

IEC General Purpose Fuses Ferrule Fuses Modulostar® CMS14, CMS22

IEC fuse holders: CMS 14

Fuse holder compliant with IEC 60269-1 & 2, and tested in accordance with IEC 60947-1 & 3 for fuse
disconnector usage

IEC fuse disconnectors: CMS 14

Fuse disconnectors compliant with IEC 60947-1 & 3 and IEC 60269-1 & 2

Electrical characteristics

| Rated insulation voltage U _i AC/DC | Rated impulse withstand voltage U _{imp} | Rated current | Max. power dissipation per fuse | Fuse rating | Maximum current in use for 1, 2, 3 et 3+N poles with FS-fuses. for 4, 5 and 6 poles, multiply by 0.8 for 7, 8, 9 x 0.7 and for ≥ 10 x 0.6 | | | | | | Recommended wire cross-section (mm ²) |
|---|---|---------------|---------------------------------|-------------|---|------|-----------|-----------|------|------|---|
| | | | | | gG | aM | URD - URC | URGA URGB | gRB | gLB | |
| 690 V AC 20 B | 8 kV | 50 A | 5 W | ≤ 16 | ≤ 16 | ≤ 16 | ≤ 16 | ≤ 16 | ≤ 16 | ≤ 16 | 2.5 |
| | | | | 20 | 20 | 20 | 18 | 18 | 18 | 20 | 2.5 |
| | | | | 25 | 25 | 25 | 20 | 20 | 20 | 25 | 4 |
| | | | | 32 | 32 | 32 | 25 | 25 | 25 | 32 | 6 |
| | | | | 40 | 40 | 40 | 30 | 30 | 30 | 40 | 6 |
| | | | | 50 | 50 | 50 | 35 | 35 | 35 | 45 | 10 |
| | | | | 63 | | | 38 | | | 10 | |

* Values shown for 20°C ambient temperature.

Wiring: Rigid wire = 1.5 - 35 mm² (16 - 3 AWG) - Multistrand wire: Maximum 25 mm² (4 AWG)

Tightening torque: 3.5 Nm max / 30 lbs.in

Ferraz Shawmut recommends to use screwdrivers PZ 2 or Flat 5.5 x 1 mm (maximum diameter 6 mm).

CMS 14 fuse holders

for 14x51 fuses without striker



| Fuse holders without indicator light | | | | |
|--------------------------------------|----------|----------|----------------------|-------------|
| Nb of Poles | Cat. Num | Ref. Num | Nb of Mod. (17.5 mm) | Pckg box of |
| N | CMS14N | N222468 | 1.5 | 6 |
| 1 | CMS141 | F222990 | 1.5 | 6 |
| 1 + N | CMS141N | E201323 | 3 | 3 |
| 2 | CMS142 | J211056 | 3 | 3 |
| 3 | CMS143 | J212091 | 4.5 | 2 |
| 3 + N | CMS143N | L213128 | 6 | 1 |
| 4 | CMS144 | G214136 | 6 | 1 |

| Fuse holders with indicator light | | | | |
|-----------------------------------|----------|----------|----------------------|-------------|
| Nb of Poles | Cat. Num | Ref. Num | Nb of Mod. (17.5 mm) | Pckg box of |
| 1 | CMS141I | M200778 | 1.5 | 6 |
| 1 + N | CMS141NI | M201836 | 3 | 3 |
| 2 | CMS142I | C211579 | 3 | 3 |
| 3 | CMS143I | Z212611 | 4.5 | 2 |
| 3 + N | CMS143NI | D213627 | 6 | 1 |

for 14x51 fuses with striker

| Nb of Pole | Standard ready for accessories | | Nb of Mod. (17.5 mm) | Pckg box of | Possible Functions |
|------------|--------------------------------|----------|----------------------|-------------|-----------------------------------|
| | Ref. Num | Cat. Num | | | |
| 1 | L223524 | CMS141AC | 1.5 | 6 | Indicator light & blown fuse only |

