

## Description

Miniaturised two pole thermal-magnetic circuit breakers with trip-free mechanism and toggle actuation (S-type TM CBE to EN 60934). Fitted with panel mounting flange and push-on termination, also suitable for mounting on Euro Cards. Available with auxiliary contacts and a choice of fast, medium or long delay characteristics. Complies with CBE standard EN 60934 (IEC 60934).

## Typical applications

Control equipment, communications systems, instrumentation.

## Ordering information

<b>Type No.</b>	
<b>2215</b>	double pole thermal-magnetic circuit breaker
<b>Mounting</b>	
<b>F1</b>	flange mounting, with M3 mounting thread
<b>Number of poles</b>	
<b>2</b>	2-pole protected
<b>5</b>	2-pole, protected on one pole only
<b>Accessories</b>	
<b>0</b>	without
<b>Terminal design (main contacts)</b>	
<b>P1</b>	blade terminals 6.3x0.8mm (QC .250) without shunt terminal
<b>Characteristic curve</b>	
<b>F1</b>	fast acting: 1.01-1.4xI <sub>N</sub> ; magn. 2-4xI <sub>N</sub> DC (DC only)
<b>M1</b>	standard delay: therm. 1.01-1.4xI <sub>N</sub> ; magn. 4.5-10.5xI <sub>N</sub> DC; magn. 3.5-8xI <sub>N</sub> AC
<b>T1</b>	delayed: therm. 1.01-1.4xI <sub>N</sub> ; magn. 8-17xI <sub>N</sub> DC; magn. 6-13xI <sub>N</sub> AC
<b>T3</b>	delayed: therm. 1.01-1.4xI <sub>N</sub> ; magn. 13-20xI <sub>N</sub> DC magn. 9.5-15.5xI <sub>N</sub> AC
<b>Auxiliary contacts</b>	
<b>S0</b>	without auxiliary contacts
<b>S1</b>	with auxiliary contacts (change over)
<b>S2</b>	with auxiliary contact on pole 1 only
<b>Auxiliary contact - terminal design</b>	
<b>1</b>	blade terminals 6.3x0.8
<b>Current ratings</b>	
<b>0.05...10 A</b>	
<b>2215 - F1 2 0 - P1 F1 - S1 1 - 0.5 A</b> ordering example	

## Standard current ratings and typical internal resistance values

Current ratings (A)	Internal resistance per pole (Ω)	Current ratings (A)	Internal resistance per pole (Ω)
0.05	440	1.5	0.55
0.1	108	2	0.34
0.2	29.9	2.5	0.21
0.3	14.2	3	0.15
0.4	7.9	4	0.096
0.5	5.0	5	0.069
0.6	3.5	6	0.055
0.8	1.8	8	≤ 0.02
1	1.2	10	≤ 0.02

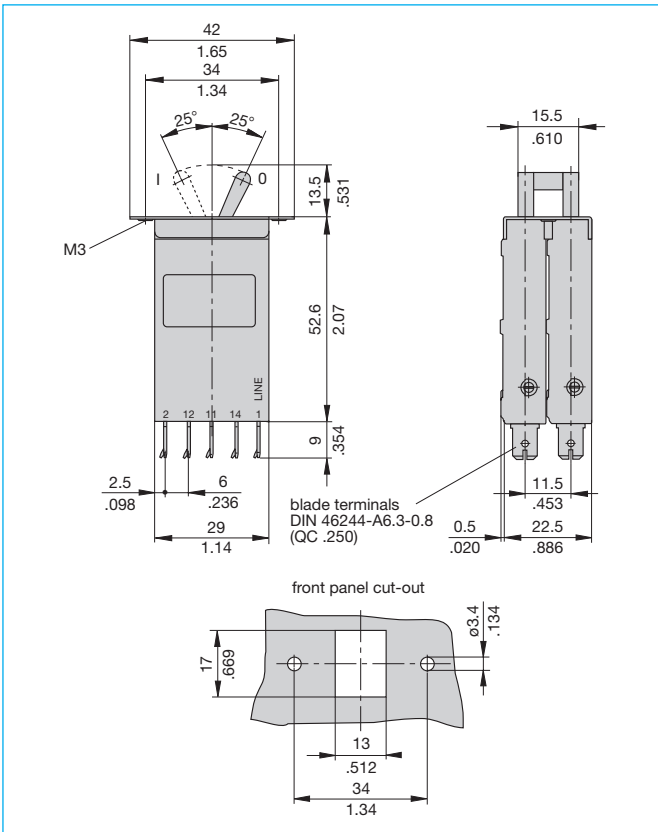


2215-F1...

