ULTRAWATER®W370
ULTRAWATER®W270

Ultrasonic Water Meter W370; W270

Technical description

32 24 101 001 c

Date : 2025-09-12

Landis+Gyr GmbH

Contents

1 General

Note: In the following text, the term “meter” is used to refer to meters for hot as well as for cold water.

Other available documentation

- Operating and installation instructions W370, W270
- Brochure W370, W270
- Hygiene concept W370, W270
- Data sheets W370, W270
- Price list W370, W270
- Communication descriptions (TKBs) W370, W270

Further information is available on request.

Scope of delivery

1. Water meter
2. Operating and assembly instructions
3. Optional 2 x gasket
4. Optional non-return valve

Accessories

Sealing clamp DN15	
Sealing clamp DN20	
Non-return valve DN15	
Non-return valve DN20	
Gasket DN15	
Gasket DN20	
Water meter installation kit DN15	zero lead content
Water meter installation kit DN20	zero lead content

2 Safety instructions

Only use these meters in technical supply systems and only for the applications described.

Comply with all local regulations (relating to installation, etc.).

During use, observe the operating conditions itemised on the nameplate. Failure to comply with these regulations can cause dangerous situations and would void all liability claims arising from defects as well as liability founded upon any expressly granted forms of warranty.

Never carry out welding, drilling or soldering work near the meter.

Protect the meter from damage due to shocks or vibrations at the installation location. Do not use near electrical power systems.

Only personnel trained and qualified in the installation and operation of meters in supply systems may install and remove the meter.

The meter is designed for drinking water systems. When installing, take appropriate hygiene measures.

- Do not remove the meter from its packaging until you reach the installation location.
- Wear disposable gloves.
- Clean and disinfect the relevant tools before installation.

Protect the measuring tube and threaded surfaces from contamination and contact.

Pay attention to sharp edges on threads and the measuring tube.

After installing the meter, check that the system does not leak.

The meter is valid for disposal as waste electronic equipment as defined in the European Directive 2012/19/EU (WEEE). Never dispose of it with household waste. Comply with the applicable national and statutory regulations and dispose of the device using the channels provided for this purpose. Comply with local and currently valid legislation.

The meter contains lithium batteries. Do not dispose of the meter and batteries as household waste. Comply with local regulations and legislation regarding disposal.

After lithium batteries have been used, you can return them to the manufacturer for proper disposal. When shipping batteries please comply with statutory regulations. Among other things, these govern the labelling and packaging of hazardous goods.

Do not open the batteries. Do not bring batteries into contact with water nor expose them to temperatures exceeding 80°C.

The meter has no lightning protection. For protection, provide a connection to the lightning conductor on the building.

Note: The LoRa Alliance® is an open, non-profit association with the mission to support and promote the worldwide adoption of the LoRaWAN® standard, the leading LPWAN (Low Power Wide Area Network).

3 Technical data

Note: Please note the information on the meter!

Metrology	
Measuring accuracy	Class 2 (OIML R49)
Measuring range	R250 (optional: R400, R160)
Temperature class	T50 (cold water), T70 (hot water)
Measuring interval	1/s
Power supply	
Type of power supply	Battery for 15 years (+2 years storage time)
Battery type	D cell lithium
Lithium content	4.9 g per battery
Number of batteries	1
Communication	
Types of communication	LoRaWan®/wM bus or NB-IoT
App support	Yes (UltraConnect, Info Finder)
Maximum radiated power (dBm)	NB_B20: 23.4 NB_B8: 24.0 NB_B5: 23.4 NB_B3: 28.9

