TII 210 & 212
In-Line® Coaxial Lightning Surge Protectors

Unique Patented In-Line® Coaxial Gas Tube Lightning Surge Protector

Designed For HFC Or FTTC Broadband Network Application

Transparent To Analog/Digital Bi-directional Signal Transmission

Essential For DSS Type Wireless Applications

Provides Lightning Surge Protection For Customer Premises And Headend Equipment

Provides Powerline Fault Protection For Customer Premises Equipment

Improves Broadband Network Reliability And Reduces Service Outages

Impedance Matched To 75 Ohms

Power Passing

Integral Failshort Mechanism

Return Loss 30 dB @ 1GHz (Typical)

Insertion Loss <0.1 dB

Frequency Range DC-1.5 GHz

Listed To UL 497 & CSA Listed Certified

TII’s cutting edge In-Line® Coaxial Lightning Surge Protectors protect personnel and customer premises equipment from lightning and power induced surges on coaxial drop cables. It is specifically designed for today’s Broadband Hybrid Fiber-Coax (HFC) and Fiber-To-The-Curb (FTTC) distribution networks.

**KEY PRODUCT BENEFITS**

- Ideallly suited to shield costly digital set-top boxes, expensive stereos and home equipment systems, sensitive internet cable modems, personal computers, digital satellite TV systems, big screen TVs and high-end HDTV sets from potentially damaging surges.
- Can also protect satellite receivers in the cable headend.
- Greatly increases drop system reliability and reduces service outages by protecting against induced high-voltage surges that may appear on the center conductor of a coaxial drop cable.
- Unique In-Line® design is impedance matched to 75 ohms and is virtually transparent to all analog or digital bi-directional signals transmitted from DC to 1.5 GHz.
- TII’s patented proprietary coaxial gas tube surge protector is equipped with an integral failshort mechanism for a power-cross condition. The DC breakdown voltage of the protector is low enough to protect against even the smallest transient surges, yet is compatible with network powered applications.
- Metallic housing of the TII In-Line® Coaxial Lightning Surge Protector provides adequate EMI shielding.
- Protector is environmentally sealed to prevent ingress of moisture and humidity encountered in broadband pedestals, vaults, NIDs and stand alone applications.

**INDUSTRY STANDARDS**

- Listed to UL 497 & CSA Listed Certified
- Complies with 1999 National Electric Code
## Model Number Matrix

<table>
<thead>
<tr>
<th>Model No. w/Integral Ground Block</th>
<th>Connector Configuration</th>
<th>Impedance</th>
<th>Connector Type</th>
<th>Voltage Breakdown</th>
<th>RF Performance</th>
<th>Failsafe</th>
<th>Grounding Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>210 FF=Female/Female</td>
<td>XX 75=75 ohms</td>
<td>X</td>
<td>F=&quot;F&quot;</td>
<td>XXX 225=150-300</td>
<td>X</td>
<td>X</td>
<td>1=6&quot; #12 Grd</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Frequency</td>
<td>Insertion Loss</td>
<td>Return Loss</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1=(5 MHz-1 GHz)</td>
<td>&lt; .2 dB</td>
<td>better than -20 dB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2=(5 MHz-1 GHz)</td>
<td>&lt; .1 dB</td>
<td>better than -30 dB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30 dB</td>
<td></td>
<td>1=Add'l better than nut</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20 dB</td>
<td></td>
<td>2=Add'l better than nut</td>
</tr>
</tbody>
</table>

### Specifications

**R.F. Performance**

<table>
<thead>
<tr>
<th>Characteristic Impedance</th>
<th>DC – 1.0GHz</th>
<th>1.0GHz – 1.5GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion Loss (includes Flatness)</td>
<td>75 Ohms</td>
<td>75 Ohms</td>
</tr>
<tr>
<td>Return Loss</td>
<td>&lt;0.1dB</td>
<td>&lt;0.1 dB</td>
</tr>
</tbody>
</table>

**Protection:**

1. DC Breakdown @ 2000V/sec 150 – 300 Volts
2. Impulse Breakdown @ 100V/µsec <450 Volts
3. Insulation Resistance >100 Megohms
4. Surge Life:
   A. 10A, 10/1000 µsec >1500 Surges
   B. 100A, 10/1000 µsec >10 Surges
   C. 100A, 10/250 µsec >10 Surges
   D. 5000A, 8/20 µsec >10 Surges
5. AC Life:
   A. 5A, 1000VAC, 1 Sec >5 Operations
   B. 1A, 1000VAC, 1 Sec >60 Operations
6. Failshort:
   30A, 1000 VAC >15 Minutes
7. Operating Temperature -40°C to +65°C (-40°F to 149°F)

*Figures given above are for service life only.

**Standard Package:** 50 pieces

210FF75F22521    0.077 lbs. each
210MF75F22521    0.074 lbs. each
212FF75F22521    0.132 lbs. each

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