



RE.GUARD WATER CONTROL DEVICE

Installation and operating instructions

These 'RE.GUARD Water Control Device' installation and operating instructions are valid from July 2020.



With its publication the previous Technical Information 410600 (dated December 2019) becomes invalid.

Our current technical documents can be downloaded from www.rehau.com/ti or via the QR code.

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All dimensions and weights are reference values. Subject to technical changes.

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1 INFORMATION AND SAFETY INSTRUCTIONS

1.1 On this documentation

- Please read these instructions carefully before installing or operating the RE.GUARD water control device.
- Keep the instructions safe and on hand at the installation site.
- Pass these instructions on to subsequent users.

Scope

These installation instructions are valid for Germany.

Pictograms and logos

The following pictograms and logos are used in these instructions:



Safety notice



Legal notice



Important information

Validity of the instructions

To ensure your own safety and the correct use of our products, please check at regular intervals whether a newer version of these instructions is available. The issue date of these instructions is printed on the bottom right-hand side of the back page.

You can view and download the most recent instructions as well as further instructions at www.rehau.com/ti.

1.2 Intended use

The RE.GUARD water control device may only be installed and operated as described in these instructions. Compliance with these instructions is part of intended use.

Installation and maintenance may only be carried out by qualified and trained personnel. This means personnel who, through training and experience, are permitted and capable of carrying out the relevant installation work, identifying and avoiding potential hazards as well as observing relevant applicable regulations (e.g. regulations regarding work safety, electrical safety etc.)

1.3 Safety instructions

- Failure to follow these instructions can result in damage or injury.

We accept no liability for damage caused by non-compliance with these instructions.

- If you have not understood the safety instructions or individual operating steps or they are unclear, please contact REHAU. The contact details for your region or country can be found on the back cover page.

Accident prevention

Observe all applicable national and international regulations relating to installation, prevention of accidents and safety warnings when installing pipe systems and components of drinking water installations, as well as the information in these instructions.

Laws, standards and regulations

Please observe the currently valid laws, standards, instructions, regulations (e.g. DIN, EN, ISO, DVGW, NEN, VDE and VDI) as well as regulations regarding environmental protection, trade association regulations and regulations from local utility companies.

Electrical safety

Work on electrical systems may only be carried out by personnel trained and authorised to do so. There is a risk of electric shock in the case of unauthorised and improper work.

2 PRODUCT DESCRIPTION

2.1 Operating principle



Fig. 2-1 RE.GUARD water control device

The RE.GUARD water control device is a device to install in the drinking water supply pipe, which permanently monitors the flow rate, pressure and temperature of the drinking water system with built-in sensors at the place of installation. If the predefined threshold values are exceeded, the RE.GUARD water control device isolates the pipe work with an integrated, motorised ball valve, displays a warning message and transmits it wirelessly.

Fundamentally it is only possible to protect the downstream part of the installation after the RE.GUARD.

The sensors are suitable for detecting the following leaks at an early stage:

- Larger leaks in the water pipes, e.g. a burst pipe, hereinafter also referred to as macro leaks.
- Very small water leaks, e.g. a drip leaks, hereinafter also referred to as micro leaks.

The RE.GUARD water control device's leak prevention function does not offer complete protection against water damage and does not prevent the occurrence of leaks itself. However, through correctly setting the parameters and thresholds, based on the respective appliances and number of people in the building, leaks can be detected at an early stage, thereby reducing the likelihood of a larger water damage and minimizing any follow-up costs.



For the reliable detection of leaks, in particular for the detection of micro leaks, all installed check valves (after the domestic water meter, after the branch off for any water treatment, on any taps and/or any appliances) must work correctly. Ensure their correct function through regular maintenance.

Expansion vessels installed in the drinking water system, e.g. in the supply to the boiler, can cover up any micro leaks and therefore reduce the likelihood of detection.



Installing the device in hot water pipes, circulation pipes and all non-drinking water pipes is prohibited.

The water pressure (static pressure) at the place of installation must be at least 0.2 MPa (2 bar) and maximum 1.0 MPa (10 bar). If the network pressure is higher than 1.0 MPa (10 bar), the RE.GUARD water control device must only be operated downstream after a pressure reducer which is set at maximum 1.0 MPa (10 bar).

The place of installation must be dry and free of frost. Exposing the device to direct sunlight is to be avoided.

2.2 Range of application

The RE.GUARD water control device is suitable for use in drinking water installations within buildings. It is designed for detached and semi-detached houses as well as individual apartments.

The correct function of the device during operation is generally ensured at ambient temperatures of 5 °C to 40 °C and for short periods in exceptional cases between 0 °C and 50 °C. The device must always be kept frostfree.

Installation is carried out in a horizontal or vertical orientation in consideration of the flow direction and exclusively in cold water pipes with a temperature of between 5 °C and 25 °C. It is preferable to install the RE.GUARD water control device in the incoming mains pipe section, but always after the pressure reducer. When installing the RE.GUARD water control device before the pressure reducer, false detections of micro leaks are possible.



If any disinfection measures or chemical dosing of the drinking water is present (e.g. hardness stabilisation) or any water softeners or demineralisation devices are installed that also reach the installation location of the RE.GUARD water control device, a consultation must be held with the manufacturer of the device or substance and with REHAU.

2.3 Controls and indicators

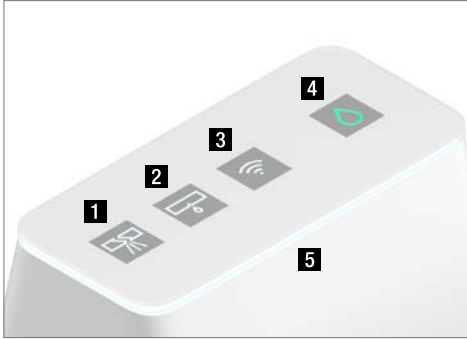


Fig. 2-2 Controls and indicators

- 1** Burst pipe button (macro leaks)
- 2** Drip leak button (micro leaks)
- 3** Wireless connection button (pairing)
- 4** Shut-off button (valve open/closed)
- 5** All-round light ring

The basic functions of the device are accessed using four buttons. The buttons also serve as display indicators and signal a change within the control or monitoring area with colour changes (see Chapter “5.1 Operation and status indicators on the device”, page 32).

An all-round light ring shows the overall status of the RE.GUARD water control device. Extended functionality including adjusting the thresholds, setting notifications, schedules and other actions can be accessed through the RE.GUARD app and are only possible in combination with the RE.HUB Gateway (see Chapter “5.2 Operation using the RE.GUARD app”, page 42).

2.4 Accessories

The following accessories are optional and are not included in the delivery contents of the RE.GUARD water control device.

2.4.1 RE.HUB gateway



Fig. 2-3 RE.HUB gateway

The RE.HUB gateway is required for accessing all extended functions of the RE.GUARD water control device (changing the thresholds, setting the parameters, integrating it into a Z-wave® network, pairing additional Z-wave® components, remote controlling, recording and accessing historical data, etc.) which can be accessed via the RE.GUARD app (Android Version 7 and above and iOS Version 11 and above).

Other Z-wave® gateways or similar smart home systems with Z-wave® functionality can be used as an alternative to the RE.HUB gateway. However, in this case, advanced knowledge of wireless standards, smart home etc. is necessary, operation via the RE.GUARD app is not possible and REHAU cannot accept any liability regarding the overall functionality. If you have any questions regarding integration and pairing, please contact the manufacturer of the respective device.

2.4.2 RE.GUARD water sensor



Fig. 2-4 RE.GUARD water sensor

The RE.GUARD water sensor can be used to detect and report escaping water even faster. It also measures the ambient temperature and provides frost warnings.

Areas that can be additionally covered with the RE.GUARD water sensor include, for example, household appliances and sanitary fixtures (under the bathtub, dishwasher, washing machine etc.)

Up to 10 RE.GUARD water sensors can be linked to a RE.GUARD water control device.

Other Z-wave® floor sensors or other sensors with Z-wave® functionality can be used as an alternative to the RE.GUARD water sensor. In this case, however, integration and display via the RE.GUARD app is not possible. If you have any questions regarding integration and pairing, please contact the manufacturer of the respective device.

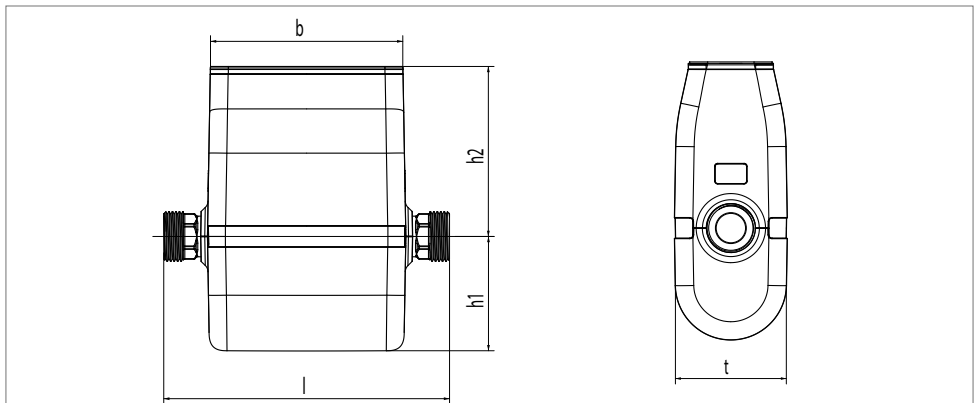
2.4.3 Other accessories

The Z-Wave® wireless standard transmits at a frequency of 868.42 MHz and has a range of up to 30 m within buildings. The range is significantly reduced by heavy and solid building parts, especially by ceilings with a lot of steel reinforcement and by solid walls.

If the radio signal between the RE.HUB Gateway and RE.GUARD water control device is not strong enough, any network-connected Z-Wave® device can be used as a repeater, but the 'AEOTEC Range Extender 6' was specifically tested. However, please note the additional "3 Installation", page 14 as well as the fact that in the event of a defect or other failure of the Z-Wave® device serving as a repeater, the radio connection between the RE.GUARD components may also be impaired.

2.5 RE.GUARD water control device technical data

Dimensions



Length of casing (excluding thread connections)	b	141 mm
Total length of device (including thread connections)	l	190 mm
Height of bottom edge – thread axis	h1	76 mm
Height of top edge – thread axis	h2	113 mm
Total height	h1 + h2	189 mm
Width	t	77 mm

Product features

Dimensions and connections

Nominal diameter	DN 20
Screw connections	G1" external thread as per ISO 228 (flat-sealing)
Spanner size	SW27

Materials

Base body	Lead-free gunmetal as per DIN specification 2701
Casing	Acrylonitrile styrene acrylate copolymer (ASA)
Control panel	Plexiglas (PMMA – polymethyl methacrylate)

Flow rate/pressure loss (with built-in ball valve and sensors)

Nominal flow rate	2.5 m ³ /h
Pressure loss at nominal flow rate	10.5 kPa (105 mbar)
Maximum flow rate	5.0 m ³ /h
Pressure loss at maximum flow rate	36.0 kPa (360 mbar)
Flow rate coefficient	C _v 8.3 m ³ /h
Nominal pressure level	PN 16
Maximum operating pressure	1 MPa (10 bar)

Operating temperatures

Drinking water temperature in use	5 °C–25 °C
Ambient temperature	5 °C–40 °C
Short-term in exceptional case	0 °C–50 °C (frost-free)
Noise characteristics incl. ball and sensors	Fitting class I as per DIN EN 13828

Electrical data

Electrical connection	110 – 230 V / 50 – 60 Hz
Mains adapter voltage	12 V DC
Power consumption (in use)	10 W
Protection rating	IP 44
Protection class	Water control device III Mains adapter II
Length of connecting cable	Approx. 1.2 m
Emergency power supply batteries ¹⁾	4 x AA
Weight (without mains adapter)	1545 g
Wireless protocol/radio frequency	Z-wave [®] Plus/868.42 MHz
Approval	compliant with DIN 3553 (issue 03-2019)

1) not included in the delivery contents

3 INSTALLATION

3.1 Delivery contents

The following components are included in the delivery contents of the RE.GUARD water control device:

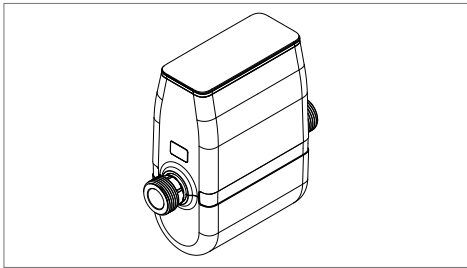


Fig. 3-1 RE.GUARD water control device

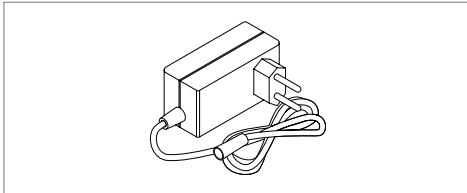


Fig. 3-2 Mains adapter

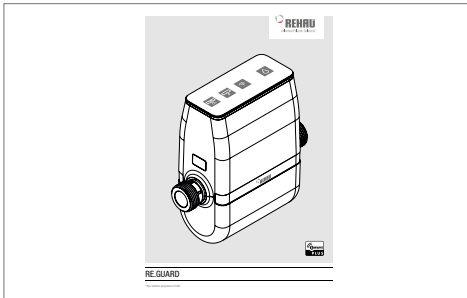


Fig. 3-3 Installation and operating instructions (short version)

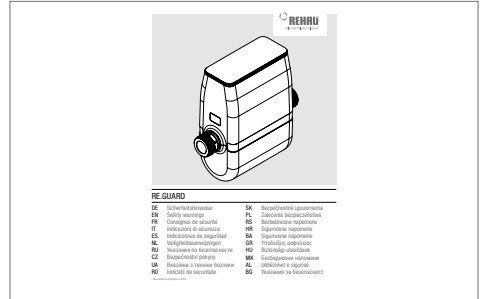


Fig. 3-4 Safety instructions

3.2 Transport and storage

The RE.GUARD water control device is delivered in transport packaging which offers good but not complete protection from environmental influences.

