



Combined Type 2 and 3 tested protector (to BS EN 61643) for use on low current (up to 5 or 16 A) single phase systems to protect connected electronic equipment from transient overvoltages on the mains supply, e.g. fire/intruder alarm panels. Protectors with /BX suffix come ready-boxed, to IP66, for use in dirty or damp environments. Available for 90-150 Volts, 200-280 Volts and 232-350 Volts supplies. For use at boundaries LPZ 1 through to LPZ 3 to protect sensitive electronic equipment.

## Features and 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) allowing continuous operation of equipment
- ✓ Repeated protection in lightning intense environments
- ✓ Compact size for easy incorporation in the protected system
- ✓ Removable DIN rail foot for simple clip-on mounting to top hat DIN rails (unboxed versions)
- ✓ Colour coded terminals give a quick and easy installation check - grey for the dirty (line) end and green for the clean end
- ✓ Available ready-boxed to IP66 for use in dirty or damp environments (protectors with /BX suffix)
- ✓ Robust housing and substantial earth stud
- ✓ Fixing holes ready for flat mounting
- ✓ Maintenance free
- ✓ ESP 240-5A/BX has Network Rail Approval PA05/02896. NRS PADS reference 087/037285



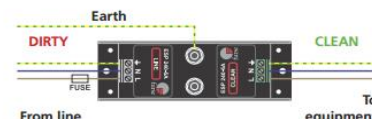
Ready boxed protector (here an ESP 240-5A/BX) installed on the fused connection (spur) to an alarm panel

## Application

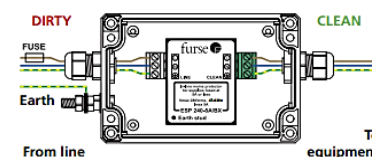
Use these protectors on low current mains power supplies, e.g. CCTV cameras, alarm panels and telemetry equipment.

## Installation

Connect in-line with the power supply usually either within the equipment panel (or for CCTV cameras, in an enclosure close by), or on the fused connection that supplies equipment.



Connect in-line on supplies fused up to 5 A (ESP 120-5A, ESP 240-5A or ESP 277-5A) or 16 A (ESP 120-16A, ESP 240-16A or ESP 277-16A). Note how the protector can also be earthed from its earth stud



Connect in-line on supplies fused up to 5 A (ESP 120-5A/BX, ESP 240-5A/BX or ESP 277-5A/BX) or 16 A (ESP 120-16A/BX, ESP 240-16A/BX or ESP 277-16A/BX). Note how the protector can also be earthed from its earth stud

To protect equipment inside a building from transients entering on an outgoing feed (e.g. to CCTV cameras or to site lighting) the protector should be installed as close to where the cable leaves the building as possible. Unless ready-boxed, protectors should be installed either within an existing cabinet/cubicle or in a separate enclosure.

## Accessories

If several ESP 120-5A or 16A, ESP 240-5A or 16A or ESP 277-5A or 16A protectors are to be installed together, or if one is in use alongside Lightning Barriers for video or signal lines, these can be simultaneously mounted and earthed on a CME kit and housed in a suitable WBX enclosure.

## Technical specification

### Electrical specification

	ESP 120-5A ESP 120-5A/BX	ESP 120-16A ESP 120-16A/BX	ESP 240-5A ESP 240-5A/BX	ESP 240-16A ESP 240-16A/BX	ESP 277-5A ESP 277-5A/BX	ESP 277-16A ESP 277-16A/BX
Nominal voltage - Phase-Neutral $U_o$ (RMS)	120 V	120 V	240 V	240 V	277 V	277 V
Maximum voltage - Phase-Neutral $U_c$ (RMS)	150 V	150 V	280 V	280 V	350 V	350 V
Working voltage (RMS)	90-150 V	90-150 V	200-280 V	200-280 V	232-350 V	232-350 V
Frequency range	47-63 Hz					
Current rating (supply)	5 A or less	16 A or less	5 A or less	16 A or less	5 A or less	16 A or less
Max. back-up fuse (see installation instructions)	5 A	16 A	5 A	16 A	5 A	16 A
Leakage current (to earth)	< 0.5 mA					

### Transient specification

Transient specification	120 Volt protectors	240 Volt protectors	277 Volt protectors
Type 2 (BS EN/EN), Class II (IEC)			
Nominal discharge current 8/20 $\mu$ s (per mode) $I_n$	5 kA		
Let-through voltage $U_p$ at $I_n$ <sup>1</sup>	450 V	750 V	790 V
Maximum discharge current $I_{max}$ (per mode) <sup>2</sup>	10 kA		
Type 3 (BS EN/EN), Class III (IEC)			
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</sup>	390 V	590 V	670 V

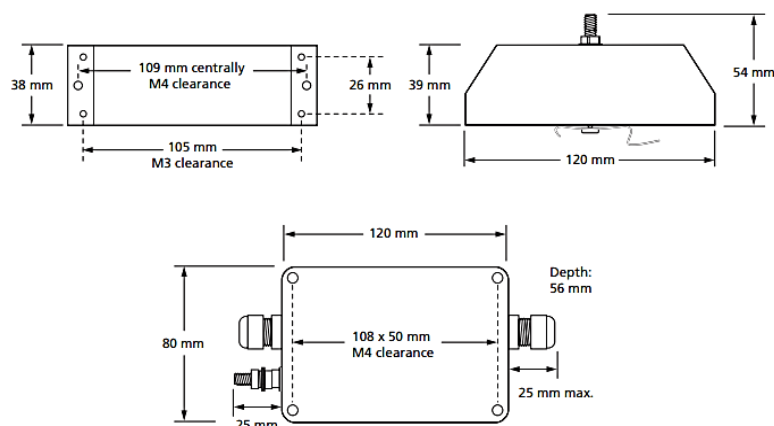
### Mechanical specification

Mechanical specification	ESP 120-5A ESP 240-16A	ESP 120-16A ESP 277-5A	ESP 240-5A ESP 277-16A	ESP 120-5A/BX ESP 240-16A/BX	ESP 120-16A/BX ESP 277-5A/BX	ESP 240-5A/BX ESP 277-16A/BX
Temperature range	-40 to +80 °C			-40 to +80 °C		
Connection type	Screw terminal			Screw terminal		
Conductor size (solid)	4 mm²			4 mm²		
Earth connection	Via earth terminal or M6 stud			Via earth terminal or M6 stud		
Cable glands	-			-5A/BX 4.8-8 mm cable (PG9) -16A/BX 8-12 mm cable (PG13.5)		
Degree of protection (IEC 60529)	IP20			IP66		
Case material	Steel			PVC		
Weight - unit	0.23 kg			0.26 kg		
- packaged	0.25 kg			0.31 kg		
Dimensions						

<sup>1</sup>The maximum transient voltage let-through of the protector throughout the test ( $\pm 5\%$ ), phase to neutral, phase to earth and neutral to earth.

<sup>2</sup>The electrical system, external to the unit, may constrain the actual current rating achieved in a particular installation.

<sup>3</sup>Combination wave test within BS EN/IEC 61643, IEEE C62.41-2002 Location Cuts C1 & B3, SS 555:2010, AS/NZS 1768-2007, UL 1449 mains wire-in.



If your supply is fused at more than 16 Amps the ESP 120 M1, ESP 240 M1 or ESP 277 M1 are suitable.