LK CubicSecure 1.2

User Manual
Commissioning, Operation, Troubleshooting, Maintenance



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Design

LK CubicSecure is a water safety system that protects against leakage by continuously measuring water consumption, water pressure and temperature. The unit sends alarms for both micro-leaks and larger leaks. When the water safety system detects a leak, it automatically shuts off the water flow. LK CubiSecure can be installed in villas, terraced houses and apartments (1). The unit is equipped with a manual shut-off valve for use during power outages or emergencies.

Options Available to the User

The unit is operational in both online and offline mode.

Offline (Manual)

If the user chooses to install the unit without connecting it to the app, LK CubicSecure must be configured manually. During operation, the unit must be read manually using the buttons and LED indicators on the unit. LK cannot guarantee full functionality when the unit is not connected, as it will not receive the latest software updates.

Online (MyLK-app)

- If the user wishes to use the online functions, the MyLK app must be installed on a smartphone. The physical unit must be added in the app.
- Permissions: The app requires permission for notifications and nearby devices, as well as location sharing. When prompted about location sharing, it is important to select: ***While using the app***.
- With the MyLK app and a WiFi connection, the unit can be controlled remotely—for example, to turn the water on or off, acknowledge alarms, and monitor water consumption. Scan the QR code to download the app. The app is also available from the App Store and Google Play Store



The MyLK app symbol (Lagerstedt & KRANTZ AB).



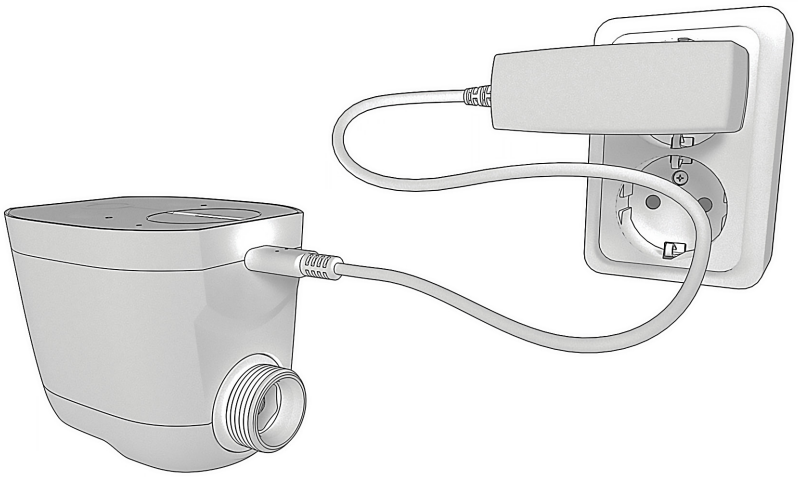
QR code for MyLK app

Installing LK CubicSecure

LK CubicSecure is a small unit that is easy to install in confined spaces. The unit is easily installed on incoming water pipes for a house or apartment. Installation must be carried out by a professional installer using the manual ***SE.40.C.14.02_LK CubicSecure Installation Instructions***. The connections on LK CubicSecure have G20 external Eurocone connections (chamfered). Complete with the enclosed flat adapter when connecting to a fitting with flat sealing.

Preparations before commissioning LK CubicSecure

1. Connect power to the unit using the supplied Micro-USB power adapter.
   If your unit was installed by a technician, ensure that it is connected to the power source.



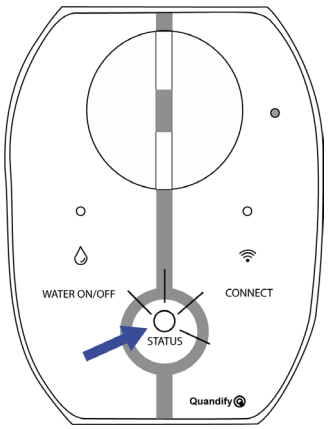
The water safety system connected to the power source.

2. When the LK CubicSecure is connected to the power source, check that the STATUS LED is illuminated WHITE or YELLOW.

TROUBLESHOOTING
If the STATUS LED is not illuminated WHITE or YELLOW, check that the wall socket or power adapter is functioning properly.

TIP!
The LK CubicSecure has an arrow on the underside.
The unit must be installed so that the arrow points in the direction of the water flow. This means that the text on the front of the unit will appear upside down if the unit is installed vertically with incoming water from below. This does not indicate incorrect installation—the unit is correctly mounted.

NOTE!
The transparent rubber cover is a permanent protective cover and is not packaging material. The protective cover must remain permanently fitted to the product to ensure safe and correct use.



