REHAU®

Unlimited Polymer Solutions

DUAL SENSING DIGITAL THERMOSTAT

PRODUCT INSTRUCTIONS

SCOPE

This guide gives instruction regarding REHAU Programmable Digital Thermostat installation and operation. Thermostats may only be installed, calibrated and maintained by an appropriately trained installer of radiant systems. The installer should also have a basic understanding of electrical wiring and electronic controls.

Throughout this document, the signal word NOTICE is used to help you avoid property damage. We cannot warn of all hazards; you must also use your own good judgment.

ABOUT PROGRAMMABLE DIGITAL THERMOSTATS

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

This thermostat offers numerous programming options including the ability to:

- Exercise the system pump daily for 1 minute
- Define the thermostat to be operated as a simple on/off switch
- Use proportional integral regulation (PWM) anticipation logic
- Select a night reduction which automatically reduces the temperature by 7°F (4°C)

Components

Each thermostat (Art. No. 236487-002) comes complete with:

- Installation instructions
- Mounting template

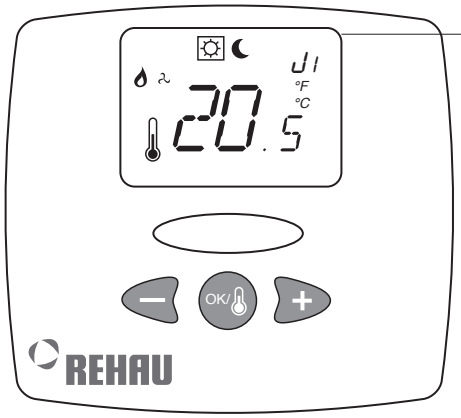
In addition, you will need:

- 10k floor sensor, where applicable
- No.1 Phillips head screw driver
- 1/8 in. flat head screw driver
- Mounting screws (typical for drywall installation)
- Drill
- Pencil
- Level

Table 1: Thermostat Technical Specifications

Control	Microprocessor control
Material	White PVC plastic
Dimensions (H x W x D)	3 1/4 x 3 1/4 x 1 in (80 x 80 x 27 mm)
Measured temperature precision	0.2°F (0.1°C)
Packaged weight	0.26 lb (97 g)
Floor limiting temperature range	50 to 104°F (10 to 40°C)
Temperature regulation	Proportional integral regulation (adjustable – see installation menu) Cycle: 15 min. or static differential 1.8°F (1°C)
Ambient conditions (indoor use only)	32 to 122°F (0 to 50°C), < 90%
Electrical protection class	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 ft (3 m) cable (Art. No. 236497-001)
Wire type	Minimum of three conductor thermostat wires (18-24 AWG); four or eight conductor thermostat wires are recommended

Thermostat Display Features



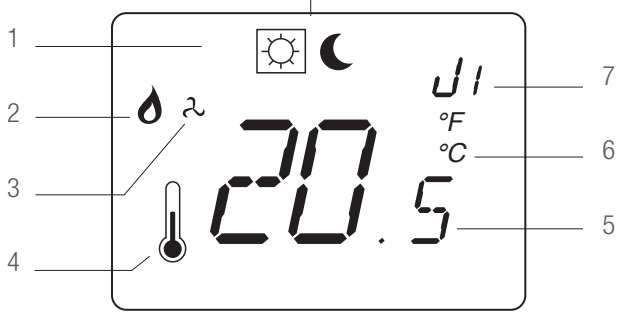


Fig. 1: Thermostat display features

1. Operating mode menu
2. Heating indication
3. Cooling indication
4. If symbol is displayed*, the measured temperature is shown (position 5)
5. Measured temperature or set temperature
6. °C or °F indication
7. Title for installation parameters (J0,CLr…)

*If symbol is flashing, the floor temperature as measured by the optional floor sensor (Art. No. 235497-001) has hit either the upper or lower temperature limit, but the space setpoint temperature has not been achieved. Check the J6 setting. If air temperature measurement is needed, ensure "AIR" is selected and appropriate floor low temperature limit "FL" and floor temperature high limit "FH" setting are chosen. If solely concerned with controlling based on floor temperature, select "FLR" for J6.

