☐R remeha

*i*Sense
Timer thermostat

User manual

Contents

1. Introduction

The Remeha *i*Sense is an OpenTherm timer thermostat with many enhanced functions.
The iSense is supplied in two versions:
• iSense OpenTherm
• iSense RF (wireless), with the iBase RF transmitter

This manual covers both versions. Where information only pertains to one of the two versions then this is clearly stated.
A full description of the Remeha *i*Sense can be found in the Installation and Service manual.
This can be downloaded from www.remeha.nl.

2. Overview

The *i*Sense is menu-controlled, which means it is very simple to operate:
it only has three buttons.

Display

Menu   Program

Button A   Button B

Button C,
(push-turn)

2.1 Display

Pictograms — (top row of display)
Time — 12:00
Temperature — 20.5°C
Textbox menus — (left panel)
Mode button A — Menu
Mode button B — Program

T000060-06-A
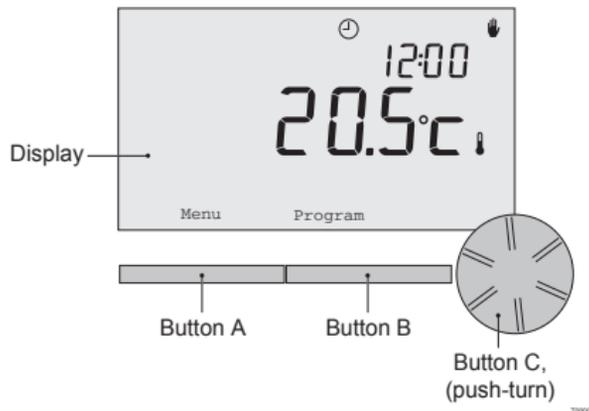
Most important pictograms

- ⊕ Clock program active
- ☼ Continuous day temperature
- ☾ Continuous night temperature
- ❄ Frost protection
- ⌐ Summer mode
- ♨ Manual setting
- ☐ Holiday program
- ⤬ DHW standby function switched off
- ↓ Current room temperature
- ↓ Room temperature set

- ▥ Controller requesting heat
- ↯ Central heating boiler on for hot water
- ▥ Central heating boiler on for central heating

Warning symbols

- ↴ Water pressure in central heating boiler too low
- △ General warning symbol
- ✓ Central heating boiler requires servicing
- ▯ Battery in controller almost empty
- ☝ No wireless connection

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2.2 Buttons

The function of button A and button B depends on the task you are carrying out. The function is shown in the display, immediately above the buttons.

Button C is a push-turn button. You press it to confirm choices, such as menu selections. By turning it you can perform various tasks such as scrolling through menus or changing values such as the temperature, time, date and language.
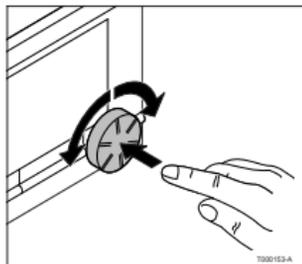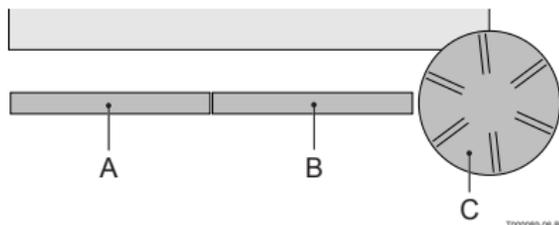
3. Installation

3.1 Location of the thermostat

The *i*Sense is set to room control by default, which means that the inside temperature is used to control the central heating. That is why it is best to locate the *i*Sense on an internal wall in the room in which you spend the most time, such as the living room.

Do not locate the controller too close to heat sources (fireplace, radiator, lamp, candles, direct sunlight etc.), or in places where it may be draughty.

iSense RF

The following also apply for the iSense RF:
- Position the iSense at least 1 metre from equipment with electromagnetic emissions such as wireless telephones, TVs, computers, microwave ovens, etc.
- Position the iSense so that it has good reception. Take account of the fact that objects containing metal will affect the reception. These include steel-reinforced concrete, mirrors and windows with a metal coating, insulating films etc.

ⓘ The signal strength can be viewed via **Menu > Information**.

