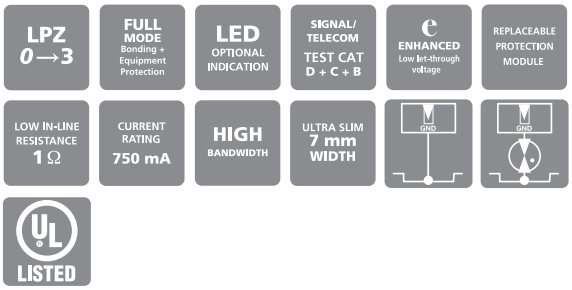
TECHNICAL DATA SHEET

# Data & signal protection

## ESP SL Series

**Combined Category D, C, B tested (to IEC/BS EN 61643) Surge Protection Device (SPD) suitable for twisted pair signalling applications which require either a lower in-line resistance, an increased current and/or higher bandwidth. Also suitable for DC power applications less than 0.75 Amps. Available for working voltages of up to 6, 15, 30, 50, 110 and 180 Volts, and also for global telephone applications up to 296 Volts. 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.**




### 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
- Ultra slim 7 mm width ideal for compact protection of large numbers of lines (e.g. process control installations)
- Optional LED status indication versions available for low current DC power applications - add L suffix to part number - e.g. ESP SL30L
- 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, polycarbonate housing
- High maximum running current
- High bandwidth enables higher frequency (high traffic or bit rate) data communications
- Screen terminal enables easy connection of cable screen to earth
- Suitable for earthed or isolated screen systems - add /I suffix to part number for versions that require isolated screens - e.g. ESP SL30/I
- Built-in innovative DIN rail foot with locking feature for simple positioning and clip-on mounting to top hat DIN rails
- 4 mm² 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
- Very low (1 Ω) in-line resistance (for products from 6V to 110V) allows resistance critical applications (e.g. alarm loops) to be protected
- ESP SL06-SL180 (UL) have UL497B approval under file E240341 (ESP SLTN not included)

### Application

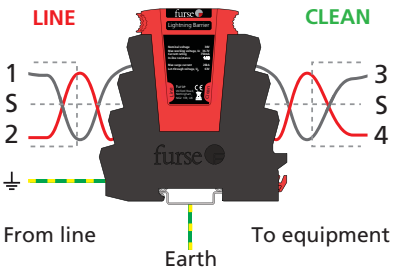
Use these SPDs where installation space is at a premium and large numbers of lines require protection
(e.g. process control, high speed digital communication equipment or systems with long signal lines).

### Installation

Connect in series with the data communication or signal line 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 SPDs either within an existing cabinet/ cubicle or in a separate enclosure.

### Accessories

For replacement SPD modules (/M), spare base units (/B) and weatherproof enclosures (WBX) see ABB order code table overleaf.

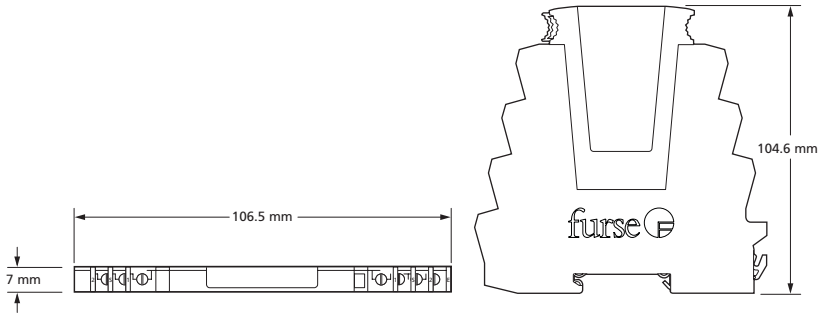



**NOTE:** The ESP SL 'Slim Line' Series is also available for protection of 3-wire, RS 485 and RTD applications (ESP SL/3W, ESP SL RS485 & ESP SL RTD). The ESP SL X Series has approvals for use in hazardous areas.

