

## 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

| Type No.                                     |                                                        |
|----------------------------------------------|--------------------------------------------------------|
| 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>                       |                                                        |
| 14                                           | red 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                                            | 20-28 V marked 24 V 35 mA                              |
| 3                                            | 90-140 V marked 115 V < 1 mA                           |
| 4                                            | 185-275 V marked 230 V < 1 mA                          |
| <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                     | 4                  | < 0.1                   |
| 1                  | 1.3                     | 5                  | < 0.1                   |
| 1.5                | < 1                     | 6.3                | < 0.1                   |
| 2                  | < 1                     | 8                  | < 0.1                   |
| 2.5                | < 0.15                  | 10                 | < 0.1                   |
| 3.15               | < 0.12                  |                    |                         |



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<br>circuit 1-3                                     | 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<br>500 break operations at $2 \times I_N$ |                                                                                            |                                |
| protection circuit 1-2                                          |                                                                                                                                                                           |                                                                                            |                                |
| 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                                                                                                                              | pollution<br>degree<br>2<br>reinforced insulation in operating area                        |                                |
| Dielectric strength<br>(IEC 60664 and 60664A)<br>operating area | test voltage<br>AC 3,000 V                                                                                                                                                |                                                                                            |                                |
| Insulation resistance                                           | > 100 MΩ (DC 500 V)                                                                                                                                                       |                                                                                            |                                |
| Interrupting capacity $I_{cn}$                                  | 0.63...2 A<br>2.5...8 A<br>10 A<br>3.15...10 A                                                                                                                            | $12 \times I_N$<br>$8 \times I_N$ , AC max. 50 A<br>$6 \times I_N$<br>$10 \times I_N$ , DC |                                |
| Interrupting capacity<br>(UL 1077)                              | 0.63...10 A<br>0.63...8 A<br>0.63...5 A                                                                                                                                   | 2,000 A<br>200 A<br>200 A                                                                  | AC 250 V<br>DC 50 V<br>DC 60 V |
| Degree of protection<br>(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 60068-2-78, test Cab                                                                                                                        |                                                                                            |                                |
| Mass                                                            | approx. 9 g                                                                                                                                                               |                                                                                            |                                |

## Approvals

| Authority | Standard     | Rated voltage                  | Current ratings                              |
|-----------|--------------|--------------------------------|----------------------------------------------|
| UL        | UL 1077      | AC 250 V<br>DC 60 V<br>DC 50 V | 0.63 A...10 A<br>0.63 A...5 A<br>5.5 A...8 A |
| CSA       | C22.2 No 235 | AC 250 V<br>DC 60 V<br>DC 50 V | 0.63 A...10 A<br>0.63 A...5 A<br>5.5 A...8 A |

