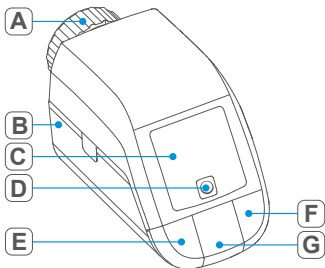


Installer and user reference guide

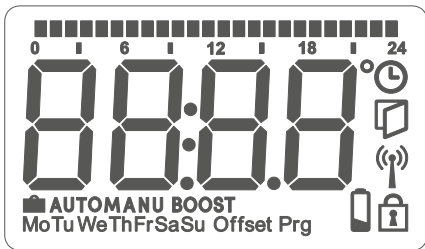
## Daikin Home Controls Radiator Thermostat



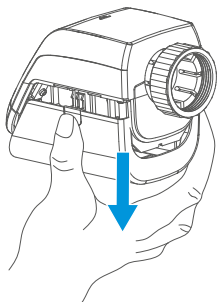
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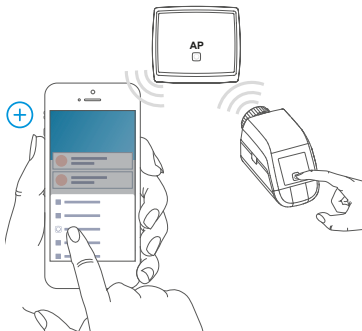
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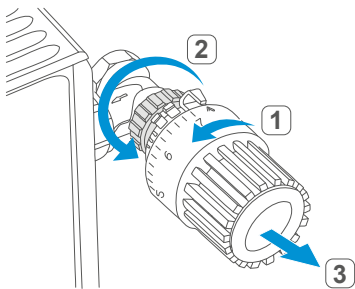
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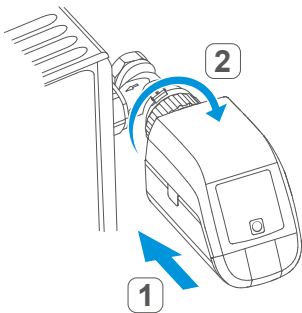
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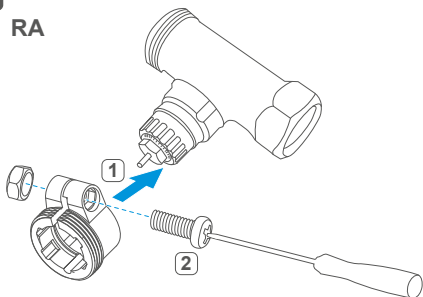


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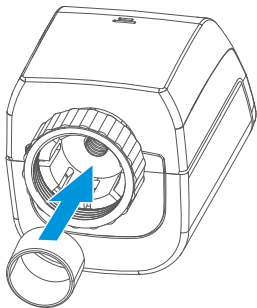


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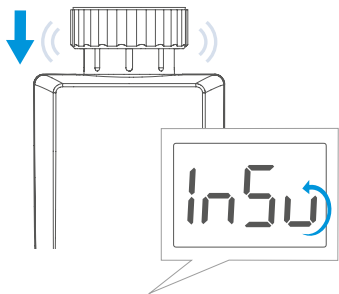
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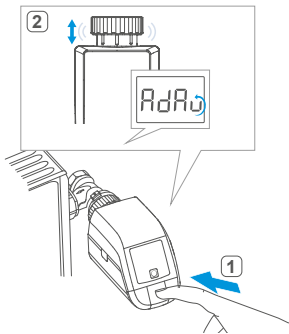
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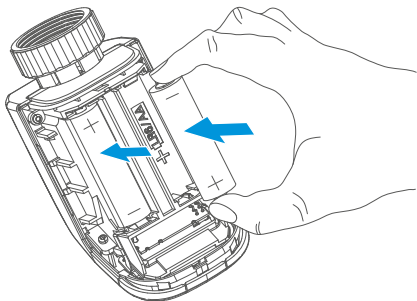
9