4 Dimensions

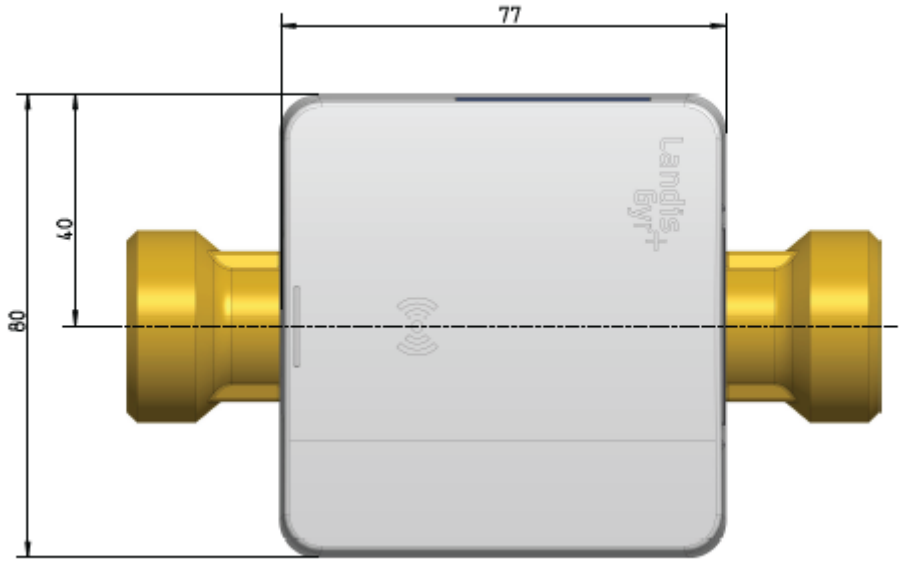


Fig. 1: Calculator dimensions

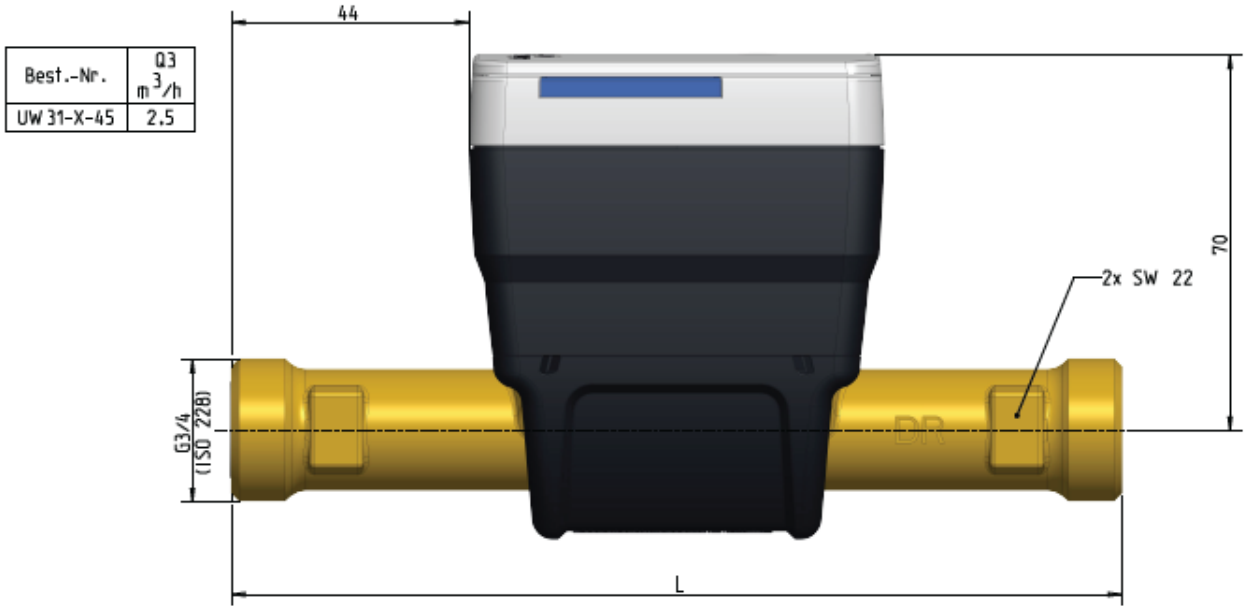


Fig. 2: Dimensions, total DN15

Best.-Nr.	Q3 m^3/h
UW 31-X-55	2,5
UW 31-X-85	4

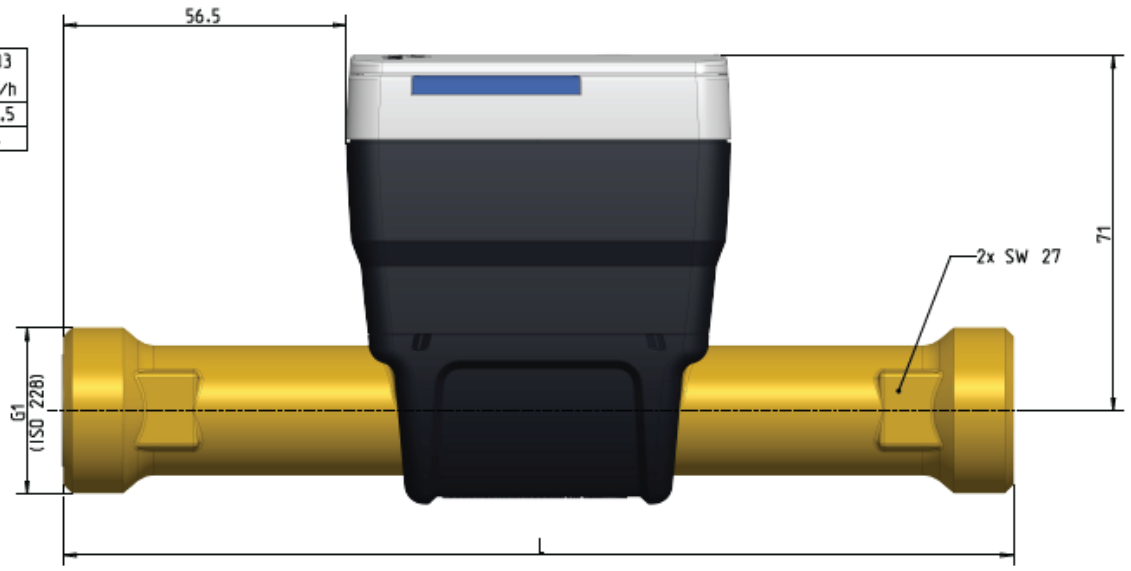


Fig. 3: Dimensions, total DN20

Best.-Nr.	Q3 m^3/h
UW 31-X-60	2.5
UW 31-X-90	4

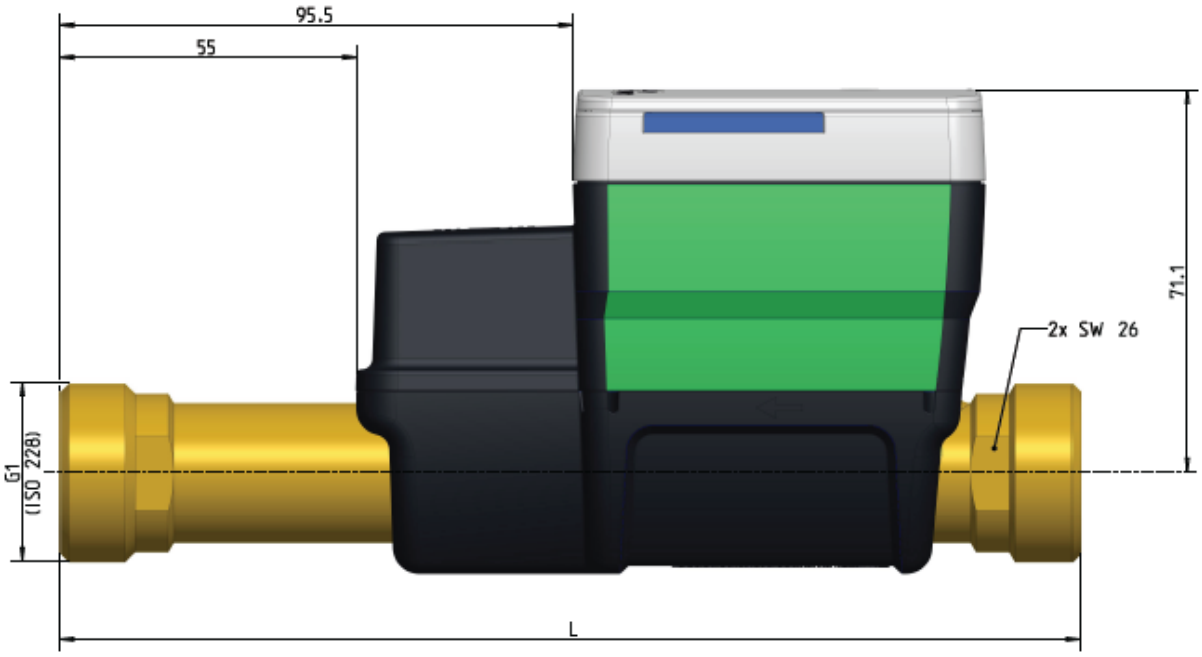


Fig. 4: Dimensions, total with leakage detection

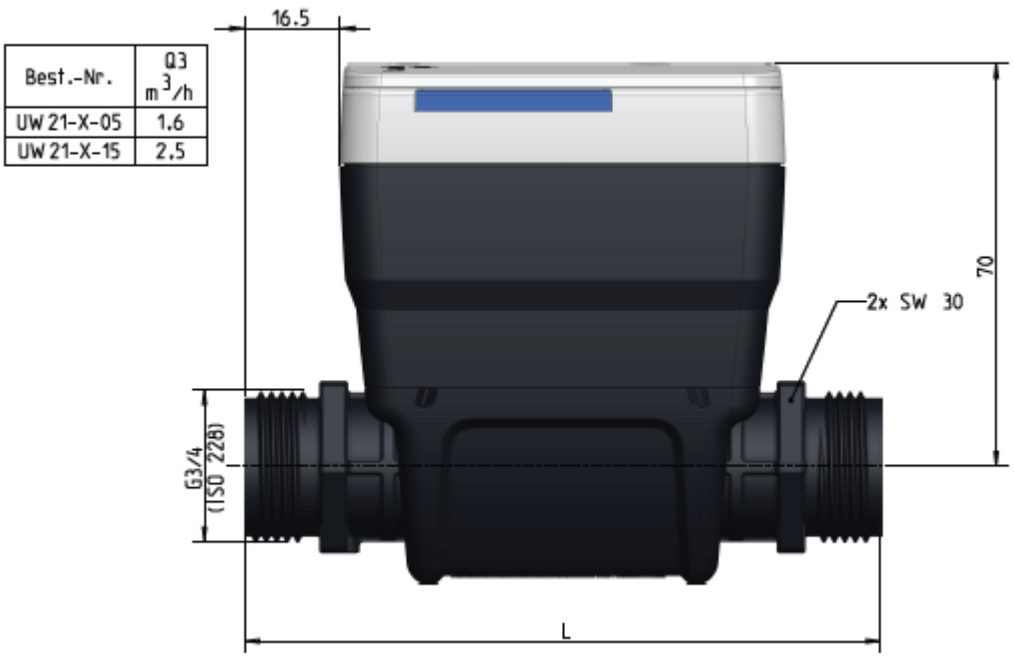


Fig. 5: Dimensions, total, plastic DN15

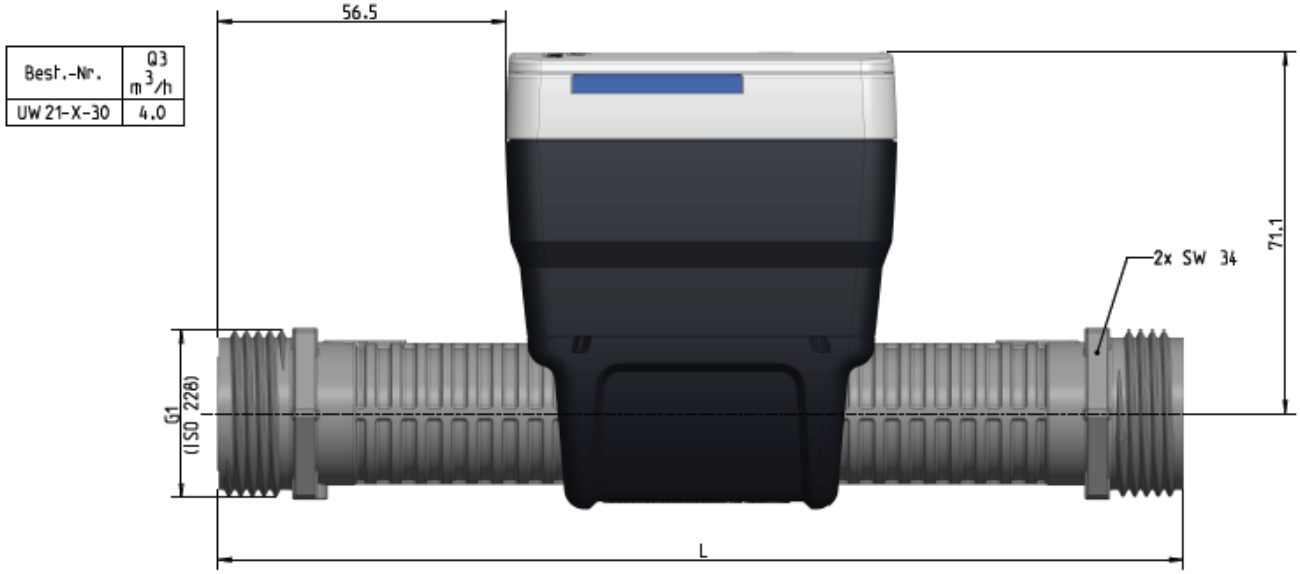


Fig. 6: Dimensions, total, plastic DN20

5 Installation and environmental conditions

Note: Please note the information on the meter!

Installation conditions	
Pressure class	MAP 16 (up to 16 bar)
Installation position	Any, horizontal or vertical
Inlet and outlet sections	U0D0 (none required)
Water temperature cold water meter T50	0.1…50 °C
Water temperature hot water meter T70	0.1...70 °C
Strainer	Standard
Non-return valve	Optional
Environmental conditions	
Environmental class	O (OIML R49) for outdoor installations
Mechanical class	W270 M1 (MID); W370 M1 (MID)
Electromagnetic class	W270 E1 (MID); W370 E2 (MID)
Protection class	IP68
Max. altitude	2000 m NN
Ambient temperature	-10 … +65 °C (for running water)
Storage temperature	-20 … +70 °C
UV protection	Stabilised

6 Installation

Note: When installing, follow the instructions in chapters 2 and 3.

