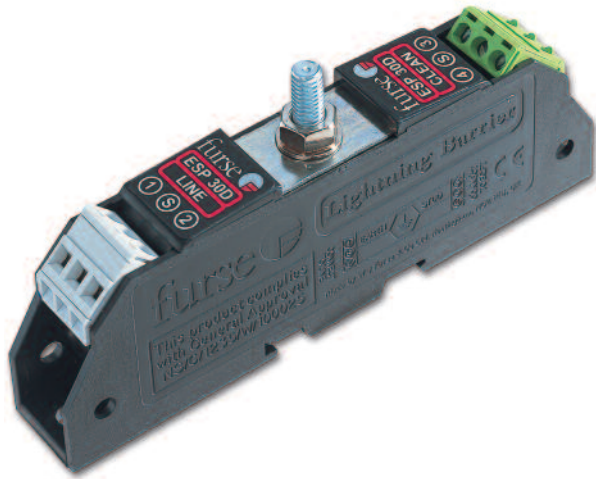


# ESP D and TN Series

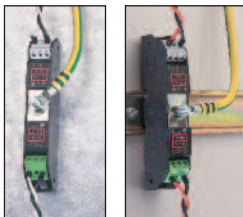


<b>LPZ</b> $0_A \rightarrow 3$	<b>FULL MODE</b> Bonding + Equipment Protection
<b>SIGNAL/ TELECOM</b> <b>TEST CAT</b> D + C + B	<b>e</b> <b>ENHANCED</b> Low let-through voltage
<b>LOW INLINE</b> <b>9.4Ω</b> RESISTANCE	<b>CURRENT</b> <b>300mA</b> RATING

Combined Category D, C, B tested protector (to BS EN 61643-21) suitable for most twisted pair signalling applications. Available for working voltages of up to 6, 15, 30, 50 and 110 volts. ESP TN suitable for Broadband, POTS, dial-up, T1/E1, lease line and \*DSL telephone applications. For use at boundaries up to LPZ  $0_A$  to protect against flashover (typically the service entrance location) through to LPZ 3 to protect sensitive electronic equipment.

## Features and benefits

- ✓ Very low let-through voltage (enhanced protection to 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
- ✓ Low in-line resistance minimises unnecessary reductions in signal strength
- ✓ Strong, flame retardant, ABS housing
- ✓ Supplied ready for flat mounting on base or side
- ✓ Built-in DIN rail foot for simple clip-on mounting to top hat DIN rails
- ✓ Colour coded terminals give a quick and easy installation check – grey for the dirty (line) end and green for the clean end
- ✓ Screen terminal enables easy connection of cable screen to earth
- ✓ Substantial earth stud to enable effective earthing
- ✓ Integral earthing plate for enhanced connection to earth via a CME kit
- ✓ ESP 06D and ESP 50D have PADS reference 086/000551 (ESP 06D) and 086/000553 (ESP 50D)
- ✓ ESP TN is suitable for telecommunication applications in accordance with Telcordia and ANSI Standards (see Application Note AN005)



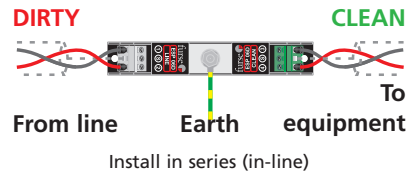
Protectors can be flat mounted via their base (left) or side, or mounted on top hat DIN rail (right) via an integral spring loaded DIN rail foot

## Application

Use on twisted pair lines, e.g. those found in process control equipment, modems and computer communications interfaces.

## 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 systems earth star point. Install protectors either within an existing cabinet/cubicle or in a separate enclosure.



