	16	16	16	35	35	70	70
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	4/4.4	4/4.4
Mechanical characteristics										
Durability (number of operating cycles)		100 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000	100 000
Operating effort - 3 pole device (Nm)		1	1	1	1	1	1.4	1.4	1.6	1.6
Operating effort - 4 pole device (Nm)		1.2	1.2	1.2	1.2	1.2	1.6	1.6	2	2
Weight of a 3 pole device (kg)		0.18	0.18	0.18	0.18	0.18	0.27	0.27	0.55	0.55
Weight of a 4 pole device (kg)		0.23	0.23	0.23	0.23	0.23	0.33	0.33	0.72	0.72
Weight of a 6 pole device (kg)		0.40	0.40	0.40	0.40	0.40	0.59	0.59	1.30	1.30
Weight of a 8 pole device (kg)		0.50	0.50	0.50	0.50	0.50	0.69	0.69	1.65	1.65
Weight of a 3 pole device (kg)		0.40	0.40	0.40	0.40	0.40	0.59	0.59	1.30	1.30
Weight of a 4 pole device (kg)		0.50	0.50	0.50	0.50	0.50	0.69	0.69	1.65	1.65

(1) Category with index A = frequent operation -  
 Category with index B = infrequent operation.  
 (2) One pole per polarity.  
 (3) 3-pole device with 2 poles in series for the "+" and 1 pole for the "-".  
 (4) 4-pole device with 2 poles in series per polarity.  
 (5) The power value is given for information only, the current values vary from one manufacturer to another.  
 (6) For a rated operational voltage U<sub>e</sub> = 415 VAC.

# SIRCO M and MV

Universal load break switches

from 16 to 160 A

## SIRCO MV - Characteristics according to IEC 60947-3

		SIRCO MV - from 100 to 160 A		
Thermal current $I_{th}$ (40 °C)		100 A	125 A	160 A
Rated insulation voltage $U_i$ (V)		800	800	800
Rated impulse withstand voltage $U_{imp}$ (kV)		8	8	8
<b>Rated operational currents <math>I_e</math> (A)</b>				
Rated voltage	Utilisation category	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>
415 VAC	AC-20 A / AC-20 B	100/100	125/125	160/160
415 VAC	AC-21 A / AC-21 B	100/100	125/125	160/160
415 VAC	AC-22 A / AC-22 B	100/100	125/125	160/160
415 VAC	AC-23 A / AC-23 B	100/100	125/125	125/160
500 VAC	AC-20 A / AC-20 B	100/100	125/125	160/160
500 VAC	AC-21 A / AC-21 B	100/100	125/125	160/160
500 VAC	AC-22 A / AC-22 B	100/100	125/125	125/160
500 VAC	AC-23 A / AC-23 B	80/80	100/100	100/100
690 VAC	AC-20 A / AC-20 B	100/100	125/125	160/160
690 VAC	AC-21 A / AC-21 B	100/100	125/125	160/160
690 VAC	AC-22 A / AC-22 B	63/80	80/100	100/125
690 VAC	AC-23 A / AC-23 B	63/63	80/80	80/80
110 VDC	DC-20 A / DC-20 B	100/100	125/125	160/160
110 VDC	DC-21 A / DC-21 B	100/100 <sup>(2)</sup>	125/125 <sup>(2)</sup>	160/160 <sup>(2)</sup>
250 VDC	DC-20 A / DC-20 B	100/100	125/125	160/160
250 VDC	DC-21 A / DC-21 B	100/100 <sup>(3)</sup>	125/125 <sup>(3)</sup>	160/160 <sup>(3)</sup>
400 VDC	DC-20 A / DC-20 B	100/100	125/125	160/160
400 VDC	DC-21 A / DC-21 B	100/100 <sup>(4)</sup>	125/125 <sup>(4)</sup>	160/160 <sup>(4)</sup>
<b>Operational power in AC-23 (kW)</b>				
400 VAC without pre-break AC(kW) <sup>(5)</sup>		45	55	75
500 VAC without pre-break AC(kW) <sup>(5)</sup>		45	55	75
690 VAC without pre-break AC(kW) <sup>(5)</sup>		45	75	75
<b>Fuse protected short-circuit withstand (kA rms prospective)<sup>(6)</sup></b>				
Prospective short-circuit current (kA rms)		100	65	50
Associated fuse rating (A)		100	125	160
<b>Circuit breaker protected short-circuit withstand with any circuit breaker that ensures tripping in less than 0.3s</b>				
Rated short-time withstand current 0.3s. $I_{sw}$ (kA rms)		7	7	7
<b>Short-circuit capacity (without protection)</b>				
Rated short-time withstand current 1s. $I_{sw}$ (kA rms)		4	4	4
Rated peak withstand current (kA peak) <sup>(6)</sup>		12	12	12
<b>Connection</b>				
Maximum Cu cable cross-section (mm <sup>2</sup> )		10	10	10
Maximum Cu cable cross-section (mm <sup>2</sup> )		70	70	70
Tightening torque min/max (Nm)		4 / 4.4	4 / 4.4	4 / 4.4
<b>Mechanical characteristics</b>				
Durability (number of operating cycles)		50 000	50 000	50 000
Operating effort - 3 pole device (Nm)		4	4	4
Operating effort - 4 pole device (Nm)		4.2	4.2	4.2
Weight of a 3 pole device (kg)		0.68	0.68	0.68
Weight of a 4 pole device (kg)		0.85	0.85	0.85

