

Description

Single pole and multipole thermal-magnetic miniature circuit breakers (MCBs) in accordance with EN 60947-2, UL 1077 and UL 489 for DIN rail mounting, with toggle actuation, visual status indication and high rupture capacity. A positively trip-free snap action mechanism ensures reliable switching behaviour. A range of trip characteristics and add-on modules allow a great variety of applications.

Typical applications

Protection of cables, motors, generators and transformers, thyristors and silicon rectifiers. Protection of computers and their peripheral equipment, industrial process control systems, telecommunications equipment, power supplies.

Technical Data

Voltage rating and current rating range

| | |
|-------------------|--|
| to IEC/EN 60947-2 | 1-pole: AC 240 V; 1 A...63 A; 2, 3, 4-pole: AC 415 V, 1 A...63 A; 1-pole: DC 80 V, 1 A...63 A 2-pole: (2 poles connected in series) DC 125 V, 1...63 A |
| to UL 1077 | 1-pole: AC 277 V; 1 A...63 A; 2, 3, 4-pole: AC 480Y/277 V, 1 A...63 A; 1-pole: DC 60 V; 1 A...63 A; 2-pole (2 poles connected in series): DC 125 V; 1 A...63 A; |
| to UL 489 | 1-pole: AC 120 V; 1A...63 A; 2, 3-pole: AC 240 V, 1 A...63 A; 1-pole: AC 277 V; 1 A...32 A; 2, 3-pole: AC 480Y/277 V; 1 A...32 A; 1-pole: DC 60 V; 1 A...63 A; 2-pole (2 poles connected in series); DC 125 V; 1 A...63 A; |

Typical life

| | |
|--------------|---------------|
| Mechanically | 20,000 cycles |
| Electrically | 6,000 cycles |

Approvals

| Approval authority | Standard | Rated voltage | Current ratings |
|--------------------|-----------------------------|--|---|
| TÜV | IEC/EN 60947-2 | AC 240/415 V DC 80 V DC 125 V | 1...63 A 1...63 A (1-pole) 1...63 A (2 poles in series) |
| UL | UL 1077 / CSA-C22.2 No. 235 | AC 480Y/277 V DC 60 V DC 125 V | 1...63 A 1...63 A (1-pole) 1...63 A (2 poles in series) |
| UL | UL 489 / CSA-C22.2 No. 5 | AC 240 V AC 480Y/277 V DC 60 V DC 125 V | 1...63 A 1...32 A 1...63 A (1-pole) 1...63 A (2 poles in series) |



UL 489 version

4230-T...

IEC/EN60947-2 & UL1077 version

Technical Data

Rupture capacity

| | |
|-------------------------|--------------------------|
| to IEC/EN 60947-2 (Ics) | AC 7,500 A / DC 10,000 A |
| to IEC/EN 60947-2 (Icu) | AC/DC 10,000 A |
| to UL 489 | AC/DC 10,000 A |

to UL1077

| Number of poles | Un | In | TC | OL | SC |
|------------------|----------|----------|----|----|------------|
| 1-pole | AC 240 V | 1...63 A | 1 | 1 | 7.5 kA, U1 |
| 1-pole | AC 277 V | 1...63 A | 1 | 0 | 5 kA, U1 |
| 2-, 3-, 4-pole | AC 480 V | 1...63 A | 1 | 1 | 5 kA, U1 |
| 1-pole | DC 60 V | 1...63 A | 1 | 0 | 7.5 kA, U1 |
| 2-pole in series | DC 125 V | 1...63 A | 1 | 0 | 7.5 kA, U1 |

Insulation coordination overvoltage category III (Uimp 4kV) pollution degree 3

Degree of protection IP20

Vibration (sinusoidal) test to IEC 60068-2-6, test Fc ± 0.38 mm (10–57 Hz), 5 g (57–500 Hz) 10 frequency cycles per axis

Shock, test to IEC 60068-2-27, test Ea 30 g (11 ms)

Corrosion, test to IEC 60068-2-11, test Ka 96 hrs in 5% salt mist

Humidity, test to IEC 60068-2-78, test Cab 48 hours at 95% RH, temperature +40°C

Terminals screw terminals
Vertical connection possible by means of busbars

Tightening torque 2 Nm max.

Cable cross section ≤35 mm²

Ambient temperature: -35°C...+ 70°C

Mounting rail mounting

Mass approx. 116 g per pole (EN 60947-2/ UL 1077) approx. 131 g per pole (UL 489)

Order numbering code

Type No.

4230 single and multipole thermal-magnetic high performance circuit breaker

Mounting

T1 rail mounting

Number of poles

- 1 single pole protected
- 2 double pole protected
- 3 three pole protected
- 4 four pole protected*

Accessories

0 without

terminals

K0 screw terminals

Characteristic curve

B: thermal $1.05 - 1.30 \times I_N$; magnetic $3.2 - 4.8 \times I_N$

C: thermal $1.05 - 1.30 \times I_N$; magnetic $6.4 - 9.6 \times I_N$

D: thermal $1.05 - 1.30 \times I_N$; magnetic $9.6 - 14.4 \times I_N$

Approvals

E IEC/EN 60947-2 (TÜV) / UL 1077

U UL 489 (only 1-, 2- & 3-pole) / IEC/EN 60947-2 (TÜV)

Current ratings:

1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13, 15, 16, 20, 25, 30, 32, 35, 40, 50, 60, 63 A

4230 - T1 1 0 - K0 C E - 10 A ordering example

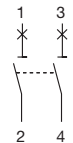
* not for UL 489

Schematic diagrams

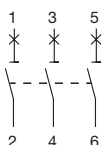
1-pole



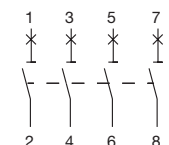
2-pole



3-pole



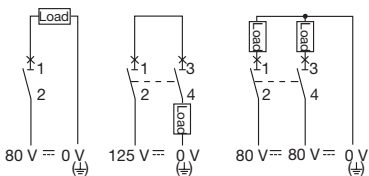
4-pole



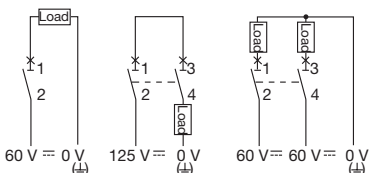
DC application

When using the 4230-T in DC application, polarity does not have to be observed. Max. acceptable voltage between the conductors depends on the number of poles, circuitry and relevant standard / approval.

