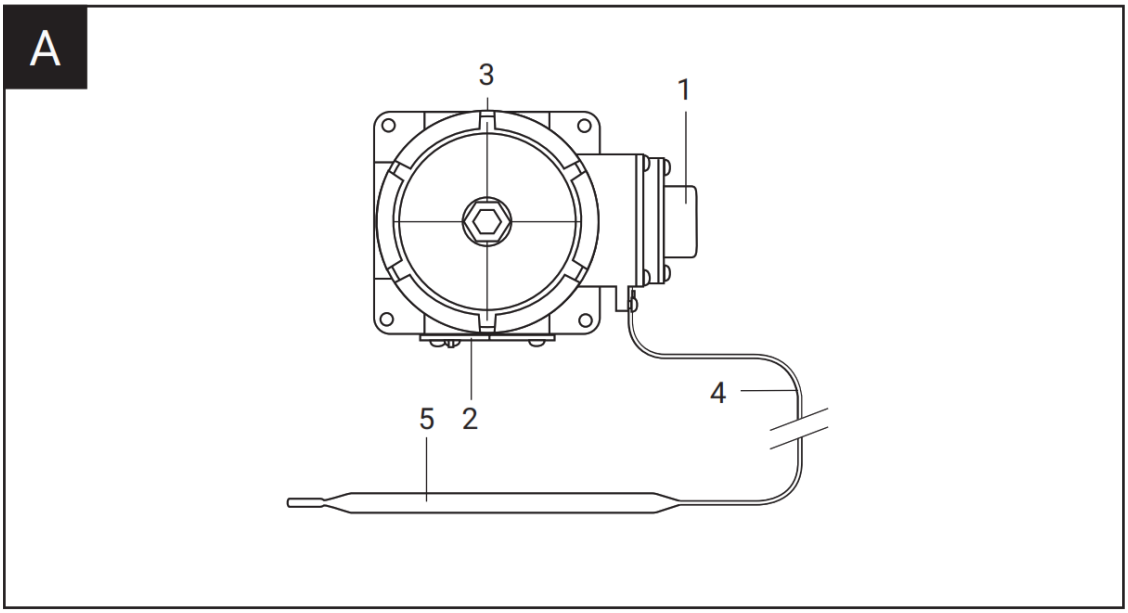
nVent RAYCHEM RAYSTAT-EX-02 Mechanical Thermostat Installation Guide

