



## Radiator thermostat



The CORA-HKT radiator thermostat is used to control the flow rate in radiators, underfloor heating systems, wall heating systems and similar.

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## Installation

Suitable for installation in radiator valves, underfloor heating valves, etc.

For accurate room temperature measurement, we recommend that the CORA-HKT is installed **in a horizontal position**.

For power supply and data transfer, there are 3 options:

1. **Battery** operation, **wireless** data transfer
2. **12 V** power supply, **wireless** data transfer
3. **12 V** power supply, wired data transfer via **CORA-DL**

Only *one* of these options can be selected to operate the radiator thermostat. Likewise it can only be connected/paired to *one* device.

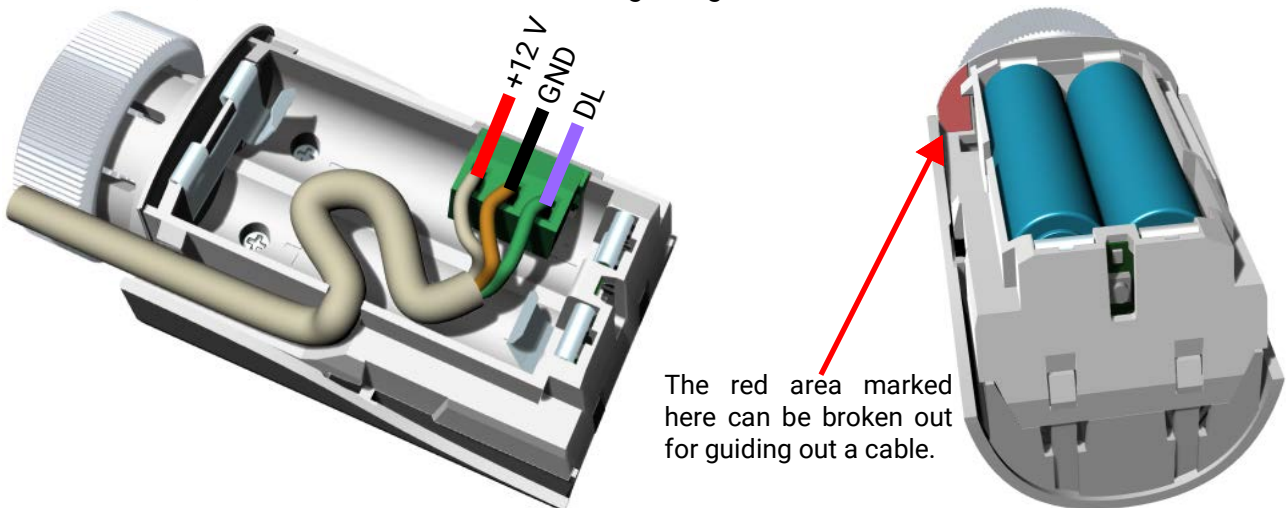
When programming the CORA device, you need to specify whether it will be operated by cable (CORA-DL) or wirelessly.

With a **12 V** power supply, values are updated every minute, with **battery operation**, every 5 minutes. If the CORA-HKT is powered by batteries, it cannot be used as a HOP (see Relaying wireless signals).

## Cable connection

The CORA-HKT can be just powered (12 V) by cable or can be both powered and operated by cable (CORA-DL). The DL bus is **not** protected against reverse polarity.

For both cases, the CORA-HKT has a feature for guiding out cables.

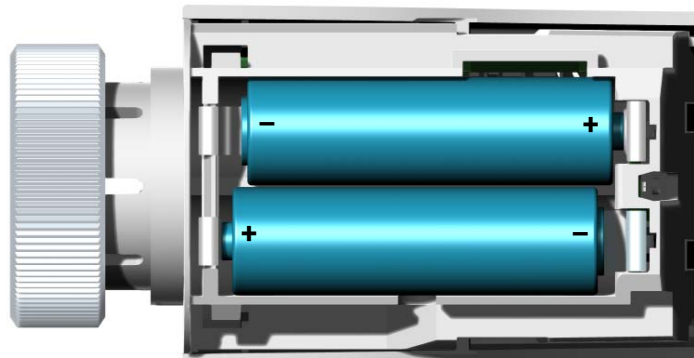


## Battery operation

The HKT can be supplied with power by means of 2x AA batteries (not included).

