

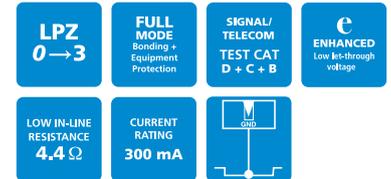
DATASHEET

Telecoms & computer line protection

ESP TN/JP, TN/RJ11 & ISDN/RJ45 Series



Combined Category D, C, B tested protector (to BS EN 61643) suitable to protect telephony equipment plugged into a BT telephone (BS 6312), Modem (RJ11) or ISDN (RJ45) socket. 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
- Substantial earth connection to enable effective earthing
- Supplied in a sturdy ABS housing ready for flat mounting, or vertically via TS35 'Top Hat' DIN rail
- ESP TN/JP, ESP TN/RJ11-2/6, ESP TN/RJ11-4/6 and ESP TN/RJ11-6/6 are suitable for telecommunication applications in accordance with Telcordia and ANSI Standards (see Application Note AN005)

Application

- For PSTN (e.g. POTS, dial-up, lease line, T1/E1, *DSL and Broadband) use ESP TN/JP or TN/RJ11
- ESP TN/JP and ESP TN/RJ11... are suitable for use on telephone lines with a maximum (or ringing) voltage of up to 296 Volts
- For telephone lines with a British style, jack plug and socket connection, use ESP TN/JP
- For telephone lines with RJ11 connections protect the middle 2 (of 6) conductors with ESP TN/RJ11-2/6, the middle 4 (of 6) with ESP TN/RJ11-4/6 or all 6 with ESP TN/RJ11-6/6
- For S/T interface ISDN lines, use ESP ISDN/RJ45-4/8 and ESP ISDN/RJ45-8/8
- For S/T interface ISDN lines with RJ45 connections protect the middle 4 (of 8) conductors (paired 3&6, 4&5) with ESP ISDN/RJ45-4/8, or all 8 (outside pairs 1&2, 7&8) with ESP ISDN/RJ45-8/8

For further information on RJ45 ISDN applications, see separate Application Note AN002 and for global telephony applications, see separate Application Note AN005 (contact us for a copy).

Installation

Connect in series with the telephone or ISDN line. These units are usually installed close to the equipment being protected and within a short distance of a good electrical earth.

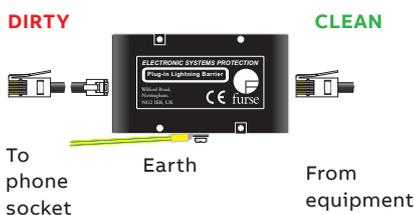
Accessories

ESP CAT5e/UTP-1

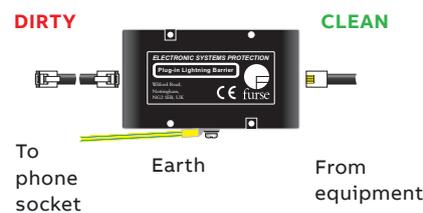
ABB order code: 7TCA085400R0294

1 metre cable with RJ45 connections

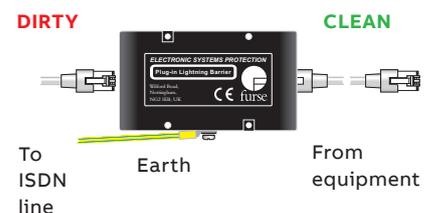
Plug-in series connection for ESP TN/JP



Plug-in series connection for ESP TN/RJ11-2/6, 4/6 & 6/6



Plug-in series connection for ESP ISDN/RJ45-4/8 & 8/8



NOTE: For non-ISDN wire-in applications the high performance ESP TN or readyboxed derivative ESP TN/BX or ESP TN/2BX can be used. Protect PBX telephone exchanges and other equipment with LSA-PLUS connections.

