



installation guide

harmoni50

electronic intelligent timer thermostat



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**More information on this product can be found at:
www.harmonithermostat.co.uk**

Introduction

1

harmoni 50 is an electronic programmable timer thermostat used for controlling electrical underfloor heating elements.

The thermostat is designed for fixed installation only. It can be used for both direct heating of the entire room and for comfort heating of the floor.

Listed below are some of the thermostat's main features:

- A touchscreen display with backlight.
- Easy-to-follow menu-driven programming and operation.
- An installation wizard with room/floor type specific set-up.
- Support for multiple frame systems.
- Compatible with numerous 3rd party NTC sensors.
- Settings can be copied from one thermostat to another/others using a single generated code.

Technical Specifications


1.1

Operation voltage	220–240 V~
Standby power consumption	Max. 0.40 W
Relay: Resistance load Inductive load	Max. 16 A / 3680 W @ 230 V cos φ = 0.3 Max. 1 A
Sensing units	NTC 6.8 kOhm at 25°C NTC 10 kOhm at 25°C NTC 12 kOhm at 25°C NTC 15 kOhm at 25°C (default) NTC 33 kOhm at 25°C NTC 47 kOhm at 25°C
Sensing values: (default NTC 15 K) 0°C 20°C 50°C	42 kOhm 18 kOhm 6 kOhm
Control	PWM (Pulse Wide Modulation)
Ambient temperature	0° to +30°C
Frost protection temperature	5°C to +9°C (default 5°C)

Temperature range	Room temperature 5–35°C. Floor temperature 5–45°C. Max. floor: 20–35°C (if unrecoverable seal is broken then up to 45°C). Min. floor: 10–35°C, only with combination of room and floor sensor.
Sensor failure monitoring	The thermostat has a built-in monitoring circuit, which will switch off the heating if the sensor is disconnected or short-circuited.
Cable specification max.	1×4mm ² or 2×2.5mm ²
Ball pressure test temperature	75°C
Pollution degree	2 (domestic use)
Controller type	1C
Software class	A
Storage temperature	-20°C to +65°C
IP class	21

Technical Specifications

1.1

Protection class	Class II – 
Dimensions	85×85×20–24mm (in-wall depth: 22mm)
Weight	103g

Electrical safety and electro-magnetic compatibility for this product is covered by the compliance with the EN/IEC Standard, *Automatic electrical controls for household and similar use*:

- EN/IEC 60730-1 (general)
- EN/IEC 60730-2-9 (thermostat)

Safety Instructions

1.2

Make sure the mains supply to the thermostat is turned off before installation.

Important: When the thermostat is used to control a floor heating element in connection with a wooden floor or similar material, always use a floor sensor and never set the maximum floor temperature to more than 35°C.

Please also note the following:

- The installation of the thermostat must be done by an authorised and qualified installer according to local regulations.
- The thermostat must be connected to a power supply via an all-pole disconnection switch.
- Always connect the thermostat to continuous power supply.
- Do not expose the thermostat to moisture, water, dust and excessive heat.

Mounting Instructions

2

Please observe the placement guidelines below.



Place the thermostat at a suitable height on the wall (typically 80–170cm from the floor).



The thermostat should not be placed in wet rooms, place it in an adjacent room instead. When installing the thermostat outside the room it should be in 'floor sensor only' mode. Always place the thermostat according to local regulations on IP classes.



Do not place the thermostat on the inner side of an exterior wall.



Always install the thermostat at least 50cm from windows and doors.



Do not place the thermostat in a place that is exposed to direct sunlight.



Important: A floor sensor enables a more accurate temperature control and is recommended in all floor heating applications and is **compulsory** under wooden floors to reduce the risk of overheating the floor.

- Place the floor sensor in a conduit in an appropriate place where it is not exposed to sunlight or draft from door openings.
- Equally distant and >2cm from two heating cables.
- The conduit should be flush with the floor surface; countersink the conduit if necessary.
- Route the conduit to the connection box.
- The bending radius of the conduit must be a minimum of 50mm.

Mounting Instructions

2

Follow the steps below to mount the thermostat.

1. Open the thermostat.

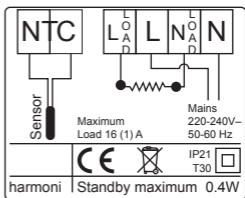
Important: Do NOT press on the display screen when removing the front part.

Press your fingers under the side of the front part and gently pull it away.



2. Connect the thermostat according to the connection diagram.

The screen of the heating cable must be connected to the earth conductor of the power supply cable by using a separate connector.



Important: Always install the floor sensor in a conduit in the floor.

3. Mount and reassemble the thermostat.

- Fix the thermostat to a socket or an exterior wall box using the screw holes in each side of the thermostat.
- Reattach the frame.
- Click the display module back in place.



Important: Do NOT press on the display screen when clicking the display module back in place.

