**FREEZSTOP MICRO**

Self-Regulating Heating Cable

Electrical heating cable for freeze protection or temperature maintenance.

- Automatically adjusts heat output in response to increasing or decreasing pipe temperature.
- Can be cut-to-length with no wastage.
- Will not overheat or burnout, even when overlapped.
- Full range of controls and accessories.
- Approved for use in non-hazardous, hazardous and corrosive environments.
- Ideal for fitting to instrument lines and small diameter pipes.

**DESCRIPTION**

**FREEZSTOP MICRO** is an industrial grade self-regulating heating cable that can be used for freeze protection or temperature maintenance of pipework and vessels.

It is particularly suited to small diameter pipes and instrument tubing such as impulse or analyser lines.

It can be cut-to-length at site and exact piping lengths can be matched without any complicated design considerations.

**FREEZSTOP MICRO** is approved for use in non-hazardous and hazardous areas to world wide standards.

Its self-regulating characteristics improve safety and reliability. **FREEZSTOP MICRO** will not overheat or burnout, even when overlapped upon itself. Its power output is self-regulated in response to the pipe temperature.

The installation of **FREEZSTOP MICRO** is quick and simple and requires no special skills or tools. Termination, splicing and power connection components are all provided in convenient kits.

**INHERENTLY TEMPERATURE-SAFE**

“The inherent ability to self-regulate at a temperature level below the maximum product rating and withstand temperature of the insulating materials, without the need for temperature control.”

Other manufacturers self-regulating products are typically limited to a maximum energised temperature, typically 65°C at which point, their retained power output prevent the cable from self-regulating at its own limiting temperatures. All such products require temperature control to ensure their own temperature safety.
**SPECIFICATION**

**MAXIMUM CONTINUOUS EXPOSURE TEMPERATURE (Power ON):** 65ºC (149ºF)

**MAXIMUM PERMISSIBLE EXPOSURE TEMPERATURE (Power OFF):** 85ºC (185ºF)

**MINIMUM OPERATING TEMPERATURE:** -65ºC* (-85ºF)

**MINIMUM INSTALLATION TEMPERATURE:** -40ºC (-40ºF)

**POWER SUPPLY:** 12 - 277V AC

**TEMPERATURE CLASSIFICATION:** T6 (85ºC)

**MAXIMUM RESISTANCE OF PROTECTIVE BRAIDING:** 18.2 Ohm/km

**INGRESS PROTECTION:** IP67

**WEIGHTS & DIMENSIONS:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimensions</th>
<th>Weight kg/100m</th>
<th>Min Bending Radius</th>
<th>Gland Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSM-C</td>
<td>9.3 x 4.7</td>
<td>7.4</td>
<td>30mm</td>
<td>M20</td>
</tr>
<tr>
<td>FSM-CT</td>
<td>10.5 x 5.9</td>
<td>10.2</td>
<td>35mm</td>
<td>M20</td>
</tr>
<tr>
<td>FSM-CF</td>
<td>10.2 x 5.6</td>
<td>10.0</td>
<td>35mm</td>
<td>M20</td>
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</table>

**APPROVAL DETAILS:**

- ATEX - Sira 02ATEX3075
- IECEx - SIR 11.0128
- FM - 3009080
- CSA - 1295278, 1547590
- EAC* - TC RU C-GB.MKI62.B.06041
- Japanese - CML 17JPN3005X 1 to 2

**ORDERING INFORMATION:**

Example:

Output 17W/m at 5ºC

FREEZSTOP MICRO
Supply Voltage 220 - 277V AC
Metal Braid
Thermoplastic Outerjacket

**ACCESSORIES:**

Heat Trace supply a complete range of accessories including termination/splice kits, end seals, junction boxes and controls. Such items carry separate approvals from the heating cables. Use only approved components, as per system certification.

**ATEX & IECEx MARKINGS:**

- Ex II 2GD
- Ex e IIC T6 Gb
- Ex tb IIIIC T85ºC Db

EN 60079-0:2009
EN 60079-30:1-2007
IEC 60079-31:2008

**MAXIMUM LENGTH (m) vs. CIRCUIT BREAKER SIZE:**

The following circuit details relate specifically to the trace heating of pipework and equipment. For any other application consult Heat Trace.

<table>
<thead>
<tr>
<th>Cat. Reference</th>
<th>Start-up Temperature</th>
<th>6A</th>
<th>10A</th>
<th>16A</th>
<th>20A</th>
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<tbody>
<tr>
<td>11FSM</td>
<td>5ºC</td>
<td>76</td>
<td>126</td>
<td>128</td>
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<td></td>
<td>0ºC</td>
<td>70</td>
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<td>-</td>
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<td>-</td>
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<td></td>
<td>-20ºC</td>
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<td>88</td>
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<td>-40ºC</td>
<td>26</td>
<td>42</td>
<td>68</td>
<td>86</td>
</tr>
</tbody>
</table>

**THERMAL RATINGS:**

Nominal output at 230V when FSM is installed on insulated metallic pipes and as outlined in the procedures within IEC62395 and IEC60079-30.

Note: Please refer to Evolution for more precise power output values as a function of pipe temperature.

**FURTHER INFORMATION:**

Please consult the appropriate termination instructions and the Heat Trace Design, Installation, & Maintenance Manual (HTDIMM 010) for further details.