

## Description

Single pole press-to-reset thermal circuit breaker with extremely fast overload switching performance (R-type TO CBE to EN 60934). Single hole threadneck, PCB or integral mounting with a choice of designs. Miniaturised construction minimises PCB real estate required. Type 1410-L2 and 1410-G1 versions feature changeover contacts suitable for providing status output signals. Largely temperature-insensitive.

## Typical applications

Motors, transformers, solenoids, PCBs, hand-held machines, appliances, instrumentation.

## Ordering information

| Type No.                                               |                                                            |
|--------------------------------------------------------|------------------------------------------------------------|
| 1410                                                   | single pole circuit breaker                                |
| <b>Configuration</b>                                   |                                                            |
| <b>L</b>                                               | PCB mounting or integral mounting                          |
| <b>G</b>                                               | threadneck panel mounting or PCB mounting                  |
| <b>Mounting</b>                                        |                                                            |
| <b>1</b>                                               | threadneck 3/8-27UNS-2A (1410-G)                           |
| <b>2</b>                                               | PCB 10.15x7.62 (1410-L)                                    |
| <b>Number of poles</b>                                 |                                                            |
| <b>1</b>                                               | 1-pole, thermally protected                                |
| <b>Hardware</b>                                        |                                                            |
| <b>0</b>                                               | without                                                    |
| <b>1</b>                                               | with hexnut and knurled nut (only 1410-G)                  |
|                                                        | > 5 pcs hexnut and knurled nut bulk shipped                |
| <b>Terminal design</b>                                 |                                                            |
| <b>L2</b>                                              | solder pins 1x0.8 silver-plated                            |
| <b>P2</b>                                              | blade terminals DIN 46244-A2.8-0.8 silver-plated (only -G) |
| <b>Characteristic curve</b>                            |                                                            |
| <b>F1</b>                                              | fast acting                                                |
| <b>Actuator, type and colour</b>                       |                                                            |
| <b>S01</b>                                             | reset button, black (1410-G)                               |
| <b>S02</b>                                             | reset slide, white (1410-L2)                               |
| <b>Current ratings</b>                                 |                                                            |
|                                                        | 0.63...10 A                                                |
| 1410 - L 2 1 0 - L2 F1 - S 02 - 0.8 A ordering example |                                                            |

\*mounting hardware bulk shipped

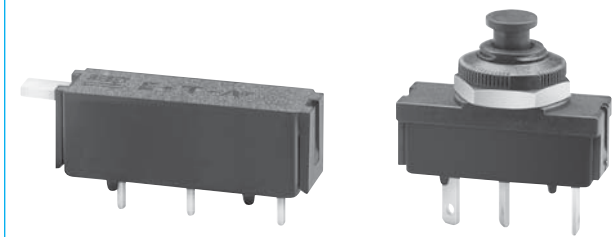
## Preferred types

**NEW**

| Preferred types     | Standard current ratings (A) |   |     |   |      |      |   |     |   |    |
|---------------------|------------------------------|---|-----|---|------|------|---|-----|---|----|
|                     | 0.63                         | 1 | 1.5 | 2 | 2.25 | 3.15 | 4 | 6.3 | 8 | 10 |
| 1410-G110-L2F1-S01- | x                            | x | x   | x | x    | x    | x | x   | x | x  |
| 1410-G111-P2F1-S01- | x                            | x | x   | x | x    | x    | x | x   | x | x  |
| 1410-L210-L2F1-S02- | x                            | x | x   | x | x    | x    | x | x   | x | x  |

## Standard current ratings and typical internal resistance values

| Current rating (A) | Internal resistance (Ω) | Current rating (A) | Internal resistance (Ω) |
|--------------------|-------------------------|--------------------|-------------------------|
| 0.63               | 1.8                     | 4                  | < 0.1                   |
| 0.8                | 1.7                     | 4.5                | < 0.1                   |
| 1                  | 1.3                     | 5                  | < 0.1                   |
| 1.5                | < 1                     | 6.3                | < 0.1                   |
| 2                  | < 1                     | 8                  | < 0.1                   |
| 2.25               | < 0.15                  | 10                 | < 0.1                   |
| 3.15               | < 0.12                  |                    |                         |



1410-L2...

1410-G1...

