

# Elexant 650c-Modbus

## CONNECT AND PROTECT

### Electronic Controller for Roof & Gutter De-Icing and Surface Snow Melting Systems

#### PRODUCT OVERVIEW



The nVent RAYCHEM Elexant 650c-Modbus controller is designed for operation with nVent RAYCHEM ramp, roof and gutter heating cables.

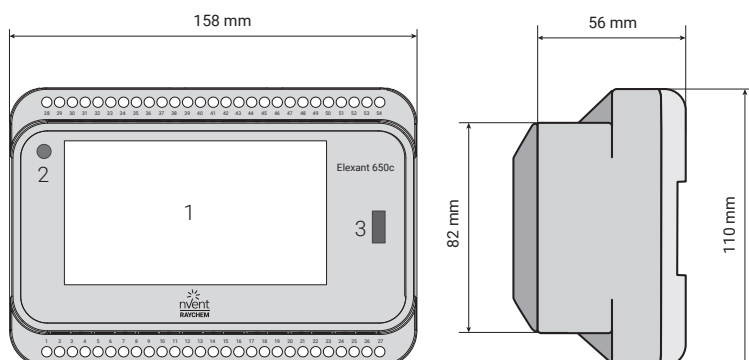
The Modbus connectivity allows for remote monitoring, configuration, and ease of integration in a Building Management System (BMS).

#### 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	
	<b>E650C-R *</b>	<b>E650C-G *</b>	<b>GM-TA-AS *</b>	<b>NTC-SENSOR-10M *</b>
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

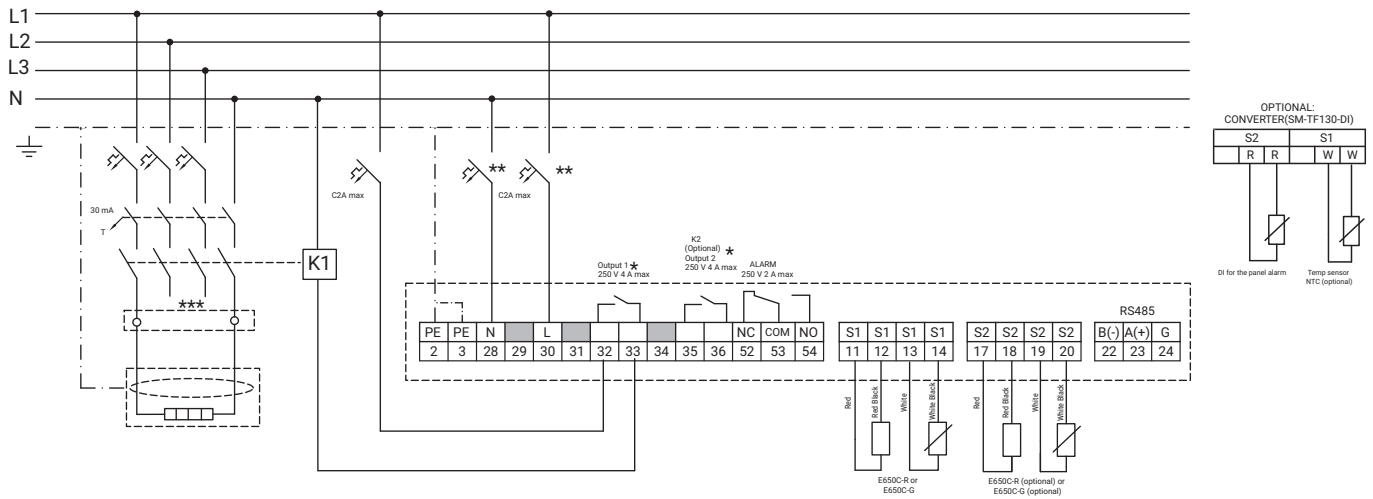
\*Not included in the box

## Monitoring

Snow sensing threshold min. and max. temperature	Adjustable range 0°C to +5°C Adjustable range -30°C to -5°C or OFF
Sensor alarm	Sensor open circuit 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
nVent RAYCHEM PB-POWERBANK	Powerbank for pre-configuration of Elexant 650c-Modbus without mains voltage	1244-020365	5414506020458

**Important:** The nVent RAYCHEM Elexant 650c-Modbus controller is for use with the nVent 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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