

## Electronic controller for roof & gutter de-icing and surface snow melting systems

### PRODUCT OVERVIEW



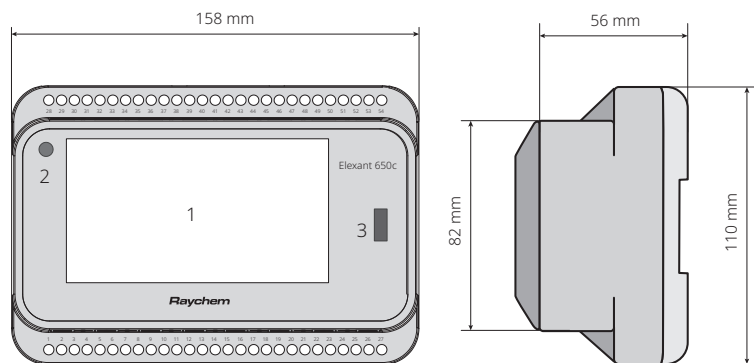
The Raychem Elexant 650c-Modbus controller is designed for operation with Raychem ramp, roof and gutter heating cables. The Modbus connectivity allows for remote monitoring, configuration, and ease of integration in a Building Management System (BMS).

### Features

- Intuitive set-up and programming of the unit with a 4.3" colour touch screen
- Moisture and temperature control of roof & gutter de-icing and surface snow melting systems
- Controls 2 independent heating areas
- Temperature with moisture sensing for enhanced energy savings
- Alarm relay with change over contact to signal power, sensor or communication problems (Modbus)
- Ambient temperature monitoring with high and low temperature alarm
- Offsite configurable – can be set up prior to final installation
- DIN rail panel mountable
- The Elexant 650c-Modbus is equipped with a RS485 port for Modbus communication to a BMS system which can be used for configuration, monitoring and alarm purposes
- Ice rain feature – preheating the surface to prevent the issue of freezing rain (for surface snow melting application only)

## PRODUCT SPECIFICATIONS

### Typical enclosure dimensions and module layout



1. Touch screen, size 4.3"
2. LED: Flashes green in operation mode
3. USB Port

### Enclosure

|                          |                                    |
|--------------------------|------------------------------------|
| Dimensions               | 158 mm x 110 mm x 56 mm            |
| Ingress protection class | IP20                               |
| Material                 | PPE                                |
| Mounting option          | DIN-Rail mountable 35 mm, in panel |
| Storage temperature      | -20°C to +50°C                     |
| Flammability class       | D category (DIN EN60730/VDE0631-1) |

### Technical details

|                                          |                                                                      |
|------------------------------------------|----------------------------------------------------------------------|
| Supply voltage                           | 230 VAC -15/+10%; 50/60 Hz                                           |
| Power consumption                        | Max. 25 VA                                                           |
| Output relay / contactor / heating cable | 2 x 4 A / 230 VAC                                                    |
| Power supply terminals                   | 3 x 1.5 mm <sup>2</sup>                                              |
| Heating cables contactor terminals       | 2 x 2 x 1.5 mm <sup>2</sup>                                          |
| Alarm terminals                          | 3 x 1.5 mm <sup>2</sup>                                              |
| Sensor terminals                         | 2 x 2 x 1.5 mm <sup>2</sup>                                          |
| Modbus terminals                         | 3 x 1.5 mm <sup>2</sup>                                              |
| Alarm relay                              | Single pole double throw relay, voltage – free, rating 2 A/250 VAC   |
| Real time clock                          | Automatic summer/winter time and leap year correction                |
| Clock back up                            | 3 years                                                              |
| Clock accuracy                           | Typ. +/-10 minutes per year                                          |
| Keylock                                  | Password protection for parameter settings                           |
| USB Port                                 | For preset-up in power off mode and firmware upgrade                 |
| Settings                                 | All settings are stored in non-volatile memory, except date and time |
| Exposure temperature in operation        | 0°C to +40°C                                                         |

## Sensor

|                         | Roofs and gutters                         | Surfaces                                  | With SM-TF130-DI Module             |                           |
|-------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------|---------------------------|
|                         | E650C-R *                                 | E650C-G *                                 | GM-TA-AS *                          | NTC-SENSOR-10M *          |
| Temperature sensor type | NTC                                       | NTC                                       | NTC 2 KOhm / 25°C, 2 wire           | NTC 2 KOhm / 25°C, 2 wire |
| Sensor cable length     | 6 m                                       | 20 m                                      | Sensor in a box (no cable attached) | 10 m                      |
| Temperature range       | -30°C to +30°C (for moisture measurement) | -30°C to +30°C (for moisture measurement) | -30°C to +40°C                      | -40°C to +90°C            |

