

# THE HEAT CONTROLLER

## RADIATOR THERMOSTAT

### FGBHT-001



## CONTENTS

v1.0

|                                      |    |                                       |    |
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## Important safety information



### **Read this manual before attempting to install the device!**

Failure to observe recommendations included in this manual may be dangerous or cause a violation of the law. The manufacturer, Fibar Group S.A. will not be held responsible for any loss or damage resulting from not following the instructions of operating manual.

**This product is not a toy. Keep away from children and animals!  
CR2032 coin cell battery is harmful if swallowed!**

### **Battery pack warning!**

The Heat Controller contains lithium-ion polymer battery pack, heed all following warnings:

- If an unusual odor or malfunction is detected, avoid sources of open flame and remove the device from the radiator.
- In the event of damage from crashes, etc, carefully remove to a safe place for at least a half hour to observe.
- Do not leave the device unattended while charging.
- Do not attempt to replace the battery!

## HomeKit technology

**Apple HomeKit** technology provides an easy, secure way to control HomeKit-enabled accessories using Siri on your iPhone, iPad, or iPod touch.

After installing your **FIBARO Heat Controller** configure it from a compatible app with just a few simple steps.

You can even create your own custom scenes to control your home settings. For example, you can create a scene to automatically turn off the lights, lock your doors, close the garage door, and set the thermostat to the desired temperature in just one step.



To control this HomeKit-enabled accessory, iOS 11.2 or later is recommended.

Controlling this HomeKit-enabled accessory automatically and away from home requires an Apple TV with tvOS 11 or later, a HomePod or an iPad with iOS 11.2 or later set up as a home hub.

## #1: Description and features

**FIBARO Heat Controller** is a HomeKit-enabled, remotely controlled thermostatic head to control temperature in your room using *Bluetooth® low energy* wireless technology.

It measures the temperature and automatically adjusts the heat level. It can be mounted without tools on three types of thermostatic radiator valves.

You can create schedule via app to easily manage temperature throughout the week.

### **Main features of FIBARO Heat Controller:**

- to be installed on three types of valves: M30 x 1.5, Danfoss RTD-N and Danfoss RA-N,
- compatible with Apple HomeKit technology,
- *Bluetooth® low energy* technology for wireless communication,
- built-in battery recharged through standard micro-USB port,
- easy installation - no tools required,
- can use an external temperature sensor - FGBRS-001,
- supports weekly heating schedule,
- automatic calibration,
- anti-freeze function,
- decalc function,
- unconstrained rotation spherical knob to set desired temperature.

### **3 types of controlling the temperature in FIBARO Heat Controller:**

- manually - directly on the device,
- schedule mode - creating scheduling rules to manage temperature in the room throughout the week. Schedule is created via app,
- override mode - replaces currently scheduled temperature for a specific time.

## #2: Basic activation

### **i** NOTE

First charging may take up to 3 hours.

### **i** NOTE

In order to achieve the best performance install the device in horizontal position.

### **!** CAUTION

If you use one of the adapters, double check that it is mounted properly. It should click when putting on the valve, hold tight after installing and not rotate!

### **!** CAUTION

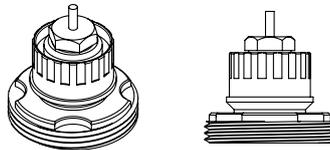
Do not cover or veil the thermostatic head.

1. Connect the charger to the micro-USB port to charge the device.
2. Disconnect the charger when the LED ring pulses green (device fully charged).
3. Dismount your current thermostatic head.
4. Depending on type of your thermostatic valve:



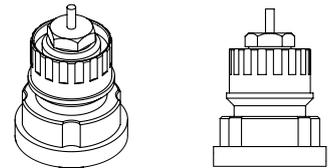
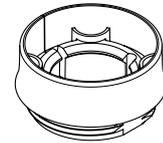
M30 x 1.5

Proceed normally



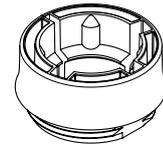
Danfoss RTD-N

Use adapter:



Danfoss RA-N

Use adapter:



5. Mount the device on the valve and tighten it by turning the cap clockwise.

## #3: Pairing with HomeKit (FGBHT-001)

1. Open the Settings app on your iOS device.
2. Go to the *Bluetooth*<sup>®</sup> section, and turn the *Bluetooth*<sup>®</sup> on.
3. Place the accessory next to your iOS device.
4. Open a HomeKit compatible app of your choosing on your iOS device.
5. Find HomeKit Setup Code on the last page of *Quick Start Guide* included in the box that looks like this:



6. Start pairing with your HomeKit app.
7. Follow instructions displayed in the application.

### **i** NOTE

You will find the Setup Code on the device's housing and on the back of the Quick Start Guide.