Always transport and store the RE.GUARD water control device in this closed packaging and only remove the device immediately before installation.

During transport and storage, the device must not be exposed to frost or reach temperatures above 50 °C.

3.3 Networking components

3.3.1 Networking prior to installation

The initial networking process between the RE.GUARD water control device and the RE.HUB gateway requires a high level of data exchange and a highly stable wireless connection. Even minor interference in the wireless connection can lead to the termination of the initial networking process.

We therefore strongly advise to carry out networking in close proximity to each other prior to installing the RE.GUARD into the plumbing system. Alternatively, the RE.HUB gateway can also be placed in the immediate vicinity of an already installed RE.GUARD water control device (e.g., by means of a longer LAN cable, closer LAN connection or Powerline network adapters).

Initial networking via a Z-Wave-based repeater is not possible.

3.3.2 Z-Wave® – fundamentals



The following conditions ensure the best possible wireless connection:

- Do not install the devices in any cabinets
- Min. 50 cm distance from
 - Metal objects
 - Walls and ceilings with metal reinforcement (e.g. basement ceilings)
 - Cables
 - Other wireless sources

The RE.HUB gateway (accessory) is required for accessing the extended functionality of the RE.GUARD water control device (changing the

thresholds, setting the parameters, integrating it into a Z-wave® network, pairing additional Z-wave® components, remote controlling, recording and accessing historical data etc.) through the RE.GUARD app. The RE.GUARD app runs on smartphones with Android (version 7 and higher) and iOS (version 11 and higher).

The integration (pairing) of the RE.GUARD water control device is described in Chapter “5.1.1 Pairing device with Z-Wave (including/adding)“, page 33.

The RE.GUARD gateway set-up is described in the section “Setting up the RE.GUARD app“, page 42.


Communication between the RE.GUARD water control device and the RE.HUB gateway as well as between the external components (e.g. RE.GUARD water sensor) occurs via the open wireless standard Z-wave®.


The wireless standard transmits at a frequency of 868.42 MHz and has a range of up to 30 m within buildings. This range is significantly reduced by solid components, particularly ceilings with a very high steel reinforcement and solid walls.

Other Z-wave® gateways or similar smart home centres with Z-wave® functionality can be used as an alternative to the RE.HUB gateway. However, in this case, advanced knowledge of wireless standards, smart home etc. is necessary, operation via the RE.GUARD app is not possible and REHAU cannot accept any liability regarding the overall functionality. If you have any questions regarding integration and coupling, please contact the manufacturer of the respective device with regards to this.


3.4 Connecting to the plumbing system

3.4.1 General requirements

 The installation of the RE.GUARD water control device is a significant modification to the drinking water installation. According to most national regulations, such modifications may only be carried out by an installation company registered in the plumbing directory of the water supply company. Please find out about these national regulations before installation.

 Please observe the notes in Chapter “1 Information and safety instructions”, page 6.

3.4.2 Installation-side requirements


 Installation of the device is **not permitted** in:

- Hot water pipes
- Circulation pipes
- Non-drinking water systems

Before installing the RE.GUARD water control device, check that the dimensions of the drinking water installation are sufficient.

It is recommended to install the RE.GUARD water control device in the drinking water installation immediately after the domestic water meter, i.e. directly after the isolation valve with check valve,

right behind the water meter, however behind an optionally installed pressure reducer. When installing the RE.GUARD water control device before the pressure reducer, false detections of micro leaks are possible.

 The following conditions must be fulfilled:

- The mains pressure must not exceed 1.0 MPa (10 bar). In the case of higher mains pressure, the RE.GUARD water control device should only be installed after a pressure reducer, which is set to a maximum of 1.0 MPa (10 bar).
- If drinking water consumers are installed on the property, which may under no circumstances be shut off by the RE.GUARD water control device, the pipe works must be branched off beforehand. These might be:
 - Any type of fire-fighting water system, such as a wall hydrant for self-help, backfire protection in the case of solid fuel boilers, sprinkler systems
 - Any type of emergency cooling device, such as thermal flow protection
 - Any type of re-feeding equipment for relevant systems which have the potential to cause more damage than leaking water if they are not operational, such as the cooling system in a server room or heating in a greenhouse

In general, a section to stabilise the flow on the inlet is not required for installation of the RE.GUARD water control device. However, for installation directly after a deflection (e.g. a 90° bend/angle), a stabilisation section of approx. 5 x DN is recommended to improve the measurement results for flow and pressure. In the shell construction phase, it is possible to replace the RE.GUARD water control device with a water meter adapter that is 190 mm in length with G1" external thread connections. This adapter is not part of the delivery contents and must be procured on-site.

It is recommended to leave at least 20 cm of free space above the display for operation and maintenance of the RE.GUARD water control device. This allows the top of the housing to be removed without risk of damage.

When selecting the location of installation, please also refer to Chapter "3.3.2 Z-Wave® – fundamentals", page 15, page and Chapter "3.6.1 Connect to the mains supply", page 27, page .

Also observe the instructions in Chapter "2.2 Range of application", page 9.



For the reliable detection of leaks, in particular for the detection of micro leaks, all installed check valves (after the domestic water meter, after the branch for the water provision, on any appliances) must work correctly. Ensure their function through regular maintenance.

Expansion vessels installed in the drinking water system, e.g. in the supply to the boiler, can cover up any micro leaks and therefore reduce the likelihood of detection.

3.4.3 Permissible installation positions



Malfunction due to an incorrect installation orientation is possible.

'Upside-down' installation is not permitted, i.e. with the display facing downwards.



It is to be observed that the device is installed correctly observing the flow direction (flow arrows on the device, see Chapter "3.4.4 Installing the RE.GUARD water control device", page 20) and that, if necessary, the top of the housing including the display panel must be rotated by 180° depending on the operating direction (see Chapter "3.5 Rotate the top of the housing", page 25).

Horizontal installation

The standard installation horizontally of the RE.GUARD water control device is horizontal with the display facing upwards.

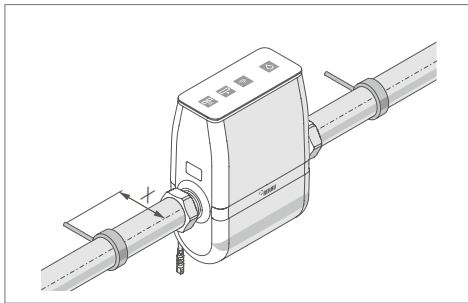


Fig. 3-5 Horizontal installation

Distance x from wall ≥ 60 mm

The possible wall distance x is minimised with best possible better access to the display or to remove the top of the housing, for example, to replace the battery or perform maintenance.

If a water meter bracket is being used, a greater distance from the wall may be necessary.

Horizontal installation rotated up to 90°

Alternatively, the RE.GUARD water control device can be rotated forward up to 90° when installed horizontally.

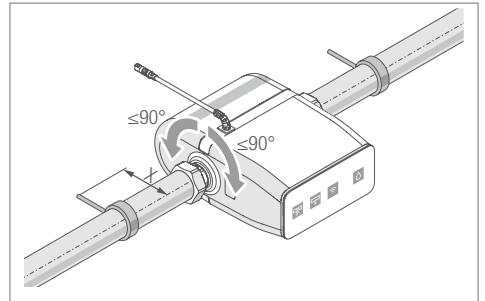


Fig. 3-6 Horizontal installation rotated up to 90°

Distance x from the wall at 90° ≥ 85 mm

The required wall distance x increases the further forward the device faces.



Turning the device further than 90° may cause the device to malfunction.

If the water meter bracket is being used, a greater distance from the wall may be necessary.

Vertical installation

Alternatively, the RE.GUARD water control device can also be installed in vertical pipe sections.

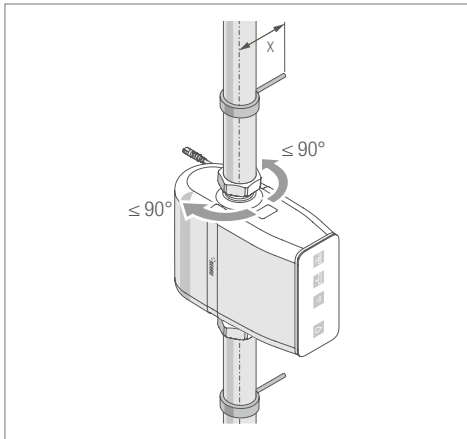


Fig. 3-7 Vertical installation

Distance x from the wall at $90^\circ \geq 85$ mm

The orientation of the device, including the operating panel, depends on the conditions at the location of installation and the desired operating direction. It can be adjusted by rotating the device 90° to the right or left.

If the water meter bracket is being used, a greater distance from the wall may be necessary.

3.4.4 Installing the RE.GUARD water control device

The RE.GUARD water control device can be installed in two ways:

- With water meter bracket and water meter screw connections
- With pipe brackets

Both types of installation are described here and allow the RE.GUARD water control device to be integrated into the drinking water network tension free.



Risk to life due to electric shock

In the case of older buildings, check whether the metal water pipe is used as a grounding for the electrical installation. A domestic water meter bridged with a cable is a clear indication of this.

Ensure there is an alternative grounding before opening the pipe.



Crushing hazard

The device has an electrically operated shut-off function.

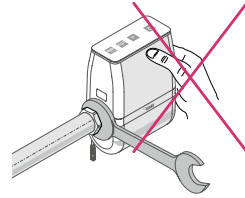
Never insert objects or body parts into the pipe openings if there is voltage present from the mains adapter or if the emergency batteries are inserted.



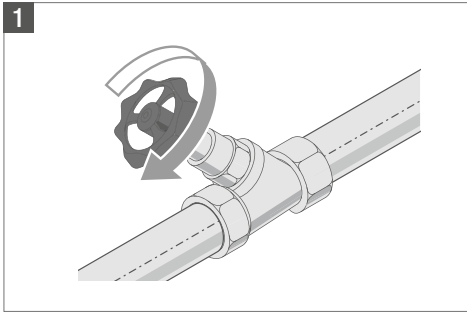
Damage to property due to incorrect handling

Do not use the housing or any other parts of the RE.GUARD water control device as support when tightening the thread connections.

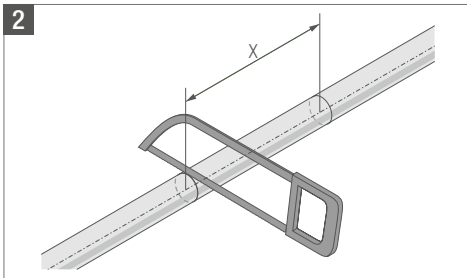
To support the device when tightening the threaded connections, use only the wrench flats behind the thread connections.



3.4.4.1 Installation with water meter bracket and water meter screw connections



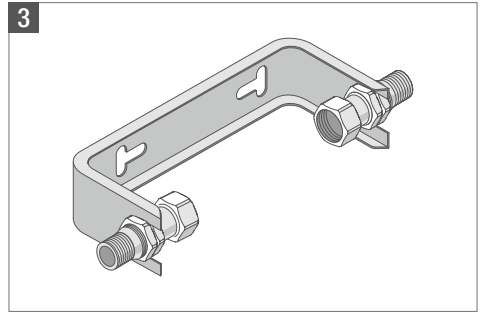
Isolate the drinking water installation and drain it if necessary.



