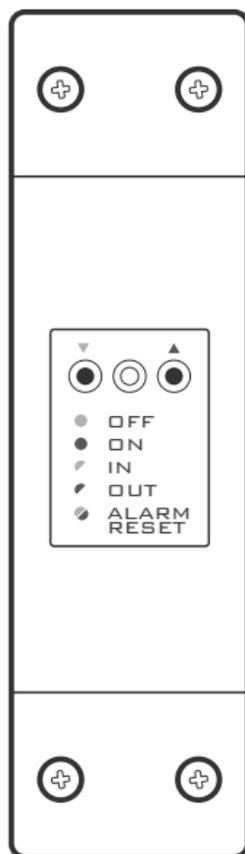


AURATON / RTH

www.auraton.pl

User's Manual

CE



Congratulations on your purchase of a modern AURATON RTH receiver installed at the heating or air-conditioning device.

Basic product characteristics

16A Operation with load up to 16A

The AURATON RTH receiver has been equipped with the transmitter which may work with load up to 16A. Low-spark technology of switching the voltage system causes minimal wear of the transmitter's contacts.



Interruption-free communication between devices.

AURATON RTH communicate on the 868MHz frequency. Very short encrypted transmission packets (ca. 0.004s) provide efficient and interruption-free operation of the device.

LED diodes



LED diodes inform in a clear manner about the device operating status.

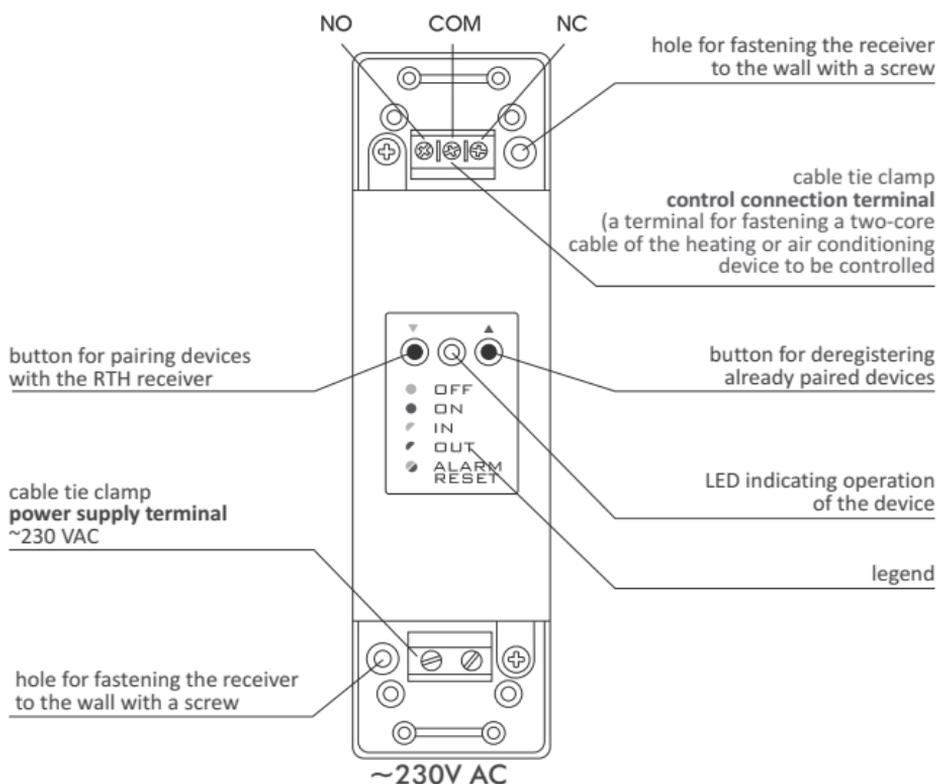


ON / OFF cycles memory algorithm

The AURATON RTH receiver is equipped with a unique algorithm of ON- OFF cycles analysis. The whole heating cycle from the last 24h is saved in the memory of the RTH receiver. In the case of loss of communication with the temperature controller and/or the T-2 thermometer, the RTH receiver will automatically perform the remembered cycle of activations / shutdowns from the last 24h. It gives time to restore the transmission (removal of interruption) or repair the controller and/or the T-2 thermometer without significant thermal comfort deterioration in the controlled facility.

