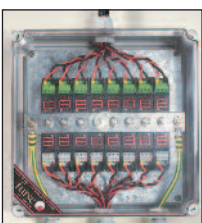


<b>LPZ</b> 0 <sub>A</sub> → 3	<b>FULL MODE</b> Bonding + Equipment Protection
<b>SIGNAL/ TELECOM</b> TEST CAT D + C + B	<b>e</b> <b>ENHANCED</b> Low let-through voltage
<b>LOW INLINE</b> <b>1Ω</b> RESISTANCE	<b>CURRENT</b> <b>1.25A</b> RATING
<b>HIGH</b> BANDWIDTH	

Combined Category D, C, B tested protector (to BS EN 61643-21) suitable for twisted pair signalling applications which require either a lower in-line resistance, an increased current or a higher bandwidth than the D Series. Also suitable for DC power applications less than 1.25 amps. Available for working voltages of up to 6, 15, 30, 50 and 110 volts. For use at boundaries up to LPZ 0<sub>A</sub> to protect against flashover (typically the service entrance location) 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 lines – 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
- ✓ Very low (1Ω) in-line resistance allows resistance critical applications (e.g. alarm loops) to be protected
- ✓ High (1.25A) maximum running current
- ✓ High bandwidth enables higher frequency (high traffic or bit rate) data communications
- ✓ Screen terminal enables easy connection of cable screen to earth
- ✓ Strong, flame retardant, ABS housing
- ✓ Built-in DIN rail foot for simple clip-on mounting to top hat DIN rails
- ✓ Colour coded terminals give a quick and easy installation check – grey for the dirty (line) end and green for clean
- ✓ Substantial earth stud to enable effective earthing
- ✓ Supplied ready for flat mounting on base or side
- ✓ Integral earthing plate for enhanced connection to earth via CME kit
- ✓ ESP 06E and ESP 15E have Network Rail Approval PA05/02047. NRS PADS reference 086/000201 (ESP 06E) and 086/000200 (ESP 15E)



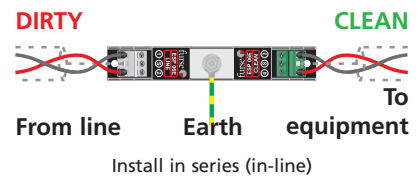
Protectors installed on a combined mounting and earthing kit (CME 8) within a WBX 8 enclosure

## Application

Use these units to protect resistance sensitive, higher frequency or running current systems, e.g. high speed digital communications equipment or systems with long signal lines.

## Installation

Connect in series with the data communication or signal line either near where it enters or leaves the building or close to the equipment being protected (e.g. within its control panel). Either way, it must be very close to the systems earth star point. Install protectors either within an existing cabinet/cubicle or in a separate enclosure.



## Accessories

- Combined Mounting/Earthing kits
- CME 4**  
Mount & earth up to 4 protectors
  - CME 8**  
Mount & earth up to 8 protectors
  - CME 16**  
Mount & earth up to 16 protectors
  - CME 32**  
Mount & earth up to 32 protectors

Weatherproof enclosures

- WBX 2/G**  
For use with up to 2 protectors
- WBX 3, WBX 3/G**  
For use with up to 3 protectors
- WBX 4, WBX 4/GS**  
For use with a CME4 and up to 4 protectors
- WBX 8, WBX 8/GS**  
For use with a CME 8 and up to 8 protectors
- WBX 16/2/G**  
For use with one or two CME 16 and up to 32 protectors

## Electrical specification

	ESP 06E	ESP 15E	ESP 30E	ESP 50E	ESP 110E
<b>Nominal voltage</b> <sup>1</sup>	6V	15V	30V	50V	110V
<b>Maximum working voltage <math>U_c</math></b> <sup>2</sup>	7.79V	16.7V	36.7V	56.7V	132V
<b>Current rating</b> (signal)	1.25A				
<b>In-line resistance</b> (per line $\pm 10\%$ )	1.0 $\Omega$				
<b>Bandwidth</b> (-3dB 50 $\Omega$ system)	1.5MHz	>85MHz	>85MHz	>85MHz	>85MHz

<sup>1</sup> Nominal voltage (DC or AC peak) measured at <10 $\mu$ A (ESP 15E, ESP 30E, ESP 50E, ESP 110E) and <200 $\mu$ A (ESP 06E).

<sup>2</sup> Maximum working voltage (DC or AC peak) measured at <5mA leakage (ESP 15E, ESP 30E, ESP 50E, ESP 110E) and <10mA (ESP 06E).

## Transient specification

	ESP 06E	ESP 15E	ESP 30E	ESP 50E	ESP 110E
<b>Let-through voltage</b> (all conductors) <sup>1</sup> $U_p$					
C2 test 4kV 1.2/50 $\mu$ s, 2kA 8/20 $\mu$ s to BS EN/EN/IEC 61643-21	17.0V	39.0V	60.0V	86.0V	180V
C1 test 1kV, 1.2/50 $\mu$ s, 0.5kA 8/20 $\mu$ s to BS EN/EN/IEC 61643-21	11.5V	28.0V	49.0V	73.5V	170V
B2 test 4kV 10/700 $\mu$ s to BS EN/EN/IEC 61643-21	10.5V	25.5V	43.5V	65.0V	160V
5kV, 10/700 $\mu$ s <sup>2</sup>	10.8V	26.2V	44.3V	65.8V	165V
<b>Maximum surge current</b>					
D1 test 10/350 $\mu$ s to BS EN/EN/IEC 61643-21 – per signal wire – per pair			2.5kA 5kA		
8/20 $\mu$ s to ITU (formerly CCITT), BS 6651:1999 Appendix C – per signal wire – per pair			10kA 20kA		

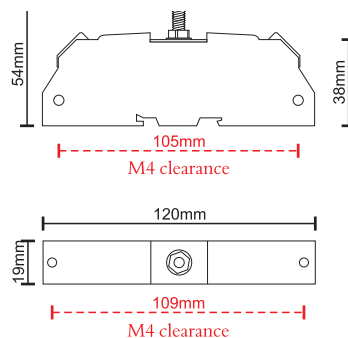
<sup>1</sup> The maximum transient voltage let-through of the protector throughout the test ( $\pm 10\%$ ), line to line & line to earth, both polarities. Response time <10ns.

<sup>2</sup> Test to BS 6651:1999 Appendix C, Cat C-High, IEC 61000-4-5:1995, 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).

## Mechanical specification

	ESP 06E	ESP 15E	ESP 30E	ESP 50E	ESP 110E
<b>Temperature range</b>	-25 to +70°C				
<b>Connection type</b>	Screw terminal				
<b>Conductor size</b> (stranded)	2.5mm <sup>2</sup>				
<b>Earth connection</b>	M6 stud				
<b>Case material</b>	ABS UL94 V-0				
<b>Weight</b> – unit	0.08kg				
– packaged (per 10)	0.85kg				

### Dimensions



A PCB mount version is available. For many twisted pair data and signal applications, the lower cost D Series may be suitable. For applications requiring higher current (1.25A – 4A) or ultra low in-line resistance, the protectors H Series may be more suitable. For data and signal lines on LSA-PLUS modules, use the KS Series.