CMS 14 fuse disconnectors

for all types of 14x51 fuses

| Nb of Pole | Model without indicator light ready for accessories | | Model with indicator light ready for auxiliary microswitch | | Model fitted with auxiliary microswitch | | Model fitted with auxiliary microswitch & indicator light | | Nb of Mod. (17.5 mm) | Pckg box of |
|------------|---|----------|--|------------|---|----------|---|----------|----------------------|-------------|
| | Cat. Num | Ref. Num | Ref. Num | Cat. Num | Cat. Num | Ref. Num | Cat. Num | Ref. Num | | |
| N | | N222468 | | | | | | | 1.5 | 6 |
| 1 | CMS141P | P217708 | | | CMS141M | K214645 | CMS141MI | N201837 | 1.5 | 6 |
| 1 + N | | P222469 | | | | | | | 3 | 3 |
| 2* | CMS142P | G222991 | | | CMS142M | R215157 | CMS142MI | K211057 | 3 | 3 |
| 3 | CMS143P | N200779 | | consult us | CMS143M | T215665 | CMS143MI | D211580 | 4.5 | 2 |
| 3* | | | | | CMS143M2 | Y216681 | CMS143M2I | K212092 | 4.5 | 2 |
| 3 + N | CMS143NP | F201324 | | | CMS143NM | L217199 | CMS143NMI | A212612 | 6 | 1 |
| 4 | | | | | | | | | 6 | 1 |

* Two auxiliary microswitches (see instructions for mounting) – The auxiliary microswitch function requires use of fuses with strikers.

Accessories

| Description | Cat. Num | References | Nb of Mod. (17.5 mm) | Pckg |
|---|------------|------------|----------------------|------|
| Auxiliary microswitch kit 1 pole CMS 14 | CMS14W1 | M218741 | 1.5 | 1 |
| Auxiliary microswitch kit 3 poles CMS 14 | CMS14W2 | C219261 | 4.5 | 1 |
| 2 auxiliary microswitch kit 3 poles CMS 14 | CMS14W3 | D219791 | 4.5 | 1 |
| Auxiliary microswitch assembly pin (between 2 kits) | CMS1422PTH | J214138 | | 10* |
| Enlargement pin for auxiliary microswitch | CMS1422BP | F213629 | | 10* |
| Multi-pole assembly kit | CMS1422PAK | Z218223 | | 10* |
| Indicator light kit | CMS1422LHI | A225653 | | 1 |
| Lock | LOCK | M223525 | | 1 |

* 10 per bag

Auxiliary micro-switch kit M218741



Enlargement pin for auxiliary microswitch - F213629



Auxiliary microswitch assembly pin J214138

Gears & Fuse Gears



IEC General Purpose Fuses

Ferrule Fuses

Modulostar® CMS14, CMS22

IEC fuse holders: CMS 22 - Fuse holder compliant with IEC 60269-1 & 2, and tested in accordance with IEC 60947-1 & 3 for fuse disconnecter usage

IEC fuse disconnectors: CMS 22 - Fuse disconnectors compliant with IEC 60947-1 & 3 and IEC 60269-1 & 2

Electrical characteristics

| Rated insulation voltage Ui AC/DC | Rated impulse withstand voltage Uimp | Rated current | Max. power dissipation per fuse | Fuse rating | Maximum current in use for 1, 2, 3 et 3+N poles with FS-fuses. for 4, 5 and 6 poles, multiply by 0.8 for 7, 8, 9 x 0.7 and for ≥ 10 x 0.6 | | | | | | Recommended wire cross-section (mm²) |
|---|---|---------------|---------------------------------|-------------|---|------|-----------|-----------|------|------|--------------------------------------|
| | | | | | gG | aM | URD - URC | URGA URGB | gRB | gLB | |
| 690 V AC 20 B | 8 kV | 125 A | 9.5 W | ≤ 16 | ≤ 16 | ≤ 16 | ≤ 16 | ≤ 16 | ≤ 16 | ≤ 16 | 2.5 |
| | | | | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 4 |
| | | | | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 6 |
| | | | | 32 | 32 | 32 | 29 | 29 | 29 | 32 | 10 |
| | | | | 40 | 40 | 40 | 35 | 35 | 35 | 40 | 10 |
| | | | | 50 | 50 | 50 | 40 | 40 | 40 | 50 | 16 |
| | | | | 63 | 63 | 63 | 52 | 50 | 50 | 63 | 25 |
| | | | | 80 | 80 | 80 | 63 | 60 | 65 | 75 | 35 |
| | | | | 100 | 100 | 100 | 76 | 65 | 76 | 85 | 35 |
| | | | 125 | 110 | 125 | 85 | | 125 | | | |