10



11



# Package contents

Quantity	Description
1	Daikin Home Controls Radiator Thermostat
1	Danfoss RA adapter
1	Support ring
1	Nut M4
1	Cylinder head screw M4 x 12 mm
2	1.5 V LR6/mignon/AA batteries
1	Installation and operation manual
1	Supplement sheet with safety instructions

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## 1 Information about this manual

Read this manual carefully before beginning operation with your Daikin Home Controls (DHC) accessories. Keep the manual so you can refer to it at a later date if you need to. If you hand over the accessory to other persons for use, hand over this manual as well.

### Symbols used:



#### **Attention!**

This indicates a hazard.



#### **Please note:**

This section contains important additional information.

## 2 Hazard information



Do not open the accessory. It does not contain any parts that can be maintained by the user. In the event of an error, have the accessory checked by an expert.



The accessory may only be operated in a dry and dust-free environment and must be protected from the effects of moisture, vibrations, solar or other types of heat radiation, cold and mechanical loads.



For safety and licensing reasons (CE), unauthorized change and/or modification of the accessory is not permitted.



The accessory is not a toy; do not allow children to play with it. Do not leave packaging material lying around. Plastic films/bags, pieces of polystyrene, etc. can be dangerous in the hands of a child.



We do not assume any liability for damage to property or personal injury caused by improper use or the failure to observe the hazard information. In such cases, any claim under warranty is extinguished! For consequential damages, we assume no liability!



The accessory may only be operated within residential buildings, business and commercial areas as well as in small enterprises.



The room temperature control via the DHC Radiator Thermostat is designed for a two-pipe heating system with one feed and return line per radiator. Use in single-pipe heating systems can lead to strong deviations in the set temperature due to fluctuations in the flow temperature.



Using the accessory for any purpose other than that described in this manual does not fall within the scope of intended use and shall invalidate any warranty or liability.



Always keep a minimum distance of 50 cm between the DHC accessories.

### 3 Daikin Home Controls

This accessory is part of the DHC ecosystem and communicates with a dedicated wireless connection.

All accessories of the ecosystem can be configured comfortably and individually via the ONECTA app. The available functions provided by the DHC ecosystem in combination with other accessories are described in the DHC Application Guide.

All current technical documents and updates can be found on the product pages:

<https://qr.daikin.eu/?N=EKRRVATR2BA>



## 4 Function and accessory overview

The DHC Radiator Thermostat enables time-controlled regulation of the room temperature via a heating schedule with individual time slots. For precise regulation of the room temperature, the DHC Room Thermostat can measure the actual temperature of a room and transmit the data to the DHC Radiator Thermostat.








You can comfortably control the DHC Radiator Thermostat in connection with a DHC Access Point via the free ONECTA app.

The DHC Radiator Thermostat fits to all common radiator valves and is easy to mount, without having to drain any water or intervene in the heating system. With the additional boost function, cool rooms can be heated quickly by opening the heating valve.

**Accessory overview** (see figure 1):

- (A) Union nut
- (B) Battery compartment (and cover)
- (C) Display
- (D) System button and LED
- (E) Minus button
- (F) Plus button
- (G) Menu/Boost button

**Display overview** (see figure 2):

	Overview of time slots
°C	Setpoint temperature
	Time and date
	Operating lock*
	Open window symbol
	Radio transmission
	Empty batteries
	Holiday mode*
<b>AUTO</b>	Automatic mode*
<b>MANU</b>	Manual mode*
<b>BOOST</b>	Boost function
Offset	Offset temperature*
Prg	Programming a heating schedule*
Mo Tu We Th Fr Sa Su	Days of the week

\* see "6 Configuration" on page 22.

## 5 Start-up

### 5.1 Connecting DHC accessories



**Read this entire section before starting to connect other accessories.**

To integrate the DHC Radiator Thermostat into your ecosystem and enable it to communicate with other accessories, you must connect them first.

