

Mains power protection

ESP DC Series



Combined Type 2 and 3 tested protector (to BS EN 61643) for use on DC systems to protect connected electronic equipment from transient overvoltages on the mains supply, e.g. control equipment. Available for 12, 24, 36 and 48 V DC systems. For use at boundaries LPZ 1 through to LPZ 3 to protect sensitive electronic equipment.

Features & benefits

- Low let-through voltage (enhanced protection to BS EN 62305) between all sets of conductors (positive to negative, positive to earth and negative to earth - Full Mode protection) allowing continuous operation of equipment
- Repeated protection in lightning intense environments
- Visual indication of protector status
- Advanced pre-failure warning so you need never be unprotected
- Remote indication facility allows pre-failure warning to be linked to a building management system, buzzer or light
- Robust steel housing
- Simple parallel connection
- Base provides ultra-low inductance earth bond to metal panels
- Compact size for installation in the power distribution board
- Maintenance free

Application

Use on DC power distribution systems to protect connected electronic equipment from transient overvoltages on the DC

Installation

Install in parallel, within the power distribution board or directly on the supply feeding the equipment. At distribution boards, the protector can be installed either on the load side of the incoming isolator, or on the closest outgoing way to the incoming supply. Connect, with very short connecting leads,

Accessories

Weatherproof enclosure:
WBX 3

Parallel connection of ESP 48 DC



NOTE: For low current applications, the ESP H Series (4 A), ESP E Series (1.25 A) or ESP D Series (300 mA) protectors may be suitable. For protection of photovoltaic (PV) systems up to 1000 Vdc, see our ESP PV Series.

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ESP DC Series - Technical specification

Electrical Specification	ESP 12 DC	ESP 24 DC	ESP 36 DC	ESP 48 DC
Nominal voltage (RMS)	12 V	24 V	36 V	48 V
Maximum voltage (RMS)	15 V	30 V	45 V	60 V
Working voltage (RMS)	9-15 V	18-30 V	27-45 V	36-60 V
Max. back-up fuse (see installation instructions)	63 A			
Leakage current (to earth)	< 250 μ A			
Indicator circuit current	< 10 mA			
Volt free contact: ⁽¹⁾	Screw terminal			
– Current rating	1 A			
– Nominal voltage (RMS)	250 V			

Transient Specification	ESP 12 DC	ESP 24 DC	ESP 36 DC	ESP 48 DC
Type 2 (BS EN/EN), Class II (IEC)				
Nominal discharge current 8/20 μs (per mode) <i>I</i> _n	5 kA			
Let-through voltage <i>U</i> _p at <i>I</i> _n ⁽²⁾	250 V			
Maximum discharge current <i>I</i> _{max} (per mode) ⁽³⁾	20 kA			
Type 3 (BS EN/EN), Class III (IEC)				
Let-through voltage at <i>U</i> _{oc} of 6 kV 1.2/50 μs and <i>I</i> _{sc} of 3 kA 8/20 μs (per mode) ⁽⁴⁾	190 V			

Mechanical Specification	ESP 12 DC	ESP 24 DC	ESP 36 DC	ESP 48 DC
Temperature range	-40 to +80 °C			
Connection type	Screw terminal			
Conductor size (stranded)	16 mm ²			
Earth connection	Screw terminal			
Volt free contact	Connect via screw terminal with conductor up to 2.5 mm ² (stranded)			
Degree of protection (IEC 60529)	IP20			
Case material	Steel			
Weight: – Unit	0.6 kg			
– Packaged	0.7 kg			
Dimensions	180 mm x 60mm x 73 mm			

⁽¹⁾ Minimum permissible load is 5 V DC, 10 mA to ensure reliable operation

⁽²⁾ The maximum transient voltage let-through of the protector throughout the test ($\pm 5\%$) per mode

⁽³⁾ The electrical system, external to the unit, may constrain the actual current rating achieved in a particular installation

⁽⁴⁾ Combination wave test within BS EN/IEC 61643, IEEE C62.41-2002 Location Cats C1 & B3, SS 555:2010, AS/NZS 1768-2007, UL 1449 mains wire-in

