

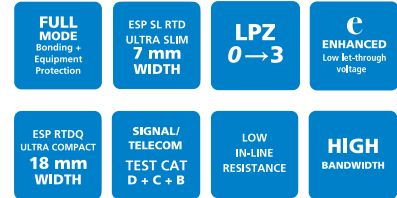
DATASHEET

Data & signal protection

ESP RS485, RS485Q & SL RS485 Series

Combined Category D, C, B tested protector (to BS EN 61643) specifically designed for RS 485 and Fieldbus applications, such as Profibus DP.

For use at boundaries up to LPZ 0 protect against flashover (typically the service entrance location) through to LPZ 3. Available as standard ESP RS485 format, or compact ESP RS485Q and Slim Line ESP SL RS485 versions for installations where a high number of lines require protection.



Features & benefits

- 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
- 45 MHz bandwidth greatly exceeds 12 Mbps maximum speeds
- Low in-line resistance minimizes reductions in signal strength
- Suitable for earthed or isolated screen systems
- Built-in DIN rail foot for simple mounting to top hat DIN rails
- Convenient earthing through DIN foot and/or earth terminal
- Connect screen connection 'S' as the 0V ground on RS485 systems
- ESP RS485 can be flat mounted on base or side
- ESP RS485 and ESP RS485Q have colour coded terminals for quick and easy installation check
- ESP SL RS485 has ultra slim 7 mm width ideal for compact protection of large numbers of lines (e.g. process control installations)
- ESP SL RS485 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
- ESP SL RS485 includes optional LED status indication. Add L suffix to part number - i.e. ESP SL RS485L

Application

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 SLRS485/M (7TCA085400R0259)

Standard module replacement

ESP SLRS485/B (7TCA085400R0262)

Base replacement

Combined Mounting/Earthing kits for ESP RS485:

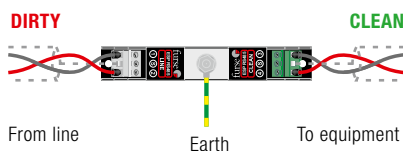
CME 4 For up to 4 x ESP RS485

CME 8 For up to 8 x ESP RS485

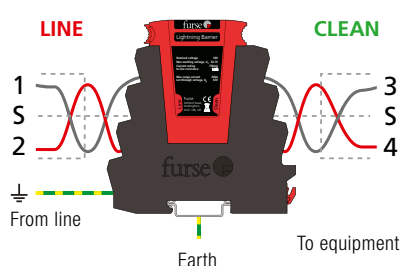
CME 16 For up to 16 x ESP RS485

CME 32 For up to 32 x ESP RS485

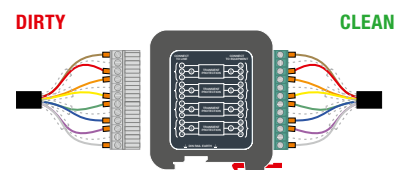
ESP RS485 installed in series



ESP SL RS485 installed in series



ESP RS485Q installed in series (in-line)



NOTE: The ESP SL 'Slim Line' Series is also available for protection of 3-wire and RTD applications (ESP SL/3W & ESP SL RTD). The ESP SL X Series has approvals for use in hazardous areas.

ESP RS485, RS485Q & SL RS485 Series - Technical specification

Electrical specification	ESP RS485	ESP SL RS485 / ESP SL RS485L	ESP RS485Q
ABB order code	7TCA085400R0191	7TCA085400R0193 / 7TCA085400R0230	7TCA085400R0192
Nominal voltage ⁽¹⁾	15 V		
Maximum working voltage U_c (RMS/DC) ⁽²⁾	11 V / 16.7 V		
Current rating (signal)	300 mA		
In-line resistance (per line $\pm 10\%$)	1 Ω		
Bandwidth (-3 dB 50 Ω system)	45 MHz		
Transient specification	ESP RS485	ESP SL RS485 / ESP SL RS485L	ESP RS485Q
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	55.0 V		
C1 test 1 kV, 1.2/50 μ s, 0.5 kA 8/20 μ s to BS EN/EN/IEC 61643-21	42.0 V		
B2 test 4 kV 10/700 μ s to BS EN/EN/IEC 61643-21	27.2 V		
5 kV, 10/700 μ s ⁽⁴⁾	28.2 V		
Maximum surge current			
D1 test 10/350 μ s to BS EN/EN/IEC 61643-21:	- Per signal wire 2.5 kA - Per pair 5 kA	2.5 kA 5 kA	1.25 kA 2.5 kA 2.5 kA 5 kA
8/20 μ s to ITU-T K.45:2003, IEEE C62.41.2:2002:	- Per signal wire 10 kA - Per pair 20 kA	10 kA 20 kA	
Mechanical specification	ESP RS485	ESP SL RS485 / ESP SL RS485L	ESP RS485Q
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
Conductor size (stranded)	2.5 mm ²	4 mm ²	2.5 mm ²
Earth connection	M6 stud	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
Case Material	FR Polymer UL-94 V-0		
Weight: - Unit	0.08 kg		
- Packaged (per 10)	0.85 kg		
Dimensions	See diagrams below		

- ⁽¹⁾ Nominal voltage (RMS/DC or AC peak) measured at < 10 μ A
- ⁽²⁾ Maximum working voltage (RMS/DC or AC peak) measured at < 5 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)

