

# Elexant 450c / Elexant 450c-Modbus



**RAYCHEM**

## CONNECT AND PROTECT

### Electronic Controller for Pipe Freeze Protection and Temperature Maintenance Systems

#### PRODUCT OVERVIEW



The nVent RAYCHEM Elexant 450c controller is designed for operation with the nVent RAYCHEM heating cables.

The Elexant 450c is available in 2 versions:

- **Elexant 450c** standard version
- **Elexant 450c-Modbus** version allowing flexible Modbus connectivity 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
- Flexible temperature control of pipe freeze protection and temperature maintenance systems
- Controls 2 independent heating circuits
- Pipe line sensing and/or ambient sensing
- Proportional Ambient Sensing Control (PASC) algorithm for enhanced energy savings in ambient sensing mode
- Alarm relay with change over contact to signal power, temperature or communication problems
- Pipe line temperature monitoring with high and low temperature alarm
- Offsite configurable - can be set up prior to final installation
- DIN rail panel mountable
- The Elexant 450c-Modbus is equipped with a RS485 port for Modbus communication to a BMS system which can be used for configuration, monitoring and alarm purposes.

#### GENERAL

Area of use	Non-hazardous locations; for nVent RAYCHEM heating cables
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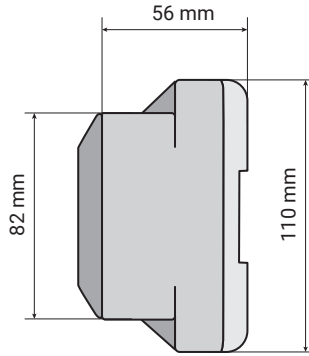
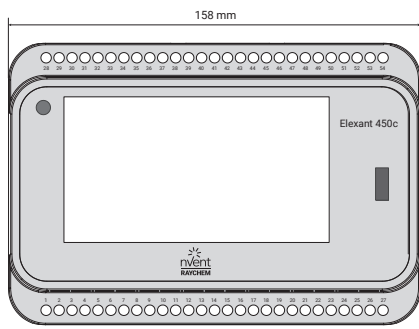
#### ELECTRICAL PROPERTIES

Supply voltage	230 VAC -15/+10%; 50 Hz
Power consumption	4 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 terminals contactor	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 2A/250 VAC
Real time clock	Automatic summer/winter time and leap year connection
Clock back up	10 days
Clock accuracy	+/- 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
Exposure temperature	0°C to +40°C

## 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)
Weight	550 g

## TYPICAL ENCLOSURE DIMENSIONS AND MODULE LAYOUT



1. Touch screen, size 4,3"
2. LED: Flashes green in operation mode

## PROGRAMMING

Selectable Temperature ranges	0°C to +80°C (when used with SM-PT100-2 up to +245°C)
Min and max temperature limit range	-40°C to +85°C (when used with SM-PT100-2 up to +250°C)
Operation modes	Pipe line sensing, Ambient sensing mode (P.A.S.C. Proportional Ambient Temperature Sensor Control); OFF

## SENSOR

	Standard	With SM-PT100-2 Module	
	(included in box)	HARD-78	MONI-PT100-260/2
Temperature sensor type	NTC 2 KOhm / 25°C, 2-wire	PT100	PT100
Sensor tip dimensions	Ø 5 mm, length 20 mm	Ø 6 mm, length 50 mm	Ø 6 mm, length 50 mm
Sensor cable length	5 m	3 m	2 m
Cable extension	Up to 150 m, cross section extension cable: 2 x 1,5 mm <sup>2</sup>	Up to 150 m, 3 x 1,5 mm <sup>2</sup>	Up to 150 m, 3 x 1,5 mm <sup>2</sup>
Temperature range	-40°C to +90°C	-40°C to +150°C	-50°C to +260°C

## MONITORING

Pipe temperature alarm	High temperature alarm	Adjustable range set temperature to 250°C or OFF
	Low temperature alarm	Adjustable range -40°C to 245°C or OFF
Sensor alarm	Sensor open circuit	
	Sensor short circuit	
Parameter input	Each parameter input and event will be logged	