**The following applies for battery operation:**

- The HKT cannot be used to relay radio signals (HOP).
- Values are updated every 5 minutes.
- The life of the batteries varies depending on activity, but is typically 2 years.



# Wireless system

## Principles

The wireless system comprises at least two devices (e.g. CAN-MTx2 and CORA-HKT), which communicate with one another, exchange data or send firmware/function data.

The wireless range is around 1000 m outdoors, and typically 30 m in buildings (through approx. 2 walls/ceilings, depending on thickness and material). Up to 3 additional wireless-capable devices can be used as a bridge to enable data to be exchanged under deviating conditions.

RCV-DL, GBS-F and RAS-F devices **cannot** be used.

## Pairing devices

Two steps are carried out to pair two devices:

1. **Allow** pairing on the **target device**
2. **Initiate** pairing on the **control device**

To allow pairing on the CORA-HKT (= target device), **double click** on the button (see graphic on page 4) inside the enclosure (= 2 clicks within 2 seconds).

For pairing, you will need to enter the CORA ID of the CORA-HKT on the control device.

The pairing process on other devices (*control device*) can be found in the corresponding operating instructions.

## Relaying wireless signals

**Radio signal forwarding is not possible in battery mode.**

Wireless-capable devices can relay signals of other devices. All required settings for this are carried out at the device that transmits the signal to be relayed.

The CORA-HKT can also be used to relay wireless signals from other devices, but only if it is powered via a cable. If it receives signals via a relay, it automatically returns data via the same relay. No settings are therefore required for the relay on the CORA-HKT.

**Example:** The **CORA 1** device should control the **CORA 3** wirelessly, but cannot reach it due to the local conditions. However, **CORA 1** can reach **CORA 2**, and **CORA 2** can reach **CORA 3**.



CORA ID <input type="text" value="00000003"/>	During parameterisation on <b>CORA 1</b> (= pairing with <b>CORA 3</b> ), the CORA ID of <b>CORA 3</b> is entered under <b>CORA ID</b> , and the CORA ID of <b>CORA 2</b> is entered under <b>HOP1</b> .
HOP1 ID <input type="text" value="00000002"/>	No settings are required on <b>CORA 2</b> . This device relays the signals independently.
	No settings are required on <b>CORA 3</b> either.

The only change to the pairing process is that CORA IDs are entered under **HOP1-3**.

To enable additional devices to relay the signal, they should be specified in the corresponding order under **HOP2** and then under **HOP3**. A data packet is sent by the transmitter to HOP1, HOP2, HOP3 and then to the target device (= "CORA ID"), where defined.

The entry **00000000** means that no relaying will occur.

## Initialisation run

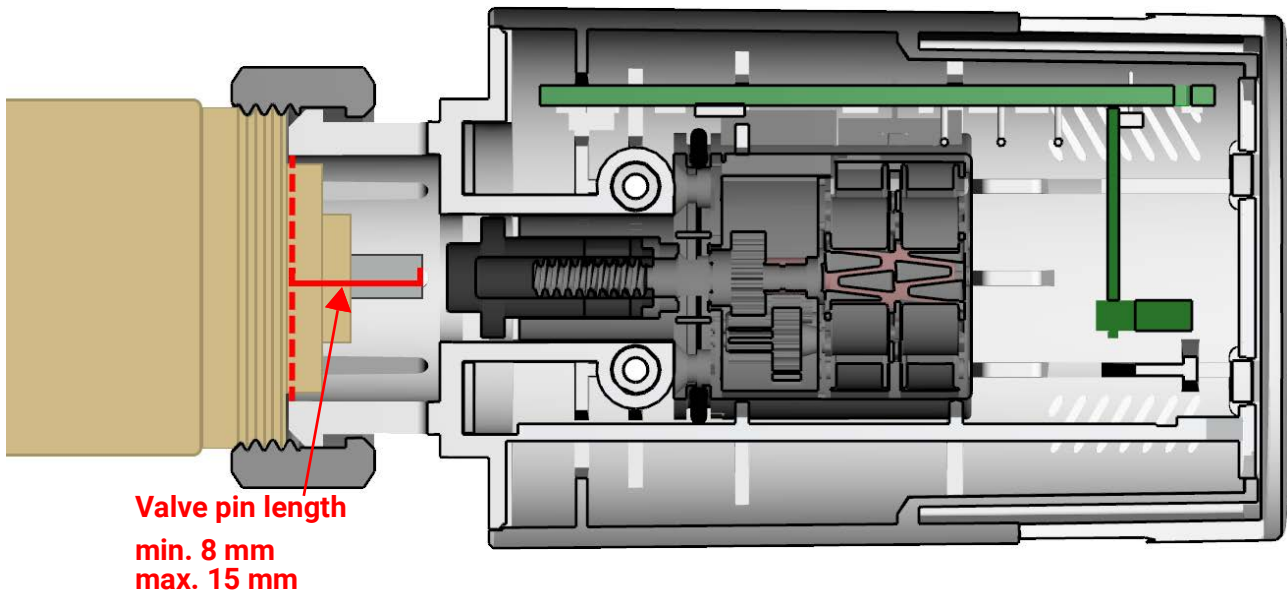
As soon as the HKT is supplied with power, it immediately starts an initialisation run. It should therefore already be installed when the power is switched on. If this is not the case, carry out a restart after installation by clicking the button (see "Button").