Cut the pipe with suitable tools.

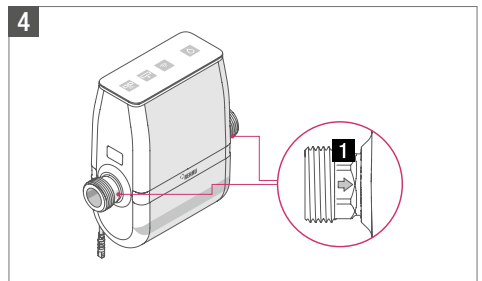
The distance 'x' is calculated from the selected water meter bracket incl. associated screw connections as well as any other adapters required to connect to the existing piping system.

The water meter bracket, associated screw connections and adapters are not included in the delivery contents and must be selected and acquired separately on-site depending on the piping system (material, dimensions).




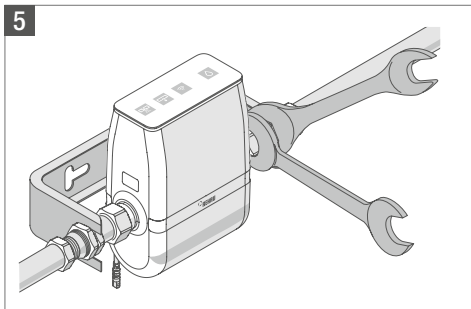
Keep the flow direction in mind when attaching the water meter bracket and associated screw connections to the wall.

The water meter fittings require G1" union nuts and flat gaskets suitable for drinking water on the connection sides of RE.GUARD water control device.



Position the RE.GUARD. Chapter "3.5 Rotate the top of the housing", page 25 describes the process of rotating the display, if necessary.

 Watch out for the flow direction indicator **1** on the wrench flats behind the thread connections.

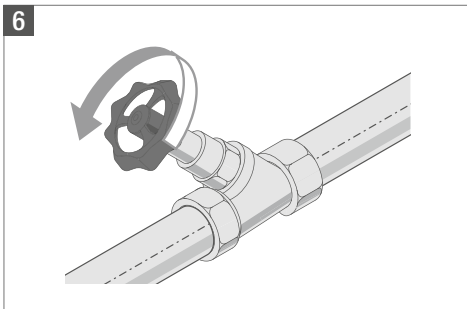


Insert flat gaskets and engage the thread connections of the RE.GUARD water control device.

Tighten the screw connections with a suitable tool (wrench or adjustable spanner) (wrench flats RE.GUARD water control device: size 27).



Do not use the housing or other parts of the RE.GUARD water control device for support when tightening the thread connections.



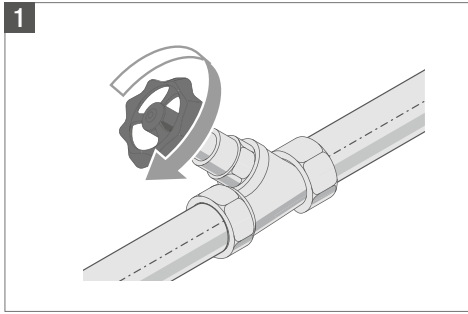
Open the mains isolation valve again.



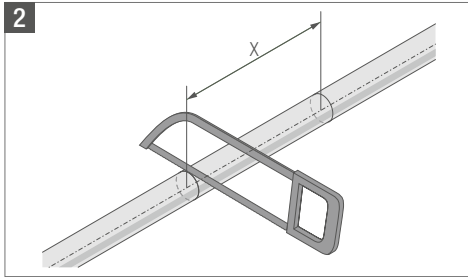
Afterwards, flush the drinking water installation in accordance with the national specifications and check if all new thread connections are tight. When using leak detection sprays, it is advisable to consult the manufacturer of the spray to establish the extent to which it could influence the materials of the RE.GUARD water control device.

Only use leak detection sprays that are suitable for use with drinking water.

3.4.4.2 Installation with bracket clamps



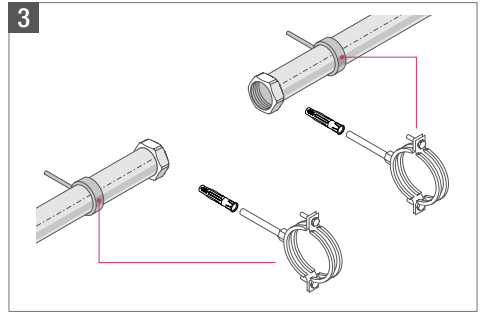
Isolate the drinking water installation and drain it if necessary.



Cut the pipe with suitable tools.

The distance 'x' is calculated from the length of the RE.GUARD water control device, which is 190 mm, as well as any other adapters required to connect to the existing piping system.

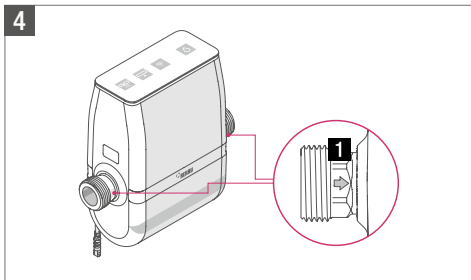
Screw connections and adapters are not included in the delivery contents and must be selected and acquired separately on-site depending on the piping system (material, dimensions).



Install screw connections with a G1" union nut that is suitable for the respective pipe system (material, dimension).

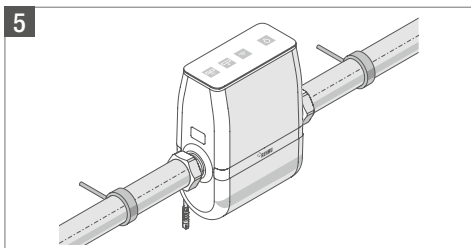


Install a wall bracket (for example, a pipe clamp) on both sides of the chosen installation location of the RE.GUARD water control device to ensure a tension-free installation. Each wall bracket should be within 20 cm of the thread connections of the device (see Chapter "3.4.3 Permissible installation positions", page 18 for permissible distances from the wall).



Position the RE.GUARD. Chapter “3.5 Rotate the top of the housing”, page 25 describes the process of rotating the display, if necessary.

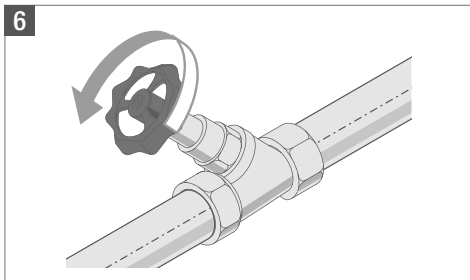
i Watch out for the flow direction indicator **1** on the wrench flats behind the thread connections.



Insert flat gaskets and engage the thread connections of the RE.GUARD water control device.

Tighten the screw connections with a suitable tool (wrench or adjustable spanner) (wrench flats RE.GUARD water control device: size 27).

i Do not use the housing or other parts of the RE.GUARD water control device for support when tightening the thread connections.



Open the mains isolation valve again.

i Afterwards, flush the drinking water installation in accordance with the national specifications and check if all new thread connections are tight. When using leak detection sprays, it is advisable to consult the manufacturer of the spray to establish the extent to which it could influence the materials of the RE.GUARD water control device.

Only use leak detection sprays that are suitable for use with drinking water.

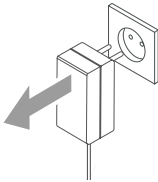
3.5 Rotate the top of the housing

Depending on the flow direction, it may be necessary to rotate the top of the housing by 180°, so that the display is properly aligned and the connecting cable is going out the back of the device.



Risk to life due to electric shock

Always disconnect the device from the mains supply before opening it.



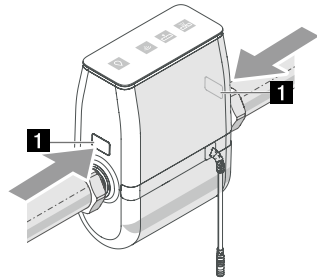
The top of the housing may also need to be removed to insert the batteries (emergency power mode) (see Chapter “6.2 Inserting/changing emergency batteries”, page 47).

1. If necessary, disconnect the device by unplugging the mains plug from the mains supply.



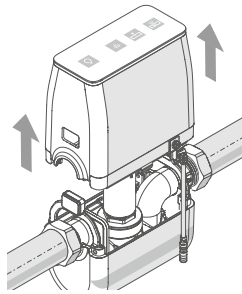
In principle, disconnection from the mains supply is also possible by disengaging the connecting plug of the mains adapter and the RE.GUARD water control device. However, this is not recommended because it might damage a plug pin or cable.

2



Gently push the release points **1** above the water connections of the RE.GUARD water control device slightly inward (max. 5mm).

3

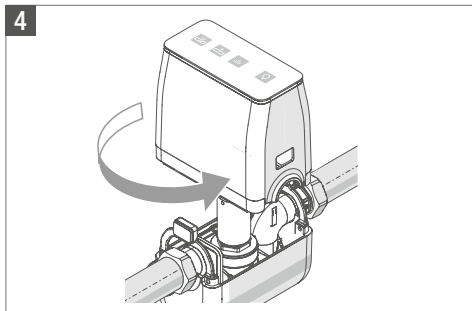


Gently remove the top of the housing whilst pressing the release points. Ensure that the gap between the top and bottom parts does not exceed approx. 10 cm.



It should be pulled straight up as indicated by the arrows (see above).

Tilting may damage both housing components and internal components. The upper part must not be pulled too far upwards because there are cable connections between the two halves of the housing with a limited length (approx. 15 cm).

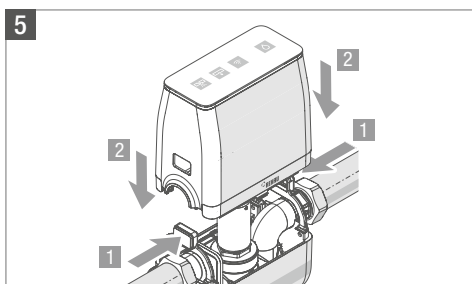


Rotate the top of the housing 180° while making sure that the cable length is sufficient.

i Cables that became loose from opening or turning the top of the housing (sensor board, motor) can be inserted back into colour coded terminals.

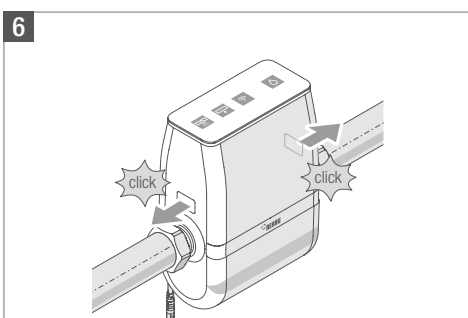
The following colours of the cable or cable ends match the terminals of the motor:

- red cable → plus terminal
- blue cable → minus terminal
- grey cable → middle terminal

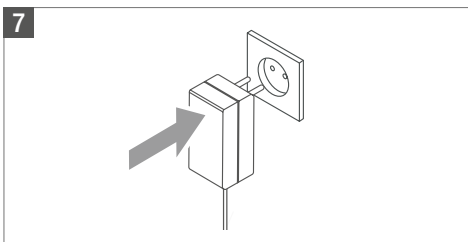


Align the top of the housing and slide it onto the bottom whilst pressing the release points.

i Make sure that the cables are not pinched or pulled out of their terminals when sliding back the upper half. As whilst removing the top of the housing, slide down the top at a right angle to the direction of flow and installation without tilting.



Slide the top down until the release points clearly snap back into their respective openings with a click.



Connect the device back to the mains supply by plugging in the mains plug.

3.6 Power supply

3.6.1 Connect to the mains supply

An available socket for a type C European plug is required to securely connect the mains adapter of the RE.GUARD water control device to the power supply.



Risk to life due to electric shock

A water leak may occur during installation, which can lead to a short circuit or electric shock.

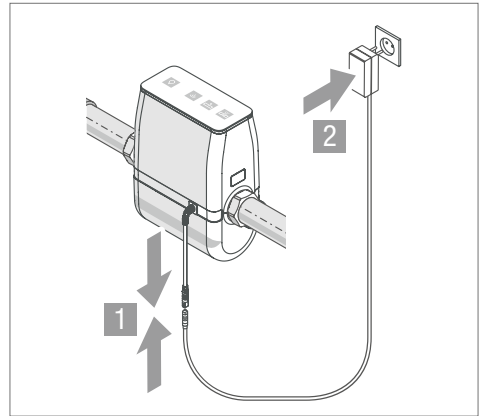
The socket and electrical equipment must not be directly adjacent to or below the RE.GUARD water control device.



