

Manual & Datasheet

CubicMeter
LTCM02-X

Non-invasive water meter & leakage detector



Easy-to-install water and leak monitor. Alerts if **water leaks** are detected. Measures **volume** to increase awareness. One design for **multiple pipes**. **No plumber** required to install, with an average of **two minutes** to install.

Quandify

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Thanks for choosing the CubicMeter

The CubicMeter is a smart water meter that helps you understand how much water you consume, while also protecting your home from leaks by constantly monitoring. It is recommended that one CubicMeter is installed per inlet pipe, i.e. one on the hot water pipe and one on the cold water pipe, in order for the system to cover both lines in case of leaks and to improve the system's water flow analysis and predictions.

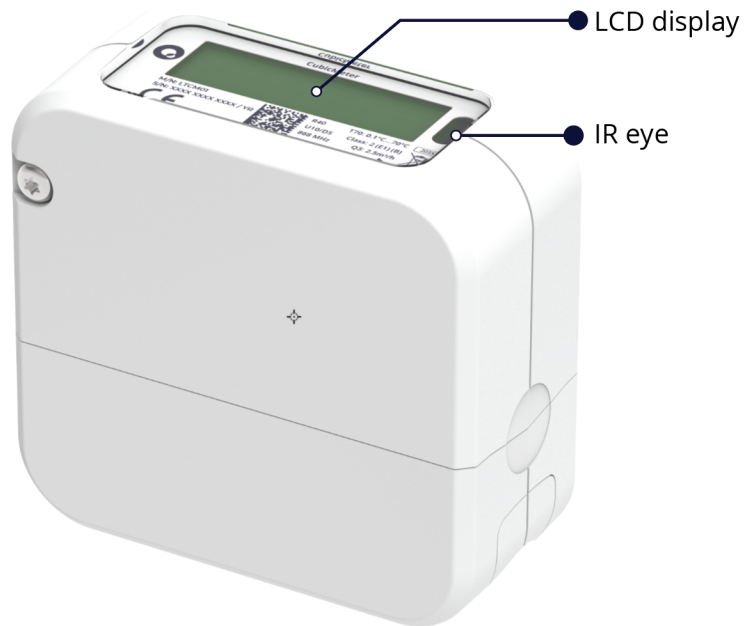
The CubicMeter is extremely easy to install, and it requires no previous experience to perform. Depending on the model It works on pipes between 15 mm - 25 mm outer diameter, and on the following materials: AluPex, PEX, chromed and unchromed copper. This guide will help you get your CubicMeter up and running.

Still stuck?

Feel free to reach out to us at <https://quandify.com/support> for more information.



INTRODUCTION



PACKAGE CONTENTS

- 1x CubicMeter LTCM02-X
- 2x Small stainless steel pipe clamps
- 2x Large stainless steel pipe clamps
- 2x Tamper-Seal Covers
- 2x Tamper-Seal Stickers
- 1x "Remove to activate" sticker



Pipe Ø15-20 mm



Pipe Ø20-26 mm

Model versions



LTCM02-P
Plastic pipes model



LTCM02-C
Copper pipes model

COMPATIBLE PIPE SETTINGS

The CubicMeter exists in several models with different pipe type compatibility. Below is a list of currently compatible pipes per device version and its corresponding LCD identification name.

Plastic pipes version (black)

LCD code	Compatible pipes	Outer diameters
PRAL __	Multi-layered PEX/Aluminum/PEX	16, 20 or 25
PE __	PEX or PE-RT	16, 20 or 25
d IStP IPE	LK Distance pipe 110 (plastic spacer)	¾"



Plastic version



PEX/Aluminium/PEX



PEX



Distance Pipe

Metal pipes version (white)

LCD code	Compatible pipes	Outer diameters
[Cu __	Copper	15, 18 or 22
[Cr __	Chromed copper	15, 18 or 22