Initialisation run sequence:

1. The HKT opens the valve fully.
2. The HKT moves to position 0 % (fully closed).
3. The HKT opens again and looks for the resistance of the valve pin (this defines position 100%, fully open)

## Valve pin length

The length of the valve pin from the entry point (dotted line in the diagram) must be **between 8 mm and 15.5 mm**.

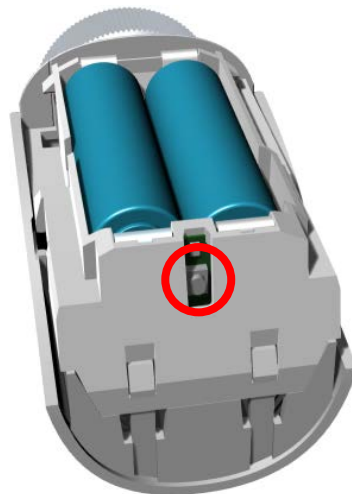


## Button

Inside the device is a button for pairing, restarting, etc.

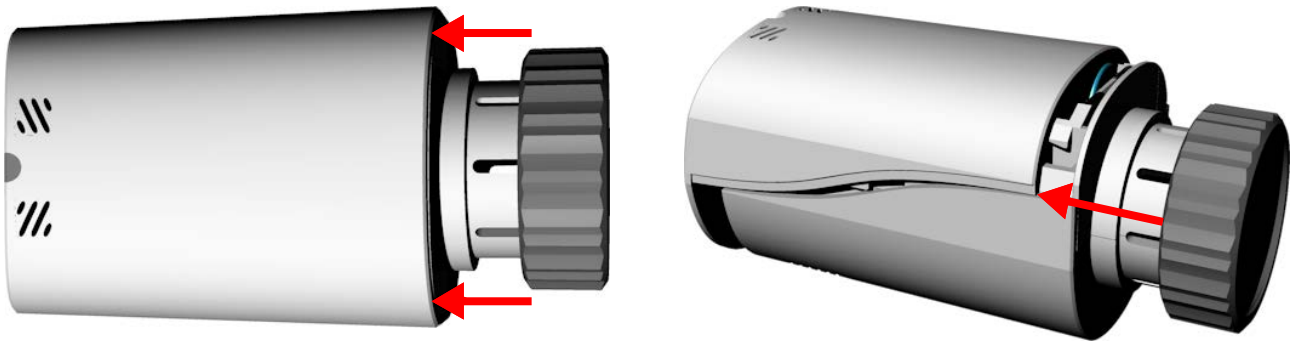
Button	Function
1x brief	Restart
2x brief	Enable pairing (for 5 min)
10 sec. continuously	Total reset

During a total reset, the LED flashes red. The button must be held until the LED illuminates green, whereupon the total reset occurs.



## Opening the device

Press the cover in the areas shown to slide it along the device and remove it.



## LED status indicator

The LEDs on the device indicate various operating states.

Green, flashes quickly	The button has been double-clicked – wireless pairing is enabled for 5 minutes (the LED flashes for just 3 seconds, not for the whole 5 minutes).
Orange, flashes every 10 sec.	Valve was not found (fault code 4).
Red, flashes every 10 sec.	Battery state of charge <5 %; the motor is no longer moved.



