In recent years, there has been explosive growth in the deployment of LED street lights due to their increased efficiency, reduced energy costs, and longer life expectancy. However, this breakthrough in lighting technology results in an elevated sensitivity to transient over voltages caused by lightning and/or other line disturbances.

An LED lighting system is a widely distributed and exposed application. These systems utilize complex processing components that are much more vulnerable to surges. Uncontrolled surges will destroy the power supply, damage LED components, or reduce the overall quality of the LED’s illumination. To ensure a working lighting system in spite of surges, it is critical to use surge protective devices (SPD’s) in the LED lighting system.

CITEL provides a complete range of surge protectors to be installed at each key point along an LED lighting system including inside the luminaire and in the street level control cabinet. CITEL offers specially designed solutions adapted to every type of indoor or outdoor LED lighting system such as municipal, commercial, roadway, and tunnel.

**MLP Series**

The MLP range is a comprehensive series of AC surge protective devices designed by CITEL to protect the luminaire of an outdoor LED lighting system.

The MLP range has been developed to meet the needs of a wide range of lighting applications, from the most common to the highly custom. The MLP surge protectors are available with either Class 1 or Class 2 insulation and offer screw terminal or fixed lead connections. These units protect the input of the power supply as well as the signal or control lines such as DALI, RS485, or 0-10V Dimmers.

MLP surge protectors are based on the efficient combination of thermally protected metal oxide varistor's (MOV's) and a coordinated gas discharge tube that provides a very sharp clamping voltage with a very high surge withstand capability.

The MLP offers three types of status indicators including a visual LED indicator, an in-line version that stops power to the light fixture, as well as optional remote signal contacts.

**MLP Series Features**

- Maximum Surge Capacity 20kV, 10kA
- For Class 1 and Class 2 insulation
- Wire or screw terminal connection
- Remote signal contacts option
- In compliance with IEC 61643-11, EN 61643-11, UL1449 3rd Edition, and ANSI/IEEE C62.41
### Single-Phase Compact Surge Protective Devices For Luminaires

<table>
<thead>
<tr>
<th>CITEL Series</th>
<th>MLP Series</th>
<th>MSB10 Series</th>
<th>MSB6 Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-Phase AC Network</td>
<td>120 V-230 V</td>
<td>120 V-480 V</td>
<td>230 / 24 V</td>
</tr>
<tr>
<td>Configuration</td>
<td>Single-phase</td>
<td>Single-phase</td>
<td>Single-phase</td>
</tr>
<tr>
<td>Insulation Class</td>
<td>Class 1 - Class 2</td>
<td>Class 1</td>
<td>Class 1</td>
</tr>
<tr>
<td>Nominal Discharge Current</td>
<td>5 kA</td>
<td>5 kA</td>
<td>3/ .8 kA</td>
</tr>
<tr>
<td>Maximum Discharge Current</td>
<td>10 kA</td>
<td>10 kA</td>
<td>6 / 2 kA</td>
</tr>
<tr>
<td>Connection</td>
<td>Screw terminal or wire</td>
<td>Screw terminal or wire</td>
<td>Wire</td>
</tr>
<tr>
<td>Mounting</td>
<td>Plate</td>
<td>Plate</td>
<td>Terminal</td>
</tr>
<tr>
<td>Dimensions</td>
<td>49x70x30 mm</td>
<td>40x60x22 mm</td>
<td>36x26x12 mm</td>
</tr>
<tr>
<td>End of life</td>
<td>- Indicator off - AC Network off (option) - Indicator off - SPD disconnection</td>
<td>- Indicator off - SPD disconnection</td>
<td>- Buzzer on - SPD disconnection</td>
</tr>
<tr>
<td>Certifications</td>
<td>UL1449 3rd Edition (Pending)</td>
<td>UL1449 4th Edition (Recognized)</td>
<td>UL1449 3rd Edition Compliant</td>
</tr>
</tbody>
</table>

### Din Rail Single-Phase Surge Protective Devices For Control Cabinets

<table>
<thead>
<tr>
<th>CITEL Series</th>
<th>DS72RS-120/G</th>
<th>DS42S-120/G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-Phase Network</td>
<td>120 V</td>
<td>120 V</td>
</tr>
<tr>
<td>Nominal Discharge Current</td>
<td>20 kA</td>
<td>20 kA</td>
</tr>
<tr>
<td>Maximum Discharge Current</td>
<td>70 kA</td>
<td>40 kA</td>
</tr>
<tr>
<td>Connection</td>
<td>Screw terminal 25mm² max</td>
<td>Screw terminal 25mm² max</td>
</tr>
<tr>
<td>Mounting</td>
<td>DIN Rail</td>
<td>DIN Rail</td>
</tr>
<tr>
<td>End of Life</td>
<td>- Indicator On - SPD disconnection</td>
<td>- Indicator On - SPD disconnection</td>
</tr>
<tr>
<td>Remote Signaling</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Dimensions (width)</td>
<td>36 mm</td>
<td>36 mm</td>
</tr>
</tbody>
</table>

* Available for 277/480 and 230/400 Vac networks
### Data Network Surge Protective Devices For Communications Equipment

<table>
<thead>
<tr>
<th>CITEL Range</th>
<th>MJ8 Series</th>
<th>DLA Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Application</td>
<td>Cat.5E / Cat.6</td>
<td>DALI, RS485, 0-10 V, DMX</td>
</tr>
<tr>
<td>Configuration</td>
<td>4 pair + shield</td>
<td>1 pair + shield</td>
</tr>
<tr>
<td>Nominal Line Voltage</td>
<td>8 /7.5 Vdc</td>
<td>6, 12, 24, 48, 170 Vdc</td>
</tr>
<tr>
<td>Maximum Line Current</td>
<td>1A</td>
<td>300 mA</td>
</tr>
<tr>
<td>Nominal Discharge Current</td>
<td>up to 2.5 KA</td>
<td>5 kA</td>
</tr>
<tr>
<td>Maximum Discharge Current</td>
<td>16 kA</td>
<td>20 kA</td>
</tr>
<tr>
<td>Mounting</td>
<td>Din Rail, Lug, Flange</td>
<td>Din Rail</td>
</tr>
<tr>
<td>Certifications</td>
<td>UL497B</td>
<td>UL497B</td>
</tr>
</tbody>
</table>

* Available for all system configurations to 690Vac
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