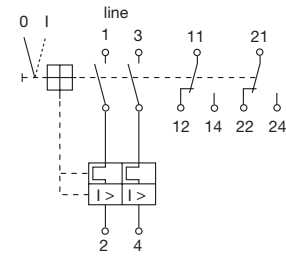
## Technical data

Voltage rating	AC 250 V (50/60 Hz); DC 50 V (UL: AC 250 V; DC 75 V) (higher DC voltage to special order)	
Current rating range	0.05...10 A	
Auxiliary circuit	1 A, AC 250 V/DC 28 V resistive load	
Typical life	10,000 operations at 1 x I <sub>N</sub>	
Ambient temperature	-30...+60 °C (-22...+140 °F)	
Insulation co-ordination (IEC 60664 and 60664 A)	rated impulse withstand voltage 2.5 kV reinforced insulation in operating area	pollution degree 2
Dielectric strength (IEC 60664 and 60664A)	test voltage operating area pole/pole main/aux. circuit	AC 3,000 V AC 1,500 V AC 1,500 V
Insulation resistance	> 100 MΩ (DC 500 V)	
Interrupting capacity I <sub>cn</sub>	600 A	
Degree of protection (IEC 60529/DIN 40050)	operating area IP30 terminal area IP00	
Vibration	curve F1: 6 g (57-500 Hz), ±0.46 mm (10-57 Hz) curves M1, T1, T3: 8 g (57-500 Hz), ±0.61 mm (10-57 Hz) to IEC 60068-2-6, test Fc 10 frequency cycles/axis	
Shock	curves F1, M1, T1, T3: 30 g (11 ms), directions 1, 2, 3, 4, 5 curve F1: 10 g (11 ms), direction 6 curves M1, T1, T3: 15 g (11 ms) direction 6 to IEC 60068-2-27, test Ea	
Corrosion	96 hours at 5 % salt mist to IEC 60068-2-11, test Ka	
Humidity	240 hours at 95 % RH to IEC 60068-2-3, test Ca	
Mass	approx. 50 g	

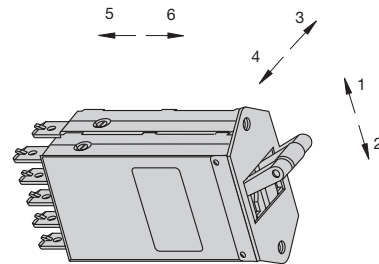
## Dimensions 2215-F1...



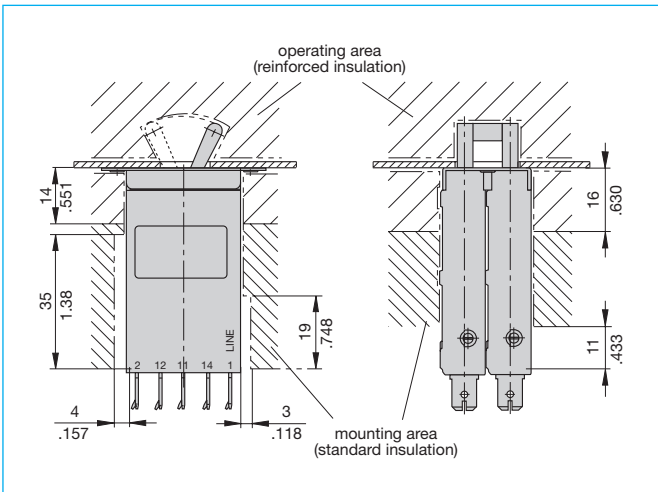
## Internal connection diagram



## Shock directions



## Installation drawing



This is a metric design and millimeter dimensions take precedence ( $\frac{\text{mm}}{\text{inch}}$ )

