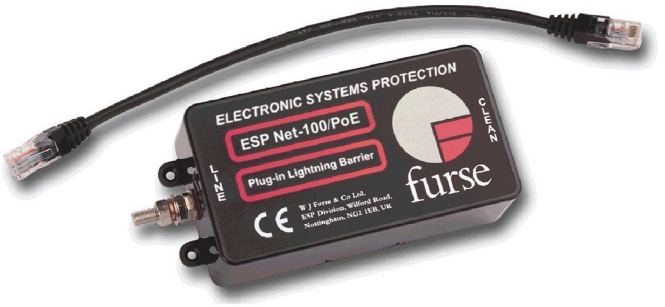
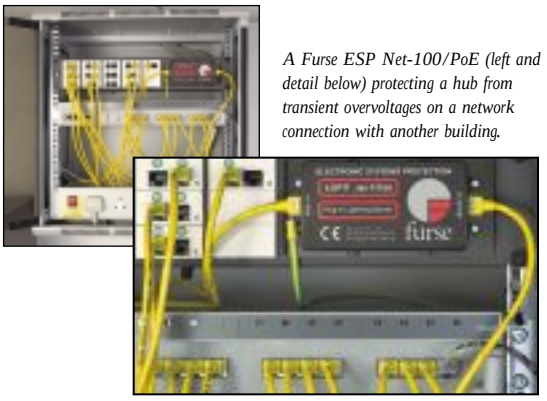


*To protect twisted pair Ethernet or Token Ring networks use the ESP Net-100. For coaxial Etherent networks use the ESP ThickNet or the ESP ThinNet. Local protection for networked equipment is available using the ESP LA**, ESP LB** and ESP LN** protectors.*

- **Use to protect Power over Ethernet (PoE) devices on Cat 5 cabling withRJ45 connections.**
- **Provides complete protection to both Ethernet Data twisted pairs (100baseT) and power twisted pairs.**



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

Application

Use this protector on network cables, supplying both Power and Ethernet (as per IEEE 802.3af), that travel between buildings to prevent damage to equipment, eg VoIP, wireless access points, security cameras.

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/PoE 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

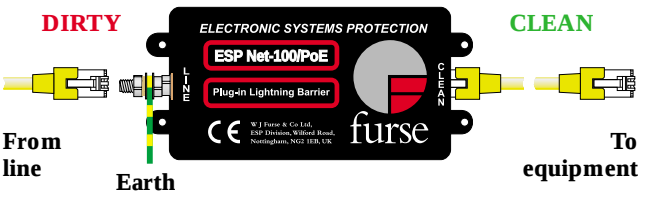
The interfaces used in PoE systems incorporate an isolation transformer which inherently provides an inbuilt immunity to transients between line and earth of 1,500 volts or more.

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.

Electrical specification

	ESP Net-100/PoE
Maximum working voltage[1]	4V/58V[2]
Current rating (signal/power)	300mA/500mA
In-line resistance (±10%)	1Ω / 4.4Ω[3]
Data rate (TIA Cat 5)	100Mbps
	Exceeds requirements of:
Bandwidth	10/100 base TX
Attenuation	TIA Cat 5 channel
Voltage standing wave ratio (VSWR)	TIA Cat 5 basic link
Near end cross talk (NEXT)	IEEE 802.13 4-UTP
	IEEE 802.3af

1 Maximum working voltage (DC or AC peak) measured at 1mA leakage.
2 Maximum working voltage is 4V for pairs; 1/2 & 3/6, and 58V for 4/5 & 7/8,
3 In-line resistance of 1Ω for lines 1,2,3 & 6 and 4.4Ω for lines 4,5,7 & 8.

Transient specification

	ESP Net-100/PoE
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/80V[2]
- line to earth[3]	600V
Maximum surge current[4]	10kA

1 The maximum transient voltage let-through the protector throughout the test (±10%), line to line & line to earth. Response time <10ns.
2 Let-through voltage is 25V for pairs 1/2 & 3/6 and 80V for 4/5 & 7/8.
3 See boxed 'System technical note'
4 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/PoE
Temperature range	-25ºC to +70ºC
Connection type	RJ45 sockets
Cable	0.25m plug-plug CAT 5 UTP
Earth connection	M6 stud
Weight - unit	0.15kg
- packaged	0.2kg
Dimensions