**ESP SL Series - Technical specification**

| Electrical specification | | ESP SL06 Series | ESP SL15 Series | ESP SL30 Series | ESP SL50 Series | ESP SL110 Series | ESP SL180 Series | ESP SL TN Series |
|---|---|---|---|---|---|---|---|---|
| Nominal voltage[1] | | 6 V | 15 V | 30 V | 50 V | 110 V | 180 V | – |
| Maximum working voltage $U_c$ (DC)[2] | | 7.79 V | 16.7 V | 36.7 V | 56.7 V | 132 V | 190 V | 296 V |
| Maximum working voltage $U_c$ (AC RMS) | | 5 V | 11 V | 25 V | 40 V | 93 V | 130 V | – |
| Current rating (signal) | | 750 mA | | | | 500 mA | 250 mA | 300 mA |
| In-line resistance (per line ±10%) | | 1.0 Ω | | | | 3.3 Ω | 6.8 Ω | 4.5 Ω |
| Bandwidth (-3 dB 50 Ω system) | | 45 MHz | 45 MHz | 45 MHz | 45 MHz | 45 MHz | 45 MHz | 20 MHz |
| **Transient specification** | | | | | | | | |
| **Let-through voltage (all conductors)[3] *Up*** | | | | | | | | |
| C2 test 4 kV 1.2/50 µs, 2 kA 8/20 µs to BS EN/EN/IEC 61643-21 | | 36.0 V | 38.4 V | 63.0 V | 90.3 V | 185 V | 215 V | 395 V |
| C1 test 1 kV, 1.2/50 µs, 0.5 kA 8/20 µs to BS EN/EN/IEC 61643-21 | | 26.2 V | 29.4 V | 51.3 V | 77.2 V | 175 V | 205 V | 390 V |
| B2 test 4 kV 10/700 µs to BS EN/EN/IEC 61643-21 | | 16.0 V | 26.8 V | 45.4 V | 68.3 V | 165 V | 203 V | 298 V |
| 5 kV, 10/700 µs(4) | | 17.0 V | 27.5 V | 46.3 V | 69.1 V | 170 V | 200 V | 300 V |
| **Maximum surge current** | | | | | | | | |
| D1 test 10/350 µs to BS EN/EN/IEC 61643-21: | – Per signal wire | 1.25 kA | | | | | | |
| | – Per pair | 2.5 kA | | | | | | |
| 8/20 µs to ITU-T K.45:2003, IEEE C62.41.2:2002: | – Per signal wire | 5 kA | | | | | | |
| | – Per pair | 10 kA | | | | | | |
| **Mechanical specification** | | | | | | | | |
| Temperature range | | –40 to +80 °C | | | | | | |
| Connection type | | Screw terminal - maximum torque 0.8 Nm | | | | | | |
| Conductor size (stranded) | | 4 mm² | | | | | | |
| Earth connection | | Via DIN rail or 4 mm² earth terminal - maximum torque 0.8 Nm | | | | | | |
| 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 µA (ESP SL15, ESP SL30, ESP SL50, ESP SL110, ESP SL180 and LED variants) and < 200 µA (ESP SL06 and ESP SL06L)
[2] Maximum working voltage (DC or AC peak) measured at < 1 mA leakage
[3] The maximum transient voltage let-through of the protector throughout the test (±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 | ABB order code | Part | ABB order code | Part | ABB order code | Part | ABB order code |
|---|---|---|---|---|---|---|---|
| **ESP SL06** | 7TCA085400R0058 | **ESP SL15/M** | 7TCA085400R0198 | **ESP SL50(UL)** | 7TCA085400R0513 | **ESP SL180L** | 7TCA085400R0419 |
| **ESP SL06/I** | 7TCA085400R0265 | **ESP SL15L/M** | 7TCA085400R0249 | **ESP SL50/I(UL)** | 7TCA085400R0514 | **ESP SL180** | 7TCA085400R0420 |
