DATASHEET

DC power protection

ESP DCD1 Series

Combined Type 1, 2 and patented Enhanced Type 3 tested protector (to BS EN 61643) for use on DC 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 0 to protect against flashover (typically the main distribution board location, with multiple metallic services entering) through to LPZ 3 to protect sensitive electronic equipment.

LPZ 0→3 | FULL MODE Bonding + Equipment Protection | MAINS TEST TYPE 1 + 2 + 3 | ENHANCED Low let-through voltage | ACTIVE VOLT-FREE CONTACT | 3-WAY FAULT STATUS INDICATION

Features & benefits

- Very low let-through voltage (enhanced protection to IEC/BS EN 62305) between all sets of conductors (positive to negative, positive to earth, negative to earth - Full Mode protection)
- Full Mode design capable of handling partial lightning currents as well as allowing continual operation of protected equipment
- Repeated protection in lightning intense environments
- 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
- Remote indication facility allows pre-failure warning to be linked to a building management system, buzzer or light
- Changeover active volt-free contact enables the protector to be used to warn of phase loss (i.e. power failure,
- blown fuses etc)
- Through terminal facility allows series connection on low current supplies to eliminate high additive voltage associated with connecting leads on units installed in parallel
- Compact space saving DIN housing

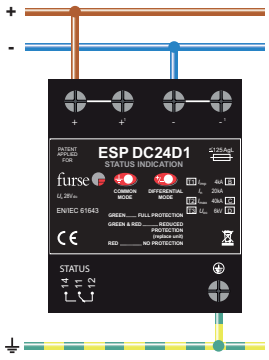
Installation

Install in parallel, within the power distribution board or directly (via fuses) on to the supply feeding equipment. Can be installed in series for low current supplies - see installation instructions. 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 positive, negative and earth.

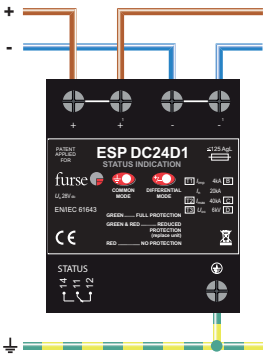
Accessories

Weatherproof enclosure:
WBX D4
ABB Order code: 7TCA085410R0032

Parallel connection of ESP DC05D1, ESP DC12D1 and ESP DC24D1 series to DC supplies (fuses not shown for clarity)



Series connection of ESP DC05D1, ESP DC12D1 and ESP DC24D1 series to DC supplies (fuses not shown for clarity)



ESP DCD1 Series - Technical specification

Electrical specification	ESP DC05 D1	ESP DC12 D1	ESP DC24 D1
ABB order code	7TCA085460R0355	7TCA085460R0356	7TCA085460R0357
Nominal voltage - Positive-Negative Uo (DC)	5 V	12 V	24 V
Maximum voltage - Positive-Negative Uc (DC)	6.5 V	15 V	28 V
Short circuit withstand capability	25 k A/50 Hz		
Working voltage (DC)	4.0-6.5 V	9-15 V	20-28 V
Max. back-up fuse (see installation instructions)	≤ 125 A		
Leakage current (to earth)	< 250 µA		
Indicator circuit current	< 50 mA		
Volt free contact:[2]	Screw terminal		
– Current rating	1 A		
– Nominal voltage (RMS)	250 V		
Transient specification			
Type 1 (BS EN/EN), Class I (IEC)			
Nominal discharge current 8/20 µs (per mode) *I*n	5 k A		
Let-through voltage Up at In (+ to - , +/- to E)[8]	< 110V, < 250V	< 125V, < 250V	< 170V, < 250V
Impulse discharge current 10/350 µs *I*imp (to earth)[5]	4 k A		
Let-through voltage Up at *I*imp (to earth)[8]	< 300 V	< 300 V	< 300 V
Total discharge current 10/350 µs *I*total (total to earth)[4,5]	8 kA		
Type 2 (BS EN/EN), Class II (IEC)			
Nominal discharge current 8/20 µs (per mode) In	5 kA		
Let-through voltage Up at In (+ to , +/-to E)[8]	< 110V, < 250V	< 125V, < 250V	< 170V, < 250V
Maximum discharge current Imax (+ to - , +/- to E)[8]	5 kA, 5 kA / 40 kA		
Type 3 (BS EN/EN), Class III (IEC)			
Let-through voltage at Uoc of 6 kV 1.2/50 µs and *I*sc of 3 k A 8/20 µs (per mode)[3,6]	70 V	85 V	120 V
Mechanical specification			
Temperature range	-40 to +80 °C		
Connection type	Screw terminal - maximum torque 4.5 Nm		
Conductor size (stranded)	25 mm^2		
Earth connection	Screw terminal - maximum torque 4.5 Nm		
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[7]	90 mm x 88 mm x 72 mm (4TE)		

[1] Temporary Overvoltage rating is for a maximum duration of 5 seconds tested to BS EN/EN/IEC 61643

[2] Minimum permissable load is 5 V DC, 10 mA to ensure reliable operation

[3] The maximum transient voltage let-through of the protector throughout the test (±10%), positive to negative, positive to earth, negative to earth

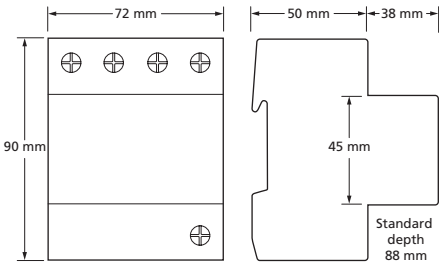
[4] Rating is considered as the current capability of the protector for equipotential bonding near the service entrance

[5] The electrical system, external to the unit, may constrain the actual current rating achieved in a particular installation

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

[7] The remote signal contact (removable) adds 10 mm to height

[8] Primary (low Up) circuit / secondary 'reserve'



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