Nu-Heat
UNDERFLOOR & RENEWABLES

# Underfloor heating

## user guide

### Heat pump systems

UNDERFLOOR HEATING
HEAT PUMPS
SOLAR THERMAL

# working with you before, during & after your project

## Nu-Heat Know-How

# Contents

## System Ref: _____

**Every Nu-Heat system is a custom design. Please record your unique system reference number above for future use.**

# Welcome

Congratulations, you are the owner of a Nu-Heat warm water underfloor heating system, designed and supplied by Nu-Heat UK Ltd., the largest supplier of domestic underfloor systems in the UK.

This manual is provided to help you understand how the system operates and the correct settings required to get the most from your heating.

Nu-Heat did not install your system, therefore any installation matters should be referred to the contractor concerned. Please record the installer's details below.

For more information on the operation of your system and also troubleshooting help, please visit the Nu-Heat website at nu-heat.co.uk.

### Installer details

Company: _____

Contact name: _____

Contact telephone no.: _____

Address: _____

_____

_____

# About the Nu-Heat System

### Description

Underfloor heating works by pumping warm water through special plastic tubing embedded in the floor. This warms the floor and maintains the room at a comfortable temperature.

The Nu-Heat EnergyProHP cylinder will provide mains pressure hot water from all of your hot water outlets. With the addition of the optional domestic hot water loop you can be assured of instant hot water from every outlet.

### Benefits

In particular, underfloor heating systems:

- Provide a more comfortable heated environment,
- Permit unlimited interior design options,
- Increase the useable space within a property.

Moreover, all these benefits are available from a system which can be significantly less expensive to run than a conventional, radiator-based system.

# System startup

Once your system has been commissioned it should be fully operational. It will be set up to the design temperatures, but it may need adjustment to suit the preferences of the occupants. See *Heat Pump User Guide* for details. To initially check that your system is turned on and working please follow these simple steps:

### Underfloor heating

Locate the main components of your installation: the heat pump, hot water cylinder, underfloor heating pump/Optiflo manifold assembly(s), thermostats, timeclocks, underfloor heating wiring box.

### Electricity supply

Ensure that the electrical installation is complete and that the heating system is turned on. The location of the main supply ON/OFF switch may vary but is often positioned next to the heat pump. There may be additional switches located at each underfloor heating wiring box, which also need to be on.

### Water supply

Ensure that the water is turned on ready for domestic hot water operation, check that a high flow of water is available from the cold taps. If there is poor flow or none at all, check that the stop-cock for the property is fully open.

# Heat pump systems

## Key differences between boiler and heat pump systems

Heat pump systems and boiler systems are designed to operate very differently. If you have only previously lived with a boiler system it is useful to know the differences to ensure the heat pump system is set up and operated in the most effective way.

The main differences will be in terms of the temperature of water that the heat source generates. A typical boiler system would produce a constant flow temperature, which could range from 60-80˚C. A heat pump, on the other hand, has a more sophisticated control system which adjusts the flow temperature, typically 30–50˚C, so that exactly the right amount of heat is fed into the heating system to meet the heat loss of the house at the particular outdoor temperature.

Another difference is that the boiler would have been oversized so that it could raise the indoor temperature from whatever it happened to be, up to full comfort temperature. A heat pump is sized to match the load at design operating conditions, and so does not have a surplus with which to raise the temperature quickly.

These two differences mean that, with a heat pump as the heat source, the heating must be allowed to run constantly, on a 'tick-over' basis, rather than switching it on and off as required. The implication of switching the heating off, and then expecting it to recover the house to full comfort temperature is that it will not have sufficient power output, and so will have to call on the immersion heater backup, which is a more expensive method than the heat pump running constantly.

Although not recommended for heat pump systems, instructions for programmable thermostats to allow different temperatures to be set at different times, are shown in this guide.

# General principle of operation

### SYSTEM OPERATION

With a heat pump system thermostats are supplied to 'top-limit' room temperatures. This means that whilst they are capable of stopping flow of heating water to their zone, they cannot raise the room temperature beyond what the flow rate and flow temperature will allow. If a higher room temperature is required, adjustment must also be made at the heat pump.

When the thermostat is calling for heat it opens the actuator(s) for that heating zone, allowing heated water flow to that zone.

The heating system pump and temperature control are managed jointly by the heat pump's controller and the room thermostats.

### SEASONAL ADJUSTMENTS

Underfloor heating should be left active all year round as it is controlled by the heat pump controller. See the *Heat Pump User Guide* for detail of seasonal adjustments.

If you require to turn the heating off (for example when servicing) always use the main heating isolation switch.

### LEAVING THE PROPERTY UNOCCUPIED IN WINTER

Rather than turning the heating system off, it is possible to leave background heating on as frost protection. Each room/zone has the facility to be set to frost protection individually, however it is better to use the heat pump controller to effect frost protection to prevent the controls conflicting.

### INSTANT HOT WATER

Please see the *EnergyPro HP User Guide* for details of instant hot water.

### UNDERFLOOR HEATING OPERATION

Your underfloor system is designed for performance and economy. Your property may have been supplied either with dial thermostats or programmable thermostats.

Each heating zone is controlled by its own wall-mounted thermostat.