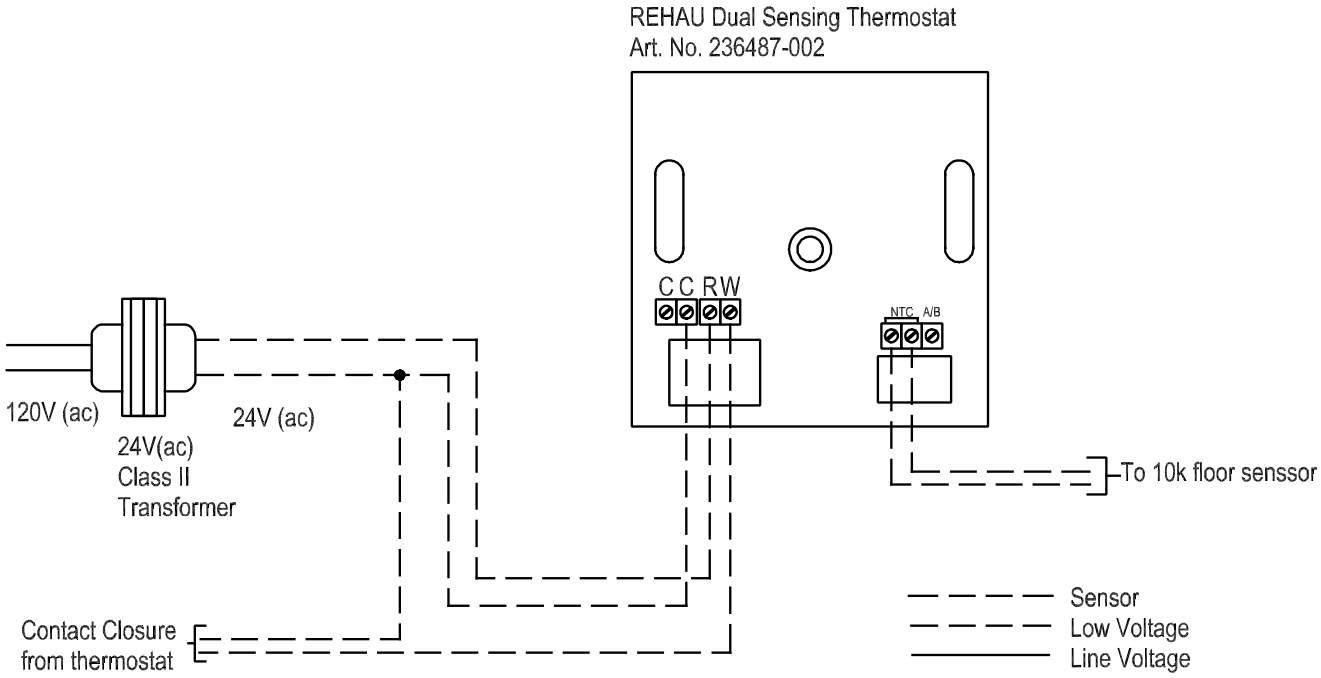


Fig. 2: Wiring diagram for operation without actuator

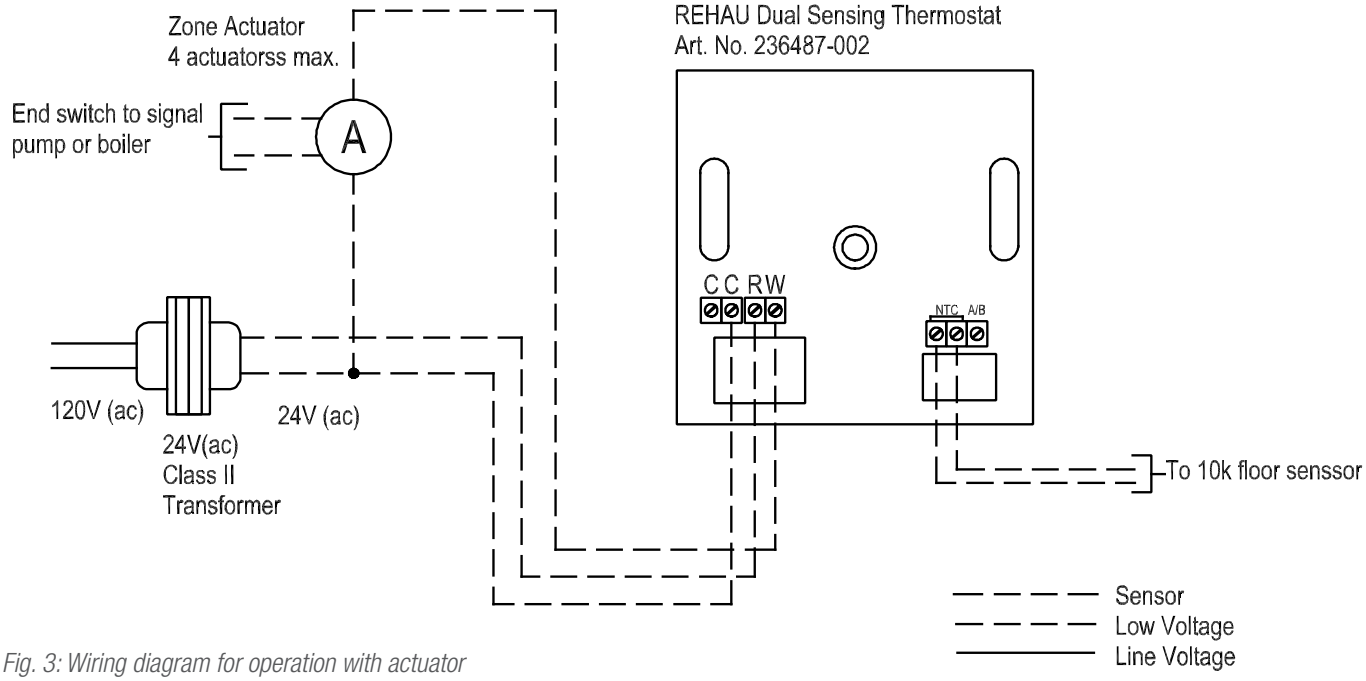


Fig. 3: Wiring diagram for operation with actuator

MOUNTING THE THERMOSTAT

Note: Thermostat must be mounted in the correct location to work properly.

1. Thermostat should be located 1.5 m (5 ft) above the finished floor. The thermostat must be installed on an interior wall. Avoid locations in drafts (e.g., staircases, air outlets), behind doors, in direct sunlight or near other heat sources.

