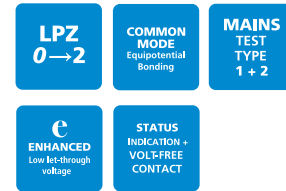


DATASHEET

Specific systems protection ESP WT Series



Combined Type 1 and 2 tested protector (to BS EN 61643) for use on the main distribution board within wind turbines, for equipotential bonding. For use at boundaries up to LPZ 0 to protect against flashover (typically the main distribution board location) through to LPZ 2 to protect electrical equipment from damage.



Features & benefits

- Enhanced protection (to IEC/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 (If) associated with spark gap based surge protection
- 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 690 V three phase mains power supplies and power distribution boards for protection against partial direct and indirect lightning strikes. The services (typically 3 phase 400 V mains, UPS, data, signal and telecom lines) to the cabinet within the wind turbine nacelle will require additional protection.

- For a 3 phase TN-S supply, install 4 ESP WT units together with ESP CE10 or ESP CE13 connecting and earthing bar (see installation)
- For a 3 phase TN-C supply, install 3 ESP WT units together with ESP CE7 or ESP CE9 connecting and earthing bar (see installation)

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

Accessories

Connecting and earthing bars

ESP CE7 ABB Order code: 7TCA085460R0032

Use with 3 of ESP 690/12.5/WT for

TN-C supplies

ESP CE9 ABB Order code: 7TCA085460R0033

Use with 3 of ESP 690/25/WT for

TN-C supplies

ESP CE10 ABB Order code: 7TCA085460R0030

Use with 4 of ESP 690/12.5/WT for

TN-S supplies

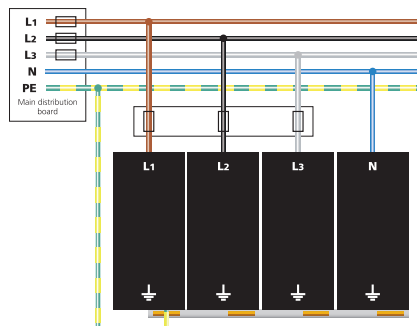
ESP CE13 ABB Order code: 7TCA085460R0031

Use with 4 of ESP 690/25/WT for

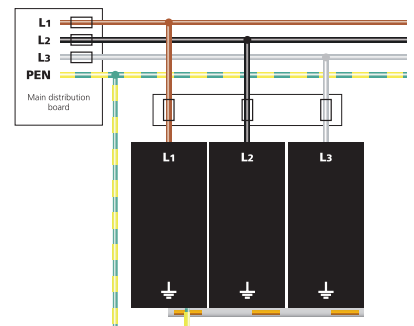
TN-S supplies

For suitable enclosures for the ESP WT series, please contact us.

**TN-S earthing system (ESP WT x 4)
with ESP CE10 or ESP CE13 earthing
bars**



**TN-C earthing system (ESP WT x 3)
with ESP CE7 or ESP CE9 earthing
bars**



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 Series or ESP D1 Series are further required, typically installed at downstream subdistribution boards feeding sensitive equipment. IEC/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 the Fursee Guide to BS EN 62305 Protection against Lightning.

ESP WT Series - Technical specification

Electrical specification	ESP 690/25/WT	ESP 690/12.5/WT
ABB order code	7TCA085460R0028	7TCA085460R0027
Nominal voltage - Phase-Neutral U_0 (RMS)	690 V	
Maximum voltage - Phase-Neutral U_c (RMS/DC)	750 V/1000 V	
Short circuit withstand capability	25 kA/50 Hz	
Max. back-up fuse (see installation instructions)	≤ 250 A	
Leakage current (to earth)	< 3.5 mA	< 2.5 mA
Volt free contact:	Screw terminal	
– current rating	0.5 A	
– nominal voltage (RMS)	250 V	
Transient specification	ESP 690/25/WT	ESP 690/12.5/WT
Type 1 (BS EN/EN), Class I (IEC)		
Nominal discharge current 8/20 μ s (per mode) I_n	40 kA	20 kA
Let-through voltage U_p at $I_n^{(1)}$	< 2.5 kV	
Impulse discharge current 10/350 μ s I_{imp} (per mode) ⁽²⁾	25 kA	12.5 kA
Let-through voltage U_p at $I_{imp}^{(1)}$	< 2.0 kV	
Type 2 (BS EN/EN), Class II (IEC)		
Nominal discharge current 8/20 μ s (per mode) I_n	40 kA	20 kA
Let-through voltage U_p at $I_n^{(1)}$	< 2.5 kV	
Maximum discharge current I_{max} (per mode) ⁽²⁾	80 kA	40 kA
Mechanical specification	ESP 690/25/WT	ESP 690/12.5/WT
Temperature range	–40 to +80 °C	
Connection type	Screw terminal (Maximum torque 4.5 Nm, stripping length 11mm)	
Conductor size (stranded)	25 mm ²	
Earth connection	Screw terminal (Maximum torque 4.5 Nm, stripping length 11mm)	
Volt free contact	Connect via screw terminal with conductor up to 1.5 mm ² (stranded) (Maximum torque 0.25 Nm, stripping length 7mm)	
Degree of protection (IEC 60529)	IP20	
Case Material	FR Polymer UL-94 V-0	
Mounting	Indoor, 35 mm top hat DIN rail	
Weight: – Unit	0.5 kg	0.33 kg
– Packaged	0.6 kg	0.43 kg
Dimensions to DIN 43880 – Per module	90 mm x 68 mm x 72 mm (4TE)	90 mm x 68 mm x 216 mm (total: 3 x ESP 690/25/WT)
- HxDxW: ⁽³⁾		
– for 3ph TN-C supplies	90 mm x 68 mm x 216 mm (total: 3 x ESP 690/25/WT)	90 mm x 68 mm x 162 mm (total: 3 x ESP 690/12.5/WT)
– for 3ph TN-S supplies	90 mm x 68 mm x 288 mm (total: 4 x ESP 690/25/WT)	90 mm x 68 mm x 216 mm (total: 4 x ESP 690/12.5/WT)

⁽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