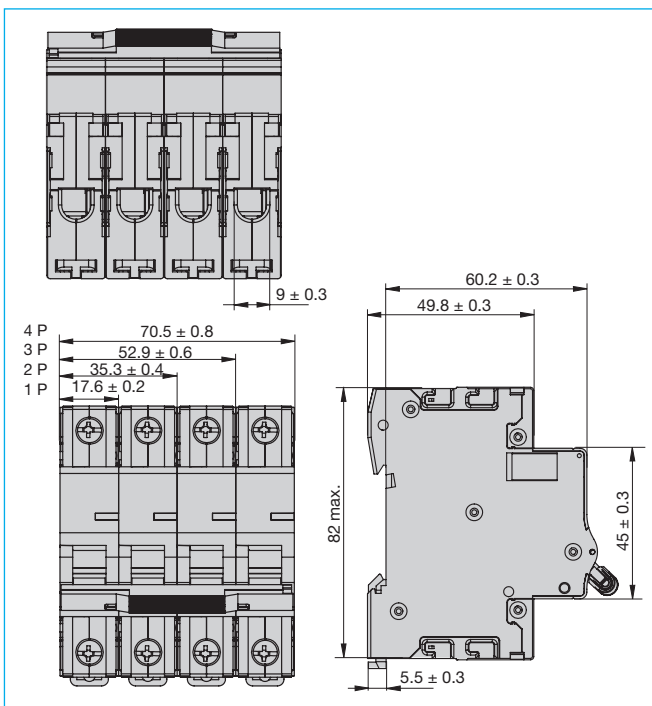
To IEC/EN 60947-2:



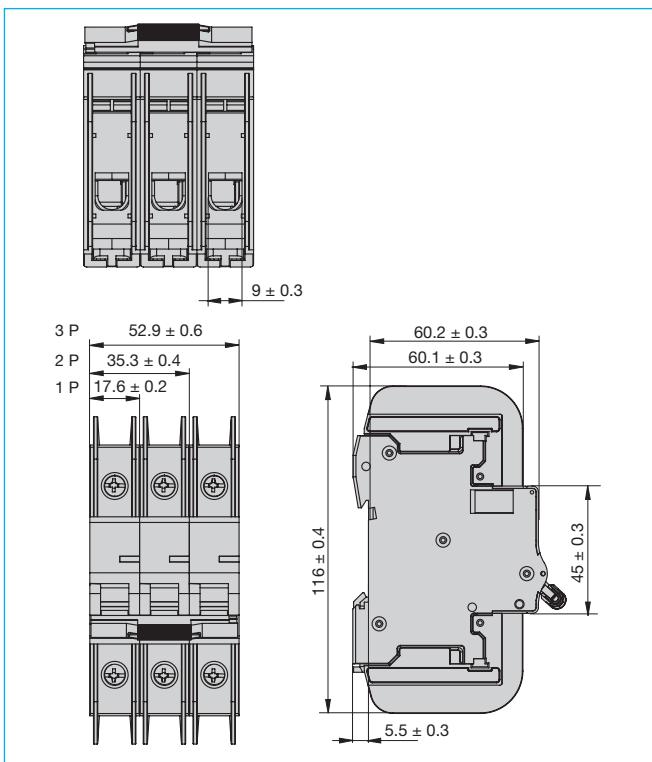
To UL 489 and UL 1077:



Dimensions – IEC/EN 60947-2 / UL1077 version



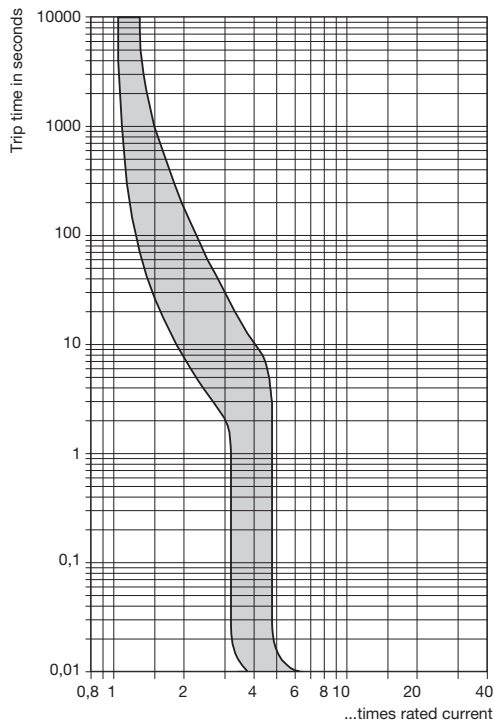
Dimensions – UL 489 version



All dimensions without tolerances are for reference only. E-T-A reserves the right change specifications at any time in the interest of improved design, performance and cost effectiveness, the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.

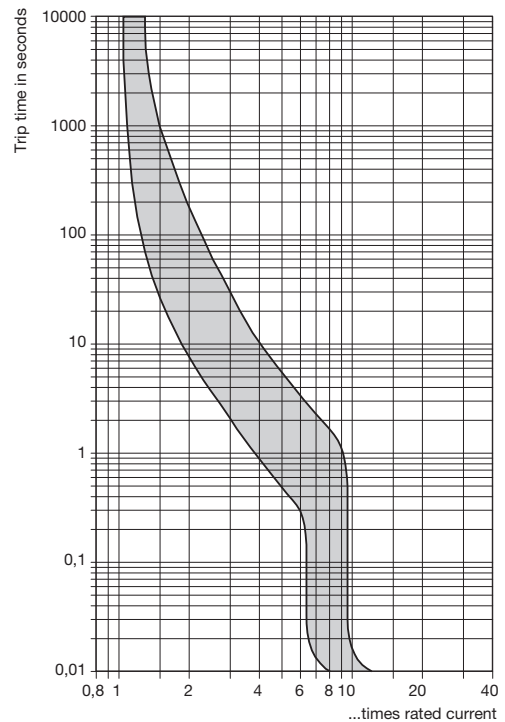
Time/current characteristics

Curve B / 1...63 A



Magnetic tripping currents are increased by 30 % on DC supplies.
Ambient temperature 30 °C

Curve C / 1...63 A



Magnetic tripping currents are increased by 30 % on DC supplies.
Ambient temperature 30 °C

Current ratings and voltage drop @ +25°C

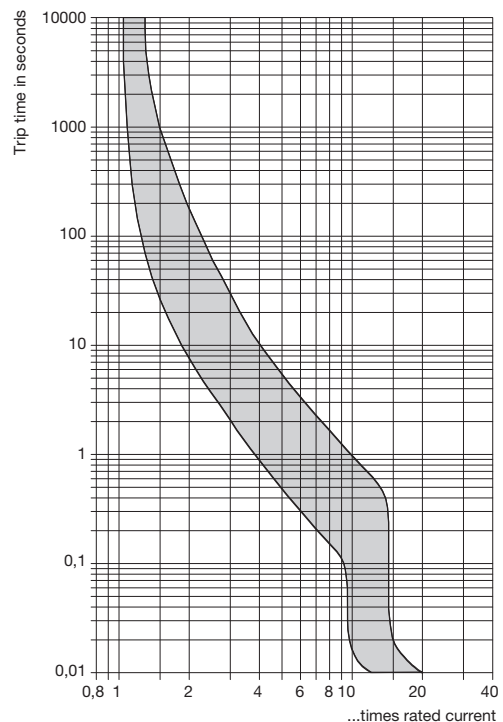
Voltage drop in V at 1 I_N

| | | | | | | |
|--------------------|------|------|------|------|------|------|
| I _N (A) | 1 | 1.2 | 1.5 | 1.6 | 2 | 3 |
| V | 1.50 | 1.50 | 0.80 | 0.80 | 0.80 | 0.60 |
| I _N (A) | 4 | 5 | 6 | 7 | 8 | 10 |
| V | 0.60 | 0.20 | 0.20 | 0.20 | 0.15 | 0.15 |
| I _N (A) | 12 | 13 | 15 | 16 | 20 | 25 |
| V | 0.15 | 0.10 | 0.10 | 0.10 | 0.08 | 0.08 |
| I _N (A) | 30 | 32 | 35 | 40 | 50 | 60 |
| V | 0.07 | 0.07 | 0.07 | 0.07 | 0.06 | 0.06 |
| I _N (A) | 63 | | | | | |
| V | 0.06 | | | | | |

Note

When mounted side-by-side, the breakers can only carry up to 80 % of their rated current or a higher rating has to be selected (see chapter Technical Information).

