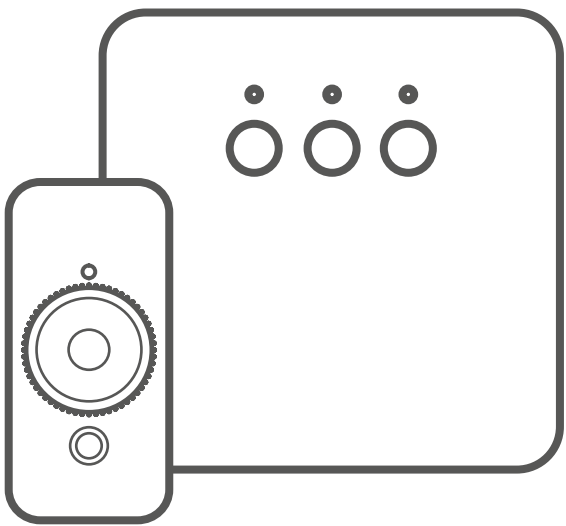
AURATON

T-1 RT



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Thank you for purchasing this modern, advanced, microprocessor-based temperature regulator:

AURATON T-1 RT

Pre-installed lithium battery
Wireless temperature controller is equipped with a highest quality lithium battery. Such battery provides an uninterrupted operation time of a controller AURATON T-1 up to 20 years. Standard temperature controllers usually require the battery replacement. Therefore, the standard thermostat uses 20-40 batteries within 20 years. This causes additional costs and introduces harmful substances to the environment every year.

16A **Operation under the load of up to 16A/10A**
The AURATON RT receiver is equipped with a relay capable of operating with the load of up to 16A/10A. Its low-sparking technique of switching mains voltage contributes to the low wear of relay contacts.

Interference-free communication between devices
The transmitter and the receiver from the AURATON RT set communicate at the frequency of 868 MHz. Very short, encrypted data transmission packets (approx. 0.004 s) ensure very efficient and interference-free operation of the device.

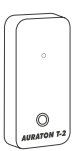
LED
LED's diode indicates the operation mode status of the controller.

Optional elements of the system

AURATON H-1

Window handle (sold separately)

A window handle, equipped with a position sensor and a transmitter, is an optional element of the system. This way the handle provides information about the state of the window. The handle also differentiates between 4 widow positions: opened, closed, pivoted and trickle ventilated (micro-ventilation). The handle transmits information to the RT receiver that controls the relay, e.g. switching off a heater in the event of opening the window or lowering the temperature down to 3°C to conserve energy. One RT receiver operates with max 25 handles.



AURATON T-2

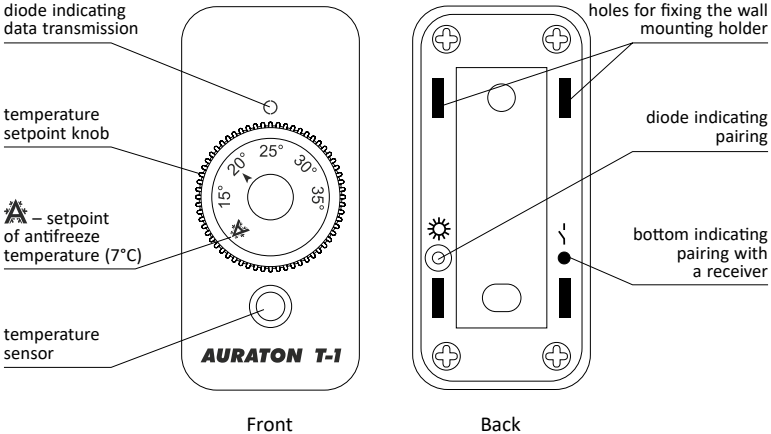
Thermometer (sold separately)

An optional element of the system allowing for controlling temperature in a room other than that with the AURATON T-1 regulator.

Detailed information about optional elements of the system are included in a section "Operating rules".

Description of the AURATON T-1 receiver

Wireless temperature controller.

