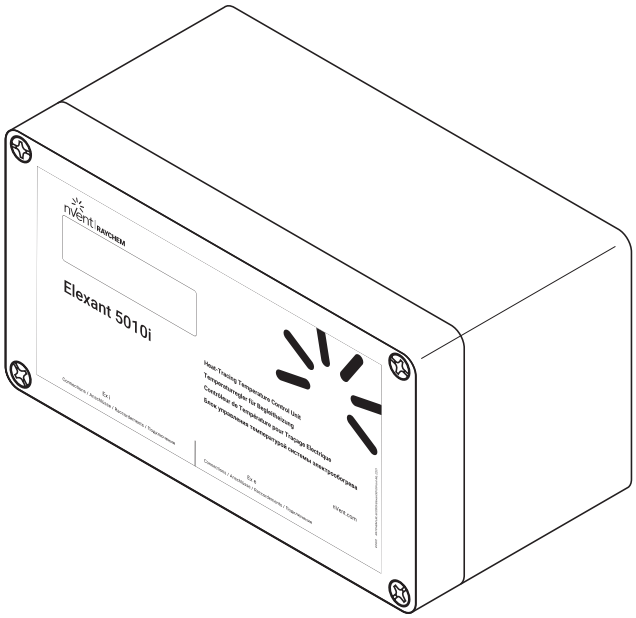
Elexant 5010i and Elexant 5010i-LIM

nVent RAYCHEM

CONNECT AND PROTECT

Field-Mounted electronic heat-tracing control unit

PRODUCT OVERVIEW



The nVent RAYCHEM Elexant 5010i is an electronic heat-tracing control unit featuring the benefits of local control and the capability for central monitoring. Elexant 5010i control unit can be used for single phase circuits up to 25 A and is approved for use in hazardous areas. The Elexant 5010i can provide tight temperature control and is available with an IEC 61508-SIL 2 classified safety temperature limiter on board (Elexant 5010i-LIM). It measures the temperature with up to two RTD (s) connected to the unit. The Safety temperature limiter has a dedicated temperature input.

Control, monitoring and alarm capabilities

The Elexant 5010i offers several different control algorithms including PASC for an optimised electrical heat-tracing control. The Elexant 5010i offers alarms for high and low temperature, high and low current, ground-fault current and voltage. The trip and warning level of the ground-fault current is user configurable and can be used as a warning and to isolate circuits. The Elexant 5010i control unit provides a dry contact relay for alarm annunciation.

Automated heat-tracing system check

To ensure system integrity the Elexant 5010i control unit can be configured to periodically check dormant heating cables for faults. As a consequence maintenance personnel is systematically informed about the status of the heat-tracing system and unexpected and usually expensive downtime of important pipelines can be reduced.

Communications and networking

The Elexant 5010i control unit is equipped with a RS-485 interface. Through this interface up to 247 Elexant 5010i units can be networked to a single nVent RAYCHEM NGC-UIT3-EX/TOUCH 1500 or to one serial port of standard PC running nVent RAYCHEM Supervisor software.

The Elexant 5010i control unit can as well be monitored and/or configured via the wireless handheld device. This device is available for hazardous areas.

