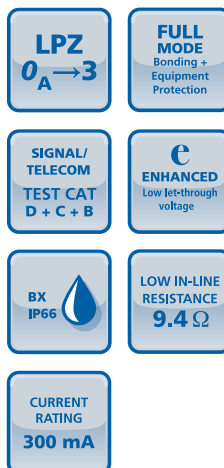


ESP D/BX Series



Combined Category D, C, B tested protector (to BS EN 61643) based on the ESP D Series and ESP TN but ready-boxed to IP66 for use in damp or dirty environments. 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
- ✓ Ready-boxed to IP66 and supplied ready for flat mounting
- ✓ Available with screw terminals or with IDC terminals (by adding /I suffix to part number)
- ✓ Colour coded terminals for quick and easy installation check - grey for the dirty (line) end and green for clean
- ✓ Screen terminal enables easy connection of cable screen to earth
- ✓ Substantial earth stud to enable effective earthing
- ✓ ESP TN/BX and ESP TN/2BX are suitable for telecommunication applications in accordance with Telcordia and ANSI Standards (see **Application Note AN005**)
- ✓ Supplied as standard with screw terminals - for IDC terminals order part code plus /I (e.g. ESP TN/BX/I)
- ✓ ESP TN/BX has Network Rail Approval PA05/02877. NRS PADS reference 087/037286

For installation in the equipment panel, protectors which are not boxed may be more suitable. If your system requires a protector with a very low resistance, higher current or higher bandwidth use the ESP E or H Series. Unboxed protectors for 3-wire RTD systems are available - as are plug-in protectors for telephone lines and compact Slim Line protectors.

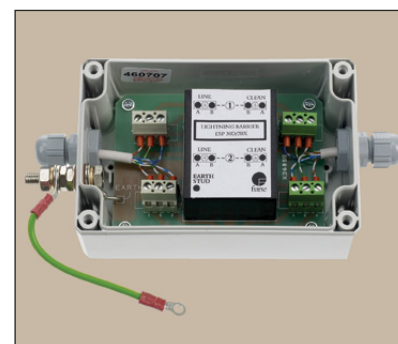
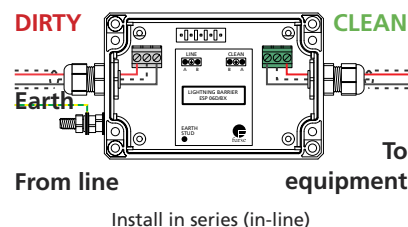
Application

Use these ready-boxed protectors on twisted pair lines in dirty or damp environments.

For two wire lines, use /BX versions. For four wire lines, use /2BX versions.

Installation

Connect in series with the data communication, signal or telephone line either near where it enters/leaves the building or close to the equipment being protected. Either way, it must be very close to the system's earth star point.



ESP 30D/2BX with lid removed to show internal connections. Note the colour coded, grey and green, terminals



Security alarm panel with ESP TN/BX (bottom) providing protection from transient overvoltages on the dial-up telephone line. Note how the ESP TN/BX is earthed via a bond to the ESP 240-16A/BX (top) installed on the mains power supply to the panel

Technical specification

Electrical specification

	ESP 06D/BX ESP 06D/2BX	ESP 15D/BX ESP 15D/2BX	ESP 30D/BX ESP 30D/2BX	ESP 50D/BX ESP 50D/2BX	ESP 110D/BX ESP 110D/2BX	ESP TN/BX ESP TN/2BX
Nominal voltage¹	6 V	15 V	30 V	50 V	110 V	-
Maximum working voltage U_c^2	7.79 V	19 V	37.1 V	58 V	132 V	296 V
Current rating (signal)	300 mA					
In-line resistance (per line $\pm 10\%$)	9.4 Ω	9.4 Ω	9.4 Ω	9.4 Ω	9.4 Ω	4.4 Ω
Bandwidth (-3 dB 50 Ω system)	800 kHz	2.5 MHz	4 MHz	6 MHz	9 MHz	20 MHz

Transient specification

	ESP 06D/BX ESP 06D/2BX	ESP 15D/BX ESP 15D/2BX	ESP 30D/BX ESP 30D/2BX	ESP 50D/BX ESP 50D/2BX	ESP 110D/BX ESP 110D/2BX	ESP TN/BX ESP TN/2BX
Let-through voltage (all conductors)³ Up						
C2 test 4 kV 1.2/50 μ s, 2 kA 8/20 μ s to BS EN/EN/IEC 61643-21	12.0 V	25.0 V	44.0 V	78.0 V	155 V	395 V
C1 test 1 kV, 1.2/50 μ s, 0.5 kA 8/20 μ s to BS EN/EN/IEC 61643-21	11.5 V	24.5 V	43.5 V	76.0 V	150 V	390 V
B2 test 4 kV 10/700 μ s to BS EN/EN/IEC 61643-21	10.0 V	23.0 V	42.5 V	73.0 V	145 V	298 V
5 kV, 10/700 μ s ⁴	10.5 V	23.8 V	43.4 V	74.9 V	150 V	300 V

Maximum surge current

D1 test 10/350 μ s to BS EN/EN/IEC 61643-21	- per signal wire - per pair					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

Mechanical specification

	ESP 06D/BX ESP 06D/2BX	ESP 15D/BX ESP 15D/2BX	ESP 30D/BX ESP 30D/2BX	ESP 50D/BX ESP 50D/2BX	ESP 110D/BX ESP 110D/2BX	ESP TN/BX ESP TN/2BX
Temperature range	-40 to +80 °C					
Connection type	Screw terminal - for IDC terminal use part number with /I					
Conductor size (stranded)	1.5 mm ²					
Earth connection	M6 stud					
Cable glands	Accommodate 2.3-6.7 mm diameter cable (PG7)					
Degree of protection (IEC 60529)	IP66					
Case material	PVC					
Weight - unit - packaged	0.3 kg 0.35 kg					
Dimensions						

¹ Nominal voltage (DC or AC peak) measured at < 5 μ A (ESP 15D/BX, ESP 15D/2BX, ESP 30D/BX, ESP 30D/2BX, ESP 50D/BX, ESP 50D/2BX, ESP 110D/BX, ESP 110D/2BX) and < 200 μ A (ESP 06D/BX & ESP 06D/2BX).

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

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).

