



Data & signal protection

ESP RS485, SRS485, RS485Q & SL RS485 Series



*NOTE: product label design may vary.

Combined Category D, C, B tested (to IEC/BS EN 61643) Surge Protection Device (SPD) 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, slim ESP SRS485 format or compact ESP RS485Q and Slim Line ESP SL RS485 versions for installations where a high number of lines require protection.

FULL MODE Bonding + Equipment Protection	OVR SL RS485 ULTRA SLIM 7 mm WIDTH	LPZ 0 → 3	ENHANCED Low let-through voltage	OVR RS485Q ULTRA COMPACT 18 mm WIDTH	UL LISTED
SIGNAL/ TELECOM TEST CAT D + C + B	LOW IN-LINE RESISTANCE	HIGH BANDWIDTH	OND	Fast-Fit Push Terminal (PT)	

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 minimises 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, ESP SRS485 and ESP RS485Q have colour coded terminals for quick and easy installation check
- ESP SRS485 (6.2 mm) and ESP SL RS485 (7 mm) are ultra slim units, 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
- ESP SRS485 has LED status indication as standard
- ESP SRS485 and ESP RS485Q available with Push Terminals (ESP RTDQ/PT) for simple 'spring' connections, to provide fast and reliable cable termination
- ESP RS485Q and ESP RS485Q/PT have UL497B approval under file E240341

Installation

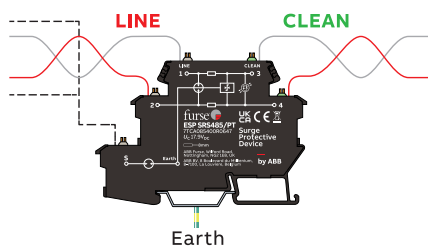
Connect in series with the signal line either near where it enters or leaves the building or close to the equipment being protected ensuring it is very close to the system's earth star point. Install SPDs either within an existing cabinet/cubicle or in a separate enclosure.

Accessories

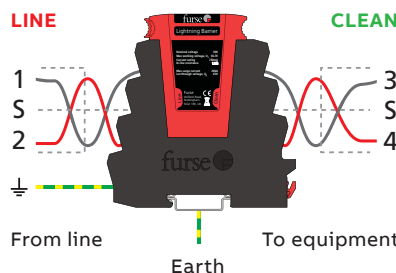
For replacement SPD modules (/M), spare base units (/B), weatherproof enclosures (WBX) and combined mounting and earthing kits (CME) see ABB order code table.

Combined Mounting/ Earthing kits for ESP RS485:
CME 4 (up to 4 x ESP RS485)
CME 8 (up to 8 x ESP RS485)
CME 16 (up to 16 x ESP RS485)
CME 32 (up to 32 x ESP RS485)

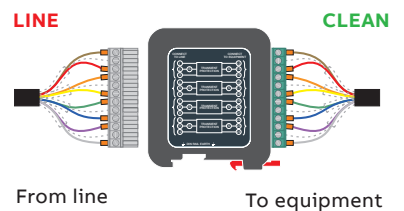
ESP SRS485 installed in series



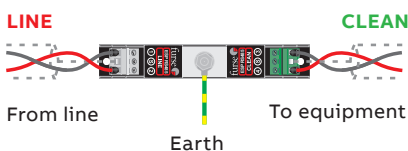
ESP SL RS485 installed in series



ESP RS485Q installed in series (in-line)



ESP RS485 installed in series



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, SRS485, RS485Q & SL RS485 Series - Technical specification

Electrical specification	ESP RS485	ESP SL RS485	ESP RS485Q	ESP SRS485
Nominal voltage ⁽¹⁾	15 V			
Maximum working voltage U_c (DC) ⁽²⁾	16.7 V			
Maximum working voltage U_c (AC RMS)	11 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				
Let-through voltage (all conductors) U_p⁽³⁾				
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 - Per pair	10 kA 20 kA	5 kA 10 kA	10 kA 20 kA
Mechanical specification				
Temperature range	-40 to +80 °C			
Connection type	Screw terminal - max. torque 0.5 Nm	Screw terminal - max. torque 0.8 N	Pluggable 12 way screw terminal	Screw terminal - max torque 0.4 Nm /PT version: Pluggable screwless PushTerminal
Conductor size (stranded)	2.5 mm ²	4 mm ²	2.5 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	Via DIN rail earth or earth terminal
Case Material	FR Polymer UL-94 V-0			
Weight	0.08 kg			
Dimensions	See diagrams below			

⁽¹⁾ Nominal voltage (DC or AC peak) measured at < 10 μ A.

⁽²⁾ Maximum working voltage (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).

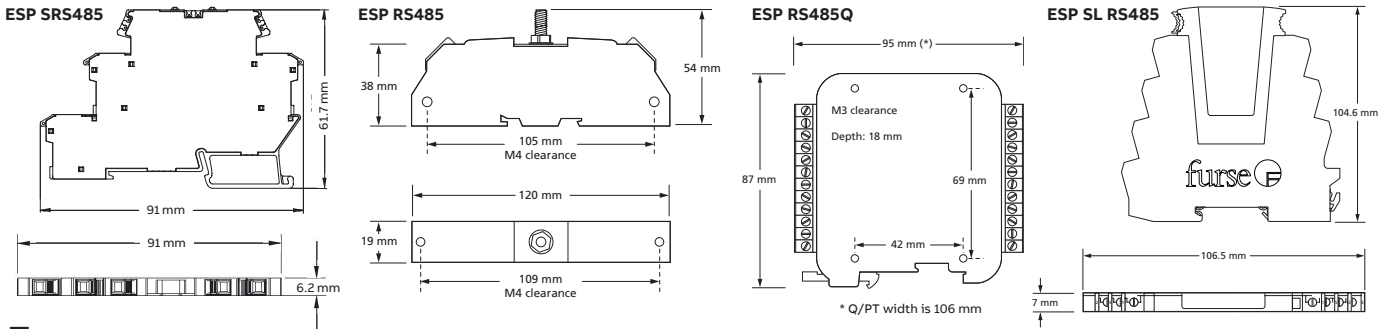


ABB order codes

Part no.	ABB order code	Part no.	ABB order code	Part no.	ABB order code
ESP RS485	7TCA085400R0191	ESP RS485Q	7TCA085400R0192	CME32	7TCA085410R0003
ESP SLRS485/B	7TCA085400R0262	ESP RS485Q(UL)	7TCA085400R0558	WBXSLQ	7TCA085410R0037
ESP SLRS485	7TCA085400R0193	ESP RS485Q/PT(UL)	7TCA085400R0565	WBXSLQ/G	7TCA085410R0036
ESP SLRS485L	7TCA085400R0230	ESP SLRS485/M	7TCA085400R0259	WBX 4	7TCA085410R0027
ESP SLRS485(UL)	7TCA085400R0525	ESP SLRS485L/M	7TCA085400R0471	WBX 8	7TCA085410R0030
ESP SLRS485L(UL)	7TCA085400R0526	CME4	7TCA085400R0001	WBX 16/2/G	7TCA085410R0020
ESP SRS485	7TCA085400R0629	CME8	7TCA085400R0002	WBX 16/2/G	7TCA085410R0020
ESP SRS485/PT	7TCA085400R0647	CME16	7TCA085410R0002		

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