

# User Manual

homexpert™  
by Honeywell



## THR870CUK Programmable Thermostat

50051984-001 Rev. A

**WARNING:** This product must be correctly installed and configured to work properly (see pages 20-31). If you are not experienced in wiring electrical equipment, we recommend professional installation to avoid possible personal injury or equipment damage.

**TIP:** After installation, see the QUICK START GUIDE on page 7 to customise and begin using your new thermostat right away.



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**NOTE:** This symbol will flash on the screen when battery power is low. Remove cover as shown on page 24 and replace batteries with two fresh AA alkaline batteries.

## What is a programmable room thermostat?

### ...an explanation for householders

A programmable room thermostat is both a programmer and a room thermostat. A programmer allows you to set 'On' and 'Off' time periods to suit your own lifestyle. A room thermostat works by sensing the air temperature, switching on the heating when the air temperature falls below the thermostat setting, and switching it off once this set temperature has been reached.



So, a programmable room thermostat lets you choose what times you want the heating to be on, and what temperature it should reach while it is on. It will allow you to select different temperatures in your home at different times of the day (and days of the week) to meet your particular needs.

Turning a programmable room thermostat to a higher setting will not make the room heat up any faster. How quickly the room heats up depends on the design of the heating system, for example, the size of boiler and radiators.

Neither does the setting affect how quickly the room cools down. Turning a programmable room thermostat to a lower setting will result in the room being controlled at a lower temperature, and saves energy.

The way to set and use your programmable room thermostat is to find the lowest temperature settings that you are comfortable with at the different times you have chosen, and then leave it alone to do its job. The best

way to do this is to set low temperatures first, say 18°C, and then turn them up by one degree each day until you are comfortable with the temperatures. You won't have to adjust the thermostat further. Any adjustments above these settings will waste energy and cost you more money.

If your heating system is a boiler with radiators, there will usually be only one programmable room thermostat to control the whole house. But you can have different temperatures in individual rooms by installing thermostatic radiator valves (TRVs) on individual radiators. If you don't have TRVs, you should choose a temperature that is reasonable for the whole house. If you do have TRVs, you can choose a slightly higher setting to make sure that even the coldest room is comfortable, then prevent any overheating in other rooms by adjusting the TRVs.

The time on the programmer must be correct. Some types have to be adjusted in spring and autumn at the changes between Greenwich Mean Time and British Summer Time.

You may be able to temporarily adjust the heating programme, for example, 'Override', 'Advance' or 'Boost'. These are explained in the manufacturer's instructions.

Programmable 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 electric fires, televisions, wall or table lamps may prevent the thermostat from working properly.

## About your new thermostat

The THR870CUK is an easy-to-use thermostat designed to maintain a comfortable environment when you are at home and reduce energy costs when you are away.

### Features

- **Energy-saving design:** Automatically adjusts indoor temperature up to six times per day to maintain optimum comfort when you're at home, and reduce costs during working hours when you are away. Each day of the week can be programmed separately (see pages 12-13).
- **One-touch comfort control:** Allows you to override programmed settings at any time by setting the indoor temperature manually (see page 15).
- **Day Off button:** Sets the system to your preferred Sunday program on any day of the week to maintain a comfortable environment when you stay home from work (see page 16).
- **Party button:** Temporarily overrides the normal program schedule for 1 to 23 hours to maintain a comfortable temperature while you are entertaining guests (see page 17).
- **Holiday button:** Maintains a cost-saving temperature level for up to 99 days while you are away, then resumes normal operation when you return (see page 18).
- **Summer/Winter time change:** Automatically adjusts the clock for standard time or daylight savings time.
- **Optimum Start:** Automatically turns on heating system as early as needed so indoor temperature reaches the level you want at the time you set.