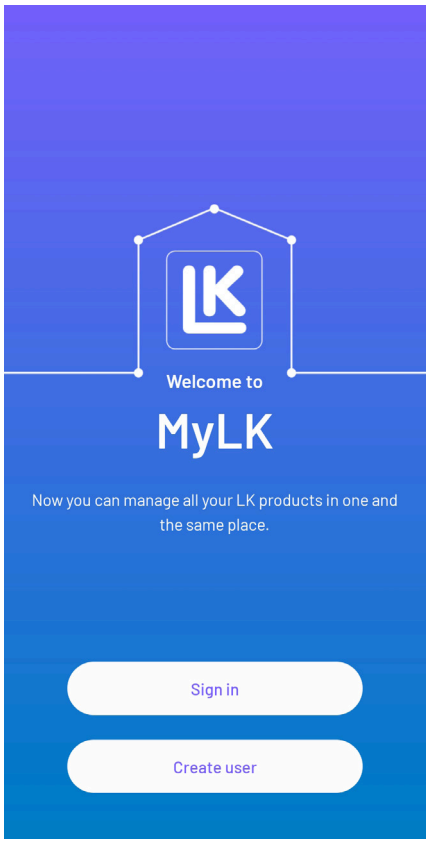
White light – The unit is operating normally.

3. ***If you have chosen to use the unit with the MyLK app***, proceed with steps 4–6; otherwise, skip this section and continue with the manual

Connecting to WiFi (1)

To monitor the unit's measurements and alarms remotely via a smartphone, an app and a connection to a WiFi network operating on the WiFi- frequency are required.

4. Download and install the MyLK app from the App Store or Google Play.
5. Launch the MyLK app and create a user account.
6. Follow the instructions provided in the MyLK app.



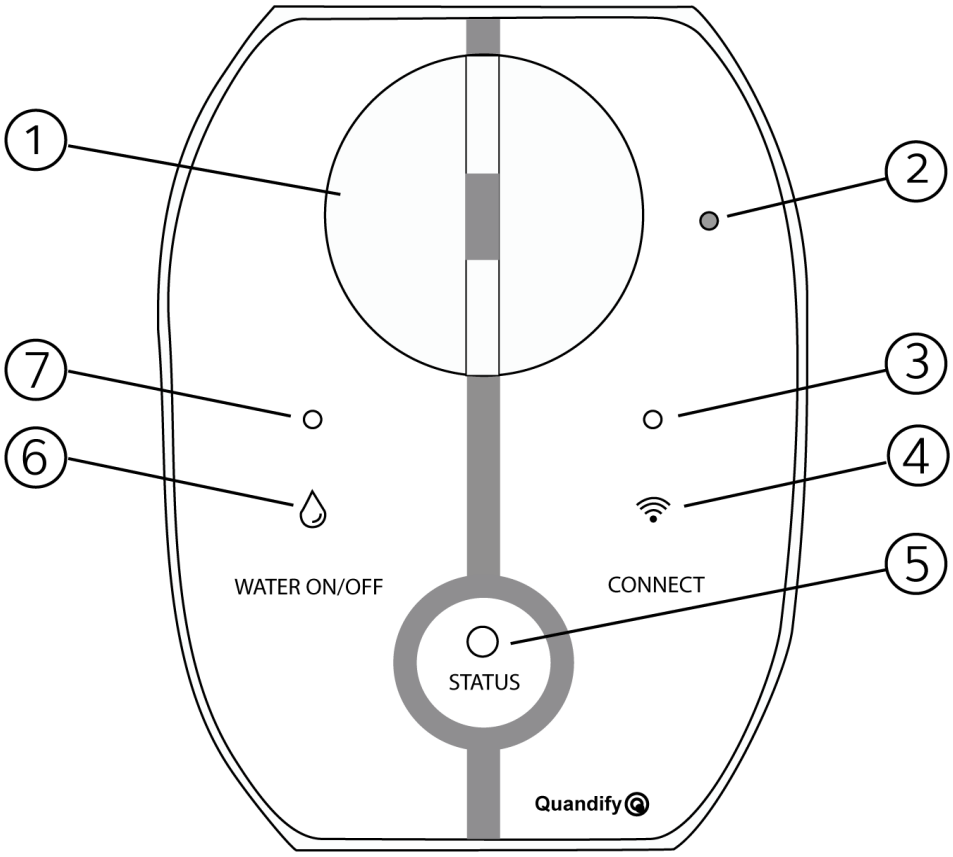
Example image of the login page in the MyLK app. Note: the page may appear differently as the app is updated regularly.