Description of the AURATON RTH receiver

The receiver is installed on the heating or air conditioning device and can operate under the load of **16A**.



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 **RTH** receiver awaits the device to be paired.
- ◐ OUT **The LED flashes red** – the **RTH** receiver awaits the device to be deregistered.
- ◐ ALARM RESET **The LED flashes alternating red and green:**
ALARM - the **RTH** receiver has lost connection with one of the paired devices.
RESET - receiver deregisters all previously paired devices.

Fastening the RTH receiver

NOTE: When installing the **AURATON RTH** receiver its power supply must be disconnected. It is recommended that the installation is performed by a qualified specialist.

1. Take off protective covers from the lower and upper part of the **AURATON RTH** receiver.

protective cover

2. Take off cable tie clamps from the lower and upper part of the **AURATON RTH** receiver.

cable tie clamp

3. Connect the heating device to the **control connection terminals** of the **AURATON RTH** receiver.

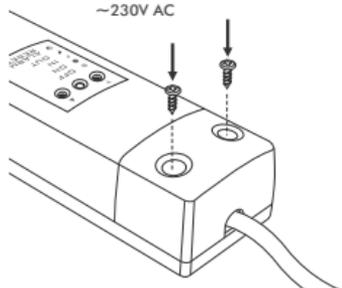
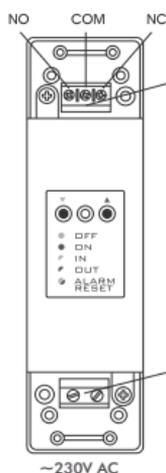
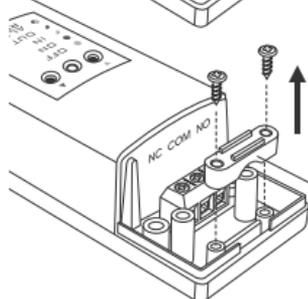
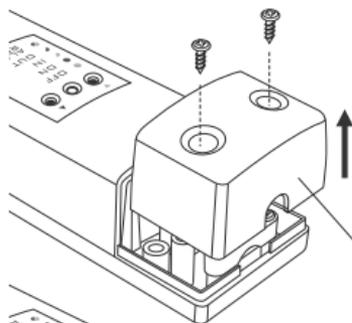
Proceed in accordance with the service manual of the heating device. Most commonly, the **COM** (common) and **NO** (normally open) terminals.

4. Connect power supply conductors to the **power supply terminals** of the **AURATON RTH** receiver, observing safety rules.

5. After connecting the conductors, they must be secured with the cable tie clamps and reinstall protective covers of the **AURATON RTH** receiver.

NOTE:

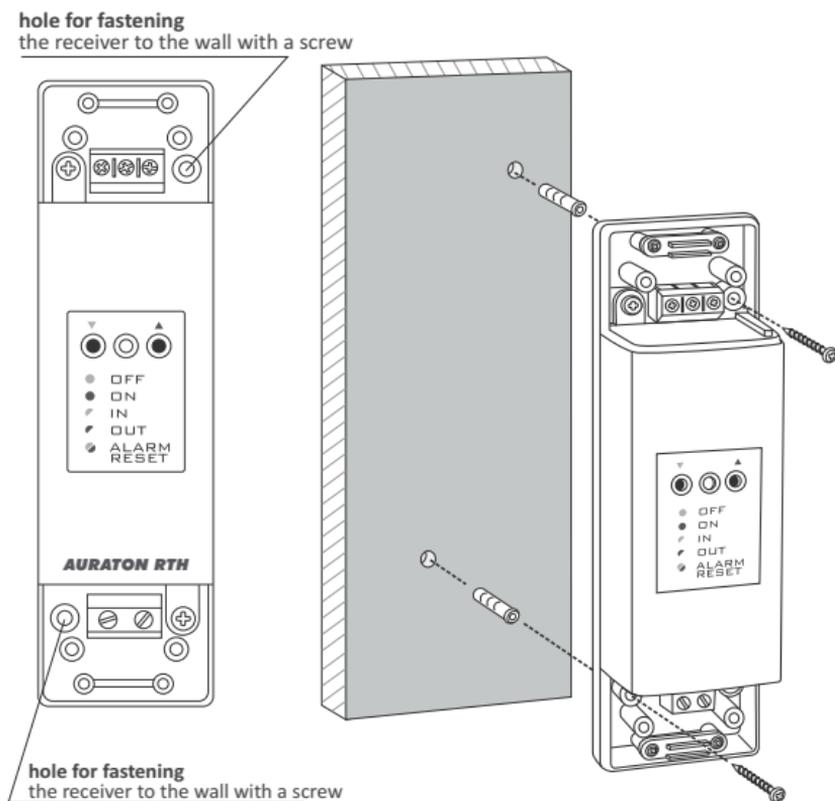
The permanent electrical system of a building must include a breaker and an overcurrent protection.