## QUICK START GUIDE

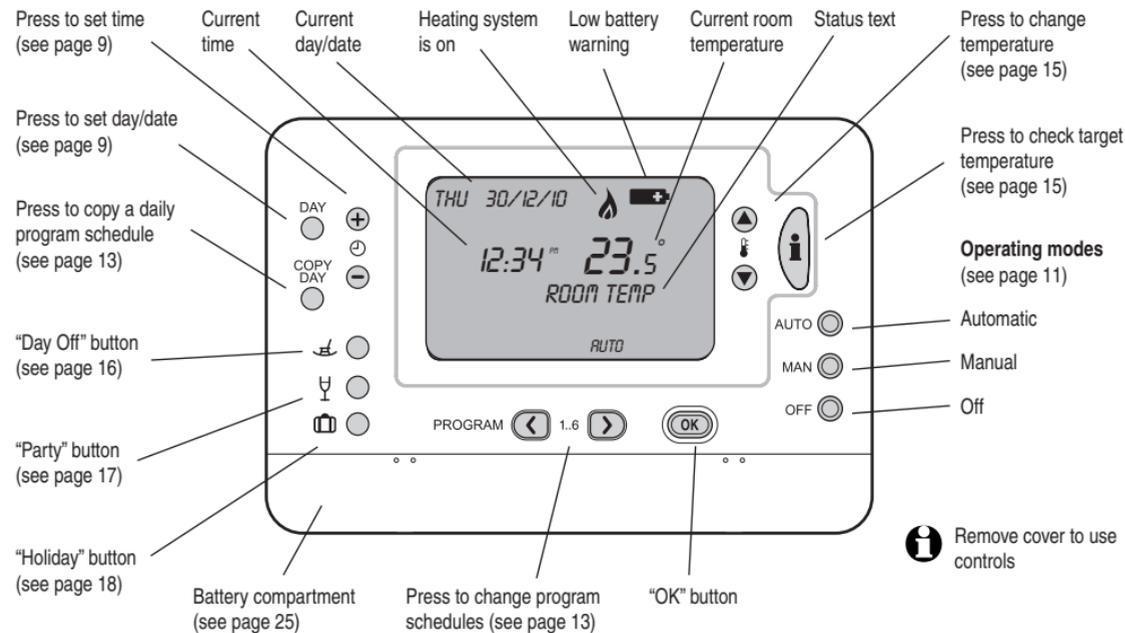
Your new thermostat is pre-programmed and ready to go. Just check the steps below and change settings if needed:

- 1 Install and set up thermostat**  
(if this has not been done by a professional installer)..... See pages 20-31
- 2 Select heating (default) or cooling mode**..... See page 10
- 3 Customise heating and cooling program settings if necessary**..... See page 13

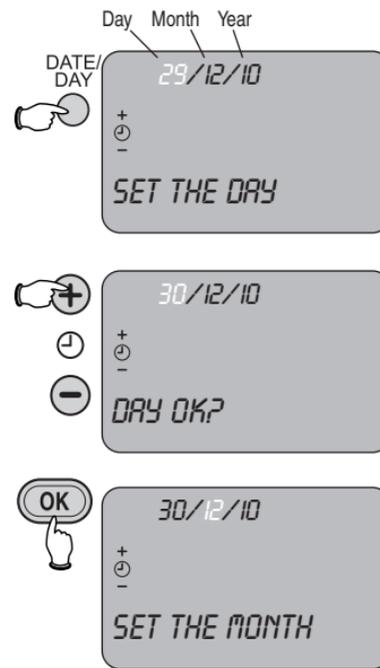


**Display screen options:** To change the date, time or display screen language, see pages 9 and 28.

## Quick reference



## Date/time settings



Press the **DAY** button to set the date and time.

Use the **+** or **-** buttons to set the correct day, then press the **OK** button. Follow the same procedure to set month, year and time. On completion, the screen will display "Changes saved."

Date and time should not need to be changed if set properly during initial installation (see page 24).

**NOTE:** To adjust only the time, press the **+** or **-** button. It is not necessary to press the **DAY** button.

## Heating or cooling control

Press and hold both buttons for 5 seconds



Heating changes to cooling



The thermostat is pre-set to control your heating system. If installed and set up correctly, it can also be used to control your cooling system.

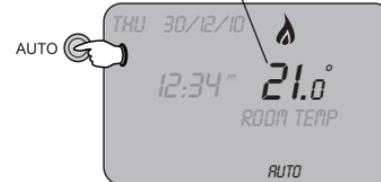
To switch between heating and cooling, press and hold the ▲ and ▼ buttons until the screen changes.