Initially, fully charge the thermostat battery using the mains supply for 15 hours. The current time and day is then kept for 24 hours if mains supply is switched off. All other settings are stored permanently.

Settings

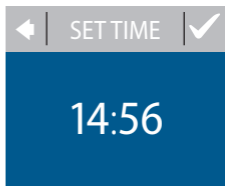
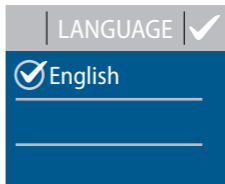
3

Initial Settings

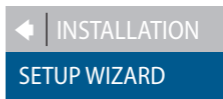
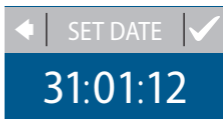
3.1

Initial settings must be specified when the unit is activated for the first time.

- 1. LANGUAGE.** The language is set to English by default.
- 2. SET TIME.** Press the hour numbers using the < and > arrows to set the hour. Press to confirm.
- 3.** Press the minute numbers using the < and > arrows to set the minutes. Press to confirm. Press again to go to the **SET DATE** screen.

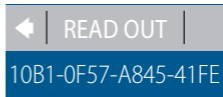


- Press the day, month and year to set the date using the < and > arrows, pressing to confirm. When the date is correct, press on the **SET DATE** screen to confirm.
- Press **SETUP WIZARD** and go to Step 6 on page 14.



Have you already set up another thermostat?

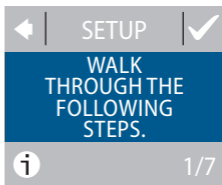
If you have already set one thermostat, you can easily copy the same settings to another one (or more). Go to the original thermostat and press **SETTINGS**. Press **INFO** then **READ OUT**. Write down the generated code then go directly to Step 13 on page 16.



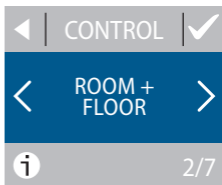
Initial Settings

3.1

6. On the **SETUP** information screen press to start.

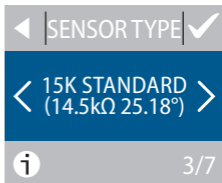


7. **CONTROL.** Use the < and > arrows to select whether only a floor sensor or a combination of room and floor sensors should be used. Press to confirm.

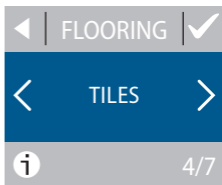


Note: A 'room only' option may also be available. See *Maximum Floor Temperature* on page 20.

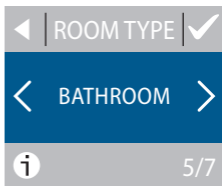
8. **SENSOR TYPE.** Use the < and > arrows to select the installed floor sensor type (measured resistance & corresponding temperature are shown in brackets). Press to confirm.



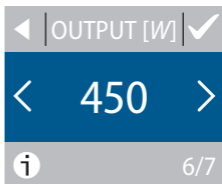
9. FLOORING. Use the < and > arrows to select the flooring type. Press to confirm.




10. ROOM TYPE. Use the < and > arrows to select the room type. Press to confirm.



11. OUTPUT [W]. Use the < and > arrows to set the approximate load of the heating element. If an external relay is used or the installed output is unknown, select the '--' option. Press to confirm.

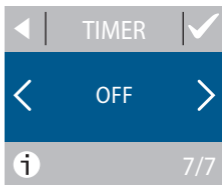


Note: Press  for more information about the selected function.

Initial Settings

3.1

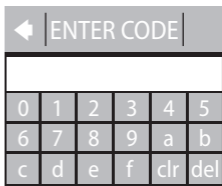
12.TIMER. Use the < and > arrows to select whether the timer should be activated or not. Press to confirm and end the initial thermostat setup. *Skip Step 13.*



If you already have one thermostat set up.

13. Press **SETTINGS** then **INSTALLATION**. Press **ENTER CODE**.

Key in your generated code (*no spaces or hyphens*). Press to end the initial thermostat setup. If no check mark () appears, the generated code is incorrect.



Note: Go to page 13 for details on where to find the generated code.

Forecast

3.2

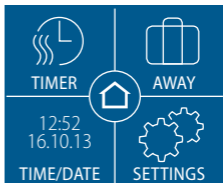
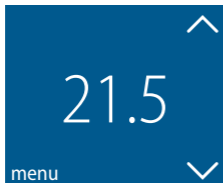
When *Forecast* is turned on, heating will start earlier so the required temperature is reached at the specified time.

For example, if your comfort temperature is set to 22°C and the timer is set to 6am, the temperature will be 22°C at 6am. However, if *Forecast* is switched off, heating won't start until 6am and will take a while to reach 22°C.

The *Forecast* feature also optimises heating stop when switching from comfort to economy temperature.

How to turn the Forecast feature on and off.

1. Touch the thermostat display to activate it, then press **menu**.
2. Press **SETTINGS** in the bottom right corner of the menu. Press **OPTIONS**.