Whilst programmable thermostats are offered because customers like their aesthetics, Nu-Heat strongly recommends that the temperature to which they top limit should not be varied through the day.

# System adjustments

Note that this user guide describes adjustments to the underfloor heating controls. Adjustments to the heat pump controller are covered in the *Heat Pump User Guide*.

When first setting up the system, it is recommended that all thermostats should be set to the required temperature of 18˚C for bedrooms and 21˚C for other areas. This will allow the heating system performance to be assessed.

Use the thermostat to establish whether the room temperatures are being achieved (see the specific section on your thermostat type for information on gauging the current room temperature).

- If the heating is reaching the set temperature, but the room is still not warm enough then the first stage is to increase the thermostat setting. This should be only by 1°C at a time. The system should then be left for a day before assessing the impact of that change.

  Please note that increasing the temperature will increase the system running cost.

  If after increasing the thermostat setting the heating is still not warm enough then the heat pump controller settings can be altered. Please see the *Heat Pump User Guide* for details.

- If the heating is not reaching the set temperature in only a few rooms then the flow rate to those rooms should be increased, as described on page 8. Unless you feel confident in adjusting the flow rates then you should contact your heating engineer, who can investigate the cause of insufficient heat.

- If the heating is not reaching the set temperature in any room then the heat pump controller can be adjusted. Please see the *Heat Pump User Guide* for details.

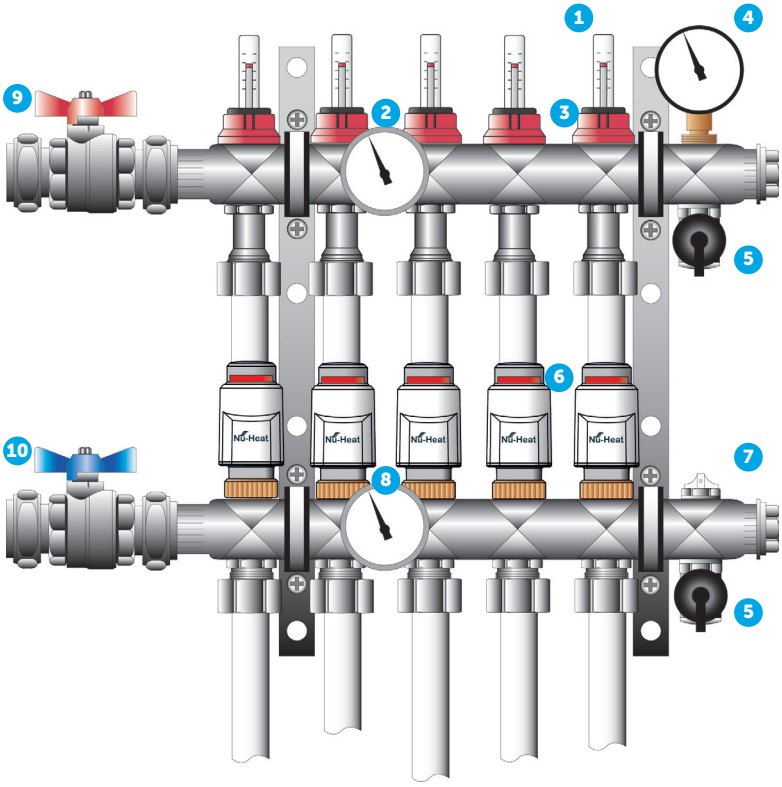
If the weather is quite mild when the system is initially setup then further adjustment may be required at a later date.

Once it has been determined that all rooms are reaching temperature then any that are desired to be at a lower temperature can be regulated using the room thermostat.

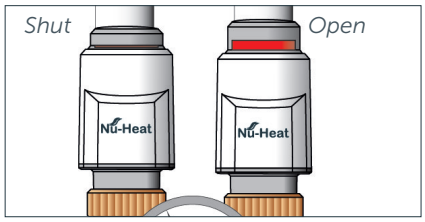
# Adjusting the flow rates

## MANIFOLD COMPONENTS

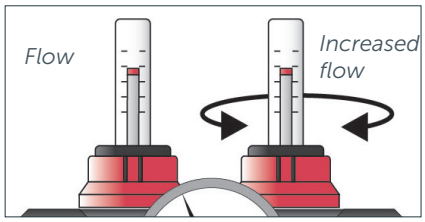
1. Flow gauges
2. Flow temperature gauge
3. Flow adjustment
4. Pressure gauge
5. Filling/drain off valve
6. Actuators
7. Manual air vent
8. Return temperature guage
9. Main isolating valve *(flow)*
10. Main isolating valve *(return)*



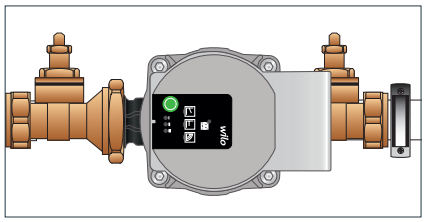

**If additional heat is required in a selected room or rooms the water flow rate(s) serving these areas can be increased.**




*a– actuator*




*b – flow gauge*



*c – pump*

### To do this:

When the system is operating, turn the thermostat up in that room.

Identify from the pipe markings at the manifold which actuator head(s) serves the zone you want to change.

Note: If the zones are not clearly marked, turn off all the other room stats.