Curve D / 1...63 A



Magnetic tripping currents are increased by 30 % on DC supplies.
Ambient temperature 30 °C

Max. operating currents depending on ambient temperature

| Rated current I_N (A) | Max. operating currents depending on ambient temperature T (A) | | | | | | | | | | |
|-------------------------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | -35°C | -30°C | -25°C | -20°C | -15°C | -10°C | -5°C | 0°C | +5°C | +10°C | +15°C |
| 1 | 1.27 | 1.25 | 1.23 | 1.21 | 1.19 | 1.17 | 1.15 | 1.13 | 1.10 | 1.08 | 1.06 |
| 2 | 2.87 | 2.81 | 2.74 | 2.68 | 2.62 | 2.55 | 2.48 | 2.42 | 2.35 | 2.28 | 2.20 |
| 3 | 3.89 | 3.83 | 3.76 | 3.70 | 3.64 | 3.57 | 3.50 | 3.44 | 3.37 | 3.30 | 3.22 |
| 4 | 4.91 | 4.83 | 4.76 | 4.70 | 4.64 | 4.57 | 4.50 | 4.44 | 4.37 | 4.30 | 4.22 |
| 5 | 6.68 | 6.56 | 6.44 | 6.32 | 6.19 | 6.07 | 5.94 | 5.81 | 5.68 | 5.54 | 5.40 |
| 6 | 7.70 | 7.58 | 7.46 | 7.34 | 7.21 | 7.09 | 6.96 | 6.83 | 6.70 | 6.56 | 6.42 |
| 7 | 8.78 | 8.66 | 8.54 | 8.42 | 8.29 | 8.17 | 8.04 | 7.91 | 7.78 | 7.64 | 7.50 |
| 8 | 9.80 | 9.68 | 9.56 | 9.44 | 9.31 | 9.19 | 9.06 | 8.93 | 8.80 | 8.66 | 8.52 |
| 10 | 13.89 | 13.62 | 13.35 | 13.07 | 12.81 | 12.53 | 12.23 | 11.93 | 11.63 | 11.33 | 11.01 |
| 12 | 15.91 | 15.64 | 15.37 | 15.09 | 14.83 | 14.55 | 14.25 | 13.95 | 13.65 | 13.35 | 13.03 |
| 13 | 16.92 | 16.65 | 16.38 | 16.10 | 15.84 | 15.56 | 15.26 | 14.96 | 14.66 | 14.36 | 14.04 |
| 15 | 19.77 | 19.42 | 19.07 | 18.74 | 18.39 | 18.04 | 17.69 | 17.32 | 16.95 | 16.57 | 16.19 |
| 16 | 20.78 | 20.43 | 20.08 | 19.75 | 19.40 | 19.05 | 18.70 | 18.33 | 17.96 | 17.58 | 17.20 |
| 20 | 25.67 | 25.28 | 24.88 | 24.47 | 24.06 | 23.64 | 23.22 | 22.78 | 22.34 | 21.89 | 21.43 |
| 25 | 32.21 | 31.72 | 31.22 | 30.70 | 30.18 | 29.65 | 29.10 | 28.55 | 27.98 | 27.41 | 26.82 |
| 30 | 39.00 | 38.42 | 37.78 | 37.13 | 36.47 | 35.80 | 35.11 | 34.43 | 33.71 | 32.99 | 32.26 |
| 32 | 41.04 | 40.46 | 39.82 | 39.17 | 38.51 | 37.84 | 37.15 | 36.47 | 35.75 | 35.03 | 34.30 |
| 35 | 44.08 | 43.50 | 42.86 | 42.21 | 41.55 | 40.88 | 40.19 | 39.51 | 38.79 | 38.07 | 37.34 |
| 40 | 51.63 | 50.86 | 50.04 | 49.21 | 48.37 | 47.51 | 46.63 | 45.74 | 44.83 | 43.90 | 42.95 |
| 50 | 64.92 | 63.97 | 62.92 | 61.86 | 60.77 | 59.67 | 58.54 | 57.40 | 56.23 | 55.05 | 53.81 |
| 60 | 80.45 | 79.03 | 77.61 | 76.16 | 74.69 | 73.19 | 71.67 | 70.11 | 68.51 | 66.88 | 65.21 |
| 63 | 83.48 | 82.06 | 80.71 | 79.19 | 77.72 | 76.22 | 74.70 | 73.14 | 71.54 | 69.91 | 68.24 |

| Rated current I_N (A) | Max. operating currents depending on ambient temperature T (A) | | | | | | | | | | |
|-------------------------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | +20°C | +25°C | +30°C | +35°C | +40°C | +45°C | +50°C | +55°C | +60°C | +65°C | +70°C |
| 1 | 1.05 | 1.02 | 1.00 | 0.97 | 0.94 | 0.91 | 0.89 | 0.86 | 0.83 | 0.80 | 0.77 |
| 2 | 2.12 | 2.04 | 2.00 | 1.90 | 1.82 | 1.74 | 1.65 | 1.56 | 1.47 | 1.36 | 1.25 |
| 3 | 3.14 | 3.06 | 3.00 | 2.92 | 2.84 | 2.76 | 2.67 | 2.58 | 2.49 | 2.38 | 2.27 |
| 4 | 4.14 | 4.06 | 4.00 | 3.92 | 3.84 | 3.76 | 3.67 | 3.58 | 3.49 | 3.38 | 3.27 |
| 5 | 5.25 | 5.12 | 5.00 | 4.82 | 4.66 | 4.50 | 4.34 | 4.17 | 3.99 | 3.81 | 3.62 |
| 6 | 6.27 | 6.14 | 6.00 | 5.84 | 5.68 | 5.52 | 5.36 | 5.19 | 5.01 | 4.83 | 4.64 |
| 7 | 7.35 | 7.22 | 7.00 | 6.92 | 6.76 | 6.60 | 6.44 | 6.27 | 6.09 | 5.91 | 5.72 |
| 8 | 8.37 | 8.24 | 8.00 | 7.94 | 7.78 | 7.62 | 7.46 | 7.29 | 7.11 | 6.93 | 6.74 |
| 10 | 10.67 | 10.34 | 10.00 | 9.63 | 9.24 | 8.85 | 8.45 | 8.01 | 7.55 | 7.06 | 6.55 |
| 12 | 12.69 | 12.36 | 12.00 | 11.65 | 11.26 | 10.60 | 10.47 | 10.03 | 9.57 | 9.08 | 8.57 |
| 13 | 13.70 | 13.37 | 13.00 | 12.66 | 12.27 | 11.61 | 11.48 | 11.04 | 10.58 | 10.09 | 9.58 |
| 15 | 15.79 | 15.39 | 15.00 | 14.54 | 14.10 | 13.65 | 13.19 | 12.70 | 12.20 | 11.69 | 11.64 |
| 16 | 16.80 | 16.40 | 16.00 | 15.55 | 15.11 | 14.66 | 14.20 | 13.71 | 13.21 | 12.70 | 12.65 |
| 20 | 20.96 | 20.47 | 20.00 | 19.47 | 18.95 | 18.42 | 17.87 | 17.30 | 16.71 | 16.10 | 15.47 |
| 25 | 26.22 | 25.61 | 25.00 | 24.33 | 23.67 | 23.00 | 22.28 | 21.56 | 20.80 | 20.02 | 19.21 |
| 30 | 31.50 | 30.73 | 30.00 | 29.13 | 28.30 | 27.44 | 26.56 | 25.65 | 24.71 | 23.74 | 22.73 |
| 32 | 33.54 | 32.77 | 32.00 | 31.17 | 30.34 | 29.48 | 28.69 | 27.69 | 26.75 | 25.78 | 24.77 |
| 35 | 36.58 | 35.81 | 35.00 | 34.21 | 33.38 | 32.52 | 31.64 | 30.73 | 29.79 | 28.82 | 27.81 |
| 40 | 41.98 | 40.99 | 40.00 | 38.93 | 37.85 | 36.75 | 35.61 | 34.43 | 33.21 | 31.95 | 30.63 |
| 50 | 52.56 | 51.28 | 50.00 | 47.82 | 46.24 | 44.81 | 43.33 | 41.81 | 40.23 | 38.58 | 35.77 |
| 60 | 63.50 | 61.75 | 60.00 | 57.08 | 55.16 | 53.18 | 51.13 | 49.00 | 46.78 | 44.47 | 40.47 |
| 63 | 66.53 | 64.78 | 63.00 | 60.11 | 58.19 | 56.21 | 54.16 | 52.03 | 49.81 | 47.50 | 43.50 |

Description

Add-on module for circuit breaker type 4230-T. The auxiliary switch has a change-over contact as signal contact and is operated with actuation of the MCB.