* Values shown for 20°C ambient temperature.

Wiring: Rigid wire = 1.5 - 50 mm² (16 - 1 AWG) - Multistrand wire: Maximum 35 mm² (3 AWG). Tightening torque: max. 4.5 Nm - 45 lbs.in
Ferraz Shawmut recommends to use screwdrivers PZ 2 or Flat 6.5 x 1.2 mm (maximum diameter 7 mm).

CMS 22 fuse holders

for 22x58 fuses without striker

| Fuse holders without indicator light | | | | |
|--------------------------------------|---------|---------|----------------------|-------------|
| Nb of Poles | Cat.Num | Ref.Num | Nb of Mod. (17.5 mm) | Pckg box of |
| N | CMS22N | M213129 | 1.5 | 6 |
| 1 | CMS221 | E213628 | 1.5 | 6 |
| 1 + N | CMS221N | L214646 | 3 | 3 |
| 2 | CMS222 | V215666 | 3 | 3 |
| 3 | CMS223 | Z216682 | 4.5 | 2 |
| 3 + N | CMS223N | Q217709 | 6 | 1 |
| 4 | CMS224 | N218742 | 6 | 1 |

| Fuse holders with indicator light | | | | |
|-----------------------------------|----------|---------|----------------------|-------------|
| Nb of Poles | Cat.Num | Ref.Num | Nb of Mod. (17.5 mm) | Pckg box of |
| 1 | CMS221I | H214137 | 1.5 | 6 |
| 1 + N | CMS221NI | S215158 | 3 | 3 |
| 2 | CMS222I | Z216176 | 3 | 3 |
| 3 | CMS223I | M217200 | 4.5 | 2 |
| 3 + N | CMS223NI | A218224 | 6 | 1 |



G201325

for 22x58 fuses with striker

| Nb of Pole | Standard ready for accessories Cat.Num | Ref.Num | Nb of Mod. (17.5 mm) | Pckg box of | Possible Functions |
|------------|---|---------|----------------------|-------------|-----------------------------------|
| 1 | CMS22AC | P201838 | 1.5 | 6 | Indicator light & blown fuse only |

CMS 22 fuse disconnectors

for all types of 22x58 fuses

| Nb of Pole | Model without indicator light ready for accessories | | Model with indicator light ready for auxiliary microswitch | | Model fitted with auxiliary microswitch | | Model fitted with auxiliary microswitch & indicator light | | Nb of Mod. (17.5 mm) | Pckg box of |
|------------|---|---------|--|------------|---|---------|---|---------|----------------------|-------------|
| | Cat.Num | Ref.Num | Cat.Num | Ref.Num | Cat.Num | Ref.Num | Cat.Num | Ref.Num | | |
| N | CMS22N | M213129 | | | | | | | 1.5 | 6 |
| 1 | CMS221P | G201325 | | | CMS221M | D219262 | CMS221MI | A216683 | 1.5 | 6 |
| 1 + N | CMS221NP | M214647 | | | | | | | 3 | 3 |
| 2 | CMS222P | T215159 | | | CMS222M | E219792 | CMS222MI | N217201 | 3 | 3 |
| 3 | CMS223P | W215667 | | consult us | CMS223M | Q222470 | CMS223MI | R217710 | 4.5 | 2 |
| 3* | | W215667 | | | CMS223M2 | H222992 | CMS223M2I | B218225 | 6 | 2 |
| 3 + N | CMS223NP | A216177 | | | CMS223NM | P200780 | CMS223NMI | P218743 | 6 | 1 |



D219262

* Two auxiliary microswitches (see instructions for mounting) – The auxiliary microswitch function requires use of fuses with strikers.