The zone that is operating will be indicated by a raised button on the top of the actuator (a), and the flow gauge will indicate a flow reading (b).

Please note that the button on the actuator can take up to 3 minutes to respond.

Each thermostatically controlled zone may be fed by more than one pipe – in each zone all pipes should have equal flow.

The underfloor heating pump (c) should be set to constant pressure mode.

Turn the flow gauge – anti-clockwise for more flow, clockwise for less. The red flow indicator will drop further the greater the flow rate.

Note: Adjust a little at a time to suit your requirements – after a small adjustment leave the system for 24 hours before making any further adjustment.

Increasing the flow to one zone may decrease the flow to others.

There is a limit to how much extra flow can be achieved and if, after adjusting one or several zones, further action is required the flow temperature can be increased. Please contact your heating engineer to investigate.

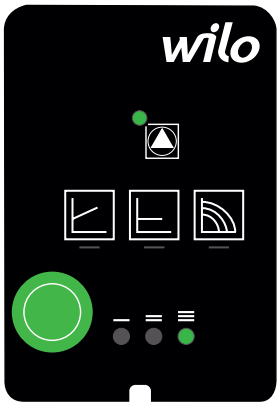
See *Heat Pump User Guide* for details.

# Pump settings

Press button to cycle through to Constant Pressure 3. This corresponds to a 7m head

### Electrical connection

The pump is supplied with a separate, pre-terminated, 1-metre, 3-core lead ready for connection to the Optiflo UFH wiring centre. Ensure that the pump is filled and vented, use the controls to call for heat and then select the correct pump setting.




### Setting the control mode

To select the control mode and set the desired delivery head/constant speed, press the button to cycle through the 9 options:

Variable differential pressure (Δp-v): DO NOT USE

Constant differential pressure (Δp-c): USE THIS SETTING, CURVE III

Constant speed (I, II, III): DO NOT USE

Reset to factory settings (Constant speed 3) by holding the button and removing power, release button and the next operation of the pump will be in factory default setting.

NOTE: All settings are retained if the mains supply is interrupted.

*Variable pressure*
**DO NOT USE**

*Constant pressure*
**USE THIS SETTING**

*Constant speed III*
**DO NOT USE**

### The LED indicator light.

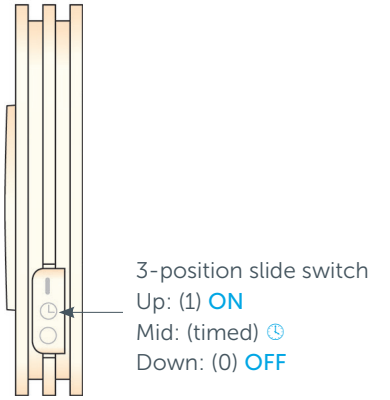
| LED | Fault | Cause | Remedy |
|---|---|---|---|
| Lights up red | Blocking | Rotor blocked | Activate manual restart or contact Nu-Heat Technical Support. |
| | Contacting/winding | Defective winding | |
| Flashes red | Under/over-voltage | Mains power supply too low/high | Check mains voltage and operating conditions and contact Nu-Heat Technical Support. |
| | Pump overheating | Pump interior too warm | |
| | Short-circuit | Motor current too high | |
| Flashes red/green | Generator operation | Water is flowing througj the pump hydraulics but there is no mains voltage at the pump. | Check the mains voltage, water quantity/pressure and the ambient conditions. |
| | Dry run | Air in the pump | |
| | Overload | Sluggish motor, pump is operated outside of its specification )e.g. high pump temperature). The speed is lower than during normal operation. | |

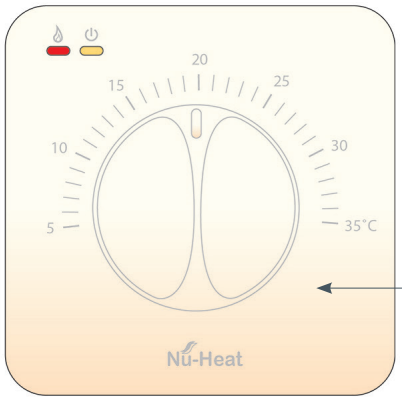
### Venting

Press and hold the green button for 3 seconds to purge air from the pump, the pump returns to normal operation after 10 minutes and the purge program can be cancelled by pressing the button for 3 seconds.

# Systems with dial thermostats

## CONTROLS




Call for heat = red
Setback = yellow
Normal = green

Turn dial to set temperature


## DIAL

To set the maximum temperature, turn the dial to point to the desired temperature. This is typically 21°C for most rooms, except bedrooms which generally require a lower temperature, e.g. 18°C.

It is best to think about the thermostat as being 'fine tuning' for the heating system.

- Nu-Heat recommends against making large adjustments – make any adjustments in small increments, and wait for at least 24 hours to assess the effect.
- It is best not to turn the thermostat down, for example, when a room is not in use – it can take a long time for the heat pump to increase the room temperature again.
- Note that turning the thermostat up very high will not cause the room to reach that temperature – it just means that the heating will reach its maximum capability, uninterrupted.