Typical applications

Status monitoring of MCB and/or the connected loads.

Mounting

The add-on module is mounted on the left side of the MCB (seen from the front). For mounting, the MCB has to be in the OFF position.

Order numbering code

Type No.

X4230 Add-on module for type 4230-T

Module type

S aux. contact switch

Style

0 change-over contact

Terminals

1 screw terminals

Key for nominal output

A (to IEC/EN 60947-5-1)

| Rated voltage | Rated current | Rated voltage | Rated current |
|---------------|---------------|---------------|---------------|
| 240 V | 6 A | 24 V | 6 A |
| 415 V | 3 A | 48 V | 2 A |
| | | 130 V | 1 A |

B (to UL 489)

| Rated voltage | Rated current | Rated voltage | Rated current |
|---------------|---------------|---------------|---------------|
| 12...240 V | 6 A | 12...24 V | 6 A |
| 277 V | 3 A | 48 V | 3 A |
| | | 110...220 V | 1,5 A |

Delivery condition:

L supplied separately, has to be mounted by the user

X4230- S 0 1 A L ordering example

Technical Data

Rated currents to IEC/EN 60947-5-1:

| Voltage ratings: | AC 240 V | AC 415 V | DC 24 V | DC 48 V | DC 130 V |
|------------------|----------|----------|---------|---------|----------|
| Current ratings: | 6 A | 3 A | 6 A | 2 A | 1 A |

Rated currents to UL 489:

| Voltage ratings: | AC 12... 240 V | AC 277 V | DC 12 ... 24 V | DC 48 V | DC 110 ... 220 V |
|------------------|----------------|----------|----------------|---------|------------------|
| Current ratings: | 6 A | 3 A | 6 A | 3 A | 1,5 A |

Typical life 20,000 cycles

Tightening torque 1 Nm max.

Ambient temperature -35 °C ...+ 70 °C

Width 9 mm

Mass approx. 29 g

Approvals

| Approval authority | Standard | Types |
|--------------------|------------------|--------------------|
| TÜV | IEC/EN 60947-5-1 | with key index "A" |
| UL | UL 489 | with key index "B" |

Mounting instructions

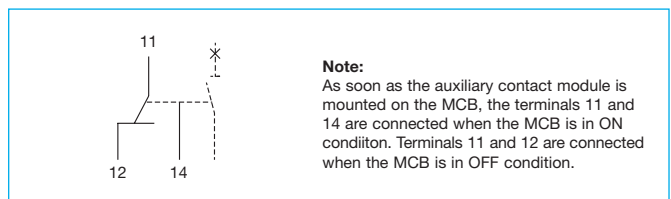
Mounting to MCB to UL 489

The following steps have to be carried out for mounting the auxiliary contact module:

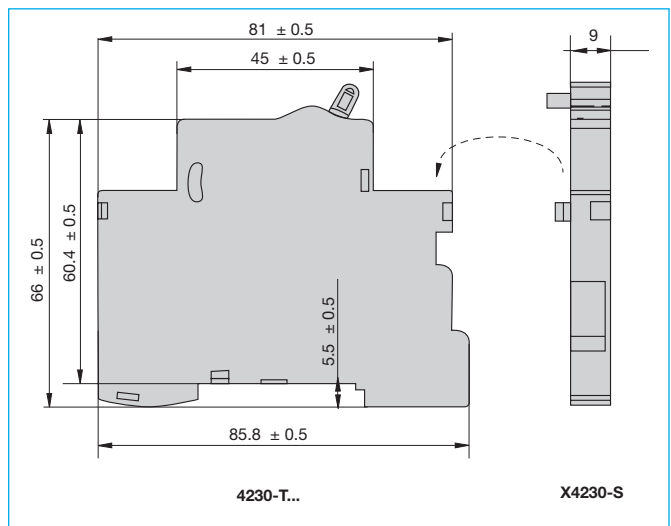
- Remove the left-side covers for the latching notches of the auxiliary contact module on both isolation pieces of the MCB, e.g. by means of a screw driver
- Pull off the isolation pieces from the MCB to the front
- Remove blanking plug on MCB to open left-side holes for latching notches of auxiliary switch
- Re-insert isolation pieces onto MCB
- Pull off left-side adhesive cover and carefully remove the perforated cover below

Caution: the MCB to UL489 must only be operated with the insulation pieces fitted.

Schematic diagrams



Mounting principle



Description

Add-on module for MCB type 4230-T. The fault indicator has a change-over contact as signal contact. There will only be a signal when the MCB tripped on grounds of a failure (overload, short circuit), but not when the MCB was switched on or off manually. By actuating the reset lever on the front the tripping signal is acknowledged.

Typical applications

Status monitoring of MCB and/or the connected loads.

Mounting

The add-on module is mounted on the left side of the MCB (seen from the front). For mounting, the MCB has to be in the OFF position.

Order numbering code

| | | | |
|-------------------------------------|--|---------------|---------------|
| Type No. | | | |
| X4230 Add-on module for type 4230-T | | | |
| Module type | | | |
| A | Fault indicator module | | |
| Style | | | |
| 0 | change-over contact | | |
| terminals | | | |
| 1 | screw terminals | | |
| Key for nominal output | | | |
| A (to IEC/EN 60947-5-1) | | | |
| AC voltage | DC voltage | | |
| Rated voltage | Rated current | Rated voltage | Rated current |
| 240 V | 6 A | 24 V | 6 A |
| 277 V | 3 A | 48 V | 2 A |
| | | 130 V | 1 A |
| B (to UL 489) | | | |
| 12...240 V | 6 A | 12...24 V | 6 A |
| 415 V | 3 A | 48 V | 3 A |
| | | 130 V | 1.5 A |
| Delivery condition: | | | |
| L | supplied separately, has to be mounted by the user | | |
| X4230-A 0 1 A L ordering example | | | |

Technical Data

Rated currents to IEC/EN 60947-5-1:

| | | | | | |
|------------------|----------|----------|---------|---------|----------|
| Voltage ratings: | AC 240 V | AC 415 V | DC 24 V | DC 48 V | DC 130 V |
| Current ratings: | 6 A | 3 A | 6 A | 2 A | 1 A |

Rated currents to UL 489:

| | | | | | |
|------------------|----------------|----------|----------------|---------|------------------|
| Voltage ratings: | AC 12... 240 V | AC 277 V | DC 12 ... 24 V | DC 48 V | DC 110 ... 220 V |
| Current ratings: | 6 A | 3 A | 6 A | 3 A | 1.5 A |

| | |
|---------------------|-------------------|
| Typical life | 20,000 cycles |
| Tightening torque | 1 Nm max. |
| Ambient temperature | -35 °C ...+ 70 °C |
| Width | 9 mm |
| Mass | approx. 29 g |