3.2 Installation and connection

The following must be done before you install and connect the *i*Sense:
- Adjust the boiler so that it can be connected to an OpenTherm thermostat.
- Turn off the boiler.

Consult the boiler documentation for this process.

Do this as follows:
1. Open the housing by pulling the front and the base plate apart.

2. Attach the base plate of the controller to the wall using the screws and plugs supplied. Ensure that the boiler's connecting wires are protruding through the hole in the base plate.

3. Connect the thermostat to the boiler OpenTherm connection and the controller OT connection. OpenTherm is polarity insensitive; you may therefore swap the wires.
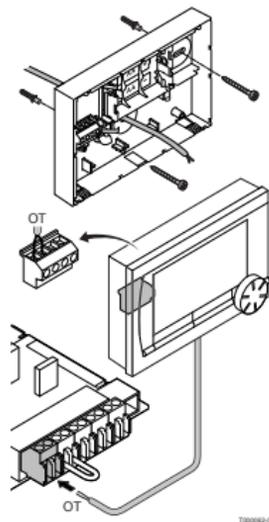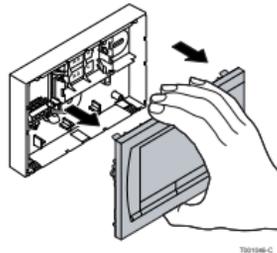
4. Place three AA batteries in the thermostat if required. These are not provided. The batteries ensure that the clock keeps running when the boiler is switched off. The batteries also power the backlight for the *i*Sense for boilers that do not have OpenTherm Smart Power. If you have a boiler with Smart Power, then the backlight for the *i*Sense also works without batteries.
   (iSense RF only) Place 3 AA batteries in the thermostat. These are required to operate the iSense RF.
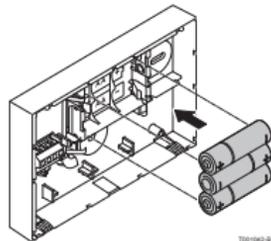
ⓘ *The programs that are set are saved if the boiler or the iSense is switched off (even if there are no batteries).*

The iSense RF automatically starts communicating with the iBase.

3.3 Location of the outside sensor

An outside temperature sensor is not supplied as standard with the *i*Sense.
You only require this sensor if you want weather-compensated control of the inside temperature.
The following guidelines apply with regard to choosing a location for an outside temperature sensor:
- Install the outside sensor on the north or north-west side of the home, away from direct sunlight.
- The sensor must be positioned at least 2.5 metres above ground level.
- Do not install the outside sensor near windows, doors, ventilation grills, extractors, etc.

Consult the documentation for your boiler for information on connecting an outside temperature sensor.

4. Prior to first use

4.1 Setting language, time and date

The menu for selecting the language (international version) or setting the time (Dutch version) appears when you connect the *i*Sense.

1. Select the desired language if applicable by turning button C and then push button C to confirm.
2. Follow the instructions on the display to select the time, year, month and day.

The controller is now ready for use. After installation, the default program is activated (see paragraph 4.2). The temperature is now controlled by this clock program.

ⓘ *The thermostat automatically switches between summer time and winter time settings.*

4.2 Default setting

Room control

The iSense is set to room control by default. This means that the flow temperature of the central heating water is controlled by the temperature in the room where the iSense is installed. Weather-compensated boiler control is also possible (with outside sensor); in other words based on the outside temperature. The controller has a programmed heating curve which determines the water flow temperature together with the outside temperature. The heating curve must be chosen so that the least favourable room can be efficiently heated even when the outside temperature is very low. See paragraph 5.4 for further information about weather-compensated control.

Clock program

The default clock program sets the temperature each day as follows:
- 06:00 – 19:00: 20°C (7 days)
- 19:00 – 23:00: 21°C (7 days)
- 23:00 – 06:00: 15°C + 🛠 (7 days)

You can of course adapt the clock programs to your own requirements. See Chapter 5.

5. Setting

5.1 Three usage modes

The *i*Sense has three usage modes:
- **Basic:** no clock programs are used in this mode.
  You can only set the temperature on the thermostat manually.
- **Normal:** this is the standard mode. Most options are available, such as the clock program.
- **Advanced:** this mode lets you use two standard clock programs (A and B), change more settings and request more detailed information.

You can change the usage mode via the menu: **Menu > Settings > User settings > Usage mode**.