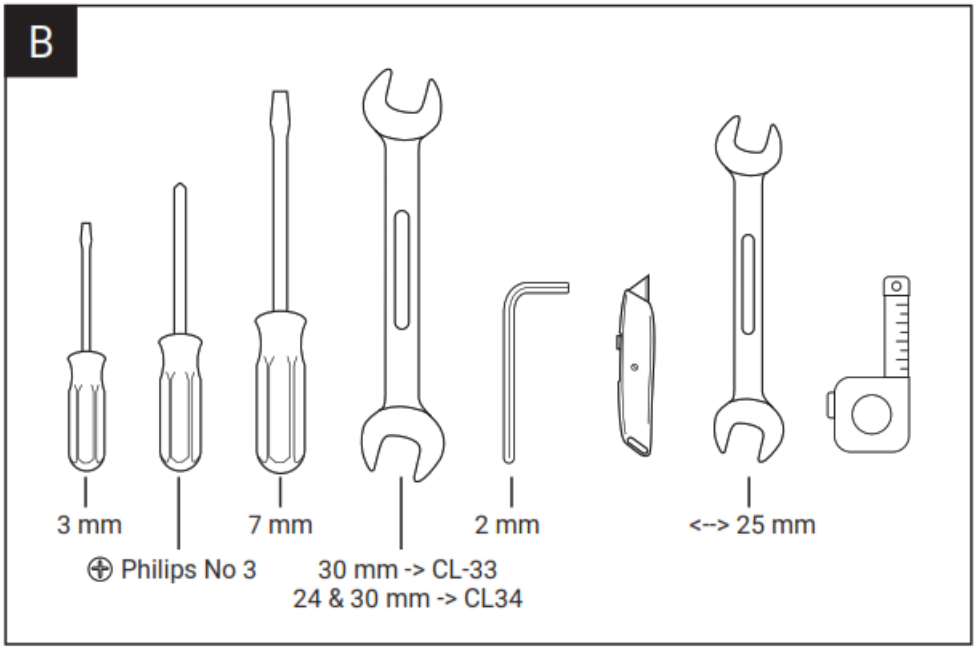
Contents

RAYCHEM
RAYSTAT-EX-02
Installation instructions

RAYSTAT-EX-02 Mechanical Thermostat



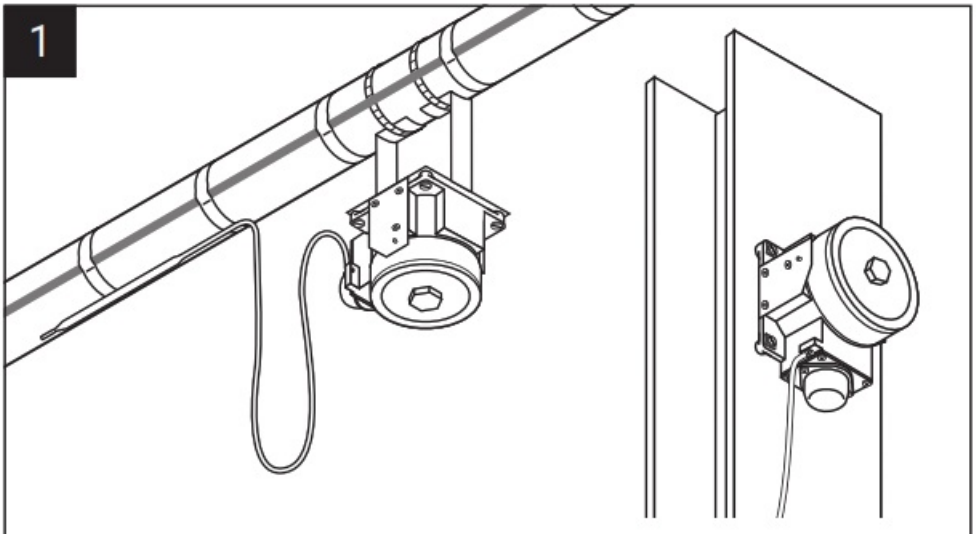
1. Cover over adjustment knob & ddial
2. Lid locking system
3. 3/4 inch NPT entry
4. Capillary
5. Bulb/ Senso



RAYSTAT-EX-02

	LCIE 08 ATEX 6095X II 2 G D Ex db IIC T6 Gb Ex tb IIIC T80°C Db IP66 IECEx LCI 08.0036X Ex db IIC T6 Gb Ex tb IIIC T80°C Db IP66 –40˚C ≤ Ta ≤ +60˚C
EAC Ex	ЕАЭС RU C-BE.АД07.В.04187/22 ООО 1Ex d IIC T6 Gb X Ex tb IIIC T80°C Db X Ta –40°C…+60°C IP65
Segurança INMETRO IEx OCP 0064	N°: IEx 09.0009X Ex db IIC T6 Gb Ex tb IIIC T80°C Db IP66 –40°C ≤ Tamb ≤ +60°C

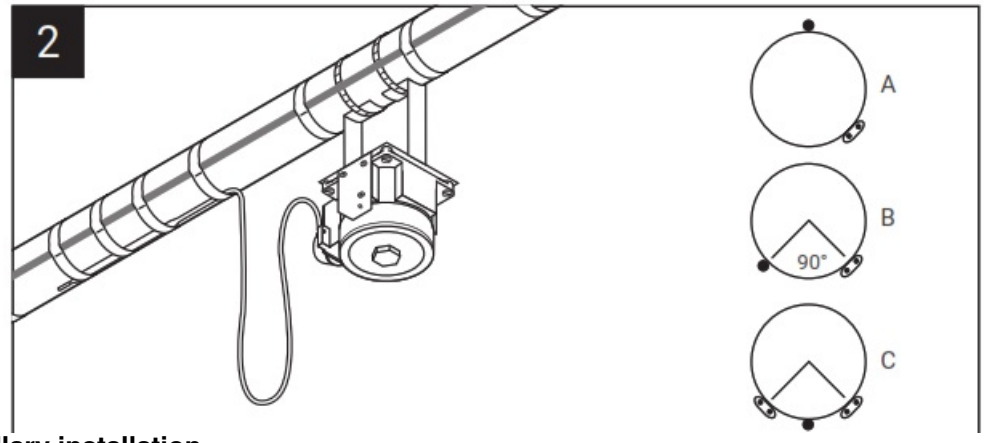
⚠**WARNING:** DO NOT OPEN WHILE ENERGIZED
Only use copper conductors suitable for 90°C
Special conditions for Safe Use:
According to IEC/EN 60079-1 regarding thread maintenance applies: the flamepaths are specified with maximum gaps smaller than those shown in the standard and shall not be enlarged. The manufacturer should be consulted for values if required for mainenance.
This thermostat is suitable for installation where the following are applicable:
Circuit rating < 22 A switching current 480 V
Ta = Ambient Temperature
To complete the heating cable system other components must be selected from the nVent literature.
Follow instructions carefully.
Declaration of conformity
CE 0598
Our products satisfy the requirements of the relevant European Directives.
For cable connection in hazardous area verify that the proper type gland is used!! (IEC /EN 60079-14 §10.4.2 d or e).
Zone 1 or Zone 2, Gas group IIC: use flameproof cable entry devices incorporating compound filled seals around the individual cores or
another suitably certified sealing arrangement.
In all other cases use for armored cable GL-33 and for non-armored power cables GL-34.



