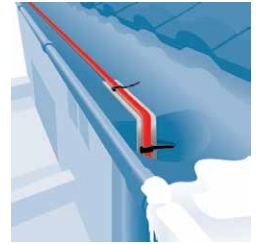


## **Raychem** SPECIFICATION GUIDELINE

### ICESTOP GM-2X and GM-2XT SNOW MELTING SYSTEM FOR GUTTERS, ROOFS & DOWNPIPES



- All gutters, down pipes and roof edges shall be fitted with an energy efficient, self-regulating trace heating system, Raychem GM-2X or GM-2XT, as manufactured by Pentair Thermal Management, to prevent winter damage and icicle formation.
- The system shall be complete with cold components, energy efficient controls and a 5 year product warranty.
- The self-regulating heating cables shall be capable of demonstrating a lifetime in excess of 25 years.
- The self-regulating heating cables shall have modified polyolefin electrical insulation (radiation cross-linked, to ensure long life expectancy), tinned copper braid and UV resistant, modified polyolefin over jacket with metre marks for ease of installation.
- The heating cables shall be capable of demonstrating a power output of 36W/m in iced water and 18W/m in the air at 0°C, installed at a maximum circuit length of 80 metres.
- Interconnection and termination shall be with cold applied, insulation displacement connectors and gel type end seals, UV resistant, IP 68, 65°C rated, with audible and visual installation confirmation, as manufactured by Pentair Thermal Management and known as RayClic.
- All trace heating circuits shall be controlled via an energy efficient, integrated ambient temperature and moisture sensing thermostat, known as Raychem EMDR-10, as manufactured by Pentair Thermal Management.
- The temperature sensor shall be a PTC (FL103) type, IP54 rated, capable of withstanding temperatures of -30°C and 80°C. The moisture sensor shall be a PTC type sensor with variable sensitivity settings.
- All heating cables shall be installed within maximum circuit length, tested and commissioned strictly in accordance with the manufacturer's instructions, preferably by a specialist installer named by the supplier. The commissioning report must be registered to gain benefit from the 5 year product warranty.
- Each heat-tracing circuit shall be protected by an MCB (BS EN 60898 type C or D or equivalent) and RCD (30mA sensitivity, tripping within 100ms). Isolators shall be provided for each circuit.
- Wiring between the trace heating circuits, terminal units, the thermostat(s), the contactor and the distribution board shall be done by an electrical contractor.
- For asphalt/bitumen roofs only the selfregulating heating cable GM-2XT can be used.

#### **In Engineering Notes Column**

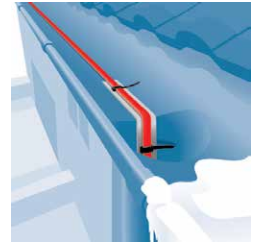
- All gutters, down pipes and roof edges shall be fitted with an energy efficient, self-regulating trace heating system, known as Raychem GM-2X or GM-2XT, to prevent winter damage and icicle formation.
- Interconnection and termination shall be with cold applied, UV resistant, insulation displacement connectors and gel type end seals, known as RayClic.
- All trace heating circuits shall be controlled via an energy efficient, integrated ambient and moisture sensing thermostat, known as Raychem EMDR-10.
- The system shall be complete with a 5 year product warranty.
- The trace heating systems shall be installed, tested and commissioned strictly in accordance with Raychem's recommendations and preferably by a specialist installer named by them.

## **Raychem** SPECIFICATION GUIDELINE

### EMDR-10

### SNOW MELTING SYSTEM FOR GUTTERS, ROOFS & DOWNPIPES

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#### **ENERGY-EFFICIENT CONTROL & MONITORING**

- All self-regulating, gutter/roof/down pipe heating circuits shall be controlled with an energy efficient, ambient temperature and moisture sensing thermostat, Raychem EMDR-10, as manufactured by Pentair Thermal Management.

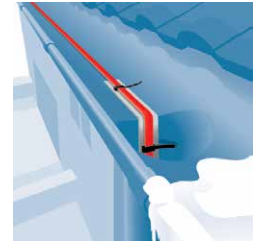
The energy-efficient control unit must meet the following performance and technical requirements:

- Minimum temperature range to  $-25^{\circ}\text{C}$  and be variable to  $-5^{\circ}\text{C}$
  - EMC approved to EN50081-1 (Emission) and EN 50082-1 (Immunity)
  - Moisture sensor with variable sensitivity for energy efficiency
  - Self extinguishing housing material in accordance with UL 94 V-0
  - Variable post-ice/snow heating time control
  - PTC (FL103) ambient temperature sensor for accuracy  $\pm 1.5\text{ K}$
  - Variable set-point temperature between  $-3^{\circ}\text{C}$  and  $+6^{\circ}\text{C}$
  - System test function for system check purposes
- Installation shall be in accordance with the installation instructions of the manufacturer and preferably carried out by an installer recommended by them.

# **Raychem** SPECIFICATION GUIDELINE

## **SBS-XX-EV-10**

### SNOW MELTING SYSTEM FOR GUTTERS, ROOFS & DOWNPIPES



#### **MULTI CIRCUIT CONTROL AND MONITORING PANEL**

- All snow & ice melting circuits for gutters and drain pipes shall be controlled and monitored via an integrated, electrically protected multi circuit control panel, SBS-xx-EV-10, by Pentair Thermal Management.
- The panel should be purpose built and approved for the control and monitoring of GM-2X/GM-2XT self regulating heating cables, by Pentair Thermal Management. The panel shall incorporate the energy efficient control and monitoring device, Raychem EMDR-10, by Pentair Thermal Management and have multi-sensory input for moisture and temperature control.

#### **Product, Technical and performance requirements:**

- The control and monitoring panel shall have, as a minimum
  - EN60204-1/EN60439-1 compliance, CE approved for use with Raychem heat tracing systems
  - RAL7035 (Light Grey) Coated Metal Housing – IP54 rated
  - A volt free alarm contact to indicate
    - RCD or circuit breaker failure mode
    - Loss of power to the unit
    - Controller or sensor error mode
  - EMDR-10 multi-sensor control unit as the central control device for standard heating/economy functions
  - Type C circuit protection and residual current device (30 mA rated) per heating circuit
  - Mounted terminal blocks for easy connection of the heating circuits within the panel
  - Potential free alarm function for sensor breakage/failure, sensor short circuit, and power loss
  - The EMDR-10 shall also be compliant with EN60730, EN50081-1, and EN50082-1
- The GM-2X/GM-2XT heating circuits shall be switched via contactors and be protected with an MCB (BS EN 60898 type C or D or equivalent) and RCD (30 mA sensitivity, tripping within 100 ms) incorporated into the SBS control panel in order to provide complete electrical protection to the heating circuits.