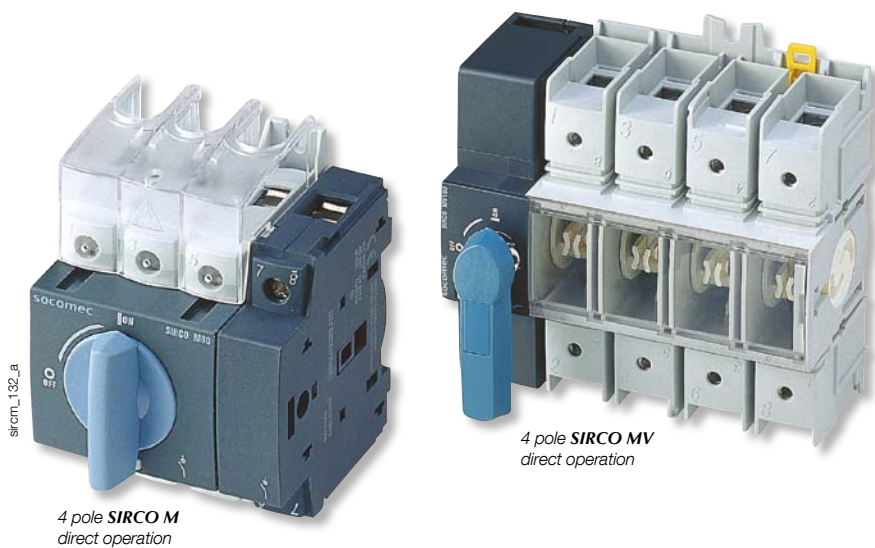


SIRCO M and MV

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_{th} (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_i (V) | | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 |
| Rated impulse withstand voltage U_{imp} (kV) | | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Rated operational currents I_e (A) | | | | | | | | | | |
| Rated voltage | Utilisation category | A/B ⁽¹⁾ | 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-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 ⁽²⁾ | 20/20 ⁽²⁾ | 25/25 ⁽²⁾ | 32/32 ⁽²⁾ | 40/40 ⁽²⁾ | 63/63 ⁽²⁾ | 80/80 ⁽²⁾ | 100/100 ⁽²⁾ | 125/125 ⁽²⁾ |
| 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 ⁽³⁾ | 20/20 ⁽³⁾ | 25/25 ⁽³⁾ | 32/32 ⁽³⁾ | 40/40 ⁽³⁾ | 63/63 ⁽³⁾ | 80/80 ⁽³⁾ | 100/100 ⁽³⁾ | 125/125 ⁽³⁾ |
| 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 ⁽⁴⁾ | 20/20 ⁽⁴⁾ | 25/25 ⁽⁴⁾ | 25/25 ⁽⁴⁾ | 25/25 ⁽⁴⁾ | 40/40 ⁽⁴⁾ | 40/40 ⁽⁴⁾ | 63/63 ⁽⁴⁾ | 63/63 ⁽⁴⁾ |
| Operational power in AC-23 (kW) | | | | | | | | | | |
| 400 VAC without pre-break AC(kW) ⁽⁵⁾ | | 7.5 | 9 | 11 | 15 | 18.5 | 30 | 37 | 45 | 55 |
| 500 VAC without pre-break AC(kW) ⁽⁵⁾ | | 7.5 | 9 | 11 | 15 | 18.5 | 30 | 37 | 45 | 55 |
| 690 VAC without pre-break AC(kW) ⁽⁵⁾ | | 7.5 | 11 | 15 | 15 | 15 | 30 | 37 | 45 | 55 |
| Fuse protected short-circuit withstand (kA rms prospective) ⁽⁶⁾ | | | | | | | | | | |
| 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_{cw} (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_{cw} (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) ⁽⁶⁾ | | 6 | 6 | 6 | 6 | 6 | 9 | 9 | 12 | 12 |
| Connection | | | | | | | | | | |
| Maximum Cu cable cross-section (mm ²) | | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 2.5 | 2.5 | 10 | 10 |
| Maximum Cu cable cross-section (mm ²) | | 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 $U_e = 415$ 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 |
| Rated operational currents I_e (A) | | | | |
| Rated voltage | Utilisation category | A/B ⁽¹⁾ | A/B ⁽¹⁾ | A/B ⁽¹⁾ |
| 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 ⁽²⁾ | 125/125 ⁽²⁾ | 160/160 ⁽²⁾ |
| 250 VDC | DC-20 A / DC-20 B | 100/100 | 125/125 | 160/160 |
| 250 VDC | DC-21 A / DC-21 B | 100/100 ⁽³⁾ | 125/125 ⁽³⁾ | 160/160 ⁽³⁾ |
| 400 VDC | DC-20 A / DC-20 B | 100/100 | 125/125 | 160/160 |
| 400 VDC | DC-21 A / DC-21 B | 100/100 ⁽⁴⁾ | 125/125 ⁽⁴⁾ | 160/160 ⁽⁴⁾ |
| Operational power in AC-23 (kW) | | | | |
| 400 VAC without pre-break AC(kW) ⁽⁵⁾ | | 45 | 55 | 75 |
| 500 VAC without pre-break AC(kW) ⁽⁵⁾ | | 45 | 55 | 75 |
| 690 VAC without pre-break AC(kW) ⁽⁵⁾ | | 45 | 75 | 75 |
| Fuse protected short-circuit withstand (kA rms prospective)⁽⁶⁾ | | | | |
| Prospective short-circuit current (kA rms) | | 100 | 65 | 50 |
| Associated fuse rating (A) | | 100 | 125 | 160 |
| 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_{ow} (kA rms) | | 7 | 7 | 7 |
| Short-circuit capacity (without protection) | | | | |
| Rated short-time withstand current 1s. I_{ow} (kA rms) | | 4 | 4 | 4 |
| Rated peak withstand current (kA peak) ⁽⁶⁾ | | 12 | 12 | 12 |
| Connection | | | | |
| Maximum Cu cable cross-section (mm ²) | | 10 | 10 | 10 |
| Maximum Cu cable cross-section (mm ²) | | 70 | 70 | 70 |
| Tightening torque min/max (Nm) | | 4 / 4.4 | 4 / 4.4 | 4 / 4.4 |
| Mechanical characteristics | | | | |
| 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 "-".

