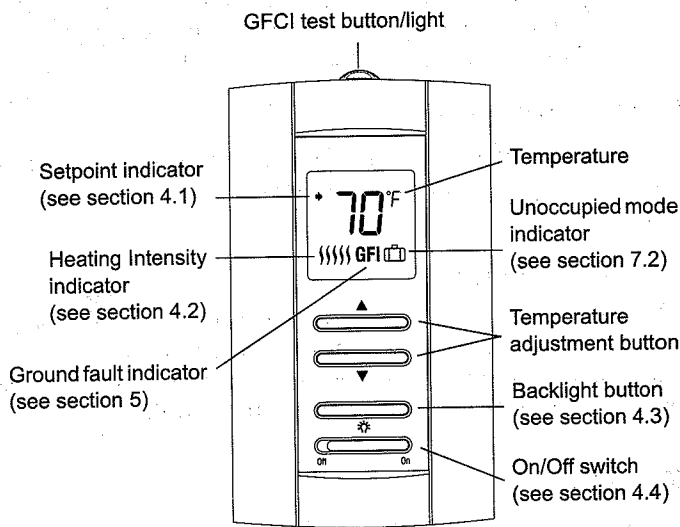# Nuheat

❶ Description

The Tempo thermostat is designed to control the temperature of a floor heating system for both 120-volt and 240-volt applications. The thermostat can be used to control either the floor temperature or the ambient temperature. It has a maximum load capacity of 15 A (1800 W @ 120 VAC or 3600 W @ 240 VAC).

GFCI test button/light

Setpoint indicator (see section 4.1)

Heating Intensity indicator (see section 4.2)

Ground fault indicator (see section 5)

Temperature

Unoccupied mode indicator (see section 7.2)

Temperature adjustment button

Backlight button (see section 4.3)

On/Off switch (see section 4.4)

SUPPLIED PARTS
* One (1) thermostat
* One (1) floor temperature sensor
* Four (4) solderless connectors
* Two (2) 6-32 mounting screws
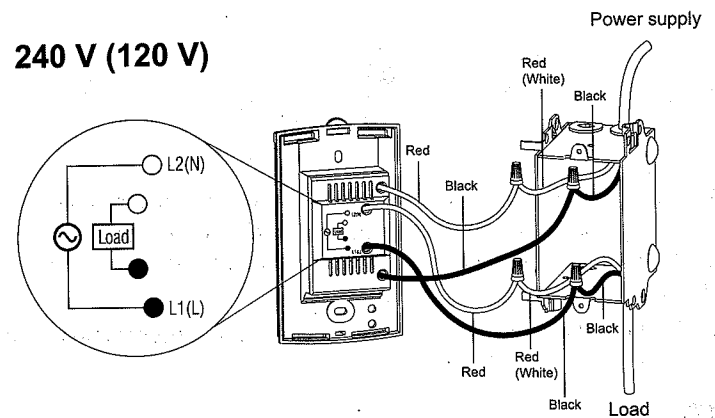* One (1) flat-tip screwdriver

❷ Installation

TURN OFF POWER TO THE HEATING SYSTEM AT THE MAIN POWER PANEL TO AVOID ELECTRICAL SHOCK. THE INSTALLATION MUST BE PERFORMED BY A QUALIFIED ELECTRICIAN.

The thermostat's housing is not watertight. Do NOT install the thermostat in an area where it can be exposed to water or rain.

❶ To remove the thermostat faceplate, loosen the screw at the bottom of the thermostat and lift the bottom of the faceplate outwards towards you.
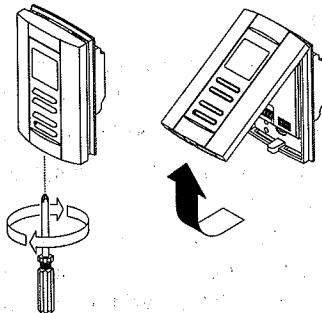

❷ Connect the thermostat wires to the power supply and to the load using solderless connectors for copper wires as shown below.

240 V (120 V)

Power supply

Red (White)
Black
Red
Black
Black
Red
Red (White)
Black   Load

L2(N)
Load
L1(L)

NOTE: *All wires and connections must conform to the local electrical code. This thermostat has tinned copper wires for line and load connections. Special CO/ALR solderless connectors must be used if these wires are to be connected to aluminium conductors.*

❸ Pull the temperature sensor wires through one of the openings on the thermostat base and connect the wires to terminals 1 and 2 (no polarity).
* The sensor cable must not come in contact with the electrical wires and must be routed outside the electrical box and follow the wall down to the floor.
* Position the sensor cable such that it does not come in contact with the floor heating wires. The sensor must be centered between two floor heating wires for best temperature control.
* Do NOT staple the sensor head (the plastic end) to the floor. Doing so might damage the sensor. Any damages might not be noticeable during testing but can become apparent several days later.