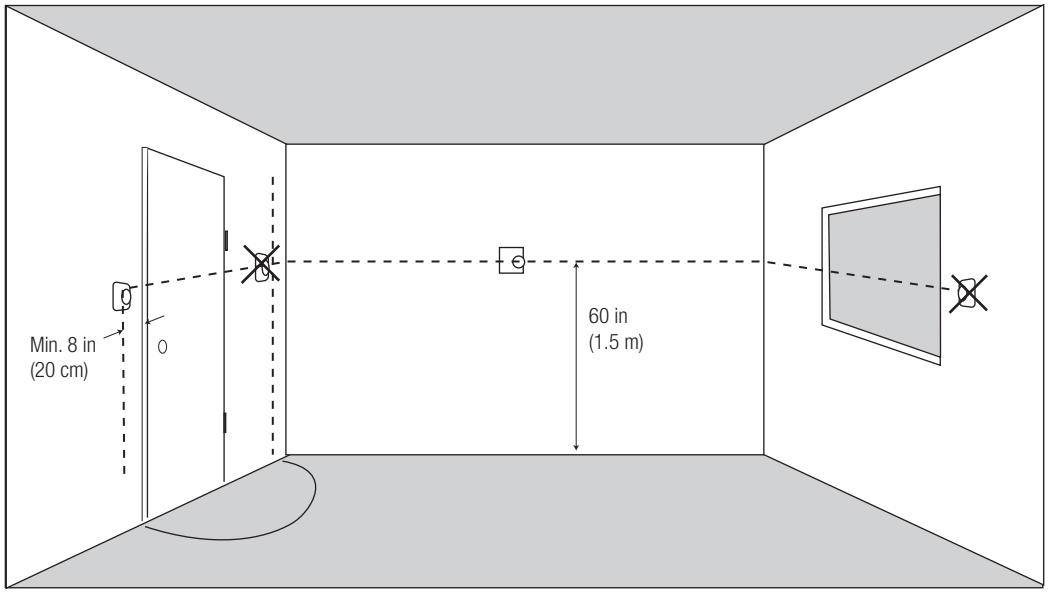


Fig. 4: Locating the thermostat

2. Make sure that wire is installed from control location to the desired thermostat location.

3. Use the mounting template (see Fig. 5) to help position the thermostat and drill the mounting holes.

4. Pull wires through access holes for thermostat wiring and floor sensor wiring (if applicable). Fasten the screws, but do not completely tighten the screws.

⚠ **WARNING:** Turn off all power to the wires before connecting wires to terminals. Failure to turn off power can cause electrocution.