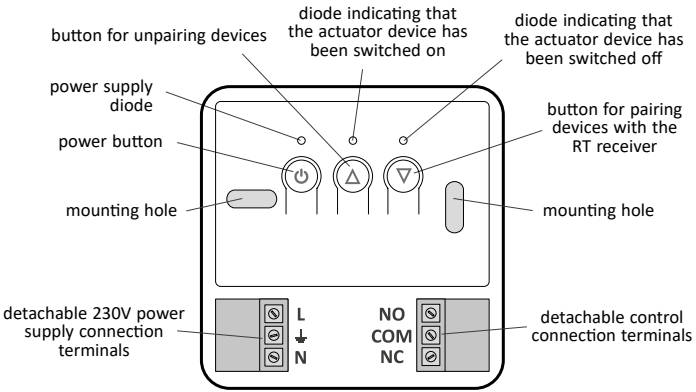


Front Back

AURATON T-1 is equipped with pre-installed lithium battery. Life span of the battery is up to 20 years.
ATTENTION: *unchangeable battery.*

Description of the AURATON RT receiver

The AURATON RT receiver works with the wireless AURATON T-1 controller. The received is installed near the heating or air conditioning device and may work with the load of 16A/10A.



Legend - description of LED signalling

OFF **The LED light's green** – the output device is off (the contacts COM and NC are closed).

ON **The LED light's red** – the output device is on (the contacts COM and NO are closed).

IN **The LED flashes green** – the RT receiver awaits the device to be paired *(chapter: "Pairing the AURATON T-1 wireless regulator and the RT receiver").*

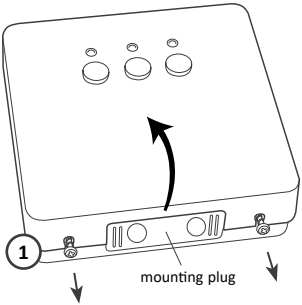
OUT **The LED flashes red** – the RT receiver awaits the device to be deregistered *(chapter: "Deregistering the regulator from the RT receiver").*

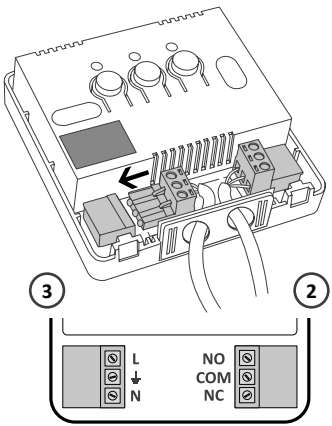
ALARM RESET **The LED flashes alternating red and green:**

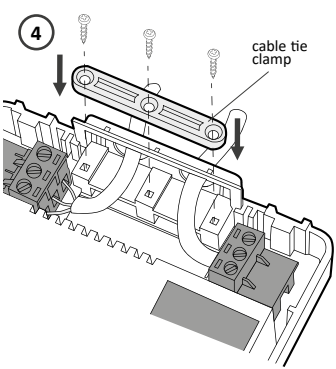
ALARM - the RT receiver has lost connection with one of the paired devices *(chapter "Special situations").*
RESET - receiver deregisters all previously paired devices *(chapter "Deregistering all devices paired with the RT receiver").*

Green power supply diode – the RT receiver is switched on.

Installation of the AURATON RT receiver







CAUTION! The cables delivered in a set together with the controller are suitable for maximum loads equal to 2.5 A.
If devices with higher power are connected, the cables should be replaced with ones of appropriate cross-sections.

NOTE: When installing an AURATON RT receiver, make sure that the power supply is switched off. The receiver should be installed by a professional.

NOTE: In the permanent system of the building there must be a switch and an overcurrent protection.

NOTE: In order to facilitate installation, the terminals are fitted with extendable clamps. Before cable connections are made, they can be disconnected from the controllers. The cables may be routed from the bottom of the receiver by breaking out holes in the mounting cover or from the back of the receiver if the cables are extended from the wall. In order to connect the cables from the back, the cover must be broken out.