TROUBLESHOOTING
If you experience problems connecting the unit to the MyLK app:
- that Bluetooth is enabled on the smartphone.
- Check that the unit is in hotspot mode and that the CONNECT LED is flashing WHITE.
- Verify that the broadband frequency is 2.4 GHz.

TIP!
Click the icon in the upper right corner of the app display to find more information about different functions. The icon appears on several pages of the app.

If at any point you need to reset the WiFi connection, you will find the instructions on page 7.

Overview – Functions, LK CubicSecure



1. Valve switch.
2. Reset button (factory setting)
3. CONNECT LED (RGB-W) for pairing.
4. CONNECT button for pairing.
5. STATUS LED (RGB-W).
6. ON/OFF button for water.
7. ON/OFF LED (RGB-W) for water.

NOTE!
Only use the valve switch when the unit is de-energised

Overview – LED Indicators. Function and Troubleshooting

LED	Function	Action
The CONNECT LED flashes white.	The unit is ready to be connected to the internet.	-
The CONNECT LED is steadily lit white.	Connected	-
The CONNECT LED is off.	Not connected; Wi-Fi credentials are missing and the unit is not ready to be connected to the internet.	Press CONNECT once to activate the communication module (the CONNECT LED should start flashing white).
The CONNECT LED flashes white and purple.	The unit is connected to Wi-Fi but does not have access to the internet.	Check your internet connection and firewall settings. Restart your router. Restart the unit.
The CONNECT LED flashes red and white.	The unit has a saved Wi-Fi network but cannot connect to it.	Ensure that the Wi-Fi password has not been changed. Restart the nearest wireless access point (AP). Restart the router. Restart the unit. Try updating the Wi-Fi credentials via the MyLK app.
The CONNECT LED flashes turquoise and white.	The unit cannot connect to LK but is connected to Wi-Fi and the internet.	Restart the unit and check the firewall settings. Wait up to 8 hours, then restart the unit again.
The STATUS LED is steadily lit white.	The unit is functioning and detects water.	-
The STATUS LED is steadily lit orange.	The unit triggers a microleakage alarm.	-
The STATUS LED flashes orange.	The unit triggers a medium leakage alarm	-
The STATUS LED flashes orange and turquoise.	The unit triggers a major leakage alarm.	-
The STATUS LED is steadily lit yellow	Alarm activation is disabled. The 24-hour timer is active. The water pressure is very low	-
The STATUS LED flashes green	Ongoing pressure test; the unit is collecting data.	-
The STATUS LED is steadily lit red	The unit is not functioning correctly.	Unplug the power cable, wait 10 seconds, then plug it back in. If the problem persists, contact your installer
The WATER ON/OFF LED is steadily lit white.	The valve is open; the water is on.	-
The WATER ON/OFF LED flashes white.	Ongoing water flow.	-
WATER ON/OFF-LED lyser fast gult	The valve position has been changed manually.	Press WATER ON/OFF to dismiss the warning/alarm.
WATER ON/OFF-LED lyser fast rött	No water in the pipe or very low water pressure.	Check that the water system is functioning correctly.

Restart after power outage

After a power outage, the unit returns to the same state it was in before the outage.

LK CubicSecure has lost the WiFi connection.

1. If the unit has been connected before and you are using the same Wi-Fi, press the CONNECT button once. The unit should then connect automatically since it stores the login credentials.
2. If step 1 does not work, disconnect the unit from the power supply, wait 10 seconds, and then restart it.
3. If the CONNECT LED starts flashing white, the unit has lost the login credentials. Use the Update Wi-Fi function and follow the instructions. You can find this under Settings in the menu for the unit. Use this function also if you have changed your router or Wi-Fi. The Wi-Fi in the building may also affect the connection. In that case, restart your router.

Online Commissioning and Functional Check

Go to the MyLK app. Follow the instructions in the app. The same checks must be performed as specified under ***Manual Commissioning and Functional Check***, namely:

- Check that the ball valve is functioning.
- Check that the pressure sensor is functioning.
- Perform a leakage test with flow.

TIP!
Click the icon in the top right corner of the app display to find more information about various functions. The icon appears on several of the app's pages.

Manual Commissioning and Functional Check

Check that the ball valve is functioning

1. Press the WATER ON/OFF button. The LED turns off when the ball valve has completely shut off the water flow
2. Open a water tap. Verify that no water comes out of the tap.
3. Press the WATER ON/OFF button. The LED lights up white when the valve is fully open. Check that water now flows from the open tap. When water is actively flowing, the LED flashes white.