**NOTE:** The thermostat will not switch to cooling control unless you enable this feature (see page 30).

**NOTE:** Program schedules for heating and cooling must be set separately (see page 13).

## Operating modes (auto, manual, off)

**Auto:** Program controls temperature



**Manual:** Press ▲/▼ to set temperature



Press the mode buttons to select how the thermostat operates:

**AUTO**  **Auto:** In this mode the thermostat follows a program schedule to maintain a comfortable temperature when you are home and reduce energy costs while you are away (see pages 12-13).

**MAN**  **Manual:** This mode turns off the program schedule to maintain a constant temperature. Press the ▲ or ▼ buttons to set the temperature you want. The temperature will remain at the level you set until you change it, or until you press **AUTO** to resume the program schedule.

**OFF**  **Off:** When the thermostat is off, the heating system runs only as needed to maintain a minimum temperature to protect your home. This level is set at 5°C, but you can change it if necessary (see page 28).

**NOTE:** You can press any of these buttons — Auto, Manual or Off — to cancel any programming task and exit without saving changes.

## Default program schedules

This thermostat is pre-set to maintain a comfortable temperature when you are at home, and energy-saving levels when you are away or asleep. The default program schedules are shown below. To change them, see pages 13-18.



HEATING

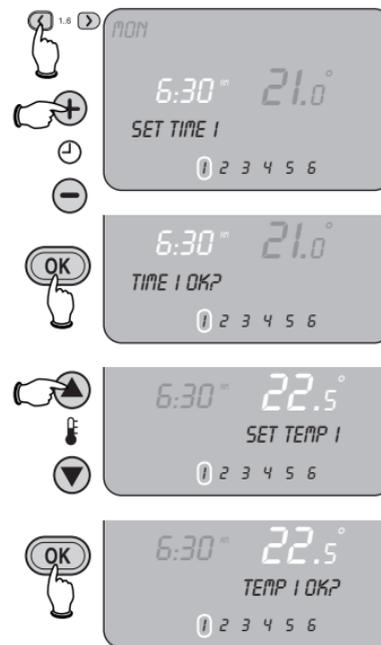
Monday-Friday	Period 1	2	3	4	5	6
Time	6:30	8:00	12:00	14:00	18:00	22:30
Temperature	21°C	18°C	21°C	18°C	21°C	16°C
Saturday-Sunday	1	2	3	4	5	6
Time	8:00	10:00	12:00	14:00	18:00	23:00
Temperature	←————— 21°C —————→					16°C



COOLING

Monday-Friday	Period 1	2	3	4	5	6
Time	6:30	8:00	12:00	14:00	18:00	22:30
Temperature	24°C	28°C	24°C	28°C	24°C	24°C
Saturday-Sunday	1	2	3	4	5	6
Time	8:00	10:00	12:00	14:00	18:00	23:00
Temperature	←————— 24°C —————→					

## To adjust program schedules



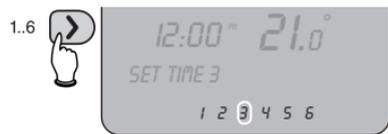
To customise the program schedules, first make sure the system you want to program (heating or cooling) is selected (see page 10). Heating and cooling schedules must be programmed separately.

- 1 Press **<**, then adjust the time and temperature for Period 1 as shown at left.
- 2 Press **OK** to advance to the next step, or press the **>** button to advance to the next time period. (See page 14 to delete unwanted time periods.)
- 3 After all Monday time periods are set, press the **DAY** button to customise settings for Tuesday and other days of the week.

To stop programming at any time, press any **MODE** button (Auto, Manual or Off; see page 11).

**COPY DAY** **SHORTCUT:** While programming, press the **COPY DAY** button to copy all settings for the current day and apply them to other days. For example, you can apply Monday settings to all other days of the week. After copying, press the **DAY** button to select a target day, then press **OK**.