FLOOR SENSOR
ECHO INPUT

Floor sensor

To remote control device (see section 7.2)
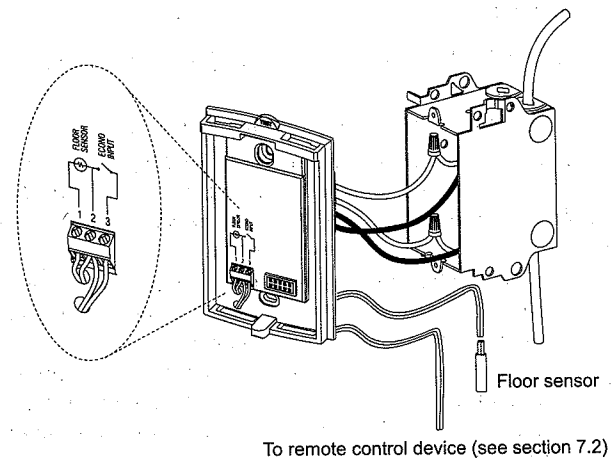
❹ Push the excess length of the line voltage wires back inside the electrical box. Install the thermostat base onto the electrical box using the provided screws.

❺ Set the DIP switches (refer to section 3).

❻ Reinstall the thermostat faceplate on its base and secure it with the screw. If there is a sticker on the screen, peel it off.


Faceplate   Air vents

Air vents

Power base
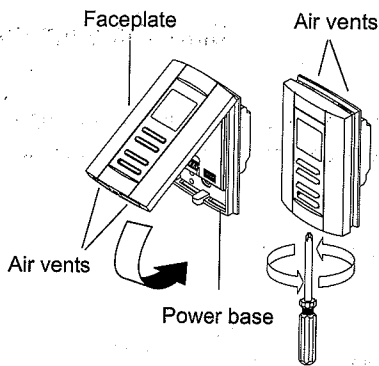
❼ Apply power to the heating system. Verify the installation by making sure that the heating system can be turned on or off by increasing or decreasing the setpoint respectively.

❽ Test the GFCI (refer to section 5).

NOTE: *Keep the thermostat's air vents clean and unobstructed at all times.*

❸ DIP Switch Settings

Set the DIP switches on the back of the thermostat faceplate according to your preference and specific application.
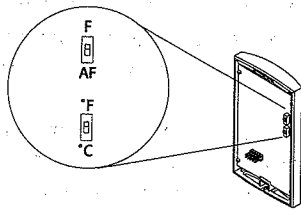
3.1 Temperature Unit Setting (S1)

Use the S1 switch to configure the thermostat to display the temperature in Fahrenheit (default) or Celsius.

3.2 Temperature Control Mode Setting (S2)

Use the S2 switch to configure the thermostat to control the floor temperature, ambient air temperature, or a combination of ambient air and floor temperature.

F: To select the F mode. In this mode, the thermostat controls the floor temperature.

AF: To select the A or AF mode (default setting).

NOTE: *If the S2 switch is placed on AF and the floor sensor is connected, the thermostat will operate in AF mode. If the S2 switch is placed on AF and the floor sensor is NOT connected, the thermostat will operate in A mode.*

‣ In A mode, the thermostat controls the ambient air temperature. This setting is useful if the floor temperature sensor is damaged or not installed.

‣ In AF mode, the thermostat controls the ambient air temperature and maintains the floor temperature within desired limits. This control is for advanced users only (refer to section 7.1).

❹ Basic Operation

4.1 Temperature Display and Setting

The thermostat displays the current (measured) temperature. To view the desired temperature, press either of the ▲▼ buttons. The desired temperature is displayed for 5 seconds.

To set a new temperature, press one of the ▲▼ buttons repeatedly until the desired temperature is displayed. To scroll faster, press and hold the button.

4.2 Heat Intensity Indicator (ʃʃʃʃʃ)

The heat intensity indicator is a graphic representation of how long the floor heating system is turned on compared to how long it is turned off in order to reach and maintain the set temperature. The more bars means the longer the floor heating system is turned on.

4.3 Backlight button

The display illuminates for 5 seconds when the backlight button is pressed and for 10 seconds when either of the ▲▼ buttons is pressed.

4.4 On/Off Switch

Use Off mode to turn off the floor heating system. This mode can be used when you are away for an extended period of time such as a vacation or during warmer months. In Off Mode, the thermostat screen becomes blank but the settings are not erased.

❺ GFCI

This thermostat has a built-in GFCI (Ground Fault Circuit Interrupter). The GFCI protects against risk of electrocution caused by a current leakage. If the leakage current exceeds 5 mA, the GFCI will automatically trigger, thus cutting power to the floor heating system. To indicate the fault, the **TEST** button at the top of the thermostat will illuminate (red) and **GFI** will appear on the screen.

If the **TEST** button illuminates and **GFI** appears on the screen during normal operation, check if the fault has been caused by an external interference such as a halogen light or an electric motor. In this case, reset and test the GFCI. However, if the fault occurs again for unknown reasons, cut power to the floor heating system from the main electrical panel and have the installation verified by an electrician.

