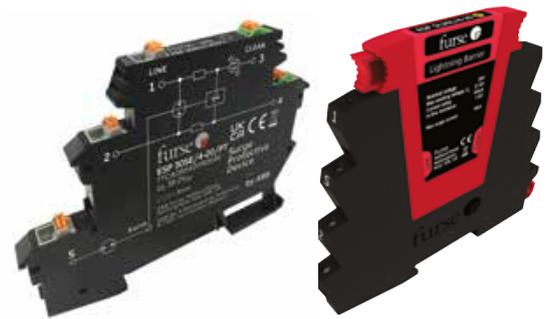


Data & signal protection

ESP SL30L/4-20 & ESP SE30/4-20 Series



Combined Category D, C, B tested protector (to BS EN 61643) suitable for twisted pair 4-20 mA loop systems with innovative LED protector status indication. For use at boundaries up to LPZ 0 to protect against flashover (typically the service entrance location) through to LPZ 3 to protect sensitive electronic equipment (e.g. transmitters, monitors, controllers).



LPZ 0 → 3	FULL MODE Bonding + Equipment Protection	REPLACEABLE PROTECTION MODULE	SIGNAL/TELECOM TEST CAT D + C + B	ENHANCED Low let-through voltage	CURRENT RATING 75 mA
ESP SL30/4-20 ULTRA SLIM 7 mm WIDTH	LED INDICATION	LOW IN-LINE RESISTANCE 1 Ω			

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
- Innovative LED indication of protection status provides easy visual checking and quick maintenance
- ESP 30SE/4-20 (6.2 mm) and ESP SL30L/4-20 (7 mm) are ultra slim units, ideal for compact protection of large numbers of lines (e.g. process control installations)
- ESP SL30L/4-20 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
- Very low (1 Ω) in-line resistance for minimal system interference

- High (75 mA) maximum running current - can also be used on 10-50 mA systems (e.g. process control)
- Screen terminal enables easy connection of cable screen to earth. Note: ESP SL30L/4-20/I is suitable for earthed and isolated screen systems
- Strong, flame retardant, polycarbonate housing
- Built-in innovative DIN rail foot with locking feature for simple positioning and clip-on mounting to top hat DIN rails
- Convenient earthing through DIN foot and/or earth terminal
- ESP 30SE/4-20 (and /PT variant) have colour coded terminals for quick and easy installation check
- ESP 30SE/4-20 available with Push Terminals (ESP 30SE/4-20/PT) for simple 'spring' connections, to provide fast and reliable cable termination

Application

Use these protectors on 4-20 mA loop systems - ideal where installation space is at a premium and large numbers of lines require protection, or for systems with long signal lines.

Accessories

ESP SL30L/4-20/M
Module replacement
ESP SL/B
Base replacement

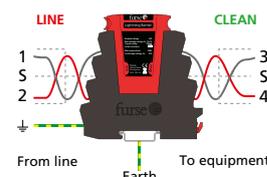
Weatherproof enclosures:
WBX SLQ, WBX SLQ/G
For use with up to 16 protectors

TECHNICAL NOTE: 4-20 mA current loops can serve multiple devices over a long distance. The devices and wiring produce a voltage drop (also known as “loop drops”) but these do not reduce the 4-20 mA current as long as the power supply voltage is greater than the sum of the voltage drops around the loop at the maximum signalling current of 20 mA. For design considerations, each SPD installed within the loop introduces a 1.7 V loop drop.

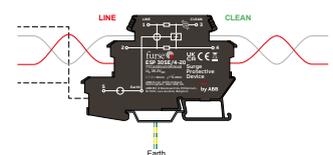
Installation

Connect in series with the 4-20 mA current loop either near where it enters or leaves the building or close to the equipment being protected (e.g. within its control panel). Either way, it must be very close to the system’s earth star point. Install protectors either within an existing cabinet/ cubicle or in a separate enclosure.

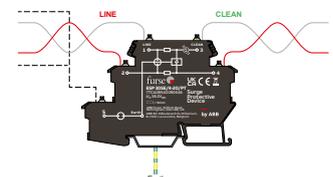
ESP SL30L/4-20 installation



ESP SE30/4-20 installation



ESP SE30/4-20/PT installation



NOTE: The ESP SL ‘Slim Line’ Series is also available for protection of systems up to 180 V as well as 3-wire, RS 485, RTD & telecommunication applications (ESP SL/3W, ESP SL RS485, ESP SL RTD & ESP SL TN). The ESP SL X Series has approvals for use in hazardous areas.