## To add or remove program time periods

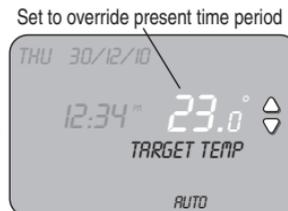
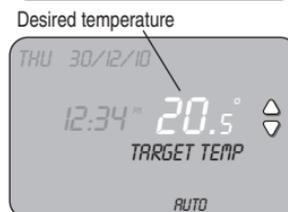
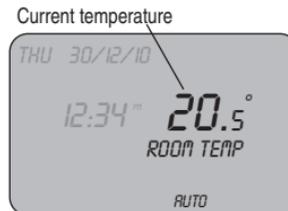


You can eliminate any unwanted time periods (2 through 6) if you require fewer than six per day.

- 1 Press the < or > buttons repeatedly to select a time period (or press the **DAY** button to select a different day).
- 2 Press and hold the **i** button for at least two seconds to remove the selected time period. The temperature will remain at the level set for the previous time period until the following period begins.

To restore a disabled time period, follow the procedure above to select the disabled period, then press and hold the **i** button for at least two seconds to restore it.

## Temporary schedule overrides



When idle, the thermostat displays the current room temperature. You can press the **i** button at any time to see the “target” temperature the thermostat is trying to maintain.

Press the ▲ or ▼ buttons to change the temperature temporarily.

In Auto mode, the thermostat will maintain the temperature you set until the next program time period begins. It will then revert to the level programmed for that time period. To maintain a constant temperature for longer periods of time, switch to Manual mode (see page 11).

**NOTE:** See also temporary program overrides for holidays, parties or days when you stay home from work (see pages 16-18).

## Temporary schedule overrides — Day Off



In Day Off mode, the system runs the Sunday program schedule on days when you stay home. The Sunday schedule should maintain a comfortable temperature all day long (see page 12).

- 1 Press the **DAY OFF** button.
- 2 Press **+** or **-** to select the number of days you will stay home (up to 99 days), then press **OK** to save.

Set number of days off



After the last “day off,” the temperature will resume the normal program schedule. To cancel the Day Off feature at any time, press the **DAY OFF** button again. The “day off” symbol will disappear and the system will resume normal operation.

**NOTE:** This feature works only when the thermostat is in Auto mode (see page 11).



## Temporary schedule overrides — Party



The Party feature temporarily overrides the program schedule to maintain a comfortable temperature while you entertain guests. You can also use it to set an energy-saving temperature level if you will be away from home for several hours.

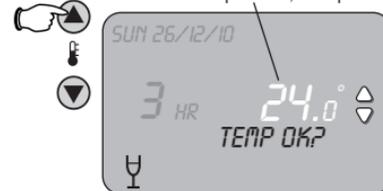
- 1 Press the **PARTY** button.
- 2 Press **+** or **-** to select the number of hours (1 to 23 hours), then press **OK** to save.
- 3 Press the **▲** or **▼** buttons to set the temporary temperature, then press **OK** to save and exit.

Set number of hours, then press **OK**



When the timer expires, the temperature will revert to the previous level (set manually, or by the program schedule if in Auto mode). To cancel the Party mode at any time, press the **PARTY** button again.

Set desired temperature, then press **OK**



**NOTE:** This feature works only when the thermostat is in Auto or Manual mode (see page 11).

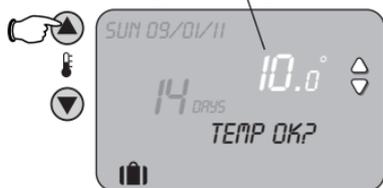
## Temporary schedule overrides — Holiday



Set number of days, then press **OK**



Set temperature, then press **OK**



The Holiday feature maintains a constant energy-saving temperature while you are away for an extended time (up to 99 days).

- 1 Press the **HOLIDAY** button.
- 2 Press **+** or **-** to select the number of days you will be away (up to 99 days), then press **OK** to save.
- 3 Press the **▲** or **▼** buttons to set the temperature during your absence, then press **OK** to save and exit.