You can connect the DHC Radiator Thermostat to the DHC Access Point via the ONECTA app. It is also possible to create a direct connection to other DHC accessories. For further information on direct connection, see the DHC Application Guide.

#### 5.1.1 Connecting to the DHC Access Point



If you have already connected the DHC Radiator Thermostat to another DHC accessory, or if you have changed the default settings, you first have to restore the factory settings of the DHC Radiator Thermostat before you can connect it to the DHC Access Point (see “10 Restore factory settings” on page 33).



First set up your DHC Access Point via the ONECTA app to enable operation of other DHC accessories within your ecosystem. For further information, see the manual of the DHC Access Point.

To connect the DHC Radiator Thermostat to the DHC Access Point, proceed as follows:

1. Open the ONECTA app.
2. Click on the plus symbol (+).
3. Select the menu item **Add Daikin Home Controls**.
4. Select **Add DHC Accessory**.
5. Open the battery compartment (**B**) by pulling the cover down (*see figure 3*).
6. Remove the insulation strip from the battery compartment.
  - » Connection mode remains activated for 3 minutes (*see figure 4*).



You can manually start the connection mode for another 3 minutes by pressing the system button (**D**) shortly (*see figure 4*).

7. Follow the instructions in the app.

## 5.2 Mounting



**Read this entire section before starting to mount the accessory.**

The DHC Radiator Thermostat can be easily installed without draining heating water or intervening in the heating system. No special tools are required, nor does the heating have to be switched off.

The union nut (**A**) attached to the DHC Radiator Thermostat can be used universally and without accessories for all valves with a thread size of M30 x 1.5 from the most popular manufacturers such as:

- Heimeier
- MNG
- Junkers
- Landis&Gyr (Duodyr)
- Honeywell-Braukmann
- Oventrop
- Schlösser
- Comap
- Valf Sanayii
- Mertik Maxitrol
- Watts
- Wingenroth (Wiroflex)
- R.B.M
- Tiemme
- Jaga

- Siemens
- Idmar

By means of the adapter in the delivery, the accessory can also be installed on radiator valves of type Danfoss RA (see “5.2.2 Danfoss RA adapter” on page 20).

### 5.2.1 Mounting the DHC Radiator Thermostat



In case of visible damage to the existing radiator, valve or heating pipes, consult a specialist.

Remove the old thermostat dial from your radiator valve.

1. Rotate the thermostat dial to the maximum value **(1)** anti-clockwise (see figure 5).
  - » The thermostat dial then no longer presses against the valve spigot, making it easier to remove.

There are different ways the thermostat dial could be fixed:

- **Union nut:** Unscrew the union nut in an anticlockwise direction **(2)**. The thermostat head can then be removed **(3)**.
- **Snap-on fastenings:** Thermostat dials that have been attached with snap-on fastenings can be easily released by giving the lock/union nut a slight turn in the anti-clockwise direction **(2)**. The thermostat dial can then be removed **(3)**.
- **Compression fitting:** The thermostat dial is held in place by a mounting ring which is held together

with a screw. Loosen this screw and remove the thermostat dial from the valve **(3)**.

- **Threaded connection with set screw:** Loosen the set screw and remove the thermostat dial **(3)**.

After removing the old thermostat dial you can mount the DHC Radiator Thermostat with the union nut **(A)** to the radiator valve (see *figure 6*).

If required, you can use the supplied adapter for Danfoss RA valves (see “5.2.2 Danfoss RA adapter” on page 20) or the supplied support ring (see “5.2.3 Support ring” on page 21).

### 5.2.2 Danfoss RA adapter

The provided adapter is required to attach to Danfoss RA valves. The RA adapter has been manufactured with pre-tension in order to provide a better fit. Use a screwdriver during installation if necessary and bend the adapter open slightly in the vicinity of the screw (see *figure 7*).

The Danfoss valve bodies have elongated notches around their circumference, which also ensure that the adapter is properly seated when it snaps on.



