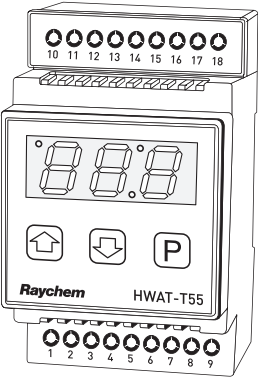
nVent

RAYCHEM

HWAT-T55

EN Operation Manual



EN

PRODUCT DESCRIPTION

The nVent RAYCHEM HWAT-T55 thermostat is designed for RAYCHEM Self regulating cables. The thermostat is equipped with a line sensor and is capable of monitoring and controlling nVent RAYCHEM HWAT-L, M and -R cables for hot water temperature maintenance in small pipe networks or branches up to 50 m. The thermostat ensures maintenance of the desired hot water pipe temperature.

PRODUCT FEATURES

- Temperature control with (pipe) line sensor
- DIN-Rail mountable (35 mm)
- Manual ON/OFF
- Easy-to-read digital display for temperature and alarm
- 3 operation modes –ON/ ECO/ OFF
- 3 Preset-temperatures : 55°C, 50°C, 45°C; for an easy selection by the user, pre-set –temperatures can be modified
- Built-in timer function for ECO mode
- Read-out of actual pipe temperature
- Monitors temperature of hot water pipe. in the event of a sensor failure, the heating system is switched off.
- The HWAT system is controlled and monitored by a pipe (line) sensor.
- VDE approved

INSTALLATION

PRECAUTIONS!

- Electrical installation and Commissioning must be done by authorized personnel.
- Note: Local electrical codes must be adhered to.
- Do not exceed the maximum ratings for this product.

SENSOR EXTENSION:

If you need to extend the sensor cable, use a shielded cable type with one end of the shield connected to a ground terminal near the controller. Don't install the cable in parallel to mains voltage wires. The sum of the wire resistance may not be greater than 7,5 Ohms. After the power has been switched on, the controller will display the actual sensor temperature.

MOUNTING THERMOSTAT AND HEATING CABLE:

HWAT-T55 is intended for mounting in a subpanel of a flat or a building. The thermostat must be connected to 230 VAC, and the heating cable and earth connection need to be connected according to the circuit diagrams. Figure C. If the current load for K1 is greater than 10A, a connection cable with 2.5 mm² diameter must be used.

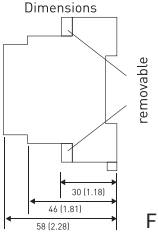


Figure A

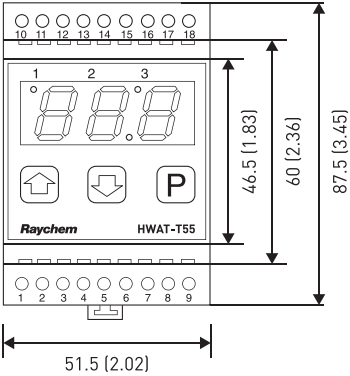


Figure B

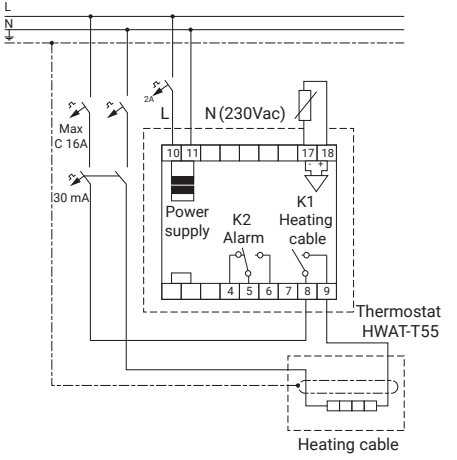
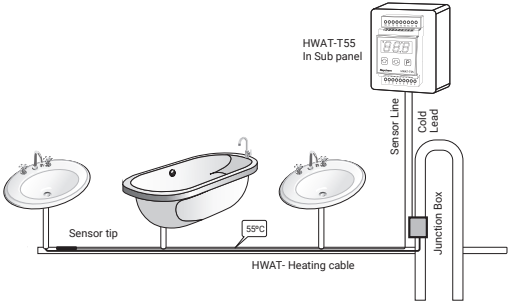


Figure C

SENSOR INSTALLATION:

The NTC line sensor tip will be positioned on the hot water pipe opposite the installed heating cable, if possible close to the tap.



Where the pipework has a "T" section and the pipe splits in 2 directions, the sensor should be installed on the pipe with the lowest usage.