A suitable mains adapter is provided with the device to transform any alternating current between 110 and 230V. Only this mains adapter may be used for the connection of the RE.GUARD water control device.

In the event of a malfunction of the mains adapter, a replacement can be purchased separately.

The RE.GUARD water control device is operated with a safe low voltage of 12 V DC.



1. Connect the connecting plug of the device cable.
2. Insert the mains plug.

The total length of the cable from the mains adapter to RE.GUARD is approx. 1.25 m and may not be lengthened or shortened.

Avoid any mechanical tension on this cable.



REHAU recommends protecting the RE.GUARD water control device using a circuit with overvoltage protection, to which a frequently used appliance is already connected (e.g. light). This means that when this circuit fuse is triggered, the lack of power supplied to the RE.GUARD water control device can be detected faster.

3.6.2 Backup power

The RE.GUARD water control device has an integrated battery compartment for four AA or R6 backup batteries (batteries are not included in the delivery contents).

In general, the functionality of the RE.GUARD water control device is also ensured without the backup batteries, as long as the mains voltage is not interrupted.

REHAU recommends inserting the backup batteries to increase the security of the leak detection. The following basic functions are maintained by the batteries if the mains voltage fails:

- Macro leak detection (burst pipe) for 24 hours
- Sending warning messages wirelessly via Z-wave®
- Optionally, a one-time preventative closure of the RE.GUARD water control device.

The process of inserting the backup batteries is described in Chapter "6.2 Inserting/changing emergency batteries", page 47.



REHAU recommends the use of lithium batteries. rechargeable batteries must not be used.

3.7 Commissioning

After installation of the RE.GUARD water control device and plugging in the mains plug, the device performs a self-test and is ready for use after a few seconds. From this point onwards, the device's leak prevention function for burst pipes and drip leaks is already active, but only within the preset factory settings.



REHAU strongly recommends carrying out the steps described in Chapter "5 Operation", page 32, in particular for operation via the smartphone app, and that all settings are adapted for the specific building. This is the only way to ensure the best possible protection from water damage.

4 OPERATING MODES

Depending on the respective situation, the RE.GUARD water control device is in a specified operating mode. Alternatively, it can also be intentionally switched into another operating mode using the operating buttons on the device itself or via the app.

4.1 Commissioning mode






In the following situations, the RE.GUARD water control device is in commissioning mode:

- During initial commissioning
- After a factory reset

The following functions are available:

Burst pipe protection:	Active
Drip leak check:	active (also Chapter section 5.1.5)
Wireless connection:	Not paired yet
Valve:	Open
Device:	Ready for use in mode "Present"
Threshold:	Factory setting

Status display indicators/light ring on the device:

				
White	White	Off	Green	White

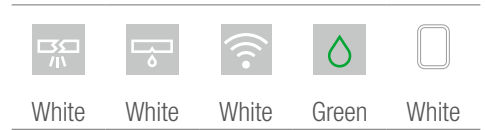
4.2 Standard mode

After pairing has been completed (see Chapter “5.1.1 Pairing device with Z-Wave (including/adding)”, page 33), the device is in standard mode.

The following functions are available:

Burst pipe protection:	Active
Drip leak check:	active (also Chapter section 5.1.5)
Wireless connection:	Device is paired
Valve:	Open
Device:	Ready for use in mode "Present"
Threshold:	Factory settings/adjusted values

Display indicators/light ring on the device:



After a period of no interaction, the buttons are dimmed and the light ring is switched off.



The modes ‘present’ and ‘absent’ described in the following chapter cannot be differentiated and adjusted on the device itself. This is only done in the RE.GUARD app.

4.3 ‘Present’ and ‘absent’ modes

‘Present’ mode

The RE.GUARD water control device is in normal operation. The thresholds are factory-set for the average day-to-day operation.

The functionality and the status of the display indicators are according to the standard mode.

The factory settings can be found in the section “Adjust the ‘present’ mode thresholds”, page 45.

A table with recommendations for thresholds depending on appliances and number of persons can be found in the Appendix, section “Table of Threshold Values”, page 67.

‘Absent’ mode

This mode can be used during absences (for example, holidays). The shut-off criteria generally correspond to ‘present’ mode, but the threshold values are set at a lower level. This means, for example, that automatic plant irrigation or neighbours watering plants are still possible during absence.

The status of the display indicators corresponds to the standard mode.

The factory settings can be found in the section “Adjust the ‘absent’ mode thresholds”, page 45.

4.4 Custom mode

In custom mode, the leak prevention function of the RE.GUARD water control device is temporarily deactivated. This may be necessary if, for example, a pool is being filled or another appliance needs a higher quantity of water over a longer period of time.

After the time limit has elapsed (factory setting: 2 hrs), the RE.GUARD water control device automatically returns to standard operation ('present' mode) and the protective function is operating again.

The following functionalities are available:

Burst pipe protection:	Temporarily inactive
Drip leak protection:	Temporarily inactive
Wireless connection:	Device is paired
Valve:	Open

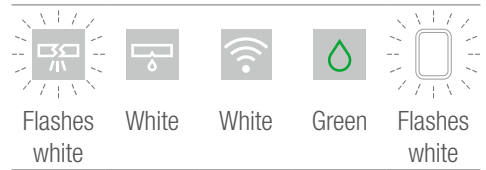
4.5 Deactivation

When deactivated, the leak prevention function of the RE.GUARD water control device is permanently deactivated. (= custom mode without time limitation). This can be necessary in the case of larger and extended renovation works on the drinking water installation, during flushing processes and the like, where the water consumption should still be monitored through the app.

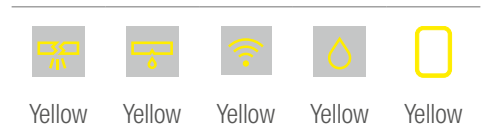
The following functionalities are available:

Burst pipe protection:	Inactive
Drip leak protection:	Inactive
Wireless connection:	Device is paired
Valve:	Open

Display indicators/light ring on the device:



Display indicators/light ring on the device:








5 OPERATION

5.1 Operation and status indicators on the device

On the device itself only basic functions can be accessed. Extended functionality including adjusting the thresholds, setting notifications, schedules and other actions can be performed with the RE.GUARD app (see Chapter “5.2 Operation using the RE.GUARD app”, page 42).

The RE.GUARD water control device has a display on top with four buttons for status indicators and operation of basic functions as well as an all-round luminous ring as an overall status indicator (see also Chapter “2.3 Controls and indicators”, page 10).

Button	Function	Status indicator	
 Shut-off	Changes the current position of the isolation valve	Green	Not closed/ Valve open
		Red	Closed/ Valve closed
 Wireless connection:	Changes the connection status (pairing status)	Off (unlit)	Not paired, device not connected to Z-wave®
		White	Paired, wireless connection established
		Yellow	Paired, wireless connection lost
 Drip leak (micro leak)	Indication and acknowledgement of a drip leak	White	No drip leak
		Red	Drip leak detected
 Burst pipe (macro leak)	Indication and acknowledgement of a burst pipe	White	No burst pipe
		Red	Burst pipe detected/ Water spillage on floor detected (with RE.GUARD water sensor)
 Light ring	Status indicator	White	Everything is OK, no malfunctions
		Yellow	There is a malfunction
		Red	There is a warning



The pictogram shown on the left is used in the following instructions to symbolise pressing a particular button or combination of buttons.

5.1.1 Pairing device with Z-Wave (including/adding)

Pairing must take place to integrate the RE.GUARD water control device into a Z-wave® network. This pairing is optimised for connection to the RE.HUB gateway (see Chapter “2.4.1 RE.HUB gateway”, page 10 and the operating instructions of the RE.HUB gateway).



At the same time as the pairing mode is activated on the RE.GUARD water control device, the pairing mode on the RE.HUB gateway must also be activated. This is done exclusively in the RE.GUARD app during the step-by-step pairing process (see Chapter 5.2).

The pairing search runs for about 30 seconds, the subsequent inclusion process takes a few minutes.

Pairing with other Z-wave® devices (including Z-wave® smart home centres/gateways) is also possible, although the pairing process may differ from the one described here. Please consult the manufacturer’s product documentation.

Enable pairing search:



White

White

Press for
3 s,
Flashes
white for
30 s

Green

White

Pairing successful:



White

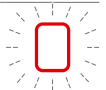
White

White

Green

Flashes
green
3 times
(confirmation)

Pairing not successful:



White

White

Off

Green

Flashes
red 3
times

5.1.2 Unpairing device from Z-Wave (exclusion)

Unpairing a device might be necessary if the RE.HUB gateway needs to be replaced or during a permanent removal of the RE.GUARD water control device (for example, when passing on the device).



At the same time as the unpairing mode is activated on the RE.GUARD water control device, the unpairing mode on the RE.HUB gateway must also be activated. This is done directly on the device by holding down the Z-wave® button on the back of the gateway housing (see the operating instructions for the RE.HUB gateway, chapter 5.2.1)

The search runs for about 30 seconds, the subsequent unpairing process takes a few minutes.

Unpairing the device:



White

White

Press
3 times in
3 s,
Flashes
yellow for
30 s

Green

White

Unpairing successful:



White

White

Off

Green

Flashes
green
3 times
(confirmation)

Unpairing not successful:



White

White

White

Green

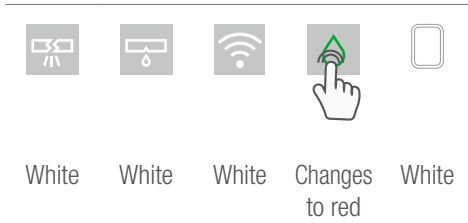
Flashes
red 3
times

5.1.3 Closing/opening the valve manually

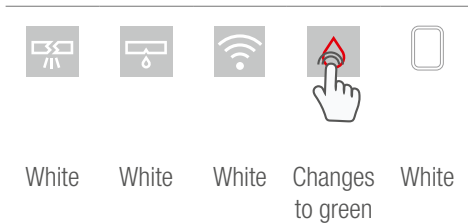
The RE.GUARD water control device can be closed or opened manually in two ways:

This action switches the device into 'present' mode.

Closing the valve manually:




Opening the valve manually:



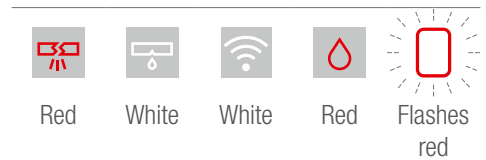
5.1.4 Acknowledging a burst pipe (macro leak)

If the threshold for either the maximum running time of water, amount of water or current flow rate are exceeded, the RE.GUARD water control device assumes a burst pipe and isolates the water supply.

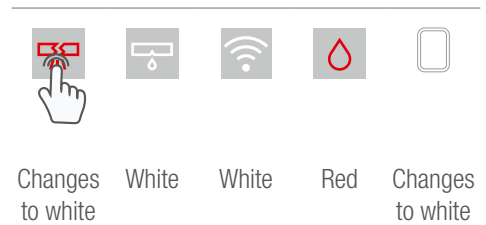
 Before acknowledging the alert, make sure there is no pipe burst, but that the message was caused by an unusual situation (for example, a tap was not turned off).

Acknowledging the message does not change the device mode.

Burst pipe alert:



Acknowledging alert:



The water supply pipe remains isolated even after the alert is acknowledged, until the valve is re-opened manually (see Chapter "5.1.3 Closing/opening the valve manually", page 35).

5.1.5 Acknowledging drip leak (micro leak)

At set intervals the RE.GUARD water control device will briefly close the water supply and monitor the system pressure in order to see whether there is a very small leak in the drinking water installation, e.g. a dripping tap, a cistern that keeps running or a leaking thread connection. Such small leaks can cause considerable water damage in the long-term.

The factory default settings trigger a drip leak check every day at 3 am, but only send an alert in case of a pressure drop and the RE.GUARD water control device remains open (Option 1, factory default). It is only possible to switch to option 2 ('close valve') using the app. During the drip leak check the mains water supply is isolated. If any appliance is operated during this time, the check is aborted and the water supply reinstated. There may be a delay of a few seconds before the water starts flowing again.

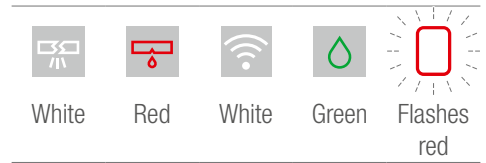


Regardless of the selected option, it is necessary to look for indications of drip leaks (moist stains on the wall or ceiling, musty/mouldy odour in individual rooms, dripping fittings, cistern keeps running) and to rectify the cause. Only then should the micro leak warning be acknowledged.