During installation, make sure that the pins inside the adapter are lined up with the notches on the valve. Make sure that a suitable adapter for the valve is properly clipped on.



Be careful not to get your fingers caught between the two halves of the adapter!


After clipping the adapter onto the valve body, fix it using the provided screw and nut.

### 5.2.3 Support ring


The valves from different manufacturers may have tolerance fluctuations that make the DHC Radiator Thermostat more loosely seated on the valve. In this case, the provided support ring should be placed into the flange before mounting the accessory (see figure 8).

## 5.3 Adaption run



Once the batteries have been inserted, the motor reserves. Meanwhile, **InS** and the activity symbol  are displayed (see figure 9).

After the DHC Radiator Thermostat has been mounted successfully, an adaption run (**AdA**) has to be performed in order to adapt the accessory to the valve. To do this, proceed as follows:

1. As soon as **AdA** is displayed, press the menu/boost button (**G**) to start the adaption run (see figure 10).
- » **AdA** and the activity symbol  are displayed during the adaption run (see figure 10). During this

- time, no other operation is possible.
- » After the adapting run has been successful, the display returns back to normal.





If the adapter run has been initiated prior to mounting or if an error message (F1, F2, F3) is displayed, press the menu/boost button (**G**) and the motor reverses to the **InS** position.

## 6 Configuration

The configuration of the accessory can be set up completely in the ONECTA app. For further information on configuration of the accessory without using the DHC Access Point, see the DHC Application Guide.

The following modes and settings can be adjusted:

6.1	<b>AUTO</b>	Automatic mode
6.2	<b>MANU</b>	Manual mode
6.3	Offset	Offset temperature (not yet available)
6.4	Prg	Programming a schedule
6.5		Operating lock (not yet available)
6.6		Holiday mode

## 6.1 Automatic mode

In automatic mode, the temperature is controlled in accordance with the set heating schedule. Manual changes are activated until the next point at which the schedule changes. Afterwards, the defined schedule will be activated again.

## 6.2 Manual mode

In manual mode, the temperature is controlled in accordance with the current temperature set via the push-buttons (E + F). The temperature remains activated until the next manual change.

## 6.3 Offset temperature (not yet available)

As the temperature is measured on the DHC Radiator Thermostat, the temperature distribution can vary throughout a room. To adjust this, a temperature offset of  $\pm 3.5$  °C can be set. If a nominal temperature of e.g. 20 °C is set but the room presents with only 18 °C, an offset of -2.0 °C needs to be set.



This setting is not yet available in the ONECTA app and cannot be changed for the moment.

## 6.4 Programming a schedule

You can create a schedule with time slots for heating and cooling according to your personal needs.

## 6.5 Operating lock (not yet available)

Operation of the accessory can be locked to avoid settings being changed unintended (e.g. through involuntary touching).



This setting is not yet available in the ONECTA app and cannot be changed for the moment.

## 6.6 Holiday mode

Holiday mode can be activated in the ONECTA app. It will put your system into standby. The holiday mode is visualized on your Daikin Altherma and on the Air Conditioning units in the ONECTA App.


For further information, see the DHC Application Guide.

## 7 Operation

After connecting and mounting the DHC Radiator Thermostat, simple operations are available directly on the accessory.

- **Temperature:** Press the plus and minus buttons (**E + F**) to manually change the temperature. In automatic mode, manual changes are activated until the next point at which the schedule changes. Afterwards, the defined heating schedule will be activated again. In manual mode, the temperature remains activated until the next manual change.
- **Boost function:** Press the boost button (**G**) briefly to activate the boost function. The boost function will heat up the radiator quickly and shortly by opening the valve.

## 8 Replacing batteries

If the symbol for empty batteries (  ) appears, replace the used batteries by two new LR6/mignon/AA batteries. You must observe the correct battery polarity.