WARNING: *The GFCI does not protect against electrical shocks resulting from contact with both conductor wires.*

5.1 GFCI Reset

To reset the GFCI, switch the thermostat to Off and back to On. The **TEST** button light will go off and **GFI** will disappear from the screen.

5.2 GFCI Test

To ensure the GFCI is always in working order, test it once the thermostat is installed and test it every month thereafter.

❶ Increase the temperature sufficiently to start heating.

❷ Wait for about 5 seconds until the heat intensity indicator (ʃʃʃʃʃ) appears on the screen.

❸ Press the **TEST** button at the top of the thermostat.

• If the **TEST** button does NOT illuminate, **the test has failed**. Cut power to the heating system at the main electrical panel, have an electrician verify the installation and, if necessary, replace the thermostat.

- If the **TEST** button illuminates, continue to step 4.

❹ Switch the thermostat to Off then back to On.
  - If the **TEST** button light goes off, **the test has passed**. Set the thermostat back to the desired temperature and ignore the remaining steps. The test is now completed.
  - If the **TEST** button light remains on, **the test has failed**. Continue to step 5.

❺ Switch the circuit breaker (at the service panel) of the heating system to off then back to on.

❻ Repeat the test. If the test fails again, cut power to the heating system at the main electrical panel, have an electrician verify the installation and, if necessary, replace the thermostat.

❻ Error Messages

| LO | The measured temperature is below the thermostat's display range. Heating is activated. |

| HI | The measured temperature is above the thermostat's display range. Heating is deactivated. |

| Er | Verify the thermostat and sensor connections. |

❼ Advanced Operations

7.1 Floor Limit Settings

You can set the minimum and maximum temperature that your floor can reach. These settings are available only if the temperature control mode setting is at **AF** (refer to section 3.2).

NOTE: The desired ambient temperature might not be attainable if the maximum floor temperature is set too low.

The thermostat generally turns heating On or Off to control the ambient temperature. However, if the floor temperature drops below the set minimum floor temperature limit or rises above the maximum limit, the thermostat will turn heating On or Off respectively, regardless of the ambient temperature, to maintain the floor temperature within the desired limits.

The minimum and maximum floor temperature limits are factory-set at 50 °F (10 °C) and 82 °F (28 °C) respectively. To modify the limits, proceed as follows:
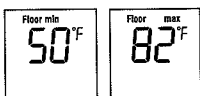
❶ Switch the thermostat to Off.

❷ While pressing any button, switch the thermostat back to On to access the floor temperature limit settings.

❸ Press the Backlight button briefly to switch between minimum and maximum floor temperature settings.

❹ Press the ▲▼ buttons to set the desired limit.

❺ Press the Backlight button for 3 seconds to save your modifications. After the data are saved, the thermostat displays the current temperature or "– –".

NOTE: Your modifications are automatically saved if no button is pressed for 60 seconds.

7.2 Unoccupied Mode

The thermostat can be connected to any other remote control device equipped with a dry contact. When the contact closes, the Unoccupied Mode is activated and the Unoccupied Mode icon ⌂ is displayed. In this mode, the thermostat lowers its setpoint by 7 °F (3.5 °C) and all temperature adjustments are blocked except for temporary bypass.

Temporary Bypass

You can temporarily bypass the Unoccupied Mode by pressing the backlight button. During the bypass, the Unoccupied Mode icon ⌂ flashes. The bypass is automatically cancelled after 2 hours or if the backlight button is pressed again.

❾ Technical Specifications

Supply	120 VAC, 60 Hz	240 VAC, 60 Hz
Maximum load	15 A (1800 W)	15 A (3600 W)

Display range - **F mode**: 32 °F to 140 °F (0 °C to 60 °C)
  - **AF mode**: 32 °F to 122 °F (0 °C to 50 °C)
Setpoint range - **F mode**: 40 °F to 104 °F (5 °C to 40 °C)
  - **A/AF mode**: 40 °F to 86 °F (5 °C to 30 °C)
Floor limit range (AF mode): 40 °F to 104 °F (5 °C to 40 °C)
Resolution: ± 1.0 °F (0.5 °C)
Operating temperature: 32 °F to 122 °F (0 °C to 50 °C)
Storage temperature: -4 °F to 122 °F (-20 °C to 50 °C)
Control cycle: 15 minutes
GFCI rating: 5 mA
Certification: c CSA us

☑ Warranty

NUHEAT INDUSTRIES THREE (3) YEAR LIMITED WARRANTY

This product is guaranteed against workmanship defects for a three-year period following the initial date of purchase. During this period, NUHEAT will repair or replace, at our option and without charge, any defective product which has been used under normal conditions. The warranty does not cover delivery costs and does not apply to products poorly installed or randomly damaged before, during or after installation. This warranty cancels and replaces any other manufacturer's express or implied warranty as well as any other company commitment.

NUHEAT cannot be held liable for related or random damages before, during or after the installation of this product. The defective product as well as the purchase invoice must be returned to the place of purchase or mailed, prepaid and insured, to the following address:

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