

Data and signal protection

ESP D & TN Series



Combined Category D, C, B tested protector (to BS EN 61643) 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 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
- Low in-line resistance minimizes 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)

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 protectors either within an existing cabinet/cubicle or in a separate enclosure.

Application

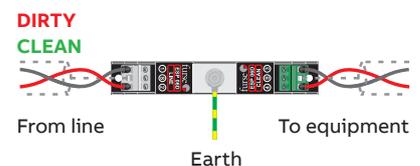
Use on twisted pair lines, e.g. those found in process control equipment, modems and computer communications interfaces.

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 CME 4 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

Install in series (in-line)



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

ESP D & TN Series - Technical specification

Electrical specification	ESP 06D	ESP 15D	ESP 30D	ESP 50D	ESP 110D	ESP TN
ABB order code	7TCA085400R0079	7TCA085400R0089	7TCA085400R0099	7TCA085400R0109	7TCA085400R0005	7TCA085400R0171
Nominal voltage ⁽¹⁾	6 V	15 V	30 V	50 V	110 V	-
Maximum working voltage U _c (RMS/DC) ⁽²⁾	5 V / 7.79 V	13 V / 19 V	26 V / 37.1 V	41 V / 58 V	93 V / 132 V	- / 296 V
Current rating (signal)	300 mA					
In-line resistance (per line ±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	ESP 15D	ESP 30D	ESP 50D	ESP 110D	ESP TN
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	12.0 V	25.0 V	44.0 V	78.0 V	155 V	395 V
C1 test 1 kV, 1.2/50 μs, 0.5 kA 8/20 μs 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 μs 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 μs ⁽⁴⁾	10.5 V	23.8 V	43.4 V	74.9 V	150 V	300 V
Maximum surge current						
D1 test 10/350 μs to BS EN/EN/IEC 61643-21:	- Per signal wire	2.5 kA	5 kA			
	- Per pair					
8/20 μs to ITU-T K.45:2003, IEEE C62.41.2:2002:	- Per signal wire	10 kA	20 kA			
	- Per pair					
Mechanical specification	ESP 06D	ESP 15D	ESP 30D	ESP 50D	ESP 110D	ESP TN
Temperature range	-40 to +80 °C					
Connection type	Screw terminal - maximum torque 0.5 Nm					
Conductor size (stranded)	2.5 mm ²					
Earth connection	M6 stud					
Case material	FR Polymer UL-94 V-0					
Weight: - Unit	0.08 kg					
Dimensions	See diagram below					

- ⁽¹⁾ Nominal voltage (RMS/DC or AC peak) measured at < 5 μA (ESP 15D, ESP 30D, ESP 50D, ESP 110D) and <200 μA (ESP 06D)
- ⁽²⁾ Maximum working voltage (RMS/DC or AC peak) measured at < 1 mA leakage (ESP 15D, ESP 30D, ESP 50D, ESP 110D), < 10 mA (ESP 06D) and < 10 μA (ESP TN)
- ⁽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)

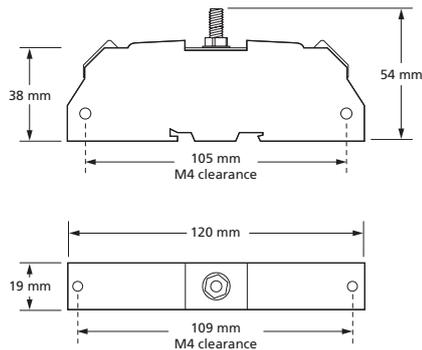


ABB order codes

Part	ABB order code	Part	ABB order code	Part	ABB order code
CME4	7TCA085400R0001	CME8	7TCA085400R0002	CME16	7TCA085410R0002
CME32	7TCA085410R0003	WBX 2/G	7TCA085410R0022	WBX 3	7TCA085410R0023
WBX 3/G	7TCA085410R0024	WBX 4	7TCA085410R0027	WBX 4/GS	7TCA085410R0028
WBX 8	7TCA085410R0030	WBX 8/GS	7TCA085410R0031	WBX 16/2/G	7TCA085410R0020