## Input variables

The following values can be sent to the CORA-HKT (cannot be changed).

<b>Room temp.</b> [°C]	The current room temperature can also come from an external sensor. Helpful if the room temperature recorded by the HKT itself is not reliable.	
<b>Set room temp.</b> [°C]	The room temperature which the HKT will regulate to.	
<b>Heating</b> Digital [On/Off]	If <b>on</b> the following applies: 0 % = fully closed 100 % = fully open	If heating and cooling are <b>on</b> at the same time, the valve is fully open.  If both are <b>off</b> at the same time, the valve is fully closed.
<b>Cooling (OFF)</b> Digital [On/Off]	If <b>on</b> the following applies: 0 % = fully open 100 % = fully closed	
<b>Set position</b> [0-100 %]	The set position of the valve can be specified manually. Helpful if multiple HKTs are controlling different radiators in the same room. See programming example on page 8.	
<b>Start descaling</b> Pulse	Every two weeks, the valve is automatically fully opened, flushed with water for approx. 5 sec., fully closed and then moved back to the set position. This is done to descale the valve. A pulse on this variable can start the descaling manually to prevent it from occurring automatically at inconvenient times. A manual start resets the meter for automatic descaling.	
The "fully open" position is defined in the initialisation run (see page 4). "Fully open" therefore refers to the radiator valve.		

## Parameters

<b>Connection</b>	HKT connection type: <ul style="list-style-type: none"> <li>• CORA-DL (cable connection)</li> <li>• CORA wireless</li> </ul>
<b>CORA-ID</b>	Details of CORA ID. This can be found on a label on the HKT.
<b>HOP1-3 ID</b>	Details on relaying wireless signals (see "Relaying wireless signals" on page 3)
<b>Connect automatically</b>	If set to Yes, when the wireless signal is lost, the system automatically attempts to restore the connection.

## Output variables

The following values are transmitted from the CORA-HKT to the paired/wired device (cannot be changed):

<b>Timeout</b>	Digital value <b>Yes/No</b> (Yes if connection lost)
<b>Battery status</b>	Battery state of charge (0-100 %)
<b>Eff. room temp.</b>	The room temperature used for the calculation. <ul style="list-style-type: none"> <li>• If a value has been linked under <b>Room temp.</b>, this will be output.</li> <li>• If there is no value linked, the measured temperature (<b>HKT room temp.</b>) is output.</li> </ul>
<b>HKT room temp.</b>	The room temperature is calculated by two sensors in the device.
<b>Actual position</b>	Current position of the thermostat motor      0 % = fully closed 100 % = fully open  The "fully open" position is defined in the initialisation run (see page 4). "Fully open" therefore refers to the radiator valve.
<b>Window contact</b> Digital value Yes/ No (Yes = win- dow closed)	The room temperature measurement (always based on the internal sensors) is used to try to assess whether a nearby window has been opened.  If the temperature drops... <ul style="list-style-type: none"> <li>• by at least 0.2 °C per minute over a period of 3 minutes</li> <li>• <b>or</b> by 0.5 °C within one minute</li> </ul> the window contact switches to <b>No</b> (= window open).  To switch back to <b>Yes</b> (= closed), the temperature must rise... <ul style="list-style-type: none"> <li>• by at least 0.1 °C per minute over a period of 3 minutes</li> <li>• <b>or</b> by 0.25 °C within one minute.</li> </ul> steigen.  In any event, the window contact switches back to Yes (= closed) after 60 minutes.
<b>Fault code</b>	If faulty operation is identified on the CORA-HKT, the corresponding fault code is transmitted.

### Fault codes

A number is assigned to each fault status. The sum of the codes of all current faults is output under "**Fault code**".

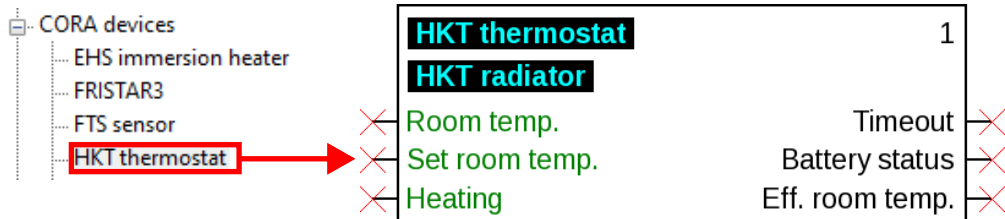
<b>1</b>	Battery almost drained (<5 %).
<b>2</b>	A fault occurred when the motor was being operated.
<b>4</b>	No valve found during the initialisation run or initialisation run could not be carried out due to lack of battery capacity.