## #4: Controlling the temperature

You can set temperature using app (10-30°C) or directly on the device (16-24°C). During manual temperature change LED ring colour corresponds to the temperature set-point.

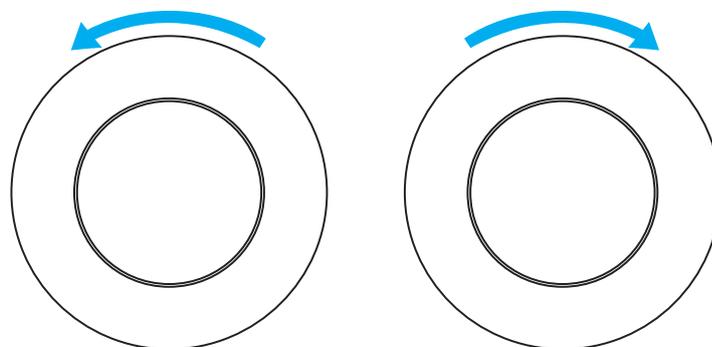
### To check and change the temperature on the device:

1. Bring your hand close to the sphere.
2. LED ring will:
  - Glow if temperature was set manually,
  - Pulse slowly if device is in schedule mode,
  - Pulse quickly if device is in override mode.

With colour depending on set temperature:

| Temperature [°C]           | Colour       |
|----------------------------|--------------|
| Valve closed (anti-freeze) | White        |
| 16°C or lower              | Blue         |
| 17°C                       | Azure        |
| 18°C                       | Cyan         |
| 19°C                       | Spring green |
| 20°C                       | Green        |
| 21°C                       | Chartreuse   |
| 22°C                       | Yellow       |
| 23°C                       | Orange       |
| 24°C or higher             | Red          |
| Valve fully opened (30°C)  | Magenta      |

3. Turn the sphere counter-clockwise to lower temperature or turn clockwise to raise the temperature.



Lower temperature

Raise temperature

### **i** NOTE

If device is currently in schedule, setting temperature manually will override it (see "Weekly schedule and Override Mode" on page 15).

4. Remove the hand from the sphere, after 5 seconds LED will fade and new temperature will be set.

## #5: Extra temperature sensor

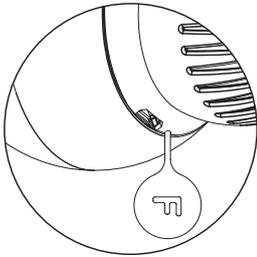
The device can be used with an additional, dedicated temperature sensor (FGBRS-001) to provide the best temperature regulation.

It can be placed anywhere in the room and the device will use it as a reference point for the room temperature.

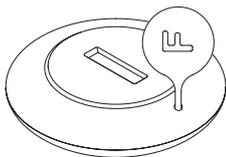
Before using, the sensor must be paired with the thermostatic head. One thermostatic head can be paired with only one sensor, but one sensor can be paired with up to three thermostatic heads.

To **pair** the FGBRS-001 with the device:

1. Use the included key to press and hold the button.



2. Release the button when you see **blue** LED colour.
3. Quickly click the button to confirm, the LED ring will start blinking blue.
4. Within 1 minute click button on the sensor.



5. The LED ring on thermostatic head will glow green to confirm successful pairing.
6. Place the sensor in same room as head, no further than 5 meters from it.

To **remove** all **paired heads**:

1. Press and hold the button on the sensor for 2 seconds.
2. LED on the sensor will blink 3 times to confirm unpairing.

### NOTE

FGBRS-001 is the only compatible external temperature sensor.

### CAUTION

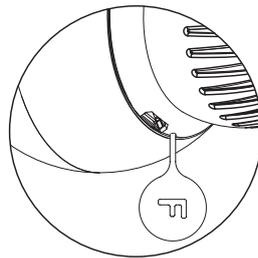
This product is not a toy. Keep away from children and animals!

