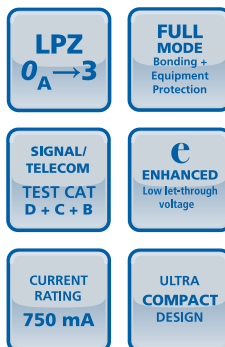
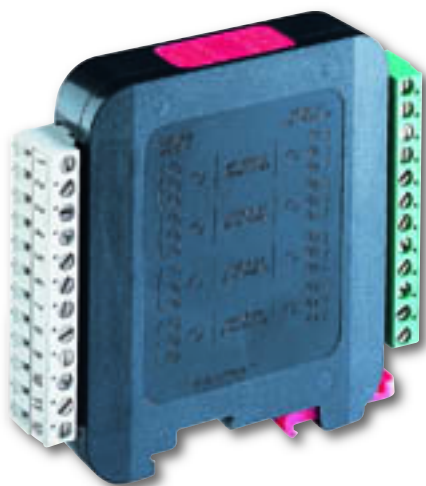


# ESP Q & TNQ Series



Combined Category D, C, B tested protector (to BS EN 61643) suitable for 4 twisted pair lines. Available for working voltages of up to 6, 15, 30, 50 and 110 Volts. ESP TNQ suitable for Broadband, POTS, dial-up, T1/E1, lease line and \*DSL telephone applications. 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

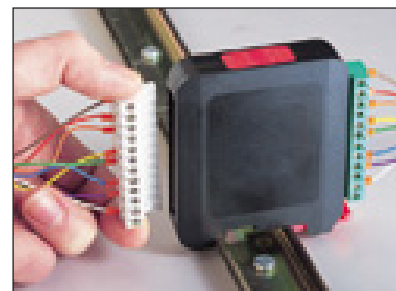
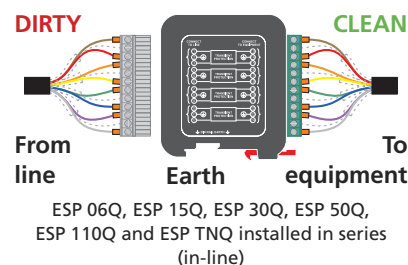
- ✓ Very low let-through voltage (enhanced protection to BS EN 62305) between all lines - Full Mode protection
- ✓ Full mode design capable of handling partial lightning currents as well as allowing continual operation of protected equipment
- ✓ Repeated protection in lightning intense environments
- ✓ Almost twice as space efficient as smallest competitor
- ✓ Standard DIN module (18 mm) depth
- ✓ Removable (plug-in) terminals allow pre-wiring of cable looms, for easier installation
- ✓ Suitable for earthed or isolated screen systems
- ✓ Built-in DIN rail foot for clip-on mounting to top hat or G DIN rails
- ✓ Optional flat mounting on side
- ✓ 2.5 mm<sup>2</sup> terminals allow for larger cross section wiring, stranded wires terminated with ferrules or fitting two wires into a single terminal
- ✓ Very low resistance to minimise unwanted signal strength reductions
- ✓ Strong, flame retardant, ABS housing
- ✓ Colour coded terminals (grey for line, green for clean) give a quick and easy installation check
- ✓ Screen terminal enables easy connection of cable screen to earth
- ✓ Simple, yet substantial, connection to earth via DIN rail
- ✓ ESP TNQ is suitable for telecommunication applications in accordance with Telcordia and ANSI Standards (see **Application Note AN005**)
- ✓ Available as a 'UL Listed' version, add /UL to part code (ESP 06Q, ESP 15Q, ESP 30Q and ESP 50Q only)

## Application

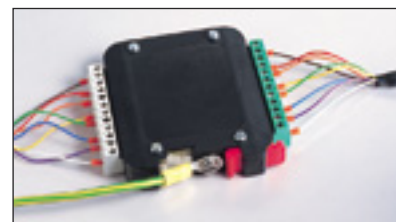
Use these protectors where installation space is at a premium and large numbers of lines require protection.

## Installation

Connect in series with the signal or data line either near where it enters or leaves the building or close to the equipment being protected. Install in a cabinet/ cubicle close to the system's earth star point.