Enclosure installation
Alternative mounting arrangements are shown (4 mounting holes M6 clearance on 101.5 x 101.5 mm centres).
For optimised temperature control locate enclosure remote from bulb.
Locate enclosure to avoid exposure to mechanical damage.
Ensure enclosure entries are not directly exposed to water.

Maintenance

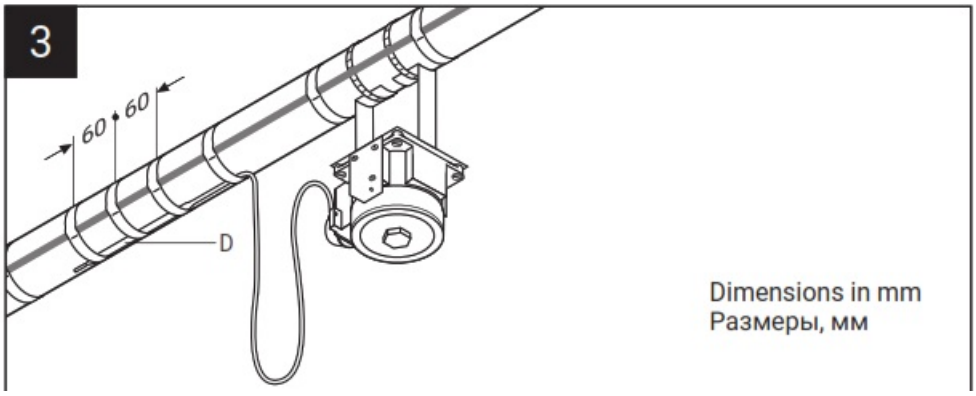
Maintain thermostat during normal plant maintenance.
CHECK:
Mounting is firm.
Exposed capillary is not damaged.
Gland seal (grommet) is in place.
Gland body and nuts are
tightened firmly.
Internal and external terminals are tight.
Thermostat operation correct.
Thermostat set to suit application.
Dial cover closed firmly.
Lid closed firmly.
Lid grub screw is tight.



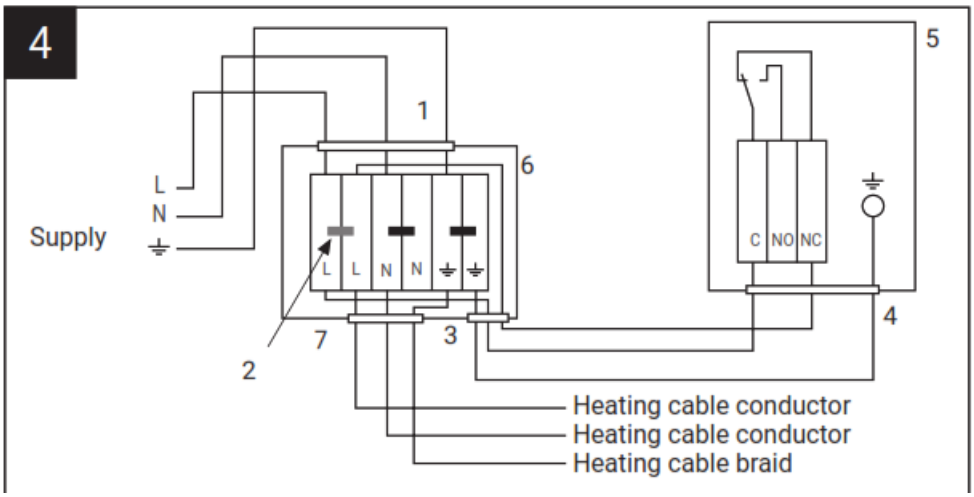
Bulb and capillary installation
Location of bulb

- as indicated in the system design documentation
- away from heat sinks such as valves, flanges, supports or pumps
- at the top of the pipe for thermally sensitive pipe contents (A)

- on lower quadrant of pipe 90° from single heating cable (B)
- on lower quadrant of pipe centrally between heating cables if two or more heating cables (C).



