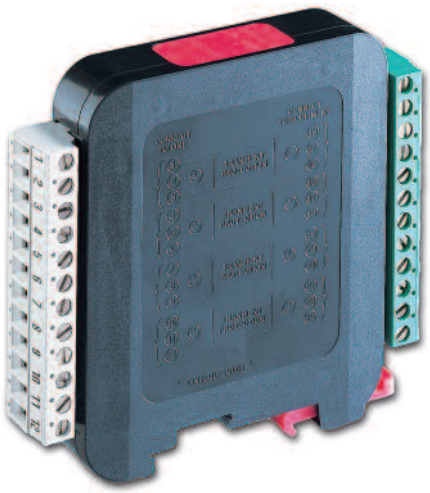
ESP Q, TNQ and RTDQ Series



LPZ $0_A \rightarrow 3$

FULL MODE Bonding + Equipment Protection

SIGNAL/ TELECOM TEST CAT D + C + B

e ENHANCED Low let-through voltage

CURRENT 750mA RATING

ULTRA COMPACT DESIGN

Combined Category D, C, B tested protector (to BS EN 61643-21) suitable for 4 twisted pair lines (ESP 06Q, ESP 15Q, ESP 30Q, ESP 50Q and ESP TNQ). Protection for three 3-wire lines (ESP RTDQ). 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
- ✔ ESP RTDQ protects three 3-wire lines in RTD applications
- ✔ Almost twice as space efficient as smallest competitor
- ✔ Standard DIN module (18mm) depth
- ✔ Removable (plug-in) terminals allow pre-wiring of cable looms, for easier installation
- ✔ Built-in DIN rail foot for clip-on mounting to top hat or G DIN rails
- ✔ Optional flat mounting on side
- ✔ 2.5mm² 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)

Protectors for individual data and signal lines are available (D Series), or ready-boxed to IP66 (ESP **D/BX etc). Alternatively, for individual protectors with higher current or bandwidth use the E and H Series. For individual wire-in protectors for RTD applications, use the ESP RTD.

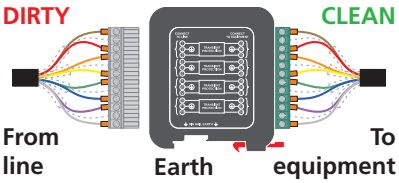
Application

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

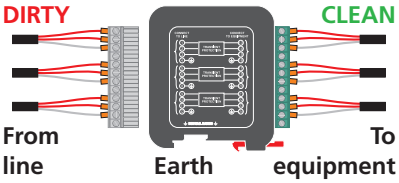
For further information on RTD applications, see separate Application Note AN001 (contact Furse for a copy).

Installation

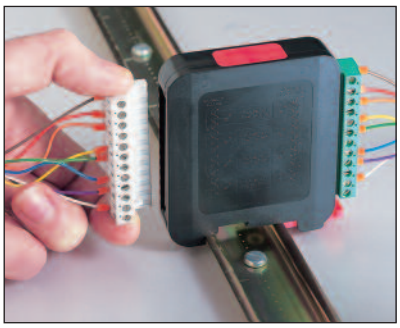
Connect in series with the signal or data line either near where it enters or leaves the building or close to the equipment being protected. Install in a cabinet/cubicle close to the systems earth star point.



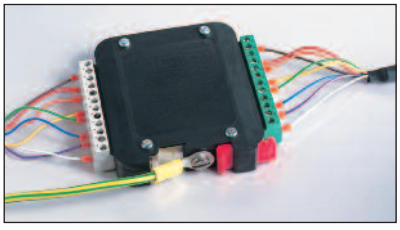
ESP 06Q, ESP 15Q, ESP 30Q, ESP 50Q, ESP 110Q and ESP TNQ installed in series (in-line)



ESP RTDQ installed in series (in-line)



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



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

TSC-0808

Electrical specification	ESP 06Q	ESP 15Q	ESP 30Q	ESP 50Q	ESP 110Q	ESP TNQ	ESP RTDQ
Nominal voltage[1]	6V	15V	30V	50V	110V	-	6V
Maximum working voltage *Uc*[2]	7.78V	18.8V	37.8V	57.8V	132V	296V	7.78V
Current rating (signal)	750mA	750mA	750mA	750mA	750mA	300mA	700mA
In-line resistance (per line ±10%)	1.0Ω	1.0Ω	1.0Ω	1.0Ω	1.0Ω	4.3Ω	1.0Ω
Bandwidth (-3dB 50Ω system)	1MHz	2.5MHz	6MHz	5MHz	15MHz	20MHz	800kHz

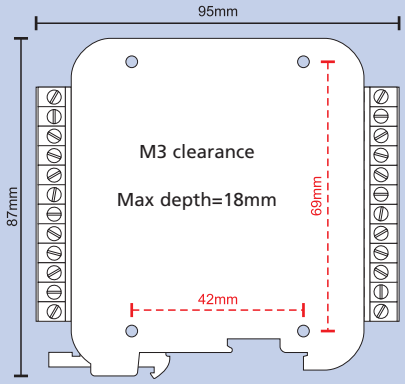
[1] Nominal voltage (DC or AC peak) measured at <5µA (ESP 15Q, ESP 30Q, ESP 50Q, ESP 110Q) and <200µA (ESP 06Q, ESP RTDQ).
[2] Maximum working voltage (DC or AC peak) measured at <5mA leakage (ESP 15Q, ESP 30Q, ESP 50Q, ESP 110Q), <10mA (ESP 06Q, ESP RTDQ) and <10µA (ESP TNQ).

Transient specification	ESP 06Q	ESP 15Q	ESP 30Q	ESP 50Q	ESP 110Q	ESP TNQ	ESP RTDQ
Let-through voltage (all conductors)[1] *Up*							
C2 test 4kV 1.2/50µs, 2kA 8/20µs to BS EN/EN/IEC 61643-21	15.0V	28.0V	53.0V	84.0V	188V	395V	15.0V
C1 test 1kV, 1.2/50µs, 0.5kA 8/20µs to BS EN/EN/IEC 61643-21	12.5V	26.5V	48.0V	76.0V	175V	390V	12.5V
B2 test 4kV 10/700µs to BS EN/EN/IEC 61643-21	10.0V	23.0V	43.5V	64.5V	145V	295V	10.0V
5kV, 10/700µs[2]	10.8V	26.2V	44.3V	65.8V	150V	300V	10.5V
Maximum surge current D1 test 10/350µs to BS EN/EN/IEC 61643-21							
– per signal wire				2.5kA			
– per pair				5kA			
8/20µs to ITU (formerly CCITT), BS 6651:1999 Appendix C							
– per signal wire				10kA			
– per pair				20kA			

[1] The maximum transient voltage let-through the protector throughout the test (±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 06Q	ESP 15Q	ESP 30Q	ESP 50Q	ESP 110Q	ESP TNQ	ESP RTDQ
Temperature range	–25 to +70°C						
Connection type	Pluggable 12 way screw terminal						
Conductor size (stranded)	2.5mm²						
Earth connection	Via DIN rail or M5 threaded hole in base of unit						
Case material	ABS UL94 V-0						
Weight – unit	0.1kg						
– packaged (each)	0.12kg						
– packaged (per 10)	1.3kg						

Dimensions



TSC-0808