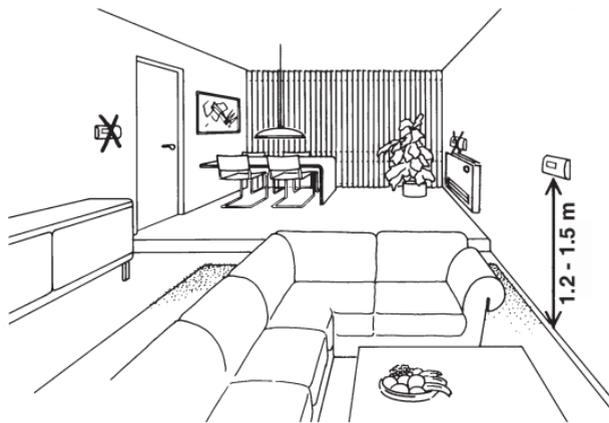
To cancel the Holiday mode at any time, press the **HOLIDAY** button again.

**NOTE:** This feature works only when the thermostat is in *Auto* or *Manual* mode (see page 11).

## Advanced features

- **Optimum Start:** This is an energy-efficient feature that adjusts the start time of your heating system. For example, on cold days your heating system will start earlier to ensure that your home is warm when you wake in the morning. On warmer days, heating will begin later to save energy costs. (See page 29 to turn off this feature.)
- **Summer/winter time change:** The thermostat automatically changes the clock time to correspond with changes to and from daylight savings time. (See page 28 to turn off this feature.)
- **Temperature offset:** In some cases, the thermostat must be installed in a location that does not accurately control temperature for optimum comfort in other rooms. You can set the thermostat to compensate for this by adjusting the offset (see page 29).
- **Proportional band width:** If your heating system is oversized for your home, you can compensate by increasing the temperature band width up to 3°C (see page 29).
- **Cycle rate and minimum boiler off time:** Adjusting these features can help your climate control system work more efficiently for increased comfort and economy. See page 31 to find recommended settings for your system.

## System installation



**NOTE:** If you are not experienced in equipment installation, we recommend that these procedures be done by a professional installer.

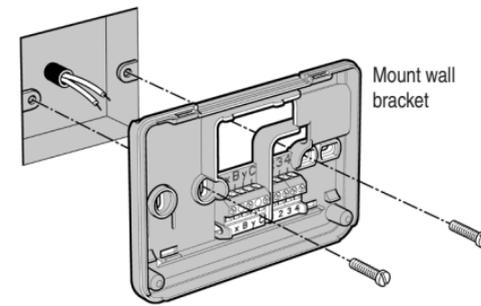
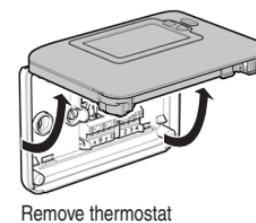
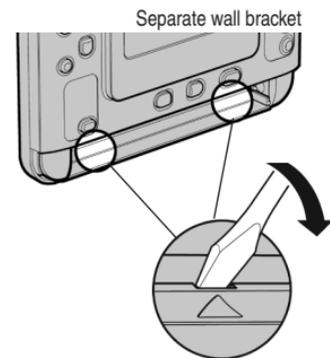
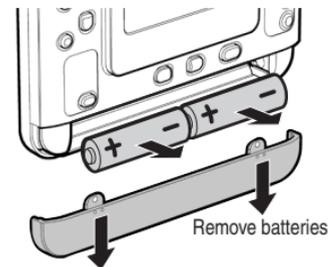


**DISCONNECT ELECTRIC POWER BEFORE INSTALLATION:** Can cause electrical shock or equipment damage.

### Installation procedure

- 1 Disconnect electric power
- 2 Choose thermostat location and install wall bracket
- 3 Connect system wiring
- 4 Activate batteries and attach thermostat cover
- 5 Restore electric power
- 6 Test the thermostat

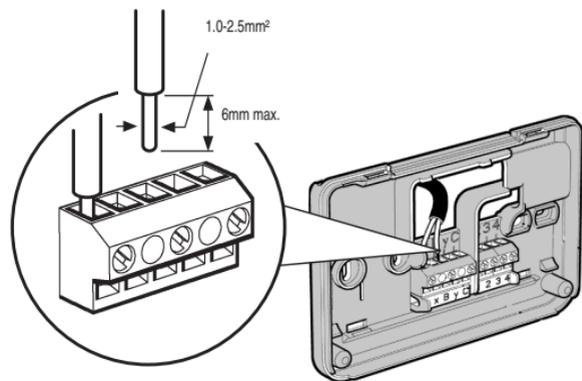
## Wall bracket installation



### Location guidelines:

- Install the wall bracket about 1.2 to 1.5 metres above the floor, where the screen display is easily visible.
- Do not install near sources of hot or cold air (radiators, windows, heating or cooling ducts).
- Install at least 1 metre away from other electronic devices (TV, sound system, PC, etc.).