ESP TN/JP, TN/RJ11 & ISDN/RJ45 Series - Technical specification

Electrical specification	ESP TN/JP	ESP TN/ RJ11-2/6	ESP TN/ RJ11-4/6	ESP TN/ RJ11-6/6	ESP ISDN/ RJ45-4/8	ESP ISDN/ RJ45-8/8	
ABB order code	7TCA085400R0177	7TCA085400R0178	7TCA085400R0179	7TCA085400R0180	7TCA085460R0170	7TCA085460R0171	
Nominal voltage	296 V	296 V	296 V	296 V	5 V	5 V/58 V ⁽²⁾	
Maximum working voltage Uc(1)	296 V	296 V	296 V	296 V	58 V	58 V	
Current rating (signal)	300 mA						
In-line resistance (per line ±10%)	4.4 Ω						
Bandwidth (-3 dB 50 Ω system)	20 MHz	20 MHz	20 MHz	20 MHz	19 MHz	19 MHz	
Transient specification	ESP TN/JP	ESP TN/ RJ11-2/6	ESP TN/ RJ11-4/6	ESP TN/ RJ11-6/6	ESP ISDN/ RJ45-4/8	ESP ISDN/ RJ45-8/8	
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	- line to line	395 V	395 V	395 V	395 V	28 V	28 V/88 V ⁽⁵⁾
	- line to earth	395 V	395 V	395 V	395 V	88 V	88 V
C1 test 1 kV, 1.2/50 μs, 0.5 kA 8/20 μs to BS EN/EN/IEC 61643-21	- line to line	390 V	390 V	390 V	390 V	23 V	23 V/63 V ⁽⁵⁾
	- line to earth	390 V	390 V	390 V	390 V	63 V	63 V
B2 test 4 kV 10/700 μs to BS EN/EN/IEC 61643-21	- line to line	298 V	298 V	298 V	298 V	26 V	26 V/65 V ⁽⁵⁾
	- line to earth	298 V	298 V	298 V	298 V	65 V	65 V
5 kV, 10/700 μs4	- line to line	300 V	300 V	300 V	300 V	27 V	27 V/80 V ⁽⁵⁾
	- line to earth	300 V	300 V	300 V	300 V	80 V	80 V
Maximum surge current⁽⁶⁾							
D1 test 10/350 μs to BS EN/EN/IEC 61643-21	1 kA						
8/20 μs to ITU-T K.45:2003, IEEE C62.41.2:2002:	10 kA						
Mechanical specification	ESP TN/JP	ESP TN/ RJ11-2/6	ESP TN/ RJ11-4/6	ESP TN/ RJ11-6/6	ESP ISDN/ RJ45-4/8	ESP ISDN/ RJ45-8/8	
Temperature range	-40 to +80 °C						
Connection type	BT603A plug and socket	RJ11 plug and socket	RJ11 plug and socket	RJ11 plug and socket	RJ45 plug and socket	RJ45 plug and socket	
Earth connection	M4/DIN rail						
Case Material	FR Polymer UL-94 V-0						
Weight: - Unit	0.15 kg						
- Packaged	0.2 kg						
Dimensions	See diagram below						

⁽¹⁾ Maximum working voltage (DC or AC peak) measured at < 10 μA leakage for ESP TN/JP and ESP TN/RJ11 products and μA for ESP ISDN/RJ45 products

⁽²⁾ Maximum working voltage is 5 V for pairs 3/6 & 4/5, and 58 V for pairs 1/2 & 7/8

⁽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)

⁽⁵⁾ The first let-through voltage value is for pairs 3/4 & 5/6, and the second value is for pairs 1/2 & 7/8

⁽⁶⁾ The installation and connectors external to the protector may limit the capability of the protector

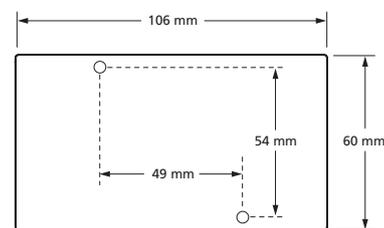
ESP TN/JP
cable length: 1 m



ESP ISDN/RJ45-4/8, 8/8
cable length: 0.5 m



ESP TN/RJ11-2/6, 4/6, 6/6
cable length: 1 m



Depth: 24 mm
Fixing centres 49 x 54 mm, M3 clearance