Bulb and capillary installation continued
Attachment of bulb
fix bulb firmly on pipe surface with heating cable fixing tape in three places (D) fix bulb parallel to pipe (D) route capillary to avoid damage in use.
Fix to pipe with tape where appropriate.
WARNING: Do not bend bulb, keep it straight at all times.



Cable connections

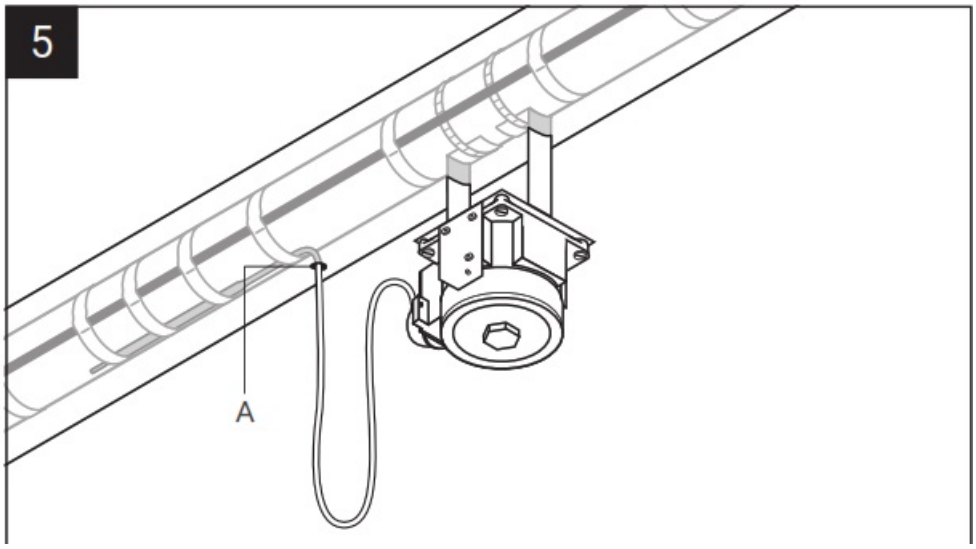
1. Supply cable gland
2. **NOTE:** Live link must be removed by installer
3. Supply cable gland
4. nVent RAYCHEM cable gland
5. RAYSTAT-EX-02
6. Junction box
7. Connection kit

WARNING: Cable glands supplied by others must meet the requirements for the hazardous area and cable construction applicable. Failure to remove any links between live terminals (terminal L above) in the junction box will result in loss of control.
Cable connections continued

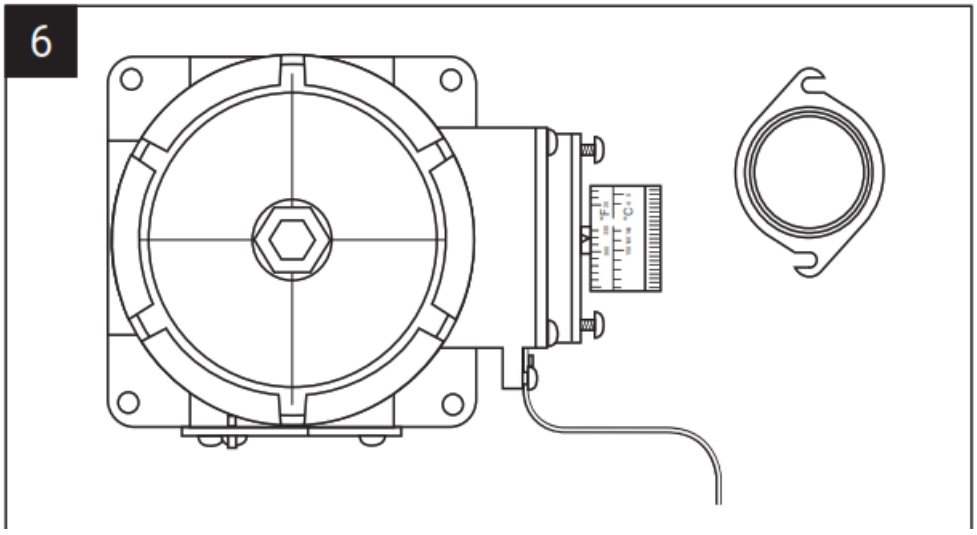
1. Ensure lid retaining grub screw is loose but is retained in plate

