

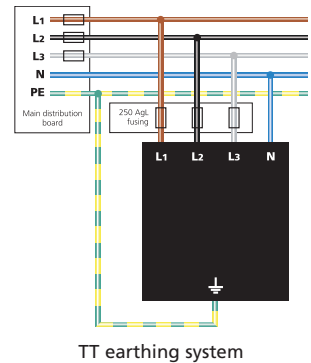
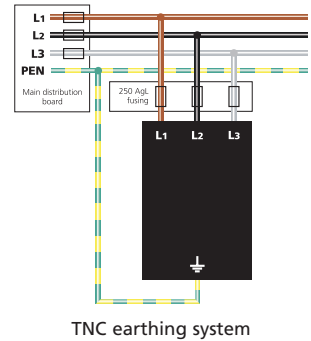
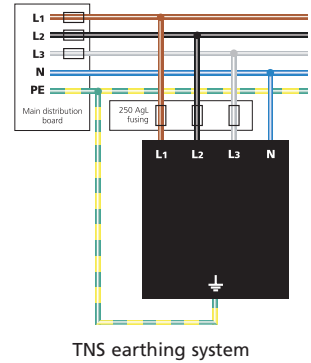
# ESP 415/XXX Series



- LPZ**  
 $0_A \rightarrow 2$
- COMMON MODE**  
Equipotential Bonding
- MAINS TEST TYPE**  
1 + 2
- e**  
**ENHANCED**  
Low let-through voltage
- STATUS INDICATION + VOLT-FREE CONTACT**

## Installation

The diagrams below illustrate how to wire the appropriate ESP protector according to your chosen electrical system.



Combined Type 1 and 2 tested protector (to BS EN 61643-11) for use on the main distribution board, particularly where a structural Lightning Protection System (LPS) is employed, for equipotential bonding. For use at boundaries up to LPZ  $0_A$  to protect against flashover (typically the main distribution board location) through to LPZ 2 to protect electrical equipment from damage.

## Features and benefits

- ✓ Enhanced protection (to BS EN 62305) offering low let-through voltage further minimizing the risk of flashover creating dangerous sparking or electric shock
- ✓ Repeated protection in lightning intense environments
- ✓ The varistor based design eliminates the high follow current ( $I_f$ ) associated with spark gap based surge protection
- ✓ Compact, space saving design
- ✓ Indicator shows when the protector requires replacement
- ✓ Remote signal contact can indicate the protectors' status through interfacing with a building management system

## Application

- ✓ Use on three phase mains supplies and power distribution systems for protection against partial direct or indirect lightning strikes
- ✓ ESP 415/I/XXX versions for use with Class I or II Lightning Protection Systems (LPS)
- ✓ ESP 415/III/XXX versions for use with Class III or IV LPS; or exposed overhead three phase power lines where no LPS is fitted
- ✓ ESP 415/X/TNS versions also cover TNC-S earthing systems

## Installation

Protector to be installed in the main distribution panel with connecting leads of minimal length. The protector should be fused and is suitable for attachment to a 35mm top hat DIN rail.

### IMPORTANT

The primary purpose of Lightning current or Equipotential bonding mains Type 1 Surge Protective Devices (SPDs) is to prevent dangerous sparking caused by flashover to protect against the loss of human life. In order to protect electronic equipment and ensure the continual operation of systems, transient overvoltage mains Type 2 and 3 SPDs such as the ESP 240 M1 are further required, typically installed at downstream sub-distribution boards feeding sensitive equipment. BS EN 62305 refers to the correct application of mains Type 1, 2 and 3 SPDs as a coordinated set.

For further information, please refer to "A Guide to BS EN 62305:2006 Protection Against Lightning" available from Furuse.

