MTL mSA range

Protects electronic equipment and systems against surges on signal and data cabling

- Easy installation — ready boxed in IP65 weatherproof housing with cable glands
- Multi-stage hybrid protection circuitry — high surge absorption capability
- Single and dual pair versions available
- Range of voltage ratings covering all process related signals
- 10 year product warranty

The mSA range prevents surges and transient overvoltages conducted through data and signal cabling from causing damage to electronic systems such as instrumentation control panels, telemetry outstations and fire and security alarm installations.

Isolated applications are particularly at risk, e.g. unmanned water monitoring stations, as they are regularly exposed to lightning activity and therefore suffer frequent damage. Telematic mSA range of surge protection devices increase system reliability, prevent costly damage to equipment and reduce maintenance costs at remote sites.

Sophisticated hybrid circuitry protects vulnerable equipment without affecting normal operation, passing ac or dc signals with little attenuation while diverting surge currents safely to earth and clamping output voltages to safe levels.

Modules with a comprehensive range of voltage ratings (6V, 16V, 30V, 51V and 75V versions) cover all process related signals such as RTDs, THCs and 4-20mA loops. Single and dual pair versions allow installation flexibility and are ideal for 3 and 4-wire RTD applications.

These self-contained units provide a weatherproof barrier especially suitable for exposed locations. The whole circuit is assembled inside an IP65 (NEMA 12 and 13) enclosure which is ready fitted with cable glands and an external earth stud, so installation is very simple. Connections for the mSA range are via screw-clamp terminals.

The mSA design incorporates test points to enable fast maintenance checks. Removable links enable the ‘high’ and ‘low’ energy sections to be tested independently.

The mSA range is also suitable for Telecom applications — private wire installations can be protected using the standard mSA range. Public Switched Telephone Networks (PSTNs) are served by the specifically designed mSAPN range which utilises the same rugged enclosure as the mSA range. mSAPN devices are available with either single or dual line-pair protection networks, like the mSA units, and are supplied with IDC-type terminals. An IDC insertion tool is supplied for ease of convenience.
SPECIFICATION

All figures typical at 77°F (25°C) unless otherwise stated

Maximum surge current
10kA (8/20µs waveform)

Nominal resistance per line
mSAs 43 ohms
mSAPNs 5 ohms

Ambient temperature limits
-40°C to +80°C - working
-40°F to +176°F - working

Humidity
5% to 95% RH (non-condensing)

Enclosure
Plastic ABS
IP65 (NEMA 12 and 13)
Ready fitted with cable glands

Connectors
mSAs screw-clamp terminals
mSAPNs IDC terminals

Terminals
mSAs 2.5mm² (12AWG)
mSAPNs IDC terminals (tool provided)

Mounting
via MS external earth stud

Weight
220g (7.8oz) approx.

Dimensions
See figure 1

EMC compliance
EN61326-1:2013

R&TTE compliance
BS EN 41003: 1999

LVD compliance (mSAPN)
BS EN 41003: 1999
EN61010-1:2010

INSTALLATION

Figure 2 shows the installation for a typical telemetry outstation. All cables entering the telemetry cabin should be fitted with surge protection devices (SPDs) to prevent lightning currents entering telemetry equipment. mSA30 devices can be used for 4-20mA applications whilst PSTN lines should be protected using the mSAPN.

Correct earthing is essential for optimum protection against lightning induced overvoltages. The units should be bonded to the incoming mains power supply using a short length, preferably less than 1 metre, of 2.5mm² or greater thickness cable.

Definitions of terminology used in table
1 Working voltage
Maximum voltage between lines or lines/earth for the specified leakage current
2 Maximum leakage current
Maximum current drawn by the SPD at the working voltage
3 Maximum continuous operating voltage
4 Limiting voltage
Peak output voltage after injection of test impulse from 6kV/3kA combination waveform generator (often known as ‘let-through’ voltage)

Maximum voltage that can be applied to the protected terminals without damage

Table 1 Working voltage, Rated load current, Maximum leakage current, Maximum continuous operating voltage

<table>
<thead>
<tr>
<th>Model</th>
<th>Lines</th>
<th>Working voltage (V)</th>
<th>Rated load current (mA)</th>
<th>Maximum leakage current (µA)</th>
<th>Maximum continuous operating voltage (V)</th>
<th>Limiting voltage (V)</th>
<th>Bandwidth (kHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>mSA16/1</td>
<td>1 pair</td>
<td>13.5</td>
<td>180</td>
<td>5</td>
<td>16</td>
<td>40</td>
<td>380kHz</td>
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<tr>
<td>mSA30/1</td>
<td>1 pair</td>
<td>25.5</td>
<td>340</td>
<td>5</td>
<td>30</td>
<td>60</td>
<td>500kHz</td>
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<tr>
<td>mSA51/1</td>
<td>1 pair</td>
<td>43.5</td>
<td>400</td>
<td>5</td>
<td>51</td>
<td>100</td>
<td>580kHz</td>
</tr>
<tr>
<td>mSA75/1</td>
<td>1 pair</td>
<td>64</td>
<td>400</td>
<td>5</td>
<td>75</td>
<td>150</td>
<td>600kHz</td>
</tr>
<tr>
<td>mSA06/2</td>
<td>2 pairs</td>
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<td>70</td>
<td>1000</td>
<td>6</td>
<td>30</td>
<td>220kHz</td>
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<td>13.5</td>
<td>180</td>
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<td>16</td>
<td>40</td>
<td>380kHz</td>
</tr>
<tr>
<td>mSA30/2</td>
<td>2 pairs</td>
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<td>340</td>
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<td>30</td>
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<td>400</td>
<td>5</td>
<td>75</td>
<td>150</td>
<td>600kHz</td>
</tr>
<tr>
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<td>N/A</td>
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<td>200</td>
<td>250</td>
<td>10MHz</td>
</tr>
<tr>
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<td>N/A</td>
<td>10</td>
<td>200</td>
<td>250</td>
<td>10MHz</td>
</tr>
</tbody>
</table>

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