Check that the pressure sensor is functioning

1. Open a tap to simulate a very small leak. A narrow, dripping stream of water is sufficient.
2. Press the WATER ON/OFF button to close the valve.
   - Once the valve has closed, the STATUS LED will blink GREEN while the pressure sensor scans for small leaks for approximately 45 seconds.
   - If the pressure sensor detects a leak, the STATUS LED will start blinking ORANGE
     If no leak is detected, repeat the steps with a slightly larger leak.
3. Close the tap and press the WATER ON/OFF button to open the valve again.

Leakage Test with Flow

1. Open a tap while the valve is in the open position.
2. Let the valve remain open with full flow from the tap for at least 45 minutes.
3. Check that the unit triggers an alarm (the STATUS LED flashes ORANGE) and shuts off the flow after 45 minutes.
4. Then close the tap and reset the unit.

Other Optional Manual Preparations

Manual Pairing When Two Units Are Used



Example cabinet with paired units

1. Install and start the units — one for hot water and one for cold water.
2. Press and hold the CONNECT button for five seconds on the unit installed for cold water. The CONNECT LED will start flashing YELLOW and BLUE.
3. Press and hold the CONNECT button for five seconds on the unit installed for hot water. The CONNECT LED will start flashing YELLOW and RED.
4. Verify that the CONNECT LEDs on both units flash GREEN rapidly for a second.
5. If the pairing was not completed, repeat steps 2 to 4.
6. Perform a manual commissioning and functional check.

NOTE!
For apartment installations, units should be installed on both the hot and cold water lines to protect against all leaks and to prevent potential scalding.

Operation

Monitor the unit's measurements via the MyLK app. Various data such as temperature, volume, water pressure, valve position, and leak status are displayed for each unit. When LK CubicSecure is in operation, it performs automatic leak tests and exercises the built-in ball valve. If a leak occurs, the LK Cubicsecure triggers an alarm and closes the valve. If the unit is connected, a push notification and an email are sent to the account registered in the app. In connected mode, push notifications and emails are also sent in cases such as loss of connection.

Click the icon in the top right corner of the app display to find more information about various functions. The icon appears on several of the app's pages.

Two operating modes are available to choose from: online and offline

- **Online Mode** (when LK CubicSecure is in operation, registered, and connected in the app)
  When the LK CubicSecure is in operation and connected to the app, many functions are available, and the user can control the unit remotely.

- **Offline Mode** (when LK CubicSecure is in operation without being registered and connected in the app)
  When LK CubicSecure is operating offline, it must be read manually using the buttons and LED indicators on the unit.

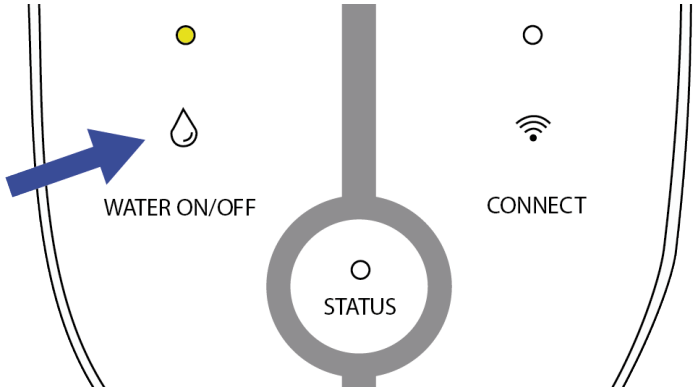
24-Hour Timer

Use of Larger Amounts of Water

- ***If a larger amount of water is needed — for example, to fill a pool or for irrigation — the alarm function for abnormal flow can be deactivated.*** The alarm function is preset (in offline mode) to a duration of 24 hours. In online mode, the user can manually select and set the alarm duration. Deactivation of the alarm can be done either in the MyLK app or manually.

Manually Activate and Deactivate the 24-Hour Timer

1. To activate the 24-hour timer, press and hold the WATER ON/OFF button for approximately 5 seconds. A sound will be heard, and the STATUS LED will light up with a steady yellow glow.
2. To deactivate the timer, press and hold the WATER ON/OFF button for approximately 5 seconds. A sound will be heard, and the STATUS LED will return to a steady white glow.



WATER ON/OFF Button and Yellow LED for the 24-Hour Timer Function.

