

Combined Type 1 and 2 tested protector (to BS EN 61643) for a Photovoltaic PV solar panel system that is on a building 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 (on the DC side of the DC-AC inverter) through to LPZ 2 to protect the PV system 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 protector's status through interfacing with a building management system

Application

Use on the DC side of the DC-AC inverter for protection against partial direct or indirect lightning strikes. ESP Type 1 AC mains protectors (e.g. ESP 415/III/TNS) are further required at the AC side of the DC-AC inverter.

IMPORTANT

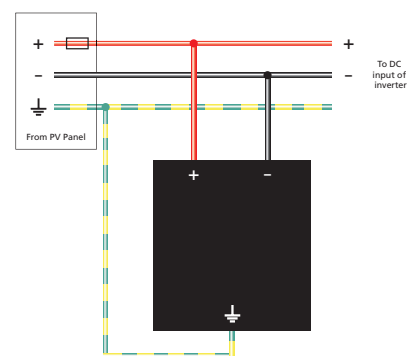
The primary purpose of lightning current or equipotential bonding mains Type 1 Surge Protective Devices (SPDs) is to prevent dangerous sparking caused by flashover to protect against the loss of human life. In order to protect electronic equipment and ensure the continual operation of systems, transient overvoltage mains Type 2 and 3 SPDs such as the ESP M1 or ESP D1 Series are further required, typically installed at downstream sub-distribution boards feeding sensitive equipment. BS EN/IEC 62305 refers to the correct application of mains Type 1, 2 and 3 SPDs as a coordinated set.

For further information, please refer to the Furse Guide to BS EN 62305 Protection against Lightning.

Installation

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

Install in parallel to the DC supply of the DC-AC inverter via fuses.



Accessories

WBX D4

Weatherproof enclosure

Technical specification

Electrical specification	NEW	NEW
	ESP DC550/12.5/PV	ESP DC1000/12.5/PV
Maximum DC voltage (RMS/DC)	550 V	1000 V
Short circuit withstand capability	25 kA/50 Hz	
Leakage current (to earth)	< 2.5 mA	
Volt free contact	Screw terminal	
- current rating	0.5 A	
- nominal voltage (RMS)	250 V	
Back up fuse	Fuses specifically designed for use on PV systems are recommended. Determine the most appropriate back up fuse from assessment of the nominal current of the PV module, and the open circuit voltage of the PV array: 1. multiply the nominal current of the photovoltaic module by a factor of 1.4 and select the closest, higher value fuse to the calculated figure. 2. multiply the open circuit voltage of the PV array by a factor of 1.2 and ensure that the selected fuse has a higher voltage withstand than the calculated figure.	

Transient specification	ESP DC550/12.5/PV	ESP DC1000/12.5/PV
	Type 1 (BS EN/EN), Class I (IEC)	
Nominal discharge current 8/20 μ s (per mode) /In	20 kA	
Let-through voltage U_p at I_n^1	< 2.0 kV	< 2.6 kV
Impulse discharge current 10/350 μ s /Imp (per mode) ²	12.5 kA	
Let-through voltage U_p at I_{imp}^1	< 1.7 kV	< 2.4 kV
Type 2 (BS EN/EN), Class II (IEC)		
Nominal discharge current 8/20 μ s (per mode) /In	20 kA	
Let-through voltage U_p at I_n^1	< 2.0 kV	< 2.6 kV
Maximum discharge current I_{max} (per mode) ²	40 kA	

Mechanical specification	ESP DC550/12.5/PV	ESP DC1000/12.5/PV
	Temperature range	-40 to +80 °C
Connection type	Screw terminal	
Conductor size (stranded)	25 mm ²	
Earth connection	Screw terminal	
Volt free contact	Connect via screw terminal with conductor up to 1.5 mm ² (stranded)	
Degree of protection (IEC 60529)	IP20	
Case material	Thermoplastic, UL94 V-0	
Mounting	Indoor, 35 mm top hat DIN rail	
Weight - unit	0.38 kg	0.59 kg
- packaged	0.48 kg	0.69 kg
Dimensions to DIN 43880 - HxDxW ³	90 mm x 68 mm x 72 mm (4TE)	

¹ The maximum transient voltage let-through of the protector throughout the test, per mode.
² The electrical system, external to the unit, may constrain the actual current rating achieved in a particular installation.
³ The remote signal contact (removable) adds 10 mm to height.

