

# **Raychem** SPECIFICATION GUIDELINE



## CONTROL & MONITORING SYSTEM ACS-30 MULTI CIRCUIT, MULTI-APPLICATION

### FOR ALL THERMAL BUILDING SOLUTIONS (TBS) HEAT-TRACING REQUIREMENTS

- All heat-tracing circuits shall be controlled and monitored via an electrically protected, multi circuit, multi application control solution, with an integrated centralised user interface terminal (UIT), and be known as Raychem ACS-30, by Pentair Thermal Management. The UIT shall include 3 customisable alarm outputs for customer specification.
- The control & monitoring (C&M) system shall provide control and monitoring functionality for a multiple circuit and/or multiple application, heat-tracing system including the provision of all electrical and circuit protection devices.
- The Control system shall be certified and approved by the manufacturer for use with the heat-tracing system. The C&M system shall be modular for easy design and shall comprise some or all of the following product modules:
  - **ACS-30-EU-UIT2** Touch screen colour user interface terminal for control and monitoring of up to 260 individual circuits. Always included in the system.
  - **ACS-30-EU-PCM2** power & control modules which include integrated control & monitoring capability and electrical safety for equipment personnel and circuit protection switchgear. The power & control module will also include 5, 10, or 15 heating circuit capability, dependent upon selection, and will include an input (temperature sensor or external device) per circuit for individual heater circuit temperature monitoring. At least one PCM shall be included in the system.
  - **ACS-30-EU-Moni-RMM2-E** remote monitoring module for the addition of 8 resistance temperature detectors (RTDs) for connection to the ACS-30-EU-PCM or to the - ACS-30-EU-UIT2. Up to 16 RMM modules may be controlled via a single User interface Terminal (UIT).
  - **ACS-30-EU-VIA-DU-20-MOD** surface snow melting and de-icing multi-sensor module for monitoring of the ground surface heat-tracing system.
  - **ACS-30-EU-EMDR-10-MOD** gutter and roof de-icing multi-sensor module for monitoring of the roof and gutter de-icing heat-tracing system.
  - **ProtoNode** high performance protocol gateway for connection of the ACS-30 system to the buildings BMS using BacNet or Metasys N2 protocol.
- The control system shall be capable of controlling and monitoring up to 260 individual circuits of heat-tracing via a centralised user interface terminal (UIT) for easy system monitoring. The UIT shall be fully 2 way BMS compatible via RS485 port or Ethernet port. The C&M system shall be compatible with BacNet, Metasys N2 BMS protocols for effective inter-system communication.
- The heating circuit power and control modules (PCM) shall be modular, decentralised solutions to enable placement throughout the building, or group of buildings, in proximity to the required heating system to limit the quantity of power cabling.
- The PCMs shall be connected to the UIT via RS-485 cable for communication, control & monitoring purposes. In the event of power failure or communication failure from the UIT, the PCM shall be capable of continued function for safety and system continuity.
- The C&M system shall be capable of monitoring circuit by circuit line or ambient temperature, energy consumption, energy usage pattern, and ground fault/earth fault detection. There shall be alarm function on a circuit by circuit basis. In the event of an alarm, the UIT shall provide details of the alarm reason as well as indicating the specific circuit(s) affected.
- The control system shall be compliant with European norm EN60439 and be tested and CE approved to this standard.
- All UIT and PCM units shall be RAL7035 (light grey) coloured metal enclosures for hard wearing durability.
- Type C circuit protection and residual current device (30mA rated) shall be included in the PCM per heating circuit.

# CONTROL & MONITORING SYSTEM ACS-30

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- All electrical connections between the electrical supply, UIT, power & control modules, ancillaries, and heating circuits shall be carried out by a qualified and approved electrical contractor.

## In Engineering Notes Column

- All trace heating circuits shall be controlled & monitored via a multi circuit, multi application control solution, with a centralized user interface terminal (UIT), Raychem ACS-30, manufactured by Pentair Thermal Management.
- The modular C&M system shall comprise some or all of the following components:
  - ACS-30-EU-UIT2 User Interface Terminal
  - ACS-30-EU-PCM2 Power & Control Module(s)
  - ACS-30-EU-Moni-RMM2-E Remote Monitoring Module(s)
  - ACS-30-EU-VIA-DU-20-MOD (for ramp heating and surface snow melting sensing only.)
  - ACS-30-EU-EMDR-10-MOD (for roof and gutter de-icing sensing only.)
  - ProtoNode Protocol Gateway for connection and communication to the BMS.
- Communication between UIT and the PCM(s) shall be via RS485 cable.
- The C&M system shall be capable of monitoring circuit by circuit line or ambient temperature, energy consumption, energy usage pattern, and ground fault detection.
- There shall be alarm function on a circuit by circuit basis. In the event of an alarm, the UIT shall provide details of the alarm reason as well as indicating the specific circuit(s) affected.
- System to be compliant with EN60439 and be tested and CE approved to the standard.
- RAL7035 (light grey) metal enclosure to be implemented.
- Heating circuits to be individually protected by Type C circuit breakers and residual current devices 30mA rated.
- For use with Raychem heat-tracing cables only.
- All electrical connections between the electrical supply, UIT, power & control modules, ancillaries, and heating circuits shall be carried out by a qualified and approved electrical contractor.



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