NUHEAT™

HOMEOWNER'S GUIDE FOR MODEL NTG5220 (240 VAC)

Power on switch / Reset GFCI
GFCI warning light
GFCI test button
Operating mode
Set day
Set time
Set programming
Erase programming
Select Operating mode / Return

Time and day
Floor or setting temperature
Comfort, Economy & Vacation temperature settings
Heating indicator
Program number
Comfort setpoint
Economy setpoint
Vacation setpoint
Temperature selection

Backlight
Lights up display; automatically turns off after 5 seconds.

OPERATING MODES

MANUAL	Allows you to manually adjust the temperature setpoint.
	❶ To activate this mode, press on Mode / Return to display the ⏚ icon.
	❷ Set the desired temperature using the ▲ ▼ buttons or select the pre-programmed ☼ , ☾ or ⬚ settings.
AUTO	Executes the default schedule or your own programming.
	Use this mode to maximize energy savings. To activate it, press on Mode / Return to display the ⏲ icon. The ☼ or ☾ icon indicates which temperature setting is used. Also, the icon of the program number will be shown. (i.e. ⬚)

MEMORY BACK-UP

In the event of a power failure, an internal circuit will maintain the programming and time. However, the time will have to be re-set if the power failure exceeds 6 hours.
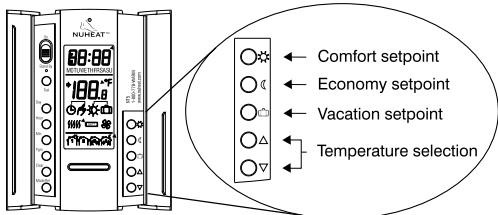
PROGRAMMING

PROGRAM THE TIME AND DAY

❶ Set the time using the Hour and Min buttons.
❷ Set the day using the Day button.

PROGRAM COMFORT, ECONOMY AND VACATION SETTINGS

The Comfort ☼ , Economy ☾ and Vacation ⬚ settings respectively represent the temperatures that you wish to have during the day (☼), at night or while you are away at work (☾), or while you are away for an extended period (⬚).

Comfort setpoint
Economy setpoint
Vacation setpoint
Temperature selection

This thermostat is pre-programmed with default Comfort (88°F), Economy (74°F) and Vacation (74°F) setpoints. If the default temperature settings suit your personal preferences, skip the following section.

MODIFY THE DEFAULT TEMPERATURE SETTINGS

❶ To program the Comfort temperature, select the desired temperature using the ▲ ▼ buttons and hold the ☼ button until the ☼ icon is diplayed (app. 3 seconds).

❷ To program the Economy temperature, select the desired temperature using the ▲ ▼ buttons and hold the ☾ button until the ☾ icon is displayed (app. 3 seconds).

❸ To program the Vacation temperature, select the desired temperature using the ▲ ▼ buttons and hold on the ☼ and ☾ buttons simultaneously until the ⬚ icon is displayed (app. 3 seconds).

❹ Press the Mode / Return button to exit this function and return to the normal operating mode.

DEFAULT SCHEDULE

This thermostat is pre-programmed with the following default schedule. It applies to people who wake up at 6:00 AM, leave for work by 9:00 AM, return home for 5:00 PM and go to sleep for 11:00 PM.

Schedule/Day		MON.	TUES.	WED.	THU.	FRI.	SAT.	SUN.
🏠1	88 °F	6 AM	6 AM	6 AM	6 AM	6 AM	7 AM	7 AM
🏠2	74 °F	9 AM	9 AM	9 AM	9 AM	9 AM	---	---
🏠3	88 °F	5 PM	5 PM	5 PM	5 PM	5 PM	---	---
🏠4	74 °F	11 PM	11 PM	11 PM	11 PM	11 PM	11 PM	11 PM

If the pre-programmed schedule fits your lifestyle, skip the following section.

PROGRAM YOUR SCHEDULE OR MODIFY THE DEFAULT SCHEDULE

First, program your schedule. You can program 4 different settings for each day of the week. For each day, enter:

🏠1 Time you wake up (Prog.1)
🏠2 Time you leave for work (Prog.2)
🏠3 Time you return home (Prog.3)
🏠4 Time you go to bed (Prog.4)

❶ Press PGM to access the programming mode.
❷ Press Day to select the day to be programmed (hold for 3 seconds to select all days of the week).
❸ Press PGM to select program number (1, 2, 3 or 4).
   A- Press Hour and Min to program the time.
   OR
   B- Press Clear to clear a time entry.
❹ Repeat step 3 for remaining programs.
❺ When you have completed your programming, press Mode / Return to exit the programming mode.

Note: It is faster to program the same schedule for the entire week; then modify the exception days (i.e. Saturday and Sunday).

EXAMPLE

This example applies to people who are home throughout the week.
Comfort period from 6:00 AM to 11:00 PM (Prog. 1)
Economy period from 11:00 PM to 6:00 AM (Prog. 2)
Identical schedule for all days of the week.