Approvals

| | | |
|--------------------|----------|--------------------|
| Approval authority | Standard | Types |
| UL | UL 489 | with key index "B" |

Mounting instructions

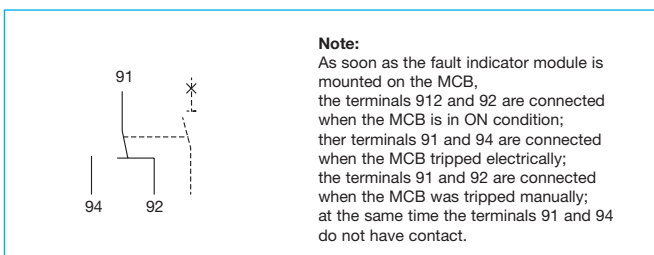
Mounting to MCB to UL 489

The following steps have to be carried out for mounting the fault indicator module:

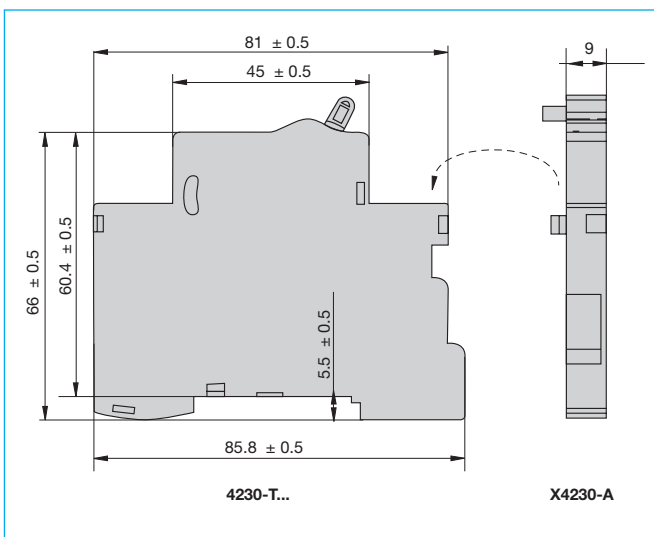
- Remove the left-side covers for the latching notches of the fault indicator module on both isolation pieces of the MCB, e.g. by means of a screw driver
- Pull off the isolation pieces from the MCB to the front
- Remove blanking plug on MCB to open left-side holes for latching notches of indicator switch
- Re-insert isolation pieces onto MCB
- Pull off left-side adhesive cover and carefully remove the perforated cover below

Caution: the MCB to UL489 must only be operated with the insulation pieces fitted.

Schematic diagrams



Mounting principle



Description

Add-on module for MCB type 4230-T. The working current module serves for remote trip of the MCB and for signalling whether the MCB was tripped electrically or manually.

Typical applications

Electrical remote trip of safety equipment with simultaneous monitoring of MCB status or its connected load.

Mounting

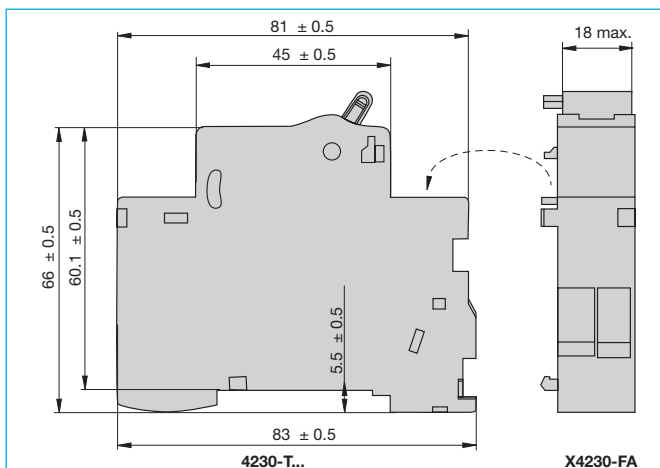
The add-on module is mounted on the left side of the MCB (seen from the front). For mounting, the MCB has to be in the OFF position. When auxiliary contact module/fault indicator module and a working current module are mounted at the same time, the working current module always has to be mounted first.

Order numbering code

| | |
|-------------------------------------|--|
| Type No. | |
| X4230 Add-on module for type 4230-T | |
| Module type | |
| F | Working current module |
| Style | |
| A | Magnetic coil and auxiliary switch (changeover) physically isolated from the MCB |
| terminals | |
| 1 | screw terminals |
| Approvals | |
| A | without |
| B | UL 489 |
| Delivery condition: | |
| L | supplied separately, has to be mounted by the user |
| Rated voltage | |
| Approval | |
| A | B |
| AC 120 V | --- UL 489 |
| AC 240 V | without UL 489 |
| AC 277 V | --- UL 489 |
| AC 415 V | without --- |
| DC 12 V | --- UL 489 |
| DC 24 V | without UL 489 |
| DC 48 V | without UL 489 |
| DC 125 V | --- UL 489 |

X4230- F A 1 A L - AC 240 V ordering example

Mounting principle



Technical Data

| | | | | |
|------------------------------------|------------------|----------|----------|----------|
| Voltage ratings AC | AC 415 V | AC 277 V | AC 240 V | AC 120 V |
| Min. trip voltage | AC 200 V | AC 160 V | AC 160 V | AC 80 V |
| Power consumption | 240 W | 240 W | 200 W | 200 W |
| min. response power | 35 W | 35 W | 35 W | 35 W |
| Rated current of auxiliary contact | 3 A | 3 A | 6 A | 6 A |
| Voltage ratings DC | DC 125 V | DC 48 V | DC 24 V | DC 12 V |
| Min. trip voltage | DC 80 V | DC 24 V | DC 16 V | DC 8 V |
| Power consumption | 200 W | 200 W | 200 W | 200 W |
| min. response power | 30 VA | 30 VA | 30 VA | 30 VA |
| Rated current of auxiliary contact | 1.5 A | 2 A | 6 A | 6 A |
| Trip time | < 10 ms | | | |
| Typical life | 20,000 cycles | | | |
| Tightening torque | 1 Nm max. | | | |
| Ambient temperature | -35 °C...+ 70 °C | | | |
| Width | 18 mm | | | |
| Mass | approx. 60 g | | | |

Mounting instructions

Mounting to MCB to UL 489

The following steps have to be carried out for mounting the auxiliary contact module:

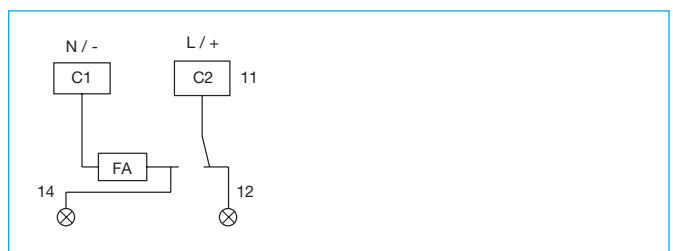
- Remove the left-side covers for the latching notches of the working current module on both isolation pieces of the MCB, e.g. by means of a screw driver
- Pull off the isolation pieces from the MCB to the front
- Remove blanking plug on MCB to open left-side holes for latching notches of working current module
- Re-insert isolation pieces onto MCB
- Pull off left-side adhesive cover and carefully remove the perforated cover below

Caution: the MCB to UL489 must only be operated with the insulation pieces fitted.

