To protect coaxial Ethernet networks, use the ESP ThinNet or ESP ThickNet. To protect data comms systems based on twisted pairs, use the D, E or H Series. Local protection for networked equipment is also available.

- **Use to protect twisted pair Ethernet (10 base T and 100 base T) or Token Ring networks with Cat 3, 4 or 5 cabling and RJ45 connections.**
- **Suitable for systems signalling on up to eight wires of either shielded or unshielded twisted pair cable.**

Application

Use this protector on network cables that travel between buildings to prevent damage to equipment, eg computers, servers, repeaters and hubs. Suitable for computer networks with Cat 3, 4, or 5 cabling.

Protect hubs and other equipment from transient overvoltages on network cables from other buildings.

Features and benefits

- ✔ Low let-through voltage between all sets of conductors (see "System technical note").
- ✔ Provides repeated protection in lightning intense environments.
- ✔ Unlike some competing devices, the ESP Net-100 provides effective protection without impairing the system's normal operation.
- ✔ Low capacitance circuitry prevents the start-up signal degradation associated with other types of network protector.
- ✔ Low in-line resistance minimises unnecessary reductions in signal strength to maximise signalling distance.
- ✔ Sturdy ABS housing.
- ✔ Convenient holes for flat mounting.
- ✔ Substantial earth stud to enable effective earthing.
- ✔ Supplied with short (25cm) Cat 5 UTP cable to enable neat installation.

System technical note

The interfaces used in 10 and 100 base T Ethernet and Token Ring incorporate an isolation transformer which gives these systems an inbuilt immunity to transients between line and earth of 1,500 volts or more.

A Furse ESP Net-100 (left and detail below) protecting a hub from transient overvoltages on a network connection with another building.

Installation

Connect in series with the network cable, either:

a) near to where it enters or leaves the building, or
b) as it enters the network hub, or
c) close to the equipment being protected.

This should be close to the system's earth star point (to enable a good connection to earth).

Plug-in series connection.

Suitable accessories

A 1 metre cable is available (ESP CAT5/UTP-1) to replace the 0.25 metre cable which is supplied as standard.

TSC-09-03

Electrical specification

	ESP Net-100
Maximum working voltage[1]	4V
Current rating (signal)	300mA
In-line resistance (±10%)	1W per line
Data rate (TIA Cat 5)	100Mbps
	Exceeds requirements of:
Bandwidth **Attenuation** **Voltage standing wave ratio (VSWR)** **Near end cross talk (NEXT)**	100 base TX 100 base T4 Token Ring 4Mbps Token Ring 16Mbps active Token Ring 16Mbps passive TIA Cat 5 channel TIA Cat 5 basic link IEEE 802.13 4-UTP

1 Maximum working voltage (DC or AC peak) measured at 1mA leakage.

Transient specification

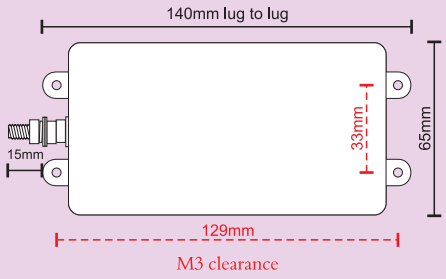
	ESP Net-100
Let-through voltage (all conductors)[1]	
5kV, 10/700µs test to:	
BS 6651:1999 Appendix C, Cat C-High	
ITU (formerly CCITT) IX K17	
- line to line	25V
- line to earth[2]	600V
Maximum surge current[3]	10kA

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

2 See boxed 'System technical note'.

3 Tested with 8/20µs waveshape to ITU (formerly CCITT), BS 6651:1999 Appendix C. The connectors may limit the capability of the protector.

Mechanical specification

		ESP Net-100
Temperature range		-25°C to +70°C
Connection type		RJ45 sockets
Cable		0.25m plug-plug CAT 5 UTP
Earth connection		M6 stud
Weight	- unit	0.15kg
	- packaged	0.2kg
Dimensions		

TSC-09-03