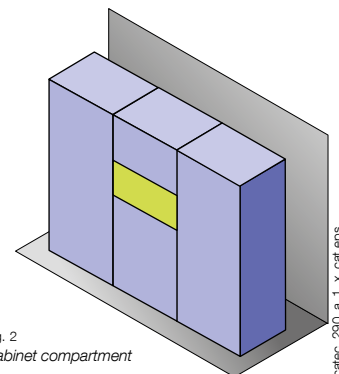
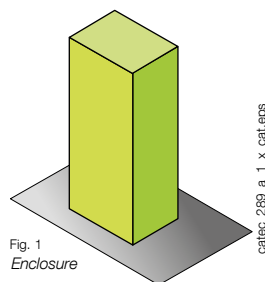
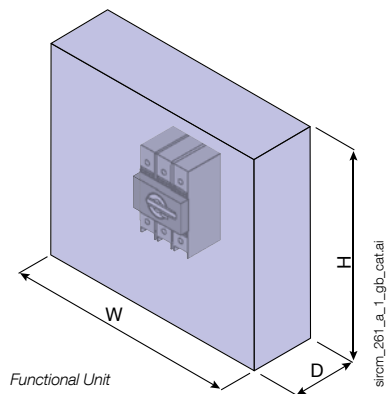
(4) 2 poles in series per polarity.

(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 _o (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 ⁽¹⁾ | 16 | 20 | 25 | 32 | 40 | | | | |
| 200 | 110 | 90 | Fig. 1/2 | V/H ⁽¹⁾ | | | | | | 63 | 80 | 100 | 100 |
| 200 | 110 | 90 | Fig. 1/2 | V/H ⁽¹⁾ | | | | | | | | | 125 |
| | | | | | Min cross-section (mm ²) | | | | | | | | |
| Cable | | | | | 2,5 | 2,5 | 4 | 6 | 10 | 16 | 25 | 35 | 50 |

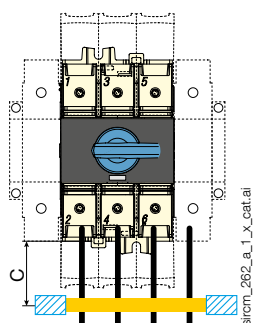
| SIRCO MV | | | | | | | | | | | | | |
|-----------------------------------|--------|--------|-----------|--------------------|---|--|--|-------|--|--|-------|--|--|
| Dimensions of the Functional Unit | | | Mounting | | Max operational current, I _o (A) | | | | | | | | |
| H (mm) | W (mm) | D (mm) | Enclosure | Orientation | 100 A | | | 125 A | | | 160 A | | |
| 200 | 135 | 100 | Fig. 1/2 | V/H ⁽¹⁾ | 100 | | | 125 | | | 135 | | |
| | | | | | Min cross-section (mm ²) | | | | | | | | |
| 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 |

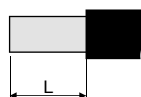
| Maximum ambient temperature | |
|-----------------------------|-------|
| External | 35 °C |
| Internal | 60 °C |

Wiring requirements



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

Cable stripping



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