

# Mains power protection

## ESP MC Series



\*NOTE: product label design may vary.

<b>FULL MODE</b> Bonding + Equipment Protection	<b>SIGNAL/ TELECOM</b> TEST CAT D + C + B	<b>MAINS</b> TEST TYPE 2 + 3
<b>ENHANCED</b> Low let-through voltage	<b>LPZ</b> 1→3	

**Combined Type 2 and 3 tested protector (to BS EN 61643) with telecom or network protection options. Suitable for use on 220/230/240 Volts supplies. Available with British style (three square pin) plugs and sockets with double-pole action. For use at boundaries LPZ 1 through to LPZ 3 to protect sensitive electronic equipment.**

### Features & benefits

- Low let-through voltage between all sets of conductors
- Three way visual indication of protection status
- Protects against radio frequency interference
- TN and Cat-5e versions can conveniently protect both mains and telecom/data lines in one unit
- Rugged, heavy duty construction
- Bracket kit ESP MC/19BK available for rear or 19" rack mounting
- Maintenance free

### Installation

Simply plug the ESP MC series into the mains and your equipment into the ESP MC.

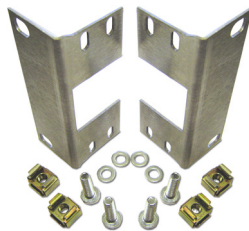
### Application

ESP MC series can be used to protect all sorts of plug-in equipment, including hospital laboratory equipment, modems, fax machines and PCs.

### Accessories

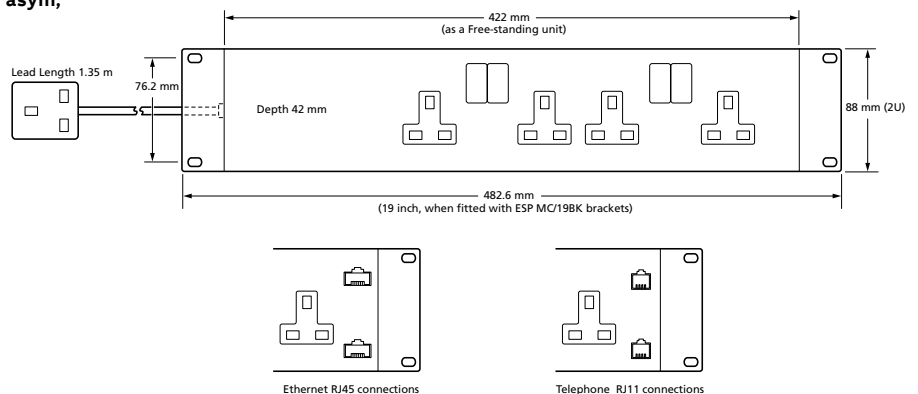
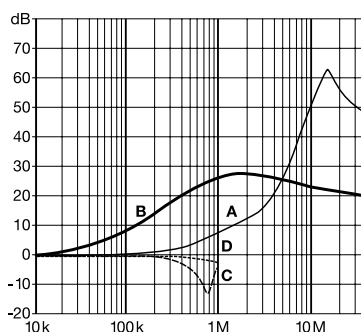
ESP MC/19BK bracket kit can be used for rear mounting, or reversed for use in 19" cabinets. All fixings supplied.

ABB Order code:  
7TCA085460R0034



### RFI performance

Per CISPR 17: A = 50 Ω/50 Ω sym, B = 50 Ω/50 Ω asym, C = 0.1 Ω/100 Ω sym, D = 100 Ω/0.1 Ω sym



**NOTE:** For wire-in applications up to 16 amps, the ESP 16A/BX Series may be more suitable. For all other supplies, consider the ESP M1 Series.

