

Electronic Controller for Pipe Freeze Protection and Temperature Maintenance Systems

PRODUCT OVERVIEW



The nVent RAYCHEM RAYSTAT V5 controller is designed for operation with the nVent RAYCHEM self-regulating heating cables.

Features

- Easy set-up and programming of the unit
- Flexible temperature control of pipe freeze protection and temperature maintenance systems
- 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 temperature monitoring with high and low temperature alarm
- Offsite configurable – can be set up prior to final installation
- On wall mountable for outdoor location

GENERAL

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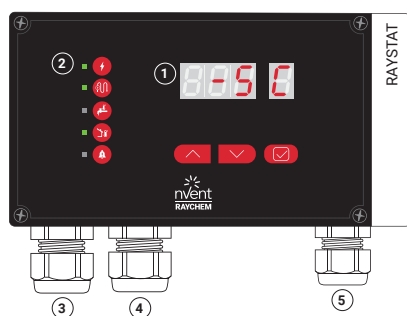
ELECTRICAL PROPERTIES

Supply voltage	180 – 253 VAC 50/60 Hz
Operating temperature	–40°C to +40°C ambient
Power consumption	Max. 3,5 VA
Switching capacity output relay	25 A 230 VAC
Size power supply terminals	3 x 6 mm ² max.
Size heating cable terminals	3 x 6 mm ² max.
Size alarm terminals	3 x 1,5 mm ² max.
Size pipe sensor terminals	2 x 1,5 mm ² max.
Alarm relay	Single pole double throw relay, volt-free; Max. switching capacity (resistive load only) 1 A/30 VDC 0.5 A/125 VAC, Max.: 60 VDC/125 VAC
Keylock	Password protection for parameter settings
USB port	For pre-setup in power off mode; for firmware upgrades

ENCLOSURE

Dimensions	210 mm x 110 mm x 85 mm
Ingress protection class	IP65
Enclosure material	Polycarbonate
Mounting option	On wall; mountable DIN rail 35 mm (included in the package)
Cable entries	2 x M25 and 1 x M20; 2 x M20 pre-punched
Storage temperature	-40°C to +50°C
Flammability class	DIN EN 60730/VDE 0631-1
Weight	990 g

MODULE LAYOUT



1. LED Display
2. LED Green:
 - a - Power to the unit
 - b - Power to the heating cable
 - c - Line sensor connected or
 - d - Ambient sensor connected
 - e - Alarm/Error info
3. M25 Gland: Power cable
4. M25 Gland: Heating cable
5. M20 Gland: Sensor/Sensor pipe/External alarm

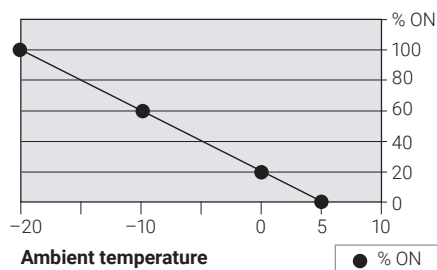
PROGRAMMING

Selectable set temperatures	0°C to +90°C (line sensing) and 0°C to +30°C (ambient sensing); optional 0°C to +250°C (line sensing, when used with SM-PT100-1)
Parameter	Operation modes, high and low temperature alarm, hysteresis

ENERGY SAVING WITH PROPORTIONAL AMBIENT SENSING CONTROL (PASC)

Duty cycle (power to heater on) depends on the ambient temperature. For example:
If minimum temperature= -20°C and if maintain temperature (set point)= +5°C

ambient t°	% ON	
-20	100	Min. Ambient
-10	60	
0	20	
5	0	Set point
Result: At ambient temperature of -5°C, 60% energy is saved		



SENSOR

	Standard (included in box)	With SM-PT100-1 Module	
		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 ²	Up to 150 m, 3 x 1,5 mm ²	
Temperature range	-40°C to +90°C	-40°C to +150°C	-50°C to +260°C

MONITORING

Temperature alarm	High temperature alarm	Adjustable range: maintain temperature to +2°C to +250°C, OFF
	Low temperature alarm	Adjustable range: maintain temperature to -40°C to +245°C, OFF
Sensor alarm	Sensor open circuit Sensor short circuit	
Heating cable connection	Heating cable open circuit	