## Accessories

Combined Mounting/Earthing kits

### CME 4

Mount & earth up to 4 protectors

### CME 8

Mount & earth up to 8 protectors

### CME 16

Mount & earth up to 16 protectors

### CME 32

Mount & earth up to 32 protectors

Weatherproof enclosures

### WBX 2/G

For use with up to 2 protectors

### WBX 3, WBX 3/G

For use with up to 3 protectors

### WBX 4, WBX 4/GS

For use with a CME4 and up to 4 protectors

### WBX 8, WBX 8/GS

For use with a CME 8 and up to 8 protectors

### WBX 16/2/G

For use with one or two CME 16 and up to 32 protectors

## Electrical specification

	ESP 06D	ESP 15D	ESP 30D	ESP 50D	ESP 110D	ESP TN
<b>Nominal voltage</b> <sup>1</sup>	6V	15V	30V	50V	110V	–
<b>Maximum working voltage</b> <sup>2</sup> <i>Uc</i>	7.79V	19V	37.1V	58V	132V	296V
<b>Current rating</b> (signal)	300mA					
<b>In-line resistance</b> (per line ±10%)	9.4Ω	9.4Ω	9.4Ω	9.4Ω	9.4Ω	4.4Ω
<b>Bandwidth</b> (–3dB 50Ω system)	800kHz	2.5MHz	4MHz	6MHz	9MHz	20MHz

<sup>1</sup> Nominal voltage (DC or AC peak) measured at <5μA (ESP 15D, ESP 30D, ESP 50D, ESP 110D) and <200μA (ESP 06D).

<sup>2</sup> Maximum working voltage (DC or AC peak) measured at <1mA leakage (ESP 15D, ESP 30D, ESP 50D, ESP 110D), <10mA (ESP 06D) and <10μA (ESP TN).

## Transient specification

	ESP 06D	ESP 15D	ESP 30D	ESP 50D	ESP 110D	ESP TN
<b>Let-through voltage</b> (all conductors) <sup>1</sup> <i>U<sub>p</sub></i>						
C2 test 4kV 1.2/50μs, 2kA 8/20μs to BS EN/EN/IEC 61643-21	12.0V	25.0V	44.0V	78.0V	155V	395V
C1 test 1kV, 1.2/50μs, 0.5kA 8/20μs to BS EN/EN/IEC 61643-21	11.5V	24.5V	43.5V	76.0V	150V	390V
B2 test 4kV 10/700μs to BS EN/EN/IEC 61643-21	10.0V	23.0V	42.5V	73.0V	145V	298V
5kV, 10/700μs <sup>2</sup>	10.5V	23.8V	43.4V	74.9V	150V	300V
<b>Maximum surge current</b>						
D1 test 10/350μs to BS EN/EN/IEC 61643-21 – per signal wire – per pair				2.5kA 5kA		
8/20μs to ITU (formerly CCITT), BS 6651:1999 Appendix C – per signal wire – per pair				10kA 20kA		

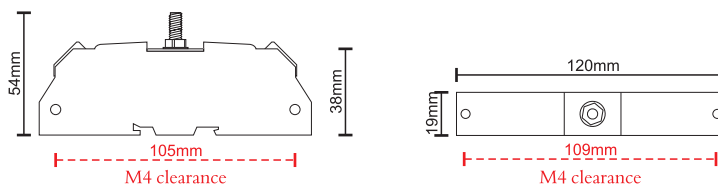
<sup>1</sup> The maximum transient voltage let-through the protector throughout the test (±10%), line to line & line to earth, both polarities. Response time <10ns.

<sup>2</sup> Test to BS 6651:1999 Appendix C, Cat C-High, IEC 61000-4-5:1995, 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).

## Mechanical specification

	ESP 06D	ESP 15D	ESP 30D	ESP 50D	ESP 110D	ESP TN
<b>Temperature range</b>	–25 to +70°C					
<b>Connection type</b>	Screw terminal					
<b>Conductor size</b> (stranded)	2.5mm <sup>2</sup>					
<b>Earth connection</b>	M6 stud					
<b>Case material</b>	ABS UL94 V-0					
<b>Weight</b> – unit	0.08kg					
– packaged (per 10)	0.85kg					

### Dimensions



Derivatives of these protectors are available ready-boxed to IP66, for use in damp or dirty environments, PCB mount versions are also available. If your system requires a protector with a very low resistance or higher current, see the E & H Series. Also use the E Series for systems needing a higher bandwidth. A Protector for 3-wire RTD (ESP RTD) is available, as are the space saving protectors (Q Series). The KT and TN Series' are additional protectors specifically for telephone lines. The KS Series are protectors for data and signal lines on an LSA-PLUS module.