ESP SL30L/4-20 & ESP SE30/4-20 Series - Technical specification

Electrical specification	ESP SL30L/4-20	ESP 30SE/4-20
ABB order code	7TCA085400R0070	7TCA085400R0648
Nominal voltage ⁽¹⁾	30 V	
Maximum working voltage U_c (DC) ⁽²⁾	36.7 V	
Maximum working voltage U_c (AC RMS)	25 V	
Current rating (signal) ⁽³⁾	75 mA	
In-line resistance (per line $\pm 10\%$)	1.0 Ω	
Series voltage drop ⁽⁴⁾	1.7 V	
Bandwidth (-3 dB 50 Ω systems)	45 MHz	
Transient specification	ESP SL30L/4-20	ESP 30SE/4-20
Let-through voltage (all conductors)⁽⁵⁾ Up		
C2 test 4 kV 1.2/50 μ s, 2 kA 8/20 μ s to BS EN/EN/IEC 61643-21	63.0 V	
C1 test 1 kV, 1.2/50 μ s, 0.5 kA 8/20 μ s to BS EN/EN/IEC 61643-21	51.3 V	
B2 test 4 kV 10/700 μ s to BS EN/EN/IEC 61643-21	45.4 V	
5 kV, 10/700 μ s ⁽⁶⁾	46.3 V	
Maximum surge current		
D1 test 10/350 μ s to BS EN/EN/IEC 61643-21:		
- Per signal wire	1.25 kA	2.5 kA
- Per pair	2.5 kA	5 kA
8/20 μ s to ITU-T K.45:2003,		
- Per signal wire	5 kA	10 kA
- Per pair	10 kA	20 kA
IEEE C62.41.2:2002:		
- Per pair	10 kA	20 kA
Mechanical specification	ESP SL30L/4-20	ESP 30SE/4-20
Temperature range	-40 to +80 °C	
Connection type	Screw terminal - maximum torque 0.8 Nm	Screw terminal - max torque 0.4 Nm /PT version: Pluggable screwless Push Terminal
Conductor size (stranded)	4 mm ²	2.5 mm ²
Earth connection	Via DIN rail or 4 mm ² earth terminal - maximum torque 0.8 Nm	Via DIN rail earth or earth terminal
Case material	FR Polymer UL-94 V-0	
Weight: - Unit	0.08 kg	
Dimensions	See diagram below	

- ⁽¹⁾ Nominal voltage (DC or AC peak) measured at < 10 μ A
- ⁽²⁾ Maximum working voltage (DC or AC peak) measured at < 1 mA leakage
- ⁽³⁾ The minimum current for LED indicator operation is 2 mA
- ⁽⁴⁾ At 20 mA
- ⁽⁵⁾ 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
- ⁽⁶⁾ 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)

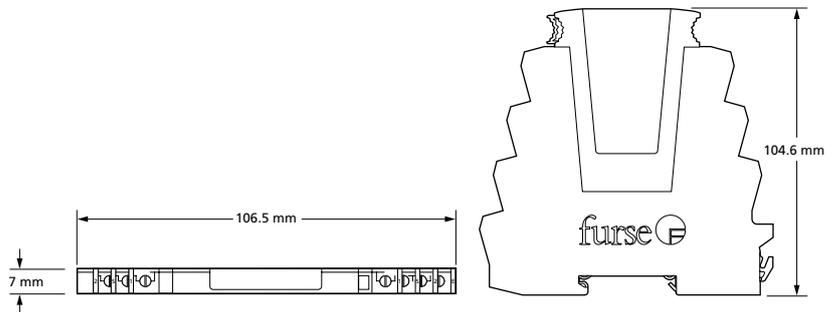


ABB order codes

Part	ABB order code	Part	ABB order code
ESP SL30L/4-20	7TCA085400R0070	ESP SL/I/B	7TCA085400R0261
ESP SL30L/4-20/M	7TCA085400R0164	ESP 30SE/4-20	7TCA085400R0648
ESP SL/B	7TCA085400R0194	ESP 30SE/4-20/PT	7TCA085400R0646
ESP SL30L/4-20/I	7TCA085400R0237		

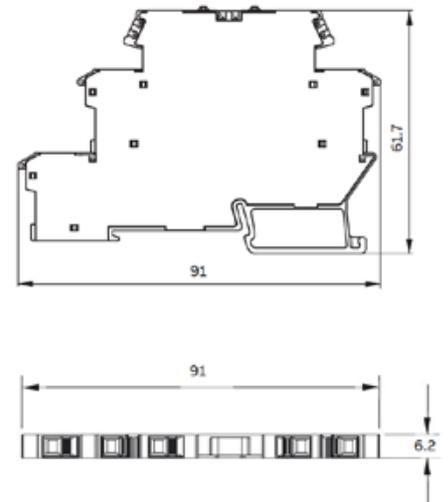


ABB Limited
 Fursee
 Wilford Road
 Nottingham
 NG2 1EB UK
 Tel: +44 (0) 115 964 3700

www.fursee.com

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