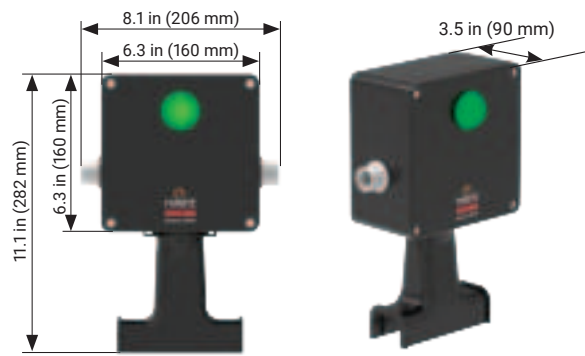


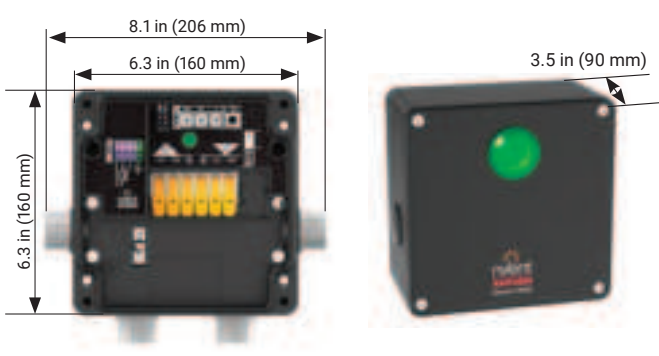
nVent RAYCHEM Elexant 3500i

Installation Instructions

Elexant 3500i enclosure dimensions



Elexant 3500i Pipe Mount Electronic Thermostat



Elexant 3500i Wall Mount Electronic Thermostat

Figure 1: Dimensions Elexant 3500i

Hazardous area approvals

nVent RAYCHEM Elexant 3500i

Class I, Division 2, Group A,B,C,D T4 Type 4X

Class II, Division 2 Group F, G

ENGLISH

Please read all instructional literature carefully and thoroughly before starting. Refer to the inside front cover for the listing of Liabilities and Warranties. NOTICE: The information contained in this document is subject to change without notice. Please read these Operating Instructions before Commissioning the thermostat. Keep the operating instructions in a place which is always accessible to all users. Should any difficulties arise during start-up, you are asked not to carry out any unauthorized manipulations on the instrument as this could affect your warranty rights. Please contact the nearest nVent subsidiary or the head office. If any servicing is required, the instrument must be returned to the head office.

Specific conditions of use

1. Cable entry shall be through rated conduit hubs to maintain the ratings of the enclosure provided.
2. Unused cable entries must be filled with suitable rated conduit plugs maintaining the environmental ratings of the enclosure.
3. Leads connected to the terminals shall be insulated for the appropriate voltage and this insulation shall extend to within 1 mm (1/32") of the metal of the terminal throat.
4. The maximum permitted current of the alarm contacts is 2 A, and the maximum permitted voltage is 277 Vac
5. The earth pillar adjacent to the RTD connectors must be used only for RTD cable screens.
6. The external RTDs must be capable of withstanding a 500 V test to earth.

Area of use

nVent RAYCHEM Elexant 3500i thermostats are used for temperature control of electrical heating cables in industrial environments. Alternatively they can be programmed to act as a temperature limiter. The Elexant 3500i consists of a temperature controller but can alternatively be programmed to act as a temperature limiter. Elexant 3500i electronic modules are approved for use in ordinary and Class I Division 2 Groups A,B,C,D and are required to be installed in an Elexant 3500i enclosure or approved Type 4 enclosure. Elexant 3500i units consisting of an Elexant 3500i electronics module and Elexant 3500i enclosure are approved for use in ordinary and Class I Division 2 Groups A,B,C,D and Class II Division 2 Groups F,G.

Safety instructions

During operation, do not leave this Instruction Manual or other objects inside the enclosure. Use the temperature controller or limiter only for its intended purpose and operate it only in clean, undamaged condition. Do not make any modifications to the temperature controller or limiter that are not expressly mentioned in this Instruction Manual. If the Elexant 3500i is used in a manner not specified by nVent, the protection provided by the equipment may be impaired. Whenever work is done on the temperature controller or limiter, be sure to observe the national safety and electrical code requirements and accident prevention regulations and the safety instructions given in this Instruction Manual.