HWAT-T55 thermostat is compatible with the HWAT-L, M, R self-regulating cable.

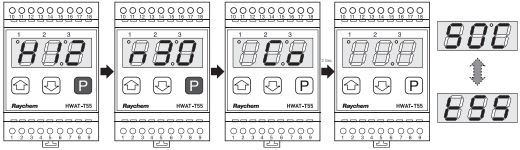
In order to guarantee the life time of the thermostat, the maximum circuit length of heating cable is 50 m.

FUNCTIONAL DESCRIPTION

If the measured temperature drops below the control setpoint (minus hysteresis), the control relay switches the heating pipeline ON. The integrated alarm relay (SPDT contact) displays an error message in case of under temperature, sensor break or short circuit. If malfunctioned, the control relay will automatically switches off.

GETTING STARTED

Step 1 Step 2 Step 3

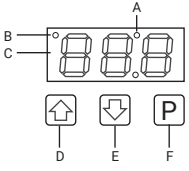


Input hour and press P to continue

Input minute and press P to continue

Display shows real temperature and set temperature alternating

DISPLAY INFO



A-ECO Mode is activated, when blinking

B-Heating system ON

C-LED Display (Temperature and Alarm)

D-Increase value (change of pre-set temperature)

E-Reduce value (change of pre-set temperatures)

F-Programme mode selection ON/ ECO/OFF

SELECTING OPERATION MODE

COMFORT

The thermostat operates continuously. The thermostat keeps the selected maintain temperature of 55°C, 50°C or 45°C as long as the power output of the connected HWAT heating cable is sufficient.

ECO MODE

This mode is developed in order to minimize the energy consumption in times of few or no tap activities, mainly during the night. The Eco Mode reduces the maintain temperature to 50°C for a defined time duration.

Factory settings values :

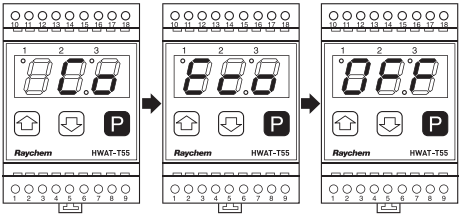
- Eco mode starting time: 23:00
- Eco mode duration: 6 hours

These values can be edited in the parameter settings.

The Eco Mode can be activated at any time but it is only active if the selected maintain temperature is >= 55°C to ensure minimum maintain temperature of 50°C. It will be indicated by a blinking red light.

OFF MODE

The thermostat will switch OFF the heating cable.

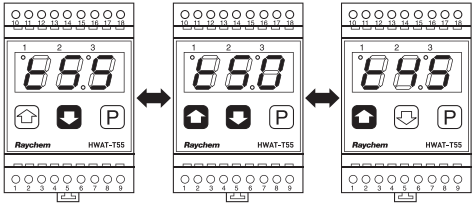


SELECTING MAINTAIN TEMPERATURE

MAINTAIN TEMPERATURE

3 pre-set temperatures to maintain the pipe temperature are implemented in the HWAT-T55 Thermostat: the default settings are 55°C, 50°C, 45°C.

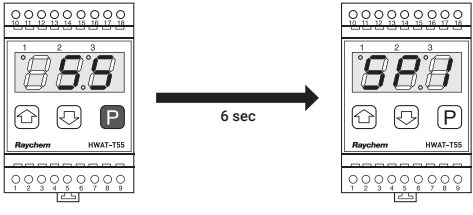
The pre-set temperatures can be changed in the parameter settings .