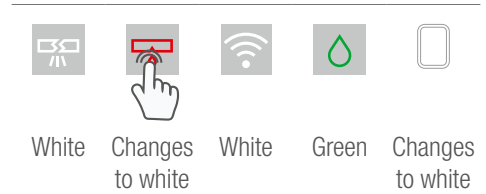
Acknowledging the alert does not change the device mode.

Option 1: 'Notification only'

Drip leak alert:



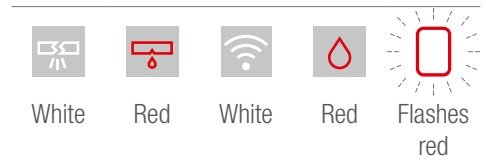
Acknowledging alert:



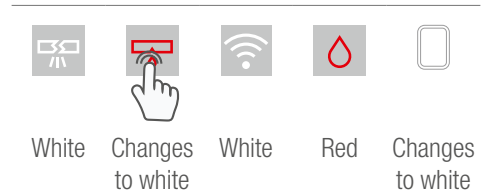
Acknowledging the alert does not change the device mode.

Option 2: 'Close valve'

Drip leak alert:



Acknowledging alert:



The water supply pipe remains isolated even after the alert is acknowledged, until the valve is re-opened manually (see Chapter "5.1.3 Closing/opening the valve manually", page 35).

5.1.6 Acknowledging detected water spillage (via optional RE.GUARD water sensor)

If an additional RE.GUARD water sensor has been installed and properly paired and it detects any moisture, a warning will be displayed on the RE.GUARD water control device and optionally the mains isolation valve will be closed.



Regardless of the selected option, it is necessary to check for indications of an actual water leak in the vicinity of the RE.GUARD water sensor. Possible causes for the warning message could be rainwater, wastewater, condensation or heating water. The alert should only be acknowledged once the cause has been rectified and the closed RE.GUARD water control is opened again.

Acknowledging the alert does not change the device mode.

Floor spillage alert:



Red



White



White



Red



Flashes red

Acknowledging alert:



Changes to white



White



White



Red



Changes to white

The water supply pipe remains isolated even after the alert is acknowledged, until the valve is re-opened manually (see Chapter “5.1.3 Closing/opening the valve manually”, page 35).

5.1.7 Activating/deactivating custom mode






In custom mode, the RE.GUARD water control device temporarily deactivates the leak prevention function. (See Chapter “4.4 Custom mode”, page 31).

After a set time, the RE.GUARD water control device automatically returns to normal operation ('present' mode) and the protective function is active again.






The custom mode is two hours.

When deactivating custom mode, the mode changes to 'present'.

Activating custom mode:

				
Press for 3 s, Flashes white	White	White	Green	Flashes white

Manually deactivating custom mode:

				
Changes to white (permanent light)	White	White	Green	Flashes green 3 times (confirmation)

5.1.8 Deactivation

When deactivated, the leak prevention function of the RE.GUARD water control device is **permanently** deactivated. (See Chapter "4.5 Deactivation", page 31).

Deactivation must be done in two steps:

1. Initiate deactivation
2. Confirm deactivation

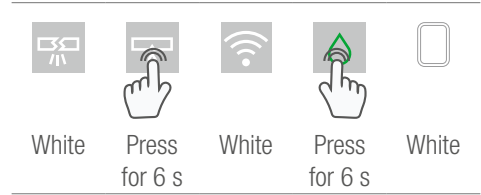
If deactivation is not confirmed, the RE.GUARD water control device will return to the mode it was in before deactivation was triggered.



Do not forget to reverse the deactivation (reactivation) when the reason for having done so no longer applies. Otherwise, the leak prevention function is permanently deactivated.

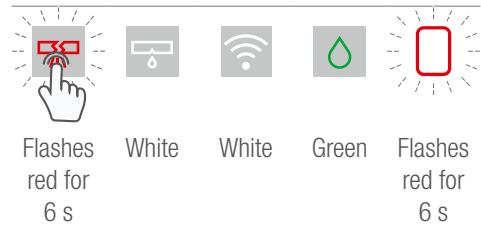
Initiate deactivation

Press and hold the buttons simultaneously for 6 s:

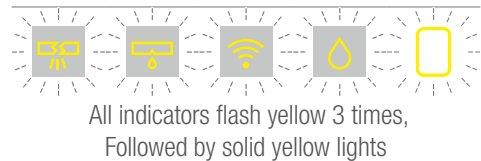


Confirm deactivation

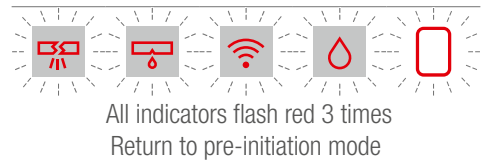
Press the red flashing burst pipe button within 6 s:



Deactivation confirmed by device:



Deactivation **not** confirmed by device:



If the device does not confirm the deactivation, both steps (initialisation and confirmation) must be performed again.

5.1.9 Reactivation

To return to normal mode after deactivation, the RE.GUARD water control device must be reactivated.

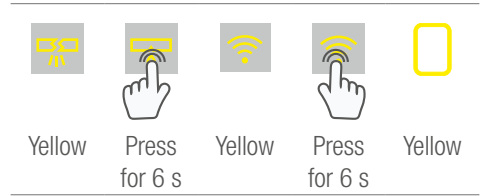
Reactivation must be done in two steps:

1. Initiate reactivation
2. Confirm reactivation

The RE.GUARD water control device automatically returns to normal operation ('present' mode) and the protective function is active again.

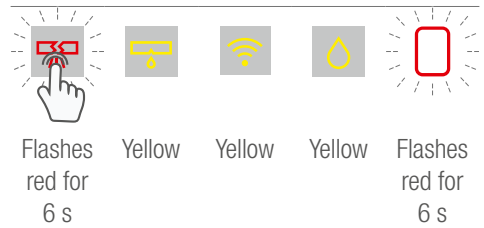
Initiate reactivation

Press and hold the buttons simultaneously for 6 s:

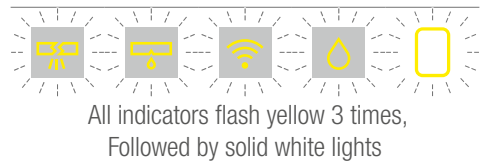


Confirm reactivation

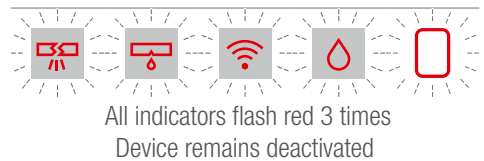
Press the red flashing burst pipe button within 6 s:



Reactivation confirmed by device:



Reactivation **not** confirmed by device:



If the device does not confirm the reactivation, both steps (initialisation and confirmation) must be performed again.

5.1.10 Resetting the device to factory settings

If the RE.GUARD water control device is being permanently removed from an installation (for example, passed on to someone else) or if there is a fault with the RE.HUB gateway, then it can be reset to the factory settings.

Resetting must be done in two steps:

1. Initiate reset
2. Confirm reset

The RE.GUARD water control device is reset to the factory settings that it had upon delivery. Updates to the firmware that have been performed up to this point are retained.

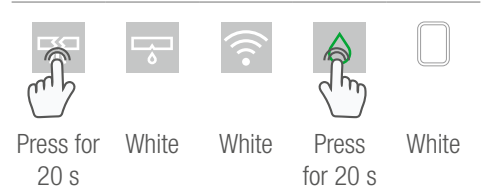
The device goes into commissioning mode (see section “4.1 Commissioning mode”, page 29).



This function must only be used only if all the other troubleshooting measures (see Chapter 7) have not been successful or if the device is to be completely removed and passed on. Resetting to factory settings requires that the step-by-step process in the RE.GUARD app be run through again if operation is to be carried out via smartphone (see Chapter 5.2 and the following).

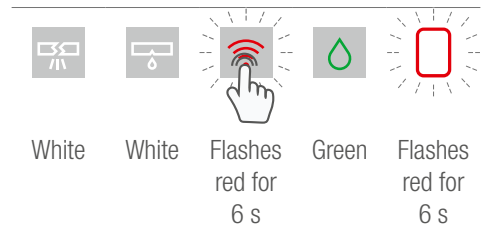
Initiate reset

Press and hold the buttons simultaneously for 20 s:

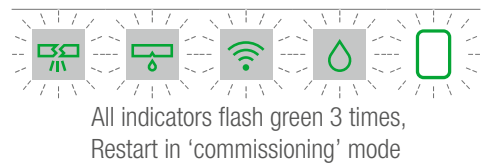


Confirm reset

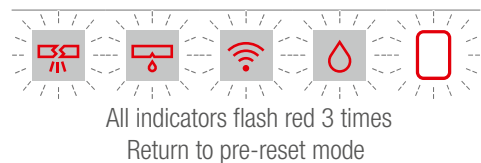
Press the red flashing wireless connection button for 6 s:



Reset successful:



Reset **not** successful:



If the device does not confirm the reset, both steps (initialisation and confirmation) must be performed again.

5.2 Operation using the RE.GUARD app



RE.GUARD app after the first start-up

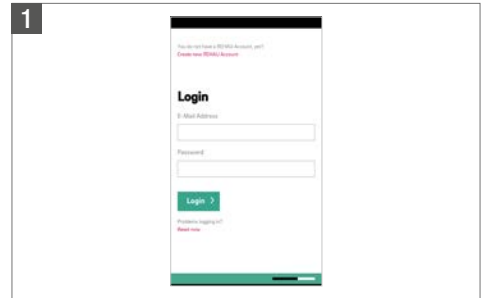
The RE.GUARD app can be used to control all functions of the REGUARD water control device and to customise settings for the relevant drinking water installation. It is optimised for smartphones.

Requirements

- Smartphone with Android operating system (version 7.0 or later) or iOS (version 10 or later)
- RE.HUB gateway (optional accessories, see Chapter “2.4.1 RE.HUB gateway”, page 10).
- Smartphone/tablet and RE.HUB gateway are on the same network
- RE.GUARD app downloaded from the appropriate app store and installed

Setting up the RE.GUARD app

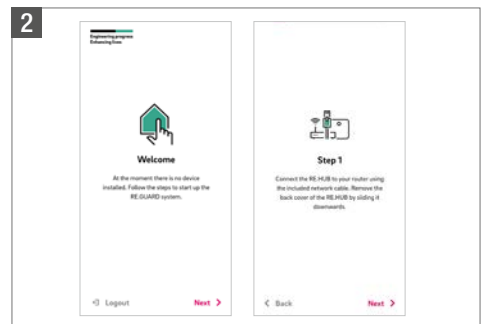
Start the RE.GUARD app and follow the step-by-step instructions in the app.



During the first installation: create an account for the RE.GUARD water control device and choose a user name and password.

An account must be created in order to enable operation via the app.

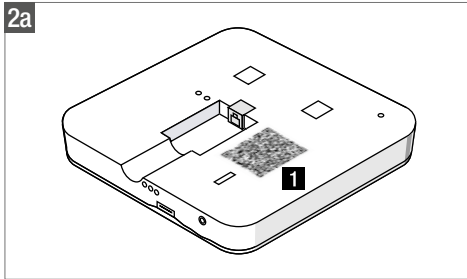
If an account already exists: Log-in with a user name and a password.



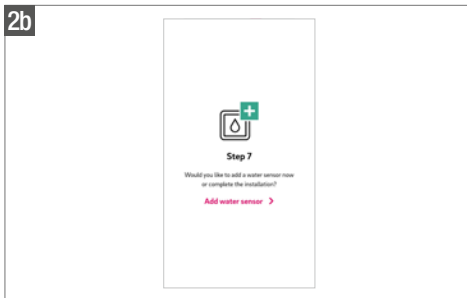
Setting up the RE.HUB gateway

In the step-by-step instructions you are also requested to set up the RE.HUB gateway. This set-up comprises:

1. Connect the RE.HUB gateway to a router with a LAN cable (supplied).
2. Connect the RE.HUB gateway to the mains supply.
3. Remove the transparent installation frame (push downwards).
4. Wait for RE.HUB gateway to be ready. This can take approx. 2–3 minutes and is indicated by a slowly pulsating white light.