ⓘ *This manual deals with most functions relating to the 'Normal' mode.*
This is the default mode after initial start-up.

5.2 Creating or changing a clock program

A clock program automatically controls the temperature for a day, and can be set for each individual day. You can adjust the default clock program or enter a completely new program.

(i) *The iSense starts pre-heating prior to the set time by default, so that the room has reached the desired temperature at the correct time.*

Making an overview

It is useful to draw up your own overview with switch times: what temperature does it need to be and when in your home? This of course depends on who is at home when, what time you get up etc. You can set up to six switch times per day.

An example of an overview is shown below:

Time	MO.	TU.	WE.	TH.	FR.	SA.	SU.
7:00	20°C	20°C	20°C	20°C	20°C		
9:00	15°C	15°C		15°C	15°C	20°C	20°C
11:00							
13:00							
15:00						15°C	
17:00							
19:00	21°C		21°C	21°C	21°C	21°C	
21:00		21°C					
23:00	15°C	15°C	15°C	15°C			15°C
0:00					15°C	15°C	

T001003-06-A

(i) *There is an overview template at the back of this manual that you can use for your own clock program.*

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Creating a new clock program

1. Select **Menu > Program > Clock program > New**.
2. Select an initial program if appropriate (Daytime home, Midweek home or Weekend home).
   You can now create your own clock program based on this program.
   Press button C to confirm.
3. Go to the day for which you want to set the clock program.
   Press button C to confirm.
4. Go to the time you want to set. Press button C to confirm.

(i) *You can use the **Remove** button to remove the selected switch time.*

5. Use button C to set the time and the corresponding desired temperature.
6. Once you have set all switch times for a particular day, you can copy the settings for that day
   to other days:
   - Go to the day.
   - Press **Copy**.
   - Select the day(s) to which you want to copy the settings using button C and press **Save**.
7. Go to the day. Then press button C.
8. Go to step 3 to set the next day, or press **Back** to close this menu.

Changing an existing clock program

1. Select **Menu > Program > Clock program > Change**.
2. Go to the day for which you want to change the clock program.
   Press button C to confirm.
3. Go to the time you want to change. Press button C to confirm.

(i) *You can use the **Remove** button to remove the selected switch time*.

4. Use button C to set the time and the corresponding desired temperature.
5. Once you have set all switch times for a particular day, you can copy the settings for that day to
   other days:
- Go to the day.
- Press **Copy**.
- Select the day(s) to which you want to copy the settings using button C and press **Save**.
6. Go to the day. Then press button C.
7. Go to step 2 to set the next day, or press **Back** to close this menu.

Restoring the default settings

Select **Menu > Program > Clock program > Factory program** to restore the settings for the
default clock program.

5.3 Setting continuous temperatures

Instead of the clock program, you can also set the room temperature continuously to a particular value. You can set three different continuous temperatures via **Menu > Program**:

- **Day temp.:** room temperature during the day, corresponding to the "Continuous day" program.
- **Night temp.:** room temperature at night, corresponding to the "Continuous night" program.
- **Frost temp.:** room temperature to protect the room where the controller is installed from freezing. This setting comes under the "Frost protected" program.

ⓘ *The programs mentioned are explained in paragraph 6.1.*

5.4 Setting the control strategy

The iSense lets you use the room control and/or weather-compensated control strategies in various ways.

You can select a control strategy via **Menu > Settings > System > Control strategy**.

Specific settings for weather-compensated control

If you have opted for a weather-compensated control strategy, a number of extra settings are available via **Menu > Settings > System > OTC settings**.

Heating curve:

- **Base point outside:** outside temperature base point
- **Base point flow:** flow temperature base point
- **Climate point outside:** outside temperature climate point
- **Climate point flow:** flow temperature climate point
- **Curvature:** degree of curvature of the heating curve, depending on your central heating system. Select the relevant type of heaters: underfloor heating, radiators or convectors. This will provide more comfort early and late in the year.