**Example:** A fault code of **6** would mean that faults **2 and 4** are active.

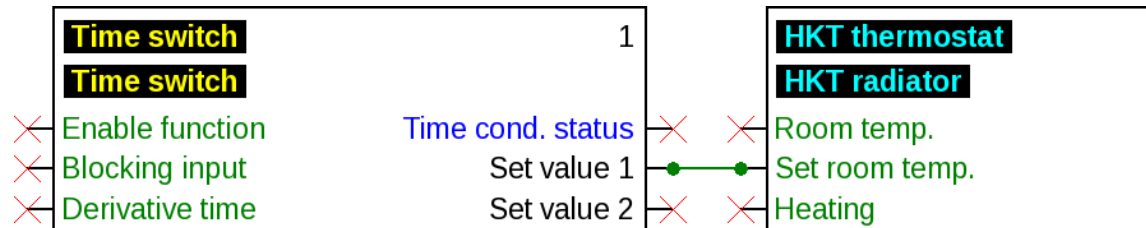
# Programming

The CORA-HKT is incorporated into the programming of the connected controller. We recommend the **TAPPS2** PC software for this. This is available to download free of charge at [www.ta.co.at/download/software/](http://www.ta.co.at/download/software/). Version **1.20** of TAPPS2 is required as a minimum.

The CORA-HKT has a dedicated module in TAPPS2 under CORA devices.



A typical application would be the connection to the output variable **Eff. set room temp.** of a **heating circuit control** function or a **set value** of a **time switch** function.

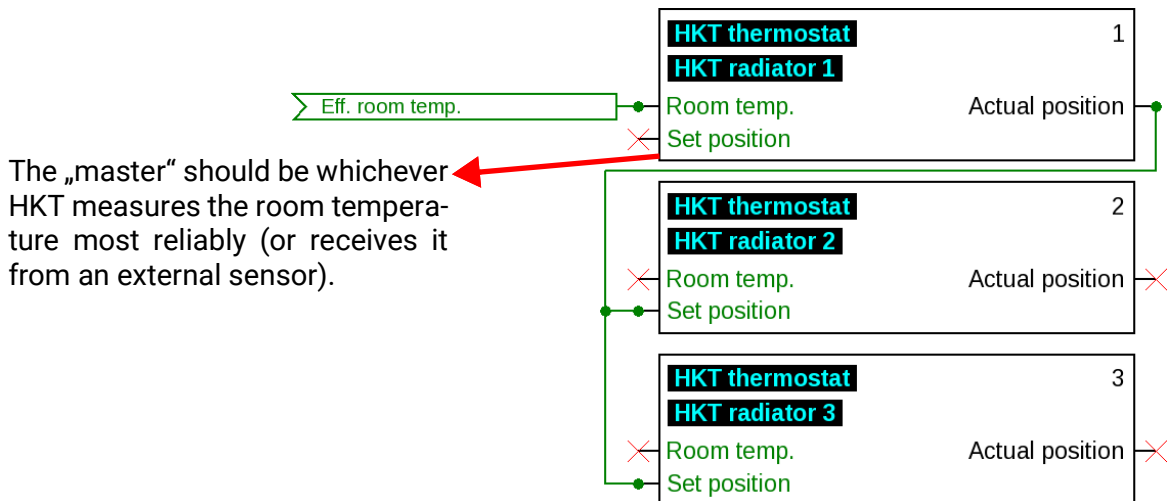


## Multiple HKTs in the same room

If there are multiple HKTs in the same room, measuring errors may cause the thermostats to regulate in two opposite directions in an attempt to balance each other out (one HKT would heat to undesirable levels, whilst the other would barely heat/not heat at all).

Multiple HKTs in the same room should therefore be coordinated by suitable programming.