Description

The Elexant 3500i electronic thermostats are Type 4X rated connection kits. They are designed for use with nVent RAYCHEM industrial heating cables.

When powering mineral insulated (MI) circuits, cold leads must be used, accounting for MI cold lead cable gland size, hub size and power cable size. Power cable gland and hubs for MI cold lead glands are not included.

The kits can be used to connect one or two heating cables to power. The Elexant 3500i power terminals are rated for a single copper conductor up to wire size 25 mm² (4 AWG), or they may accept 2 copper conductors of wire size 6 mm² (10 AWG) in 1 terminal with the use of a twin ferrule.

Note: For two heating cables powered by a single circuit, the length of each heating cable should not exceed the maximum allowable circuit length published in the nVent RAYCHEM self-regulating cables design guide and the total current of all heating cables on the circuit should equal no more than 80% of the circuit breaker current rating. These kits may be installed at temperatures as low as -67°F (-55°C). For easier installation store above freezing until just before installation. For technical support call nVent Technical Support Department at (800) 545-6258.

Technical data




Hazardous area Approval	Class I, Division 2, Group A,B,C,D, T4 Type 4X Class II, Division 2, Group F and G	
Environmental		
Ambient operating temperature	From −55°C to +60°C (T4) (−67°F to +140°F)	
Enclosure		
Protection	Type 4X, IP 66	
Installation position	Any position allowed, typical use with conduit hubs facing down When installing upside down, knock out the drain hole of the pipe-stand	
Electrical data		
Power supply & own power consumption	100 to 277 Vac +/-10%, 47-63 Hz. 15 VA max.	
Maximum Current	 32 A @ 40°C (104°F), de-rated to 24 A @ 50°C (122°F) and further de-rated to 16 A @ 60°C (140°F) (power source protected by listed branch circuit breaker rated maximum 40 A. If applicable, disconnect device shall be installed in compliance with local electrical code.)	
Contact lifetime	>250K operations at 32 A / 277 VAC (resistive load) at 40°C (104°F)	
Alarm output relay	Contact rated  277Vac, 2A, 47-63 Hz, CAT II, type of load is resistive. The 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.	
Ordering information		
Product name	Part Number	UPC number
Elexant 3500i-ST-P-A	2000003757	715629422248
Elexant 3500i-AR-P-A	2000003758	715629422255
Elexant 3500i-C-P-A	2000002626	715629422101
Elexant 3500i-I-P-A	2000003759	715629422262
Elexant 3500i-GF-P-A	2000003760	715629422279
Elexant 3500i-ST-W-A	2000003749	715629422163
Elexant 3500i-AR-W-A	2000003750	715629422170
Elexant 3500i-C-W-A	2000002454	715629422088
Elexant 3500i-I-W-A	2000003751	715629422187
Elexant 3500i-GF-W-A	2000002924	715629422132

Table 1: Elexant 3500i

INSTALLATION

For installation/operation, always observe the Equipment Safety Law, the rules of generally accepted engineering practice (IEC 60079-14 / EN 60079-14), and the instructions stated in this installation manual. Carry out work on the thermostats in the de-energized state only.

! Branch circuit protection and disconnection devices shall be provided a location that is easily reached, and identified as the disconnect device for the equipment in.

Mechanical installation

Elexant 3500i units comprise of either a temperature controller or a safety temperature limiter that can be set via programming. The controllers can be installed in any position on a stable structure by means of the 4 mounting holes. The Elexant 3500i unit can be mounted directly on a pipe up to a pipe temperature of 205°C (401°F). Ensure that the ambient temperature of the equipment does not exceed 60°C (140°F) at any time. To provide sufficient stability, the pipe stand shall be attached by means of 2 pipe straps.

Connecting cables and Conduit hubs to Elexant 3500i units

! At ambient temperatures above 45°C (113°F) the cable selected should have a temperature rating of 90°C (194°F) or higher. Conduit hubs with a temperature rating of 90°C (194°F) or higher and Type 4X should be selected.

! Copper (Cu) conductors shall be used

Installation instructions for Conduit hubs (threaded holes only.) RTD, communications, and alarm relay wiring must be wired through separate conduit hub from high voltage power wiring.