Note: Check the dimensions of the meter and whether there is sufficient free space.

Note: The meter must not be exposed to any loads or forces from pipes or fittings. If this cannot be guaranteed in the long term, improve the installation location or fix the pipes, e.g. with suitable connection clamps.

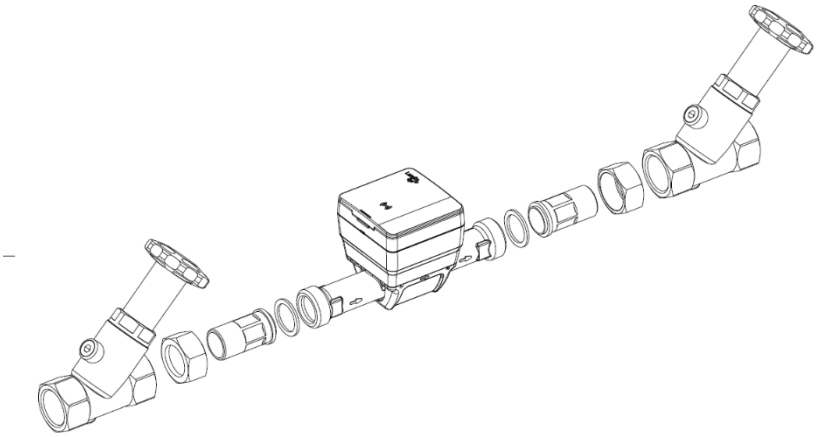


Fig. 7: Example installation

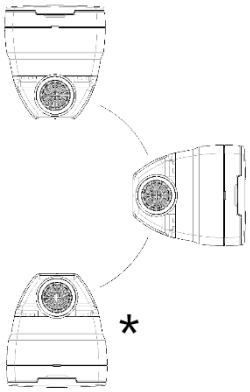


Fig. 8: Recommended installation position

*) This installation position is not permitted for:

W270	**W370**
DN20; 190 mm; q³ 2.5	DN20; 190 mm; q³ 2.5
	DN20; 130 mm; q³ 2.5

Proceed as follows to install the meter.

1. Close all valves before and after the installation location.
2. If necessary, remove the old meter. Collect the excess water in a suitable container.
3. Remove the old seals and any remains of Teflon tape and hemp.
4. Clean the thread of the union nuts and the sealing surfaces on the screw threads.
5. Check that the seal is correctly seated and not damaged.
6. If you are using a non-return valve, check that it is correctly placed on the meter (see chapter 7. Non-return valve).
7. Mount the meter horizontally or vertically so that the arrow on the meter body and the flow direction match.
8. Tighten the screw threads. Observe and use the tightening torques and the corresponding angle of the union nut contact given in the following table.

Gasket	Novapress basic	
Meter thread	¾“	1“
Tightening torque	10– 15 Nm	25– 30 Nm
Angle of contact	45 – 60°	45 – 60°

9. Make sure that the union nut is correctly positioned.
10. Ensure that all connections are firmly tightened and that the meter is properly installed.
11. Open all valves before and after the installation location and vent the system.
12. Check the installation for leaks.
13. Seal the screw connection to protect it against manipulation (see chapter 8. Sealing).

7 Non-return valve

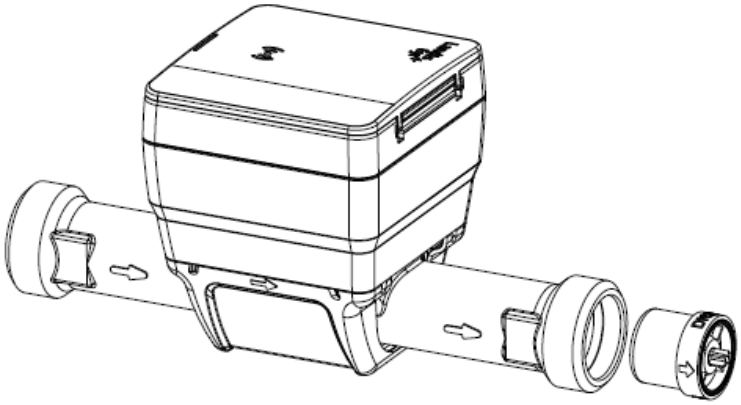


Fig. 9: Installation of non-return valve (available as accessory)