2. Remove lid using spanner if necessary
3. Install cable through gland, fix gland in place firmly and terminate cable to required standards
4. Connect cable as shown
5. Ensure lid retaining grub screw remains clear of lid
6. Close lid by hand
7. Tighten lid retaining grub screw
8. Where required connect external earth terminal provided

WARNING: Ensure lid retaining grub screw is tightened fully to meet hazardous area approval requirements.
CHECK: Gland seal (grommet) is in place. Gland body and nuts are tightened firmly.



Complete installation
Ensure the pipe and bulb are thermally insulated and clad to the design specification after installation of thermostat.
Seal cladding with sealant at entry of capillary (A).
When thermostat installation is complete test as described in the Installation & Maintenance manual.
Retain this instruction for future use e.g. setting, testing, maintenance.



Setting
Loosen fixing bolts and remove cover from dial.
Adjust knob to required setting.
Replace cover firmly by tightening fixing bolts.
Thermostat

Area of use	Hazardous area: Zone 1, Zone 2 (Gas), Zone 21, Zone 22 (Dust) Ordinary
Approval certification	LCIE 08 ATEX 6095X II 2 G D Ex db IIC T6 Gb Ex tb IIIC T80°C Db IP66 IECEx LCI 08.0036X Ex d IIC T6 Gb Ex tb IIIC T80°C Db IP66 –40°C ≤ Tanb ≤ 60°C

Enclosure

Body and lid	Lacquer coated cast aluminium with stainless steel fittings and nitrile rubber intern al lid seal
Protection	IP 65 if installed with nVent RAYCHEM cable glands GL-33 or GL-34
Lid fixing	Screw thread lid locked in place by a 2 mm hexagonal key grub screw
Entry	1 x 3/4″ NPT
Ambient operating	– 40°C to +60°C temperature

Temperature sensing

Type	Fluid filled bulb and capillary
Dimensions	Capillary 3 m long, bulb 197 mm x 8 mm
Material	Stainless steel (Type 55316)
Exposure temperature	–50°C to +215°C
Minimum bend radius	DO NOT BEND BULB, 15 mm for capillary
Switching	
Type	Single pole change over volt free contacts (SPDT)
Rating	22 A at 480 VAC, switching (100.000 cycles),
Setting	
Range	–4°C to +163°C
Repeatability	±1.7 K
Differential	5 K
Accuracy (switch on)	±4.5°C at 21°C ambient and 50°C sensor temperature
Method	External knob and dial
Connection terminals	
Supply	3 terminals for 1 to 4 mm2conductors
Internal earth	Single bolt for 1 to 4 mm2conductors
External earth	Single bolt and clamp for 1 to 4 mm2conductors

Mounting method
nVent RAYCHEM support bracket SB-100, SB-101, SB-110, SB-111 or surface mounting with 4 fixing holes (M6) on 101.5 x 101.5 mm centres
Accessories

Power cable gland for armoured cable	GL-33	493217-000
Power cable gland for non-armoured cable (to be ordered separately)	GL-34	931945-000

Ordering details

Part description	RAYSTAT-EX-02
PN (Weight)	404385-000 (1770 g)

RAYCHEM-IM-INSTALL025-RaystatEX02-ML-2204 PCN 865201-000

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Documents / Resources

	nVent RAYCHEM RAYSTAT-EX-02 Mechanical Thermostat [pdf] Installation Guide RAYSTAT-EX-02, RAYSTAT-EX-02 Mechanical Thermostat, Mechanical Thermostat, Thermostat
	nVent RAYCHEM RAYSTAT-EX-02 Mechanical Thermostat [pdf] Instruction Manual RAYSTAT-EX-02 Mechanical Thermostat, RAYSTAT-EX-02, Mechanical Thermostat, Thermostat

References

- Electrical Heat Tracing | Heat Tracing | nVent RAYCHEM