Accessories

| Description | Cat.Num | References | Nb of Mod. (17.5 mm) | Pckg |
|---|------------|------------|----------------------|------|
| Auxiliary microswitch kit 1 pole CMS 22 | CMS22W1 | E211581 | 1.5 | 1 |
| Auxiliary microswitch kit 3 poles CMS 22 | CMS22W2 | L212093 | 4.5 | 1 |
| 2 auxiliary microswitch kit 3 poles CMS 22 | CMS22W3 | B212613 | 4.5 | 1 |
| Auxiliary microswitch assembly pin (between 2 kits) | CMS1422PTH | J214138 | | 10* |
| Enlargement pin for auxiliary microswitch | CMS1422BP | F213629 | | 10* |
| Multi-pole assembly kit | CMS1422PAK | Z218223 | | 10* |
| Indicator light kit | CMS1422LHI | A225653 | | 1 |
| Lock | LOCK | M223525 | | 1 |



E211581



Enlargement pin for auxiliary microswitch - F213629



Auxiliary microswitch assembly pin - J214138

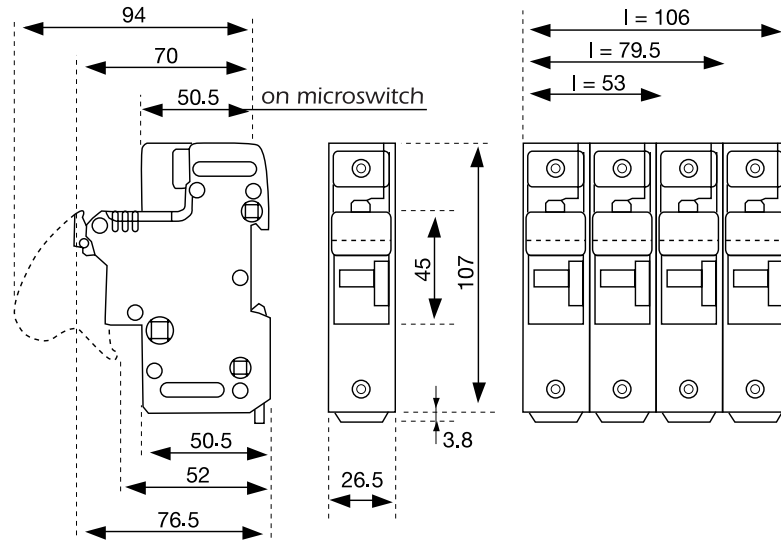


Gears & Fuse Gears

IEC General Purpose Fuses Ferrule Fuses Modulostar® CMS14, CMS22

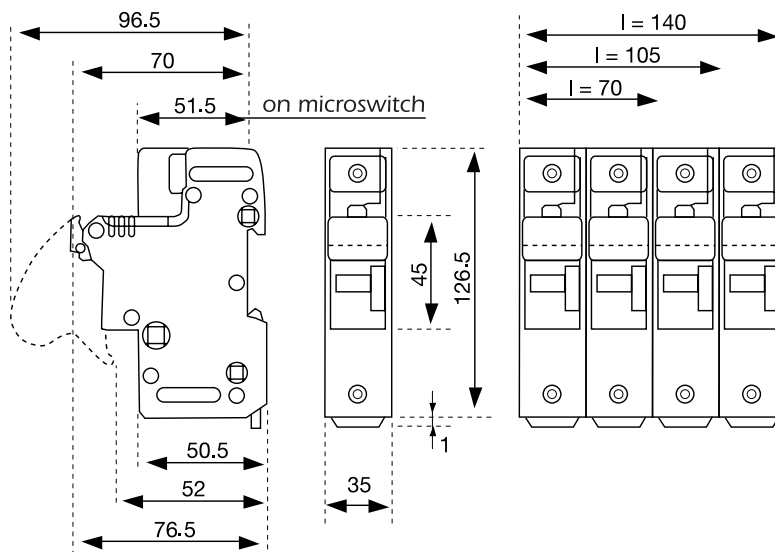
Mecanics for CMS 14 & 22

Dimensions of CMS 14 and US 14 products



| | | | | | | | |