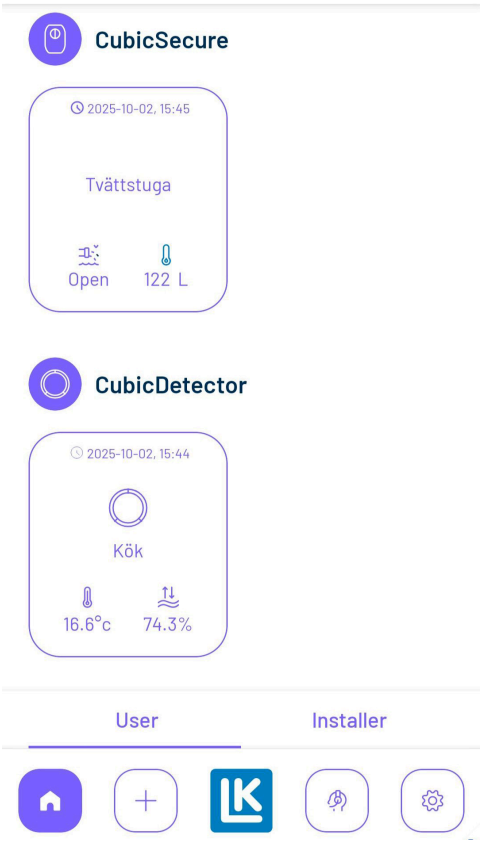
Functions in the MyLK App

NOTE! Example Images
The MyLK app is periodically updated (e.g. with new functions), and therefore the tabs in the app may differ from the example images shown in this section of the manual. Additional features may also have been added since the manual was published.

NOTE! Data Upload
When the unit is in operation, data is sent once per hour, and the app is updated when the user is logged in. To update to the current status, swipe down on the app's home screen.

The first tab displays:

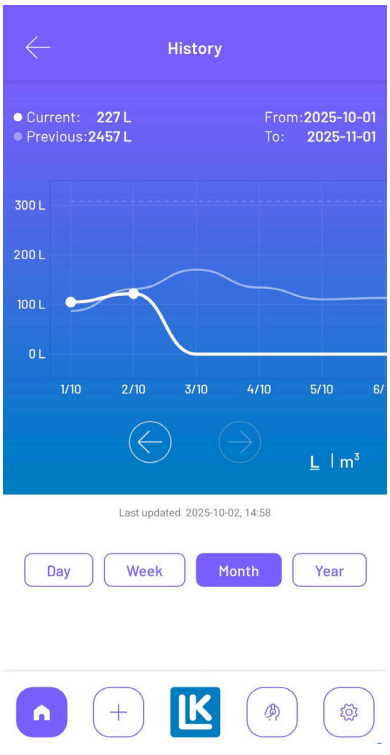
1. Whether the valve is open or closed.
2. Today's water consumption.



NOTE! Troubleshooting
If no water consumption data is registered in the app, check that LK CubicSecure is correctly installed in relation to the direction of the incoming water flow.

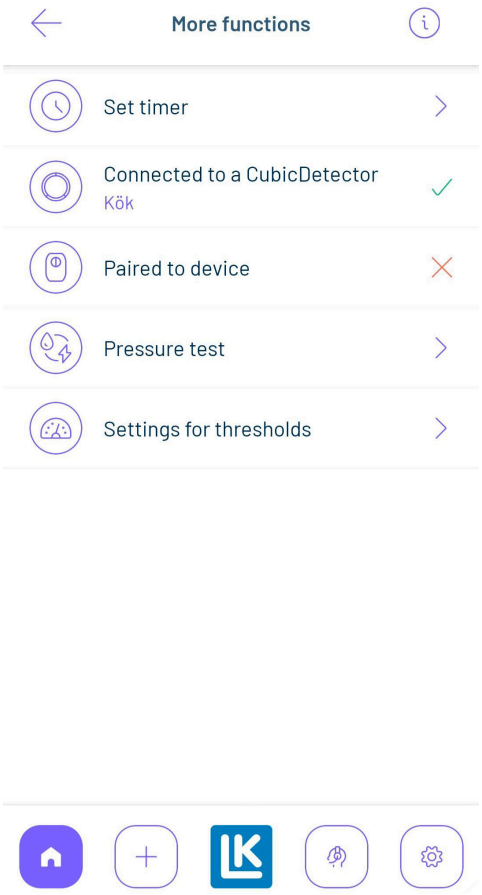
History Tab

Under the ***"History" tab***, you can view your water consumption. You can choose between day, week, month, and year. The solid-colored graph shows the current period, while the faded graph shows the previous one.



