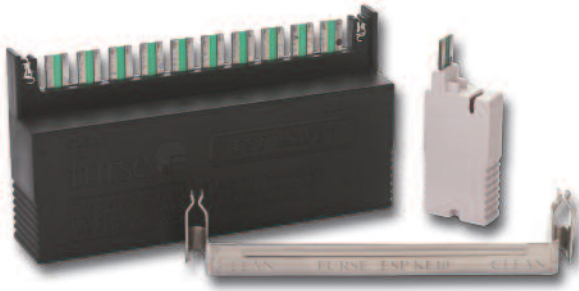


ESP KT and KE Series



LPZ $0_B \rightarrow 3$	FULL MODE Bonding + Equipment Protection
SIGNAL/ TELECOM TEST CAT D + C + B	e ENHANCED Low let-through voltage
HIGH BANDWIDTH	LOW INLINE 4.4Ω RESISTANCE

Combined Category D, C, B tested protector (to BS EN 61643-21) suitable for use on ten line LSA-PLUS disconnection modules to PBX telephone exchanges, ISDN and other telecom equipment with LSA-PLUS disconnection modules. For use at boundaries up to LPZ 0_B to protect against flashover (typically the service entrance location) through to LPZ 3 to protect sensitive electronic equipment.

Features and benefits

- ✓ Low cost protection for large numbers of data and signal lines
- ✓ 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
- ✓ Colour of housing distinguishes electrically different protectors – avoids confusion when installed together on the same distribution frame
- ✓ Quick and easy plug-in installation
- ✓ Under power line cross conditions /PTC versions offer safe disconnection during fault duration. The unit will then auto reset once the fault has been corrected
- ✓ At larger installations ESP K10T1/2 and ESP K10T1/PTC provide all in one protection for all ten lines on a standard LSA-PLUS disconnection modules
- ✓ Use the ESP KE10 to provide trouble free earthing for up to ten ESP KT1/2s and ESP KT1/PTC (per disconnection module)
- ✓ ESP K10T1/2 have an integral earth connection making the ESP KE10 unnecessary
- ✓ ESP KT1/PTC and ESP K10T1/PTC have resettable overcurrent protection and are rated for power cross faults
- ✓ ESP KT1, ESP KT1/PTC, ESP K10T1 & ESP K10T1/PTC are suitable for telecommunication applications in accordance with Telcordia and ANSI Standards (see Application Note AN005)

Application

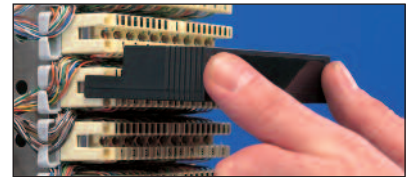
- ✓ For PSTN (e.g POTS, dial-up, lease line, T1/E1, *DSL and Broadband) and U interface ISDN lines, use ESP KT1 (or ESP KT1/PTC) and ESP K10T1 (or ESP K10T1/PTC)
- ✓ For S/T interface ISDN lines, use ESP KT2 & ESP K10T2
- ✓ Protect single lines with ESP KT1, ESP KT2 or ESP KT1/PTC
- ✓ Protect all ten lines on a disconnection module with ESP K10T1 or ESP K10T2

For further information on global telephony applications, see separate Application Note AN005 (contact Furse for a copy).

Installation

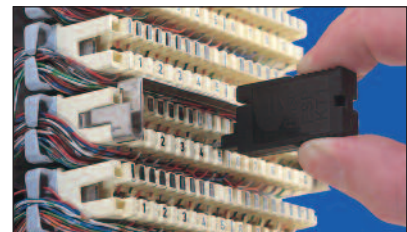
Install protectors on all lines that enter or leave each building (including extensions to other buildings).

Identify the lines requiring protection and plug-in the protector (ensuring the correct orientation) for a series connection. Plug ESP K10T1/2 directly into each disconnection module requiring protection.



Firmly push an ESP K10T1 (or ESP K10T2) into each disconnection module requiring protection, so that it clips securely into the earth point, at each end of the module

ESP KT1/2 and ESP KT1/PTC must be installed via the ESP KE10 earth bar. Clip an ESP KE10 on to the disconnection module and plug an ESP KT1/2 or ESP KT1/PTC in to each line on the module that needs protecting.