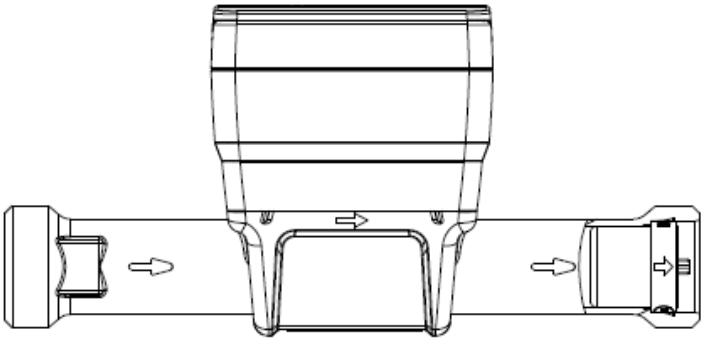


Fig. 10: Example of a non-return valve in the installed state

8 Sealing

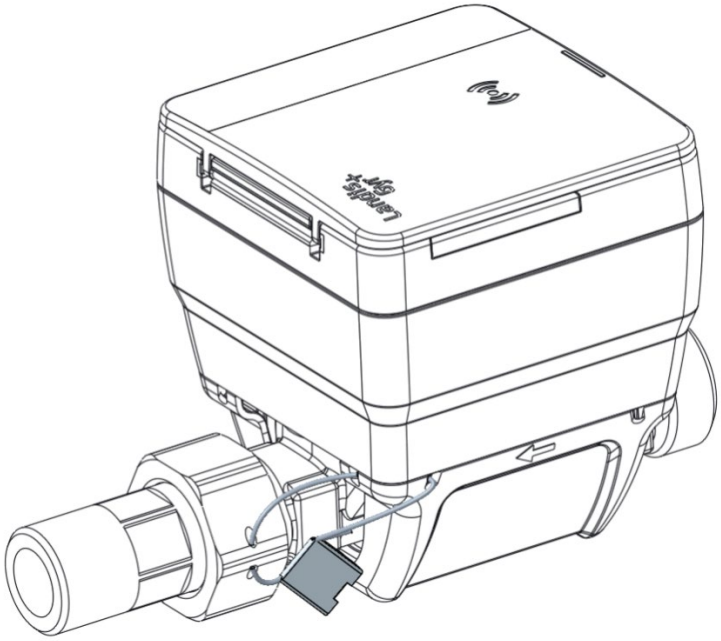


Fig. 11: Example of sealing with a wire seal

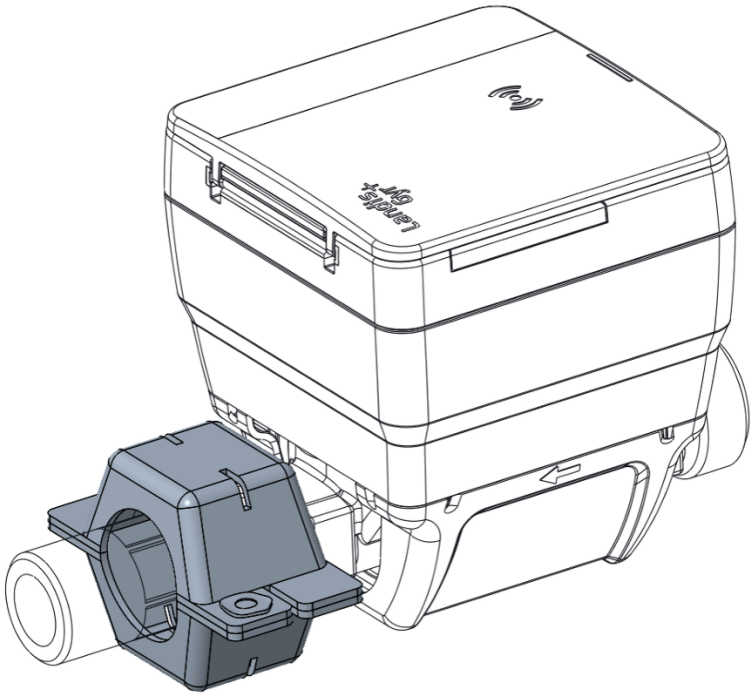


Fig. 12: Example of a seal with a sealing clamp (available as an additional element)

9 Automatic start-up

Note: The meter can be activated manually via the UltraConnect app.
Automatic start-up can optionally also be deactivated ex-factory.

- The meter automatically starts measuring and communicating when the measuring tube is filled with water.
  - The measuring grid changes from 100 secs to 1 sec.
  - The interface connects to the network
- The SLEEP display changes to a normal display.
- With ⇧, the display shows the correct direction of flow and the flow display shows the prevailing flow rate.

10 Display

Note: To avoid errors when reading the meter, the decimal places of displayed values are in superscript.

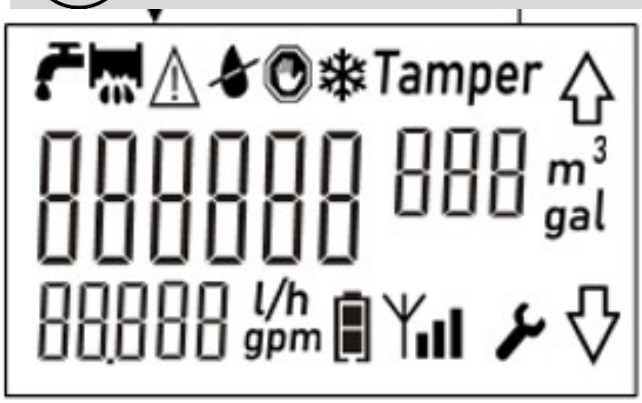


Fig. 13: LCD

Symbol	Description
⇧	Positive flow
888888 888	Current volume
m³ or gal	Unit of volume
88.888	Current flow
ltrs/hr or gpm	Unit of flow
Y	Communication interface active Connection to LwM2M server active
Y	Signal strength for LoRaWan® or NB-IoT

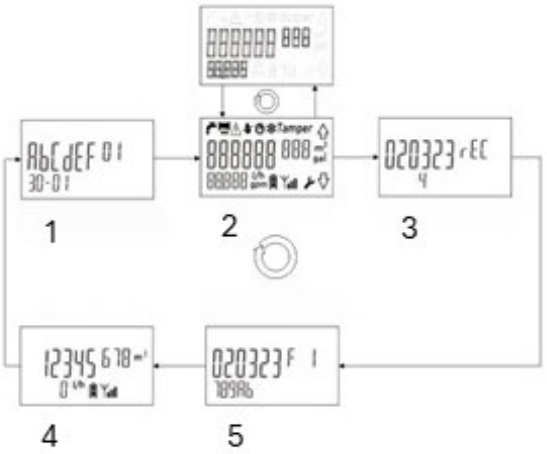


Fig. 14: Overview

Number	Description
1	Hash value and firmware version
2	Segment test
3	Logbook – recalibration
4	Volume and flow display
5	Logbook – firmware update

If the meter does not detect any active flow, it displays a loop with additional information every 30 seconds.

11 Battery supply

Note: When shipping the device, please observe local regulations regarding hazardous goods.

Type of power supply	Battery for 15 years
Battery type	D cell lithium
Lithium content	4.9 g
Nominal voltage	3.6 V
Number of batteries	1
Battery change	No

For more details on battery life, please refer to the Annex, Battery Lifetime.

12 Communication

12.1 LoRaWan® / Wireless M-Bus

LoRaWan®	
Version	1.0. 3
Frequency range	868 MHz
Class	A (bidirectional)
Activation	OTA or ABP
Data format	M-Bus
Transmission interval	1 hrs, 12 hrs, 24 hrs
Automatic start-up	yes
Downlink configuration	yes
wM bus	
Standard	Open Metering System Specification OMS (Version 4) EN 13757-4; Mode T1, C1
Frequency range	868 MHz
Transmission power	10 dBm
Range-free field	Up to 400 m
Battery life	Up to 15 years
Data telegrams	8 predefined telegrams; User-defined telegrams with UltraConnect

12.1.1 Predefined data telegrams

Note: In addition to the predefined data telegrams, two further data telegrams can be created with UltraConnect.