## SLIDE SWITCH

The slide switch serves no useful purpose in heat pump systems. Because there is no time control associated with the thermostats (timing is controlled by the heat pump) switch positions 1 and ⏲ both put the thermostat into the on mode where the dial setting will influence the actuator on the manifold. Position 0 switches the thermostat into frost protection mode.

## CHECKING THE ROOM TEMPERATURE

To assess the room temperature, turn the dial until the indicator changes from red to green (or vice versa) and note where the dial is pointing. Return the thermostat to the previous setting before making any adjustments.

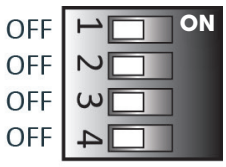
## SENSORS

The heating system must be turned off and electrically isolated before changing sensor switch settings.

Each thermostat has six sensor operation modes. These can be selected using switches 1-3 accessible from the back of the thermostat, after removing the front panel from the wall.

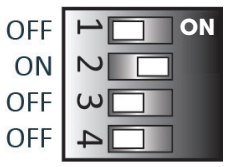
Internal air sensor: Uses the built in air sensor only.

Set switches 1 to 4 OFF




Remote air sensor (if installed): Uses the remote air sensor only.

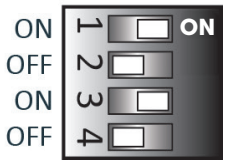
Set switch 2 ON, switches 1/3/4 OFF




Internal air sensor & floor limiting sensor (if installed): Uses the built in air sensor but also uses the remote floor sensor to ensure the floor temperature doesn't exceed a chosen limit. Should the floor temperature be achieved (even if the desired room temperature has not) the heating will turn off.

| | Floor temp. limit |
|---|---|
| Set switch 1 on, switches 2 and 3 OFF | 25˚C |
| Set switch 1 and 3 ON, switch 2 OFF | 27˚C |
| Set switch 1 and 2 OFF, switch 3 ON | 29˚C |
| Set switch 1, 2 and 3 ON | 32˚C |

Set switch 4 OFF always



# Systems with neoStat or neoAir

## In a heat pump system, it is the heat pump controller that manages time control, but programmable thermostats are often chosen for their aesthetic and ergonomic appeal.


In order to attain the best efficiency for the system it is strongly recommended that the top-limiting temperature is not varied throughout the day.

A programmable room thermostat is both a programmer and a room thermostat. A programmer allows you to set ON and OFF periods to suit your lifestyle. This *User Guide* explains how to set the thermostat into non-programable mode (see pages 20 & 25).

Room thermostats need a free flow of air to sense the temperature, so they must not be covered by curtains or blocked by furniture. Nearby electrical appliances or direct sunlight may also prevent the thermostat from working properly.

### OPTIONAL CONTROL FROM A SMARTPHONE – Pairing the neoHub+ (not recommended)

To pair the neoHub+ with the neoApp, follow these steps:

1. Connect the power supply to the neoHub+.
2. Connect the neoHub+ to your router with the Ethernet cable provided. The router will automatically assign an IP address to the neoHub+, the 'Link' LED will light up RED once the neoHub+ has connected to your network. Once connected to the cloud server, the Link LED will turn GREEN.
3. Connect your smartphone or tablet to the same WiFi network as your router.
4. Download the FREE Nu-Heat neoApp from the Apple App Store, Google Play Store or Windows Phone App Store and register an account.
5. Once you have registered your account, press SIGN IN then press ADD LOCATION.
6. Press the CONNECT button on the neoHub+to add the location to your account.
7. When successfully connected, enter a title for the new location (e.g. Home).

### Pairing the neoStat

The next step is to pair the neoStat to the neoHub+, we recommend pairing the neoStat located nearest to the neoHub+ first. To add a neoStat, follow these steps:

1. From the neoApp, select ADD NEOSTAT, enter a zone title and press NEXT.
2. You now have two minutes to pair the neoStat to the neoHub+.
3. On the neoStat, use the < / > keys to select setup and press POWER. Press and hold ✓.
4. SETUP will be highlighted, now press the ✓ key once.
5. Feature 01 is displayed on the screen.
6. Press the Tick key once again to pair the neoStat to the neoHub
7. The MESH symbol appears flashing on the display.
8. When the neoStat successfully connects to the neoHub the MESH symbol will be permanently displayed.
9. Press ADD ANOTHER for addtional zones or press FINISH to complete setup.

### Wireless communication

Where necessary, coverage can be extended using a neoPlug (available from Nu-Heat).

### Sharing access to the neo system (for systems with neoHub only – not recommended)

You can now share access to other users on a full or restricted basis.

#### Ideal uses for the new Share Feature

- You have more than one member in your household.
- You rent out you home and want to give restricted access to guests.
- You want to give temporary control to your heating engineer or service partner.

#### To setup a Share Access, follow these steps:

1. Select Share Access
2. Press + to add a user
3. Enter the User Details and press User Mode
4. Select Admin or Guest

#### Admin or Guest?

Admin users have complete control. They can add and remove zones, adjust heating times and temperatures and can setup Geo Location.

Guest users have temporary control – so they can adjust the temperature using the scroll wheel but they cant reprogram the heating times and temperatures or add and remove zones. They also don't have access to the Geo Location feature.

Note: To use Geo Location – each user in the home must have their own Share Account.

You can remove a user at any time by going in the Share Access menu and selecting the Delete User option.

