

## DATASHEET

# Data & signal protection

## OVR SL LED 4-20 mA 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).**



### 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
- Ultra slim 7 mm width ideal for compact protection of large numbers of lines (e.g. process control installations)
- 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
- Strong, flame retardant, polymer housing
- 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
- Built-in innovative DIN rail foot with locking feature for simple positioning and clip-on mounting to top hat DIN rails
- 4 mm<sup>2</sup> terminals allow for larger cross section wiring, stranded wires terminated with ferrules or fitting two wires into a single terminal
- Convenient earthing through DIN foot and/or earth terminal
- Suitable for earthed or isolated screen versions - add /I suffix to part number for version that requires isolated screen - e.g. ESP SL30L/4-20/I

### 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

**OVR SL30L/4-20/M**

Module replacement

**OVR SL/B**

Base replacement

**OVR SL/I/B**

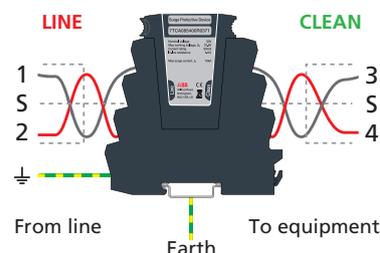
Isolated base replacement

Weatherproof enclosure:

**OVR WBX SLQ**

### 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.



**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 OVR SL30L/4-20 device installed within the loop introduces a 1.7 V loop drop.

**NOTE:** The OVR SL ‘Slim Line’ Series is also available for protection of systems up to 110 V as well as 3-wire, RS 485, RTD & telecommunication applications (OVR SL/3W, OVR SL RS485, OVR SL RTD & OVR SL TN). The OVR SL X Series has approvals for use in hazardous areas.

**OVR SL LED 4-20 mA Series - Technical specification**

<b>Electrical specification</b>	<b>OVR SL30L/4-20</b>	
<b>ABB order code</b>	7TCA085400R0371	
Nominal voltage <sup>(1)</sup>	30 V	
Maximum working voltage $U_c$ (RMS/DC) <sup>(2)</sup>	25 V / 36.7 V	
Current rating (signal) <sup>(3)</sup>	75 mA	
In-line resistance (per line $\pm 10\%$ )	1.0 $\Omega$	
Series voltage drop <sup>(4)</sup>	1.7 V	
Bandwidth (-3 dB 50 $\Omega$ systems)	45 MHz	
<b>Transient specification</b>	<b>OVR SL30L/4-20</b>	
<b>Let-through voltage (all conductors)<sup>(5)</sup> Up</b>		
C2 test 4 kV 1.2/50 $\mu$ s, 2 kA 8/20 $\mu$ s to BS EN/EN/IEC 61643-21	63.0 V	
C1 test 1 kV, 1.2/50 $\mu$ s, 0.5 kA 8/20 $\mu$ s to BS EN/EN/IEC 61643-21	51.3 V	
B2 test 4 kV 10/700 $\mu$ s to BS EN/EN/IEC 61643-21	45.4 V	
5 kV, 10/700 $\mu$ s <sup>(6)</sup>	46.3 V	
<b>Maximum surge current</b>		
D1 test 10/350 $\mu$ s to BS EN/EN/IEC 61643-21:	- Per signal wire	1.25 kA
	- Per pair	2.5 kA
8/20 $\mu$ s to ITU-T K.45:2003, IEEE C62.41.2:2002:	- Per signal wire	5 kA
	- Per pair	10 kA
<b>Mechanical specification</b>	<b>OVR SL30L/4-20</b>	
Temperature range	-40 to +80 °C	
Connection type	Screw terminal - maximum torque 0.8 Nm	
Conductor size (stranded)	4 mm <sup>2</sup>	
Earth connection	Via DIN rail or 4 mm <sup>2</sup> earth terminal - maximum torque 0.8 Nm	
Case material	FR Polymer UL-94 V-0	
Weight: – Unit	0.08 kg	
Dimensions	See diagram below	

<sup>(1)</sup> Nominal voltage (RMS/DC or AC peak) measured at < 10  $\mu$ A

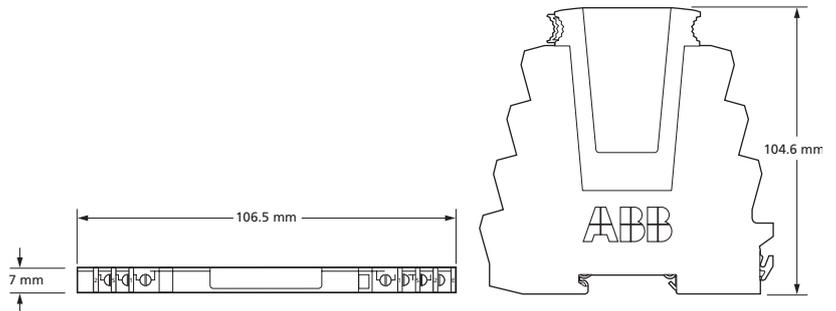
<sup>(2)</sup> Maximum working voltage (RMS/DC or AC peak) measured at < 1 mA leakage

<sup>(3)</sup> The minimum current for LED indicator operation is 2 mA

<sup>(4)</sup> At 20 mA

<sup>(5)</sup> 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

<sup>(6)</sup> 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
OVR SL30L/4-20	7TCA085400R0371	OVR SL/B	7TCA085400R0320
OVR SL30L/4-20/I	7TCA085400R0372	OVR SL/I/B	7TCA085400R0321
OVR SL30L/4-20/M	7TCA085400R0373	OVR WBX SLQ	7TCA085400R0326