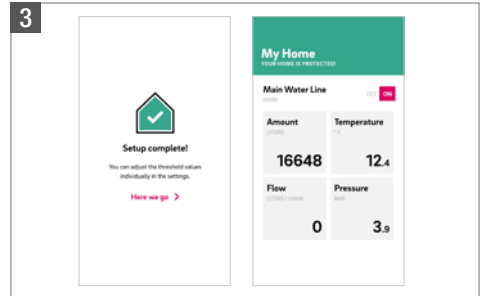


Upon request, scan the QR Code of the RE.HUB gateway:
Scan QR **1** code on back of the RE.HUB gateway.



Optional: Add RE.GUARD water sensor.
RE.GUARD water sensors can also be added to the account later under 'Settings > Water Detector'.

Up to 10 RE.GUARD water sensors can be linked to a RE.GUARD water control device.



When the setup is complete, the app displays the start-up screen, from which you can see the current status and real-time values and adjust the settings.



As a first step after setup, REHAU recommends customising the factory settings in the Settings – Limits menu to your specific building, number of persons and individual appliances (see Chapter "5.2.2 Adjusting thresholds", page 45). Your installer will help you with this.

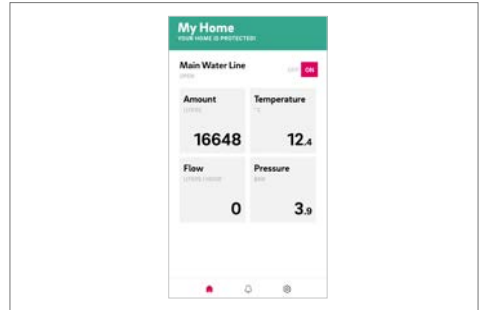
Guidance values for the thresholds can be found in the appendix.

5.2.1 Screens and navigation

My home (starting page)

The screen shows the current valve position, real time measurements and the RE.GUARD can also be closed and opened here.

This page is the home page of the app and can be accessed by selecting the home icon on the bottom bar.

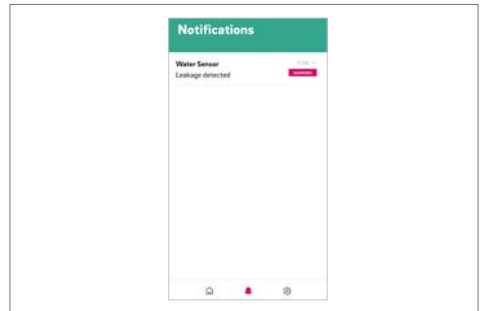


Notifications

The screen lists current and previous notifications. By selecting an individual notification, possible causes which may have triggered the notification and associated solutions are displayed.

Types of notification:

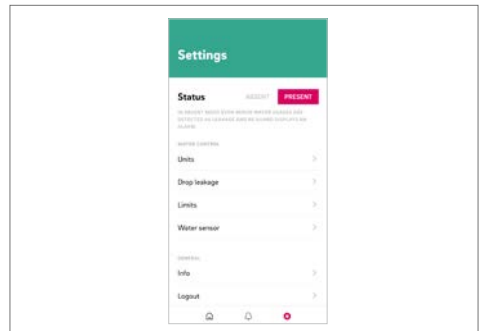
- Message: Event of low importance (a tip or recommendation)
- Alert: Event of importance regarding leak detection (e.g. moisture detected, threshold exceeded)
- Malfunction: Event of importance regarding device functionality (e.g. sensor faulty, connection lost)



This screen can be accessed by selecting the bell icon on the bottom bar.

Settings

The screen allows customising various settings and can be accessed by selecting the hex nut symbol on the bottom bar.



5.2.2 Adjusting thresholds

The thresholds of 'present' and 'absent' modes can be set under 'Settings > Limits'.

Adjust the 'present' mode thresholds

Select 'present mode'.

Adjust the thresholds as necessary.

Upon exiting the screen, the entered limits are transmitted to the RE.GUARD water control device and stored there.

Trigger points for the RE.GUARD water control device to isolate the water supply are:

- Maximum time limit for non-stop water flow
- Maximum amount of water for a non-stop water flow
- Maximum peak flow rate

The factory settings of the trigger points for this mode are shown in the following table.

The possible range and step changes are as follows:

Parameters	Setting range	Factory settings
Max. time limit	1–120 min In steps of one minute	30 min
Max. amount of water	10–1000 litres In steps of 1 litre	400 litres
Max. flow rate	10–5000 l/h in 1-l/h steps	3600 l/h

Adjust the 'absent' mode thresholds

Select 'absent mode'.

Adjust the thresholds as necessary.

Upon exiting the screen, the values entered will be transmitted to the RE.GUARD water control device and stored there.

The criteria for shutting off the RE.GUARD water control device are the same as in present mode, but the thresholds should be smaller.

The factory settings of the trigger points for this mode are shown in the table below. The possible range and step changes are as follows:

Parameters	Setting range	Factory settings
Max. time limit	1–120 min In steps of one minute	30 min
Max. amount of water	10–1000 litres In steps of 1 litre	20 litres
Max. flow rate	10–5000 l/h in 1-l/h steps	3600 l/h

5.2.3 Switching modes

Switch between 'present' and 'absent' modes

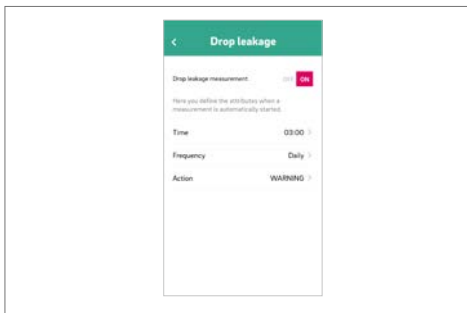
You can manually switch between 'present' and 'absent' modes under 'Settings'.

5.2.4 Specifying the time of the drip leak check

At set intervals the RE.GUARD water control device will briefly close the water supply and monitor the system pressure in order to see whether there is a very small leak in the drinking water installation, e.g. a dripping tap, a cistern that keeps running or a leaking thread connection. Such small leaks can cause considerable water damage in the long-term.

The factory default settings trigger a drip leak check every day at 3 am, but only send an alert in case of a pressure drop and the RE.GUARD water control device remains open (Option1, factory default). It is possible to switch to option 2 ('close valve') in the app.

The timing and frequency of the drip leak check can be changed under 'Settings > Drip leak'. You can also select here if the device is to only send an alert or isolate the water supply.



Select 'drip leak check'.
Specify the time, frequency and action (option 1 or 2).

Upon exiting the screen, the values entered will be transmitted to the RE.GUARD water control device and stored there.

6 SERVICING

6.1 Inspection and maintenance

The RE.GUARD water control device is a device for drinking water installations with moving parts (drive and ball valve), which is very low-maintenance. However, like all safety devices, it must still be inspected and maintained at regular intervals.

A simple visual inspection, especially if the app is not used or the push notifications are turned off, should be carried out at least once a week to notice warning indications on the device as quickly as possible (e.g., necessary replacement of emergency power batteries).



Maintenance may only be carried out by qualified and trained personnel.

Inspection and maintenance intervals

The interval for inspection and maintenance of the RE.GUARD water control device is 12 months, unless national regulations demand shorter intervals.

Scope of work (inspection and maintenance)

- External visual inspection checking for leaks and corrosion or any other any other signs of damage, access and undamaged bracketing.

- Visual inspection of the inner parts checking along the water carrying components for any leaks, corrosion, undesired condensation or any other signs of damage.
- Assessment of how freely the ball is moving and the operation of the drive unit and any noise whilst operating the valve.
- If required, replacement of the emergency batteries

6.2 Inserting/changing emergency batteries

The RE.GUARD water control device has an integrated battery compartment for four AA or R6 emergency batteries (batteries are not included in the delivery contents).

In general, the functionality of the RE.GUARD water control device is also given without the emergency batteries, as long as the mains voltage is not interrupted.

REHAU recommends inserting the emergency batteries to increase the reliability of the leak detection. The following basic functions are maintained by the batteries if the mains voltage fails:

- Macro leak detection (burst pipe) for 24 hours
- Sending warning messages wirelessly via Z-wave®
- Optionally, a single preventive closing of the RE.GUARD water control device.



Damage to property due to leaking batteries

Remove empty batteries from the device immediately to prevent damage to the RE.GUARD water control device through leaking batteries.



The low battery notification of the device will indicate when it is time to replace the batteries. Please note that in case the batteries are not replaced, this notification will no longer be indicated (see chapter 7.1, Malfunctions power failure and backup batteries).

If used or rechargeable batteries are used, the duration of maintaining basic functionality cannot be guaranteed. REHAU recommends the use of lithium batteries. Rechargeable batteries must not be used.

Notes on the disposal of batteries:

Batteries should not be placed in household waste and can be deposited at collection points free of charge and anywhere where batteries of the respective type are sold. In the case of batteries that are not fully discharged, precaution must be taken against short circuiting, for example, by isolating the battery connections.



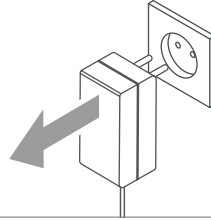
In principle, disconnection from the mains supply is also possible by disconnecting the plug of the mains adapter from the RE.GUARD water control device. However, this is not recommended because it might damage a plug pin or cable.



Risk to life due to electric shock

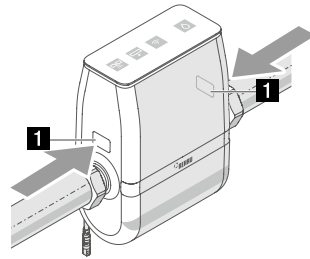
Always disconnect the device from the mains supply before opening it.

1



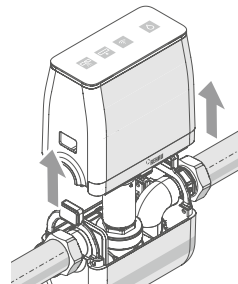
Disconnect the device by unplugging the mains plug from the mains supply.

2



Gently push the release points **1** above the water connections of the RE.GUARD water control device slightly inward (max. 5mm).

3



Gently remove the top of the housing whilst pressing the release points. Ensure that the gap

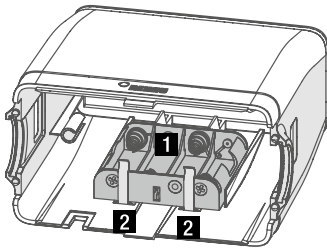
between the top and bottom parts does not exceed approx. 10 cm.



It should be pulled straight up as indicated by the arrows (see above).

Tilting may damage both housing components and internal components. The upper part must not be pulled too far upwards because there are cable connections between the two halves of the housing with a limited length (approx. 15 cm).

4



Tilt the top of the housing and remove the battery compartment **1** from the guide in the top of the housing by slightly lifting/tilting it whilst applying gentle pressure to the retaining brackets **2**.



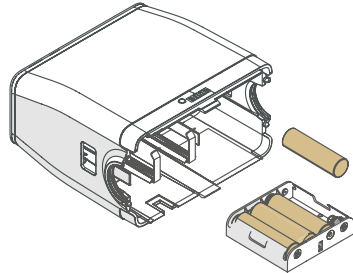
When removing, observe the length of the cable connections between the battery compartment and the top of the housing (approx. 10 cm).



Risk of injury

The metal brackets can have sharp edges. When removing and inserting the battery compartment pay extra attention to avoid cutting injuries.

5



Insert four new AA (R6) batteries into the battery compartment. Ensure correct polarity, the negative contacts of the battery must be directed toward the contact springs. If necessary, remove the protective covers of the batteries before inserting them.



Failure of the emergency power supply

If used or rechargeable batteries are used, basic functionality cannot be guaranteed during power outages.



For a longer cycle than 12 months, **lithium batteries** (not rechargeable lithium batteries!) can be used instead of conventional alkaline batteries to replace the emergency power batteries as described in Chapter 6.1. The replacement cycle is thereby extended to 60 months. However, the battery change indicator on the device and in the app should still be observed.



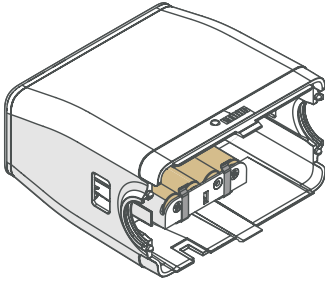
Ensure that all cable connections are still present.

Cables that became loose (sensor board, motor) can be inserted back into colour coded terminals.

The following colours of the cable or cable ends match the terminals of the motor:

- red cable → plus terminal
- blue cable → minus terminal
- grey cable → middle terminal

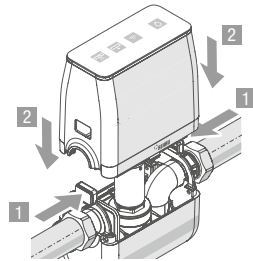
6



Insert the battery compartment with the batteries into the respective guide located inside the top part of the housing.

