Telecom & computer line protection

OVR Cat-5 & Cat-6 Series

Combined Category D, C, B tested protector (to BS EN 61643) suitable to protect twisted pair Ethernet networks, including Power over Ethernet (PoE), with RJ45 connections. 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

- Suitable for systems signalling on up to eight wires of either shielded or unshielded twisted pair cable
- Very low let-through voltage (enhanced protection to IEC/BS EN 62305) between all lines - Full Mode design capable of handling partial lightning currents as well as allowing continual operation of protected equipment
- Repeated protection in lightning intense environments
- Unlike some competing devices, the ethernet SPDs provide effective protection without impairing the system’s normal operation
- Low capacitance circuitry prevents the start-up signal degradation associated with other types of network protector
- Low in-line resistance minimizes unnecessary reductions in signal strength to maximize signalling distance
- Sturdy ABS housing with convenient holes for flat mounting, or vertically via TS35 ‘Top Hat’ DIN rail
- Substantial earth connection to enable effective earthing
- Will protect all PoE powering modes A and B.

Application

Use these protectors on network cables that travel between buildings to prevent damage to equipment, e.g. computers, servers, repeaters and hubs. Suitable for computer networks up to Cat-6A cabling.
- To protect up to 100baseT networks with Cat-5/Cat-5e cabling use OVR Cat-5e
- To protect up to 100baseT Power over Ethernet (PoE) networks with Cat-5/Cat-5e use OVR Cat-5e/PoE
- To protect up to 1000baseT/10GbaseT networks with Cat-6/Cat-6A cabling use OVR Cat-6
- To protect up to 1000baseT/10GbaseT Power over Ethernet (PoE) networks with Cat-6/Cat-6A cabling use OVR Cat-6/PoE

For further application information, see separate Application Note OVR AN004 (contact us for a copy).

Installation

Connect in series with the network cable, either:
- Near to where it enters or leaves the building, or
- As it enters the network hub, or
- Close to the equipment being protected
This should be close to the system’s earth star point (to enable a good connection to earth).

Accessories

- OVR CAT5e/UTP-1
  1 metre cable with unshielded RJ45 connections
- OVR CAT6/STP-2
  2 metre screened cable with shielded RJ45 connections

Plug-in series connection

**DIRTY**

From line

**CLEAN**

To equipment

**TECHNICAL NOTE:** The interfaces used in Ethernet networks incorporate an isolation transformer which gives these systems an inbuilt immunity to transients between line and earth of 1,500 Volts or more.

NOTE: To protect datacomms systems based on twisted pairs, use the OVR D, E or H Series. Local protection for networked equipment is also available.
**OVR Cat-5 & Cat-6 Series - Technical specification**

### Electrical Specification

<table>
<thead>
<tr>
<th>Part</th>
<th>OVR Cat-5e</th>
<th>OVR Cat-5e/PoE</th>
<th>OVR Cat-6</th>
<th>OVR Cat-6/PoE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABB order code</td>
<td>7TCA085400R0289</td>
<td>7TCA085400R0290</td>
<td>7TCA085400R0291</td>
<td>7TCA085400R0292</td>
</tr>
</tbody>
</table>

#### Maximum working voltage
- Data (V)
  - OVR Cat-5e: 5 V
  - OVR Cat-6: 5 V
- Power (V)
  - OVR Cat-5e: 58 V
  - OVR Cat-6: 58 V

#### Current rating
- OVR Cat-5e: 300 mA
- OVR Cat-6: 600 mA
- OVR Cat-5e/PoE: 300 mA
- OVR Cat-6/PoE: 600 mA

#### In-line resistance
- Data (Ω)
  - OVR Cat-5e: 1.5 Ω
  - OVR Cat-6: 1.5 Ω
- Power (Ω)
  - OVR Cat-5e: –
  - OVR Cat-6: –

#### Maximum data rate: 100 Mbps

#### Networking standards:
- OVR Cat-5e: 10/100baseT
- OVR Cat-5e/PoE: 10/100/1000/10GbaseT
- OVR Cat-6: 10/100/1000/10GbaseT
- OVR Cat-6/PoE: 10/100/1000/10GbaseT

### Transient specification

#### Let-through voltage (all conductors)
- **C2 test 4 kV 1.2/50 μs**, line to line: 120 V
- **C2 test 4 kV 1.2/50 μs**, line to earth: 120 V/116 V
- **C1 test 1 kV, 1.2/50 μs**, line to line: 74 V
- **C1 test 1 kV, 1.2/50 μs**, line to earth: 74 V/95 V
- **B2 test 4 kV 10/700 μs**, line to line: 21 V
- **B2 test 4 kV 10/700 μs**, line to earth: 21 V/87 V
- **5 kV, 10/700 μs**, line to line: 25 V
- **5 kV, 10/700 μs**, line to earth: 25 V/90 V

#### Maximum surge current
- **D1 test 10/350 μs**, line to line: 1 kA
- **D1 test 10/350 μs**, line to earth: 1 kA

### Mechanical specification

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<tr>
<td>Temperature range</td>
<td>-40 to +80°C</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Connection type</td>
<td>RJ45 sockets</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Cable (supplied)</td>
<td>0.25 m Cat-5e unshielded patch lead</td>
<td>0.5 m Cat-6 shielded patch lead</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Earth connection</td>
<td>M4/DIN rail</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>
</tr>
<tr>
<td>Weight</td>
<td>– Unit: 0.15 kg</td>
<td>– Packaged: 0.2 kg</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Dimensions</td>
<td>See diagram below</td>
<td>–</td>
<td>–</td>
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### ABB order codes

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<td>T7CA085400R0292</td>
</tr>
<tr>
<td>OVR Cat-5e/UTP-1</td>
<td>7TCA085400R0294</td>
<td>OVR Cat-6/STP-2</td>
<td>T7CA085400R0295</td>
</tr>
</tbody>
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(1) Maximum working voltage (DC or AC peak) measured at 1 mA leakage
(2) Data pairs 1/2 and 3/6 are protected as standard. Pairs 4/5 and 7/8 are also protected on Cat-6 barriers
(3) PoE protectors transmit power Mode A and Mode B power
(4) Based on 30W of transmitted PSE power, to EEE 802.3at.
(5) The maximum transient voltage let-through of the protector throughout the test (±10%), line to line & line to earth. Response time <10 ns (on all protected pairs)
(6) The interfaces used in network systems incorporate an isolation transformer that inherently provides an built-in immunity to transients between line and earth of 1,500 Volts or more
(8) The first number is for the data pair, with the second number for the power pair
(9) The installation and connectors may limit the capability of the protector
(10) There are many types of shielded cable available, minimum specification will be F/UTP or better.