

Type: 412



Single pole high performance thermal circuit breaker with tease-free, trip-free, snap action mechanism and push/pull on/off manual actuation (M-type TO CBE to EN 60934). An indicator band on the push button clearly shows the tripped/off position. Threadneck panel mounted and available in tracked vehicle, aircraft and general purpose versions.

Voltage rating:

- DC 28 V
- AC 115 V (400 Hz) upon request

Current ratings:

from 6 A to 25 A (-FN)
 from 7,5 A to 35 A (-LN/-N)
 lower current ratings to special order

Number of poles:

single pole

Mounting method:

threadneck
 socket

Terminal design:

screw terminals

Actuation:

manual release
 push button

Auxiliary contacts:

without auxiliary contacts

Water splash protection:

with water splash protection
 without water splash protection

Illumination:

without illumination

Typical life:

4,000 operations at $2 \times I_N$

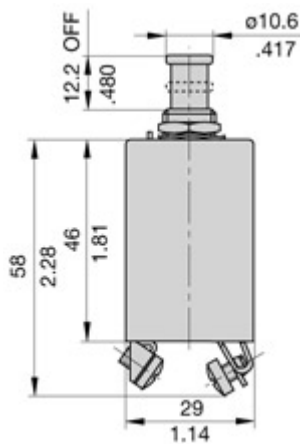
Interrupting capacity I_{cn} :

DC 28 V: 6,000 A

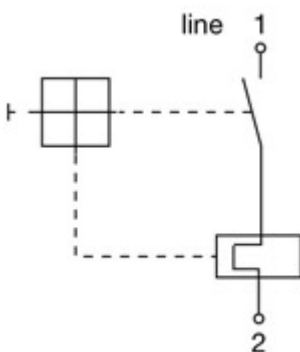
Approvals:

UL

Dimensions



Internal connection diagrams



Description

Single pole high performance thermal circuit breaker with tease-free, trip-free, snap action mechanism and push/pull on/off manual actuation (M-type TO CBE to EN 60934). An indicator band on the push button clearly shows the tripped/off position. Threadneck panel mounted and available in tracked vehicle, aircraft and general purpose versions.

Typical applications

Extra low voltage wiring systems on all types of vehicles for land, sea and air; defence equipment; battery powered machines.

Ordering information

| | |
|---|---|
| Type No. | |
| 412 | threadneck panel mounting |
| Terminal design | |
| K14 | screw terminals M4 (to aircraft specs.) |
| K54 | screw terminals M4 sealed housing (to vehicle specs.) |
| Version | |
| FN2 | vehicle application, nickel-plated |
| LN2 | aircraft application, black finish |
| N2 | general application, nickel-plated |
| Current ratings | |
| 6...25 A | (-FN2) |
| 7.5...35 A | (-LN2/N2) |
| 412 - K14 - LN2 - 10 A ordering example | |

Standard current ratings and typical voltage drop values

| Current rating (A) | Voltage drop (mV) | | Current rating (A) | Voltage drop (mV) | |
|--------------------|-------------------|-------|--------------------|-------------------|-------|
| | -LN/N | -FN | | -LN/N | -FN |
| 6 | - | ≤ 300 | 15 | ≤ 200 | ≤ 200 |
| 7.5 | ≤ 300 | ≤ 250 | 20 | ≤ 200 | ≤ 200 |
| 8 | ≤ 250 | ≤ 200 | 25 | ≤ 200 | ≤ 200 |
| 10 | ≤ 200 | ≤ 200 | 30 | ≤ 200 | - |
| 12 | ≤ 200 | ≤ 200 | 35 | ≤ 200 | - |
| 13 | ≤ 200 | ≤ 200 | | | |

Approvals

| Test authority | Voltage ratings | Current ratings |
|----------------|-----------------|-----------------|
| UL | DC 28 V | 0.1...35 A |



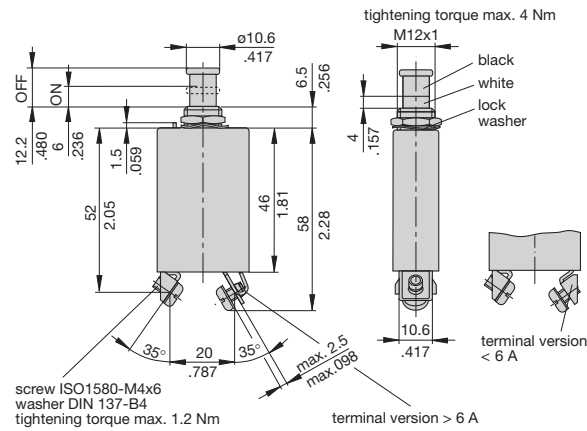
412-...