An ESP Q Series protector mounted on a top hat DIN rail. Note the plug-in terminals for easier installation in confined spaces



The ESP Q Series can be earthed via DIN rail, or via the M5 threaded hole in its base

## Accessories

For suitable enclosures for the ESP Q & TNQ Series, please contact us.

## Technical specification

Electrical specification	ESP 06Q	ESP 15Q	ESP 30Q	ESP 50Q	ESP 110Q	ESP TNQ
Nominal voltage <sup>1</sup>	6 V	15 V	30 V	50 V	110 V	-
Maximum working voltage $U_c^2$	7.79 V	18.8 V	37.8 V	57.8 V	132 V	296 V
Current rating (signal)	750 mA	750 mA	750 mA	750 mA	750 mA	300 mA
In-line resistance (per line $\pm 10\%$ )	1.0 $\Omega$	1.0 $\Omega$	1.0 $\Omega$	1.0 $\Omega$	1.0 $\Omega$	4.3 $\Omega$
Bandwidth (-3 dB 50 $\Omega$ system)	1 MHz	2.5 MHz	6 MHz	5 MHz	15 MHz	20 MHz

Transient specification	ESP 06Q	ESP 15Q	ESP 30Q	ESP 50Q	ESP 110Q	ESP TNQ
<b>Let-through voltage</b> (all conductors) <sup>3</sup> Up						
C2 test 4 kV 1.2/50 $\mu$ s, 2 kA 8/20 $\mu$ s to BS EN/EN/IEC 61643-21	15.0 V	28.0 V	53.0 V	84.0 V	188 V	395 V
C1 test 1 kV, 1.2/50 $\mu$ s, 0.5 kA 8/20 $\mu$ s to BS EN/EN/IEC 61643-21	12.5 V	26.5 V	48.0 V	76.0 V	175 V	390 V
B2 test 4 kV 10/700 $\mu$ s to BS EN/EN/IEC 61643-21	10.0 V	23.0 V	43.5 V	64.5 V	145 V	298 V
5 kV, 10/700 $\mu$ s <sup>4</sup>	10.8 V	26.2 V	44.3 V	65.8 V	150 V	300 V
<b>Maximum surge current</b>						
D1 test 10/350 $\mu$ s to BS EN/EN/IEC 61643-21 - per signal wire - per pair				2.5 kA 5 kA		
8/20 $\mu$ s to ITU-T K.45:2003, IEEE C62.41.2:2002 - per signal wire - per pair				10 kA 20 kA		

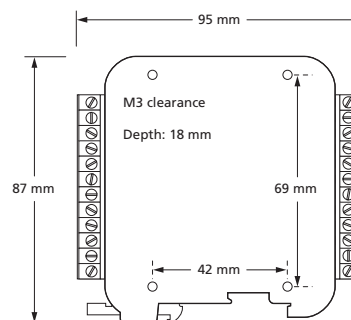
Mechanical specification	ESP 06Q	ESP 15Q	ESP 30Q	ESP 50Q	ESP 110Q	ESP TNQ
Temperature range	-40 to +80 °C					
Connection type	Pluggable 12 way screw terminal					
Conductor size (stranded)	2.5 mm <sup>2</sup>					
Earth connection	Via DIN rail or M5 threaded hole in base of unit					
Case material	ABS UL94 V-0					
Weight - unit - packaged (each) - packaged (per 10)	0.1 kg 0.12 kg 1.3 kg					
Dimensions						

<sup>1</sup> Nominal voltage (DC or AC peak) measured at < 5  $\mu$ A (ESP 15Q, ESP 30Q, ESP 50Q, ESP 110Q) and < 200  $\mu$ A (ESP 06Q).

<sup>2</sup> Maximum working voltage (DC or AC peak) measured at < 5 mA leakage (ESP 15Q, ESP 30Q, ESP 50Q, ESP 110Q) and < 10  $\mu$ A (ESP TNQ).

<sup>3</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 < 10 ns.

<sup>4</sup> Test to 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).



The ESP Q Series is also available for protection of RS 485 and RTD applications (ESP RS485Q, ESP RTDQ). Protectors for individual data and signal lines are available (ESP D Series and Slim Line ESP SL Series), or ready-boxed to IP66 (ESP \*\*D/BX etc). Alternatively, for individual protectors with higher current or bandwidth use the ESP E and ESP H Series.

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