(i) *The heating curve is based on an outside temperature of 20°C. When the desired room temperature is increased, the heating curve shifts upwards. The degree of increase is determined using the "RT effect" function.*

- **RT effect:** factor influencing the shift in the heating curve
- **Day temperature limit:** outside temperature above which the central heating is switched off during the day. The day temperature limit is relevant when the desired room temperature is

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higher than the night temperature that has been set via **Menu > Program > Night temperature**

- **Night temperature limit:** outside temperature above which the central heating is switched off during the night. The night temperature limit is relevant when the desired room temperature is the same as or lower than the night temperature that has been set via **Menu > Program > Night temperature**

Heating curve – an example

Climate point

100
90
80
70
60
50
40
30
20
10
0

Boiler temperature (ºC)

-15   -5   0   5   15   25

Outside temperature (ºC)

Increased room temperature during the day

Desired room temperature of 20ºC during the day

Desired room temperature of 15ºC during the night

Base point

T001032-06-A
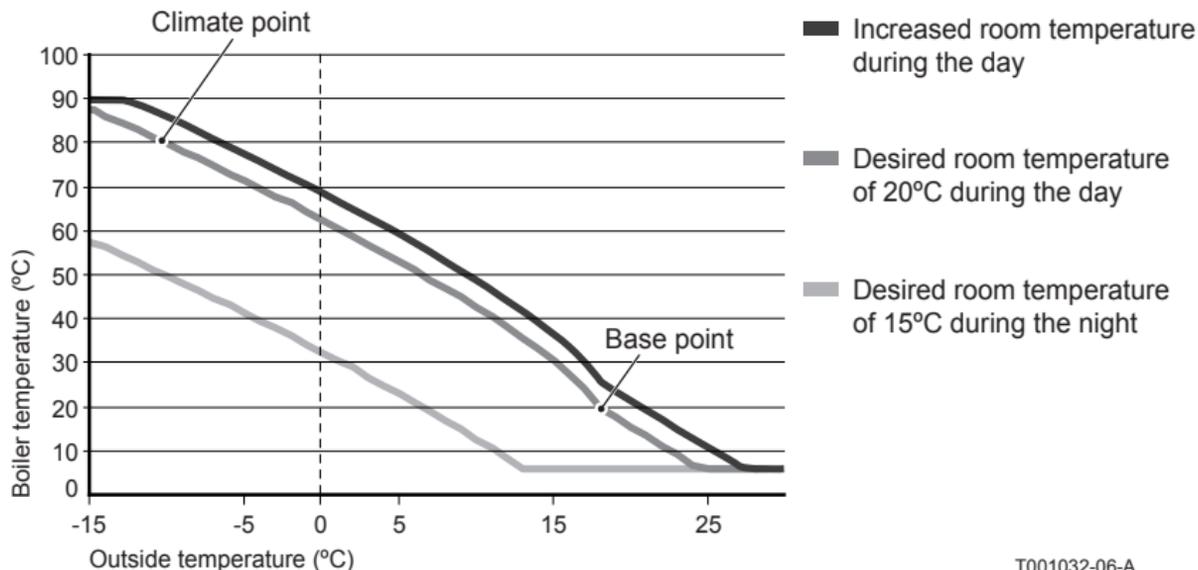
(i) *See also see day/night temperature limit 12.4*

The settings for the heating curve are highly dependent on the design of the central heating system and the home. This means that no clear advice can be given on this matter. The heating curve can be optimised during use. The heating curve also shifts upwards or downwards when the temperature is increased or decreased.

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5.5 Setting a holiday program

It can be useful to set a holiday program if you are away from home for some time.
This ensures a constant temperature in your home for the period you set.
You set the temperature yourself.

A holiday program automatically takes effect at 0.00 hours on the start date and ends
at 0.00 on the end date.

The ☐ symbol appears in the display.
This program is switched off and removed once the period set has ended.

You can set a maximum of 16 holiday programs.
You do this via **Menu > Program > Holiday prog.**:
- **Select View** to look at the holiday programs set.
- Select **Change** to change or remove programs.
- Select **Enter** to add a new program.
- Select **Desired temp.** to set the constant temperature.

5.6 Other settings

You can change a number of settings via the **Settings** menu. These are summarised here; a more detailed explanation can be found in the Installation and Service manual.