Technical data

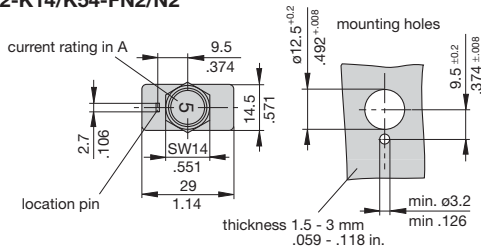
| | | |
|---|---|-----------------------|
| Voltage rating | DC 28 V AC 115 V (400 Hz) upon request | |
| Current rating range | 6...25 A (-FN2) 7.5...35 A (-LN2/-N2), lower current ratings to special order | |
| Typical life | 4,000 operations at $2 \times I_N$ | |
| Ambient temperature | -55...+75 °C (-67...+167 °F) | |
| Insulation co-ordination (IEC 60664 and 60664A) | rated impulse withstand voltage 1.5 kV | pollution degree 3 |
| Dielectric strength (IEC 60664 and 60664A) | test voltage operating area | AC 1,500 V |
| Insulation resistance | > 100 MΩ (DC 500 V) | |
| Interrupting capacity I_{cn} | 6,000 A | |
| Interrupting capacity (UL 1077) | 6,000 A | |
| Degree of protection (IEC 60529/DIN 40050) | operating area IP40 terminal area IP00 | |
| Vibration | 10 g (56-500 Hz), ± 0.76 mm (10-55 Hz) to VG 95210, sheet 19, MIL-STD-202, meth. 204, IEC 60068-2-6, test Fc | |
| Shock | 25 g (11 ms) to VG 95210, sheet 28, MIL-STD-202, meth. 213, IEC 60068-2-27, test Ea | |
| Corrosion | 96 hours at 5 % salt mist, to VG 95210, sheet 2, MIL-STD-202, meth. 101, IEC 60068-2-11, test Ka | |
| Humidity | 240 hours at 95 % RH to VG 95210, sheet 7, MIL-STD-202, meth. 106, IEC 60068-2-3, test Ca | |
| Mass | approx. 40 g | |

Dimensions

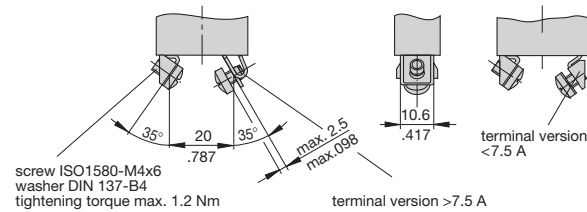
412-K54-FN2/N2



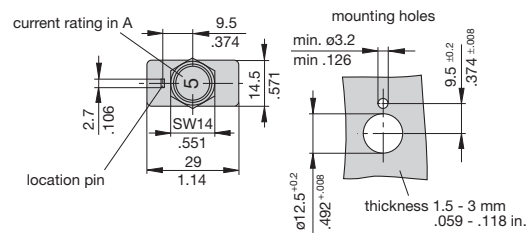
412-K14/K54-FN2/N2



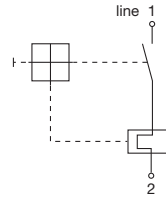
412-K14-LN2



412-K14/K54-LN2

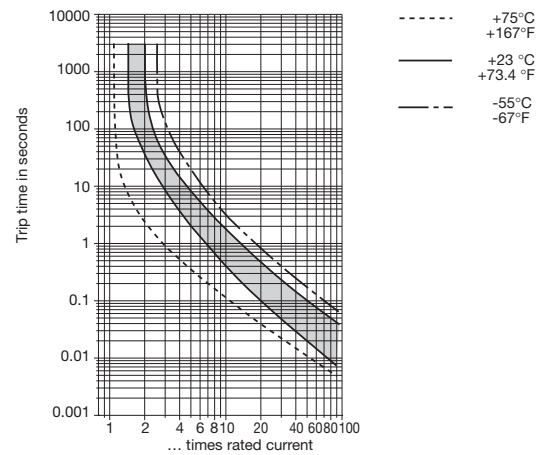


Internal connection diagram

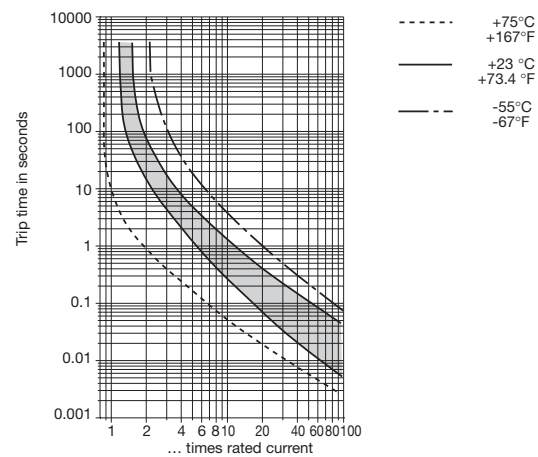


Typical time/current characteristics

412-...-FN2 6...25 A



412-..LN2/-N2 7.5...35 A



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