To replace the batteries of the accessory, proceed as follows

1. Open the battery compartment (**B**) by pulling it down (*see figure 3*).
2. Remove the batteries.
3. Insert two new 1.5 V LR6/mignon/AA batteries. Make sure that you insert them the right way round (*see figure 11*).
4. Close the battery compartment.
5. Pay attention to the flashing signals of the LED while inserting the batteries (see „9.3 Error codes and flashing sequences“ on page 30).
  - » After inserting the batteries, the accessory will perform a self-test (approx. 2 seconds). Afterwards, initialisation is carried out. The LED will light up orange and green to indicate that initialisation is complete.



**Attention!** There is a risk of explosion if the battery is not replaced correctly. Replace only with the same or equivalent type. Never recharge non-rechargeable batteries. Do not throw the batteries into a fire. Do not expose batteries to excessive heat. Do not short-circuit batteries. Doing so will present a risk of explosion.




Used batteries should not be disposed of with regular domestic waste! Instead, take them to your local battery disposal point.

## 9 Troubleshooting

### 9.1 Weak batteries

Provided that the voltage value permits it, the accessory will remain ready for operation even if the battery voltage is low. Depending on the particular load, it may be possible to send transmissions again repeatedly, once the batteries have been allowed a brief recovery period.

If the voltage drops too far during transmission, the empty battery symbol() and the corresponding error code will be displayed on the accessory (see “9.3 Error codes and flashing sequences” on page 30). In this case, replace the empty batteries by two new batteries (see “8 Replacing batteries” on page 26).

## 9.2 Duty cycle

The wireless DHC accessories operate in the following frequency bands:

- 868,000~868,600 MHz
- 869,400~869,650 MHz

In order to safeguard operation of all devices working in this range, it is legally required to limit the transmission time of devices. Limiting the transmission time minimizes the risk of interference.

The 'duty cycle' is the maximum transmission time. It is the ratio of the time that a device is actively transmitting in comparison to the measurement period (1 hour), and is expressed as a percentage of 1 hour.

If the total amount of allowed transmission time is reached, the DHC accessory will stop transmitting until the time limit is reached.



For example, when a device has a duty cycle limit of 1%, it is only allowed to transmit 36 seconds in 1 hour. After this, it will stop transmitting until the 1 hour limit is reached.

DHC accessories fully comply to this limitation and use 2 frequency bands with a duty cycle of respectively 1 % and 10%.



During normal operation of the DHC accessories, this limit is not usually reached. However it is possible that the limit is reached during start-up or during a fresh installation of a system. In this case, the LED of the accessory lights up red. It may be non-responsive for a short period (max. 1 hour), until the time restriction for transmission has expired. After

this period, it will operate normal again.

### 9.3 Error codes and flashing sequences

Error and flashing codes	Meaning	Solution
F1	Valve drive sluggish	Check whether the valve pin is stuck.
F2	Actuating range too wide	Check the fastening of the DHC Radiator Thermostat
F3	Adjustment range too small	Check whether the valve pin is stuck.
Battery symbol 	Battery voltage too low	Replace the batteries of the accessory (see "8 Replacing batteries" on page 26).
Battery symbol  and ---	Valve moved to error position*	Replace the batteries of the accessory (see "8 Replacing batteries" on page 26).

\*If empty batteries are not replaced, the DHC Radiator Thermostat moves to a "valve error position". This avoids that the set temperature in the room cannot be reached anymore due to a low battery. A valve error position of 15 % is set in the factory settings.

Error and flashing codes	Meaning	Solution
Lock symbol 	Operating lock activated	Deactivate the operating lock.
Antenna symbol  flashing	Communication problem with DHC Access Point or connected accessory	Check the connection with the DHC Access Point or the connected accessory.
Short orange flashing	Radio transmission/attempting to transmit/configuration data is transmitted	Wait until the transmission is completed.
1x long green lighting	Transmission confirmed	Continue the operation.
1x long red lighting	Transmission failed or duty cycle limit is reached	Try again (see or “9.2 Duty cycle” on page 29).
Short orange flashing (every 10 seconds)	Connection mode active	Follow the instructions in the app to add accessory (see “5.1.1 Connecting to the DHC Access Point” on page 16).