Approvals

| Approval authority | Standard | Types |
|--------------------|----------|---|
| UL | UL 489 | Approval type "B" according to ordering number code |

Schematic diagrams



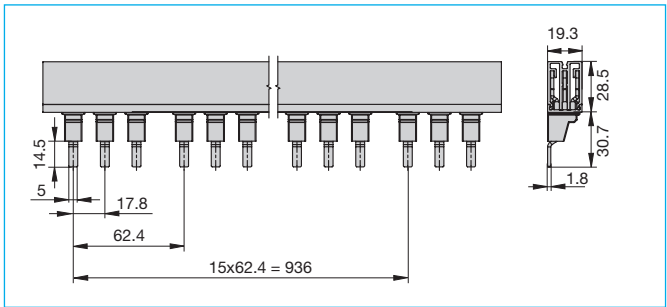
Busbars UL 489 to be cut to length

Busbars for the connection of circuit breakers **type 4230-..U.. to UL 489** The busbars of 1m length can individually be cut to a suitable length for the application and isolated with end caps. Depending on the control cabinet design, the supply is by means of supply terminals without increasing the installation width or by means of a terminal block directly on the rail without increasing the installation height.

The models marked with "HS" are suitable for use with auxiliary contact modules with a width of 9 mm.

- Busbar cross section: 18 mm².
 Max. busbar current I_S (at 35°C):
 with supply at the end: 80 A
 with supply in the middle: 160 A
 Short circuit strength I_{CC}: 10 kA
 Max. operating voltage: 480 V AC/DC
 Degree of protection: IP20
 Step size: 17.8 mm

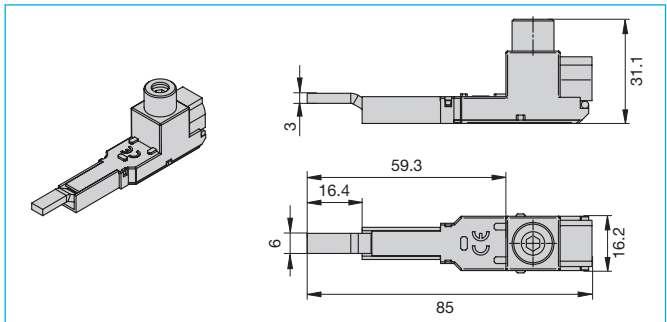
1



Accessories for busbars UL489 that can be cut to length:

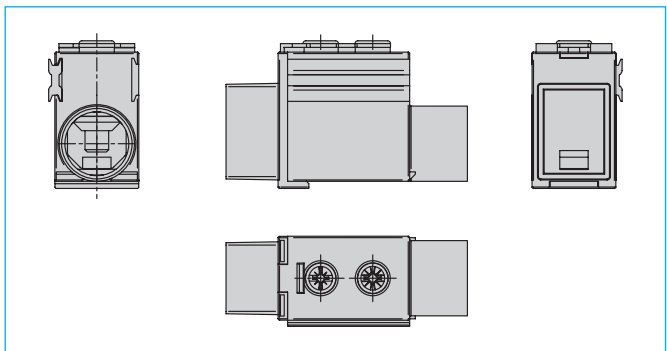
Supply terminal X4230-FTUC35

- Cross-section 2.5-35 mm² (2-14 AWG),
 Tightening torque: 5.5 Nm (50 lbf.in)
 Ampacity: max. 115 A



Terminal block part no. X4230-FBU50

- Cross-section 1.5-50 mm² (1-14 AWG), solid/stranded
 1.5-35 mm² (2-14 AWG), finely stranded with wire end ferrule
 Tightening torque: supply: 3.5 Nm (35 lbf.in)
 output (track side): 2.5 Nm (22 lbf.in)
 Ampacity: max. 115 A

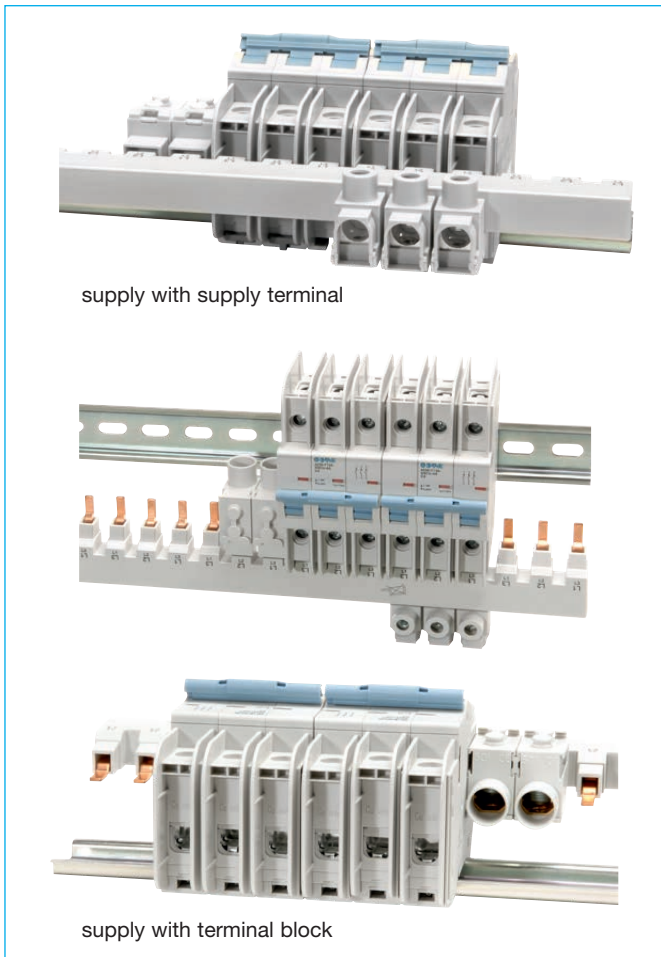


end caps part no. X4230-EC1

Accessories for all busbars UL489 that can be cut to length:

Protection against brush contact part no. X4230-TC2

for covering unused modules



| Number of poles | Number of modules | part no. |
|-----------------|-------------------|-------------------|
| 1-pole | 57 | X4230-BU157P18S |
| 2-pole | 56 | X4230-BU256P18S |
| 3-pole | 57 | X4230-BU357P18S |
| 1-pole + HS | 37 | X4230-BU137P18H2S |
| 2-pole + HS | 46 | X4230-BU246P18H1S |
| 3-pole + HS | 48 | X4230-BU348P18H1S |

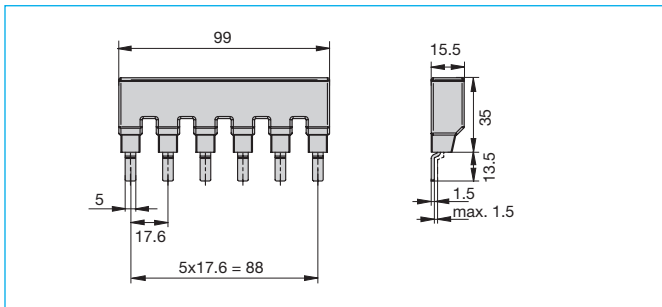
HS = application with auxiliary switch 9 mm

Busbars UL 489, cannot be cut to length

Busbars for the connection of circuit breakers **type 4230-..U..** to **UL489**. Depending on busbar type suitable for up to 18 poles.