|---|---------------|------|----|------|-----|-------|-----|
| Width depending on nb. of 17.5 mm modules | Nb poles | 1 | 2 | 3 | 4 | 5 | 6 |
| | Nb of modules | 1.5 | 3 | 4.5 | 6 | 7.5 | 9 |
| | mm | 26.5 | 53 | 79.5 | 106 | 132.5 | 159 |

Dimensions of CMS 22 and US 22 products



| | | | | | | | |
|---|---------------|----|----|-----|-----|-----|-----|
| Width depending on nb. of 17.5 mm modules | Nb poles | 1 | 2 | 3 | 4 | 5 | 6 |
| | Nb of modules | 2 | 4 | 6 | 8 | 10 | 12 |
| | mm | 35 | 70 | 105 | 140 | 175 | 210 |

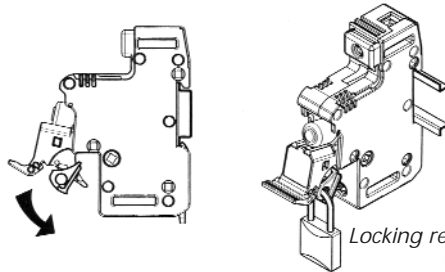
Gears & Fuse Gears



IEC General Purpose Fuses Ferrule Fuses Modulostar® CMS14, CMS22

Mechanics for CMS 14 & 22

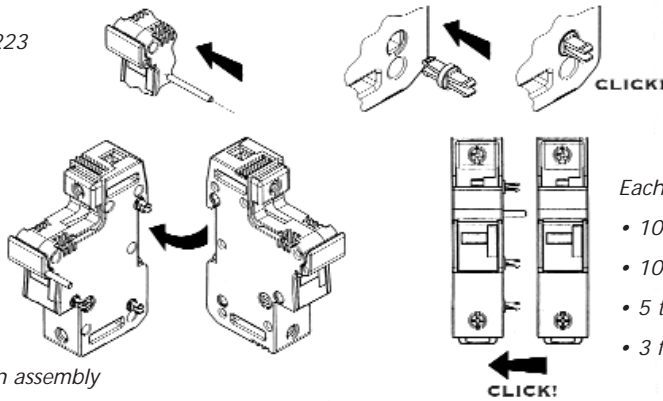
Locking system



Locking reference: M223525

Multipole assembly

Assembly kit
CMS14 & CMS 22: Z218223



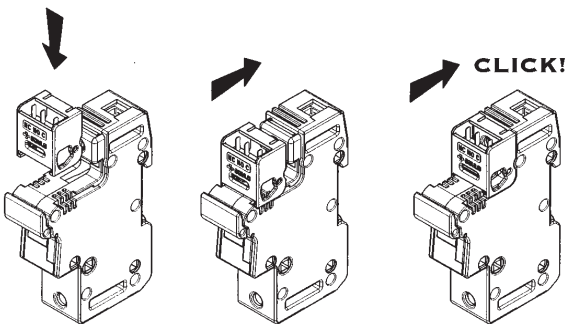
Assembly kit
US 14: X227927
US 22: F227958

Each bag of kits is sufficient for:

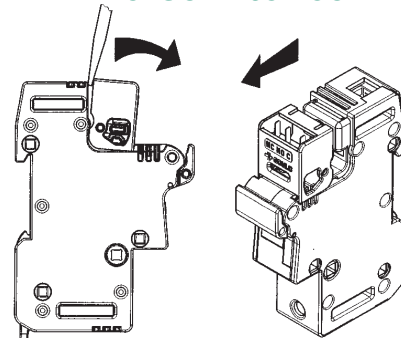
- 10 multipole assemblies
- 10 two-pole assemblies
- 5 three-pole assemblies
- 3 four-pole assemblies

