

# INSTRUCTIONS

## REHAU PROGRAMMABLE DIGITAL THERMOSTAT #236487-001

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### Specifications

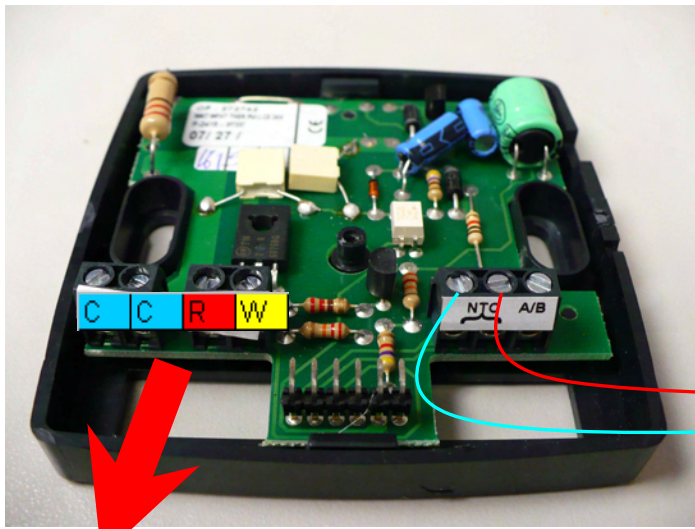
Control	Microprocessor control.
Measured Temperature Precision	0.2° F (0.1° C)
Set Temperature Range	41° F – 99° F by 0.5° F step (5° C – 37° C, 0.5° C step)
Temperature Regulation	Proportional integral regulation (adjustable – see installation menu), Cycle: 15 min. or Static differential 1.8° F (1° C)
Packaged weight	0.26 lb. (97 g), white PVC plastic.
Dimensions	3-1/4" H x 3-1/4" W x 1" D (80 x 80 x 27 mm)
Ambient conditions	Indoor use only, 32 to 122° F (0 to 50° C), < 90%
Electrical Protection	Class II – IP30
Power supply	24 V ± 10% 60 Hz 15 W max.
Output	TRIAC output 24 VC, 15W max (typical – 4 actuators)
Optional Floor Sensor	NTC thermistor, 10 kΩ, 10 foot cable ( 3m). Art. 236497-001
Floor Limiting Temperature Range	50° F – 104° F, ( 10° C – 40° C)



### Overview

This “3-wire” thermostat offers powerful programming capabilities with simple, easy to use menus. There is a “reduced” operating mode which maybe used for nighttime and vacation periods. With the optional floor sensor, this thermostat can regulate either the floor or the room temperature or combined in which case the floor sensor is used as a temperature limiter, either high or low limit.

This thermostat includes numerous programming options which include the ability to exercise the system pump daily for 1 minute. A "Select Mode" switch which allows the user to select a night reduction (automatically reduces the temperature by 7° F ( 4° C)) and defines the thermostat to be operated as a simple on/off switch or with PWM anticipation logic.



Optional Floor Sensor Art. 236497-001

C	C	R	W
24 V com	24V	TT ( power )	TT ( switch )
Blue	24Vc	24V	Brown
24V out C	Th (left)	Th (right)	
24V out C	R	W	
24V out C	T "R" right	T left side	
# of zone	T "R" right	T left side	
24V out C	T "R" right	T left side	

Thermostat C, R and W connections would typically be wired to the REHAU electronic controls (Speed zone, ZoneMaster, ZVC, SR , etc. which would subsequent activate zone valves, pumps and so forth.

260166	Zone Valve Actuator	24Vac power must be provided to Thermostat C /R terminal. 15 watt max output (typical for up to 4 REHAU actuators)
243047	SpeedZone (old) blue box	SpeedZone (old) blue box
243047	SpeedZone (new) grey box (polarity sensitive) R of thermostat must connect to "R" of terminal strip & W to "W"	SpeedZone (new) grey box (polarity sensitive) R of thermostat must connect to "R" of terminal strip & W to "W"
243067 & 077	ZoneMaster 4 & 6 -Zone (polarity sensitive) R of thermostat must connect to RIGHT side of TT	ZoneMaster 4 & 6 -Zone (polarity sensitive) R of thermostat must connect to RIGHT side of TT
281711-001	ZVC-404-EXP (polarity sensitive) R of thermostat must connect to RIGHT side of TT	ZVC-404-EXP (polarity sensitive) R of thermostat must connect to RIGHT side of TT
281721-001	SR-504-EXP (polarity sensitive) R of thermostat must connect to RIGHT side of TT	SR-504-EXP (polarity sensitive) R of thermostat must connect to RIGHT side of TT

## Mounting Location

See the illustration No. 1 below for considering the mounting location. Select a position out of direct sunlight or shade. Select a position that is approximately 5' (1.5m) from the floor.

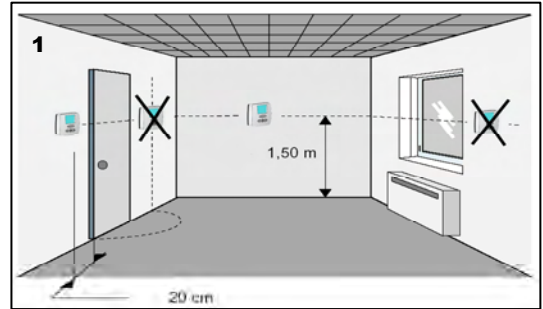


Illustration No. 2 shows the removal of the dial via the #1 Phillips screw.