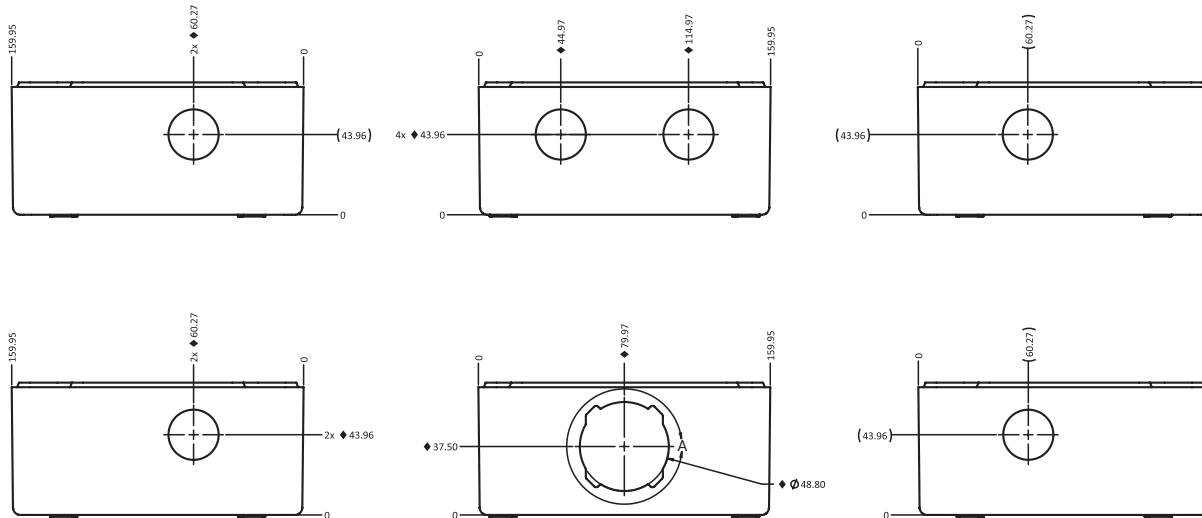


Figure 2: Mounting positions Elexant 3500i

Enclosure Material Limitations	Only use approved conduit hubs, suitably certified for the intended area of use.
Maximum surface roughness of the enclosure wall	Better than 3,2 µm is recommended. Maximum level of surface roughness allowed is Ra 6 µm
Enclosure interface sealing method	If the sealing surfaces are uneven, use PTFE washer NFWM25 or the green fiber washer GFWM25 (Washers are to be ordered separately)
Thickness range for the enclosure wall (t)	≥ 4 mm (5/32")
Perpendicularity	+/-1° or 0,2 mm at the outer edge of the conduit hub, whichever is smaller
Permitted use and location of any earth tags	For metal conduit hubs use an internal locknut to assure earth continuity with the Elexant 3500i internal earth plate. Alternatively, earth tags connected to one of the internal PE terminals can be used.
For chamfered holes	Only parallel threads are allowed.
Lock nuts	Only use nVent RAYCHEM locknuts or types recommended by the conduit hub manufacturer.
Recommended torque values	The installation instructions provided by the conduit hub manufacturers must be followed.



The purchaser should make the manufacturer aware of any external effects or aggressive substances that the equipment may be exposed to.



The cable glands shall only be used for fixed installations, the cables must be fixed to prevent pulling or twisting.

Grounding and bonding (earthing)

Elexant 3500i units must be earthed in accordance with the local wiring regulations.

Electrical installation

Elexant 3500i units must be installed in accordance with local wiring regulations. Figure 3 shows the electrical connection diagram of the Elexant 3500i electronic thermostat. The optional second Pt100 temperature sensor for the control unit is omitted for clarity.