5. Adjust thermostat with a level and tighten the screws.

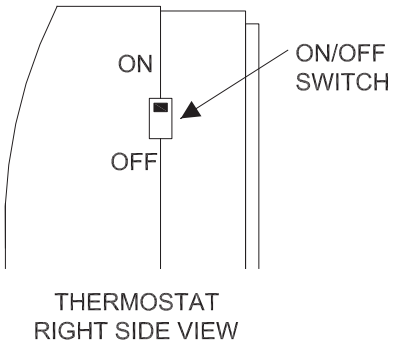
6. Put the cover on the thermostat and secure with Phillips head screw, using a No. 1 Phillips head screw driver.

7. Apply 24V power.

PROGRAMMING THE THERMOSTAT

1. When power is initially applied, the thermostat automatically turns on and displays the current room temperature.

If there is no display shown, turn on the thermostat by moving switch to the "ON" position. Switch is located on the right side of the thermostat.



THERMOSTAT
RIGHT SIDE VIEW

2. Press and hold OK/ for 5 seconds until temperature value and Lo is displayed.

3. Press + and − to toggle through the menu.

4. Press OK/ to edit the parameter and change values with + and − .

   Press OK/ to validate.

   The parameters will be shown in upper right corner of the display.

Table 2: Programming Parameters

Parameter	Description of Parameter	Default Setting	Adjustment / Choice
End	To exit installer menu	Press << OK Key >> once	
Ud	Select temperature units	°F	°C
UI	Mode of operation	<< Hot >> Heating mode	<< Cld >> Cooling mode
U4	Type of output for contact closure	<< NC >> Normally closed	<< NO >> Normally opened
U5	Pump exercising	<< NO >> No exercising	<< Pnp >> To exercise the pump if the pump has not worked on a particular day. Operation time of pump is one minute.
U6	Select sensor for operation	<< Air >> Room sensor only or room sensor with floor limitation if optional external 10K sensor is used.	<< Flr >> External 10K sensor is used, without floor limitation
Ad	Calibration of the internal sensor. The calibration must be done after 15 minutes working with the same setting temperature. Check room temperature with a thermometer and enter the real value.	<< no >>	Sensor value adjustable from -9 to 9°F (-5 to 5°C)
Fd	Calibration of external sensor (if connected). The calibration must be done same as above.	<< no >>	Sensor value adjustable from -9 to 9°F (-5 to 5°C)
FL	Lower limit of the floor temperature. Only effective if the external sensor is connected and selected.	<< 5°C / 41°F >>	Suggested Adjustable from 41 to 98.6°F (5 to 37°C) Max. set value may be limited by parameter FH
FH	Upper limit of the floor temperature. Only effective if the external sensor is connected and selected.	<< 28.5°C / 83°F >>	Suggested 85°F (30°C) Adjustable from 41 to 98.6°F (5 to 37°C) Min. set value may be limited by parameter FL
Un	Selection of regulation type	<< rEg >> Proportional band	<< HYs >> Static differential of 0.3°C
Cy	Proportional integral regulation (PWM) time cycle value in minutes	<< 15 >> Slow system adapted to each heating type	Heating application: Burner oil << 10 >> Burner gas << 10 >> Heat pump << 20 >>
On	Minimal starting time in minutes	<< 02 >>	Adjustable 00 to parameter Cy value divided by 2
OFF	Minimal resting time in minutes	<< 02 >>	Adjustable 00 to parameter Cy value divided by 2
bP	Value of the proportional band (PWM) in °C	<< 2.0°C / 3.6°F >>	Adjustable 0.1 to 12.7°F (0.1to 12.7°C) Suggest well insulated house <<15°C>> Suggest non-well insulated house <<4C>>
CP	Value of the compensation in °C. This value can be increased if the thermostat is perturbed by external perturbations i.e. near to the heating elements.	<< 0.0°C / 0.0°F >>	Adjustable 0.1 to 12.7°F (0.1 to 12.7°C)
CLr	Reset the thermostat to factory settings	Press and hold <<< OK Key >>> for 5 seconds	

Table 3: Room Air and Floor Sensing Options

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 41 to 98.6°F (5 to 37°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 41 to 98.6°F (5 to 37°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. If (J6) is set to AIR, the thermostat continually monitors the room air temperature while also ensuring that the floor remains within the LOW and HIGH limits. (HIGH).

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

END USER INSTRUCTIONS

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

COMFORT Mode

In this mode, the thermostat will continually maintain the temperature entered.
When the sun is blinking, the desired heating temperature is set by pressing buttons and after a few seconds, the display switches back to the measured temperature, denoted by the  symbol.