| **ESP SL06L** | 7TCA085400R0060 | **ESP SL15/M(UL)** | 7TCA085400R0583 | **ESP SL50L(UL)** | 7TCA085400R0515 | **ESP SL180L/I** | 7TCA085400R0421 |
| **ESP SL06L/I** | 7TCA085400R0280 | **ESP SL15L/M(UL)** | 7TCA085400R0584 | **ESP SL50L/I(UL)** | 7TCA085400R0516 | **ESP SL180/I** | 7TCA085400R0422 |
| **ESP SL06(UL)** | 7TCA085400R0501 | **ESP SL30** | 7TCA085400R0067 | **ESP SL50/M** | 7TCA085400R0254 | **ESP SL180(UL)** | 7TCA085400R0521 |
| **ESP SL06/I(UL)** | 7TCA085400R0502 | **ESP SL30/I** | 7TCA085400R0068 | **ESP SL50L/M** | 7TCA085400R0256 | **ESP SL180/I(UL)** | 7TCA085400R0522 |
| **ESP SL06L(UL)** | 7TCA085400R0503 | **ESP SL30L** | 7TCA085400R0069 | **ESP SL50/M(UL)** | 7TCA085400R0589 | **ESP SL180L(UL)** | 7TCA085400R0523 |
| **ESP SL06L/I(UL)** | 7TCA085400R0504 | **ESP SL30L/I** | 7TCA085400R0234 | **ESP SL50L/M(UL)** | 7TCA085400R0590 | **ESP SL180L/I(UL)** | 7TCA085400R0524 |
| **ESP SL06/M** | 7TCA085400R0243 | **ESP SL30(UL)** | 7TCA085400R0509 | **ESP SL110** | 7TCA085400R0061 | **ESP SL180/M** | 7TCA085400R0428 |
| **ESP SL06L/M** | 7TCA085400R0240 | **ESP SL30/I(UL)** | 7TCA085400R0510 | **ESP SL110/I** | 7TCA085400R0279 | **ESP SL180L/M** | 7TCA085400R0427 |
| **ESP SL06/M(UL)** | 7TCA085400R0581 | **ESP SL30L(UL)** | 7TCA085400R0511 | **ESP SL110L** | 7TCA085400R0062 | **ESP SL180/M(UL)** | 7TCA085400R0593 |
| **ESP SL06L/M(UL)** | 7TCA085400R0582 | **ESP SL30L/I(UL)** | 7TCA085400R0512 | **ESP SL110L/I** | 7TCA085400R0284 | **ESP SL180L/M(UL)** | 7TCA085400R0594 |
| **ESP SL15** | 7TCA085460R0058 | **ESP SL30/M** | 7TCA085400R0197 | **ESP SL110(UL)** | 7TCA085400R0517 | **ESP SL/B** | 7TCA085400R0194 |
| **ESP SL15/I** | 7TCA085400R0264 | **ESP SL30L/M** | 7TCA085400R0199 | **ESP SL110/I(UL)** | 7TCA085400R0518 | **ESP SL/I/B** | 7TCA085400R0261 |
| **ESP SL15L** | 7TCA085460R0058 | **ESP SL30/M(UL)** | 7TCA085400R0587 | **ESP SL110L(UL)** | 7TCA085400R0519 | **ESP SLTN** | 7TCA085400R0195 |
| **ESP SL15L/I** | 7TCA085400R0064 | **ESP SL30L/M(UL)** | 7TCA085400R0588 | **ESP SL110L/I(UL)** | 7TCA085400R0520 | **ESP SLTNL** | 7TCA085400R0226 |
| **ESP SL15(UL)** | 7TCA085400R0505 | **ESP SL50** | 7TCA085400R0074 | **ESP SL110/M** | 7TCA085400R0245 | **WBX SLQ** | 7TCA085410R0037 |
| **ESP SL15/I(UL)** | 7TCA085400R0506 | **ESP SL50/I** | 7TCA085400R0075 | **ESP SL110L/M** | 7TCA085400R0248 | **WBX SLQ/G** | 7TCA085410R0036 |
| **ESP SL15L(UL)** | 7TCA085400R0507 | **ESP SL50L** | 7TCA085400R0076 | **ESP SL110/M(UL)** | 7TCA085400R0591 | | |
| **ESP SL15L/I(UL)** | 7TCA085400R0508 | **ESP SL50L/I** | 7TCA085400R0201 | **ESP SL110L/M(UL)** | 7TCA085400R0592 | | |

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

**www.furse.com**



9AKK10103A0052 09.20