Metal version



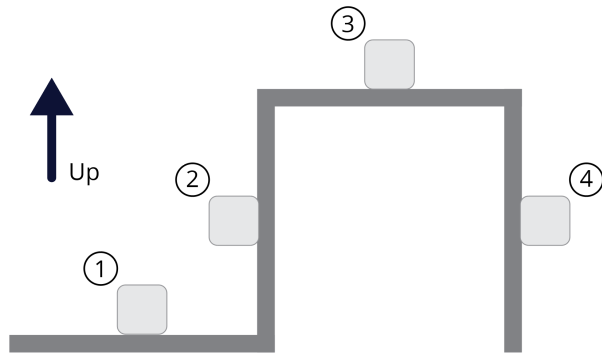
Copper



Chromed copper

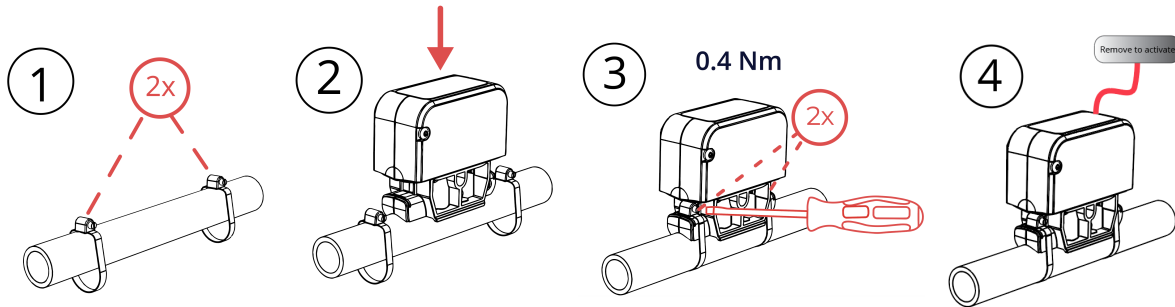
INSTALLATION GUIDE

To install the CubicMeter, you must first locate the inlet pipe(s) to your home, before they branch out to the different outlets, such as the shower, toilet, etc. Make sure that the water pipes are not bent or damaged and do not contain any air bubbles. If the installation is not made correctly, Quandify cannot guarantee metering accuracy.



- 1 - Acceptable position.
- 2 - Acceptable position.
- 3 - Not recommended, air build-up may occur.
- 4 - Acceptable position.

The device may be rotated vertically around the pipe if needed.



4. Remove the activation sticker. Select pipe setting by holding the sticker over the IR-eye and releasing when on the correct pipe.

(See full pipe list on previous page).

Cu 22

Example of Copper 22mm pipe chosen

PAL 20

Example of PAL 20mm pipe chosen

5. Verify on the display that the device measures correctly by turning on the water flow for at least 60 seconds.

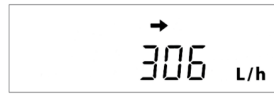


If symbol "no sensing" is shown, verify steps 1-4 or try another mounting position/rotation on the pipe.

Note: The device will start saving data automatically after 1 hour in pipe selection mode. If the activation sticker is put back on for 15s over the IR eye within 1 hour, after it has been removed, the device will revert to its packaging state.

FUNCTIONAL WATER FLOW TEST

1. When the proper pipe has been selected, open any water tap to get a steady water flow.
2. Check the LCD now shows a flow rate (l/h).



306 liters per hour with correct water flow direction

3. Turn off the water by closing the tap and check the flow rate on the LCD that it is now near 0 l/h.

If step 2 or 3 was unsuccessful, please make sure you followed the installation and pipe setup instructions correctly. You can also try to rotate the device around the pipe, in case the pipe has been deformed.

Note that if the meter has been activated for more than 1 hour, it will instead show total water usage in m³.

ANTI-TAMPERING

Attach optional anti-tampering sealing cover and stickers to prevent unauthorized removal of device. Do this only after a verified installation.



WIRELESS CONNECTION

For communication the device needs to be within LoRaWAN or Wireless M-bus coverage. If there is no existing coverage, you can purchase a generic LoRaWAN gateway of your choice, compatible with The Things Network (TTN).



The CubicMeter communicates using 868 MHz radio frequency which allows the meter to be read and controlled remotely using LoRaWAN networks.