### Pairing the neoPlug

neoPlug can reinforce wireless signals even if neoHub is not installed.
If neoHub is installed, then each neoPlug must be paired with it in order to perform all its functions.

1. Plug in the neoPlug.
2. Pair to neoApp using ADD ACCESSORY option.
3. When prompted, press and hold PAIRING button for 5 seconds. The green LED will start to flash, when paired it will stay lit for 2 seconds, then go off. If pairing is not successful, the green LED will flash continuously.
4. Access can now be controlled from anywhere.

   To reset the neoPlug, press and hold the button for 10 seconds until the red LED starts to flash.

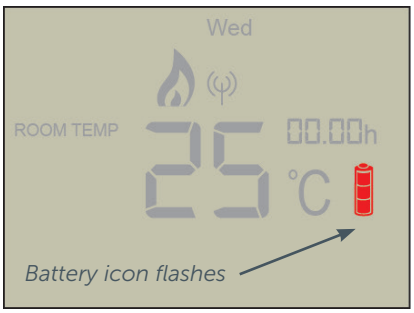
# Geo-Location

Geo Location is not suitable for use with a heat pump.

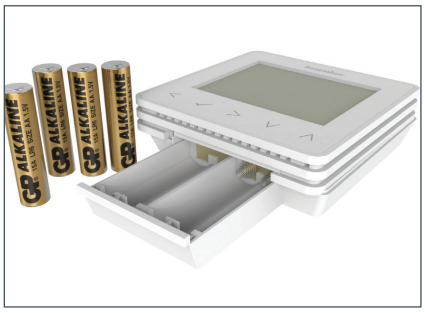
# Setting up neoAir

## REPLACING THE BATTERIES

Batteries have a fixed lifespan and will need to be replaced occasionally to ensure the thermostat operates correctly.




The thermostat will inform you when the batteries need to be replaced by displaying the battery icon on screen.




To access the battery holder, push and release the compartment door located on the bottom face of the thermostat.

4 x AAA batteries have been supplied with this thermostat.

**Do not use rechargeable batteries with this product!**


Insert the batteries in the empty battery holder, ensuring that each battery is orientated for the correct polarity + / -.

Push the battery holder back inside the thermostat until it is secured in its closed position.

## PAIRING WITH THE UH8RFV2 WIRING CENTRE – neoAir only

WARNING: Mains voltages are present within the wiring centre.

At the thermostat:

1. Use the < / > keys to scroll to ⏻. Press and hold ✓ for 3 seconds. SETUP will be highlighted, now press ✓ once.
2. The display will now show 01 in the top right hand corner.
3. Press the ▼ key once. The display will show P1.
4. Press ✓ again to start 99 second countdown.

At the UH8RFv2 wiring centre:

5. Press and hold the pairing button on the desired channel until the LED flashes.
6. Once the UH8RFv2 detects the pairing signal from the thermostat, the LED will turn off.

At the thermostat:

7. Press ✓ to confirm pairing and return to the main display.

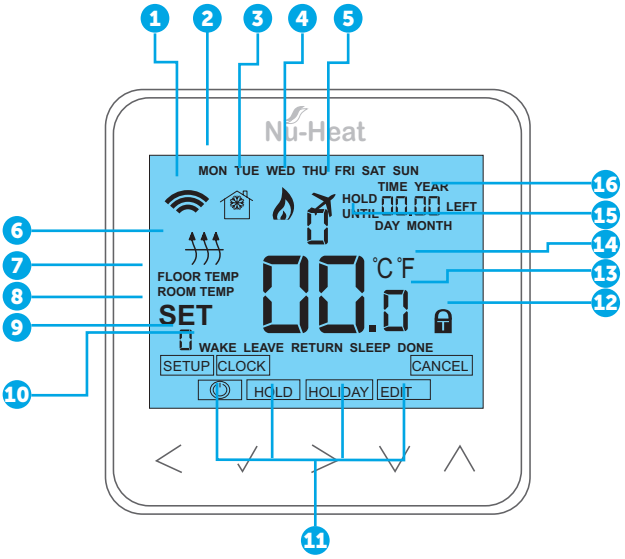
Note: To un-pair a channel, press and hold the pairing button on the UH8RFv2 for 15 seconds. The LED will rapid flash.

### Wireless communication

Where necessary, coverage can be extended using a neoPlug (available from Nu-Heat).

# Systems with neoStat or neoAir cont.

## MODE 1 – THERMOSTAT OPERATION




1. Mesh symbol
2. Day
3. Frost protection
4. Flame symbol
5. Holiday
6. Floor limit symbol
7. Floor temp/Room temp
8. Set*
9. Programme indicator (6-level)
10. Programme indicator (4-level)
11. Main menu navigation
12. Keypad lock indicator
13. Temperature (current)
14. Temperature format
15. Hold left
16. Time/Day/Month/Year

*SET = Displayed when changes are being made to the program schedule or current set point.

### ERROR CODES

When used as a thermostat the screen will display an error code if a fault is detected.

E0 = The internal sensor has developed a fault.

E1 = The remote **FLOOR** probe has not been connected.