Fastening the RTH receiver to the wall

To fasten the **AURATON RTH** receiver to the wall:

- 1) Remove protective covers from the lower and upper part of the regulator.
(See chapter: "Fastening the RTH receiver").
- 2) On the wall, mark the location of holes for fastening screws.
- 3) In marked places, drill holes of a diameter corresponding to the bundled wall plugs (5 mm).
- 4) Insert wall plugs into the drilled holes.
- 5) Screw in the RTH receiver to the wall with screws, making sure they hold thereceiver securely.



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 **RTH** 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.

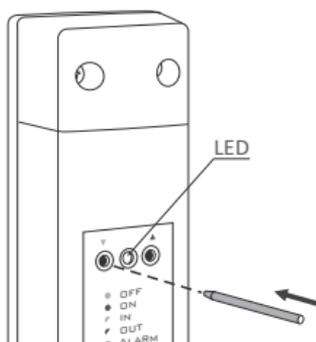
First start-up of RTH receiver

The first connection of the RTH receiver to the supply network will result in the receiver going into the "association" mode for 120 seconds. It is signalled by LED diode flashing with a green light. (see chapter: "Associating device with RTH receiver" and "RESETTING - Signing out all devices assigned to receiver").

Note: *The RTH receiver purchased in the set with the temperature controller already has an associated device and the above case will not take place.*

Associating device with RTH receiver

In order for the AURATON RTH receiver to operate correctly it must be first "associated" with one of the system devices (e.g. the AURATON T-1 temperature controller).



1. Associating a new device with the receiver is initiated by pressing the left association button (green triangle - ▼) on the receiver and pressing it for at least 2 seconds, until the LED diode starts flashing with a green light, then we release the button.

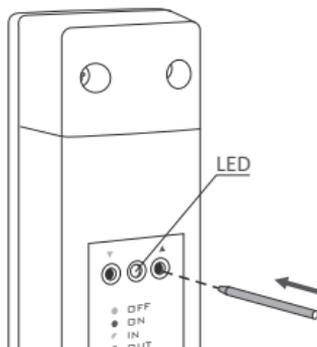
Note: *The receiver is waiting for association for 120 seconds. After this time it will automatically return to normal operation..*

2. When the LED diode of the receiver flashes with a green light, press the "association button" on the device that you want to associate and hold it for at least 2 seconds (precise association manual is attached to each device).
3. Correct completion of association is signaled by the stop of flashing with a green light of the LED diode on the receiver and the receiver going into normal operation.

In the case of an error during association, steps 1 and 2 should be repeated. At subsequent errors, sign out all devices by RESETTING the receiver (see chapter "RESETTING-Signing out all devices assigned to receiver") and try to associate the device again.

Note: *Once added device cannot be again associated with this receiver, since it is already saved in the receiver memory.*

Signing out device from RTH receiver



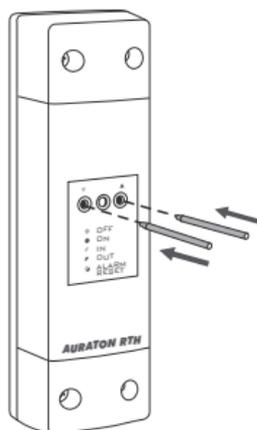
1. Signing out the device from the RTH receiver is initiated by pressing the right sign out button (red triangle - ▲) on the receiver and pressing it for at least 2 sec, until the LED diode starts flashing with a red light, then we release the button.

Note: The receiver is waiting for signing out of the device for 120 seconds. After this time it will automatically return to normal operation.