Values can be changed by pressing arrow button up or down

PARAMETER MODE

The factory settings can be changed in the parameter mode



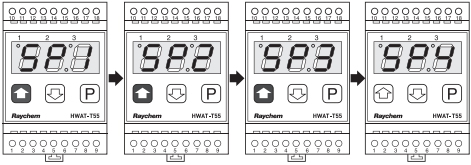
PARAMETER MODE NAVIGATION SET POINTS FOR PARAMETER

SP1 = Eco mode time block

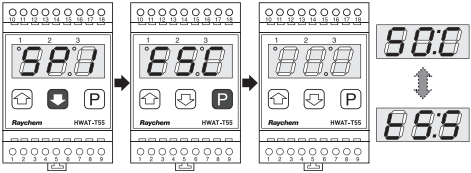
SP2 = Timer

SP3 = Pre-set-temperatures

SP4 = Sensor correction



EXIT FROM PARAMETER MODE IN STANDARD OPERATION MODE



PARAMETER SETTINGS

SP 1 : ECO MODE TIME BLOCK

Start time

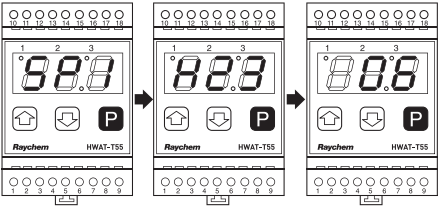
Default value is 23:00

Value input for full hour

Duration

Default value: 6 hours

Value input from 3 up to 8 hours

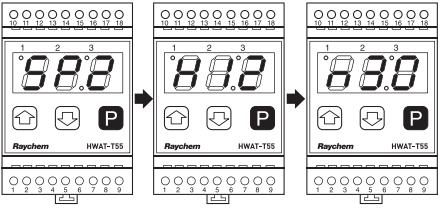


Values can be changed by pressing arrow button up or down

SP 2 : TIMER

Input hour

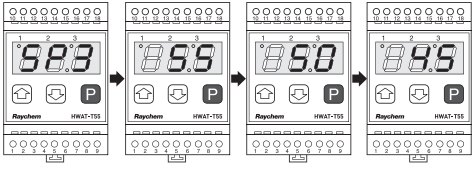
Input minute



Values can be changed by pressing arrow button up or down

SP 3 : PRE-SET-TEMPERATURES

3 pre-set-temperatures can be modified.
Temperature range: 40°C - 60 °C



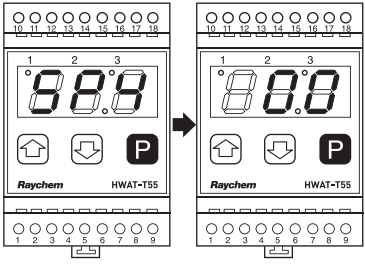
Values can be changed by pressing arrow button up or down

SP 4 : SENSOR PROBE CORRECTION

The sensor probe output readings can be corrected from -10 K to +10 K.

Example:

The real pipe temperature, measured with external thermometer device, is 55°C. The display of the HWAT-T55 shows only 53°C. A sensor correction of +2K is needed.



Values can be changed by pressing arrow button up or down

TROUBLE SHOOTING

Display	Reasons	Remedy
E01 - ERROR 1	Sensor defect	Sensor contacts and sensor resistances need to be checked; 1)
E02 - ERROR 2	Pipe temperature exceeds 66°C	Hot water storage temperature needs to be checked and changed to value below 66°C;
	Measuring temperature 5 K lower than the maintain temperature (after reaching one time)	Hot water storage temperature needs to be checked and changed to value to min. maintain temperature
E03 - ERROR 3	n/a	
E04 -ERROR 4	Device is defect	Replace unit

1) Error eliminating by 6 seconds Press P or interrupt power supply and connect the thermostat again.If the problem still exists, replace the unit.

TECHNICAL DATA

Technical data	
Supply voltage	230 VAC, +10%/–10%, 50 Hz
Relay output heating cable	230 VAC, max 16A
Power consumption	Max. 5VA
Terminal	2,5 mm², screwed
Temperature setting range* *consider local hygienic standard	40- 60°C; default value is 55°C
Ambient temperature range during transportation	–20°C to +50°C
Switching hysteresis	+/–2K
Ambient temperature-range operation	0°C to +40°C
Accuracy	+/- 1,5 K including temperature probe
Rated impulse voltage	4.000 V

Programmable parameter		Factory settings
3 pre-set-temperature	40°- 60°C	55°C, 50°C, 45°C
Time clock	24 hour display; 1 min interval	12:30
Eco mode duration	3 -8 hours	6 (hours)
Eco mode start point	24 hour display; interval per hour	23:00

Housing	
Color:	Black
Housing dimensions	52,5 mm x 87,5mm x 58mm (H/W/D)
Material	ABS
IP protection	IP 20 (IP 30 in panel)
Installation	DIN rail mounted ; 35mm
Minimum installation temperature	5°C
Control pollution degree	2

Temperature sensor		
Type	Line sensor Type 202AT +/-1% NTC 2.0K @ 25°C	
Cable length	10 m (2–wire)	
Probe dimensions	Diameter 5 mm, length 20 mm	
Cable diameter	4 mm	
Exposure temperature	0°C to +70°C	
Accuracy-line sensor	+/–1K	
Sensor resistance	Temperature in °C	Resistance KOhm
	40	1,2110
	45	1,0330
	50	0,8854
	55	0,7620
	60	0,6587
	65	0,5713

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CE; VDE
RoHS & REACH

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