MEMORY

Parameters	All parameters are stored in nonvolatile memory
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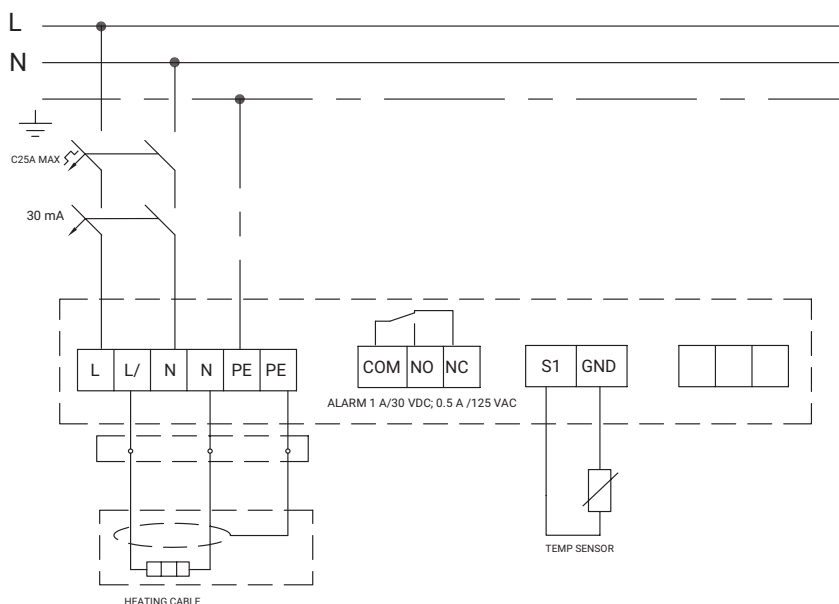
APPROVALS

Approvals	CE, ROHS, WEEE
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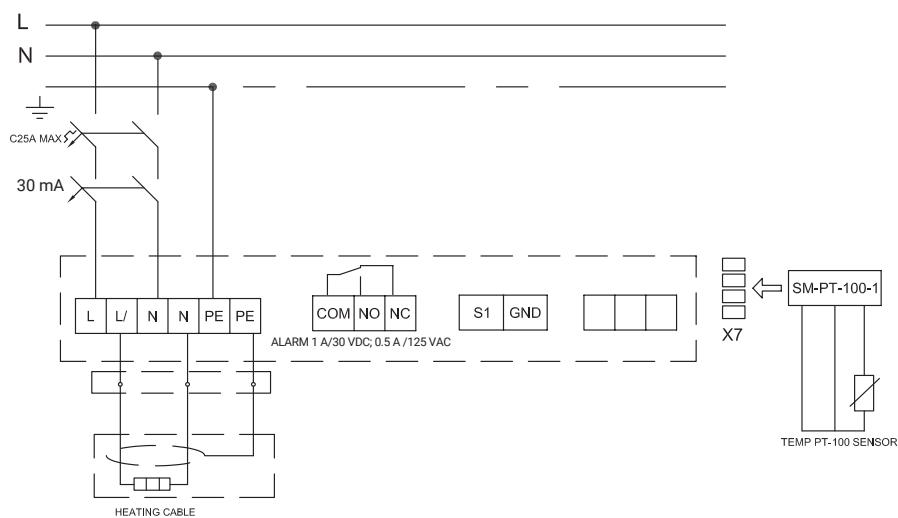
Electromagnetic Compatibility (EMC)	EN 61000-6-1: 2007; EN 61000-6-3:2007 + A1:2011
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ELECTRICAL SCHEME

Standard: NTC Sensor



Option: PT100 Sensor



ORDERING DETAILS

Catalog number	RAYSTAT V5
Part number	1244-022440
Weight	990 g
In package	Control unit, Din-rail, 1 Line sensor

ACCESSORY

Product description	PCN number
SENSOR-NTC-10M (−40°C ... +90°C)	1244-015847
Sensor Module for PT 100 (up to +250°C) SM-PT100-1	1244-022441
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 RAYSTAT controller is for use with the nVent RAYCHEM heating cables only. The warranty and system listing will be invalidated if the RAYSTAT controller is used with other heating cables.

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