1. Take off the cover of the front part of the AURATON RT receiver by unscrewing the screws half way out.
2. Connect the heating device to the terminals of the control connection of the AURATON RT receiver. Follow the service instruction of the heating device. The COM (common) and NO (normally opened) terminals are used the most often.
3. Connect the power supply cables to the terminals of the power supply connection of the AURATON RT receiver, in observance of safety rules.
4. After the cables are connected, they must be fixed with the “cable fastening holder” and the covers must be screwed back to the AURATON RT receiver.

Fastening the AURATON RT receiver to a wall

In order to fasten the AURATON RT receiver on a wall:

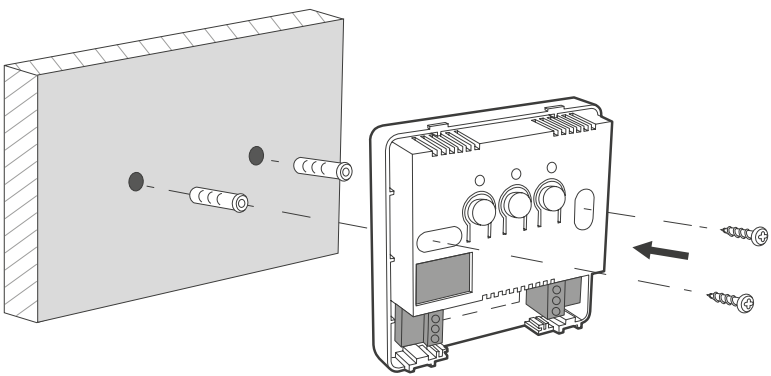
1. Take off the covers from the front part of the controller *(see chapter "Installation of the AURATON RT receiver").*

2. Mark the location of the holes for the fastening screws on the wall.

3. In the marked locations, drill holes with diameters appropriate for the diameters of the enclosed wall plugs (5 mm).

4. Put the wall plugs in the drilled holes.

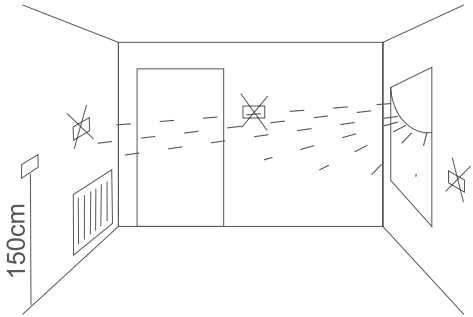
5. Fasten the AURATON RT receiver to the wall using screws so that the receiver is well fastened.



NOTE: If the wall is wooden, there is no need to use wall plugs. In such a case, drill two holes 2.7 mm in diameter instead of 5 mm, and screw the screws directly into the wood.

NOTE: The RT receiver cannot be placed in metal containers (e.g. an assembly box, a metal enclosure of a heater) in order to not to interfere with its operation.

Selecting the proper location for temperature regulator

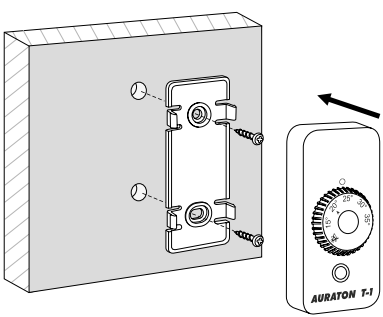


Proper operation of the regulator is greatly affected by its location. Installing it in a place with no air circulation or exposed to direct sunlight causes improper regulation of temperature. In order to ensure proper operation, the regulator must be installed on an interior wall of a building (partition wall). A place should be selected that is occupied most frequently, providing undisturbed circulation of air. Avoid heat radiating devices (television set, heater, refrigerator etc.) or places exposed to direct sunlight. In order to avoid vibration, do not place the regulator in close vicinity of doors.

Fastening the temperature regulator to the wall

NOTE: *Before installing the appliance to the wall, it needs to be paired with a previously connected receiver.*

A controller ***T-1*** and a receiver purchased together, do not require pairing. The appliances have been already pre-paired.



