INTRODUCTION

This document explains how to install the plug-in Furse ESP Surge Protective Devices (SPDs) for telephone and ISDN lines:

ESP TN/JP
protects all 6 conductors on telephone lines with BT603A jack plug and socket connections.

ESP TN/RJ11-2/6
protects the middle 2 (of 6) conductors on telephone lines with RJ11 connections.

ESP TN/RJ11-4/6
protects the middle 4 (of 6) conductors on telephone lines with RJ11 connections.

ESP TN/RJ11-6/6
protects all 6 conductors on telephone lines with RJ11 connections.

ESP ISDN/RJ45-4/8
protects the middle 4 (of 8) conductors on S/T interface ISDN lines with RJ45 connections.

ESP ISDN/RJ45-8/8
protects all 8 conductors on S/T interface ISDN lines with RJ45 connections.

1. **Safety note:**
   Warning! Installation by person with electrotechnical expertise only.

   Warnung! Installation nur durch elektrotechnische Fachkraft.

   Avvertenza! Fare installare solo da un elettricista qualificato.

   Avertissement! Installation uniquement par des personnes qualifiées en électrotechnique
   .

   Advertencia! La instalación deberá ser realizada únicamente por electricistas especializados.

A protector on the mains power supply to equipment is also recommended in addition to protection on telephone & ISDN lines.

2. **Before installation**

2.1 Make sure that the system's maximum line voltage (DC or AC peak) will never exceed the maximum working voltage of the SPD.

Otherwise the SPD will clamp signal voltages as though they were transient overvoltages.

	Maximum Working Voltage
ESP TN/JP	296 V
ESP TN/RJ11	296 V
ESP ISDN/RJ45	58 V

2.2 Make sure that the SPD's plug and socket connections are physically compatible with those connecting the equipment to the telephone (or ISDN) line.

2.3 Ensure that the current passing through the SPD does not exceed 300 mA.

3. **Installation**

3.1 Connection

The SPD is connected in series with the telephone (or ISDN) line (see Figures 1, 2 and 3).

Simply plug it into the telephone socket and plug the protected equipment into the SPD.

Note: The mains power input to equipment should also be protected.

3.2 Mounting

Fixing holes on the base of the unit enable it to be screwed to any flat surface.

Before doing so, ensure that it is close to a good earthing point (see Section 3.4 - Earthing).

3.3 Keep clean cables away from dirty cables

The outgoing clean cable (ie from the SPD's socket end) should never be routed next to the incoming dirty line cable (the SPD's cable end) or the dirty earth cable (see Figure 4).

The clean cable must be kept at least 5 cm apart from either the SPD's dirty cable, or those of neighbouring units.

If the SPD's dirty line cable is longer than required, neatly coil and bind the surplus out of the way, keeping this away from clean cables.

3.4 Earthing

The SPD must be connected to a good electrical earth, either:

a) through installation on a TS36 'top hat' DIN rail (which in turn is connected to earth), or

b) by connecting a crimped 10mm² stranded green/yellow cable should be used to bond the Barrier's earth stud to earth.

This barrier earth bond should be less than 1 metre long (otherwise the effectiveness of the SPD will be reduced).

Ideally the SPD would be connected to the main electrical earth or earth star point (located at a distribution board) (see Figure 5, overleaf).

However, owing to the 1 metre (maximum) earth bond, the SPD will often be hard-wired to the ring main earth.

Never connect the SPD to earth via the earth pin of a plug, as this may be removed.

Figure 1:
Plug-in series connection for ESP TN/JP.

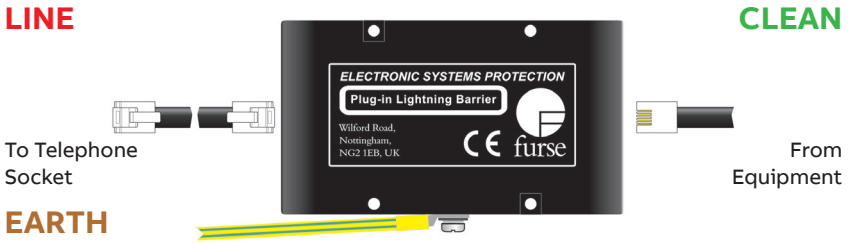


Figure 2:
Plug-in series connection for ESP TN/RJ11-2/6, 4/6 and 6/6.