NB: 6 poles maximum in an assembly

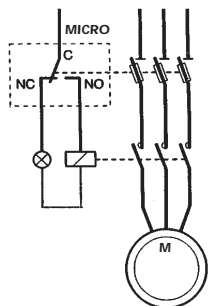
Mounting auxiliary microswitches



Dismounting auxiliary microswitches



Auxiliary microswitch functions



- Fuse melting:** A fuse holder containing a fuse with a striker sends out a signal when the fuse element melts
- Pre-isolation:** When the fuse holder opens
- Presence:** Sends a signal when the holder is closed with no fuse in it

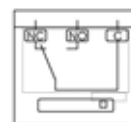
Characteristics of the auxiliary microswitch

Min. voltage and current for operation 10VAC-DC - 100mA

| | | |
|---|------|-------------|
| Rated current and breaking capacity (1) at 250V | 6A | AC 12 |
| | 3A | AC 13 |
| Rated current and breaking capacity (1) at 2 and 24 V | 0,3A | AC 14 |
| | 0,1A | DC 12/13/14 |
| | 0,6A | DC 14 |

| | | |
|---|------|-------------|
| Rated current and breaking capacity (1) at 2 and 24 V | 6A | DC 12/DC13 |
| | 5A | AC 13 |
| | 2A | AC 14/DC 13 |
| | 0,6A | DC 14 |

(1) as per standard IEC 947-5



With the fuse in the handle closed state.



No fuse
Fuse blown
Handle open



Gears & Fuse Gears

IEC General Purpose Fuses Ferrule Fuses Modulostar® CMS14, CMS22

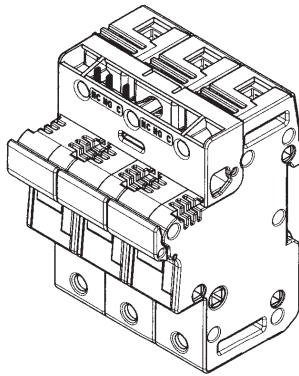
Mechanics for CMS 14 & 22

Microswitch options

Auxiliary microswitches can only be mounted on previously prepared fuse disconnectors. Use of the auxiliary microswitch for fuse melting requires the use of fuses with strikers.

1 auxiliary microswitch

CMS 14 (C219261) - US14 (Z227929)
CMS 22 (L212093) - US 22 (H227960)

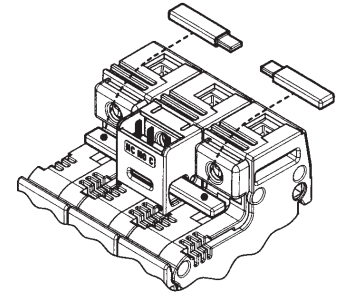


or

1 auxiliary microswitch

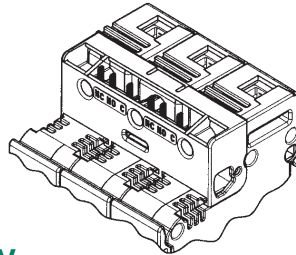
CMS 14 (M218741+F213629)
CMS 22 (E211581+F213629)

US 14 (Y227928+F213629)
US 22 (G229759+F213629)



2 auxiliary microswitches

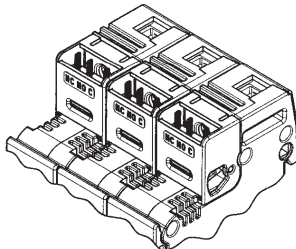
CMS 14 (D219791) - US14 (A227930)
CMS 22 (B212613) - US 22 (J227961)



3 independent auxiliary microswitches

CMS 14 (3 x M218741)
CMS 22 (3 x E211581)