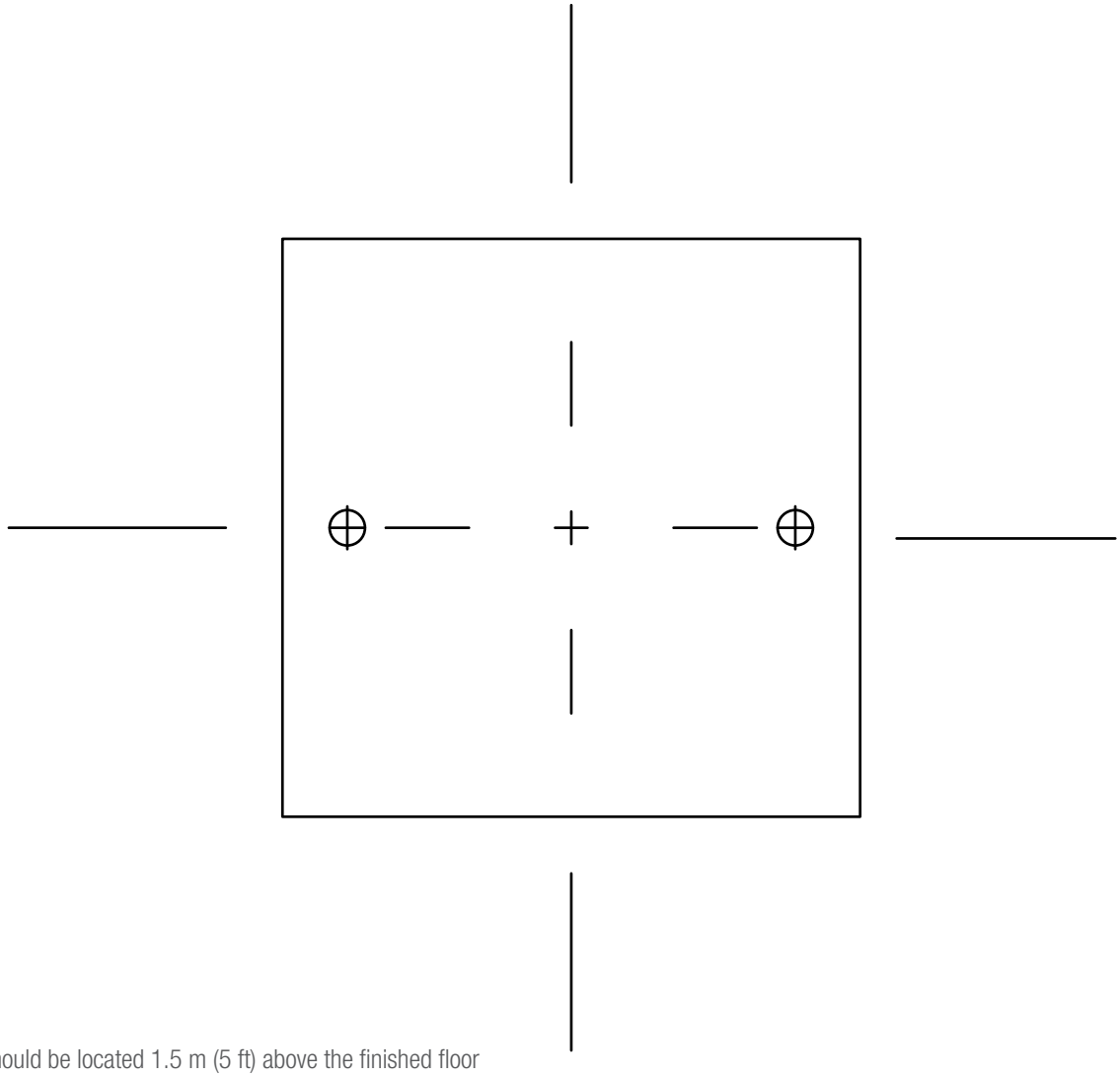
REDUCED Mode

In this mode, the thermostat automatically reduces the “set temperature” to your adjusted setback temperature. After a few seconds, the display switches back to the measured temperature, denoted by the  symbol.

APPENDIX

MOUNTING TEMPLATE

Clip page and use as mounting template



Thermostat should be located 1.5 m (5 ft) above the finished floor

For updates to this publication, visit **na.rehau.com/resourcecenter**

www.rehau.com
rehau.mailbox@rehau.com

855.676 01.2018