Tab: More Functions

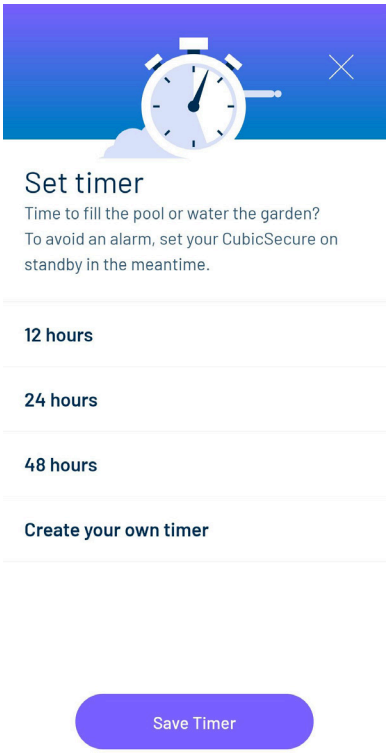
- Under the ***More Functions tab,*** the functions available in the app are displayed.
- Click the information icon ⓘ in the top right corner to read more about the different functions.



Tab: Set Timer

Note! Alarms Are Deactivated
When the user activates a timer, all alarms are deactivated.

In the app, the user can also cancel the timer at any time.



Manually Activate a Timer

- Press and hold the ON/OFF button for approximately 5 seconds. The STATUS LED will be lit up with a steady yellow glow.

24-Hour Timer

- ***A manually activated timer remains active for 24 hours.***
- Deactivate the timer by pressing and holding the ON/OFF button for approximately 5 seconds.

Tab: Pressure Test

NOTE!
Read more about the pressure test by clicking the information icon ⓘ in the top right corner of the app tab.

If the pressure test is initiated via the app, it may take up to 10 minutes before the test is performed, as the unit waits for an optimal moment.

If the pressure test is started manually on the unit, the test is performed immediately. In this case, the user must ensure that the valve is closed.

*The time 04:00 for the pressure test is a factory setting. The time can be changed. The time is counted from when the unit was powered on.

Pressure Test When the unit is Connected

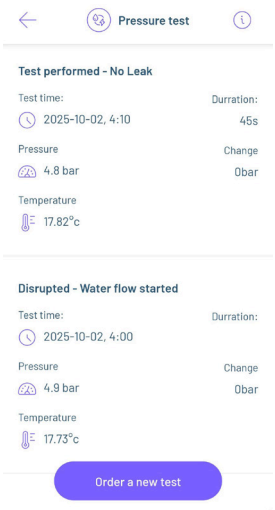
- The pressure test is performed every night at 4:00* AM, provided the device is connected.
- The log displays all completed pressure tests.

Pressure Test When the unit is Not Connected

- If the unit is not connected, a pressure test is performed once per day. The test is carried out at the same hour the unit was powered on.
- If a pressure test cannot be performed, a new attempt will be made when the water safety valve has not registered any water flow for 10 minutes.

Manual Pressure Test

1. Press the WATER ON/OFF button on the unit once. The valve will close, and the STATUS LED will blink green, then change to a steady white light when the test has been completed without any faults.
2. Press the WATER ON/OFF button once to open the valve again.



Alarms and Leaks

NOTE!
Understand the different effects of the alarm settings
Click the information icon ⓘ in the top right corner of the app tab to read about the various alarms and how they work, so it is clear what impact a changed setting has on the alarm function. Major changes may increase safety but can also cause false alarms. **Consult your professional installer before changing the alarm settings.**

Leak Notification
It is important to check your alarms and rectify any leaks before acknowledging the alarms.
Once this has been done, open the valve manually on the unit or via the app.

There are three different alarms on LK CubicSecure. The alarms are designed based on the water consumption of a typical household and are factory-set (default).

Major Leak

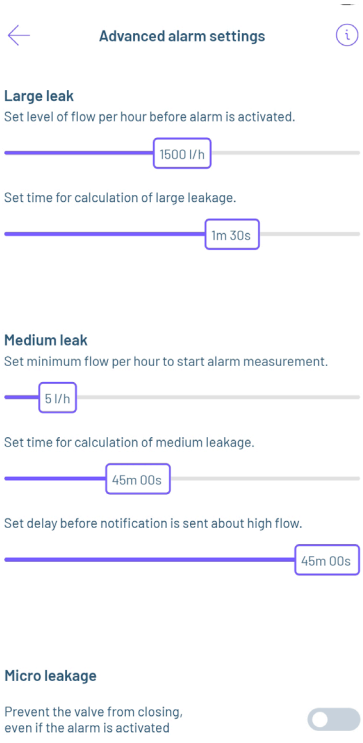
In the event of a major leak, the valve will close if the flow reaches 1500 l/h (equivalent to 25 l/min) for 90 seconds. This type of alarm may occur, for example, if a pipe bursts.