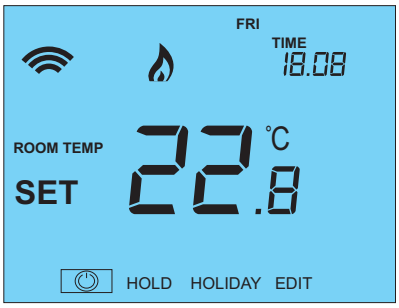
The remote **FLOOR** probe has not been wired correctly.

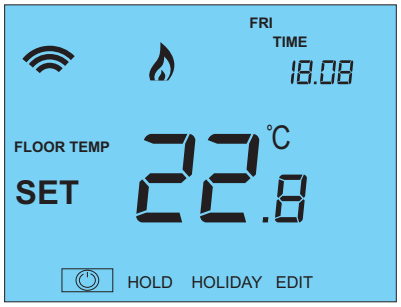
The remote **FLOOR** probe is faulty.

E2 = The remote **AIR** probe has not been connected.

The remote **AIR** probe has not been wired correctly.

The remote **AIR** probe is faulty.



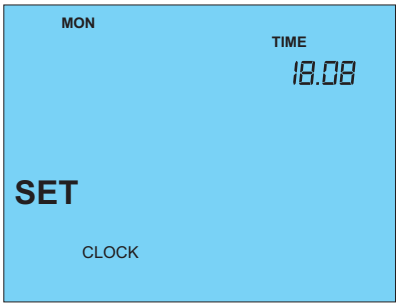




## Temperature display

The neoStat or neoAir V2 can be configured for different sensor options such as built in air sensor, floor sensor or both. The display will clearly indicate which sensor is being used by showing either ROOM TEMP or FLOOR TEMP before the actual temperature value.

When the neoStat is set to use both the air and the floor sensor, the room temperature will be displayed by default.

1 To view the current floor temperature, press and hold the < and > arrow keys for 5 seconds, the floor temperature will then be displayed.




## Setting the clock

To set the clock, follow these steps.

1 Use the < / > keys to scroll to POWER
2 Press and hold ✓ to turn off the display
3 Use the > key to select CLOCK
4 Press ✓ to confirm selection
5 Use the ▼ / ▲ keys to set the Year
6 Press ✓ to confirm selection
7 Repeat the steps to set the Month, Date & Time
8 Press ✓ to confirm the new clock settings
9 Use ▼ arrow to scroll to POWER
10 Press ✓ to turn the display on

## Setting Non-Programmable Mode

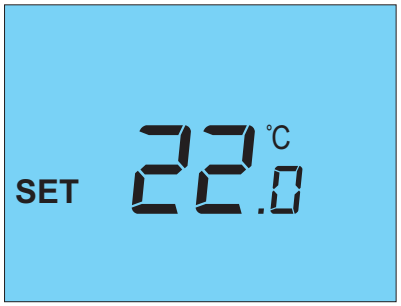
Due to the key differences between heat pumps and boilers it is strongly recommended that, for systems with heat pumps, the non-programmable mode is selected for all thermostats.

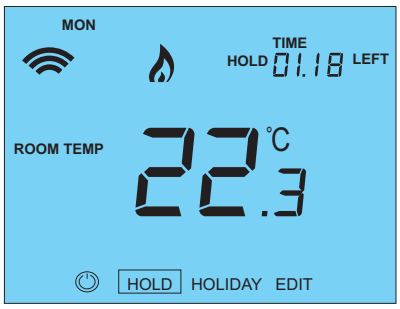
For systems with neoHub this mode must be configured using the neoApp.

For systems without neoHub see page 20 for how to set this mode (Feature 12).

The neoStat offers three additional program mode options; Weekday/Weekend programming, 7-Day programming and 24-Hour programming. These modes are not recommended for use with heat pumps.

# Systems with neoStat or neoAir cont.




### Temperature control

1 The ▼/▲ allow you to adjust the set temperature. When you press either key, you will see the word SET and the desired temperature value. Use the ▼/▲ keys to adjust the SET value.

2 Press ✓ to confirm settings and return to the main display.

Note: This new temperature is maintained only until the next programmed comfort level. At this time, the thermostat will revert back to the programmed levels.

### Temperature hold

The temperature hold function allows you to manually override the current operating program and set a different temperature for a desired period.

1 Use the < / > keys to scroll to HOLD
2 Press ✓ to confirm selection
3 Use the ▼/▲ keys to set the desired Hold period
4 Press ✓ to confirm selection
5 Use the ▼/▲ keys to set the desired Hold temperature
6 Press ✓ to confirm selection

You will see the HOLD LEFT indication is displayed on screen. The time will countdown the set duration and then revert to the normal program.

To cancel a temperature Hold, with hold selected on the main menu, press the ✓ key and then press tick again while Cancel is highlighted.

### Locking the neoStat

The thermostat has a keypad lock facility. To activate the lock follow these steps:

1 Use the < / > keys to scroll to HOLD & press ✓ for 10 seconds.
2 The display will show 00:00 and you will need to set a four digit pin number.
3 Use the ▼/▲ keys to enter the first two digits
4 Press ✓ to confirm
5 Use the ▼/▲ keys to enter the second two digits
6 Press ✓ to confirm

The display will return to the main screen and display the keypad lock indicator

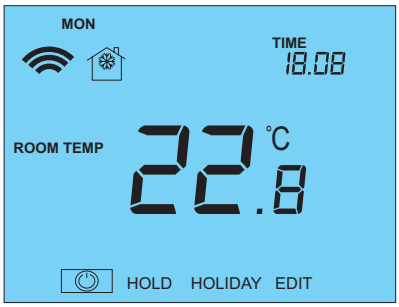
Note: The keypad lock indicator is only displayed when the lock is active.