## Accessories

Weatherproof enclosures

### WBX D4

Use with TNS and TNC versions

### WBX D8

Use with TT versions

Electrical specification	NEW	NEW	NEW	NEW	NEW	NEW
	ESP 415/I/TNS	ESP 415/III/TNS	ESP 415/I/TNC	ESP 415/III/TNC	ESP 415/I/TT	ESP 415/III/TT
Nominal voltage - Phase-Neutral $U_0$ (RMS)	240V					
Maximum voltage - Phase-Neutral $U_c$ (RMS/DC)	320V/420V					
Temporary Overvoltage TOV $U_T^1$	335V					
Short circuit withstand capability	25kA/50Hz					
Max. back-up fuse (see installation instructions)	250A					
Leakage current (to earth)	<2.5mA	<2.5mA	<2.5mA	<2.5mA	-	-
Volt free contact - current rating - nominal voltage (RMS)	0.5A 250V					

<sup>1</sup> Temporary Overvoltage rating is for a maximum duration of 5 seconds tested to BS EN/EN/IEC 61643.

Transient specification	ESP 415/I/TNS	ESP 415/III/TNS	ESP 415/I/TNC	ESP 415/III/TNC	ESP 415/I/TT	ESP 415/III/TT
	<b>Type 1 (BS EN/EN), Class I (IEC)</b>					
Nominal discharge current 8/20 $\mu$ s (per mode) $I_n$	25kA	20kA	25kA	20kA	25kA/100kA (N-E)	20kA/50kA (N-E)
Let-through voltage $U_p$ at $I_n^1$	<1.4kV	<1.5kV	<1.4kV	<1.5kV	<1.4kV	<1.5kV
Impulse discharge current 10/350 $\mu$ s $I_{imp}$ (per mode) <sup>2</sup>	25kA	12.5kA	25kA	12.5kA	25kA/100kA (N-E)	12.5kA/50kA (N-E)
Let-through voltage $U_p$ at $I_{imp}^1$	<1.3kV	<1.2kV	<1.3kV	<1.2kV	<1.3kV	<1.2kV
Let-through voltage $U_p$ at 1.2/50 $\mu$ s (N-E, TT system)	-	-	-	-	<1.2kV	<1.2kV
<b>Type 2 (BS EN/EN), Class II (IEC)</b>						
Nominal discharge current 8/20 $\mu$ s (per mode) $I_n$	25kA	20kA	25kA	20kA	25kA/100kA (N-E)	20kA/50kA (N-E)
Let-through voltage $U_p$ at $I_n^1$	<1.4kV	<1.5kV	<1.4kV	<1.5kV	<1.4kV	<1.5kV
Maximum discharge current $I_{max}$ (per mode) <sup>2</sup>	100kA	50kA	100kA	50kA	100kA/160kA (N-E)	50kA/100kA (N-E)

<sup>1</sup> The maximum transient voltage let-through of the protector throughout the test ( $\pm 5\%$ ), phase to earth and neutral to earth.

<sup>2</sup> The electrical system, external to the unit, may constrain the actual current rating achieved in a particular installation.

Mechanical specification	ESP 415/I/TNS	ESP 415/III/TNS	ESP 415/I/TNC	ESP 415/III/TNC	ESP 415/I/TT	ESP 415/III/TT
	Temperature range	-40 to +80°C				
Connection type	Screw Terminal					
Conductor size (stranded)	25mm <sup>2</sup>					
Earth connection	Screw Terminal					
Volt free contact	Connect via screw terminal with conductor up to 1.5mm <sup>2</sup> (stranded)					
Degree of protection (IEC 60529)	IP20					
Case material	Thermoplastic, UL 94 V-0					
Mounting	Indoor, 35mm top hat DIN rail					
Weight – unit	0.84kg	0.59kg	0.64kg	0.44kg	0.9kg	0.67kg
– packaged	0.94kg	0.69kg	0.74kg	0.54kg	1.0kg	0.77kg
Dimensions to DIN 43880 - HxDxW <sup>1</sup>	90mm x 68mm x 72mm (4TE)	90mm x 68mm x 72mm (4TE)	90mm x 68mm x 54mm (3TE)	90mm x 68mm x 54mm (3TE)	90mm x 68mm x 72mm (4TE)	90mm x 68mm x 90mm (5TE)

<sup>1</sup> The remote signal contact (removable) adds 10mm to height.