## #6: Dismounting the device

Before dismounting, the device must be put in Standby Mode to ensure safe removal. See chapter "Standby Mode" on page 12 for more information.

### To dismount the device:

1. Use the included key to press and hold the button.

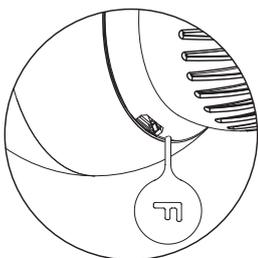


2. Release the button when you see **cyan** LED colour.
3. Quickly click the button to confirm.
4. Wait for the LED to stop blinking.
5. Turn the cap counter-clockwise and remove adapter if used.
6. Store the device in temperature: -10°C to 25°C.

## #7: Menu

**Menu** allows to perform important configuration and maintenance actions. In order to use the menu:

1. Use the included key to press and hold the button.



2. Release the button when you see desired LED colour:

| Colour | Action                                  |
|--------|---|
| Blue   | pair dedicated temperature sensor       |
| Red    | enable/disable local control protection |
| White  | perform head calibration                |
| Cyan   | put device in Standby Mode              |
| Yellow | factory reset                           |

3. Quickly click the button to confirm.

## #8: Local protection

After enabling the local control protection changing temperature directly on the device (by turning it) will not be possible.

Enabling local protection is recommended if you want to prevent accidental temperature change, e.g. by children. Local protection can be enabled/disabled manually or via app.

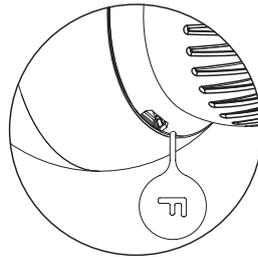
When attempting to change temperature if local protection is enabled:

- The device will not set new temperature,
- The LED ring will blink red 3 times.

To change the temperature use the app or disable the local protection.

### To enable/disable local protection:

1. Use the included key to press and hold the button.



2. Release the button when you see **red** LED colour.
3. Quickly click the button to confirm.

## #9: Head calibration

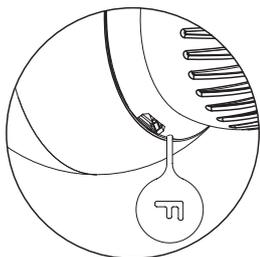
Calibrating the device to your radiator valve is required for proper controlling the temperature.

### Calibration is performed:

- Automatically, after 10 minutes from turning on if no operation on the device has been made\*,
- Automatically, after 10 minutes from last manual state change\*,
- Manually, using the menu (see below),
- Using Settings in FIBARO for HomeKit Devices app,
- After setting the temperature in FIBARO for HomeKit Devices app\*.

### To perform calibration using the menu:

1. Use the included key to press and hold the button.



2. Release the button when you see white LED colour.
3. Quickly click the button to confirm.

### NOTE

Calibration cannot be performed while the device is being charged.

### CAUTION

If calibration is not successfully completed, device will be unable to work correctly.

\* Only at first installation, after factory reset or after exiting Standby Mode.

## #10: Standby Mode

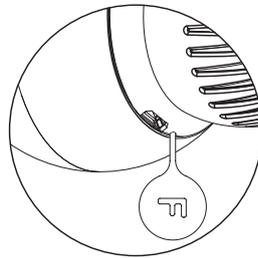
In Standby Mode the device is in deep sleep state allowing for safe dismounting, transporting and low as possible battery consumption.

The device is shipped in Standby Mode.

Entering the device in Standby Mode **will not** factory reset the device **nor** will result in losing any data, but calibration and sensor pairing (after long Standby) is lost.

### To enter Standby Mode:

1. Use the included key to press and hold the button.



2. Release the button when you see **cyan** LED colour.
3. Quickly click the button to confirm.
4. Wait for the LED to stop blinking.

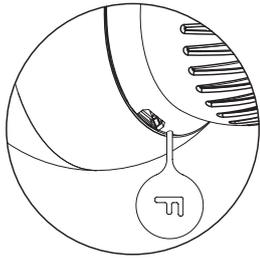
**To exit Standby Mode** click the button once, the device will enter first installation procedure.