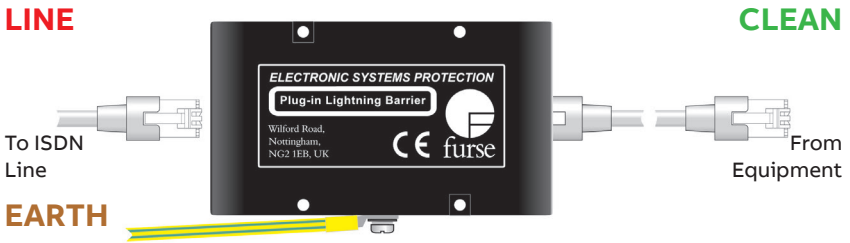
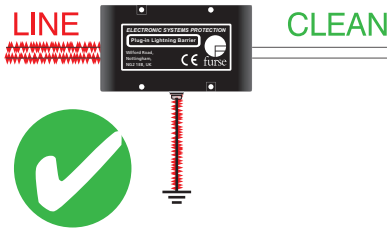
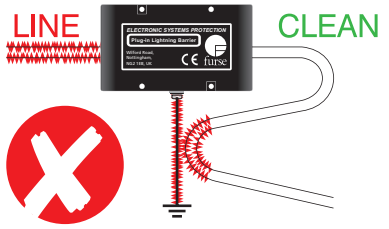


Figure 3:
Plug-in series connection for ESP ISDN/RJ45-4/8 and 8/8.





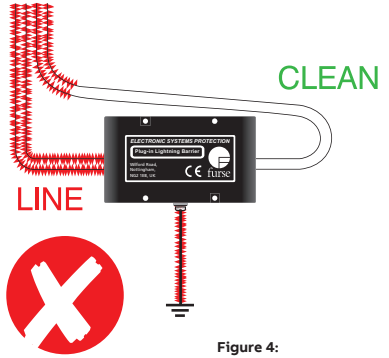


Figure 4:
Cable routeing.

... continued overleaf

If the earth bond is more than 1 metre from the SPD, earth bonds of 2, 3 or 4 metres are allowed if 2, 3 or 4 parallel earth bonds are used. These must be kept at least 5 cm apart from each other.

The SPD or base plate earth bond should be less than 1 metre long (otherwise the effectiveness of the SPD will be reduced).

10 mm² stranded green/yellow cable should be used for this bond.

SPD or base plate earth bonds of 2, 3 or 4 metres are allowed if:

- 2, 3 or 4 parallel earth bonds are used and
- these parallel earth bonds are kept at least 5 cm apart from each other

Where even 4 metres of connecting lead is not sufficient, the incoming cable should be re-routed to bring it within 4 metres of the earth.

In circumstances where the cable cannot ideally be re-routed, the SPD can alternatively be connected to the electrical earth local to the equipment being protected (eg the earth bar of the local power distribution board) (see Figure 5).

Environment
Consider the protection of the environment! Used electrical and electronic equipment must NOT be disposed of with domestic waste. The device contains valuable raw materials which can be recycled. Therefore, contact ABB for disposal of this equipment.

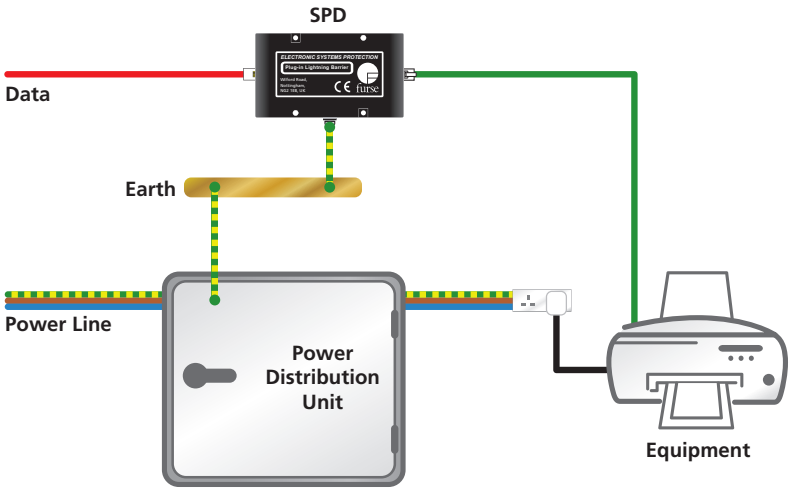
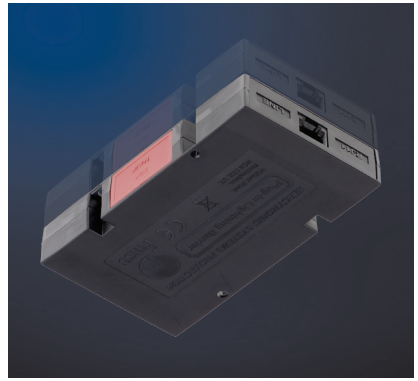


Figure 5:
Connection to the equipment earth star point.

Notes



ESP TN & ISDN Series

for plug-in telephone surge protective devices

INSTALLATION INSTRUCTIONS

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