## Technical data

For further details please see chapter: Technical Information

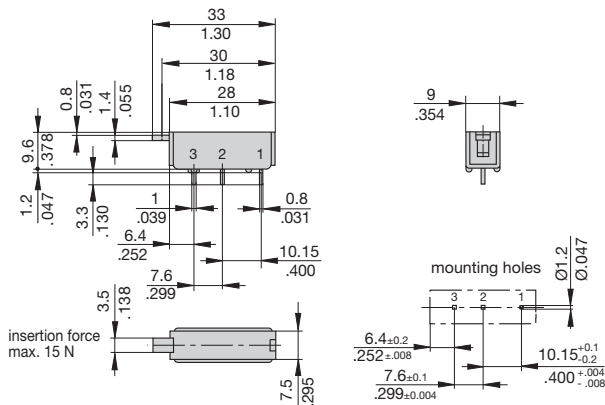
|                                                                 |                                                                                                                                                                                                                                                                                                                    |                                                                                                                 |                     |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------|
| Voltage rating                                                  | AC 240 V; DC 28 V<br>(UL: AC 250 V; DC 50 V)                                                                                                                                                                                                                                                                       |                                                                                                                 |                     |
| Current rating range 1-2                                        | 0.63...10 A                                                                                                                                                                                                                                                                                                        |                                                                                                                 |                     |
| Auxiliary circuit 1-3                                           | 0.2 x I <sub>N</sub> max. 1 A, AC 250 V                                                                                                                                                                                                                                                                            |                                                                                                                 |                     |
| Typical life                                                    | AC 240 V: 0.63...2.25 A 500 break operations at 2 x I <sub>N</sub> , inductive<br>2.5...10 A 500 break operations at 2 x I <sub>N</sub> , resistive<br>DC 50 V: 0.63...2.25 A 500 break operations at 2 x I <sub>N</sub> , inductive<br>DC 28 V: 2.5...10 A 500 break operations at 2 x I <sub>N</sub> , inductive |                                                                                                                 |                     |
| Ambient temperature                                             | -20...+70 °C (-4...+158 °F)                                                                                                                                                                                                                                                                                        |                                                                                                                 |                     |
| Insulation co-ordination<br>(IEC 60664 and 60664 A)             | rated impulse<br>withstand voltage<br>2.5 kV<br>reinforced insulation in operating area                                                                                                                                                                                                                            | pollution<br>degree<br>2                                                                                        |                     |
| Dielectric strength<br>(IEC 60664 and 60664A)<br>operating area | test voltage<br>AC 1,500 V                                                                                                                                                                                                                                                                                         |                                                                                                                 |                     |
| Insulation resistance                                           | > 100 MΩ (DC 500 V)                                                                                                                                                                                                                                                                                                |                                                                                                                 |                     |
| Interrupting capacity I <sub>cn</sub><br>(o-o-o)                | 0.63...2 A<br>2.5...8 A<br>10 A<br>3.15...10 A                                                                                                                                                                                                                                                                     | 12 x I <sub>N</sub><br>8 x I <sub>N</sub> , AC max. 50 A<br>6 x I <sub>N</sub> , AC<br>10 x I <sub>N</sub> , DC |                     |
| Interrupting capacity<br>(UL 1077)                              | 0.63...10 A<br>0.63...10 A                                                                                                                                                                                                                                                                                         | 2,000 A<br>200 A                                                                                                | AC 250 V<br>DC 50 V |
| Degree of protection<br>(IEC 60529/DIN 40050)                   | operating area IP40<br>terminal area IP00                                                                                                                                                                                                                                                                          |                                                                                                                 |                     |
| Vibration                                                       | 8 g (57-500 Hz) ± 0.61 mm (10-57 Hz),<br>to IEC 60068-2-6, test Fc,<br>10 frequency cycles/axis                                                                                                                                                                                                                    |                                                                                                                 |                     |
| Shock                                                           | 20 g (11 ms)<br>to IEC 60068-2-27, test Ea                                                                                                                                                                                                                                                                         |                                                                                                                 |                     |
| Corrosion                                                       | 48 hours at 5 % salt mist,<br>to IEC 60068-2-11, test Ka                                                                                                                                                                                                                                                           |                                                                                                                 |                     |
| Humidity                                                        | 96 hours at 95 % RH<br>to IEC 60068-2-78, test Cab                                                                                                                                                                                                                                                                 |                                                                                                                 |                     |
| Mass                                                            | approx. 5 g                                                                                                                                                                                                                                                                                                        |                                                                                                                 |                     |