## #11: Factory reset

Reset procedure allows to restore the accessory back to its factory settings, including HomeKit and extra temperature sensor pairing and device configuration.

### To perform factory reset:

1. Use the included key to press and hold the button.



2. When the LED ring glows **yellow**, release the button.
3. Quickly click the button to confirm.
4. After finishing resetting the device will be put in Standby Mode. Click the button to activate it again.

## #12: Battery and charging

### CAUTION

Makesureyouareusing certified charger Class II, marked  which complies with parameters specified in the manual.

### CAUTION

Do not leave the device unattended while charging.

### CAUTION

Set the device to OFF (white) before charging or dismount the thermostatic head if not possible.

### NOTE

Do not use cables longer than 3 meters for charging the device.

### CAUTION

Make sure the device won't discharge during the heating season or it may cause high temperatures!

The device is equipped with a rechargeable lithium-polymer battery pack that can be charged via micro-USB port using standard 5V charger (not included).

When battery is low the LED ring will start to blink red. The device will also report low battery status of itself and dedicated temperature sensor (if paired) to the controller.

The device does not operate the valve and maintains the last valve position until fully charged.

### **To charge the battery:**

1. Connect charger to the micro-USB port.
2. During charging the LED ring will pulse red and valve control will be disabled.
3. When LED starts pulsing green, disconnect the charger.
4. The device will restore its previous operation.

## #13: Weekly schedule and Override Mode

The device allows to create heating schedule to manage temperature in the room throughout the week. Schedule is created via app. Up to 50 different rules can be created in schedule.

### To create rule user should specify:

- Day of the week,
- Starting time (hour and minute),
- One of four available modes:
  1. Away mode – 10-29.5°C (16.5°C by default)
  2. Eco mode – 10-29.5°C (19.5°C by default)
  3. Comfort mode – 10-29.5°C (21.5°C by default)
  4. Comfort Plus mode – 10-29.5°C (23.5°C by default)

**Override Mode** is a special type of mode that overrides schedule. Override Mode starts right after setting it for fixed duration (4 hours by default). Duration can be changed in FIBARO app.

To **start** Override Mode set temperature by turning the knob or change the temperature via app, while schedule is active. LED ring will pulse quickly with selected colour.

To **exit** Override Mode grab knob with your hand for 5 seconds.

There are 3 special types of override modes:

**Vacation mode** is a special override mode that sets constant temperature (between 10-29.5°C) and works until turned off.

**Valve closed (anti-freeze)** is a mode where valve opens only to prevent freezing. It works until turned off.

**Valve fully opened (30°C)** is a mode where the temperature is raised to the maximum value, device does not regulate the temperature and valve is fully opened. It works until turned off.



### CAUTION

Working in override mode for a week or longer turns off schedule mode.

## #14: Configurable parameters

### 1. External sensor status (read-only)

Status of the connection with external temperature sensor.

|                     |  |
|---------------------|--|
| Available settings: | <b>0</b> – unpaired<br><b>1</b> – paired |
| Default setting:    | <b>0</b> (unpaired)                      |

### 2. Lock physical control

Parental lock of manual control. When enabled the device prevents changing the temperature by turning the knob until it is disabled by this parameter or from the menu.

|                     |   |
|---------------------|---|
| Available settings: | <b>0</b> – manual control enabled<br><b>1</b> – manual control disabled |
| Default setting:    | <b>0</b> (enabled)  |

### 3. Calibration

Forcing automatic calibration of the device.

|                     |   |
|---------------------|---|
| Available settings: | <b>0</b> – device is not during calibration<br><b>1</b> – force autocalibration |
| Default setting:    | <b>0</b>  |

## #15: Status faults

The device reports the status of detected errors in the form of a bit mask (status faults). Values can be combined, for example: code with value 5 (1+4) means low battery and calibration error were detected.

| Code | Status  |
|------|---|
| 0x01 | <b>Low battery of external sensor</b> - battery level of extra temperature sensor is low. Change the battery. |
| 0x02 | <b>Hardware fault</b> - fault of the device. Device will try to calibrate again.                              |
| 0x04 | <b>Calibration error*</b> - unsuccessful calibration. Device is unable to work properly.                      |

\* After every Factory Reset and Standby Mode device reports calibration error (status disappears after correct calibration).