1. Drill two 5 mm holes in the wall (select the span of holes with a wall-mounted holder-enclosed to the set with controller ***AURATON T-1***
2. Insert the wall anchors to the holes (attached to a set).
3. Fix the mounting plate to the wall.
4. Press to join the regulator tightly against the mounting holder(the holes on a back part of the unit should be suitable for snap-on of the holder).

Note: *If the wall is made of wood, there is no need to use the wall anchors. Drill 2,7mm holes in the wall instead of 5mm and screw the screws directly in a wood.*

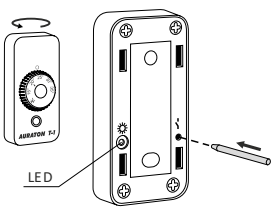
Pairing of the wireless AURATON RT controller with the AURATON RT receiver

After the receiver is connected to the network, the receiver must be switched on by quickly pressing the power button (⏻). If the device is switched on, the green power supply diode becomes illuminated and a single sound signal is emitted. In order to switch off the receiver, e.g. outside of the heating season, press the power button and hold it for 3 seconds until a double sound signal is audible and the green power supply diode is switched off and, consequently, the heating device is switched off.

NOTE: The AURATON T1 wireless temperature regulator sold with the AURATON RT receiver is already paired. Devices sold separately require "pairing".

1. Pairing of the **AURATON T-1** controller with the **AURATON RT** receiver is initiated by pressing the right pairing button (green triangle – ▽) a single sound signal is emitted – on the **AURATON RT** receiver and by holding it pressed for at least 3 s until the LED diode starts blinking with green light (double sound signal) – then the button must be released.

*The **AURATON RT** receiver waits for pairing for 120 seconds. After that time, it automatically returns back to normal operation.*



2. Press the pairing button (⍀) placed on the rear side of housing and hold it for about 2 seconds. When LED diode (☼) will starts flashing red stop pressing the button.

3. A properly completed pairing process is signalled by the LED on the AURATON RT receiver no longer flashing green and the receiver reverting back to normal operation.

In the event of an error during the pairing process, repeat steps 1 and 2. Should more errors occur, deregister all devices by executing the RESET function of the RTH receiver (see "RESET – Deregistering all devices paired with the RT receiver") and attempt to pair the device again.

NOTE: One receiver can have only one temperature regulator assigned.

Deregistering the regulator from the RT receiver

1. Deregistering the **T-1** regulator from the RTH receiver is initiated by pressing the right deregistering button (marked with a red triangle – △) on the RTH receiver and holding it for at least 2 seconds, until the LED starts flashing red, and then releasing the button

The AURATON RTH receiver waits for deregistering for 120 seconds. After that time, it automatically returns back to normal operation.

2. Press the pairing button (⍱) placed on the rear side of housing and hold it for about 2 seconds. When LED diode (✳) will starts flashing red stop pressing the button.

3. A properly completed deregis-tering process is signalled by the LED on the ***AURATON RT*** receiver no longer flashing red and the receiver reverting back to normal operation.

In the event of an error during the deregistering process, repeat steps 1 and 2. Should more errors occur, deregister all paired devices (see "RESET – Deregistering all devices paired with the RT receiver") and attempt to pair the device again.

RESET – Deregistering all devices paired with the RT receiver

In order to deregister all devices paired with the RTH receiver, simultaneously press both the pairing and the deregistering button (▽ and △) and hold them for at least 5 seconds until the LED flashes alternating red and green. Then release both buttons

A properly completed process of deregistering all devices is signalled after approx. 2 seconds by the LED colour changing to green and then switching it off for a short period of time.

NOTE: *If after executing the RESET function the RT receiver is disconnected from power supply and then connected again, the receiver will automatically enter "pairing" mode for 120 seconds. A newly purchased RT receiver without any factory-paired devices (i.e. not the one bundled with the regulator) will behave the same way.*

Signalling operation and reception of data packet

Each radio transmission received by the ***AURATON RT*** receiver from the paired device is signalled by a temporary change of LED colour to orange. Switching on the relay is signalled by the LED lit red, whereas switching it off is signalled by the LED lit green.