❶ Press PGM to access the programming mode.
❷ Press and hold Day for 3 seconds to select every day of the week.
❸ Press PGM to select Program 1.
❹ Press Hour to enter 6:00 AM 🏠1 .
❺ Press PGM to select Program 4.
❻ Press Hour to enter 11:00 PM 🏠4 .

Note: You may need to clear time entries for Programs 2 and 3. To do so, press PGM, select Program 2 and press Clear. Press PGM, select Program 3 and press Clear.

❼ When you have completed your programming, press Mode / Return to exit the programming mode.

To modify the Saturday and Sunday schedules:

When making modifications, make sure you are in the right program. For example, if you are modifying the temperature for the time you wake up, make sure you are in 🏠1 .

❶ Press on Day button until SA or SU is displayed.
❷ Press on PGM button to select 🏠1 and Hour and Min buttons to enter the time you wake up on weekends.
❸ Press on PGM button to select 🏠4 and then Hour and Min buttons to enter the time you go to sleep on weekends.
❹ Press on Mode / Return button to exit this function.

As an ENERGY STAR® partner,
Nuheat™ has determined that this thermostat
meets the Energy Star guidelines for energy efficiency.

SPECIAL FEATURES

TEMPORARY OR PERMANENT TEMPERATURE BYPASS

This operation allows you to temporarily modify the floor temperature while you are in the Automatic mode. Simply press on ▲ or ▼ buttons to select the desired temperature, or the ☀ or ☾ button to select the Comfort or Econo settings you have programmed. This temperature will be maintained until the beginning of the next programmed schedule.

You can also switch to the Vacation setting for a prolonged absence by pressing on the ⛶ button. In that case, the temperature bypass is permanent. To return to the normal operating mode, press on Mode / Return button.

If you wish to immediately return to the programmed settings, press on Mode / Return button twice.

EARLY START FUNCTION

This thermostat is equipped with a function that enables it to calculate the optimum time to start the heating system to achieve the desired temperature setting by the programmed time. It could start the heating system as early as 6 hours prior if necessary.

Every day, the thermostat will automatically re-evaluate how early to start heating, based on the previous day's performance.
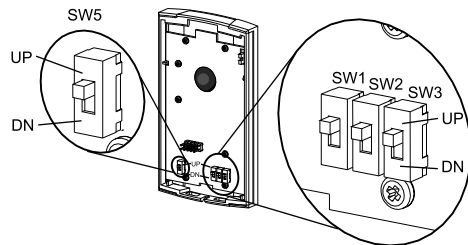
The switch on the back of the thermostat is factory-set to Early Start ON. To turn it off, see SWITCH SELECTION.

SWITCH SELECTION

This thermostat is factory-set to the following values.

	Function	UP	DN
SW1	Temperature format	°F	°C
SW2	Early Start	Disable	Enable
SW3	Time format	12 h	24 h
SW5	Permanent backlight	Enable	Disable

☐ Factory pre-sets

To change these pre-sets:

❶ Locate the screw at bottom of thermostat. Unscrew.

❷ Remove thermostat faceplate.

❸ Locate the switches at the back of the faceplate. Set the switches to your preferences.

❹ Put the faceplate back on the thermostat.

❺ Secure the thermostat with the screw.
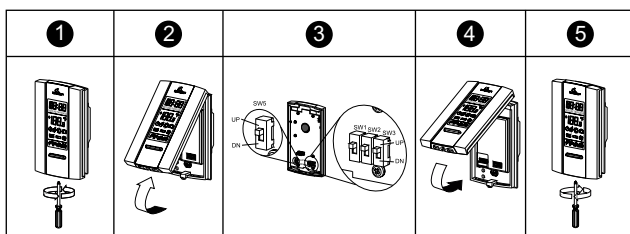
GFCI TEST

We recommend you test the GFCI monthly. If the test is not successful, cut power to the heating system and call customer service, or return the thermostat to your supplier for verification.

❶ Adjust the setpoint temperature ▲ ▼ until the heating indicator ( )))))) appears on-screen.

❷ Press TEST. The test is successful if the GFCI warning light is ON and power is cut-off.

❸ Switch power to Standby, then reset to ON.

Warning light: If this comes on during normal operation, cut power to the heating system and have an electrician verify the installation.

TECHNICAL SPECIFICATIONS

- Model: NTG5220 (240 VAC)
- Display range: 32°F to 140°F (0°C to 60°C)
- Setting range: 40°F to 104°F (5°C to 40°C)
- Comfort ☀ default setting: 88°F (31°C)
- Economy ☾ default setting: 74°F (23°C)
- Vacation ⛶ default setting: 50°F (10°C)

WARRANTY

NUHEAT INDUSTRIES ONE (1) YEAR LIMITED WARRANTY

This product is guaranteed against workmanship defects for a one-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 following 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 following 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:

NUHEAT INDUSTRIES LTD.