## Connect system wiring



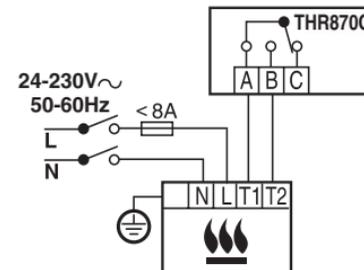
Connect wiring from your heating or cooling equipment to the thermostat as shown at left. See wiring diagrams on pages 23-24 for details.

- 1 **Make sure electrical power is off.**
- 2 Strip insulation to expose about 6 mm of bare wire.
- 3 Use a screwdriver to loosen terminal screw, insert wire into slot, then tighten screw.
- 4 Attach cover, then restore electrical power.

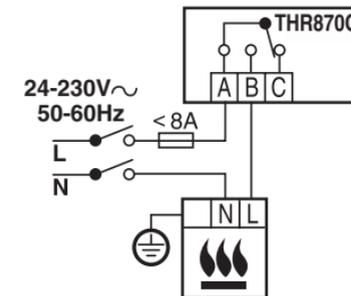
**NOTE:** All wiring must comply with IEE regulations. Keep AC mains supply/load cables separate from equipment wiring. Refer to boiler manufacturer's instructions for information about wiring connections.

## Wiring diagrams

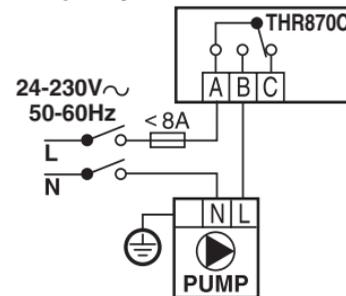
### Combi Boiler



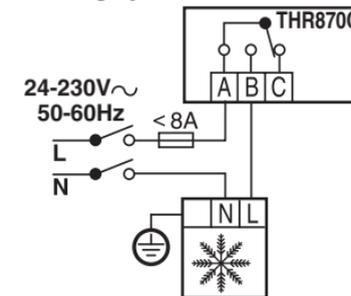
### Basic Boiler



### Pump only

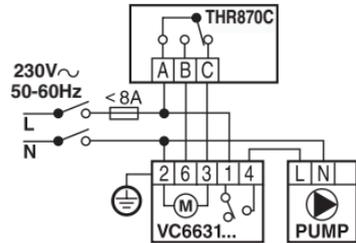


### Cooling system

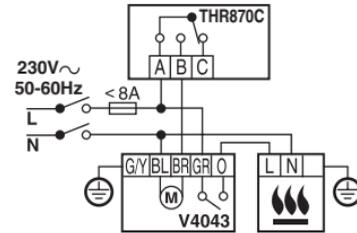


## Wiring diagrams

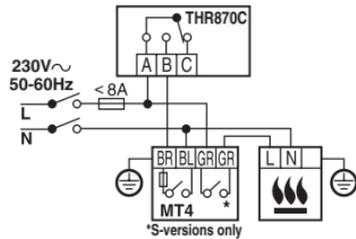
Zone valve



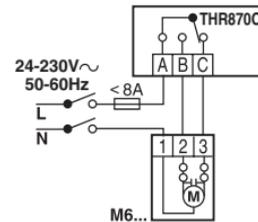
Zone valve



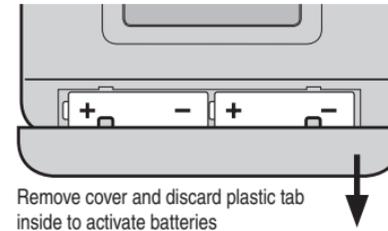
Thermal actuator



Electric actuator



## Activate batteries and attach thermostat cover



Remove battery compartment cover and discard the plastic tab inside to activate the batteries. The first time you do this, you will be prompted to set the date, time and preferred screen language.