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

(2) One pole per polarity.

(3) 2 poles in series for the "+" and 1 pole for the "-".

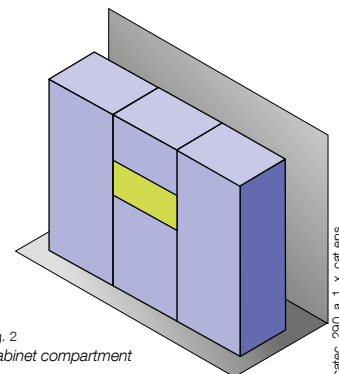
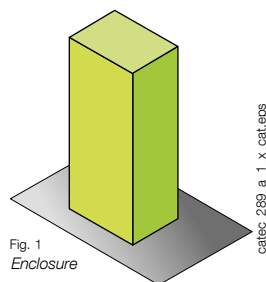
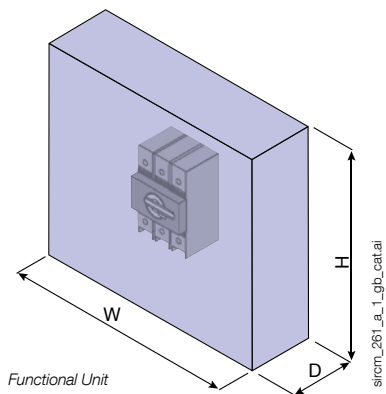
(4) 2 poles in series per polarity.

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

(6) For a rated operational voltage  $U_e = 415$  VAC.

Product integration data in compliance with IEC / EN 61439-1

Below listed data is applicable to:



Max rated current I of the switchgear

SIRCO M													
Dimensions of the Functional Unit			Mounting		Max operational current, I <sub>o</sub> (A)								
H (mm)	W (mm)	D (mm)	Enclosure	Orientation	16 A	20 A	25 A	32 A	40 A	63 A	80 A	100 A	125 A
150	100	90	Fig. 1/2	V/H <sup>(1)</sup>	16	20	25	32	40				
200	110	90	Fig. 1/2	V/H <sup>(1)</sup>						63	80	100	100
200	110	90	Fig. 1/2	V/H <sup>(1)</sup>									125
					Min cross-section (mm <sup>2</sup> )								
Cable					2,5	2,5	4	6	10	16	25	35	50

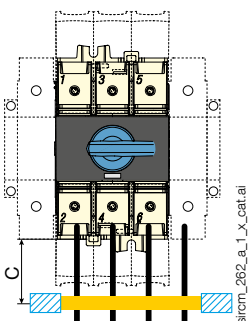
SIRCO MV													
Dimensions of the Functional Unit			Mounting		Max operational current, I <sub>o</sub> (A)								
H (mm)	W (mm)	D (mm)	Enclosure	Orientation	100 A			125 A			160 A		
200	135	100	Fig. 1/2	V/H <sup>(1)</sup>	100			125			135		
					Min cross-section (mm <sup>2</sup> )								
Cable					35			50			70		

(1) V: vertical mounting; H: horizontal mounting.

Rating (A)	16 A	20 A	25 A	32 A	40 A	63 A	80 A	100 A	125 A	160 A
SIRCO M heat dissipation W/pole	1,2	1,4	1,7	2,2	2,25	6	8	6,5	10,2	
SIRCO MV heat dissipation W/pole								3,6	5	8,3

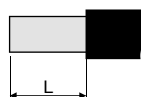
Maximum ambient temperature	
External	35 °C
Internal	60 °C

Wiring requirements



	C (mm)
Min power connections length	200
Min distance to first cable fixing support	200

Cable stripping



Type	SIRCO M			SIRCO MV
Rating (A)	16 ... 40 A	63 ... 80 A	100 ... 125 A	100 ... 160 A
<b>Tightening torque on terminals</b>				
Min	2 Nm	3,5 Nm	4 Nm	4 Nm
Max	2,2 Nm	3,8 Nm	4,4 Nm	4,4 Nm
<b>L ±1 (mm)</b>				
Cable stripping	9	12	15	15