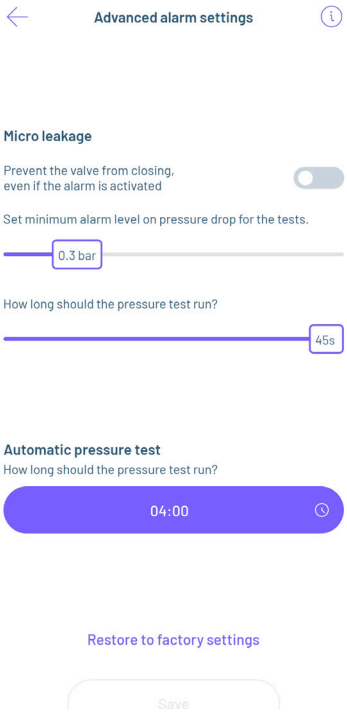
Medium Leak

In the event of a medium leak, the valve will close if there is a continuous flow of 5 l/h (equivalent to 0.08 l/min) for 45 minutes. ***This type of alarm may occur if, for example, irrigation is running or if you have a backwashing water filter and the water leak detector is installed upstream of the filter.*** A medium leak may also occur if a tap or outdoor faucet is left open.

Micro Leak

In the event of a micro leak, the valve will close when the unit registers 3 leaks for 3 consecutive nights.
A micro leak may be caused by a dripping tap, a dripping outdoor faucet, or a dripping toilet. It may also be due to the safety valve on the water heater or a minor leak at a pipe joint. A micro leak involves a very small amount of water, which means it is rarely, if ever, visible on your water meter.





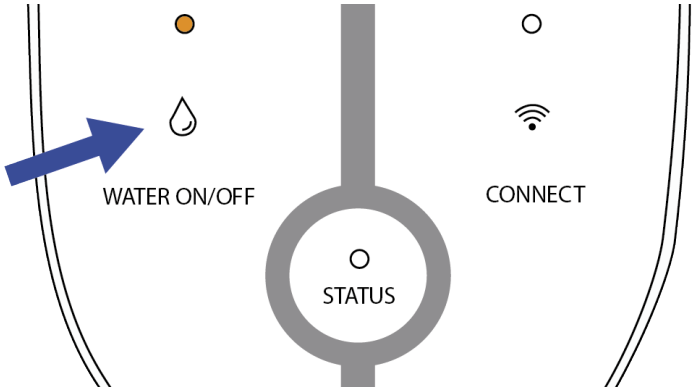
Verify an Alarm When the Unit is Connected

1. Verify the alarm in the app.

2. Open the valve manually.

Manually Verify an Alarm

1. Press the WATER ON/OFF button once to acknowledge the alarm.
2. Press the WATER ON/OFF button once more to open the valve.



WATER ON/OFF button and orange LED for the function.

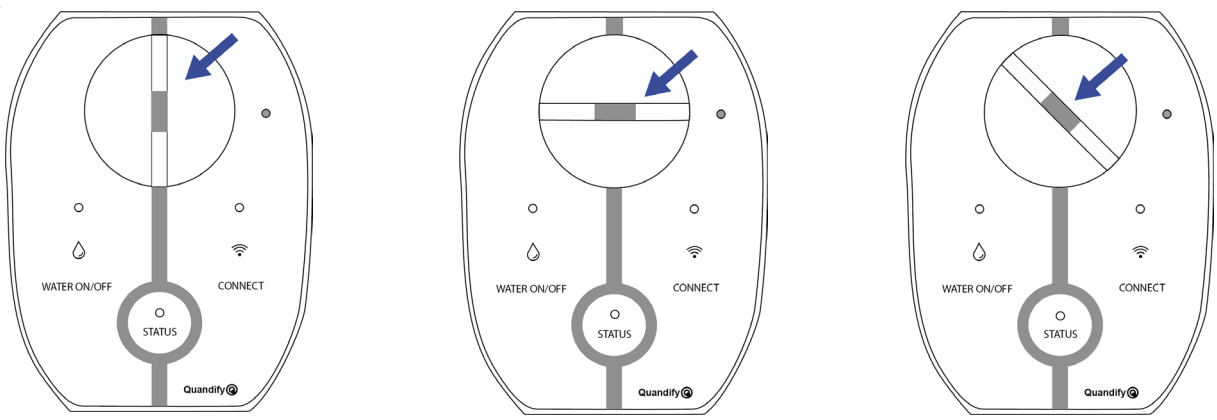
NOTE!
Verifying will reset all ongoing leak detections.