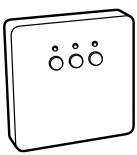
ATTENTION**:**
Pressing any button is signaled by a short beep.

Setting the anti-freezing temperature

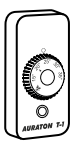
A controller is equipped with antifreeze mode .
This operation mode results in maintaining the room temperature amounting 7 °C. It is used during longer absence to prevent freezing of water in heating installation.

Cooperation of the RT receiverwith a heating device

Basic configuration of devices

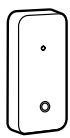


AURATON RT
Receiver connected to the heating device

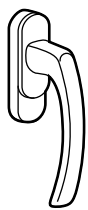


AURATON T-1
Wireless temperature controller

Additional system devices

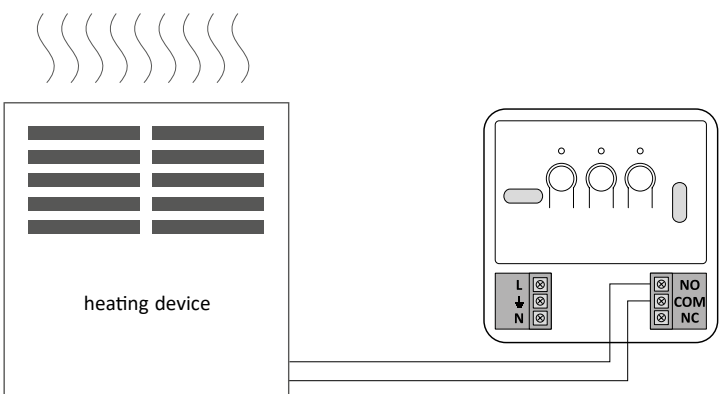


AURATON T-2
Wireless thermometer (sold separately)



AURATON H-1
Window handle (sold separately)

A simplified schematic of connecting the AURATON RT receiver with the heating device



Cooperation of the AURATON RT receiver with the AURATON T-1 regulator and/or the AURATON T-2 thermometer

The operation of temperature regulation in the receiver is based on the binary algorithm (on/off) using one or two sensor elements.

- The AURATON T-1 regulator allows for setting and/or monitoring the temperature.
- The AURATON T-2 thermometer provides information about the current temperature only, without the capability of changing it manually.

A) The manual setpoint – pairing the AURATON T-1 regulator with the RT receiver allows for setting the temperature manually and controlling it in the location of the fastening of the T-1 regulator.

B) The remote setpoint – if the T-2 thermometer is additionally paired with the RT receiver, the AURATON T-1 regulator retains the capability of temperature setting, however its control is performed with the paired T-2 thermometer only. This feature allows for regulating the temperature in a room other than the one where the AURATON T-1 regulator is placed.

An example: you want the temperature in the "children's room" to be always at 22°C, however you do not want children to be able to change it - in that room, you install the T-2 thermometer, and the AURATON T-1 regulator in e.g. the kitchen. This way the temperature in the "children's room" will always be at 22°C regardless of temperature fluctuations in the kitchen.

C) The factory setpoint (20°C) – if the T-2 thermometer is the only device paired with the RT receiver, it is not possible to set the temperature manually, and the RT receiver maintains the factory temperature setpoint of 20°C.

NOTE!

1. The sequence of pairing the AURATON T-1 regulator and the T-2 thermometer is very important. If you want to maintain the remote setpoint, you must first pair the AURATON T-1 with the RT receiver, and then the T-2 thermometer. Reversing the pairing sequence will cause automatic deregistering of the previously paired T-2 thermometer and entering the mode of operation described in item A.

2. The RT receiver can operate with one AURATON T-1 regulator and/or one T-2 thermometer only. Pairing a new regulator causes deregistering the previously paired regulator and the T-2 thermometer. Pairing a new T-2 thermometer causes deregistering the previously paired T-2 thermometer only.

3. The T-1 regulator and/or the T-2 thermometer can operate with an unlimited number of receivers, e.g. one regulator can simultaneously control two independent heating devices.