Slightly lift/tilt the battery compartment to get past the retaining clips. Slide the battery compartment into place and check the position of the retaining clips again.

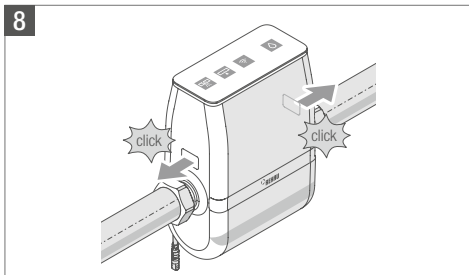
7



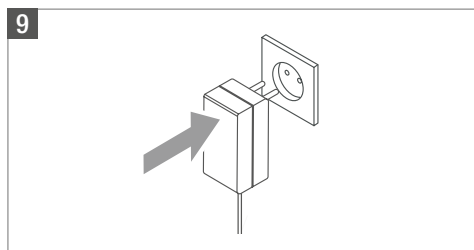
Align the top of the housing and slide it onto the bottom whilst pressing the release points.



Make sure that the cables are not pinched or pulled out of their terminals when sliding back the upper half. As whilst removing the top of the housing, slide down the top at a right angle to the direction of flow and installation without tilting.



Slide the top down until the release points clearly snap back into their respective openings with a click.



Connect the device back to the mains supply by plugging in the mains plug or re-connecting the connecting plug.

Once the RE.GUARD water control device is connected to the mains supply, the device performs a self-test and is ready for use after a few seconds.

6.3 Updates

To keep the device up to date, it is necessary to regularly update the app and the device firmware.

i Therefore, regularly check the app store and the app itself to see if any updates are available and install them without delay or activate the automatic update function.

Updates are the only way to ensure a reliable and improved operation and to provide new additional functions.

6.4 Care

i Improper care, in particular the use of cleaners with solvents or alcohol, all-purpose cleaners and the like, can chemically corrode the plastic components of the RE.GUARD water control device and thus cause damage to the function up to complete failure or broken housing. The use of these substances is therefore not permitted.

Where possible, only clean the RE.GUARD water control device with a dry, lint-free cloth. This must not have any abrasive components, otherwise it might scratch the housing or display.

If it is necessary to use a wet cloth, only use clear drinking water without additives. When doing so, avoid contact with the mains adapter or the electrical cables because damage to the device itself or even personal injury through electric shock can occur.

6.5 Spare parts



Only use original spare parts and accessories from REHAU.

Unauthorised modifications or changes to the RE.GUARD water control device, in particular the installation and use of self-procured electrical, electronic and sensory components as well as components that come into contact with drinking water, are not permitted.

6.6 Disposal



The RE.GUARD water control device contains electrical and electronic components and is therefore subject to the Waste Electrical and Electronic Equipment Directive 2012/19/EU (WEEE-II). It must not be disposed of in unsorted municipal waste (domestic waste).

National regulations and relevant local conditions (e.g. disposal via recycling yards) must be observed.

Dispose of the batteries properly.

7 MALFUNCTIONS



In case the device is malfunctioning, please refer to the following table first to see if you are able to resolve the malfunctioning yourself. If you are not successful, please contact your installer.

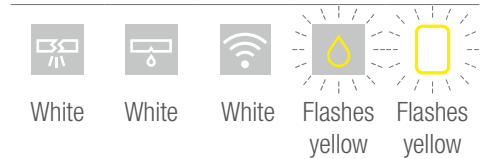
All leaks such as macro leaks (burst pipe), micro leaks (drip leaks) and detection of water on the floor (via RE.GUARD water sensor) are registered as alerts and not as malfunction. Such alerts are not covered in the following as their respective causes and associated corrective measures are detailed in previous chapters.

7.1 Notifications

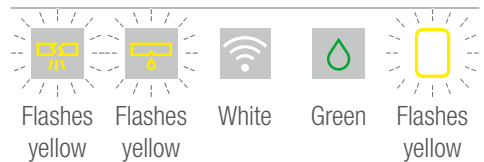
In general, malfunctions are displayed both in the app (see Chapter “5.2.1 Screens and navigation”, page 44) as well as on the device itself. The device will indicate each malfunction with a specific combination of illuminated or flashing buttons as follows:

Motor and sensor malfunction

Motor malfunction:

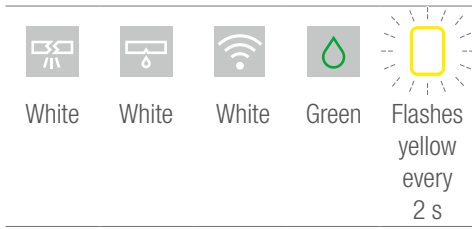


Sensor malfunction:

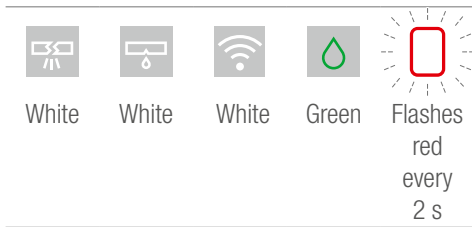


Power failure and backup power batteries fault

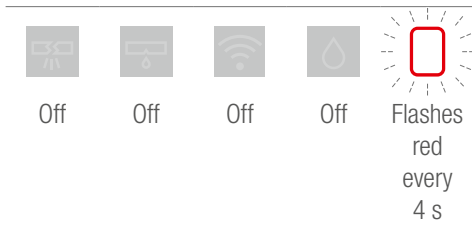
Battery level low – replacement recommended:



Battery level OK – mains power failure:



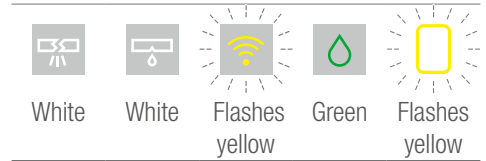
Battery level low – mains power failure:



Z-wave® connection error

The device will indicate a disrupted radio signal between the RE.GUARD water control device and the RE.HUB gateway as shown below.

Connection lost:



The following chapter lists corrective measures to be applied in case the Z-Wave connection is disrupted permanently.

7.2 Corrective measures

Description of fault	Possible corrective measures
Connection to RE.HUB gateway lost	<ol style="list-style-type: none">1. Make sure that both the RE.HUB gateway as well as the RE.GUARD water control device are connected to the power and the mains adapters are properly plugged in and are not faulty.2. Remove any possible sources of interference within the signal range, which may have been newly added and are too close to the equipment (at least 50 cm distance).3. Check whether there are any metal components nearby or if some have been newly added (e.g. metal cabinets; at least 50 cm distance).4. Check the distance between the units and the next wall and ceiling. There should be a distance of 50 cm.5. If required, install an additional Z-wave® component as a repeater to amplify the wireless signal (for example, the 'AEOTEC Range Extender 6' repeater).6. If none of the above steps are successful, disconnect both the RE.GUARD water control device and the RE.HUB gateway from the power supply. Wait for the RE.HUB gateway to boot (approx. 3 - 5 minutes).7. If you have failed to restore the connection, contact your installer or REHAU support.

Description of fault	Possible corrective measures
Connection to RE.GUARD water sensor lost	<ol style="list-style-type: none"> 1. Check whether the RE.GUARD water sensor is still working by briefly placing the device on a wet spot. A drop shape should briefly light up on top of the water sensor. 2. If there is no drop shape, please change the batteries in the device (type ER14250 or ½AA). Consult the operating instructions for the RE.GUARD water sensor on how to do this. 3. If the drop shape comes on, there is still sufficient battery charge and the wireless connection is probably disrupted or the RE.GUARD water sensor is outside the radio range. Check the distance of possible sources of wireless interference (e.g. wireless LAN), metal components, ceilings or walls and keep a distance of > 50 cm where possible. 4. If required, install an additional Z-wave® component as a repeater to amplify the wireless signal (for example, the 'AEOTEC Range Extender 6' repeater). 5. Exclude the RE.GUARD water sensor in the app. Then, reset it to factory settings (for the procedure, see the RE.GUARD water sensor operating instructions). Afterwards, repeat the pairing process in the app.
RE.GUARD water control device valve malfunction	<ol style="list-style-type: none"> 1. First, acknowledge the error message on the device or in the app by closing and opening the valve. 2. Observe whether or not the device actually opens and closes. 3. See if the message comes up again. 4. If so, disconnect the device from the mains supply by unplugging the mains plug and removing the emergency batteries and reconnect it to the mains supply. 5. If the valve malfunction error reoccurs, the valve is indeed faulty. (Fault of the drive or blockage of the valve). Please contact your installer.
RE.GUARD water control device sensor malfunction Flow rate sensor/pressure sensor/temperature sensor malfunctioning	<ol style="list-style-type: none"> 1. Disconnect the device from the mains supply by unplugging the mains plug and removing the emergency batteries and reconnect it to the mains supply. 2. See if the message comes up again. 3. If the sensor fault message persists, the sensors are faulty. Please contact your installer.

Description of fault**Possible corrective measures**

RE.GUARD water control
device emergency batteries
empty

Replace the emergency batteries (4 x AA) as described in Chapter
'6.2 replacing/inserting emergency batteries', page 54

7.3 Emergency release (emergency open function)

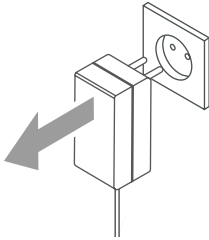
In the event of an unintentional isolation of the drinking water supply by the RE.GUARD water control device, which cannot be undone on the device, by unplugging and plugging the mains adapter, or via the RE.GUARD app, the device has a manual 'emergency open' function.



Risk to life due to electric shock

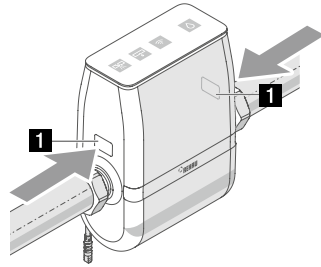
Always disconnect the device from the mains supply before opening it.

1



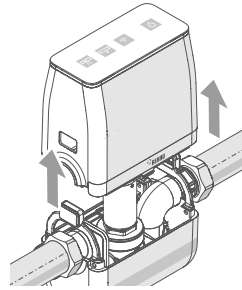
Disconnect the device by unplugging the mains plug from the mains supply.

2



Gently push the release points **1** above the water connections of the RE.GUARD water control device slightly inward (max. 5 mm).

3

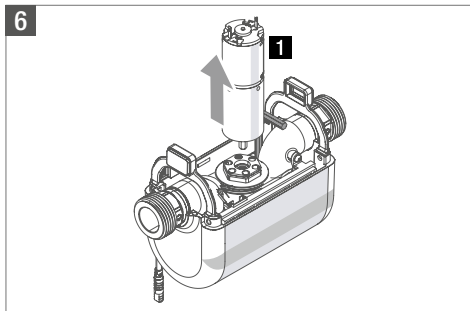
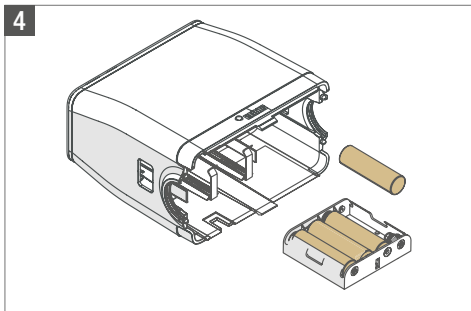


Gently remove the top of the housing whilst pressing the release points. Ensure that the gap between the top and bottom parts does not exceed approx. 10 cm.



It should be pulled straight up as indicated by the arrows (see above).

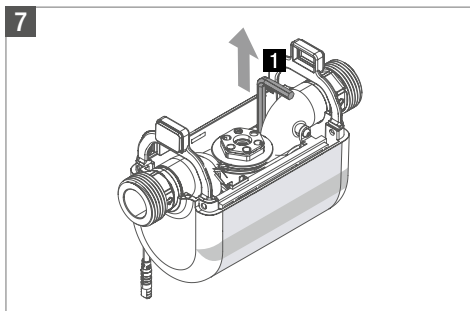
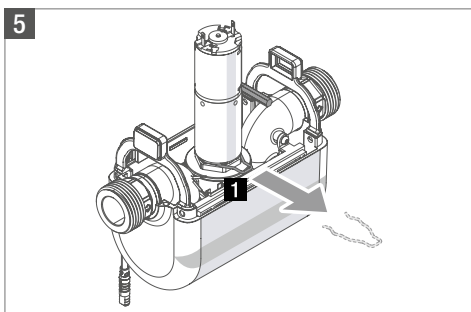
Tilting may damage both housing components and internal components. The upper part must not be pulled too far upwards because there are cable connections between the two halves of the housing with a limited length (approx. 15 cm).