Having pushed the ESP KE10 earth bar on to the disconnection modules' earth points, firmly push an ESP KT1 (or ESP KT2) into each line/pair requiring protection

In the unlikely situation that the protector is damaged, it will sacrifice itself and fail short circuit, taking the line out of commission – indicating it needs replacing and preventing subsequent transients from damaging equipment.

For individual telephone lines and lines at unmanned sites the high performance ESP TN, ready-boxed derivative ESP TN/BX or ESP TN/2BX, or plug-in ESP TN/JP or ESP TN/RJ11 Series should be used. For plug-in S/T interface ISDN protection, use the TN or ISDN Series protectors.

Electrical specification

	ESP KT1	ESP KT1/PTC	ESP KT2	ESP K10T1	ESP K10T1/PTC	ESP K10T2
Maximum working voltage U_c^1						
– line to line	296V	296V	5V	296V	296V	5V
– line to earth	296V	296V	58V	296V	296V	58V
Current rating (signal)	300mA	145mA	300mA	300mA	145mA	300mA
In-line resistance (per line $\pm 10\%$)	4.4 Ω					
Bandwidth (–3dB 50Ω system)	>20MHz	>40MHz	>19MHz	>20MHz	>40MHz	>19MHz

¹ Maximum working voltage (DC or AC peak) at 10 μ A for ESP KT1, ESP KT1/PTC, ESP K10T1, ESP K10T1/PTC and at 5 μ A for ESP KT2 and ESP K10T2.

Transient specification

	ESP KT1	ESP KT1/PTC	ESP KT2	ESP K10T1	ESP K10T1/PTC	ESP K10T2
Let-through voltage (all conductors)¹ U_p						
C2 test 4kV 1.2/50 μ s, 2kA 8/20 μ s to BS EN/EN/IEC 61643-21						
– line to line	395V	395V	28V	395V	395V	28V
– line to earth	395V	395V	88V	395V	395V	88V
C1 test 1kV, 1.2/50 μ s, 0.5kA 8/20 μ s to BS EN/EN/IEC 61643-21						
– line to line	390V	390V	23V	390V	390V	23V
– line to earth	390V	390V	63V	390V	390V	63V
B2 test 4kV 10/700 μ s to BS EN/EN/IEC 61643-21						
– line to line	298V	298V	26V	298V	298V	26V
– line to earth	298V	298V	65V	298V	298V	65V
5kV, 10/700 μ s ²						
– line to line	300V	300V	27V	300V	300V	27V
– line to earth	300V	300V	80V	300V	300V	80V
Maximum surge current³						
D1 test 10/350 μ s to BS EN/EN/IEC 61643-21						
– line to line			1kA			
– line to earth			2kA			
8/20 μ s to ITU (formerly CCITT), BS 6651:1999 Appendix C						
– line to line			5kA			
– line to earth			10kA			

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

² 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).

³ The installation and connections external to the protector may limit the capability of the protector.

Power faults specification

	ESP KT1	ESP KT1/PTC	ESP KT2	ESP K10T1	ESP K10T1/PTC	ESP K10T2
Power/Line Cross and Power Induction - tests to: ITU-T (formerly CCITT) K.20, K.21 and K.45, Telcordia GR-1089-CORE, Issue 2:2002, UL 60950/IEC 950						
– power/line cross	–	110/230Vac (15min)	–	–	110/230Vac (15min)	–
– power induction	–	600V, 1A (0.2sec)	–	–	600V, 1A (0.2sec)	–

Mechanical specification

	ESP KT1, ESP KT2, ESP KT1/PTC	ESP K10T1, ESP K10T2, ESP K10T1/PTC	ESP KE10
Temperature range	–25 to +70°C		–
Connection type	To LSA-PLUS disconnection modules (BT part number 237A)		–
Earth connection	Via ESP KE10 earth bar	Via integral earth clip	–
Material	ABS UL94 V-0		Stainless Steel
Weight – unit	0.01kg	0.10kg	0.01kg
– packaged	0.12kg (per 10)	0.12kg	0.10kg (per 10)

Dimensions