## #16: Specifications

### NOTE

Charger type: Unit shall be supplied by a source certified as Limited Power Source (LPS) as defined in clause 2.5 of IEC60950-1 2nd edition + Amd. 1 + Amd. 2.

### CAUTION

SELV power supply (USB supply) is used only for battery charging. The device does not operate the valve during the charging.

|   |   |
|---|---|
| Power supply:   | 3.7V Li-Poly battery pack (non-replaceable)                       |
| Charging port:  | micro-USB   |
| Charger voltage (not included):   | 5V DC ( $\pm 5\%$ )   |
| Minimum charger current (not included):                                   | 0.5A  |
| Operating temperature:  | 0–40°C  |
| Storage temperature (standby mode)  | -10–25°C  |
| Maximum water temperature:  | 90°C  |
| Temperature measuring accuracy:   | 0.5°C (within 0–40°C range)                                       |
| Regulator class:  | Type 1 class  |
| Device Firmware Class:  | A-grade   |
| Motor protection:   | Impedance Protected   |
| Actuator action:  | Linear variable position actuator                                 |
| Actuator stroke:  | 5mm   |
| Purpose of control:   | Operating control   |
| Construction of control:  | Integrated control  |
| Degree of protection by enclosure:  | IP20  |
| Classification of control according to protection against electric shock: | Class III   |
| Action type:  | type 1  |
| Control pollution degree:   | pollution degree 2  |
| Rated impulse voltage:  | 330V (when connected to the USB power supply)                     |
| Dimensions (Diameter x Length):   | 56 x 74 mm (without the adapter)<br>56 x 87 mm (with the adapter) |
| EU Directive compliance:  | RoHS 2011/65/EU<br>RED 2014/53/EU                                 |

**For communication with the controller:**

|                         |                                     |
|-------------------------|-------------------------------------|
| Radio protocol:         | <i>Bluetooth</i> ® low energy (4.2) |
| Radio frequency band:   | 2.4 GHz ISM band                    |
| Maximum transmit power: | EIRP up to 6dBm                     |

**For communication with the extra sensor (FGBRS-001):**

|                         |                                     |
|-------------------------|-------------------------------------|
| Radio protocol:         | <i>Bluetooth</i> ® low energy (4.2) |
| Radio frequency band:   | 2.4 GHz ISM band                    |
| Maximum transmit power: | EIRP up to 6dBm                     |

## #17: Sensor specification (FGBRS-001)



### CAUTION

Using batteries other than specified may result in explosion. Dispose of properly, observing environmental protection rules.



### CAUTION

CR2032 coin cell battery is harmful if swallowed!

|                                    |                                     |
|------------------------------------|-------------------------------------|
| Power supply:                      | CR2032, 3.0V battery (included)     |
| Operating temperature:             | 0–40°C                              |
| Storage temperature:               | -10–40°C                            |
| Temperature measuring accuracy:    | 0.5°C (within 0–40°C range)         |
| Dimensions<br>(Diameter x Height): | 38 x 12 mm                          |
| Radio protocol:                    | <i>Bluetooth</i> ® low energy (4.2) |
| Radio frequency band:              | 2.4 GHz ISM band                    |
| Maximum transmit power:            | EIRP up to 6.5dBm                   |
| EU Directive compliance:           | RoHS 2011/65/EU<br>RED 2014/53/EU   |

## #18: Regulations

### Legal Notices

All information, including, but not limited to, information regarding the features, functionality, and/or other product specification are subject to change without notice. Fibaro reserves all rights to revise or update its products, software, or documentation without any obligation to notify any individual or entity.

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All other brands and product names referred to herein are trademarks of their respective holders.

Use of the Works with Apple HomeKit logo means that an electronic accessory has been designed to connect specifically to iPod touch, iPhone, or iPad, respectively, and has been certified by the developer to meet Apple performance standards. Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards.

### Warning

This product is not a toy. Keep away from children and animals! CR2032 coin cells are harmful if swallowed!

### Declaration of conformity



Hereby, Fibar Group S.A. declares that the device is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: [www.manuals.fibaro.com](http://www.manuals.fibaro.com)

### WEEE Directive Compliance



Device labelled with this symbol should not be disposed with other household wastes. It shall be handed over to the applicable collection point for the recycling of waste electrical and electronic equipment.