- **Language and display** settings.
- **Calibration:** you can calibrate the sensor by positioning an accurate thermometer next to the controller.
- **Comfort correction:** *i*Sense takes into account the perceived temperature.
- **Frost protection:** if an external sensor is connected, the outside temperature will be used to switch on the frost protection automatically. If the outside temperature falls below the set value, the pump will continue to run and the central heating water will not get colder than 10°C.
- **Anti-legionella** (only for calorifiers)**:** to prevent legionella growth, you are advised to heat the calorifier up to 65°C once a week.
- **Tap water temperature:** set the desired tap water temperature; for boilers with a temperature program where applicable.
- **DHW standby:** used to indicate when the tap water needs pre-heating. If the tap water is pre-heated, hot water will be available more quickly.
- **Digital input:** to have the *i*Sense carry out tasks from an external module, for example during overtime.
- 5 different **control strategies** based on room control and/or weather-compensated control.
- Specific **central heating system settings**, such as the home's heating and cooling rate.

6. Using the *i*Sense

6.1 Selecting program

You can select one of the following programs via **Program** in the main display:

- **Clock program:** the central heating temperature is controlled by the program you have set.
- **Continuous day:** the temperature remains constant at the day temperature you have set.
- **Continuous night:** the temperature remains constant at the night temperature you have set.
- **Frost protection:** the temperature remains constant at the frost protection temperature you have set. DHW standby is switched off for this program.
- **Continuous summer:** the temperature remains constant at the night temperature, whereby the tap water is on standby between 6.00 and 23.00 (which means that you will get hot water more quickly).

6.2 Temporarily changing the temperature

You can (temporarily) switch off a selected clock program or continuous program at any time by setting the temperature manually.

1. Turn button C from the main display to set a new temperature.
2. Press **Adjust time** if you also want to set an end time for the manually-selected temperature, and select this time using push-turn button C.

ⓘ *If you do not select an end time and a clock program was active, that clock program will become active again at the next switch point. Manual operation will then be switched off.*

3. Press **Adjust date** if you also want to set an end date for the manually selected temperature, and select this time using push-turn button C.
4. Press **button C** to return to the main menu or wait five seconds until the thermostat automatically returns to the main menu.

Press the **Next program** button to cancel the manual temperature change.

6.3 Fireplace mode

Once the temperature has reached the desired level in the room where the *i*Sense has been positioned, the central heating switches off. This may be inconvenient if, for example, you have an open fire or if a lot of people are present in that room. Other rooms in the house are also no longer heated in this situation.

You can switch on the fireplace mode via the **Program** button so that the other rooms are still heated. This switches off the built-in room sensor in the *i*Sense. The temperature of the central heating water at that point is then maintained.

If it becomes too cold or too hot in the other rooms, you can increase or decrease the room temperature there using push-turn button C on the *i*Sense. This increases or decreases the central heating water temperature. You can fit thermostat valves to the radiators in order to individually control the temperatures in these rooms.

ⓘ *The fireplace mode should only be activated if the iSense uses the room temperature to control the temperature.*

(i) We advise that you close the radiator valves in the room in which the iSense has been positioned to prevent the room temperature there becoming too high.

(i) The controller switches to weather-compensated control if the outside temperature sensor is used.

6.4 Information

You can request operating information about your central heating system, such as the water pressure in the central heating system and various temperatures, via **Menu > Information**. The information available depends on your central heating unit.

The "Basic" and "Normal" modes do not show all information categories which are available. Select **More information** to make all information available.

7. Messages

This is what a fault message or service message looks like:

Fault indication

Display text
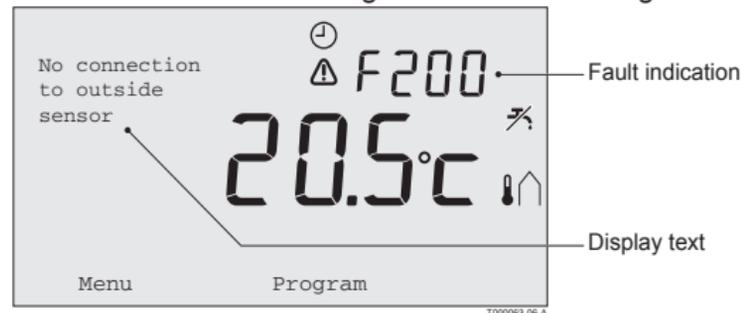
7.1 Fault messages

F200: No connection to outside sensor

Fault indication	Fault code F200
	⚠ and 🌡 are lit up.
Display text	No connection to outside sensor.
Solution	Check the boiler's connection to the outside temperature sensor.

