

**INTRODUCTION**

This document explains how to install Furse ESP Surge Protection Devices (SPDs) for network data lines:

**ESP LA-5/25, ESP LA-25/25, ESP LB-25/25, ESP LA-9/9, ESP LB-9/9, ESP LA-15/15, ESP LB-15/15, ESP LN, ESP LN-4, ESP LN-8, ESP LN-8/16, ESP LN-16/16**



**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.

**2. Before installation**

**2.1** Ensure that the current passing through the SPD does not exceed:

	Maximum Current
ESP LA & LB Series,	300 mA DC or AC RMS
ESP LN Series	

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.

	Normal Working Voltage	Maximum Working Voltage
ESP LA-5/25, ESP LA-25/25, ESP LA-9/9	23.1 V	25.7 V
ESP LB-9/9, ESP LB-25/25	5.8 V	6.4 V
ESP LA-15/15	15.3 V	17.1 V
ESP LB-15/15	6.4 V	7.13 V
ESP LN, ESP LN-4, ESP LN-8, ESP LN-8/16, ESP LN-16/16	-	4 V

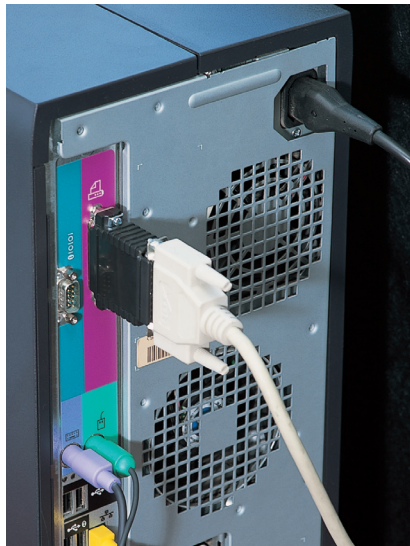
**3. Installation**

**3.1 SPD application**

Furse ESP LA & LB Series SPDs are designed only for use on cables running within a building to protect equipment locally from transients induced onto data cables from the magnetic field caused by a lightning strike.

They are suitable to protect PCs and other computer equipment on systems using "D" connectors (9, 15 or 25 pins).

- For Asynchronous RS 232 systems, use ESP LA-5/25
- For RS 232 systems, use ESP LA-25/25, ESP LA-9/9 or ESP LA-15/15



**Figure 1:** ESP LA-5/25 installed on the parallel port of a PC, protecting the printer connection.

- For RS 422, RS 423 and RS 485 systems, use ESP LB-9/9, ESP LB-15/15 or ESP LB-25/25

Furse ESP LN Series SPDs are designed for use within a building on Local Area Network (LAN) equipment with RJ45 connectors and Cat-5 wiring, including RS 422/423, 10baseT, 100baseT, Token Ring and Fast Ethernet systems, signalling on up to 8 wires of unshielded twisted pair cable.

- For connection to individual pieces of equipment, use the ESP LN
- For multiport applications such as hubs, switches and patch panels, use the ESP LN-4, ESP LN-8, ESP LN-8/16 or ESP LN-16/16

**WARNING:** ESP LA, LB & LN SPDs are not designed to be able to handle the higher level transients that occur when lines between buildings are protected.

They should not be used in such an application.

If they are used on lines between buildings, there is a high risk of the protector being overloaded and destroyed during high transient activity.

Connected equipment will, in most cases, still be protected though there is a small risk that the equipment will suffer damage in such circumstances.

Contact Furse for products to protect lines between buildings.

**3.2 Mounting location**

Furse ESP LA, LB and LN SPDs are for internal use only and should only be installed in cool, dry environments and not exposed to external weather.

Install ESP LA & LB SPDs on internal data lines, and ESP LN SPDs on internal LAN data lines.



**Figure 2:** ESP LN installed on the network connection to a PC. Note the black earth lead connection to the chassis of the PC.

**3.3 Connection and earthing of ESP LA & LB Series SPDs**

Furse ESP LA & LB Series SPDs are installed in-line to the data cables and require no user configuration.

To connect the SPD:

- Turn off your equipment and disconnect the power lead from the wall
- Unplug the existing device cable where the equipment is to be protected
- Install the Furse LA or LB SPD between the device cable and the protected data port
- Ensure there is an adequate earth connection

An adequate earth connection is essential for the operation of the Furse LA & LB SPDs. ESP LA-5/25 protects pins 1, 2, 3, 7 & 20 to earth/shell (pin 1 is connected to earth).

ESP LA-25/25 & ESP LB-25/25 protect all pins (pin 1 is connected to earth/shell).

ESP LA-9/9, ESP LB-9/9, ESP LA-15/15 & ESP LB-15/15 protect all pins.

If the D shell of the data port is not connected to the chassis earth, use the earthing wire (supplied) to make an alternative earth connection.

**NOTE:** Unlike other Furse data-line SPDs such as the ESP D & E Series, the ESP LA & LB Series have no line (incoming transient) and clean (protected) terminals. The ESP LA & LB Series are bi-directional, so can be connected in either orientation.

**3.4 Connection and earthing of ESP LN Series SPDs**

Furse LN Series SPDs are installed in-line to the data cables and requires a suitable earth connection.

To connect the SPD:

- Turn off your equipment and disconnect the existing connection between the UTP cable and the equipment's I/O port
- Install the Furse ESP LN SPD between the incoming UTP line and the protected equipment
- Ensure there is an adequate earth connection

An adequate earth connection is essential for the operation of Furse ESP LN SPDs.

Ensure the braided earth strap is connected to earth via an earth chassis, electrical panel or earth chassis rack structure frame, as appropriate.

**NOTE:** The ports on the ESP LN Series are bi-directional. The ESP LN, LN-4, LN-8 input must be connected directly to the equipment to be protected.

The ESP LN8/16, LN-16/16 input must be directly below or above the corresponding output.

**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.



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**Notes**

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**For data-line Surge Protection Devices (SPDs)**  
ESP LA & LB Series, ESP LN Series

INSTALLATION INSTRUCTIONS



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