Busbar cross section: 16 mm²
 Max. busbar current I_S: 115 A
 Short circuit strength I_{CC}: 10 kA
 Max. operating voltage: 480 V AC/DC
 Degree of protection: IP20
 Step size: 17.6 mm

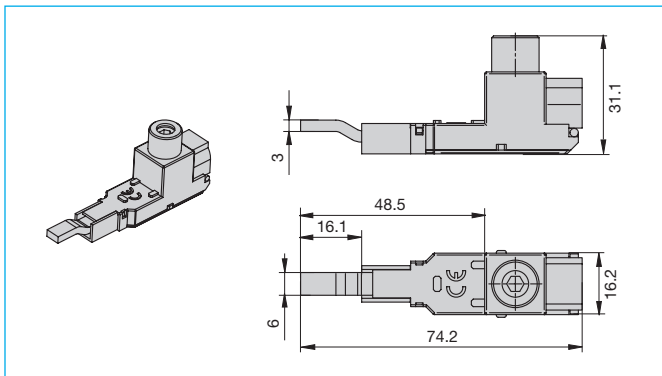
| Number of poles | Number of modules | part no. |
|-----------------|-------------------|-----------------|
| 1-pole | 6 | X4230-BU106P16A |
| 1-pole | 12 | X4230-BU112P16A |
| 1-pole | 18 | X4230-BU118P16A |
| 2-pole | 6 | X4230-BU206P16A |
| 2-pole | 12 | X4230-BU212P16A |
| 2-pole | 18 | X4230-BU218P16A |
| 3-pole | 6 | X4230-BU306P16A |
| 3-pole | 12 | X4230-BU312P16A |
| 3-pole | 18 | X4230-BU318P16A |



Accessories for busbars UL489 that cannot be cut to length:

supply terminal
part no. X4230-FTU35

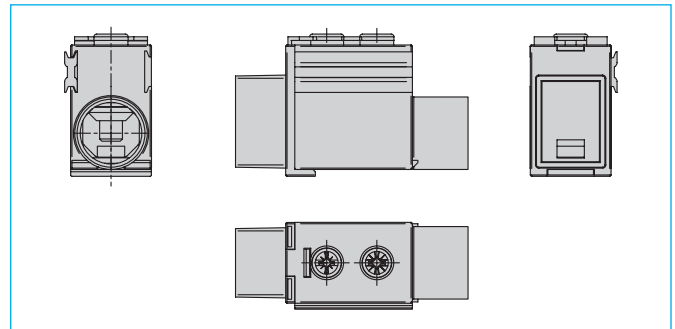
Cross-section 2.5-35 mm² (2-14 AWG),
 Tightening torque: 5.5 Nm (50 lbf.in)
 Ampacity: max. 115 A



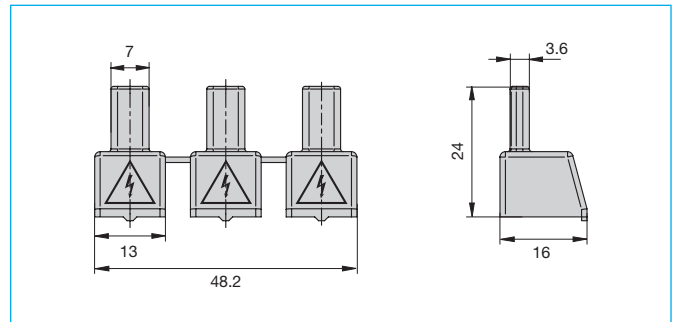
Accessories for busbars UL489 that cannot be cut to length:

Terminal block
part no. X4230-FBU50

Cross-section 1.5-50 mm² (1-14 AWG),
 solid/stranded
 1.5-35 mm² (2-14 AWG),
 finely stranded with wire
 end ferrule:
 Tightening torque: supply: 3.5 Nm (35 lbf.in)
 output (track side):
 2.5 Nm (22 lbf.in)
 Ampacity: max. 115 A



Protection against brush contact
part no. X4230-TC1



Approvals

| Approval authority | Standard | Types |
|--------------------|----------|-------------|
| UL | UL 489 | X4230-BU... |
| UL | UL 508 | X4230-BR... |

Busbars UL 508 to be cut to length

Busbars for the connection of circuit breakers **type 4230-..E.. To UL 1077** The busbars of 1m length can individually be cut to a suitable length for the application and isolated with end caps.

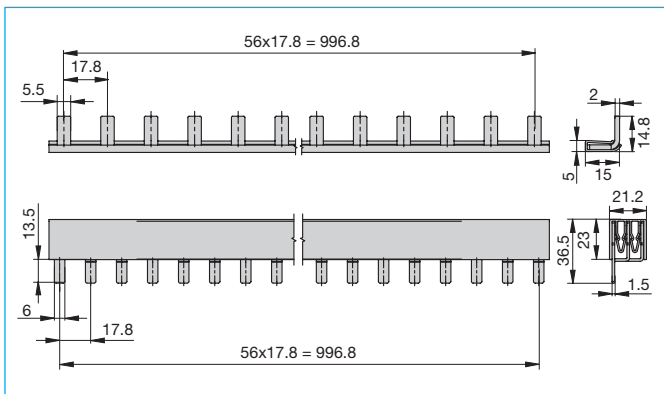
Depending on the control cabinet design, the supply is by means of supply terminals without increasing the installation width or by means of a terminal block directly on the rail without increasing the installation height.

The models marked with "HS" are suitable for use with auxiliary contact modules with a width of 9mm.

Busbar cross section: 18 mm².
 Max. busbar current I_S (at 35°C):
 with supply at the end: 80 A
 with supply in the middle: 160 A
 Short circuit strength I_{CC}: 10 kA
 Max. operating voltage: 480 V AC/DC
 Degree of protection: IP20
 Step size: 17.8 mm

| Number of poles | Number of modules | part no. |
|-----------------|-------------------|--------------------|
| 1-pole | 57 | X4230-BR157P18SB |
| 2-pole | 56 | X4230-BR256P18SL |
| 3-pole | 57 | X4230-BR357P18SL |
| 1-pole + HS | 37 | X4230-BR137P18H1SB |
| 2-pole + HS | 46 | X4230-BR246P18H1SL |
| 3-pole + HS | 48 | X4230-BR348P18H1SL |

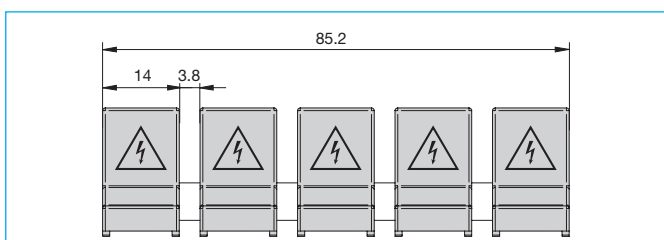
HS = application with auxiliary switch 9 mm



end caps
 for single pole busbars: **part no. X4230-EC2**
 for multipole busbars: **part no. X4230-EC3**

Protection against brush contact
part no. X4230-TC3

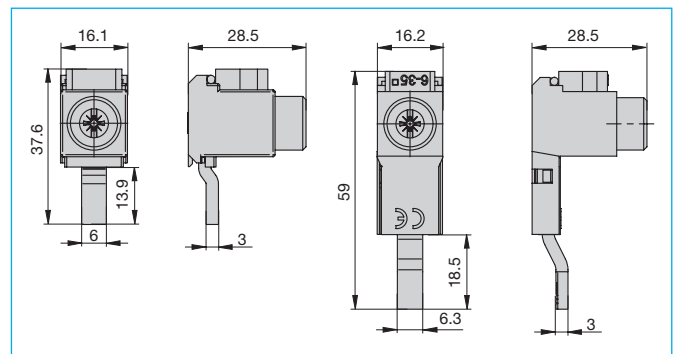
for covering unused modules.