2. When the LED diode of the receiver flashes with a green light, press the "association button" on the device that you want to sign out and hold it pressed for at least 2 seconds (precise signing out manual is attached to each device)..
3. Correct completion of signing out is signalled by the stop of flashing with a red light of the LED diode on the receiver and the receiver going into normal operation.

In the case of an error, steps 1 and 2 should be repeated.

RESETTING - Signing out all devices assigned to receiver



In order to sign out all devices associated with the receiver press and hold at the same time both association and sign out (▼ and ▲) buttons for at least 5 seconds until signalling of the LED diode changes to alternate flashing in colours green and red. Then release both buttons.

Correct completion of signing out of all devices is signalled after approximately 2 seconds by signalling change to green and then its fading.

Note: If after **RESETTING** we disconnect the receiver from the power supply and then we connect the power supply again, the receiver will automatically go into the "association" mode, just as at the first start-up.



RTH receiver operation with heating device

Basic configuration of devices



AURATON RTH
Receiver connected to the heating device



AURATON T-1
Wireless temperature (sold separately)

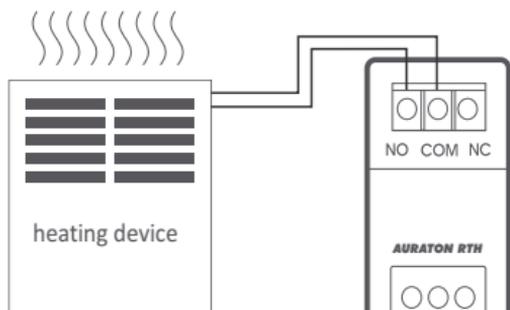
Additional system devices



AURATON T-2
Wireless thermometer (sold separately)



AURATON H-1
Window handle (sold separately)



A simplified schematic of connecting the **AURATON RTH** receiver with the heating device

After switching on the power supply the transmitter of the RTH AURATON the receiver is always activated until it receives information from associated devices.

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

Controlling the temperature in the receiver is based on two-state signal algorithm (turn on /turn off) which makes use of one or two sensor elements:



The T-1 controller enables setting the temperature and/or its controlling.



The T-2 thermometer gives information about the current temperature without the possibility of its manual change.

- A) Manual setting** - associating the T-1 controller with the RTH receiver we have a possibility to manually set the temperature and control it in the place of fastening the T-1 controller.
- B) Remote setting** - if to the same RTH receiver we additionally associate the T-2 thermometer, the T-1 controller will retain the ability to set the temperature, however, its control will be implemented only by the associated T-2 thermometer. This enables controlling the temperature in a room other than the one in which the T-1 controller is placed. *Example: We want the "baby room" to always have the temperature of 22°C, while we do not want the children to have a possibility to change the temperature, we install the T-2 thermometer in the "baby room" and the T-1 controller for instance in the kitchen. Thanks to such solution the "baby room" will always have a temperature of 22°C regardless of the temperature fluctuations that occur in the kitchen.*
- C) factory setting (20°C)** - If with the RTH receiver we associate only the T-2 thermometer it is not possible to manually set the temperature and the RTH receiver will maintain the factory setting of 20°C.

ATTENTION!

1. The order of associating the T-1 controller and T-2 thermometer is very important. If we want to pursue a remote setting, in the first place associate the T-1 controller with RTH receiver and then the T-2 thermometer. Reverse association will result in automatic signing out of the previously associated T-2 thermometer.
2. The RTH receiver may work only with one T-1 controller and/or one T-2 thermometer. Associating a new T-1 controller will result in signing out of the previously associated T-1 controller and T-2 thermometer. Associating a new T-2 thermometer will result in signing out of the previously associated T-2 thermometer.

Cooperation with AURATON T-1 controller and/or T-2 thermometer and AURATON H-1 handles

When the RTH receiver has no associated H-1 handle the transmitter is by default controlled by the associated T-1 controller and/or T-2 thermometer. When we associate at least one H-1 handle with the RTH receiver, controlling the transmitter will proceed as follows:

A) Window closed or unsealed (micro ventilation).

When we associate H-1 handles with the receiver and all windows are closed or unsealed, the transmitter still performs the setting from the associated T-1 with the receiver controller and/or T-2 thermometer.

B) Window ajar.

When we slightly open at least one window, the temperature in the RTH AURATON receiver of the T-1 controller will be decreased by about 3°C. This state will last until the time of closing or unsealing all windows assigned to the RTH receiver.

