

## Description

Miniaturised single pole rocker switch/thermal circuit breaker combining ON/OFF switching and extremely fast overload performance in a single component (S-type TO CBE to EN 60934/IEC 934). Under overload conditions an internal neon (filament bulb for low voltages) illuminates to give a clear signal of the tripped status of the mechanism and thereby the cause of power interruption, suffix -B. Alternatively the illumination can be conventionally wired to indicate the ON status of the device, suffix -E. Returning the rocker switch through the OFF position and back ON will reset the mechanism and restore the supply. Largely temperature-insensitive. Complies with CBE standard EN 60934 (IEC 60934).

## Typical applications

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

## Ordering information

|  |   |
|--|---|
| <b>Type No.</b>  |   |
| 1410   | snap-in panel mounting type                           |
| <b>Mounting</b>  |   |
| F  | snap-in panel mounting                                |
| <b>Size of frame</b>                                       |   |
| 1  | to fit mounting cut-out 28 x 12.7 mm (1.1 x .5 in)    |
| <b>Number of poles</b>                                     |   |
| 1  | single pole, thermally protected                      |
| <b>Accessories</b>   |   |
| 0  | without accessories                                   |
| <b>Terminal design</b>                                     |   |
| P1   | blade terminals 2.8-0.8 (QC .110/2x.110)silver-plated |
| <b>Characteristic curve</b>                                |   |
| F1   | fast acting   |
| <b>Actuator style</b>                                      |   |
| W  | rocker, rounded profile                               |
| <b>Actuator colour</b>                                     |   |
| 02   | white opaque  |
| 14   | red translucent                                       |
| 15   | orange translucent                                    |
| 19   | green translucent                                     |
| <b>Actuator markings</b>                                   |   |
| Q  | I and O   |
| <b>Trip/ON illumination (optional)</b>                     |   |
| B  | illuminated when tripped                              |
| E  | illuminated when ON                                   |
| <b>Illumination voltage range (optional)</b>               |   |
| 2  | 20-28V marked 24V 35mA                                |
| 3  | 90-140V marked 115V <1mA                              |
| 4  | 185-275V marked 230V <1mA                             |
| <b>Current ratings</b>                                     |   |
| 0.63...10 A  |   |
| 1410 - F 1 1 0 - P1 F1 - W 14 Q E 3 - 2 A ordering example |   |

The exact part number required can be built up from the table of choices shown above. Ordering references for optional features should be omitted if not required.

## Standard current ratings and typical internal resistance values

| Current rating (A) | Internal resistance (Ω) | Current rating (A) | Internal resistance (Ω) |
|--------------------|-------------------------|--------------------|-------------------------|
| 0.63               | 1.8                     | 3.15               | < 0.12                  |
| 0.8                | 1.7                     | 4                  | < 0.1                   |
| 1                  | 1.3                     | 5                  | < 0.1                   |
| 1.5                | < 1                     | 6.3                | < 0.1                   |
| 1.8                | < 1                     | 8                  | < 0.1                   |
| 2                  | < 1                     | 10                 | < 0.1                   |
| 2.5                | < 0.15                  |                    |                         |



1410-F1..

## Technical data

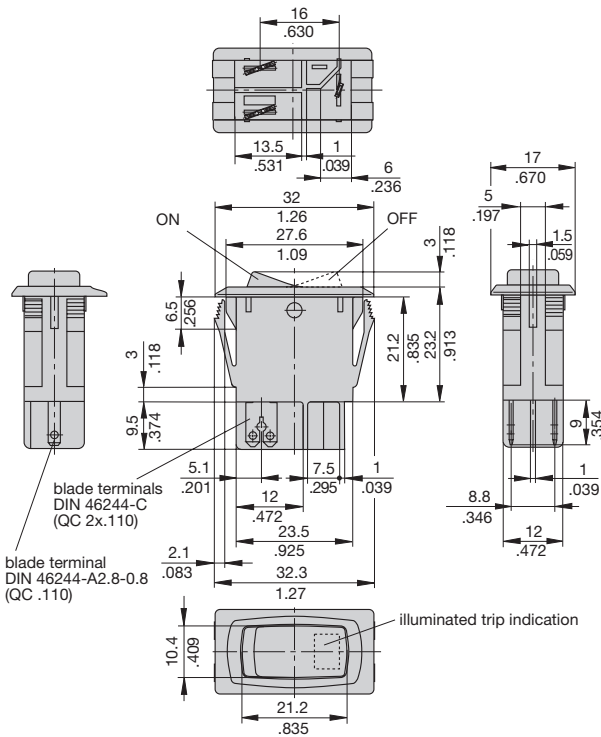
|  |   |
|--|---|
| Voltage rating                                   | AC 240 V; DC 28 V (DC 50 V upon request)<br>(UL: AC 250 V; DC 48 )  |
| Current rating range                             | 0.63...10 A   |
| Typical life                                     | 30,000 operations for $I_N \leq 6.3$ A AC/DC<br>10,000 operations for $I_N > 6.3$ A AC<br>3,000 operations for $I_N > 6.3$ A DC |
| protection circuit 1-2                           | 300 break operations at $2 \times I_N$  |
| Ambient temperature                              | -40...+70 °C (-40...+158 °F)  |
| Insulation co-ordination (IEC 60664 and 60664 A) | rated impulse withstand voltage 2.5 kV<br>pollution degree 2<br>reinforced insulation in operating area                         |
| Dielectric strength (IEC 60664 and 60664A)       | test voltage AC 3,000 V<br>operating area   |
| Insulation resistance                            | > 100 MΩ (DC 500 V)   |
| Interrupting capacity $I_{cn}$                   | 0.63...2 A 12 x $I_N$<br>2.5...8 A 8 x $I_N$ , AC max. 50 A<br>10 A 6 x $I_N$<br>3.15...10 A 10 x $I_N$ , DC                    |
| Interrupting capacity (UL 1077)                  | 0.63...10 A 2,000 A AC 250 V<br>0.63...8 A 200 A DC 50 V<br>0.63...5 A 200 A DC 60 V  |
| Degree of protection (IEC 60529/DIN 40050)       | operating area IP30<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 60068-2-3, test Ca  |
| Mass   | approx. 9 g   |