Installation

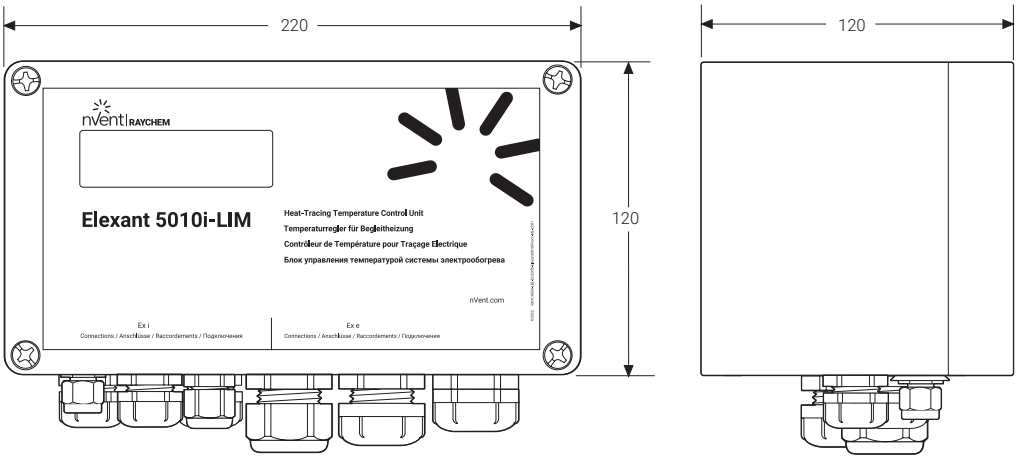
The Elexant 5010i control unit can be installed in the field near the heating application. The Elexant 5010i enclosures are manufactured from high impact-resistant, UV stabilized glass-filled polyester suitable for installation indoors or outdoors. One heating cable can be directly connected to the unit. The units can be mounted on the heated surface via an appropriate support bracket.

Configuration and commissioning

The Elexant 5010i control unit can be commissioned locally by means of a handheld programming device or from a central location using the nVent RAYCHEM NGC-UIT3-EX/TOUCH 1500 or nVent RAYCHEM Supervisor Software. After programming, all settings are permanently stored in the non-volatile memory of the Elexant 5010i control unit, avoiding loss of data in the event of power failure or after a long term power shutdown. The Elexant 5010i control unit allows the heating and power cable to be connected directly to the unit.

PRODUCT SPECIFICATIONS

Dimensions (in mm)



Sample shown is Elexant 5010i-LIM. Gland included in scope of delivery - 1 x M25 x 1,5