## Typical time/current characteristics

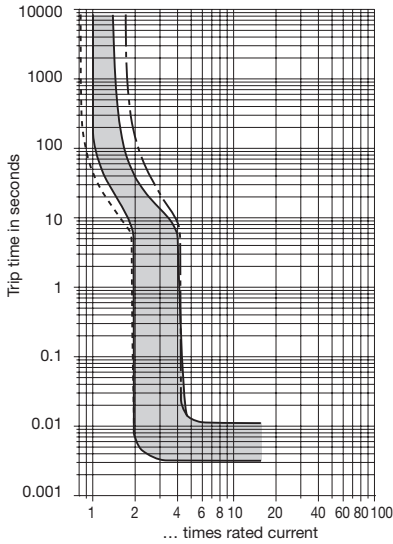
The time/current characteristic curve depends on the ambient temperature prevailing. In order to eliminate nuisance tripping, please multiply the circuit breaker current ratings by the derating factor shown below. See also section 9 - Technical information.

### 0.05...10 A:

Ambient temperature °F	-22	-4	+14	+32	+50	+73.4	+86	+104	+122	+140
°C	-30	-20	-10	0	+10	+23	+30	+40	+50	+60
Derating factor	0.76	0.79	0.83	0.88	0.93	1	1.04	1.11	1.19	1.29