T001014-06-A

F203: Faulty connection to boiler

Fault indication	Fault code F203
	⚠ is lit up.
Display text	Communication fault. Check the connection.
Solution	Check the connection to the boiler.

T001009-06-A

F214: Incorrect room temperature reading

Fault indication	Fault code F214 ⚠ is lit up.
Display text	Room temperature is out of measuring range or sensor is defective.
Solution	Room temperature reading is incorrect. If the room temperature is between -5ºC and 65ºC, the temperature sensor may be faulty. Contact your installer.

T001015-06-A

F215: Controller failure

Fault indication	Fault code F215 ⚠ is lit up.
Display text	Internal fault. Controller failure.
Solution	Contact your installer.

T001008-06-A

F216: No connection with base station (iSense RF only)

Fault indication	Fault code F216 📶 and ⚠ are lit up.
Display text	Wireless communication fault.
Solution	Check whether the iBase for the boiler is on and is functioning correctly (consult the transmitter manual if necessary). If there is no connection between the iSense and iBase, then restore the connection as follows: Put the iBase in connection mode. Consult the iBase manual for this. On the iSense select **Menu > Settings > User settings > Connection**. If this does not solve the problem, look for another location for the iSense and/or iBase or remove "obstacles" that could interfere with the RF signal.

T001008a-06-A

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Water pressure too low

Fault indication	Current water pressure and are lit up.
Display text	The water pressure in your central heating system is too low.
Solution	Top up the water in the central heating system. See the documentation for your boiler.

T001011-06-A

E-code: boiler failure

Fault indication	E-code is lit up.
Display text	Boiler failure. Consult the fault table in the user manual for the boiler.
Solution	Use the E-code to find the fault in the central heating boiler's documentation.

T001013-06-A

Controller batteries flat

Fault indication	⚠ and 🔋 are lit up.
Display text	-
Solution	The batteries are almost empty. Replace the three AA batteries.

T001016-06-A

7.2 Service message

Boiler service required

Fault indication	
Display text	Maintenance service type (A, B or C) required. Contact your installer.
	🔧 is lit up.
Solution	Contact your installer to have the central heating boiler serviced.

T001033-06-A

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8. Problems and solutions

Problem	The central heating is coming on too early in the morning.
Solution	Adjust the **Max. pre-heating time** setting (see the installation and service manual).
	The home may well not be up to temperature on time as a result.

<div align="right">T001019-06-A</div>

Problem	The home is not warm on time.
Solution	- Open the radiator valve further when the radiators warm up.
	- Increase the **Max. pre-heating time** (see the installation and service manual).
	- Increase the desired **Heat up rate** by adjusting this to **Fastest**, for example (see the installation and service manual).
	For weather-compensated control you have the following options:
	- Set the radiator thermostat valves correctly.
	- Adjust the heating curve (see the installation and service manual).
	- Change the control strategy (see the installation and service manual).
	There may also be technical problems with the central heating installation.
	In that case contact your installer.

<div align="right">T001020-06-A</div>

Problem	The house is too warm.
Solution	Weather-compensated control means that no account is taken of the measured room temperature. Solve the problem in one of the following ways: - Set the radiator thermostat valves correctly. - Reduce the heating curve (see the installation and service manual). - Change the control strategy (see the installation and service manual). Room control may mean that the heat up rate is too high or that the controller is not correctly calibrated.

T001021-06-A

Problem	The house does not become warm enough.
Solution	Weather-compensated control means that no account is taken of the measured room temperature. Solve the problem in one of the following ways: - Set the radiator thermostat valves correctly. - Increase the heating curve (see the installation and service manual). - Change the control strategy (see the installation and service manual).

T001022-06-A

Problem	It takes too long for the tap water to get up to temperature.
Solution	- Boiler: the DHW standby function may be switched off.
	In that case the symbol ⤬ is shown in the display.
	Control the DHW standby with the **DHW standby** setting
	(see the installation and service manual).
	- Boiler: the boiler may be heated up too late.
	Set the tap water temperature using the **Tap water temperature** setting
	(see the installation and service manual).

T001023-06-A

Problem	The boiler supplies no hot water or hot water only briefly.
Solution	The DHW standby function ⤬ may be switched off.
	Switch the DHW standby function to "Continuous" (see paragraph 9.2).