Cooperation with the AURATON R25 RT regulator and/or the AURATON T-2 thermometer as well as the AURATON H-1 handles

By default, the AURATON RT receiver does not have any AURATON H-1 handle or AURATON W-1 window position sensor paired, therefore the relay is controlled by the paired AURATON T-1 regulator and/or the AURATON T-2 thermometer. When at least one H-1 handle is paired with the RT receiver, the relay is controlled in the following manner:

A) The window is closed or trickle-ventilated (micro-ventilation).

When the H-1 window handles is paired with the receiver, and all windows are closed or trickle-ventilated, the relay still maintains the setpoint from the paired AURATON T-1 regulator and/or the T-2 thermometer.

B) The window is pivoted.

If at least one window is pivoted, the temperature set in the AURATON T-1 regulator is lowered in AURATON RT receiver down to 3°C. This state will be maintained until closing. This state will last until all windows are closed or trickle-ventilated.

C) The window is opened.

When you open a window equipped with the H-1 handle paired for longer than 30 seconds, the relay in the AURATON RT receiver is switched off, as is the connected heating device. If all the assigned windows are again in a state other than “opened”, the RT receiver returns to normal cooperation with the AURATON T-1 regulator and/or the T-2 thermometer no earlier than 90 seconds after switching off the relay. The purpose of this delay is to prevent too rapid transitions of the connected heating devices between the ON and OFF states. However, if the temperature in the room drops below 7°C, the relay inside the receiver is switched on regardless of the positions of windows in order to prevent the room from freezing.

D) The signal is lost.

When the RT receiver has lost the signal from the H-1 handle paired (3 consecutive transmissions are lost), it changes the status if this window to “closed”. When the transmission is restored, the H-1 handle is again properly read off by the RT receiver.

RESET of the regulator

Pressing the **RESET button** (⊙) causes the time and day setting to be erased, and the regulator to be restarted.