Example: On the T-1 controller we have set the temperature of 21°C. Then we slightly open the window with an associated H-1 handle. The RTH receiver will maintain the temperature of 18°C in the room.

C) Window open.

When we open the window with an associated H-1 handle for longer than 30 sec, the transmitter in the RTH AURATON receiver will be turned off and the heating device will also turn off. If all assigned windows once again will be in a position different than open, the RTH receiver will return to normal cooperation with the T-1 controller and/or the T-2 thermometer after time not shorter than 90 seconds from turning off of the transmitter. This is an intentional delay so as to prevent too rapid changes of heating devices between ON-OFF position. However, if the temperature in the room falls below 7°C, regardless of the position of windows, the transmitter in the receiver will switch on activating the heating device to prevent the rooms from freezing.

D) Loss of signal.

When the RTH receiver loses signal from the associated H-1 handle (3 subsequent lost transmissions), it changes the status of this window to closed. After restoring the transmission, the H-1 handle or window position sensor once again are correctly read by the RTH receiver.

Note: One AURATON RTH receiver can operate max. 25 handles.



RTH receiver operation with air-conditioning device

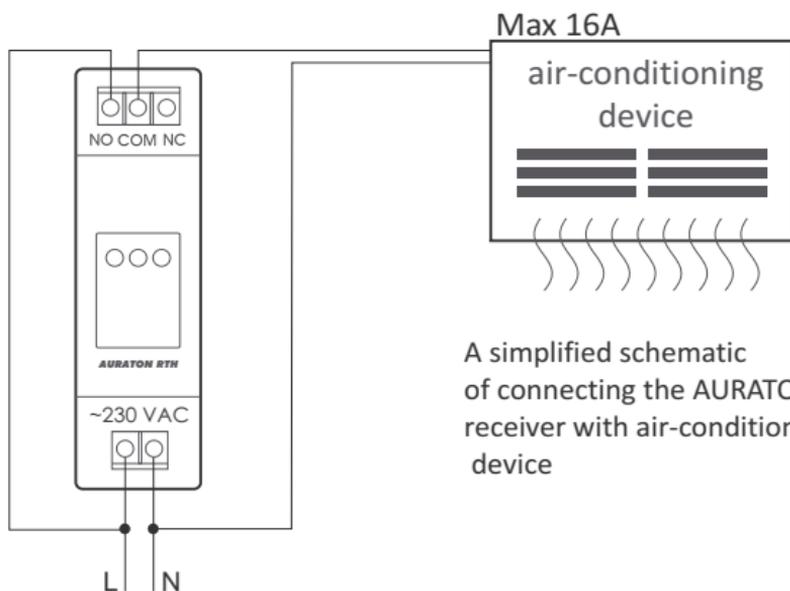
Basic device configuration



AURATON RTH
receiver connected
to air-conditioner



AURATON H-1
window handle
to be purchased
separately



A simplified schematic
of connecting the AURATON RTH
receiver with air-conditioning
device

Cooperation of the RTH receiver with the H-1 handles without the T-1 controller and the T-2 thermometer

A) Air-conditioning controlling.

In order for the RTH receiver to be able to control air-conditioning:

- it cannot be associated with any T-1 controller or T-2 thermometer,
- it must be associated with at least one H-1 handle or window position sensor.

Upon fulfillment of the above requirements, the RTH receiver goes into automatic mode of controlling the air-conditioning. If we connect, through the transmitter, the power supply circuit for air-conditioning devices and open or slightly open any window with an associated H-1 handle or window position sensor for longer than 30 sec, the transmitter will turn off the air-conditioning device.

If all windows with an associated H-1 handle or window position sensor once again will be in a position other than open or ajar, the RTH receiver after time not shorter than 90 seconds from deactivating the transmitter once again will activate the transmitter and the air-conditioning device. This is an intentional delay so as to prevent too rapid changes of air conditioning devices between ON-OFF position, which can lead to compressor damage.

B) Loss of signal.

When the RTH receiver loses signal from the associated H-1 handle or window position sensor (3 subsequent lost transmissions), it changes the status of this window to closed. After restoring the transmission once again the sensor is correctly read by the receiver.