Risk of injury

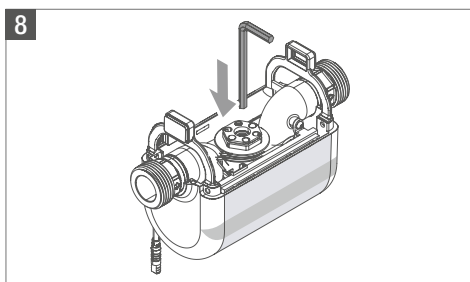
Motor-operated parts can suddenly move due to battery emergency power. Remove one or more batteries from the battery compartment (see Chapter “6.2 Inserting/changing emergency batteries”, page 47) to disable emergency power.

Pull the drive **1** including the connecting cable upwards.



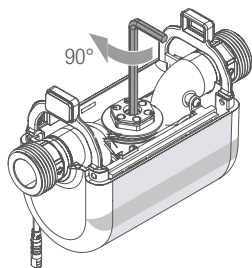
1 Pull out the locking ring of the motor lock in the direction of the arrow.

Pull the allen key **1** out upwards.



Insert the allen key into the socket which the removed drive was connected to.

9



Rotate the allen key 90° clockwise.

The valve is opened (emergency open), the isolation reversed.



This means the drinking water installation is now operating as if no leak protection system had been installed. There is no automatic isolation in case of burst pipes and drip leaks are not detected.

10. Consult the list of faults at the end of this operating instruction as well as the app and contact the installer to determine the cause of the malfunction, if necessary.
11. Once the cause has been established and rectified, reverse the emergency open and assemble the device by following the previous steps in reverse order.

8 Z-WAVE®: RELEVANT DATA

This device is a secure Z-wave® Plus product that uses encrypted Z-wave® Plus messages to communicate with other secure Z-wave® Plus products.

A corresponding Z-Wave controller with security functions ("Security Enabled") is required in order to be able to use the full range of security functions. The DSK code required for this can be found on the label on the left front of the

device between the control panel and the thread connection.

The product can be operated in any Z-wave® network with other Z-wave®-certified devices from other manufacturers. All non-battery-operated devices within the network function as repeaters, regardless of the manufacturer, to increase the reliability of the network.

8.1 Associations

ID	Name	Permitted associations	Description
1	Main association	1	The following command classes are supported: <ul style="list-style-type: none">- Reset the device locally: Triggered on request- Meter report: Triggered on request or hourly- Notification report: Triggered through alarms for water, power supply, system or shut-off- Binary switch report: Triggered on request- Multilevel sensor report: Triggered on request or hourly- Battery report: Triggered on request or percentage capacity change- Clock report: triggered when the device is switched on
2	Valve status	5	The following command classes are supported: <ul style="list-style-type: none">- Basic report: Triggered by changing the valve status
3	Leak notification	5	The following command classes are supported: <ul style="list-style-type: none">- Notification report: Triggered by changes in water pressure and water temperature in combination with the configuration parameters 50–53, water leak in combination with the configuration parameters 15–26 and 28 + 30, charging state backup batteries in combination with the configuration parameters 31 + 32

8.2 Notifications

Notification type	Notification event	Description
Water (0x05)	Water leak detected (0x02)	A notification is sent if the threshold for flow rate, volume and time are exceeded. A notification is sent if the threshold for a pressure drop when the shut-off is closed.
Water (0x05)	Water pressure alarm (0x07)	A notification is sent if the threshold values for the water pressure are too low or high.
Water (0x05)	Water temperature alarm (0x08)	A notification is sent if the threshold values for the water temperature is too low or high.
Power supply (0x08)	Replacing the emergency batteries (0x0B)	A notification is sent if the threshold values for the battery voltage and capacity are too low or high.
System (0x09)	Hardware failure system (0x01)	A notification is sent if the main board is not answering.
Valve (0x0F)	Valve malfunction (0x03)	A notification will be sent in the event of a valve malfunction (blockage, overvoltage or short circuit).

8.3 Konfigurationsparameter Z-Wave®

The RE.GUARD water control device uses the following configuration parameters:

ID	Name	Description	Size (Byte)	Permitted Values	Unit	Factory setting
1	Operating mode	General device condition (0 = valve (always) closed/1 = user 'absent' = not at home = holiday/ 2 = user 'present' = at home/3 = valve (always) open)	1	0-3	/	2
4	Fixed schedule – hours	Preset time (hour) for the micro leak test cycle	1	0-23	h	3
5	Fixed schedule – minutes	Preset time (minute) for the micro leak test cycle	1	0-59	m	0
6	Fixed schedule – weekdays	Predefined day of the week. Summation of the values for the individual days of the week in which the micro leak test cycle is to take place (Sunday = 1, Saturday = 2, Friday = 4, Thursday = 8, Wednesday = 16, Tuesday = 32, Monday = 64)	1	0-127	/	127
7	Automated time interval	Hours between two consecutive micro leak test cycles	2	1-168	h	24
8	Micro leak – test time	Time with closed shut-off during a single micro leak measurement	2	0-32000	s	100
9	Micro leak – pressure drop	Detection criterion for probable micro leak during a single measurement	2	0-32000	kPa	7
10	Micro leak – cancel pressure drop	Cancellation criterion for single micro leak measurement due to intended operation of appliance during the measuring time	2	0-32000	kPa	100
11	Number of measurements	Number of measuring repetitions (with waiting time #12), decision is made on the basis of a majority of the results	1	1-99	/	3
12	Waiting time between measurements	Time delay up to the next measurement (until #11 measurements have been carried out)	1	1-60	min	10
13	Reaction to micro leak	Follow-up action of a detected micro leak (0 = ignore, 1 = notification, 2 = notification and shut-off)	1	0-2	/	1
15	Maximum flow rate mode 2	Threshold for maximum flow rate in the 'present' operating mode	2	0-32000	l/h	3600
16	Maximum pressure drop mode 2	Threshold for maximum pressure drop in 'present' mode	2	0-32000	kPa	1000
17	Maximum individual volume mode 2	Threshold for maximum volume of a single appliance in the 'present' mode	2	0-32000	l	400
18	Maximum total volume mode 2	Threshold for maximum volume of all appliances in the 'present' mode	2	0-32000	l	400
19	Maximum individual time mode 2	Threshold for maximum duration of a single appliance in 'present' mode	2	0-1440	min	30
20	Maximum time operating mode 2	Threshold for maximum duration of all appliances in 'present' mode	2	0-1440	min	30
21	Maximum flow rate mode 1	Threshold for maximum flow rate in 'absent' mode	2	0-32000	l/h	3680
22	Maximum pressure drop mode 1	Threshold for maximum pressure drop in 'absent' mode	2	0-32000	kPa	1000

ID	Name	Description	Size (Byte)	Permitted Values	Unit	Factory setting
23	Maximum individual volume mode 1	Threshold for maximum volume of a single appliance in 'absent' mode	2	0-32000	l	20
24	Maximum total volume mode 1	Threshold for maximum volume of all appliances in 'absent' mode	2	0-32000	l	20
25	Maximum individual time mode 1	Threshold for maximum duration of a single appliance in 'absent' mode	2	0-1440	min	30
26	Maximum overall time mode 1	Threshold for maximum duration of all appliances in 'absent' mode	2	0-1440	min	30
27	Macro leak – time deactivation	Temporary deactivation of macro leak detection because of special circumstances, e.g. filling a pool	2	1-168	h	2
28	Reaction to macro leak	Follow-up action of a detected micro leak (0 = ignore, 1 = notification, 2 = notification and shut-off)	1	0-2	/	2
30	Reaction to floor sensor	Follow-up action of detected floor moisture (0 = ignore, 1 = notification, 2 = notification and shut-off)	1	0-2	/	2
31	Emergency power battery nominal voltage	Nominal voltage of the emergency batteries	2	0-32000	mV	6000
32	Emergency power battery nominal capacity	Nominal capacity of the emergency batteries	2	0-32000	mAh	3000
37	Correct time setting	Time is set with the gateway's timer command (1 = time set correctly, 0 = time not set correctly)	1	0-1	/	0
38	Total operating duration	Operating duration from the beginning	4	0-2147483647	s	0
39	Operating duration since last power interruption	Operating duration metering since last power interruption	4	0-2147483647	s	0
49	Automatised absence mode	Automatic change from 'present' to 'absent' after time without water flow (0 = deactivated, 1–168 hours without extraction)	2	0-168	h	0
50	Water temperature upper threshold	Upper threshold value of water temperature for warnings of possible hygienic impacts (stagnation)	2	-1000+1000	1/10 °C	250
51	Water temperature lower threshold	Lower threshold value for water temperature for warning of potential risk of frost	2	-1000+1000	1/10 °C	20
52	Water pressure upper threshold	Upper threshold for water pressure for warning about values above permissible operating conditions	2	0-32000	kPa	1000
53	Water pressure lower threshold	Lower threshold for water pressure for warning about values below permissible operating conditions	2	0-32000	kPa	100
54	Fault code	Fault code (read-only mode) to identify the cause of a warning or malfunction	2	0-255	/	0

ID	Name	Description	Size (Byte)	Permitted Values	Unit	Factory setting
56	Automatic learn mode	Automatic adaptation of the threshold based on historical data (sets IDs #15–26 to learned values but only if the last 40 days were okay and no leak occurred)	1	0-1	/	0

8.4 Command classes

The following Z-wave[®] command classes are used for the RE.GUARD water control device:

5E - COMMAND_CLASS_ZWAVEPLUS_INFO_V2
6C - COMMAND_CLASS_SUPERVISION_V1
55 - COMMAND_CLASS_TRANSPORT_SERVICE_V2
98 - COMMAND_CLASS_SECURITY_V1
9F - COMMAND_CLASS_SECURITY_2_V1

25 - COMMAND_CLASS_SWITCH_BINARY_V1 [S0]* [S2]*
85 - COMMAND_CLASS_ASSOCIATION_V2 [S0]* [S2]*
59 - COMMAND_CLASS_ASSOCIATION_GRP_INFO_V2 [S0]* [S2]*
86 - COMMAND_CLASS_VERSION_V2 [S0]* [S2]*
72 - COMMAND_CLASS_MANUFACTURER_SPECIFIC_V2 [S0]* [S2]*
80 - COMMAND_CLASS_BATTERY_V1 [S0]* [S2]*
81 - COMMAND_CLASS_CLOCK_V1 [S0]* [S2]*
31 - COMMAND_CLASS_SENSOR_MULTILEVEL_V9 [S0]* [S2]*
5A - COMMAND_CLASS_DEVICE_RESET_LOCALLY_V1 [S0]* [S2]*
70 - COMMAND_CLASS_CONFIGURATION_V1 [S0]* [S2]*
32 - COMMAND_CLASS_METER_V4 [S0]* [S2]*
71 - COMMAND_CLASS_NOTIFICATION_V8 [S0]* [S2]*
73 - COMMAND_CLASS_POWERLEVEL_V1 [S0]* [S2]*
7A - COMMAND_CLASS_FIRMWARE_UPDATE_MD_V4 [S0]* [S2]*

**[S0] Security Command Class*

**[S2] Security S2 Command Class*

APPENDIX

Table of Threshold Values

The following table shows, depending on appliances and number of persons, the threshold values examples for the 'present' mode.

The 'absent' mode is to be adjusted depending on what is possible during this time (for example, so neighbours can still water plants when the occupier is on holiday).

Installation situation	Parameters		
	Maximum flow duration	Maximum flow volume	Maximum flow rate
(0) Factory setting 'present'	30 minutes	400 litres	1.0 litres/second
(1) Detached house/apartment with: - Low occupancy (2–3 persons) - Toilet cistern (no direct flush) - Normal shower (18 litres/minute) and normal bathtub (150 litres) - Manual garden irrigation	45 minutes	500 litres	0.6 litres/second
As (1), but - High occupancy (4–5 persons)	45 minutes	500 litres	0.8 litres/second
As (1), but - With direct flush WC	45 minutes	500 litres	1.0 litres/second
As (1), but - With a comfort shower (30 litres/minute) and/or a comfort bathtub (whirlpool)	45 minutes	500 litres	0.8 litres/second
As (1), but - with water-saving shower (9 litres/minute) and without bathtub	45 minutes	500 litres	0.5 litres/second
As (1), but - Without manual garden irrigation	30 minutes	300 litres	0.6 litres/second

Further adjustment or reduction of the thresholds can be made on the basis of the consumption data available in the app.

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