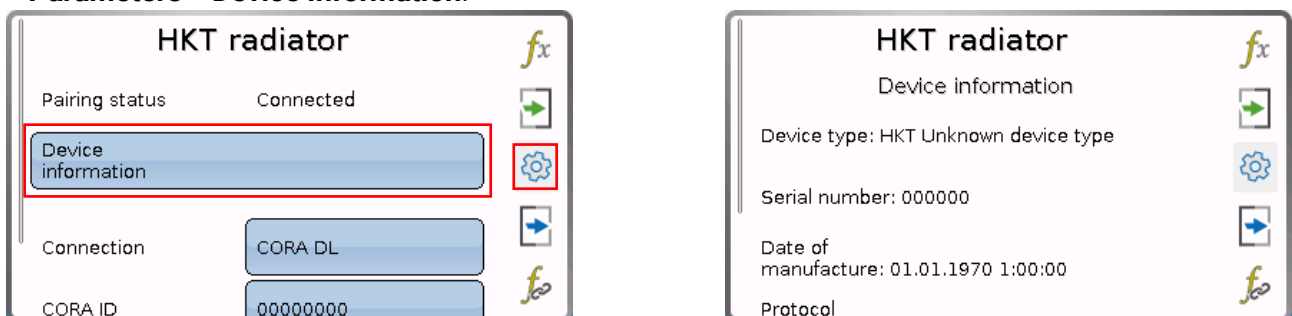
**Example:** Three HKTs, one receives a set room temperature and then forwards the actual position to the other HKTs.



The „master“ should be whichever HKT measures the room temperature most reliably (or receives it from an external sensor).

## Device information

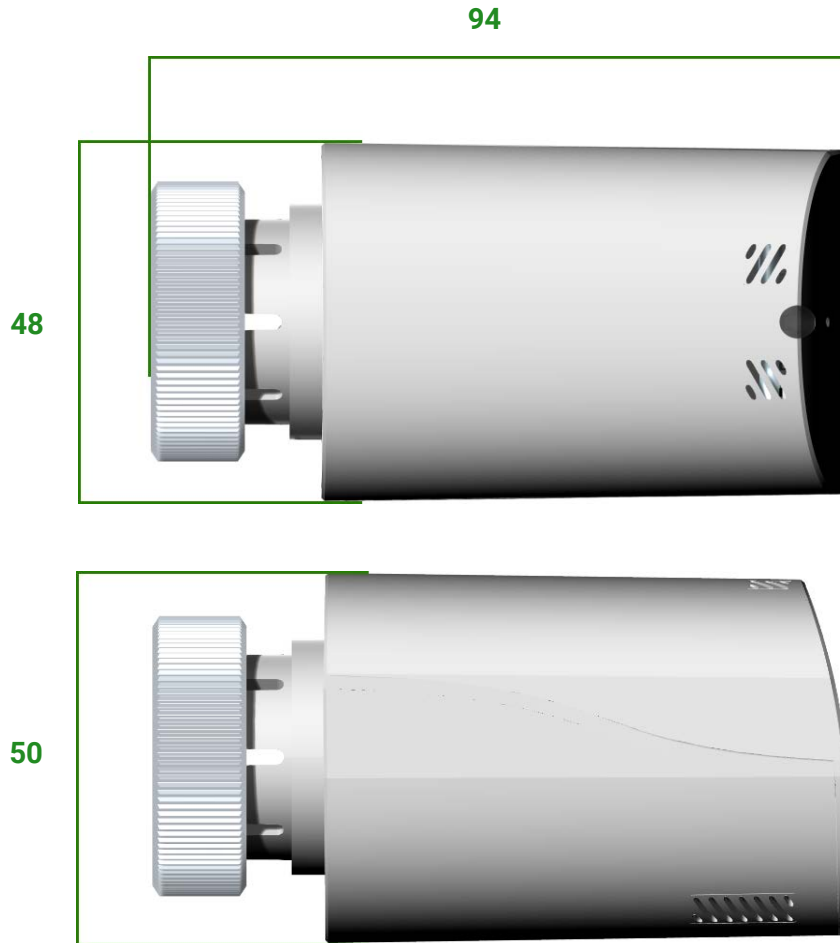
Various kinds of information is available in the controller under **CORA devices > Radiator thermostat > Parameters > Device information.**