T001254-06-A

Problem	The boiler starts heating the home or the tap water at night even though the controller is set low.
Solution	- Weather-compensated control (OTC) means that the boiler is controlled by the outside temperature. This can be prevented by adjusting the Night temperature limit or selecting another control strategy. See the installation and service manual.
	- The boiler can start pre-heating before the following set point. Adjust the Max. pre-heating time setting (see the installation and service manual). The home may well not be up to temperature on time as a result.
	- The tap water is only heated when the room temperature set is higher than the night temperature. See the installation and service manual for details of how to change the night temperature.

T001024-06-A

Problem	The temperature measurement differs from that which I am used to.
Solution	Correct the temperature measurement via the **Calibration** setting
	(see the installation and service manual).

T001025-06-A

Problem	The display does not function.
Solution	Check that the wiring is correct and that the plug for the boiler
	is in the wall socket.

T001026-06-A

Problem	The backlight for the display does not work.
Solution	Your boiler may not support OpenTherm Smart Power.
	In that case fit batteries in the iSense (see paragraph 3.2).

T001027-06-A

9. Technical specifications

Dimensions	
	96 x 144 x 34 (l x w x h) in mm Height excluding buttons 96 x 144 x 25 (l x w x h) in mm
Power supply	
iSense OpenTherm	Via OpenTherm
iSense RF	Via batteries
Electrical connection	
iSense OpenTherm	OpenTherm communication. Connection for low-voltage wires
iSense RF	Bi-directional secure communication
Batteries	3 x AA batteries. Lifetime: dependent on the brand of battery
Digital input	Potential-free contact (switch)
Ambient conditions	
Storage conditions	Temperature: -25°C – 60°C
	Relative humidity: 5% – 90%, no condensation
Operating conditions	Without batteries: 0°C – 60°C. With batteries: 0°C – 55°C
Temperature	
Room temperature	Measurement range: -5°C – 65°C
	Maximum temperature deviation at 20°C: 0.3°C

Outside temperature	The measurement is taken in the boiler and passed to the controller.
	Consult the boiler documentation regarding the accuracy of the measurement.
Set temperature range	5 – 35°C
Calibration options	Inside and outside temperature sensor: -5 to + 5 in steps of 0.5°C
Control	Modulating temperature control
	The control can be optimised
Room control	Overshoot: maximum 1°C after pre-heating
	Temperature variation: less than 0.25°C
Control strategies	Room temperature control
	Weather-compensated control
	3 combination options
Features of the controller	
Backlight	Colour: blue
Date/time indication	Time: 24 h clock. Accuracy: to about 365 seconds per year
	Date: day – month – year
	Automatic switching to summer time
Programs	2 clock programs with 6 switch points per day
	Boiler clock program with 6 switch points per day
	16 holiday programs
	Day, Night, Frost protection, Summer mode, Fireplace

Setting accuracy	Temperature: 0.5°C.
	Clock program: 10 minutes
Wireless range (iSense RF)	Approximately 8 metres through 2 concrete layers (depending on the surroundings, see paragraph 3.1)
Operation	Menu-controlled using push buttons and a push-turn button
Installation	Directly on the wall using screws or built-in junction box as per standards.
	Built-in system possible using built-in part (art. S100994)
Quality marks and compliance with standards	EMC: 89/336/EEC – EN50165(1997), 55014, 55022
	Emission EN61000-6-3
	Immunity EN61000-6-2
	Drop test: IEC 68-2-32
	RoHS compliant
	OpenTherm V3.0 certified (iSense OpenTherm only)
	ETSI 220-300 TBD (iSense RF only)
Protection class	IP20 for wall installation, IPx4 for the built-in system.

Appendix: clock program template

Time	MO.	TU.	WE.	TH.	FR.	SA.	SU.
00.__							
01.__							
02.__							
03.__							
04.__							
05.__							
06.__							
07.__							
08.__							
09.__							
10.__							
11.__							

Time	MO.	TU.	WE.	TH.	FR.	SA.	
12.__							
13.__							
14.__							
15.__							
16.__							
17.__							
18.__							
19.__							
20.__							
21.__							
22.__							
23.__							

T00

(i) *Switch points can be set to a precision of 10 minutes.*
Enter the switch points as required.