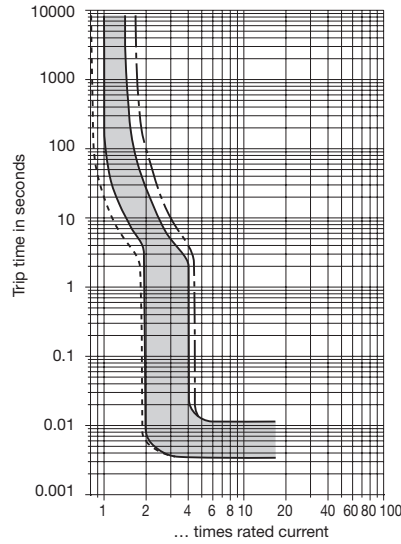
**-F1 0.05 ... 6 A**

**DC only**



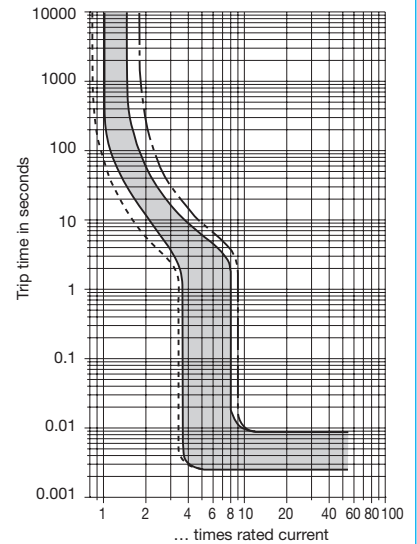
**-F1 8 ... 10 A**

**DC only**



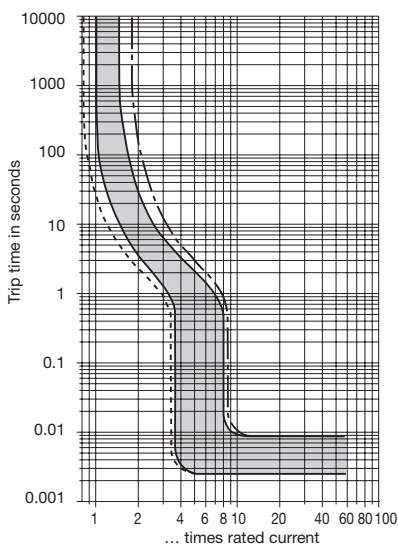
**-M1 0.05 ... 6 A**

**AC/DC <sup>1)</sup>**



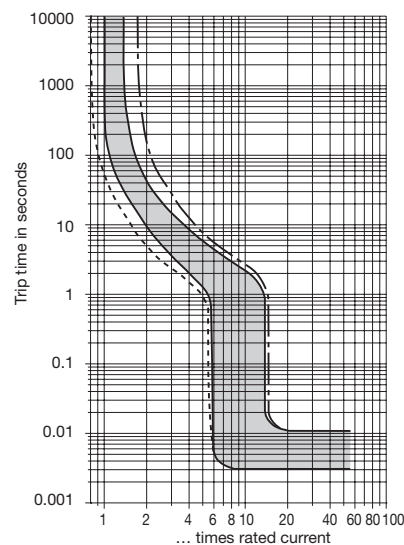
**-M1 8 ... 10 A**

**AC/DC <sup>1)</sup>**



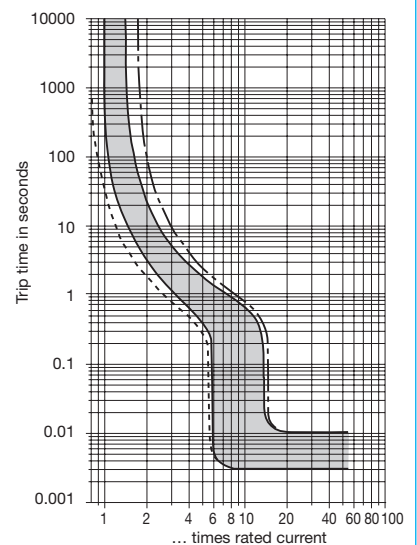
**-T1 0.05 ... 6 A**

**AC/DC <sup>1)</sup>**



**-T1 8 ... 10 A**

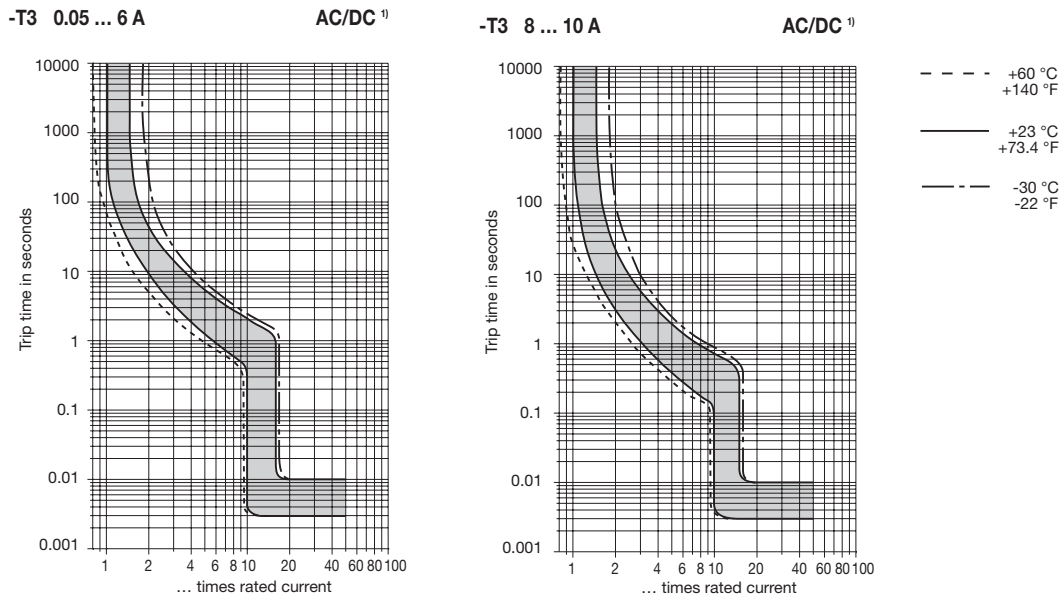
**AC/DC <sup>1)</sup>**



- - - - +60 °C    ——— +23 °C    - - - - -30 °C  
           +140 °F              +73.4 °F              -22 °F

<sup>1)</sup> Magnetic tripping currents are increased by 30% on DC supplies (curve M1 and T1).

## Typical time/current characteristics



<sup>1)</sup> Magnetic tripping currents are increased by 30% on DC supplies.

All dimensions without tolerances are for reference only. 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.