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|--|---|
| LPZ $0_A \rightarrow 3$ | FULL MODE Bonding + Equipment Protection |
| SIGNAL/ TELECOM TEST CAT D + C + B | e ENHANCED Low let-through voltage |
| LOW INLINE 0.05Ω RESISTANCE | CURRENT 4A RATING |

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 or an increased current than the D or E Series. Also suitable for DC power applications less than 4 amps. Available for working voltages of up to 6, 15, 30, 50 and 110 volts. For use at boundaries up to LPZ 0_A 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
- ✓ Ultra low (<0.05Ω) in-line resistance allows resistance critical applications (e.g. alarm loops) to be protected
- ✓ Very high (4A) maximum running current
- ✓ Strong, flame retardant ABS housing
- ✓ Supplied ready for flat mounting on base or side
- ✓ 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
- ✓ Screen terminal enables easy connection of cable screen to earth
- ✓ Substantial earth stud to enable effective earthing
- ✓ Integral earth plate enables enhanced connection to earth via CME kit



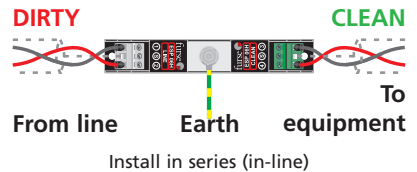
Two ESP 15H protectors mounted in a control cabinet and earthed via the cabinets' earthed chassis

Application

Use these applications to protect resistance sensitive or higher running current systems, e.g. systems with long signal lines, or DC power applications.

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 the control panel). Either way, it must be very close to the system's 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 06H | ESP 15H | ESP 30H | ESP 50H | ESP 110H |
|--|---------------|---------|---------|---------|----------|
| Nominal voltage ¹ | 6V | 15V | 30V | 50V | 110V |
| Maximum working voltage U_c ² | 7.79V | 16.7V | 36.7V | 56.7V | 132V |
| Current rating (signal) | 4A | | | | |
| In-line resistance (per line $\pm 10\%$) | 0.05 Ω | | | | |
| Bandwidth (-3dB 50 Ω system) | 160KHz | 140KHz | 130KHz | 120KHz | 120KHz |

¹ Nominal voltage (DC or AC peak) measured at <10 μ A (ESP 15H, ESP 30H, ESP 50H, ESP 110H) and <200 μ A (ESP 06H).

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

Transient specification

| | ESP 06H | ESP 15H | ESP 30H | ESP 50H | ESP 110H |
|--|---------|---------|--------------|---------|----------|
| Let-through voltage (all conductors) ¹ U_p | | | | | |
| C2 test 4kV 1.2/50 μ s, 2kA 8/20 μ s to BS EN/EN/IEC 61643-21 | 12.0V | 27.5V | 46.0V | 67.0V | 150V |
| C1 test 1kV, 1.2/50 μ s, 0.5kA 8/20 μ s to BS EN/EN/IEC 61643-21 | 11.0V | 26.5V | 45.0V | 66.5V | 145V |
| B2 test 4kV 10/700 μ s to BS EN/EN/IEC 61643-21 | 10.5V | 25.5V | 43.5V | 65.0V | 140V |
| 5kV, 10/700 μ s ² | 10.8V | 26.2V | 44.3V | 65.8V | 145V |
| Maximum surge current | | | | | |
| D1 test 10/350 μ s to BS EN/EN/IEC 61643-21 – per signal wire – per pair | | | 2.5kA 5kA | | |
| 8/20 μ s to ITU (formerly CCITT), BS 6651:1999 Appendix C – per signal wire – per pair | | | 10kA 20kA | | |

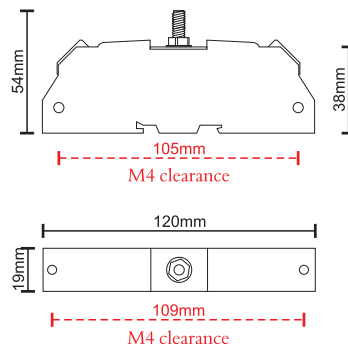
¹ The maximum transient voltage let-through the protector throughout the test ($\pm 10\%$), line to line & line to earth, both polarities. Response time <10ns.

² 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 06H | ESP 15H | ESP 30H | ESP 50H | ESP 110H |
|----------------------------------|-------------------------|---------|---------|---------|----------|
| Temperature range | -25 to +70 $^{\circ}$ C | | | | |
| Connection type | Screw terminal | | | | |
| Conductor size (stranded) | 2.5mm ² | | | | |
| Earth connection | M6 stud | | | | |
| Case material | ABS UL94 V-0 | | | | |
| Weight – unit | 0.08kg | | | | |
| – packaged (per 10) | 0.85kg | | | | |

Dimensions



For some data and signal applications with lower current, higher in-line resistance or higher bandwidth requirements, the D or E Series protectors may be more suitable. If the protector is to be mounted directly onto a PCB, use the ESP PCB/**D or ESP PCB/**E protectors.