### Unlocking the neoStat

To unlock the neoStat press ✓ once. The display will show 00:00 and you will need to enter the four digit pin number you set previously.

1 Use the ▼/▲ and ✓ keys to enter the first two digits
2 Use the ▼/▲ and ✓ keys to enter the second two digits

The display will unlock and return to the main screen.




## Frost mode

**1** Use the < / > keys to scroll to the POWER icon. The FROST icon will toggle ON/OFF each time ✓ is pressed.

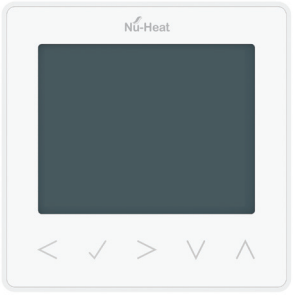
In this mode, the neoStat will display the frost icon and will only turn the heating ON should the room temperature drop below the set frost temperature (see oposite).

If the heating is turned ON whilst in frost mode, the flame symbol will be displayed.

To cancel the frost protect mode, navigate to the POWER button again and press ✓..

Note that the heat pump controller has a frost protection mode, and it is better to use this if frost protection is required, to prevent the controls conflicting.

To change the frost setting temperature, see the *Feature Table* on page 29.




## Power ON/OFF

The heating is indicated ON when the flame icon is displayed.

When the flame icon is absent, there is no requirement for heating to achieve the set temperature but the neoStat remains active.

**1** To turn the neoStat off completely, scroll to the POWER icon and hold the ✓ key for approximately 3 seconds until the display goes blank.

The display and heating output will be turned OFF.

**2** To turn the thermostat back ON, press the ✓ key once.


## Holiday

Note that the heat pump controller also has HOLIDAY mode. It is recommended that HOLIDAY mode is set on the heat pump controller, not via room thermostats.

In thermostat mode, the HOLIDAY function reduces the set temperature in your home to the frost protection temperature setting (see opposite).

In time clock mode, the holiday function maintains the timed output as OFF. To set a date and time for the holiday period to end, use the steps below:

**1** Use the < / > keys to scroll to HOLIDAY and press ✓

**2** Use the ▼ / ▲ keys to set the Year and press ✓

**3** Use the ▼ / ▲ keys to set the Month and press ✓

**4** Repeat the steps to set the Date and Time

**5** Press ✓ to confirm selection

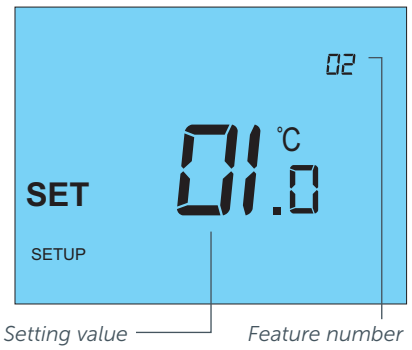
Note: The holiday period will start immediately, and will return to the normal program at the time and date you have configured.

To cancel:

**6** Use the < / > keys to scroll to HOLIDAY and press ✓

**7** CANCEL will be highlighted, press ✓ to cancel

# Systems with neoStat or neoAir cont.




### Adjusting the Optional Settings (see table opposite)

To adjust the settings, follow these steps:

1. Use the < / > keys to select POWER
2. Press and hold the ✓ for 3 seconds
3. SETUP will be highlighted, now press ✓ once
4. Use the ▼ / ▲ keys to scroll through features
5. Use the < / > keys to adjust the setting within each feature
6. Press ✓ to confirm and exit setup menu