NOTE!
During an active alarm, certain functions in the app cannot be used for safety reasons.

Maintenance

Check the valve's opening and closing function

1. Press the WATER ON/OFF button.
   - The button lights up WHITE when the valve is open.
   - The LED is off and dark when the valve is closed.
   - The knob on top of the unit should rotate: breaking the line when closed and aligning with the line when open.
   - During valve maintenance, the knob moves through several different positions.



The left image shows the valve open, the right image shows the valve closed.

Technical Data

Area of use	Single-family house, townhouse, apartment
Water temperature	0.1-70°C
Pressure	PN10
Maximum pressure during tests	16 bar
KVS	4.6 m³/h
Environment	Indoors, dry, frost-free
Climate/Environment	5°C … 30°C
Storage	-25°C ... 55°C, dry environment
Wireless band frequency	2.4 GHz
Nominal flow rate (Q3)	4 000 l/h
Starting flow	5 l/h
Micro leak detection*	>0.3 bar pressure drop
Medium leak detection*	5 l/h for at least 45 minutes
Major leak detection*	>1500 l/h for at least 90 seconds
Weight	720 grams
Dimensions	Height: 87 mm Width: 75 mm Length: 110 mm

*Factory setting

Comment

Completely interference-free operation cannot always be guaranteed with the technology available today, which allows free use of the frequency band.

Every installation should therefore be tested individually. LK CubicSecure always works independently. The water safety system will still work if the unit loses contact with the Internet. The unit is still in operation and emits an alarm when a leak is detected. The contact with the MyLK app is temporarily interrupted, and it then does not receive notifications or alarms until contact is established with the Internet.

Environment

LK Systems is affiliated with El-Kretsen for collecting and recycling electronics and batteries. Used batteries should be sorted as batteries or small batteries and deposited for battery recycling. When the system has reached the end of its life, it should be sorted as electronics or other electronics and deposited with a recycling centre.

Guarantee

LK Systems AB is responsible for faults in products that appear within two years from the delivery of the product to the buyer. If LK is responsible for the fault in the product, LK has the right to replace the product with either a new or repaired product. The liability period for replacement or repair of a product or spare part does not exceed the liability period for the original product. The seller is not responsible for faults resulting from accidents, incorrect installation, incorrect installation, incorrect care, abuse or other irregular use. LK Systems AB is not responsible for any loss or damage caused by a non-functioning product. Its responsibility is strictly limited to the replacement of the product.

CE approval

LK CubicSecure water safety system is tested and approved by a third party.

RI. SE KONTROLL 1002
TG nr: C900737

EU Declaration of Conformity, Radio Equipment

Hereby, LK Systems declares that the radio equipment type CubicSecure - LTCS01 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available on:
www.lksystems.se/en/dokumentation/technical-documentation/

CE Declaration of Conformity

We
LK Systems AB
Box 66
168 69 Bromma SWEDEN
+46 (0)8-506 851 00
info@lksystems.se

This declaration of conformity is issued under the sole responsibility of the manufacturer (or installer):

Equipment: (RSK, LVI, NRF)

RSK	LVI	NRF	Name	Model identifier
1882667	4579741	5052132	LK CubicSecure	LTCS01
5217000	4579745	1465029	LK CubicSecure 1.2	LTCS01

Description:
LK CubicSecure is a water fault circuit breaker that continuously measures water flow as well as pressure and can detect both large and very small water leaks. The unit also closes automatically of the water in case of leakage. The water fault circuit breaker has a compact design for easy installation in cabinets and cramped spaces such as under a water heater. Brand name: LK Systems AB.

The object of the declaration described above is in conformity with the relevant community harmonization legislation:

RED: Radio Equipment Directive, 2014/53/EU

For compliance assessment, harmonized standards were used:

RED
- EN 301 489–17 V3.2.4
- EN 300 220–1 V3.1.1,
- EN 300 220–2 V2.4.1
- EN 300 328 V2.2.2
- EN 301 489–1 V2.2.3
- EN 301 489–3 V2.1.1

EMF
- EN 62311:2020

Safety
- IC 60730-1 Ed. 5.0, IC 60730-1 AMENDMENT 1 Ed. 5.0
- IC 60730-2-8 Ed. 3.0

RoHS 2011/65/EU
- EN IEC 63000:2018
  The product complies with RoHS with the following exemption
  - Annex III, 7(c)-I

Bromma 10.03.2026 (D/M/Y)

Michael Söderberg, CEO