Accessories for busbars UL508 that can be cut to length:

supply terminals
 for single pole busbars: **part no. X4230-FTR135**
 for multipole busbars: **part no. X4230-FTR335**

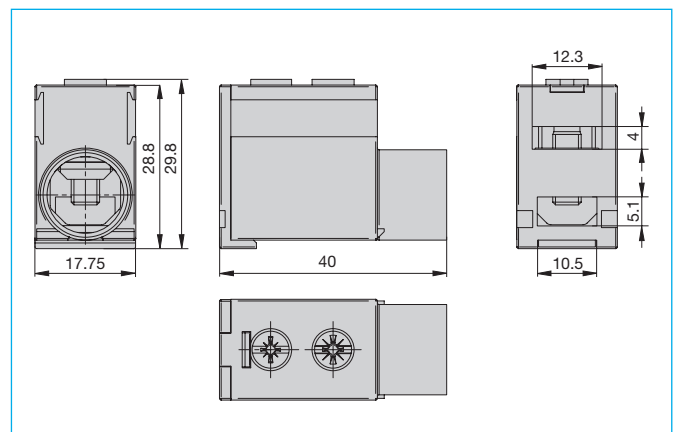
Cross-section 6 - 50 mm² (1-10 AWG), solid/stranded
 6 - 35 mm² (2-10 AWG), finely stranded with wire end ferrule
 Tightening torque: 5.5 Nm (50 lbf.in)
 Ampacity: max. 115 A



Accessories for busbars UL508 that can be cut to length:

Terminal block
part no. X4230-FBR50

Cross-section 6 - 50 mm² (1-10 AWG), solid/stranded
 6 - 35 mm² (2-10 AWG), finely stranded with wire end ferrule
 Tightening torque: supply: 3.5 Nm (35 lbf.in)
 output (track side): 2.5 Nm (22 lbf.in)
 Ampacity: max. 115 A



Busbars for IEC applications, to be cut to length

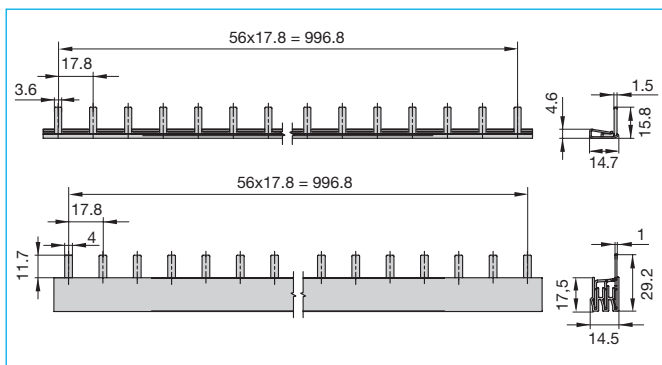
Busbars for the connection of circuit breakers **type 4230-..E.. to IEC 60947-2**. The busbars of 1m length can individually be cut to a suitable length for the application and isolated with end caps.

The models marked with "HS" are suitable for use with auxiliary contact modules with a width of 9 mm.

- Busbar cross section: 16 mm²
- Max. busbar current I_s (at 35°C):
 - with supply at the end: 80 A
 - with supply in the middle: 130 A
- Short circuit strength I_{cc}: 10 kA
- Max. operating voltage: 690 V AC/DC
- Degree of protection: IP20
- Step size: 17.8 mm

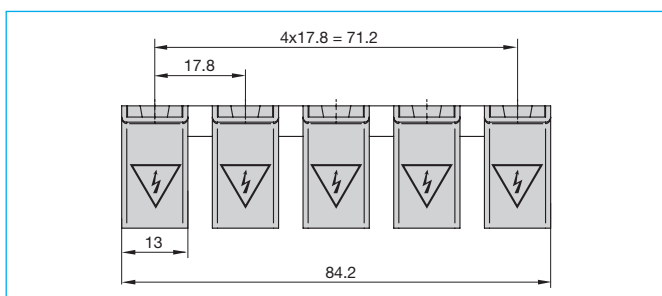
| Number of poles | Number of modules | part no. |
|-----------------|-------------------|--------------|
| 1-pole | 57 | Y 311 622 01 |
| 2-pole | 56 | Y 311 623 01 |
| 3-pole | 57 | Y 311 624 01 |
| 4-pole | 56 | Y 311 625 01 |
| 1-pole + HS | 37 | Y 311 626 01 |
| 2-pole + HS | 46 | Y 311 627 01 |
| 3-pole + HS | 48 | Y 311 628 01 |
| 4-pole + HS | 52 | Y 311 629 01 |

HS = application with auxiliary switch 9 mm



- end caps**
- for single pole busbars: part no. Y 307 851 01
- for 2-/3-pole busbars: part no. Y 308 506 01
- for four-pole busbars: part no. Y 311 633 01

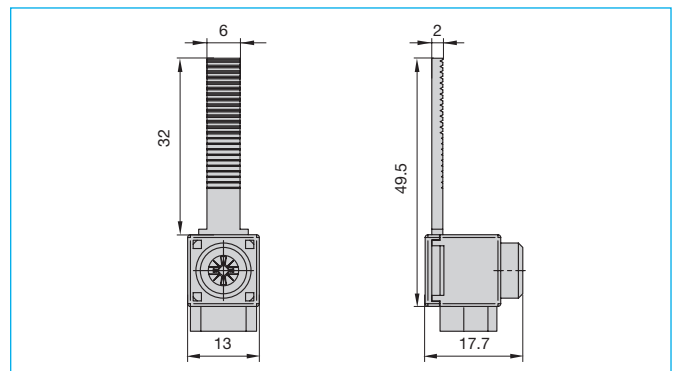
Protection against brush contact
part no. Y 311 632 01



Accessories for busbars to IEC 60947 that can be cut to length:

supply terminal for multiple busbars:
part number **Y 311 630 01**

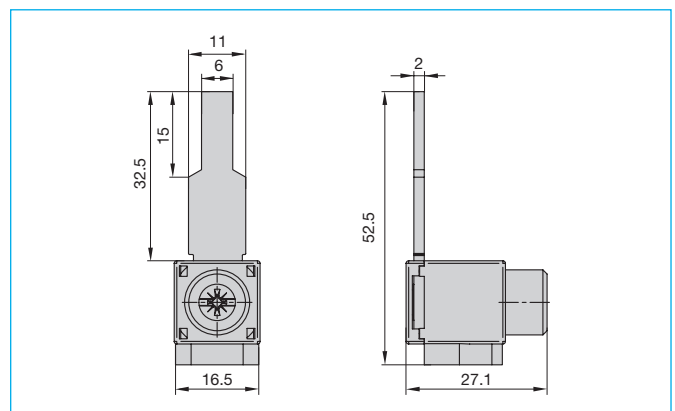
- Cross-section: 6–25 mm², solid/stranded; 4–16 mm², finely stranded with wire end ferrule:
- Ampacity: max. 80 A



Accessories for busbars to IEC 60947 that can be cut to length:

supply terminal for multiple busbars:
part no. **Y 311 631 01**

- Cross-section: 6–50 mm², solid/stranded; 4–35 mm², finely stranded with wire end ferrule:
- Tightening torque: 1 Nm (at 6 mm²); 3.5 Nm (at 50 mm²)
- Ampacity: max. 125 A
- Degree of protection: IP20, isolated bottom



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