| Feature | Description | Recommended settings | Explanation |
|---|---|---|---|
| 01 | Pairing to neoHub+ | Used to add zone to neoHub | Used to connect the thermostat to the neoHub |
| 02 | Switching differential | 00.5 = 0.5˚C<br>01 = 1.0˚C (Default)<br>02 = 2.0˚C<br>03 = 3.0˚C | Allows you to increase the switching differential of the thermostat. The default is 1°C – with a set temperature of 20°C, the thermostat will switch the heating on at 19°C and off at 20°C. |
| 03 | Frost protection temp. | 07˚ – 17˚C (12˚C = Default) | The temperature maintained when the thermostat is in Frost Mode. |
| 04 | Output delay | 00 – 15 Minutes (00 = Default) | To prevent rapid switching, an output delay can be entered. This can be set from 00–15 minutes. |
| 05 | Up/Down Temp. limit | 00˚ – 10˚C (00 = Default) | Limit the use of the up and down temperature arrow keys. This limit is also applicable when the thermostat is locked and so allows you to give others limited control over the heating system. |
| 06 | Sensor selection | 00 = Built in Sensor (Default)<br>01 = Remote Air Sensor<br>02 = Floor Sensor Only<br>03 = Built in & Floor Sensor<br>04 = Remote Air & Floor Sensor | Selects the active sensors. The floor sensor is used as a floor limiting sensor to prevent the floor from overheating.<br>**Setting 04 is for neoStat only.** |
| 07 | Floor Temp. limit | 20˚C - 45˚C (28˚C = Default) | Available when feature 06 is set to 02 or 03.<br>Set to the required floor temperature limit<br>(see instructions on page 11) |
| 08 | Optimum Start | 00 – 05 Hours (00 = Default) | Delays the start up of the heating system to the latest possible moment to avoid unnecessary heating and ensure the building is warm at the programmed time. The thermostat uses the rate of change information to calculate how long the heating needs to raise the building temperature 1°C and starts the heating accordingly. |
| 09 | Rate of change | Minutes to raise by 1˚C | This setting is calculated by the thermostat. Number of minutes for 1˚C temperature rise. |
| 10 | Cool enable | 00 = Disabled | |
| 11 | Cool set temp | Not enabled | |
| 12 | Program mode | 00 = Non–Programmable<br>01 = Weekday/Weekend (Default)<br>02 = 7 Day Programming<br>03 = 24 Hour Mode<br>Modes 01, 02 and 03 are not recommended for heat pump systems | Weekday/ Weekend – 4 comfort levels for the weekday and 4 different comfort levels for the weekend.<br>7 Day Program Mode – Each day has 4 comfort levels that can be programmed independently.<br>24 Hour Mode – All days are programmed the same and repeat continuously. |
| 13 | Temp. format | 00 = ˚C; 01 = ˚F (00 = Default) | Select between ˚C and ˚F. |

### Re-calibrating the thermostat

Warning: The thermostat must be fixed in a wall. When re-calibrating the thermostat avoid warming it with your hands or breath, as this will cause an inaccurate setting.

To re-calibrate the thermostat, follow these steps:

1 Use the < / > keys to scroll to the POWER icon
2 Press and hold ✓ to turn the display OFF
3 Press and hold the ✓ and ▼ keys together for 10 secs
4 The current temperature will appear on the display.
5 Use the ▼ / ▲ keys to configure the new temperature value
6 Press the ✓ key to confirm change and the display will go blank
7 Press the ▼ arrow to highlight the POWER icon
8 Press the ✓ key once to turn the thermostat ON

### Factory reset

TTo reset the device to factory default settings, follow these steps:

1 Use the < / > keys to scroll to the POWER icon
2 Press and hold the ✓ key to turn the display OFF
3 SETUP will be highlighted
2 Press and hold the ✓ key for 10 seconds. All of the icons on the display will appear for 2 seconds, then the number 1 or 2 will flash.
3 Use the < / > keys to scroll between modes (selection will flash)

Mode 1 = Thermostat

Mode 2 = Time Clock

4 Press the ✓ key to confirm selection

The thermostat will revert to the main display screen for the selected mode.

Note: Factory reset will cancel all parameters that were entered during the set-up and pairing operations. These processes must be repeated after factory reset is completed.

### Setting thermostats to be Non-Programmable (recommended with heat pump systems)

Set Feature 12 on all thermostats to 00 Non-Programmable.

### Setting the heating periods and temperatures (NOT recommended with heat pump systems)

The neoStat offers three program mode options: Weekday/Weekend programming, 7 Day programming and 24 Hour programming. There is also the option to use the thermostat as a Non-Programmable thermostat.

When thermostats are connected to the mesh network, the program mode for the system is configured by using the neoApp.

The thermostat is supplied with comfort levels already programmed, but these can be changed easily. The default times and temperature settings are;

07:00 / 21˚C (wake)
09:00 / 16˚C (leave the house)

16:30 / 21˚C (return home)
22:00 / 16˚C (sleep)

If you only want to use 2 levels, you should program the unused levels to --:--.

To program the comfort levels, use the < / > keys to scroll to EDIT

1 Press ✓ to confirm selection
2 Use the < / > keys to select day / period of week (the selection will flash).
3 Press ✓ to confirm selection
4 WAKE will now flash and current time and temperature setting will be shown..
5 Press ✓ to alter WAKE settings
6 Use the ▼ / ▲ keys to set the hours
7 Press ✓ to confirm
8 Use the ▼ / ▲ keys to set the minutes
9 Press ✓ to confirm
10 Use the ▼ / ▲ keys to set the temperature
11 Press ✓ to confirm the settings
12 Press the > arrow key
13 LEAVE will flash and current settings will be displayed.
14 Press ✓ to alter LEAVE settings
15 Repeat these steps to set all comfort levels.
16 For any unused periods set time to --:--
17 Use the < / > keys to scroll to DONE and press ✓

# Servicing requirements

## MONTHLY

Check the expansion vessel water pressure as displayed on the gauge, the pressure should normally be between 1 bar and 2 bar depending on whether the system is cold or hot.

## ANNUALLY

**Underfloor heating**
Whilst there is no requirement for annual servicing it is important that the level of central heating inhibitor is sufficient to protect the system.

Please see the *Heat Pump User Guide* for details of annual system servicing requirements.

## AS REQUIRED

**Replacing the batteries** (neoAir only)
See instructions on page 14.

# Product support

For further information on the operation of your underfloor heating system and troubleshooting help, please visit the Nu-Heat website at **nu-heat.co.uk**.

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