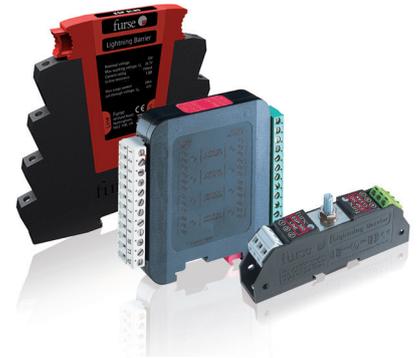


Data & signal protection

ESP RTD, RTDQ & SL RTD Series



Combined Category D, C, B tested protector (to BS EN 61643) suitable for 3-wire RTD systems to protect monitoring equipment. For use at boundaries up to LPZ 0 (ESP RTD & ESP RTDQ) or LPZ 0 (ESP SL RTD) to protect against flashover (typically the service entrance location) through to LPZ 3. Available as standard ESP RTD format, or compact ESP RTDQ and Slim Line ESP SL RTD versions for installations where a high number of lines require protection.

| | | | | |
|--|--|-------------------------------------|--|--|
| FULL MODE Bonding + Equipment Protection | ESP SL RTD ULTRA SLIM 7 mm WIDTH | LPZ 0 → 3 | ENHANCED Low let-through voltage | |
| ESP RTDQ ULTRA COMPACT 18 mm WIDTH | SIGNAL/TELECOM TEST CAT D + C + B | LOW IN-LINE RESISTANCE | ESP SL RTD HIGH BANDWIDTH | |

Features & benefits

- Protects all three wires on a 3-wire RTD system with a single protector
- Very low let-through voltage (enhanced protection to IEC/BS EN 62305) between all lines - Full Mode protection
- Full Mode design capable of handling partial lightning currents as well as allowing continual operation of protected equipment
- Repeated protection in lightning intense environments
- Low in-line resistance minimizes reductions in signal strength
- Built-in DIN rail foot for simple mounting to top hat DIN rails
- Convenient earthing through DIN foot and/or earth terminal

- ESP RTD can be flat mounted on base or side
- ESP RTD and ESP RTDQ have colour coded terminals for quick and easy installation check
- ESP SL RTD has ultra slim 7 mm width ideal for compact protection of large numbers of lines (e.g. process control installations)
- ESP SL RTD includes two stage removable protection module with simple quick release mechanism allowing partial removal for easy line commissioning and maintenance as well as full removal for protection replacement

For further information on RTD applications, see separate Application Note AN001 (contact us for a copy).

Installation

Connect in series with the signal line either near where it enters or leaves the building or close to the equipment being protected ensuring it is very close to the system's earth star point. Install protectors either within an existing cabinet/cubicle or in a separate enclosure.

Accessories

Replacement module for ESP SL RS485:

ESP SLRTD/M

Standard module replacement

ESP SLRTD/B

Base replacement

Combined Mounting/Earthing kits for ESP RTD:

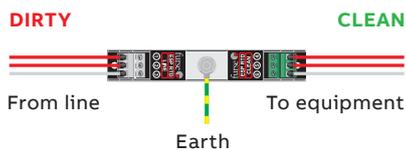
CME 4 For up to 4 x ESP RTD

CME 8 For up to 8 x ESP RTD

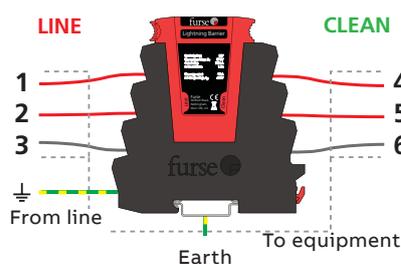
CME 16 For up to 16 x ESP RTD

CME 32 For up to 32 x ESP RTD

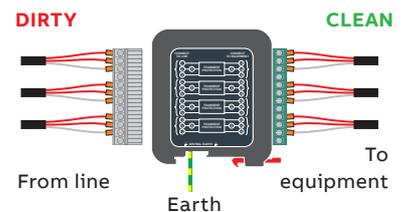
ESP RTD installed in series



ESP SL RTD installed in series



ESP RTDQ installed in series (in-line)



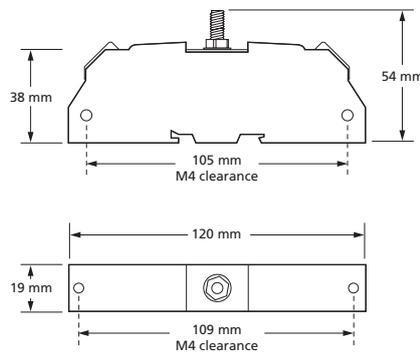
NOTE: For 2-wire or 4-wire RTD applications, use one or two ESP 06D or ESP SL06 protectors respectively.