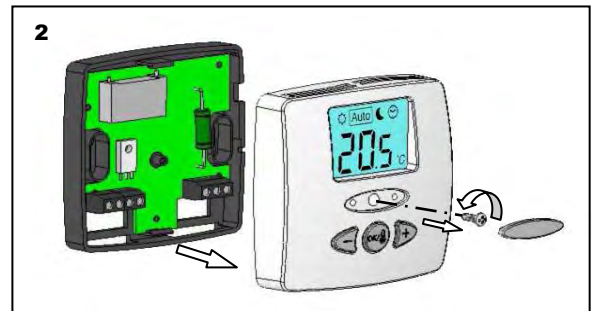
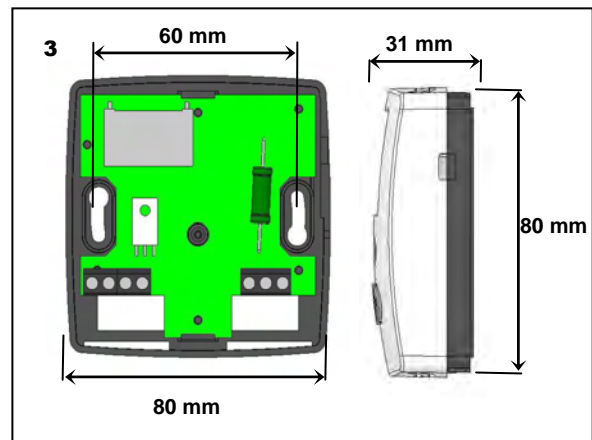





Illustration No. 3 shows the mounting holes for the attaching screws. 2-5/16" (60mm) apart.



## Operating Modes

Push the  button on the thermostat to select the desired operating mode.


**OFF Mode:** In this mode, the thermostat is off and the display goes blank. All program settings are saved. Caution: In this mode the system could freeze.



**COMFORT Mode:** In this mode, the thermostat will continuously maintain the temperature entered. The desired heating temperature is set by pressing the   buttons.

**REDUCED Mode:** In this mode, the thermostat automatically reduces the “set temperature” by 7° F ( 4° C).





**EXTERNAL CLOCK Mode:** In this mode the thermostat will only work according to the “comfort mode”. This is a feature that is for a future application.

## Programming

Press the  button for 5 continuous seconds to enter the programming mode.

Use the   buttons to sequentially select the programming options. The table below identifies all the programming options and their application.

To exit the programming mode, use the   buttons to scroll to “**End**” and press the  button.

Display in upper right Press +/- to move to next item	Option – Press  button to switch between options
JO	°F or °C temperature display selection – Press  to switch between the two options.
J1	Hot or Cold- Hot for heating system or Cold for a cooling system.
Cy	Proportional integral regulation time cycle value in minutes (default = 15 min.)
bp	Proportional integral regulation temperature (default = 3.6° F (2° C)).
J4	Normally Closed (NC) or Normally Open (NO) actuator type- REHAU actuators are NC type. If no actuators are used, set to NC.
J5	Select “PMP” to perform a 1 minute system exercise everyday- if system is inactive in previous 24 hours.
J6	“Air” or “Floor” Priority temperature control – if no floor sensor, control will be air sensor.
J7	“rEG” (PWM, proportional integral) or “HYs”(0.5 °F hysteresis) regulation type selection. Normally one would select rEG for radiant installations with a high thermal mass so that the thermostat reads not only temperature(s) but also the previous heating cycles such that the thermostat is anticipating the load. HYs is a simple on / off thermostat.
Cp	Compensation value in °F/ °C (default 3.6° F (2.0° C) – <b>do not change.</b>
Ao	Air sensor offset adjustment (default = no offset) – Display measured Air sensor value.
Fo	Floor sensor offset adjustment ( default = no offset) – Display measured floor sensor value.
FL	Floor temperature LOW limitation (default = 41°F ( 5°C)), only if floor sensor used.
FH	Floor temperature HIGH limitation (default = 82°F (28°C)) only if floor sensor used.
CLr	Press  key for 5 continuous seconds to return all values to factory default values. These values are in the Celsius scale.
End	Press  key to exit the programming mode and return to the user display.
	Note: default parameters are underlined above.

**Notes:****Room Air Sensing Only Operation (J6)**

When operating without a floor sensor, only the internal thermostat air sensor controls the “call for” heat.

**Room Air Sensing With Floor Lower Limit**

When operating with the optional floor sensor (Art. 236497-001), the thermostat is “reading” both the room air temperature and the floor temperature. The floor sensor will ensure that the floor will never drop below a certain temperature. The range of this temperature is 50° F - 104° F (10° C – 40° C).

**Room Air Sensing With Floor Upper Limit**

When operating with the optional floor sensor (Art. 236497-001), the thermostat is “reading” both the room air temperature and the floor temperature. The floor sensor will ensure that the floor will never rise above a certain temperature. The range of this temperature is 50° F - 104° F (10° C – 40° C).

**Floor Sensing Operation (J6), (FL) and (FH)**

When operating with the optional floor sensor (Art. 236497-001), the floor sensor can completely control the “call for” heat with LOW (FL) and HIGH (FH) temperature limits or when (J6) is set to AIR, the thermostat continuously monitors the room air temperature and looks to the floor also to ensure that it is within the LOW – HIGH limits.

**Note:** Operating with only a slab sensor can lead to either overheating or under heating of the space.

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