Data telegram 0

The following data is available for capture.

- Volume forward
- Water temperature
- Target date volume forward
- Date target date
- Battery life (date)
- Error

Data telegram 1

The following data is available for capture.

- Volume forward
- Water temperature
- Target date volume forward
- Date target date
- Battery life (date)
- Error
- AUC (leakage data)

Data telegram 2

The following data is available for capture

- Target date volume forward
- Date target date
- Battery life (date)
- Error
- Serial number

Data telegram 3

The following data is available for capture

- Target date volume forward
- Date target date
- Battery life (date)
- Error
- AUC (leakage data)
- Serial number

Data telegram 4

The following data is available for capture

- Volume forward
- Volume backward
- Date target date

- Target date volume forward (13x wM bus, 2x LoRaWan®)
- Battery lifespan (Date, only LoRaWan®)
- Error

Data telegram 5

The following data is available for capture

- Volume forward
- Volume backward (only wM bus)
- Current flow (only wM bus)
- Water temperature
- Flow histogram
- Downtime
- Zero flow days
- Volume forward
- Battery life (date)

Data telegram 6

The following data is available for capture

- Volume forward
- Error

Data telegram 7

The following data is available for capture

- Volume forward
- Error
- AUC (leakage data)

Data telegram 8

The following data is available for capture

- Target date volume forward
- Error
- AUC (leakage data)

12.1.2 Alternating data telegrams for wM bus and LoRaWan®

Meters with a wM bus and LoRaWan® interface can send an alternative telegram at regular intervals in addition to a main telegram. This option can be used for the wireless transmission of further data.

Example

Select one option		Explanation
Main telegram	0	The following data are transmitted. • Volume forward • Water temperature • Target date volume forward • Date target date • Battery life (date) • Error
Alternative telegram	7	The following additional data are transmitted. • Volume forward • Error • AUC (leakage data)
Transmission interval	15 mins	Data is sent in 15 minute intervals.
Telegram modifier (data set modifier)	4	The meter sends a ‘5’ telegram after every 4 ‘0’ telegrams. 

12.1.3 Remote configuration of data telegrams for LoRaWan® communication

The main telegram, the alternative telegram, the transmission interval and the telegram modifier can be changed remotely.
Further information can be found in the communication description for LoRaWan®.

12.1.4 Further documents

Detailed descriptions of the communication behaviour and the data model can be found in.

- TKB3569 Description of the WM1 LoRaWan® Interface
- TKB3570 Description of the WM1 wM bus Interface

12.2 NB-IoT

Note: Meters with NB-IoT communicate via the public mobile network. No dedicated infrastructure, such as gateways or antennas, is required.

Note: Meters with NB-IoT are equipped ex-factory with an eSIM in MFF2 format and are pre-configured accordingly.

Note: eSIM is not replaceable.

NB-IoT	
Standard	NB1 & NB2
Provider	Landis+Gyr Connectivity Service, others on request
Protocol	OMA LwM2M
Battery life	15 years (at daily transmission)
Firmware updates over-the-air	Yes (all meter firmware)
3GPP	Version 13, 14
Transmission interval	8 h, 12 h, 24 h
Automatic start-up	yes
Downlink configuration	yes
Special functions	Immediate alarm transmission; Queuing (retrying failed transmissions); Downlink configuration Reading the dynamic data logger
Frequency ranges	3 (1805-1880 MHz, 5 (869-894 MHz), 8 (925-960 MHz), 20 (791-821 MHz), on request. 28 (758-803MHz)

12.2.1 Protocol

The meter communicates via the OMA LwM2M protocol (Open Mobile Alliance, Lightweight Machine-to-Machine).

Details of LwM2M, including the data model, can be found at: openmobilealliance.org/lwm2m/

12.2.2 Data service

Note: eSIM is not replaceable.

Note: For the communication to function, the data service must be completed together with the eSIM from Landis+Gyr.

The data service includes:

- SIM management,
- SIM activation,
- network availability planning,
- roaming,
- data transmission,
- support in the event of problems and
- security features.

12.2.3 Security

NB-IoT uses the same security programme as LTE. This includes authentication, data encryption and signed firmware updates.

Separation from public data networks	• VPN • Private APN
Data encryption	DTLS encryption with PSK
Certification of software updates	X.509 certificates for updates

12.2.4 Settings

The meters which are pre-configured ex-factory can be installed and put into operation without any further settings. Additional order information is required for this function.

The information required for this can be found in the chapter Additional order details for NB-IoT communication

12.2.5 Transmitted data

Note: Real-time alerts are sent immediately when they occur.

The meter transmits data daily by default. These are randomly transmitted in a 4-hour time window at 02:00.

The following data are transmitted.

- Connection data and connection quality
- Current data
  - Volume
  - High-resolution volume
  - Flow
  - Temperature
- Interval data
  - Water consumption in 30-minute resolution
  - possible: 5 mins, 15 mins, 30 mins, 60 mins
- Statistical values
  - Max. flow
  - Max. temperature
  - Average temperature
  - Min. temperature
- Battery level
- End-of-life date
- Zero flow days
- Operating hours
- Absences
- Leakage data
- Alarms and alarm data

Detailed information on the transmitted data and communication can be found in

- Communication description TKB3564

12.2.6 Behaviour in the event of a network failure

It may occur that the meter cannot find a mobile network provider or loses an existing connection. To (re)establish the data connection to the LwM2M server, the meter regularly performs a PLMN search, whereby the time intervals between unsuccessful searches are gradually increased. It continues to search with the longest time interval.

12.2.7 Catch-up function

If the meter cannot connect to the LwM2M standard server (e.g. if the mobile network or the LwM2M server is not available), the meter tries to reconnect to the server.

After a successful reconnection, the meter sends the following data that has not been transmitted.

- Interval data
  The amount of data depends on the configuration of the interval period of the water meter interval data objects and the available memory.
- Event data with current status.
  The meter compares the current alarm status with the last reported status before the failure. The current alarm is only transmitted if the two statuses are not identical.
- Event data with status change protocol and event protocol. The entries that occurred during the outage are sent, with the number of entries depending on the available memory in the meter.