<b>Error and flashing codes</b>	<b>Meaning</b>	<b>Solution</b>
Fast orange flashing	Direct connection mode active	Activate the connection mode of the accessory you want to connect (see the DHC Application Guide).
Short orange lighting (after green or red confirmation)	Batteries empty	Replace the batteries (see “8 Replacing batteries” on page 26).
6x long red flashing	Accessory defective	Contact your reseller.
1x orange and 1 x green lighting (after inserting batteries)	Test LED	After the test LED has stopped, you can continue.
Long and short orange flashing (alternating)	Update of accessory software (OTAU)	Wait until the update is completed.

## 10 Restore factory settings



The factory settings of the accessory can be restored. If you do this, you will lose all your settings.

To restore the factory settings of the accessory, proceed as follows:

1. Open the battery compartment (**B**) by pulling the battery compartment down (*see figure 3*).
2. Remove a battery.
3. Insert the battery again and long press the system button (**D**) at the same time until the LED quickly starts flashing orange.
4. Release the system button.
5. Long press the system button again, until the LED lights up green
6. Release the system button to finish the procedure.  
» The accessory will perform a restart.

## 11 Maintenance and cleaning



The accessory does not require you to carry out any maintenance other than replacing the battery when necessary. Enlist the help of an expert to carry out any repairs.

Clean the accessory using a soft, lint-free cloth that is clean and dry. You may dampen the cloth a little with lukewarm water in order to remove more stubborn marks. Do not use any detergents containing solvents, as they could corrode the plastic housing and label.

## 12 General information about radio operation

Radio transmission is performed on a non-exclusive transmission path, which means that there is a possibility of interference occurring. Interference can also be caused by switching operations, electrical motors or defective electrical devices.



The range of transmission within buildings can differ greatly from that available in the open air. Besides the transmitting power and the reception characteristics of the receiver, environmental factors such as humidity in the vicinity have an important role to play, as do on-site structural/screening conditions.

Hereby, Daikin Europe N.V. declares that the radio equipment type DHC EKRRVATR2BA is in compliance with the Directive 2014/53/EU. The original declaration of conformity is available from the EKRRVATR2BA product pages.

<https://qr.daikin.eu/?N=EKRRVATR2BA>



## 13 Technical specifications

Device name:	EKRRVATR2BA
Supply voltage:	2x 1.5 V LR6/mignon/AA
Current consumption:	100 mA max.
Battery life (typ.):	2 years
Degree of protection:	IP20
Degree of pollution:	2
Ambient temperature:	0 to 50 °C
Dimensions (W x H x D):	57 x 68 x 102 mm
Weight:	185 g (including batteries)
Radio frequency band:	
F1:	868.0-868.6 MHz
F2:	869.4-869.65 MHz
Maximum radiated power:	10 dBm
Receiver category:	SRD category 2
Typ. open area RF range:	250 m
Duty cycle:	
F1:	< 1 % per h
F2:	< 10 % per h
Software class:	Class A
Method of operation:	Type 1
Connection:	M30 x 1.5 mm
Controlling torque:	> 80 N
Valve travel:	4,3 ± 0,3 mm
Maximum travel position:	14,3 ± 0,3 mm
Minimum travel position:	10,0 ± 0,3 mm

**Subject to technical changes.**

## Instructions for disposal



Do not dispose of the device with regular domestic waste! Electronic equipment must be disposed of at local collection points for waste electronic equipment in compliance with the Waste Electrical and Electronic Equipment Directive.

## Information about conformity



The CE sign is a free trading sign addressed exclusively to the authorities and does not include any warranty of any properties.



For technical support, please contact your specialist dealer.





Free download of the ONECTA app!



**DAIKIN EUROPE N.V.**

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