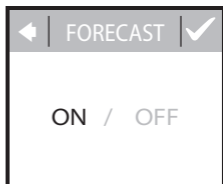
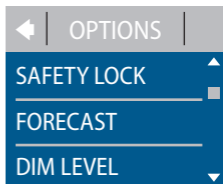


Forecast

3.2

3. Press **FORECAST**.
4. Press **ON** to optimise heating start/stop.

Or press **OFF** to simply let the heating start/stop at the specified time.
Press to confirm.



Note: To return to the normal temperature display, press the back arrow (←) in the upper left corner of the screen until you get to the main menu. Press the home (🏠) symbol in the middle of the screen.



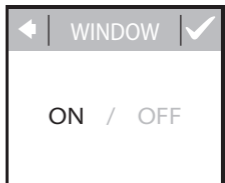
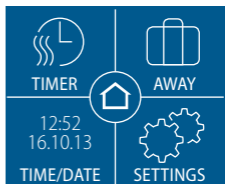
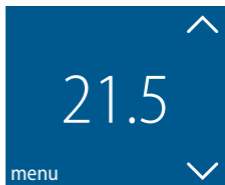
Window Open

3.3

How to turn 'window open detection' on or off.

1. Touch the thermostat display to activate it. Press **menu**.
2. Press **SETTINGS** in the bottom right corner of the menu. Press **OPTIONS**.
3. Press **WINDOW OPEN**. Press **ON** to temporarily turn off heating in case of a sudden temperature drop in the room or **OFF** to let the thermostat heat up, also during sudden temperature drops in the room. Press to confirm.

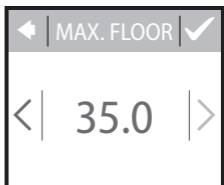
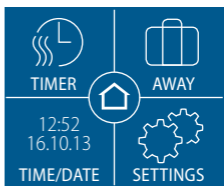
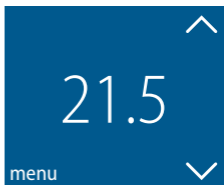
Note: To return to the normal temperature display, see note on page 18.



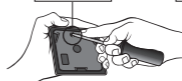
Maximum Floor Temperature 3.4

How to set the maximum floor temperature.

1. Touch the thermostat display to activate it. Press **menu**.
2. Press **SETTINGS** in the bottom right corner of the menu. Press **INSTALLATIONS** and **MANUAL SETUP**.
3. Press **MAX. FLOOR**. Use the < and > arrows to set the allowed maximum floor temperature. Press to confirm.



Note: To return to the normal temperature display, see note on page 18.



If you break the small plastic seal on the back of the display module (eg, using a screwdriver), it's possible to set the maximum floor temperature to 45°C. It would also be possible to use only a room sensor. However, this isn't recommended due to an increased risk of overheating the floor.

Important: When the thermostat is used to control a floor heating element in connection with a wooden floor or similar material, always use a floor sensor and never set the maximum floor temperature to more than 35°C.

Note: Please contact the floor supplier before altering the maximum floor temperature and be aware of the following:

- The floor temperature is measured where the sensor is placed.
- The temperature at the bottom of a wooden floor can be up to 10 degrees hotter than the top.
- Floor manufacturers often specify the maximum temperature on the top surface of the floor.

Maximum Floor Temperature 3.4

Thermal resistance (m ² K/W)	Examples of flooring	Details	Approx. setting for 25°C floor temperature
0.05	8mm HDF based laminate	< 800 kg/m ³	28°C
0.10	14mm beech parquet	650–800 kg/m ³	31°C
0.13	22mm solid oak plank	> 800 kg/m ³	32°C
< 0.17	Max. carpet thickness suitable for floor heating	acc. to EN 1307	34°C
0.18	22mm solid fir planks	450–650 kg/m ³	35°C

Enable/Disable Timer

3.5

How to enable and disable the timer.

1. Press the button on the side of the thermostat.



2. Press **ENABLE TIMER** to turn the timer function on, or **DISABLE TIMER** to turn the timer function off.



Symbols

4

The symbols shown below may appear in the upper left corner of the temperature display:

Symbol

Meaning



The thermostat is in manual mode, ie, the timer function is off. The timer lets you automatically switch between economy and comfort temperatures according to a predefined schedule.



An away period has been planned. On the date of departure, the away period starts at 00:00 and the specified away temperature will be maintained 24 hours a day until the date of return at 00:00. At this time the normal temperature settings will resume.



An error has occurred. If you press the warning symbol, more information on the error will appear.

Disposal Information

5



Warranty

6

The harmoni 50 thermostat comes with a 5-year warranty as standard.



Warranty

6

Name

Address

.....

County Postcode

Address

Phone

Email

Please note

In order to obtain the harmoni warranty, an authorised electrician/installer must fill in the details below.

Electrician	Installation
/installer	date

Thermostat	Article
name	number

Stamp:

Notes

harmoni50

harmoni

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