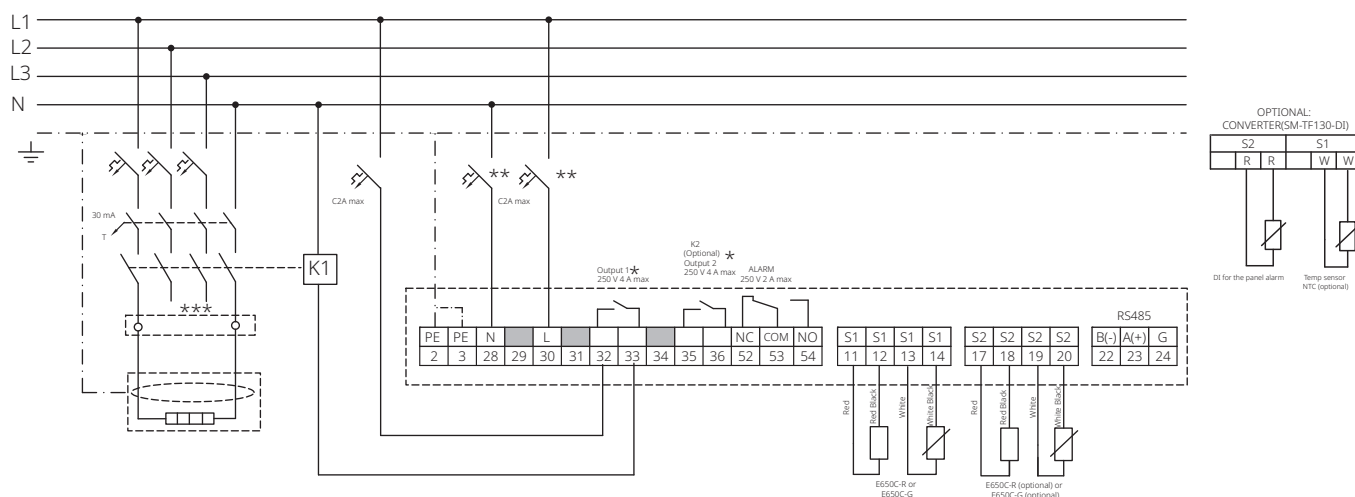
\*Not included in the box

## Monitoring

|                                                  |                                                                       |
|--------------------------------------------------|-----------------------------------------------------------------------|
| Snow sensing threshold min. and max. temperature | Adjustable range 0°C to +5°C<br>Adjustable range -30°C to -5°C or OFF |
| Sensor alarm                                     | Sensor open circuit<br>Sensor short circuit                           |
| Parameter input                                  | Each parameter input and event will be logged in non-volatile memory  |

## Electrical scheme

### Standard: Moisture sensors



## Communication

|                    |                                          |
|--------------------|------------------------------------------|
| Communication port | RS-485                                   |
| Type               | 2-wire RS-485                            |
| Cable              | One shielded twisted pair (not included) |
| Length             | 1,200 m (4,000 ft.) maximum              |
| Quantity           | Up to 247 devices per port               |
| Data rate          | 2400, 4800, 9600, 19200 baud             |
| Parity             | None, even, odd                          |
| Stop bits          | 1, 2                                     |
| Protocol           | Modbus RTU                               |

## APPROVALS

For use in non-hazardous areas

Product certification



Electromagnetic Compatibility (EMC)

EN 61000-6-3, EN 61000-6-2

## ORDERING INFORMATION

|                     |                                                  |
|---------------------|--------------------------------------------------|
| Catalog description | ELEXANT 650c-Modbus                              |
| Part number         | 1244-022835                                      |
| EAN code            | 5414506025002                                    |
| Weight              | 550 g                                            |
| In package          | 1 control unit with manual / no sensors included |

## Accessories

| Product name         | Product description                                                                              | PCN number  | EAN number    |
|----------------------|--------------------------------------------------------------------------------------------------|-------------|---------------|
| E650C-G              | Moisture and temperature sensor for surface snow melting, 20 m with housing and protective cover | 1244-022794 | 5414506024661 |
| E650C-G-HOUSING      | Spare housing and protective cover for surface snow melting sensor                               | 1244-022796 | 5414506024685 |
| E650C-R              | Moisture and temperature sensor for roof and gutter de-icing, 6 m with zinc mounting bracket     | 1244-022795 | 5414506024678 |
| E650C-R-BRACKET-ZN   | Spare mounting bracket for roof and gutter de-icing sensor, zinc                                 | 1244-022798 | 5414506024708 |
| E650C-R-BRACKET-CU   | Spare mounting bracket for roof and gutter de-icing sensor, copper                               | 1244-022799 | 5414506024715 |
| SM-TF130-DI          | External module for the ice rain feature and panel alarm digital input                           | 1244-022836 | 5414506025019 |
| GM-TA-AS             | Spare ambient NTC sensor in enclosure                                                            | 1244-017965 | 5414506018387 |
| SENSOR-NTC-10M       | Spare ambient NTC sensor – 10 m                                                                  | 1244-015847 | 5414506015119 |
| Raychem PB-POWERBANK | Powerbank for pre-configuration of Elexant 650c-Modbus without mains voltage                     | 1244-020365 | 5414506020458 |

**Important:** The Raychem Elexant 650c-Modbus controller is for use with the Raychem heating cables only. The warranty and system listing will be invalidated if the Elexant 650c-Modbus controller is used with other heating cables.

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