

TECHNICAL DATA SHEET

Mains power protection

ESP 415T2 Surge Protection Series



Type 2 /Class II tested Surge Protective Device SPD (to BS EN/IEC 61643) for use on the sub-distribution board. For use at boundaries up to LPZ 1 through to LPZ 2 to protect electrical equipment from damage.

Features & benefits

- Repeated protection in lightning intense environments
- Pluggable module design (with anti-vibration locking clip) allows for simple replacement at end-of-life
- Compact, space saving design
- Indicator shows when the SPD protection modules requires replacement

- Remote signal contact can indicate the protector’s status through interfacing with a building management system

Application

- Use on three phase mains supplies and power distribution systems for protection against indirect lightning strikes
- ESP 415T2/X/TNS versions also cover TN-C-S earthing systems

Installation

The SPD is to be installed in the sub-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.

Weatherproof enclosure:

WBX D4

ABB order code:
7TCA085410R0032

SPD replacement modules:

ESP 240T2/50/M

7TCA085460R0387

ESP N-PE/T2/65/M

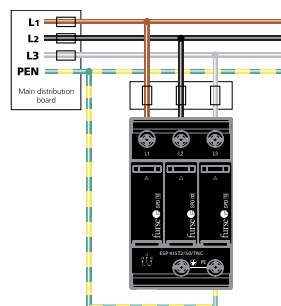
7TCA085460R0403

Metallic enclosure:

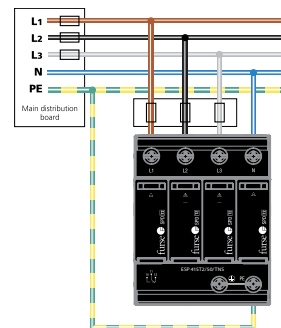
MBX D4

ABB order code:
7TCA085400R0649

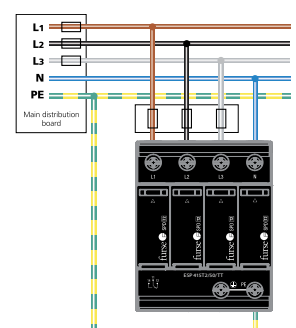
TN-C earthing system



TN-S earthing system



TT earthing system



NOTE: Remote contact connections not shown, for clarity.

IMPORTANT: In order to protect sensitive electronic equipment, particularly from electrical switching transients, plus ensure the continual operation of systems, full mode SPDs, with both common and differential mode protection, are required. ESP M1 Series or ESP D1 Series SPDs should be installed at sub-distribution boards feeding sensitive equipment. For further information, please refer to the Furse Guide to BS EN 62305 Protection against lightning.

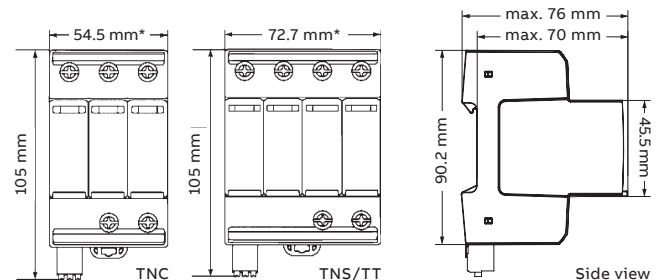
ESP 415T2 Surge Protection Series - Technical specification

Electrical specification	ESP 415T2/50/TNS	ESP 415T2/50/TNC	ESP 415T2/50/TT
ABB order code	7TCA085460R0391	7TCA085460R0390	7TCA085460R0380
Nominal voltage - Phase-Neutral U_o (RMS)	240 V		
Maximum voltage - Phase-Neutral U_c (RMS)	300 V		
Temporary Overvoltage TOV $U_r^{(1)}$ (5s/120m)	337 V / 442 V		
Short circuit withstand capability I_{SCCR}	50 kA _{RMS} / 50 Hz		
Frequency range	47-63 Hz		
Max. back-up fuse (see installation instructions)	≤ 250 A		
Leakage current (to earth)	≤ 400 μA	≤ 400 μA	≤ 5 μA
Volt free contact: ⁽²⁾	Push terminal		
– Current rating	1 A		
– Nominal voltage (RMS)	250 V		

Transient specification	ESP 415T2/50/TNS	ESP 415T2/50/TNC	ESP 415T2/50/TT
Type 2 (BS EN/EN), Class II (IEC)			
Nominal discharge current 8/20 μs (per mode) I_n	20 kA	20 kA	20 kA (L-N) 40 kA (N-E)
Let-through voltage U_p at I_n ⁽²⁾	≤ 1.5 kV	≤ 1.5 kV	≤ 1.5 kV (L-N) ≤ 1.5 kV (N-E)
Maximum discharge current I_{max} (per mode) ⁽³⁾	50 kA	50 kA	50 kA (L-N) 65 kA (N-E)

Mechanical specification	ESP 415T2/50/TNS	ESP 415T2/50/TNC	ESP 415T2/50/TT
Temperature range	-40 to +80 °C		
Connection type	Screw terminal - maximum torque 4.5 Nm		
Conductor size (solid/stranded) ⁽⁵⁾	35 mm ²		
Earth connection	Screw terminal - maximum torque 4.5 Nm		
Degree of protection (IEC 60529)	IP20		
Volt free contact	Push-fit connection for conductor up to 1.5mm ² rated AC 250 V, 1A		
Case material	Thermoplastic UL-94 V-0		
Mounting	Indoor, 35 mm top hat DIN rail		
Weight	0.47 kg	0.37 kg	0.46 kg
Dimensions to DIN 43880 - HxDxW ⁽⁴⁾	90.2 mm x 70 mm x 72.7 mm* (4TE)	90.2 mm x 70 mm x 54.5 mm* (3TE)	90.2 mm x 70 mm x 72.7 mm* (4TE)

- ⁽¹⁾ Temporary Overvoltage TOV rating is for durations of 5 seconds (withstand) and 120 minutes (safe fail) tested to BS EN/IEC 61643. TT versions have 1200V withstand for 200ms (N-E)
- ⁽²⁾ The maximum transient voltage let-through of the protector throughout the test, phase to neutral and neutral to earth
- ⁽³⁾ The electrical system, external to the unit, may constrain the actual current rating achieved in a particular installation
- ⁽⁴⁾ The remote signal contact (removable) adds 15 mm to height
- ⁽⁵⁾ Conductor size (flexible) is 25 mm²
- * Maximum dimensions (this applies to all dimensions).



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