

DATASHEET

Mains power protection

ESP 415CD40



Compact combined Type 2 and 3 tested (to BS EN 61643) Surge Protective Device (SPD) for use on three phase mains power distribution systems primarily to protect connected electronic equipment from transient overvoltages on the mains supply, e.g. computer, communications or control equipment. For use at boundaries up to LPZ 1 through to LPZ 3 to protect sensitive electronic equipment.



Features & benefits

- Very low let-through voltage (enhanced protection to BS EN 62305) between all sets of conductors (phase to neutral, phase to earth, neutral to earth - Full Mode protection)
- Full mode design for continual operation of protected equipment
- Repeated protection in lightning intense environments
- Protector includes hybrid combination of MOVs and GDTs
- Innovative multiple thermal disconnect technology for safe disconnection from faulty or abnormal supplies (without compromising protective performance)
- Three way visual indication of protection status and advanced pre-failure warning so you need never be unprotected
- Changeover active volt-free contact enables the protector to be used to warn of phase loss (i.e. power failure, blown fuses etc)
- Compact space saving DIN housing with DIN release and locking feature for easy positioning onto DIN rail
- Large, robust terminals for straightforward connection of conductors
- Innovative design delivers zero leakage current to earth, so is suitable for TT and TN earthing systems

Application

- Install on three phase supplies at final distribution board level to protect electronic equipment against transient overvoltages

Installation

Install in parallel, within the power distribution board or directly (via fuses) on to the supply feeding 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, to phase(s), neutral and earth.

Accessories

Weatherproof enclosure:

WBX D4

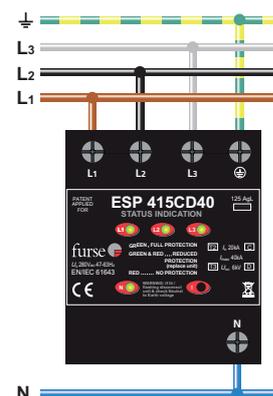
Order code: 7TCA085410R0032

Metallic enclosure:

MBX D4

Order code: 7TCA085400R0649

Parallel connection of ESP 415CD40 to three phase supplies (fuses not shown for clarity)



ESP 415CD40 - Technical specification

Electrical specification	ESP 415CD40
ABB order code	7TCA085460R0303
Nominal voltage - Phase-Neutral U_0 (RMS)	240 V
Maximum voltage - Phase-Neutral U_c (RMS)	280 V
Temporary Overvoltage TOV $U_T^{(1)}$	350 V
Short circuit withstand capability	25 kA/50 Hz
Working voltage (RMS)	346-484 V
Frequency range	47-63 Hz
Max. back-up fuse (see installation instructions)	125 A, parallel connection via series fuses to supply - see installation guide
Leakage current (to earth)	Zero
Indicator circuit current	< 10 mA (per phase, to neutral)
Volt free contact: ⁽²⁾	Screw terminal
– Current rating	1 A
– Nominal voltage (RMS)	250 V
Transient specification	ESP 415CD40
Type 2 (BS EN/EN), Class II (IEC)	
Nominal discharge current 8/20 μ s (per mode) $I_n^{(3)}$	20 kA
Let-through voltage U_p at $I_n^{(4)}$	1.1 kV
Maximum discharge current (per mode) $I_{max}^{(3)}$	40 kA (P-N, P-E)
Type 3 (BS EN/EN), Class III (IEC)	
Maximum open-circuit voltage $U_{oc}^{(5)}$	6 kV
Let-through voltage U_p at $U_{oc}^{(4)}$	600 V
Mechanical specification	ESP 415CD40
Temperature range	-40 to +80 °C
Connection type	Screw terminal
Conductor size (stranded)	35 mm ² (solid), 25 mm ² (stranded) - maximum torque 4.5 Nm
Earth connection	Screw terminal
Volt free contact	Connect via screw terminal with conductor up to 1.5 mm ² (stranded) - maximum torque 0.25 Nm
Degree of protection (IEC 60529)	IP20
Case material	FR Polymer UL-94 V-0
Weight: – Unit	0.4 kg
Packaged	0.5 kg
Dimensions to DIN 43880 - HxDxW(6)	90 mm x 88 mm x 72 mm (4TE)

- (1) Temporary Overvoltage (in the absence of surges) to UL 1449 table 37.1 and BS EN/IEC 61643-1, rated for 5 seconds phase to neutral/earth.
- (2) Minimum permissible load is 5 V DC, 10 mA to ensure reliable operation.
- (3) Tested with 8/20 μ s waveshape to BS EN/IEC 61643-1 Class II test. The electrical system, external to the unit, may constrain the actual current rating achieved in a particular installation.
- (4) The maximum transient let-through voltage throughout the test ($\pm 10\%$), phase to neutral.
- (5) 6 kV 1.2/50 μ s open circuit voltage, 3 kA 8/20 μ s short circuit current test to BS EN/IEC 61643-1 Class III test, and UL 1449, IEEE C62.41:2002 (Parts 1&2).
- (6) The remote signal contact (removable) adds 10 mm to height.