**Device type** contains either "HKT 12 V" or "HKT battery", depending on the type of power supply.



## Dimensions in mm



## Technical data

Batteries	2x AA (not supplied)
Battery service life	Can vary depending on battery and motor activity; typically 2 years
Bus load CORA-DL	5 %
Power consumption 12 V	Depending on motor activity max. 3 W (standby typically 0.1 W)
Step size	Varies due to initialisation run, min. 0.002 mm = 2 µm
Step size resolution	4000 steps
Thread	M30x1.5 fine thread (installed) or M28x1.5 fine thread (supplied)
Permissible ambient temperature	5 - 45 °C

Subject to technical modifications as well as typographical and printing errors. This manual is only valid for devices with the corresponding firmware version. Our products are subject to constant technical advancement and further development. We therefore reserve the right to make changes without prior notice.

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# EU Declaration of conformity

Document-Nr. / Date: TA21024 / 08.11.2023  
Company/Manufacturer: Technische Alternative RT GmbH  
Address: A-3872 Amaliendorf, Langestraße 124

***This declaration of conformity is issued under the sole responsibility of the manufacturer.***

Product name: CORA-HKT  
Product brand: Technische Alternative RT GmbH  
Product description: Wireless radiator thermostat

***The object of the declaration described above is in conformity with Directives:***

2014/35/EU	Low voltage standard
2014/30/EU	Electromagnetic compatibility
2011/65/EU	RoHS Restriction of the use of certain hazardous substances
2009/125/EU	Eco-design directive

***Employed standards:***

EN 60730-1: 2011	Automatic electrical controls for household and similar use – Part 1: General requirements
EN 61000-6-3: 2007 +A1: 2011 + AC2012	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
EN 61000-6-2: 2005 + AC2005	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
EN 50581: 2012	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
EN 300220-2:2017-05	Short Range Devices (SRD) operating in the frequency range 25 MHz to 1000 MHz - Part 2: Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU for non specific radio equipment (Endorsement of the English version EN 300 220-2 V3.1.1 (2017-02) as German standard)
EN 301489-1:2017-07	Electromagnetic Compatibility (EMC) standard for radio equipment and services - Part 1: Common technical requirements
EN 301489-3:2019-08	Electromagnetic Compatibility (EMC) standard for radio equipment and services - Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz

***Position of CE - label:*** On packaging, manual and type label



Issuer: Technische Alternative RT GmbH  
A-3872 Amaliendorf, Langestraße 124

***This declaration is submitted by***

Dipl.-Ing. Andreas Schneider, General manager,

This declaration certifies the agreement with the named standards, contains however no warranty of characteristics.

The security advices of included product documents are to be considered.

## Warranty conditions

**Note:** The following guarantee conditions do not limit the legal right to a warranty, but rather expand your rights as a consumer.

1. Technische Alternative RT GmbH provides a one year warranty from the date of purchase for all the devices and parts which it sells. Defects must be reported immediately upon detection and within the guarantee period. Technical support can supply the correct solution for almost every known problem. In this respect, contacting us immediately will help to avoid unnecessary expense and effort in troubleshooting.
2. The guarantee includes free repair (but not the cost of on-site fault finding, removal, refitting and shipping) due to operational and material defects which impair operation. In the event that a repair is not economical in the opinion of Technische Alternative for reasons of cost, the goods will be replaced.
3. Not included is damage resulting from the effects of a voltage surge or abnormal ambient conditions. Likewise, no liability can be accepted if the device defect is due to: transport damage for which we are not responsible, incorrect assembly and installation, incorrect use, failure to observe the operating and installation instructions or incorrect maintenance.
4. The guarantee will become void if repairs or actions are carried out by people who are not authorised to perform them or have not been so authorised by us or if our devices are operated with spare parts, auxiliary parts or accessories that are not considered to be original parts.
5. The defective parts must be returned to our factory with a copy of the proof of purchase and a precise fault description. Processing is accelerated if an RMA number is requested via our homepage [www.ta.co.at](http://www.ta.co.at). The defect must be clarified with our technical support beforehand.
6. Services provided under guarantee result neither in an extension of the guarantee period nor in a commencement of a new guarantee period. The guarantee period for fitted parts ends with the guarantee period of the whole device.
7. Further or other claims, especially those for compensation for damage other than to the device itself, insofar as a liability is not legally required, are excluded.

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