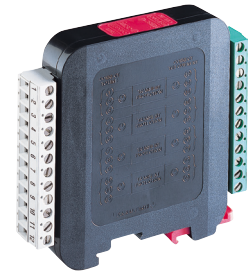


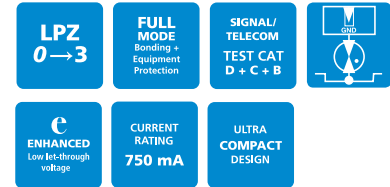
## DATASHEET

# Data & signal protection

## 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, 110 and 180 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 to protect against flashover (typically the service entrance location) through to LPZ 3 to protect sensitive electronic equipment.



### Features & benefits

- Very low let-through voltage (enhanced protection to IEC/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 minimize 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, 50Q and 110Q 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.

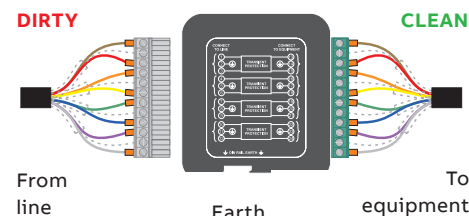
### Accessories

For suitable enclosures for the ESP Q & TNQ Series, consider WBX SLQ, or contact Furse.

ESP 06Q, ESP 15Q, ESP 30Q, ESP 50Q, ESP 110Q, ESP 180Q and ESP TNQ installed in series (in-line)

### ABB order codes

Part	ABB order code
WBX SLQ	7TCA085410R0037
WBX SLQ/G	7TCA085410R0036



**NOTE:** 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.

**ESP Q & TNQ Series - Technical specification**

Electrical specification	ESP 06Q	ESP 15Q	ESP 30Q	ESP 50Q	ESP 110Q	ESP 180Q	ESP TNQ
<b>ABB order code</b>	7TCA085400R0087	7TCA085400R0098	7TCA085400R0107	7TCA085400R0118	7TCA085400R0088	7TCA085400R0462	7TCA085400R0183
Nominal voltage <sup>(1)</sup>	6 V	15 V	30 V	50 V	110 V	180 V	–
Maximum working voltage <i>U<sub>c</sub></i> (RMS/DC) <sup>(2)</sup>	5 V / 7.79 V	13 V / 18.8 V	26 V / 37.8 V	41 V / 57.8 V	93 V / 132 V	130 V/190 V	– / 296 V
Current rating (signal)	750 mA	750 mA	750 mA	750 mA	500 mA	250 mA	300 mA
In-line resistance (per line ±10%)	1.0 Ω	1.0 Ω	1.0 Ω	1.0 Ω	3.3 Ω	6.8 Ω	4.3 Ω
Bandwidth (-3 dB 50 Ω system)	45 MHz	55 MHz	45 MHz	45 MHz	45 MHz	45 MHz	20 MHz
Transient specification	ESP 06Q	ESP 15Q	ESP 30Q	ESP 50Q	ESP 110Q	ESP 180Q	ESP TNQ
<b>Let-through voltage (all conductors)<sup>(3)</sup></b>							
<b><i>U<sub>p</sub></i></b>							
C2 test 4 kV 1.2/50 μs, 2 kA 8/20 μs to BS EN/EN/IEC 61643-21	15.0 V	28.0 V	53.0 V	84.0 V	188 V	215 V	395 V
C1 test 1 kV, 1.2/50 μs, 0.5 kA 8/20 μs to BS EN/EN/IEC 61643-21	12.5 V	26.5 V	48.0 V	76.0 V	175 V	205 V	390 V
B2 test 4 kV 10/700 μs to BS EN/EN/IEC 61643-21	10.0 V	23.0 V	43.5 V	64.5 V	145 V	203 V	298 V
5 kV, 10/700 μs <sup>(4)</sup>	10.8 V	26.2 V	44.3 V	65.8 V	150 V	200 V	300 V
<b>Maximum surge current</b>							
D1 test 10/350 μs to wire – Per signal BS EN/EN/IEC 61643-21:	2.5 kA					1.25 kA	2.5 kA
– Per pair	5 kA					2.5 kA	5 kA
8/20 μs to ITU-T K.45:2003, – Per signal wire	10 kA						
IEEE C62.41.2:2002: – Per pair	20 kA						
Mechanical specification	ESP 06Q	ESP 15Q	ESP 30Q	ESP 50Q	ESP 110Q	ESP 180Q	ESP TNQ
Temperature range	-40 to +80 °C						
Connection type	Pluggable 12 way screw terminal - maximum torque 0.6 Nm						
Conductor size (stranded)	2.5 mm <sup>2</sup>						
Earth connection	Via DIN rail or M5 threaded hole in base of unit						
Case material	FR Polymer UL-94 V-0						
Weight: – Unit	0.1 kg						
– Packaged (each)	0.12 kg						
Dimensions	See diagram below						

<sup>(1)</sup> Nominal voltage (RMS/DC or AC peak) measured at < 5 μA (ESP 15Q, ESP 30Q, ESP 50Q, ESP 110Q, ESP 180Q) and < 200 μA (ESP 06Q)  
<sup>(2)</sup> Maximum working voltage (RMS/DC or AC peak) measured at < 5 mA leakage (ESP 15Q, ESP 30Q, ESP 50Q, ESP 110Q, ESP 180Q) and < 10 μA (ESP TNQ)  
<sup>(3)</sup> The maximum transient voltage let-through of the protector throughout the test (±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)