To activate LoRaWAN for remote data collection and visualization through our cloud services, create an account on the Quandify portal <https://portal.quandify.com> and register your device(s). You will then also be able to integrate the data into your own application using our API, <https://quandify.com/api>.

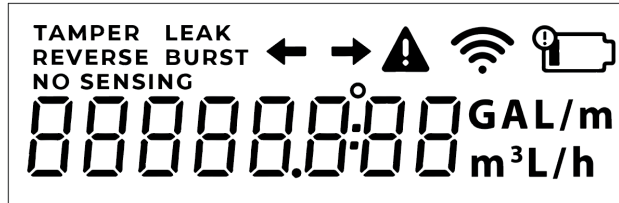


The CubicMeter also communicates with the open wireless M-Bus standard using 868 MHz mode C1, format A and security mode 5. To receive the individual meter encryption key, please fill in the form here: <https://quandify.com/cm1-key-request-form/> using your purchase receipt.

Link to protocol information: <https://quandify.com/wmbus-info>.



DISPLAY



LCD CODE	Description
TAMPER	Attempt to fraud or in other ways affect the meter's behavior.
LEAK	Possible medium leakage detected.
BURST	Possible large leakage detected.
REVERSE	Water is flowing through the meter in the wrong direction.
NO SENSING	Unable to detect water. May be due to the pipe not being filled with water, or a loosely installed meter. Flow is not measured.
	Indicates the current direction of the water flow (left or right).
	Indicates a faulty metering device, or shows a warning together with an error/warning code.
	Indicates successful radio transmissions. A single dot indicates a faulty radio module.
	Low battery, less than 180 days remaining.

The units perform an LCD check every 5 minutes where all segments are blank for 1s and then all segments displayed for 1s as a visual verification of the LCD screen's full functionality.

The following information is then displayed in the following order, 1s per item:

- Firmware version number
- Firmware CRC32 checksum in hexadecimal format
- Current pipe temperature in °C
- Selected pipe setting type
- Event/changelog counter
- If applicable, the last error code logged

SPECIFICATIONS

Battery:	3.6 VDC Li/SOCl ₂ , non-replaceable, up to 10 years
Storage conditions:	5°C ... 55°C
Water temperature:	0.1°C ... 70°C (T70)
Environment:	5°C ... 30°C, indoor usage (B, E1)
Sampling frequency:	1 Hz
Wireless M-bus protocol:	Wireless M-Bus (868MHz, C1, format A)
Wireless LoRaWAN:	EU868MHz (SF12 for RX2), 1.0.2-revB, OTAA
LoRaWAN data resolution:	1 hour*
Maximum flow rate (Q ₄):	3 125 l/h
Small leak detection:	>1-9 l/h** over several days (Only using Quandify platform)
Medium leak detection:	>10 l/h for at least 40 min
Large leak detection:	>1500 l/h for at least 5 min
Weight:	280 grams (excluding packaging)
Dimensions:	Width: 40 mm, height: 79 mm, length 87 mm

**More frequent data transmission can be enabled through different subscriptions. Fastest transmission rate is once every 15 minutes.*

***Depending on pipe size & material*

MAINTENANCE & SERVICE

CubicMeter is maintenance-free throughout the life of the meter, which is up to 10 years.

Check the LCD display for any warnings or error messages. A list of error/warning codes and its meaning is available here:

<https://quandify.com/product-documents/cubicmeter/error-codes.pdf>.

If a unit is faulty, please contact your authorized distributor for further assistance. All service, including battery replacement must be performed by an authorized Quandify service center.

Some configuration options can be performed via the meter's built-in optical eye or LoRaWAN by authorized personnel.

If external parts need to be replaced, such as pipe clamps and covers, only original manufacturer spare parts should be used. Replacements should only be done by authorized personnel.

To uninstall a meter from a pipe, use a screwdriver to bend away the two tamper-seal covers until it breaks and can be removed. Use pliers to cut the two metal fastening clamps around the pipe. The meter can then be removed.

For more information or support, go to <https://quandify.com/support>.



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