ESP RTD, RTDQ & SL RTD Series - Technical specification

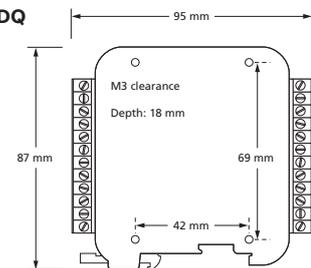
| Electrical specification | ESP RTD | ESP SL RTD | ESP RTDQ |
|---|------------------------------------|---|---|
| ABB order code | 7TCA085460R0157 | 7TCA085400R0232 | 7TCA085400R0158 |
| Nominal voltage ⁽¹⁾ | 6 V | | |
| Maximum working voltage U_c (RMS/DC) ⁽²⁾ | 5 V / 7.79 V | | |
| Current rating (signal) | 200 mA | 500 mA | 700 mA |
| In-line resistance (per line $\pm 10\%$) | 10 Ω | 1.0 Ω | 1.0 Ω |
| Bandwidth (-3 dB 50 Ω system) | 800 kHz | 1.5 MHz | 800 kHz |
| Transient specification | ESP RTD | ESP SL RTD | ESP RTDQ |
| Let-through voltage (all conductors)(3) Up | | | |
| C2 test 4 kV 1.2/50 μ s, 2 kA 8/20 μ s to BS EN/EN/IEC 61643-21 | 12.0 V | 17.9 V | 15.0 V |
| C1 test 1 kV, 1.2/50 μ s, 0.5 kA 8/20 μ s to BS EN/EN/IEC 61643-21 | 11.5 V | 12.1 V | 12.5 V |
| B2 test 4 kV 10/700 μ s to BS EN/EN/IEC 61643-21 | 10.0 V | 11.0 V | 10.0 V |
| 5 kV, 10/700 μ s ⁽⁴⁾ | 10.5 V | 11.3 V | 10.5 V |
| Maximum surge current | | | |
| D1 test 10/350 μ s to BS EN/EN/IEC 61643-21: - Per signal wire 2.5 kA | 2.5 kA | 1.25 kA | 2.5 kA |
| - Per pair 5 kA | 5 kA | 2.5 kA | 5 kA |
| 8/20 μ s to ITU-T K.45:2003, - Per signal wire IEEE C62.41.2:2002: - Per pair 10 kA | 10 kA | 5 kA | 10 kA |
| - Per pair 20 kA | 20 kA | 10 kA | 20 kA |
| Mechanical specification | ESP RTD | ESP SL RTD | ESP RTDQ |
| Temperature range | -40 to +80 $^{\circ}$ C | | |
| Connection type | Screw terminal - max torque 0.5 Nm | Screw terminal - max torque 0.8 Nm | Pluggable 12 way screw terminal - max torque 0.5 Nm |
| Conductor size (stranded) | 2.5 mm ² | 4 mm ² | 2.5 mm ² |
| Earth connection | M6 stud - max. torque 0.5 Nm | Via DIN rail or 4 mm ² earth terminal - max. torque 0.8 Nm | Via DIN rail or M5 threaded hole in base of unit - max. torque 0.6 Nm |
| Case Material | FR Polymer UL-94 V-0 | | |
| Weight: - Unit | 0.08 kg | 0.08 kg | 0.1 kg |
| Dimensions | See diagram below | | |

- ⁽¹⁾ Nominal voltage (RMS/DC or AC peak) measured at < 200 μ A
- ⁽²⁾ Maximum working voltage (RMS/DC or AC peak) measured at < 10 mA
- ⁽³⁾ The maximum transient voltage let-through of the protector throughout the test ($\pm 10\%$), line to line & line to earth, both polarities. Response time < 10 ns
- ⁽⁴⁾ Test to IEC 61000-4-5:2006, ITU-T (formerly CCITT) K.20, K.21 and K.45, Telcordia GR-1089-CORE, Issue 2:2002, ANSI TIA/EIA/IS-968-A:2002 (formerly FCC Part 68)

ESP RTD



ESP RTDQ



ESP SL RTD

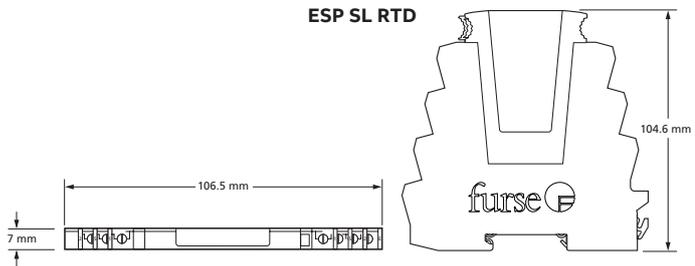


ABB order codes

| Part | ABB order code | Part | ABB order code | Part | ABB order code |
|-------------|-----------------|-------|-----------------|----------|-----------------|
| ESPSLRD/M | 7TCA085400R0258 | CME16 | 7TCA085410R0002 | WBXSLQ | 7TCA085410R0037 |
| ESP SLRTD/B | 7TCA085400R0263 | CME8 | 7TCA085400R0002 | WBXSLQ/G | 7TCA085410R0036 |
| CME4 | 7TCA085400R0001 | CME32 | 7TCA085410R0003 | | |