12.2.8 Further documents

Detailed descriptions of the communication behaviour and the data model can be found in

- TKB3564 NB-IoT Interface Description for W270/W370

13 Hygiene Concept

Landis+Gyr GmbH, based in Nuremberg, has developed a comprehensive hygiene concept for its W270/W370 water meters, which ensures the highest standards of cleanliness and safety for drinking water installations. The document contains the following key points.

13.1 General Hygiene Requirements

This emphasises the need for cleanliness in the transport, storage, installation and processing of components to prevent contamination of drinking water.

13.2 Purpose

This ensures that all water meters are delivered in a hygienic, flawless and safe condition and are ready for use in drinking water installations.

13.3 Drinking water approvals

The meters meet the national drinking water approvals in Germany (DVGW), Italy (DM 174), France (ACS) and Great Britain (WRAS).

13.4 Components

Only materials that comply with the German Drinking Water Ordinance (TrinkwV 2023) and the European Drinking Water Directive (EU) 2020/2184 are used. The components meet technical standards such as UBA (KTW-BWGL), DIN 50930-6, DIN EN 16421, DVGW worksheet W270 and the 4MS list.

13.5 Production

A high level of hygiene awareness is maintained throughout production, and employees are trained to carefully monitor and execute the processes. The quality management system is certified according to ISO 9001:2015.

13.6 Testing

Water meters are tested with disinfected water. The meters as well as the test water are tested for microorganisms on a regular basis. If contamination is detected, the affected test benches are taken out of service for cleaning in accordance with the DVGW W291 and W557 guidelines.

13.7 Drying, packaging, storage, dispatch

The meters are dried, fitted with caps, individually packaged and stored at low temperatures to prevent bacterial growth. This minimises storage time before dispatch.

13.8 Installation

Detailed hygiene measures for the installation are included in the accompanying manual to ensure proper handling and disinfection.

13.9 Quality management

The hygiene concept is integrated into L+G's quality management system and complies with DVGW worksheets W263 and W264 as well as the ISO 9001:2015 standards.

14 Materials

Description	Material
Volume measuring part brass*	EN 12420, CuZn21Si3P
Measuring insert*	PPA-GF40, 1.4571 +2B
Snap ring*	PA 6I/6T
Strainer*	PA 6I/6T
O-Ring 10x2*	EPDM
Housing seal*	VMQ
Vibration sensor holder	PC GF10
PCBA Vibration sensor	Electronic materials
Piezo vibration sensor	851-Si, lead zirconate titanate, PZT
Damping body vibration sensor	CuZn39Pb3
Spring vibration sensor	1.4568
Housing	PC GF10
Pressure compensation element	PTFE
Screw, 3 x 12, M4 x 12	Steel A2 (stainless steel)

Mounting plate for transducer	S275JR (1.0044)
Battery	Lithium thinyl chloride battery with cable
Battery holder	PC GF10
Screw, 4 x 16	Steel, zinc coated
PCBA, antennas	Electronic materials
Front cover	PC, PC GF10, TPE
Colour clip	PC
Cover	PC GF10
Bottom shell	PC GF10

* Parts in contact with water

15 Vibration sensor to detect leakage on the W370

Note: The leakage sensor is only available for W370.

Note: Please note the available lengths. 190 mm DN20 and 154 mm DN20.

The optional vibration sensor can be used to detect leaks in water networks, even upstream of the meter. The sensor detects the vibrations caused by the water flow.

Highlights

- Integrated leak detection
- Detection upstream and downstream
- Monitoring of vibrations in the network
- 15 years of battery life
- Data transmission via the interface of the meter (NB NB-IoT, LoRaWan®/wM wM bus)