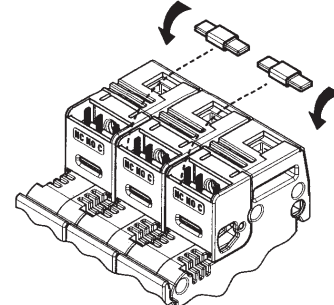
US 14 (3 x Y227928)
US 22 (3 x G227959)



3 mechanically interconnected auxiliary microswitches

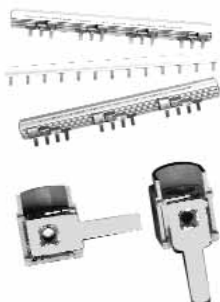
CMS 14 (3 x M218741+2 x J214138)
CMS 22 (3 x E211581+2 x J214138)

US 14 (3 x Y227928) + (2 x J214138)
US 22 (3 x G227959) + (2 x J214138)



NOTE: Do not fit with more than 3 microswitches

Supply wiring bars and terminals



| Description | Cat. Number | Ref. Number | Maximum acceptable RMS current (A) | Pckg |
|--|-------------|-------------|------------------------------------|------|
| jumping bar for 4 (CMS 14/US 14) 3 poles | CMS14BB3F4 | A210312 | 100 | 5 |
| jumping bar for 6 (CMS 14/US 14) 2 poles | CMS14BB2F6 | Z210311 | 63 | 5 |
| jumping bar for 12 (CMS 14/US 14) 1 pole | CMS14BB1F12 | Y210310 | 63 | 5 |
| jumping bar for 6 (CMS 22/US 22) 2 poles | CMS22BB2F6 | C210314 | 150 | 5 |
| jumping bar for 12 (CMS 22/US 22) 1 pole | CMS22BB1F12 | B210313 | 90 | 5 |
| Single-pole terminal, side | TBB1C | E210316 | 90 | 50 |
| 2/3-pole terminal, side | TBB23C | G210318 | 90 | 50 |
| Single-pole terminal, axial | TBB1A | D210315 | 90 | 50 |
| 2/3-pole terminal, axial | TBB23A | F210317 | 90 | 50 |



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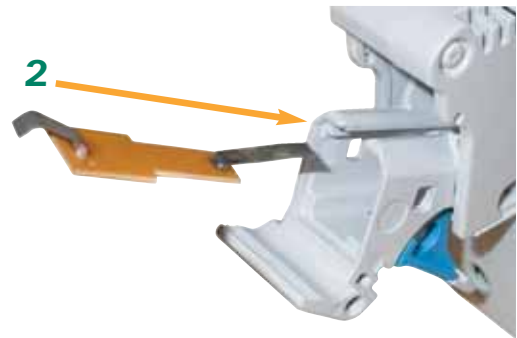
Indicator light kit

With the indicator light a blown fuse can be quickly located if power is still on

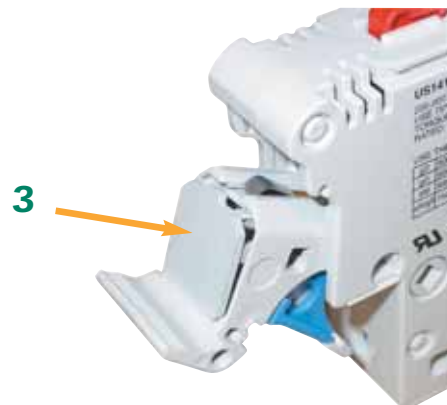
1 Carefully remove the cover with 2 screw drivers.



2 Slip the indicator lights top insert into the rails, being careful not to twist the contact tabs.



3 Put the cover back on



Assembly precautions in multipole assemblies

When fuse holders are side by side or very near each other (less than one module apart), they must be derated again, in addition to derating for temperature

| Number of 17.5 mm modules | Derating factor |
|---------------------------|-----------------|
| 1-2-3 | None = 1 |
| 4-5-6 | 0.8 |
| 7-8-9 | 0.7 |
| > 10 | 0.6 |