## Approvals

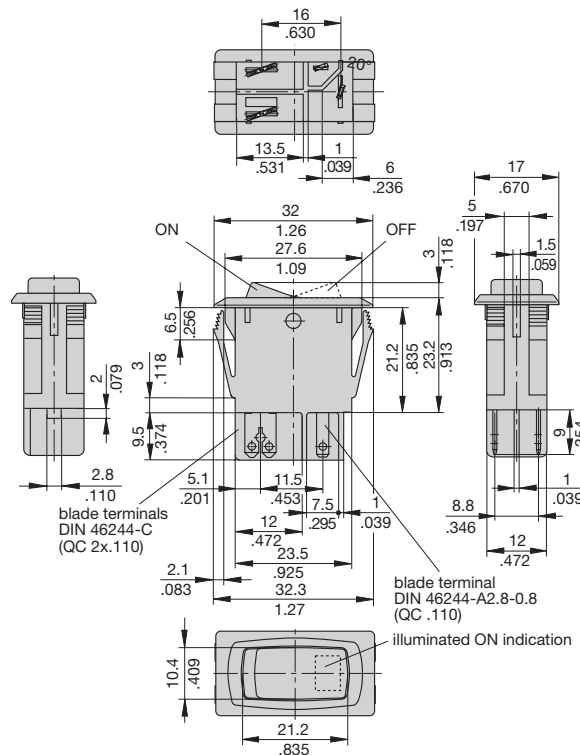
| Authority | Voltage ratings     | Current ratings           |
|-----------|---------------------|---------------------------|
| UL, CSA   | AC 250 V<br>DC 50 V | 0.63...10 A<br>0.63...8 A |
| UL        | DC 60 V             | 0.63...5 A                |

## Dimensions

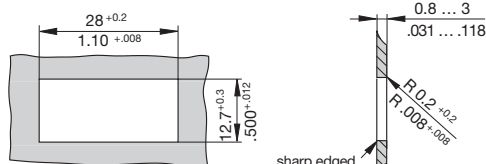
1410-F...-...-...B.



1410-F...-...-...E.

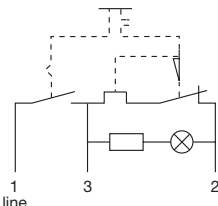


panel cut-out

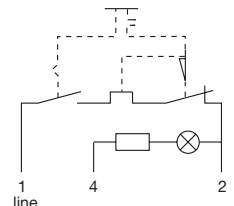


## Internal connection diagrams

1410-F...-...-...B.

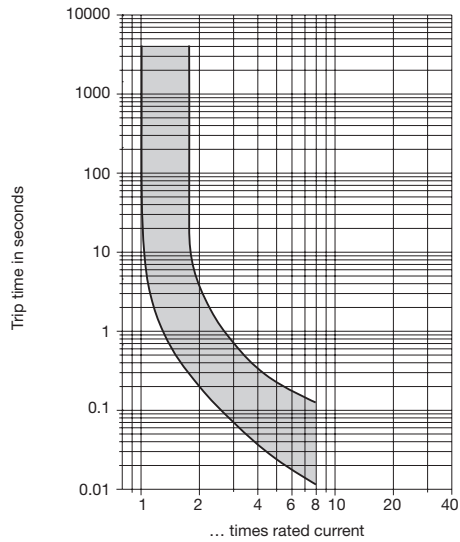


1410-F...-...-...E.

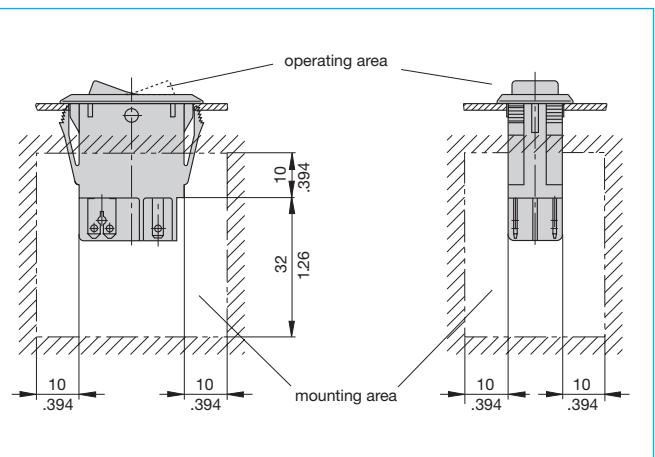


lamp current:  
24 V = 35 mA  
115 V < 1 mA  
230 V < 1 mA

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



## Installation drawing



This is a metric design and millimeter dimensions take precedence (mm/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.