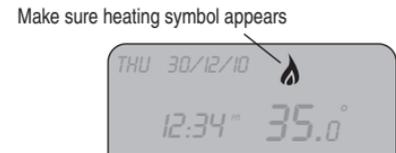
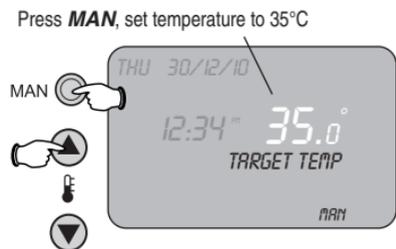
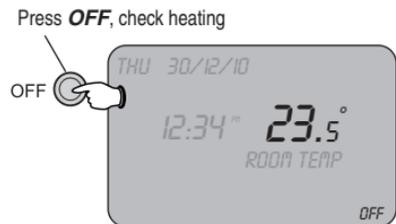
**+** **NOTE:** This symbol will flash on the screen when battery power is low. Remove cover as shown at left and replace batteries with two fresh AA alkaline batteries.

Remove cover and discard plastic tab inside to activate batteries



Place cover on thermostat and press until it snaps in place

## System test



After installation, you should check to make sure the system is working properly.

- 1 Press the thermostat **OFF** button, then verify that the heating system is on.
- 2 Press the thermostat **MAN** button, then press the ▲ button to raise target temperature to maximum (35°C).

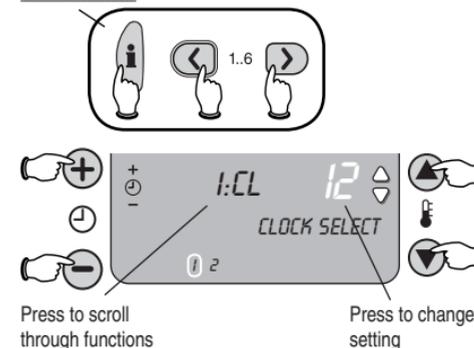
If the system is set up properly, the “heating” symbol should appear on the thermostat display, and the heating system should begin running after a short delay.

- 3 To stop the test, press **AUTO** to run the program schedule, or **MAN** to reset the temperature manually.

## Installer setup



Press and hold to enter installer mode



See tables on pages 28-31 for complete list of functions and settings

Installer settings allow you to customise how your system works. Check the tables on pages 28-31 to see if any settings need to be changed.

### To change installer settings:

- 1 Press the thermostat **OFF** button.
- 2 Press and hold the **i**, **<** and **>** buttons until the screen changes.
- 3 Press the **+** or **-** buttons to scroll through functions quickly until you find one you want to change.
- 4 Press the **▲** or **▼** buttons to change any setting, then press **OK** to save the new setting.

To exit installer setup, press any **MODE** button (Auto, Manual or Off).

**Installer setup functions — Thermostat settings**

\*\* Factory default setting

Function	Description	Setting Options
1: CL	Clock format	24: 24-hour time format ** 12: AM/PM 12-hour time format
2: rP	Reset program schedule	0: Schedule customised by user 1: Reset schedule to factory default (see page 12) **
3: tC	Summer/winter time change	0: No change 1: Automatically switch to/from daylight savings time **
4: LA	Display screen language	Default language varies by location of purchase. Press the ▲ or ▼ buttons to select an alternate language.
5: bL	Screen backlight	0: Off 1: Screen lit when button is pressed **
6: uL	Maximum temperature allowed	35°C ** Options: 21° to 35°C
7: LL	Minimum temperature allowed	5°C ** Options: 5° to 21°C

See page 27 to change these settings. **Always press OK after changing any setting.****Installer setup functions — Thermostat settings**

\*\* Factory default setting

Function	Description	Setting Options
8: OP	Optimum start	0: Off ** 1: On (see page 19 for description)
9: tS	Telephone override	0: Disabled ** 1: Telephone override enabled
12: tO	Temperature offset	0: No offset ** Options: +3° to -3°C (see page 19 for description)
13: Pb	Proportional band width	1.5°C ** Options: 1.5° to 3°C (see page 19 for description)
19: FS	RESET TO FACTORY DEFAULT	0: No change 1: Select 1 to restore default settings. All customised settings will be lost.