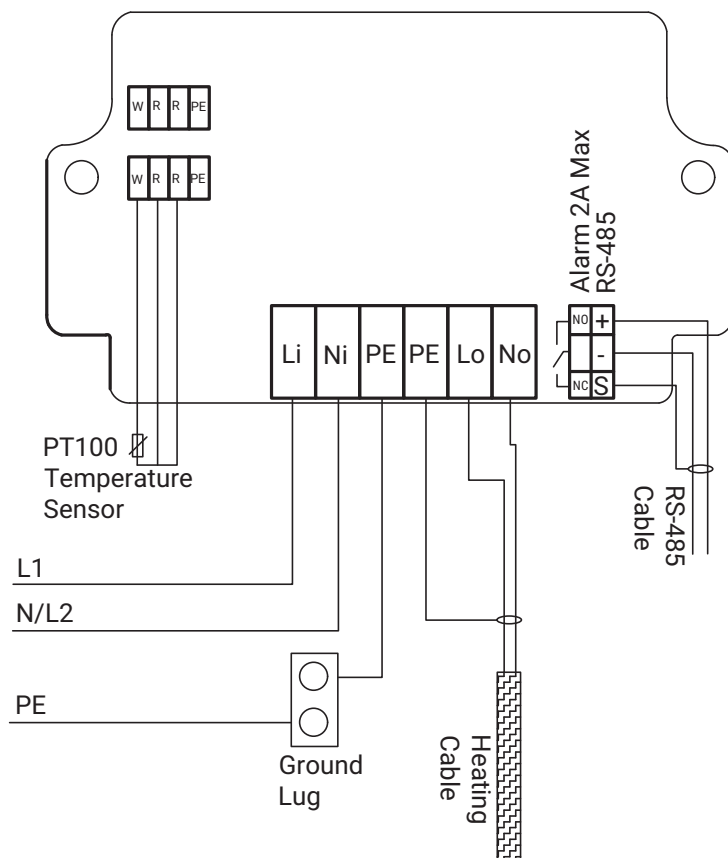
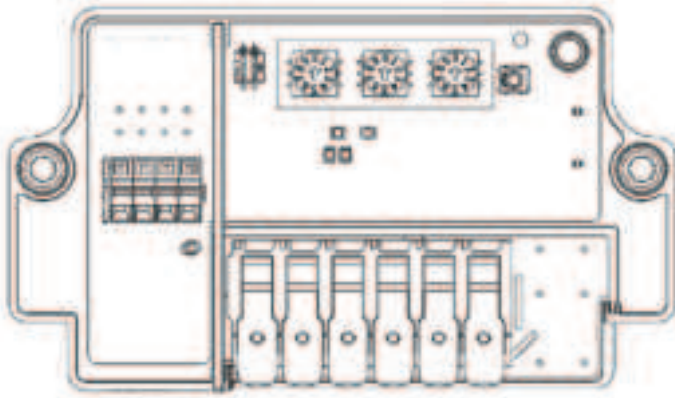


Figure 3: Electrical connection diagram Elexant 3500i

Configuration

The Elexant 3500i electronic thermostats can be configured in a number of ways. The communicating, current sensing, and ground fault detecting variants can be configured locally by means of a handheld programming device using the Elexant Connect application or from a central location using the Touch 1500 or nVent RAYCHEM Supervisor software. For more information about configuring the Elexant 3500i using these software programs, please refer to the Elexant Connect Operations Manual (EU2191), Touch 1500-EX Operations Manual (H58682), or the nVent RAYCHEM Supervisor Operations Manual (H57576). After programming, all settings are permanently stored in the nonvolatile memory of the Elexant 3500i, avoiding loss of data in the event of power failure or after a long-term power shutdown.

The Standard and Alarm variants of the Elexant 3500i can be programmed via the digital switches and rotary dial located here:

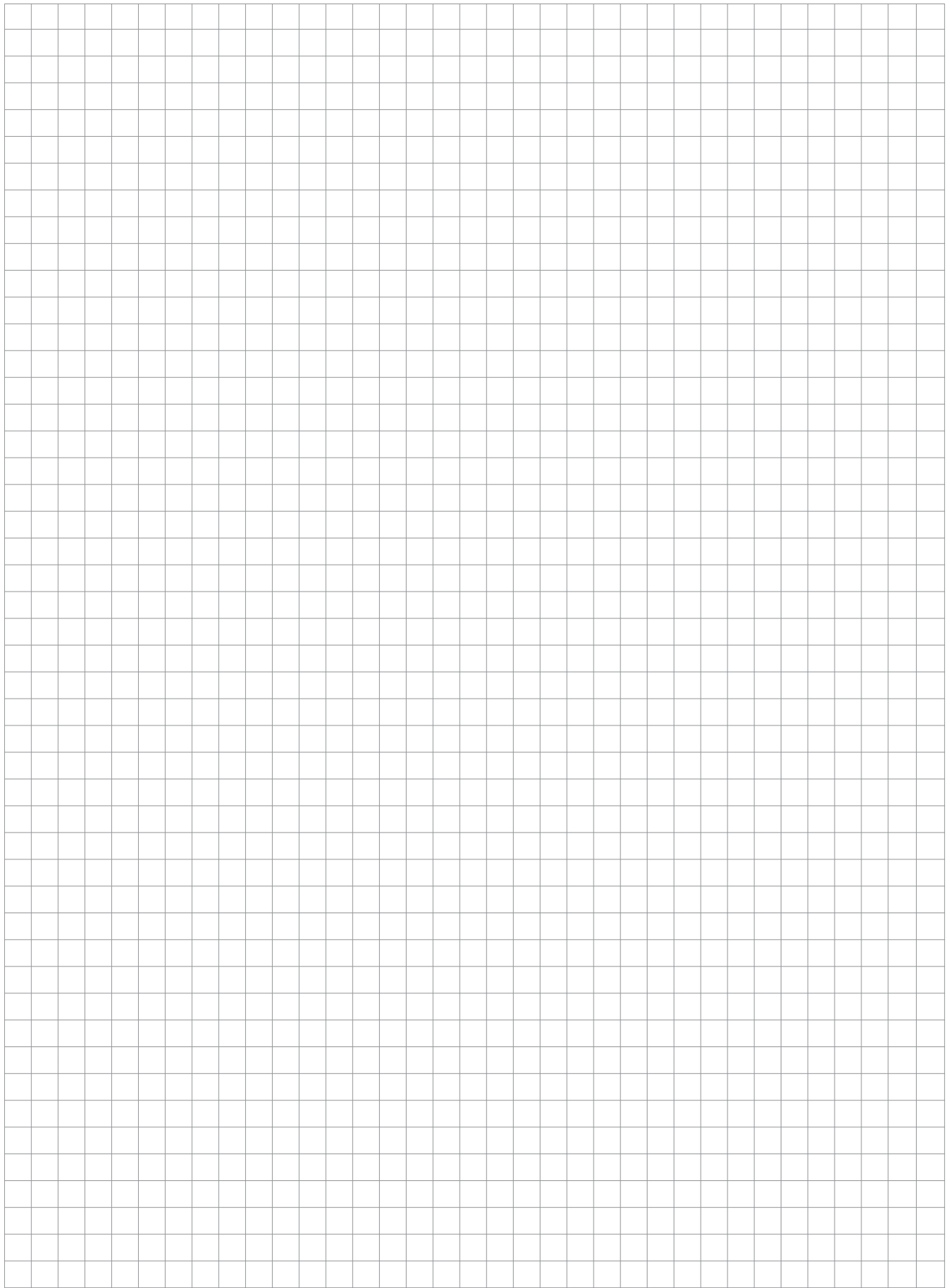


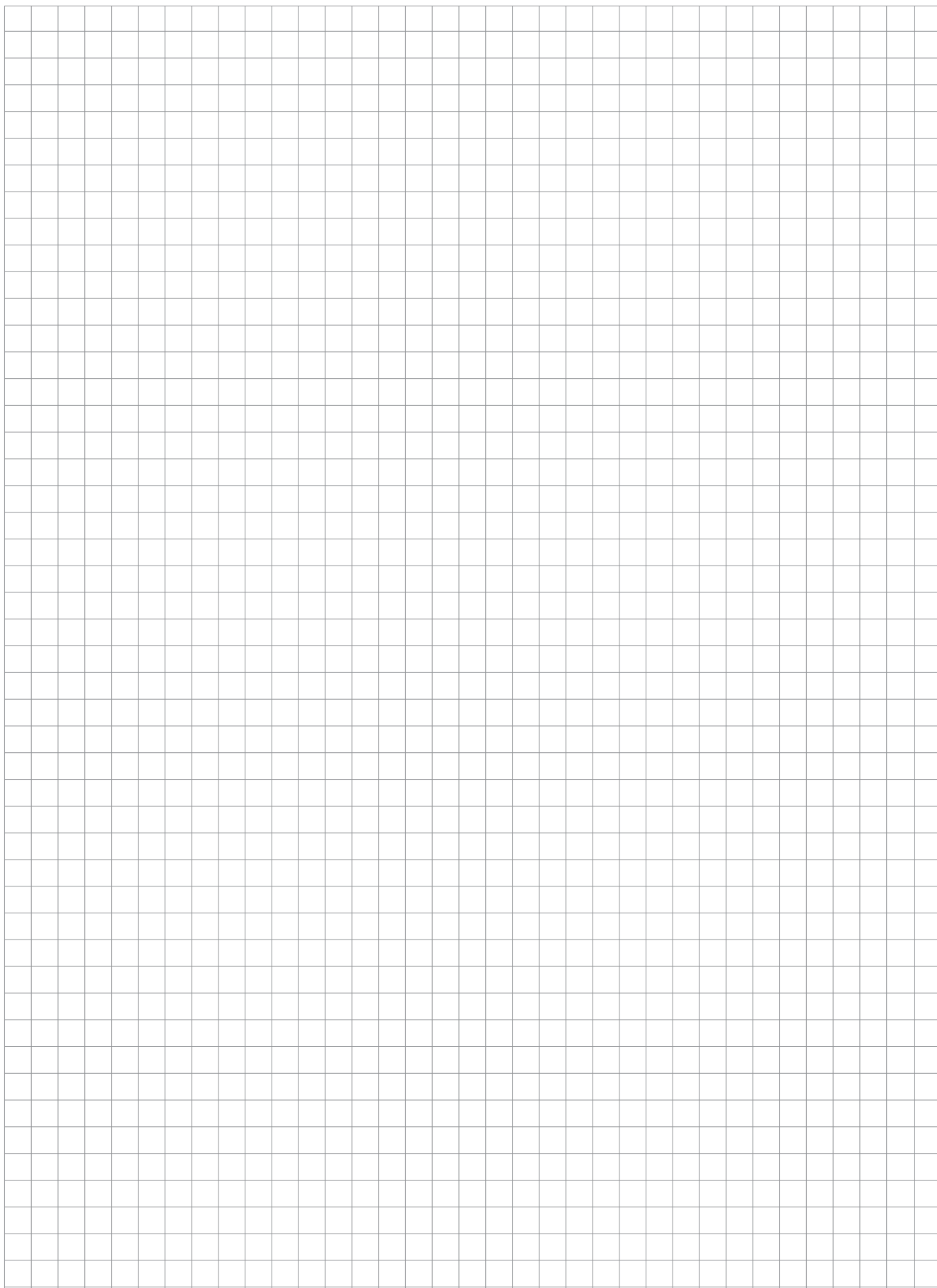
Starting from the left, the first dipswitch is to set temperature sensor failure behavior. In the case of sensor failure the Elexant 3500i can switch to an on or an off state, depending upon the users requirement. Setting the dipswitch up towards the filled circle will program the Elexant 3500i to fail on, while setting the dipswitch down towards the empty circle will program the Elexant 3500i to fail off. By default, the Elexant 3500i is shipped with a fail off setting, meaning in the event of a sensor failure, the Elexant 3500i will not energize the heat trace circuit. Setting the dipswitch up towards the filled circle will program the Elexant 3500i to energize the heat trace circuit in the event of a sensor failure.

Note that the Standard and Alarm variant of the Elexant 3500i will display a sensor failure alarm via a red status LED and the Alarm variant will engage the alarm relay in the event of a sensor failure.

The second dipswitch is used to switch between Celsius and Fahrenheit. By default, the Elexant 3500i is shipped with this dipswitch down towards the Celsius.

Finally the rotary dials are used to select a setpoint temperature. The Elexant 3500i monitors the sensor temperature and compares it to the setpoint temperature. If the measured temperature is above the control temperature setpoint by more than the Deadband value, (by default 3°C / 5°F) the output is turned off. If the control temperature falls below the control temperature setpoint, the output is turned on. When the control sensor temperature is within the dead band, the output does not change its state.





North America

Tel +1.800.545.6258
thermal.info@nVent.com

Europe, Middle East, Africa

Tel +32.16.213.511
thermal.info@nVent.com

Asia Pacific

Tel +86.21.2412.1688
cn.thermal.info@nVent.com

Latin America

Tel +1.713.868.4800
thermal.info@nVent.com



[nVent.com/RAYCHEM](https://www.nVent.com/RAYCHEM)

©2024 nVent. All nVent marks and logos are owned or licensed by nVent Services GmbH or its affiliates. All other trademarks are the property of their respective owners.
nVent reserves the right to change specifications without notice.

RAYCHEM-IM-N00411-SmartThermostat-EN-2407