## Approvals

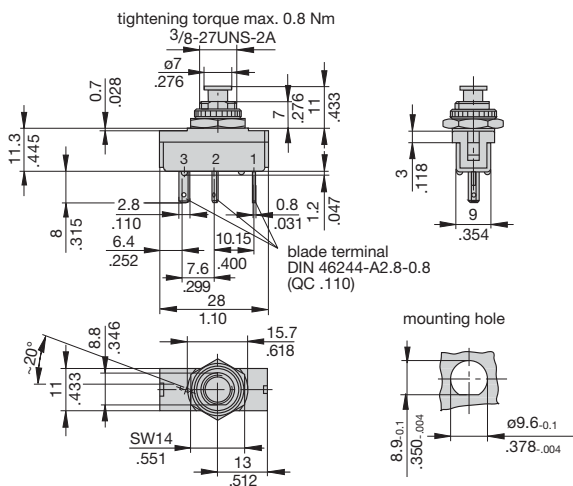
| Authority | Voltage ratings                | Current ratings                         |
|-----------|--------------------------------|-----------------------------------------|
| VDE       | AC 240 V<br>DC 50 V<br>DC 28 V | 0.63...10 A<br>0.63...2 A<br>2.5...10 A |
| UL, CSA   | AC 250 V; DC 50 V              | 0.63...10 A                             |

## Dimensions

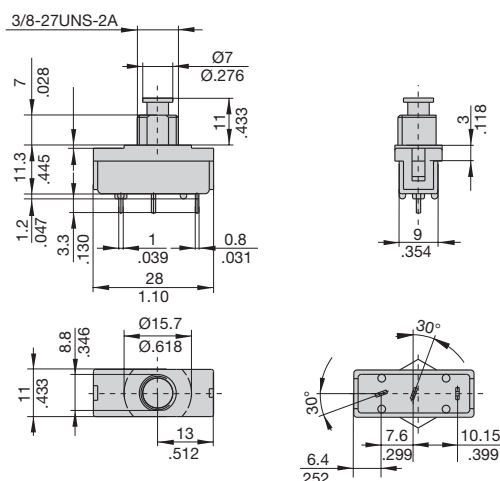
### 1410-L210-L2F1-S02



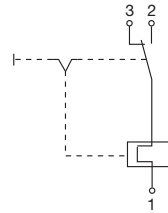
### 1410-G111-P2F1-S01



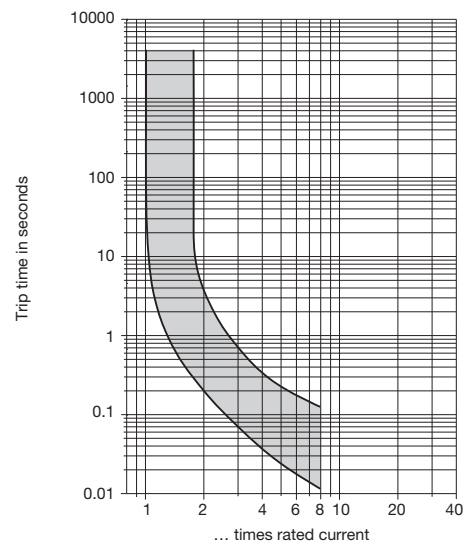
### 1410-G110-P2F1-S01



## Internal connection diagram



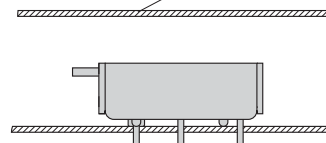
## Typical time/current characteristics at +23 °C/+73.4 °F



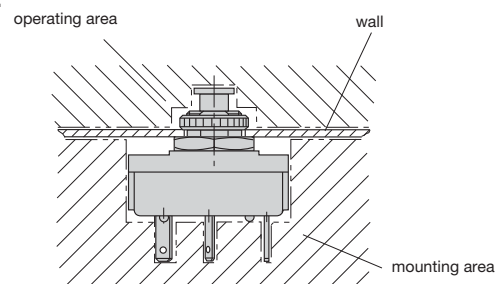
## Installation drawings

### 1410-L2..

Installation behind a cover which can only be removed by means of a tool



### 1410-G...



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

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.