## MEMORY

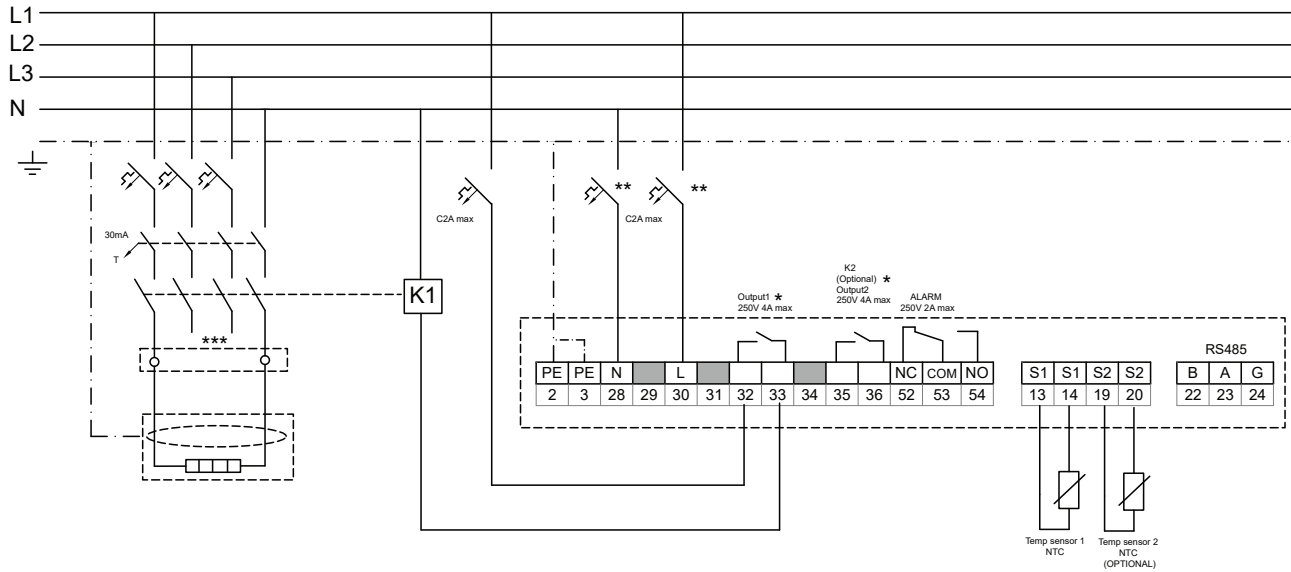
Parameters	All parameters are stored in nonvolatile memory, except date and time
Clock back up	10 days

## APPROVAL

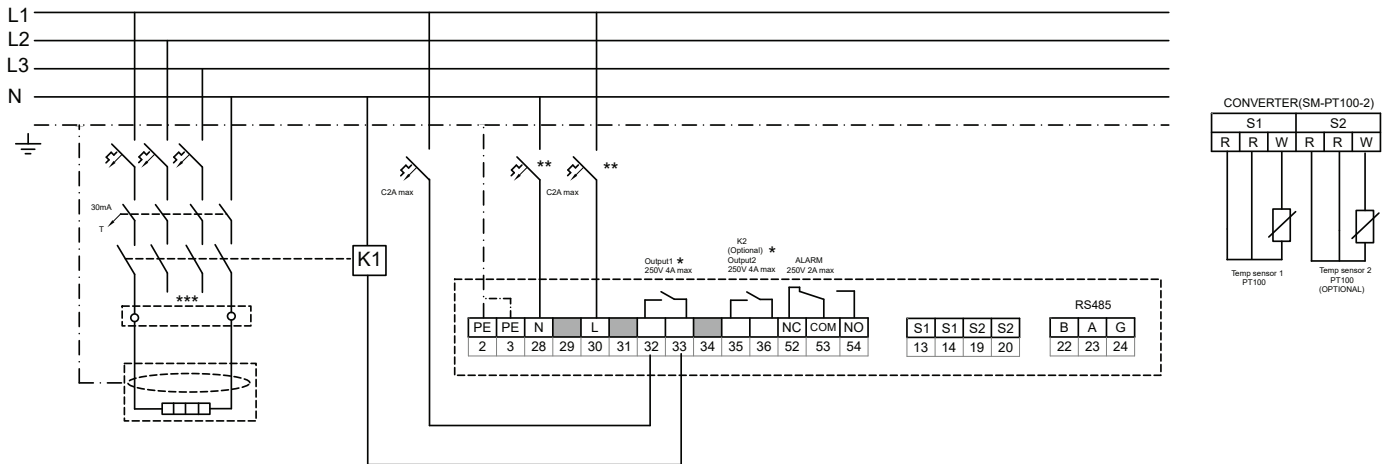
Approvals	CE, VDE (pending), ROHS, WEEE
Electromagnetic Compatibility (EMC)	Complies to EMC: EN 61000-6-3, EN 61000-6-2

## ELECTRICAL SCHEME

### Standard: NTC Sensor



### Option: PT100 Sensor



- \* Output1 and output 2 can be used separately.
- \*\* Electrical protection by circuit breaker may be needed for local circumstances, standards and regulations.
- \*\*\* Depending on the application, one or three-pole circuit breakers or contactors may be used.

## COMMUNICATION (Elexant 450c-Modbus)

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

## ORDERING DETAILS

Catalog description	ELEXANT 450c	ELEXANT 450c-Modbus
Part number	1244-021970	1244-022623
EAN code	5414506021356	5414506022667
Weight	550 g	550 g
In package	1 control unit Din rail, 1 line sensor 5 m	1 control unit DIN rail, 1 line sensor 5 m

## ACCESSORY

Product description	PCN number
SENSOR-NTC-10M (-40°C ... +90°C)	1244-015847
Sensor Module for PT 100 (up to +250°C) SM-PT100-2	1244-022442
PT-100 Sensor HARD-78 (-40°C ... +150°C)	213430-000
PT-100 Sensor MONI-PT100-260/2 (-50°C ... +260°C)	1244-006615
GM-TA-AS NTC-Sensor / Ambient sensor in enclosure	1244-017965
nVent RAYCHEM PB-POWERBANK	1244-020365

**Important:** The nVent RAYCHEM Elexant 450c controller is for use with the nVent RAYCHEM heating cables only. The warranty and system listing will be invalidated if the Elexant 450c controller is used with other heating cables.

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