## ESP MC Series - Technical specification

Electrical specification - mains	ESP MC	ESP MC/TN/RJ11	ESP MC/Cat-5e
<b>ABB order code</b>	7TCA085430R0003	7TCA085430R0005	7TCA085430R0004
Nominal voltage - Phase-Neutral $U_o$ (RMS)	220/230/240 V		
Maximum voltage - Phase-Neutral $U_c$ (RMS)	280 V		
Frequency range	47-63 Hz		
Current rating (supply)	13 A		
Leakage current (to earth)	< 0.5 mA		
Electrical specification - telecom/data	ESP MC	ESP MC/TN/RJ11	ESP MC/Cat-5e
Nominal voltage	–	296 V	5 V
Maximum working voltage $U_c^{(1)}$	–	296 V	5 V <sup>(2)</sup>
Current rating (signal)	–	300 mA	300 mA
In-line resistance (per line $\pm 10\%$ )	–	4.4 $\Omega$	1 $\Omega$
Bandwidth (-3 dB 50 $\Omega$ system)	–	20 MHz	–
Maximum data rate	–	–	100 Mbps
Transient specification - mains	ESP MC	ESP MC/TN/RJ11	ESP MC/Cat-5e
<b>Type 2 (BS EN/EN), Class II (IEC)</b>			
Nominal discharge current 8/20 $\mu$ s (per mode) $I_n$	5 kA		
Let-through voltage $U_p$ at $I_n^{(3)}$	850 V		
Maximum discharge current $I_{max}$ (per mode) <sup>(4)</sup>	10 kA		
<b>Type 3 (BS EN/EN), Class III (IEC)</b>			
Let-through voltage at $U_{oc}$ of 6 kV 1.2/50 $\mu$ s and $I_{sc}$ of 3 kA 8/20 $\mu$ s (per mode) <sup>(3,5)</sup>	680 V		
Let-through voltage at $U_{oc}$ of 6 kV 1.2/50 $\mu$ s and $I_{sc}$ of 500 A 8/20 (per mode) <sup>(3,5)</sup>	555 V		
Transient specification - telecom/data	ESP MC	ESP MC/TN/RJ11	ESP MC/Cat-5e
<b>Let-through voltage (all conductors)<sup>(6)</sup> <math>U_p</math></b>			
C2 test 4 kV 1.2/50 $\mu$ s, 2 kA 8/20 $\mu$ s to BS EN/EN/IEC 61643-21 - line to line / line to earth	–	390 V/390 V	120 V/700 V <sup>(8)</sup>
C1 test 1 kV, 1.2/50 $\mu$ s, 0.5 kA 8/20 $\mu$ s to BS EN/EN/IEC 61643-21 - line to line / line to earth	–	395 V/395 V	74 V/600 V <sup>(8)</sup>
B2 test 4 kV 10/700 $\mu$ s to BS EN/EN/IEC 61643-21 - line to line / line to earth	–	295 V/295 V	21 V/550 V <sup>(8)</sup>
5 kV, 10/700 $\mu$ s <sup>(7)</sup> - line to line / line to earth	–	300 V/300 V	25 V/600 V <sup>(8)</sup>
<b>Maximum surge current<sup>(9)</sup></b>			
D1 test 10/350 $\mu$ s to BS EN/EN/IEC 61643-21	–	1 kA	1 kA
8/20 $\mu$ s to ITU (formerly CCITT), BS 6651:1999 Appendix C	–	10 kA	10 kA
Mechanical specification	ESP MC	ESP MC/TN/RJ11	ESP MC/Cat-5e
Temperature range <sup>(10)</sup>	-40 °C to +80 °C		
Connection type	Via British style three square pin plug and socket to BS 1363		
Conductor size (solid)	–	RJ11	RJ45
Earth connection	Via plug and socket		
Case material	Steel		
Weight	1.70 kg	1.75 kg	1.75 kg

<sup>(1)</sup> Maximum working voltage (DC or AC peak) of telecom/data protection measured at <10  $\mu$ A leakage for ESP MC/TN/RJ11 and 1 mA for ESP MC/Cat-5e.

<sup>(2)</sup> Maximum working voltage is 5 V for data pairs 1/2 & 3/6.

<sup>(3)</sup> The maximum transient voltage let-through of the protector throughout the test ( $\pm 10\%$ ), phase to neutral, phase to earth and neutral to earth.

<sup>(4)</sup> The electrical system, external to the unit, may constrain the actual current rating achieved in a particular installation.

<sup>(5)</sup> 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.

<sup>(6)</sup> The maximum transient voltage let-through the protector throughout the test ( $\pm 10\%$ ), line to line & line to earth. Response time < 10 ns.

<sup>(7)</sup> Test to IEC/BS EN 61643, IEC 61000-4-5:2006, ITU-T (formerly CCITT) K.20, K.21 and K.45, Telcordia GR-1089-CORE, Issue 2:2002, ANSI TIA/EIA/IS-968-A:2002 (formerly FCC Part 68).

<sup>(8)</sup> The interfaces used in Cat-5/5e systems incorporate an isolation transformer that inherently provides an inbuilt immunity to transients between line and earth of 1,500 Volts or more.

<sup>(9)</sup> The installation and connectors external to the protector may limit the capability of the protector.

<sup>(10)</sup> Temperature range of SPD within a 20°C ambient temperature. An increase in ambient temperature will de-rate the SPD upper temperature limit accordingly.