See page 27 to change these settings. **Always press OK after changing any setting.**

## Installer setup functions — System settings

Enter Installer Setup (see page 27), then press > for access to system settings

\*\* Factory default setting

Function	Description	Setting Options
1: Ot	Minimum boiler on time	1 minute ** Options: 1 to 5 minutes <b>See page 31 for important information</b>
2: Cr	Cycles per hour (CPH)	6 cycles per hour ** Options: 3, 6, 9 or 12 <b>See page 31 for important information</b>
3: EH	Electric heat	0: Resistive loads <3 A ** 1: Resistive loads 3 to 8 A <b>See page 31 for important information</b>
4: HC	Heating/Cooling options	0: No central cooling system installed ** 1: Allows switching between heating and cooling systems <b>Thermostat cannot control cooling unless you select 1</b>
5: PE	Pump exercise	0: Off ** 1: On (turns on pump periodically to keep equipment functioning properly)

See page 27 to change these settings. **Always press OK after changing any setting.**

## Customised settings for your system

Your heating system	Changes required	Setting Options
Standard gas boiler (<30kW)	None	No change
Zone Valve	None	No change
Oil boiler	System setting 1: Ot System setting 2: Cr	Set to 4 minutes Set to 3 CPH
Thermal actuator	System setting 2: Cr	Set to 12 CPH
Electric heating	System setting 2: Cr System setting 3: EH	Set to 12 CPH Set to 1 if load > 3A

Your cooling system	Changes required	Setting Options
Heat pump/air conditioner	System setting 1: Ot System setting 2: Cr System setting 4: HC	Set to 4 minutes Set to 3 CPH Set to 1
Fan coil	System setting 4: HC	Set to 1

See page 27 to change these settings. **Always press OK after changing any setting.**

## In case of difficulty

<b>Thermostat screen is blank</b>	<ul style="list-style-type: none"> <li>• Make sure two fresh AA alkaline batteries are properly installed (see page 25).</li> </ul>
<b>Heating or cooling system does not respond</b>	<ul style="list-style-type: none"> <li>• Check thermostat batteries (see above).</li> <li>• Make sure heating and cooling systems have power. Check fuses and circuit breakers and replace or reset as needed.</li> <li>• Check wiring (pages 22-24) and system configuration (pages 27-31).</li> <li>• Run system test (see page 26).</li> </ul>
<b>Desired temperature cannot be maintained</b>	<ul style="list-style-type: none"> <li>• If above remedies cannot resolve the problem, the thermostat may have to be moved. Make sure it is not installed near sources of hot or cold air (radiators, windows, heating or cooling ducts).</li> </ul>

## Limited Warranty

Honeywell warrants this product for 1 year from date of purchase. We undertake to replace or repair at our discretion, products should they become defective within 1 year solely as a result of faulty materials and or workmanship.

Understandably if the product has not been installed or maintained in accordance with Honeywell's instructions, has not been used appropriately or if any attempt has been made to rectify, dismantle or alter the product in any way the warranty will be invalidated.

This product warranty states Honeywell's entire liability. It does not extend to cover consequential loss or damage or installation costs arising from a defective product.

If the product is defective, please return it together with a proof of purchase or receipt to the place of purchase.

This does not affect your statutory rights.

If you require further information about this product, call the homexpert™ by Honeywell technical helpline on 0845 604 2893.

For a full list of terms and conditions please visit [www.homexpertbyhoneywell.com](http://www.homexpertbyhoneywell.com).

Please retain these instructions for future reference.

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## Disposal and recycling

### Disposal and recycling

Batteries and waste electrical products should not be disposed of with household waste. Please recycle where these facilities exist. Check with your local authority or retailer for recycling advice.

**Please retain these instructions for future reference.**

## Need Help?

For assistance with this product please visit [www.homexpertbyhoneywell.com](http://www.homexpertbyhoneywell.com), or call Honeywell Customer Care at 0845 604 2893.



### **Honeywell**

The Arnold Centre  
Paycocke Road  
Basildon, Essex  
SS14 3EA

Technical Help Desk: 0845 604 2893  
[www.homexpertbyhoneywell.com](http://www.homexpertbyhoneywell.com)

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