***Note:** associating the T-1 controller or the T-2 thermometer automatically changes the way of operating of the RTH receiver to controlling the heating device.*

Signalling operation and receiving data package

Each reception of the radio transmission by the AURATON RTH receiver from associated devices is signalled by a temporary change of the LED diode colour to orange. After activating the transmitter the LED diode is red, after shutting down the transmitter the LED diode is green.

Unusual situations

- After the loss of 3 subsequent transmissions (after 15 minutes) from the T-1 controller and/or T-2 thermometer signaling the failure will take place on the RTH receiver (continuous LED flashing alternately with red and green light). Until the removal of the problem the RTH receiver goes into the remembered ON/OFF cycle from the last 24h.
- When both signals come back (T-1 controller and T-2 thermometer), the error is deleted and the receiver goes into normal operation.
- As soon as the signal from the T-2 thermometer returns, the receiver uses the last remembered setting and maintains it, still signalling failure.
- When we have H-1 handles or window position sensors, T-2 thermometer and T-1 controller (temperature is measured by the T-2 thermometer) associated with the receiver, maintaining the operation cycle from the last 24h will take place only after loss of signal from the T-2 thermometer. When there is no signal only from the T-1 controller the RTH receiver automatically maintains the most recently remembered setting of the T-1 controller but also signals failure.
- When we have only H-1 handles associated with the RTH receiver and associated the T-2 thermometer without the T-1 controller, the RTH receiver will maintain constant temperature factory set at 20°C. If we slightly open any window with associated, H-1 handle, the temperature of 17°C will be maintained. If any window with associated H-1 handle will be opened the RTH receiver will turn off the heating device, but it will activate it again if the temperature falls below 7°C.

Unique features of AURATON T-1 RTH

- Switching of the transmitter is synchronized with the course of power supply network 230 V so as to ensure that short circuit and opening of contacts of the transmitter always proceeds close to the passage of the course of system voltage by zero. It prevents the formation of an electrical arc and significantly increases durability of the transmitter.
- The AURATON RTH receiver is equipped with a unique algorithm of ON-OFF cycle analysis. The whole heating cycle from the last 24h is saved in the memory of the RTH receiver. In the case of loss of communication with the T-1 controller and/or the T-2 thermometer, the RTH receiver will automatically perform the remembered ON/OFF cycle from the last 24h. It gives time to restore the transmission (removal of interruptions) or repair the T-1 controller and/or the T-2 thermometer without significant thermal comfort deterioration in the controlled facility.

Additional information and comments

- Wireless devices associated with the RTH receiver should be installed minimum 1 meter away from the RTH receiver (a signal from the transmitters that is too strong may cause interruptions).
- Between the next turning off and on of the transmitter at least 30 seconds must pass.
- Transmission of data from the T-1 controller to the RTH receiver happens at each change of the environment temperature by 0.2°C. When the temperature does not change, the T-1 controller sends data every 5 minutes (it is reflected by LED diodes flashing on the T-1 controller and LED diodes flashing on the RTH receiver - with an orange light)
- At power supply failure the RTH receiver will be deactivated. After restoration of power supply the heating device will be automatically activated and the RTH receiver will be expecting the nearest signal from associated transmitters (this signal should arrive not later than within 5 minutes after power supply restoration). After receiving the signal the RTH receiver will go into normal operation.
- Do not place the RTH receiver in metal casings (e.g., installation boxes, metal furnace casings) so as not to disturb the controller operation.

Unique features of AURATON T-1 RTH

- Switching of the transmitter is synchronized with the course of supply network 230 V so as to ensure that short circuit and opening of contacts of the transmitter always proceed in the area of the course of passage of voltage system by zero. It prevents the formation of an electrical arc and significantly increases the durability of the transmitter.
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Disposing of device



The devices are marked with a symbol of a crossed out container for waste. According to the European Directive 2002/96/EC and the Act on electrical and electronic equipment such marking informs that this equipment, after period of its use cannot be put along with other waste from the household.

The User is obliged to hand it over to the electronic and electrical equipment waste collection point.

Technical specifications

Work cycle:	daily
Verification of operation condition:	LED diode
Maximum load current for transmitter contacts:	~16A 250 VAC
RTH power supply:	230 VAC, 50 Hz
Radio frequency:	868 MHz
Range of operation with wireless devices:	in a typical building, with a standard structure of walls - ca. 30 m, in an open area - up to 300 m
IP 20	



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