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 mm² terminals allow for larger cross section wiring, stranded wires terminated with ferrules or fitting two wires into a single terminal
- Very low resistance to minimizes 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.

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

<table>
<thead>
<tr>
<th>ABB order codes</th>
<th>ABB order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part</td>
<td>WBX SLQ</td>
</tr>
<tr>
<td>WBX SLQ</td>
<td>7TCA085410R0037</td>
</tr>
<tr>
<td>WBX SLQ/G</td>
<td>7TCA085410R0036</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Electrical specification</th>
<th>ESP 06Q</th>
<th>ESP 15Q</th>
<th>ESP 30Q</th>
<th>ESP 50Q</th>
<th>ESP 110Q</th>
<th>ESP 180Q</th>
<th>ESP TNQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABB order code</td>
<td>7TCA085400R0087</td>
<td>7TCA085400R0098</td>
<td>7TCA085400R0107</td>
<td>7TCA085400R0118</td>
<td>7TCA085400R0088</td>
<td>7TCA085400R0462</td>
<td>7TCA085400R0183</td>
</tr>
<tr>
<td>Nominal voltage(^{(1)})</td>
<td>6 V</td>
<td>15 V</td>
<td>30 V</td>
<td>50 V</td>
<td>110 V</td>
<td>180 V</td>
<td>–</td>
</tr>
<tr>
<td>Maximum working voltage Uc (RMS/DC) (^{(2)})</td>
<td>5 V / 7.79 V</td>
<td>13 V / 18.8 V</td>
<td>26 V / 37.8 V</td>
<td>41 V / 57.8 V</td>
<td>93 V / 132 V</td>
<td>130 V / 190 V</td>
<td>– / 296 V</td>
</tr>
<tr>
<td>Current rating (signal)</td>
<td>750 mA</td>
<td>750 mA</td>
<td>750 mA</td>
<td>750 mA</td>
<td>500 mA</td>
<td>250 mA</td>
<td>300 mA</td>
</tr>
<tr>
<td>In-line resistance (per line ±10%)</td>
<td>1.0 Ω</td>
<td>1.0 Ω</td>
<td>1.0 Ω</td>
<td>1.0 Ω</td>
<td>3.3 Ω</td>
<td>6.8 Ω</td>
<td>4.3 Ω</td>
</tr>
<tr>
<td>Bandwidth (-3 dB 50 Ω system)</td>
<td>45 MHz</td>
<td>55 MHz</td>
<td>45 MHz</td>
<td>45 MHz</td>
<td>45 MHz</td>
<td>45 MHz</td>
<td>20 MHz</td>
</tr>
<tr>
<td>ESP Q &amp; TNQ Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Let-through voltage (all conductors)\(^{(3)}\) Up**

- C2 test 4 kV 1.2/50 μs, 2 kA 8/20 μs to BS EN/EN/IEC 61643-21
  - ESP 06Q: 15.0 V
  - ESP 15Q: 28.0 V
  - ESP 30Q: 53.0 V
  - ESP 50Q: 84.0 V
  - ESP 110Q: 188 V
  - ESP 180Q: 215 V
  - ESP TNQ: 395 V

- CI test 1 kV, 1.2/50 μs, 0.5 kA 8/20 μs to BS EN/EN/IEC 61643-21
  - ESP 06Q: 12.5 V
  - ESP 15Q: 26.5 V
  - ESP 30Q: 48.0 V
  - ESP 50Q: 76.0 V
  - ESP 110Q: 175 V
  - ESP 180Q: 205 V
  - ESP TNQ: 390 V

- B2 test 4 kV 10/700 μs to BS EN/EN/IEC 61643-21
  - ESP 06Q: 10.0 V
  - ESP 15Q: 23.0 V
  - ESP 30Q: 43.5 V
  - ESP 50Q: 64.5 V
  - ESP 110Q: 145 V
  - ESP 180Q: 203 V
  - ESP TNQ: 298 V

- 5 kV, 10/700 μs\(^{(4)}\)
  - ESP 06Q: 10.8 V
  - ESP 15Q: 26.2 V
  - ESP 30Q: 44.3 V
  - ESP 50Q: 65.8 V
  - ESP 110Q: 150 V
  - ESP 180Q: 200 V
  - ESP TNQ: 300 V

**Maximum surge current**

- D1 test 10/350 μs to wire BS EN/EN/IEC 61643-21: – Per signal 2.5 kA
  - ESP 06Q: 1.25 kA
  - ESP 15Q: 5 kA

- B/20 μs to ITU-T K.45:2003, – Per signal wire IEEE C62.41.2:2002: 10 kA
  - ESP 06Q: 20 kA

**Mechanical specification**

<table>
<thead>
<tr>
<th>ESP Q &amp; TNQ Series</th>
<th>ESP 06Q</th>
<th>ESP 15Q</th>
<th>ESP 30Q</th>
<th>ESP 50Q</th>
<th>ESP 110Q</th>
<th>ESP 180Q</th>
<th>ESP TNQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature range</td>
<td>-40 to +80 °C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connection type</td>
<td>Pluggable 12 way screw terminal - maximum torque 0.6 Nm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conductor size (stranded)</td>
<td>2.5 mm(^{2})</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earth connection</td>
<td>Via DIN rail or M5 threaded hole in base of unit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case material</td>
<td>FR Polymer UL-94 V-0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight: – Unit</td>
<td>0.1 kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– Packaged (each)</td>
<td>0.12 kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>See diagram below</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

\(^{(1)}\) 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)

\(^{(2)}\) 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)

\(^{(3)}\) 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