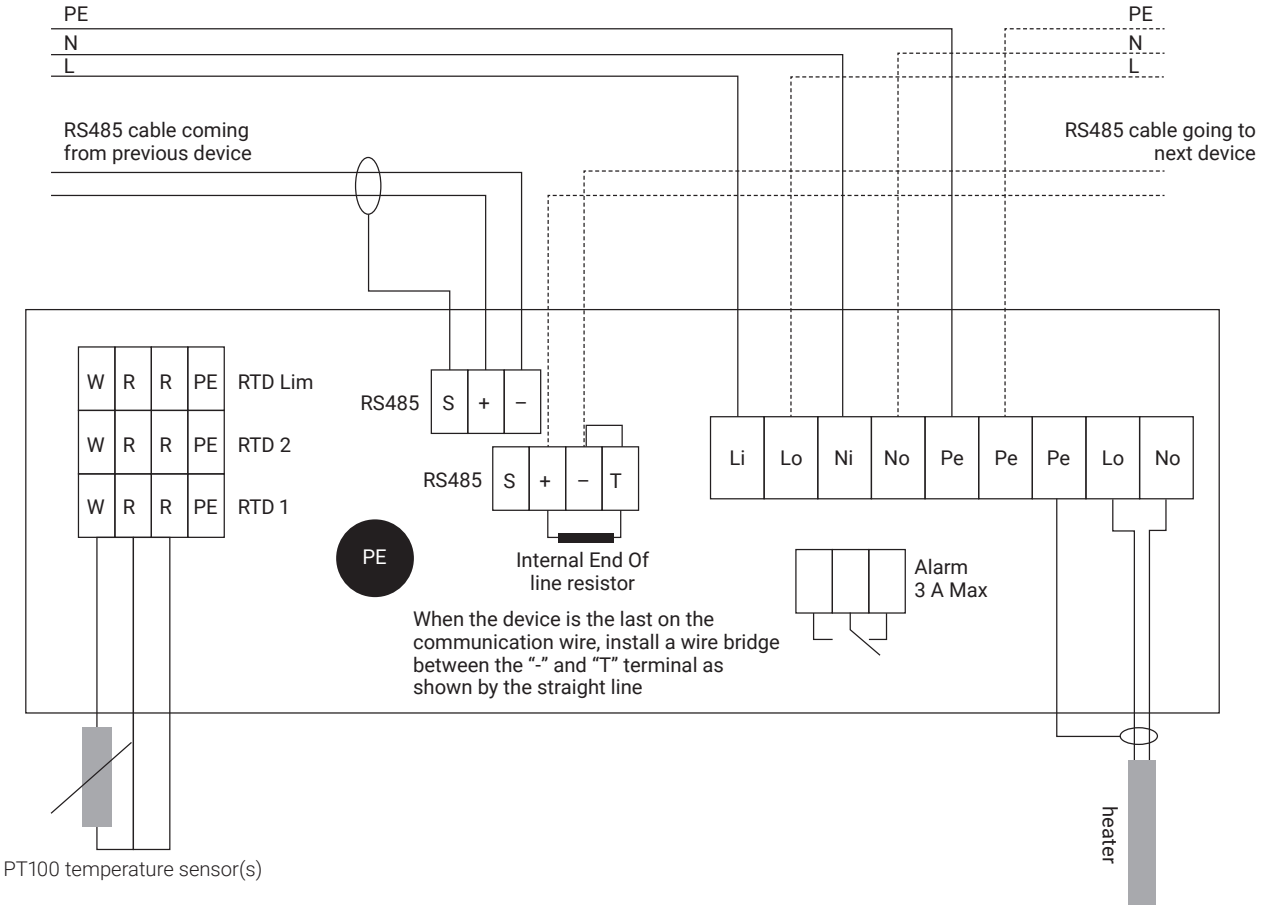
Enclosure

	Elexant 5010i-(LIM) units can be installed directly on the pipe via an appropriate support bracket as long as the maximum permitted ambient temperature is not exceeded. Alternatively, units can be mounted on any stable structure via the moulded holes in the enclosure.
Protection	IP66 per IEC-60529
Material	Glass fibre reinforced enclosure with internal metallic earth plate on the bottom
Entries	1 x M25 gland Ø 8 – 17 mm: power IN/heating cable out 3 x M25 1 x M25 stopping plug: daisy chaining of power 1 x M25 rain plug: daisy chaining of power 3 x M20 Digital communication IN/OUT and alarm (all with stopping plugs) 2 X M16 Temperature sensor(s) 1 with stopping plug one with rain plug
Mounting & installation	Installation on an appropriate support bracket directly on the heated surface up to temperatures of 230°C. When the temperature of the heated surface is above 230°C, install the control unit to a stable structure nearby the application.
Installation position	Any position allowed, typical use with glands facing down

Electrical data

Power supply & own power consumption	100 Vac to 250 Vac +/–10% 50/60 Hz 20 VA max.
Connection terminals	Spring-type
L, N and PE terminals	9 pc (cables with cross section ranging from 0.2 to 6 mm^2)
Alarm output terminals	3 pc (cables with cross section ranging from 0.2 to 2.5 mm^2)
Pt 100 (RTD) terminals	8 pc Elexant 5010i, 12 pc Elexant 5010i-LIM (cables with cross section ranging from 0.2 to 1.5 mm^2)
RS-485 communication	7 pc (0.2 to 1.5 mm^2)
Internal Earth stud for RTD shield	1 pc (Cable cross section max 6 mm^2)
Alarm output relay	Contact rated 250 Vac/3 A Relay output is software programmable to open, close or to toggle in case of alarm
Electrical safety	EN 61010-1, Category III, Pollution degree 2
Vibration & Shock	Shock 1/2 sine wave of 11 ms duration, 15 g Vibration sine wave 10 to 150 Hz (p-p), 2 g

Connection diagram (typical)