USA
880 Grant Avenue
Blaine, WA
98230

CANADA
1689 Cliveden Avenue
Delta, BC
V3M 6V5

1 (800) 778-9276
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ELECTRICIAN'S INSTRUCTIONS FOR MODEL NG220 (240 VAC)

INSTALLATION

This power base is designed to control electric floor-warming systems. The resistive load must not exceed 3600 watts (NI) @ 240 VAC (15 A). The thermostat is equipped with a Ground Fault Circuit Interrupter (GFCI) and therefore the isolation of the line and load are required for operation. During a ground fault, both line and load will be cut-off. Connect thermostat as shown on diagram.

Must be installed in accordance with national and local electrical codes.

TURN OFF POWER TO THE HEATING SYSTEM AT THE MAIN POWER PANEL TO AVOID ELECTRICAL SHOCK.

❶ **Connecting wires and mounting power base**

• Connect the power base wires to the supply and load using solderless connectors for copper wires. See diagram.
• Push the excess wire back into the electrical box to prevent interference with the power base.

SUPPLY

LOAD
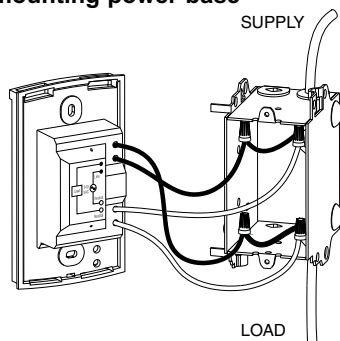
NOTE: *All cables and connections must conform to the local electrical code.*
WARNING: *Special CO/ALR solderless connectors must be used when connecting with aluminum conductors.*

❷ **Connecting temperature sensor wire**

• The wire must pass outside the electrical box and follow the wall down to the floor. The sensing probe should be placed in a representative heat area for maximum system performance.
• The sensing probe should be centered between the wires in the mat. The temperature sensor wire cannot cross any heater wires and the sensing probe must NOT be directly on or adjacent to a heating wire.
• Secure the power base with the screw.
• Connect the temperature sensor wire to terminals 3 and 4 on the power base (no polarity needs to be respected).
• Once the power base is properly installed, mount the faceplate.
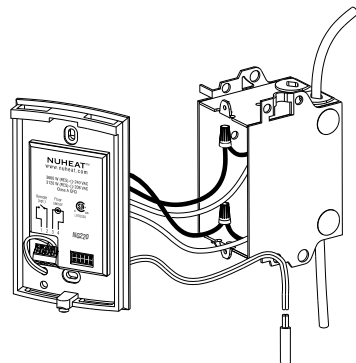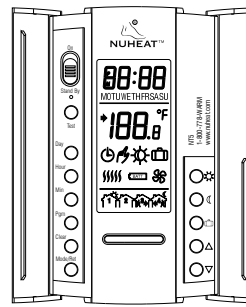
MOUNTING THE FACEPLATE

Keep the thermostat's air vents clean and free from obstructions.
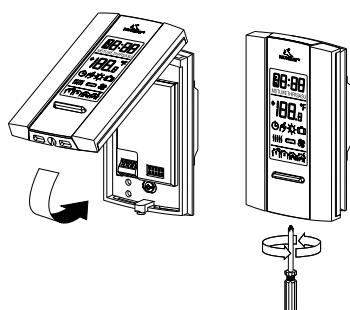
❶ Locate the screw at the bottom of the front module.
❷ Secure the thermostat with the screw.
❸ Turn the power back on.

POWER ON

When the unit is power on for the first time, the following appears on-screen:

Time (0:00)
Floor temperature
Manual mode icon (✍)

If improperly installed, you will see the LO or HI error message.

<u>LO</u>: Floor temperature is below 0°C (32°F); **or** temperature probe is defective (open) or not connected.

*If the heating indicator is also displayed, then the relay is closed and current is going through the load.

<u>HI</u>: Floor temperature is above 60°C (140°F); **or** temperature probe is shorted.

GFCI TEST

❶ Adjust the setpoint temperature until the heating indicator ( )))))) appears on-screen.
❷ Press TEST. The test is successful if the GFCI warning light is ON and power is cut-off. The heating indicator ( )))))) should still appear.
❸ Switch power to Standby, then reset to ON.
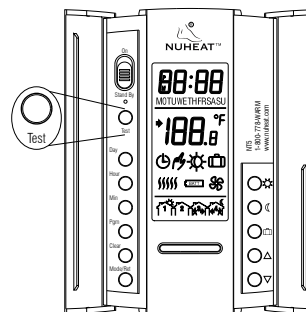
If test fails:

A- Verify installation.
B- Check the load wires.
C- Verify that the thermostat is in heating mode with Heating indicator ON.

Once you've identified the problem, run the GFCI test again.

TECHNICAL SPECIFICATIONS

Model:	NG220
Supply:	240 VAC, 50/60 Hz
Load:	15 A maximum
Power:	3600 watts (NI) @ 240 VAC
Ground Fault Circuit Interrupter (GFCI):	Class A (5 mA)
Approvals:	CSA / C,US
Storage:	-4°F to 120°F (-20°C to 50°C)

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