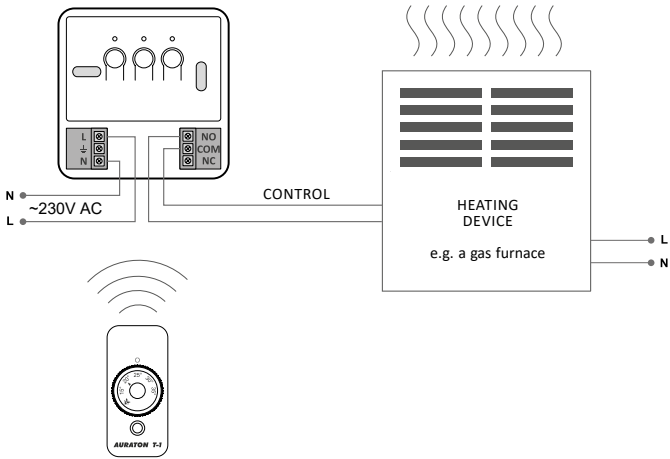
Special situations

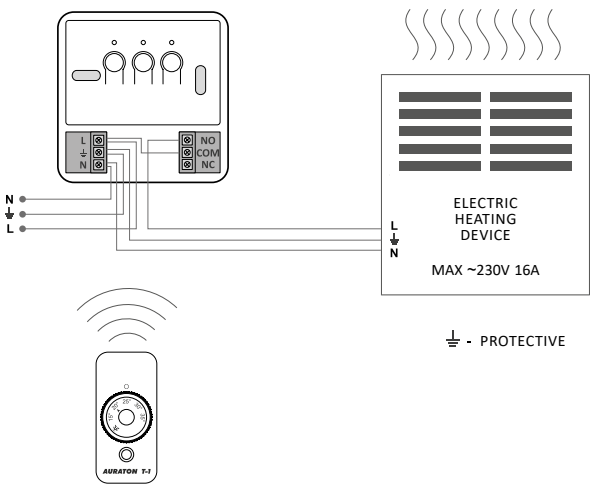
- When 3 consecutive transmissions (after 15 minutes) from the AURATON R25 RT regulator and/or the T-2 thermometer are lost, an error is signalled on the RT receiver (LED flashing continuously red and green). The RT receiver starts executing the ON - OFF cycle memorised during the last 24 hours of operation until the problem is removed.
- When both signals return (from the AURATON R25 RT regulator and the T-2 thermometer), the error is cancelled and the receiver enters its normal mode of operation.
- When only the T-2 thermometer signal returns, the receiver uses the last memorised setpoint value and maintains it while signalling the error.
- When the H-1 handles, the T-2 thermometer and the AURATON R25 RT regulator (the temperature is measured with the T-2 thermometer) are paired with the receiver, then maintaining the work cycle from the last 24 hours occurs only after losing the signal from the T-2 thermometer. When only the signal from the AURATON R25 RT is missing, the RT receiver automatically maintains the last memorised setpoint from the AURATON R25 RT regulator and also signals an error.
- When you have only the H-1 handles and the T-2 thermometer paired with the RT receiver without the AURATON R25 RT regulator, the RT receiver maintains a constant, factory-defined temperature of 20°C. If you pivot any window equipped with the H-1 handle paired with the receiver, a temperature of 17°C is maintained. If you open any window equipped with the H-1 handle paired with the RT receiver, the receiver switches off the heating device, but will switch it back on when the temperature falls below 7°C.

Unique features of AURATON T-1

- A pre-installed lithium battery, provides an interrupted operation up to 20 years.
- Switching the relay is synchronised with the wave of the 230 V mains voltage in order to ensure that closing and opening contacts of the relay occurs around the zero-crossing point. This prevents the occurrence of an electric arc, significantly extending the relay service time.
- The AURATON RTH receiver is equipped with a unique algorithm for analysing the ON - OFF cycles. The entire heating cycle from the last 24 hours is recorded in the memory of the RTH receiver. In the event of losing communication with the AURATON T-1 RTH regulator and/or the T-2 thermometer, the RTH receiver automatically executes the ON - OFF cycle memorised during the last 24 hours. This provides time for restoring transmission (removing interferences) or fixing the T-1 regulator and/or the T-2 thermometer without a significant deterioration of thermal comfort conditions in the controlled spaces.

The AURATON RT receiver connection schematics





Additional information and notes

- The **AURATON T-1** regulator and/or the T-2 thermometer must be installed at least 1 metre from the **RT** receiver (too strong a signal from thetransmitters can cause interference).
- At least 30 seconds must elapse between switching the relay off and on.
- Data transmission from the **AURATON T-1** regulator to the receiver occurs upon each change of 0.2 °C of the surrounding temperature. When the temperature is stable, the regulator sends heart-beat data every 5 minutes (which is signalled with the LED blinking orange on the **RT** receiver).
- In the event of a power outage, the **RT** receiver will switch off. When power is restored, the heating device is switched on automatically, and the **RT** receiver awaits a signal from the paired transmitters (this signal should be received within 5 minutes of restoring power). After receiving the signal, the **RT** receiver enters the normal mode of operation.
- The **RT** receiver cannot be placed in metal containers (e.g. an assembly box, a metal enclosure of a heater) in order to not to interfere with its operation.

Technical specifications

Working temperature range:	0 – 45°C
Temperature measurement range:	7°C; 15 – 35°C
Temperature levels:	1
Antifreeze temperature:	7°C
Working mode control:	LED
Maximum load:	resistive 16 A inductive / capacitive 10 A
Power supply ***T-1:***	pre-installed lithium battery
Power supply ***RT:***	230V AC, 50Hz
Radio frequency:	868 MHz
Operation range ***RT:***	in a typical building, with standard construction of walls – approx. 30 min an open space – up to 300 m

Disposing of the devices

The devices are marked with the crossed waste bin symbol. According to European Directive no. 2002/96/EU and the Act concerning used up electric and electronic equipment, such a marking indicates that this equipment may not be placed with other household generated waste.

The user is responsible for delivering the devices to a reception point for used-up electric and electronic equipment.

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