Temperature sensors	
Compatible types	100 Ω platinum, 3-wire, α = 0.00385 Ω/°C. Can be extended with a three core shielded or braided cable of maximum 20 Ω lead resistance per conductor.
Quantity	Two RTD inputs for the control unit plus one independent temperature input for the safety limiter. All temperature sensors are permanently monitored for "sensor short", "sensor break".
Communications	
Physical network	RS-485 and Bluetooth
Protocol/topology	Modbus RTU or ASCII. Multi drop/Daisy chain
Cable and maximum length	Shielded twisted pair cable, 0.5 mm^2 (AWG 24) or larger maximum cable length should be no more than 1200 m
Maximum quantity of control units	Max. of 247 units per nVent RAYCHEM NGC-UIT3-EX/TOUCH 1500 or per serial communication port in one network
Network User Interface	TOUCH 1500, NGC-UIT3-EX, Supervisor and Elexant Connect
Environmental	
Ambient operating temperature	From –50°C to +60°C (ATEX, IEC Ex)
Storage temperature	From –55°C to +80°C (ATEX, IEC Ex)
Measuring ranges	
Temperature range control unit	From –200°C to +700°C in steps of 1K
Temperature range limiter	From +50°C to +599°C in steps of 1K (Elexant 5010i-LIM only)
Voltage	From 90 Vac to 305 Vac
Load Current	From 0.1 A to 30 A
Ground-fault current	From 10 mA to 500 mA (RCD/ELCB required due to IEC and/or local regulations)
Heater time alarm	From 1 to 1 x 10^6 hours
Relay cycle alarm	From 0 to 2 x 10^6 cycle

Programming and setting

Method	Through handheld programming device and a wireless Bluetooth connection or via RS485 interface and nVent RAYCHEM Supervisor software or nVent RAYCHEM User Interface
Units of measure	°C or °F, software selectable
Memory	Non-volatile, no loss of parameters after the event of power outage or long term shut down, data holding time ~10 years
LED indicators	Status LEDS are available for: Heater, Alarm, RS-485 communication, Bluetooth communication Heater, Alarm, Limiter Tripped, RS-485 communication and Bluetooth

APPROVALS

For use in ordinary and hazardous area Zone 1 or Zone 2 (Gas) or Zone 21 or Zone 22 (Dust)

Temperature classification

T4

Product certification

* all in progress

More details about product certification, approvals and conditions of safe use are www.nVent.com/RAYCHEM.

Functional safety approval for limiter:

SIL2 IEC 61508

ORDERING INFORMATION

Elexant 5010i control units

Name	Description	Part Number	Weight
Elexant 5010i	Controller	2000002132	2.2 kg
Elexant 5010i-LIM	Controller + Limiter	2000002133	2.3 kg
Elexant 5010i (EAC)	Controller	2000002370	2.2 kg
Elexant 5010i-LIM (EAC)	Controller + Limiter	2000002369	2.3 kg

Temperature sensors

Name	Description	Part Number
MONI-PT100-260/2	Flexible sensor, maximum 260°C, 2 m length	1244-006615
MONI-PT100-260/5	Flexible sensor, maximum 260°C, 5 m length	1244-020817
MONI-PT100-260/10	Flexible sensor, maximum 260°C, 10 m length	1244-020816
MONI-PT100-EXE	Temperature Sensor with MI Cable and Junction Box	967094-000
MONI-PT100-EXE-SENSOR	Temperature Sensor with MI Cable	529022-000
MONI-PT100-EXE-AMB	Ambient Temperature Sensor with Junction box	1244-004451

Support bracket for installation on pipe

Product name	SB-125
Part number & (weight)	1244-06603 (0.5 kg)

Bluetooth enabled handheld programming device with customized nVent RAYCHEM software

Name	Description	Part Number
Tab-EX 02 DZ1	nVent RAYCHEM configuration & monitoring assistant Zone 1	1244-022745
Tab-EX 03 DZ2	nVent RAYCHEM configuration & monitoring assistant Zone 2	1244-022743

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