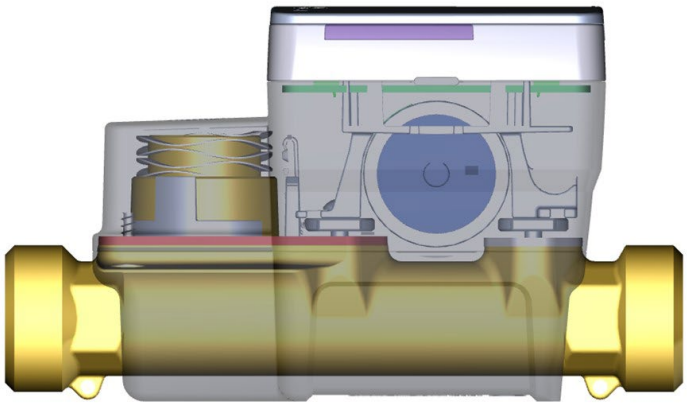


Fig. 15: Interior view W370 with leakage detection

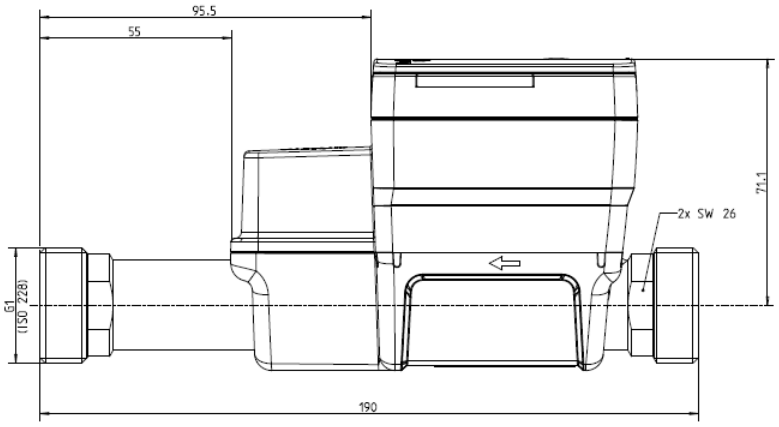


Fig. 16: Dimensions W370, length 190

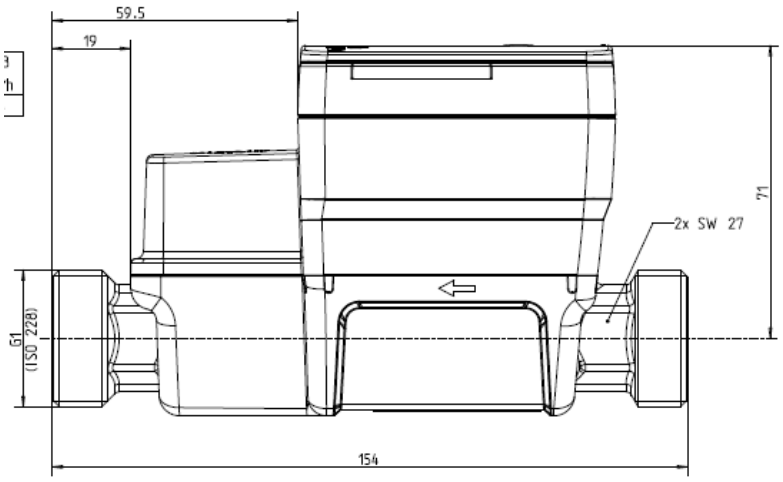


Fig. 17: Dimensions W370, length 154

Sensor technology	
Sensor type	SOTTO® by IOTA
Principle	Piezo-electric sensor with a spring-loaded seismic mass attached to the brass housing of the meter
Frequency range	0 – 1200 Hz
Resolution	4.7 Hz
Number of measurements per day	9
Range	Depending on leak size and network structure: up to 80m
Data	
Transmitted data	• Area under curve (AUC) – total of all amplitude peaks • Time stamp • Alarm status – presence of an alarm • Peak frequency • Flow display
Meter integration	
Battery life	Up to 15 years with NB-IoT or LoRaWan®
IP class	IP68 submersible
Available meter sizes	• DN20, 190 mm, Q3, 4 m³/h • DN20, 190 mm, Q3, 2.5 m³/h • DN20, 154 mm, Q3, 4 m³/h
Metrological approval	• 190 mm, 2014/14/EU (MID) • 154 mm: NMI
Hygienic approval	All W370 approvals apply (e.g. WRAS, DVGW, ACS

15.1 Function

Fig. 18: Example of leakage detection

Vibrations are always present as background noise (caused by road traffic, machines, weather conditions, etc.). By positioning the sensor directly on the measuring tube of the water meter, the vibrations caused by leaks stand out clearly from the background noise.
The leak sensor monitors a frequency range of 0-1200 Hz. If the area under the graph (AUC Area Under Curve) increases, this indicates a leak.

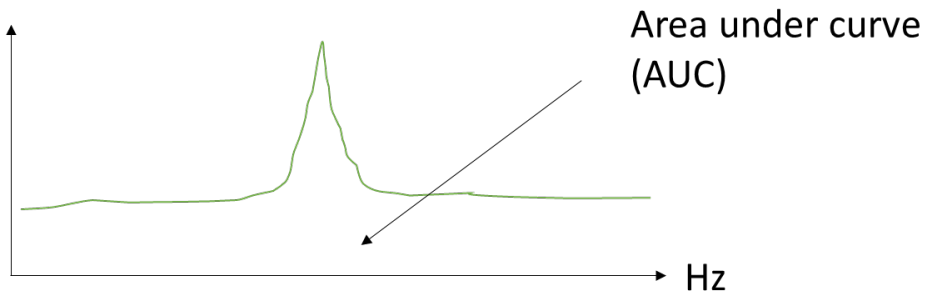


Fig. 19: Overview AUC

The water meter takes 9 vibration measurements between 1 and 2 a.m. every night and uses them to calculate the current AUC value.

15.2 Transmitted data

LoRaWan® / wM bus	AUC value (area under the graph)
NB-IoT	• Time stamp • Alarm state • Number of measurements that have exceeded the alarm threshold • AUC value (area under the graph) • Number of measurements at the current flow (indication of intentional consumption) • Peak frequency

15.3 Example

```
[109, 3, [[1632067203, 1, 2, 25560, 2, 1195]]]
```

Code	Explanation
109	Event code (static value)
3	Event type (static value)
1632067203	Time stamp in EPOCH
1	Alarm state 0 or 1 (Boolean value)
2	Value representing the number of leak readings (of the 9 samples taken) that exceeded the alarm threshold.
25560	Area Under Curve (AUC) value. This is the value representing the sum of all peaks for the combined median profile from the Sotto-Sensor® readings.
2	A value indicating how many of the leakage measurements (i.e. out of 9) were detected while there was flow through the meter (i.e. the meter checks if the current flow value of the meter is > 0 ltrs / hr). This value is used as a quality check to rule out consumption by the customer as a probable cause of vibration alarms.
1195	Represents the peak vibration frequency of the frequency spectrum. For example, if the peak is found in bin 71, the returned value is 71 * 4.75 HZ = 340 Hz. This value only counts the peak frequency from bin 70 (i.e., ignoring the first 70 frequency peaks and the last frequency 255).

16 Alarms

W270 and W370 can detect various events and alarms. If the meter detects such an event, the following reactions are triggered.

- Entry in the logbook
- For real-time alarms. Immediate sending of an alarm message via NB-IoT
- Display on the screen (for some alarms)

16.1 Properties of alarms

Event type	Explanation
0 – Deactivated	Nothing is transmitted and no information is shown on the display. The alarm is still evaluated according to the configuration and changes in the alarm state are logged in the logbook.
1 – Alarm current state	The alarm current state is transmitted via NB-IoT at each scheduled data transmission, but only if its state has changed.
2 – Alarm state change log	Events are stored in the meter and the alarm state is updated accordingly. The maximum number of entries in the state change log is limited to 48 for all alarms. The oldest entries are overwritten.
3 – Event Log	Logging behaviour as in the alarm state change log

16.2 Real time

Attention: For devices with LoRaWan® and wM bus, real-time alarms are only sent correctly if they are configured as event type 2 (alarm state change log).

Attention: When event limiting is set (event count max), repeated alarms may not be sent depending on the setting.

For real-time alarms, the alarm message is sent immediately; for other alarms, it is sent with the next scheduled data transmission.

16.3 Autoclear

Autoclear defines whether an alarm is deleted immediately after it is sent.

0 – off	The alarm state is not deleted after sending. Depending on the configuration, a deletion event, a manual deletion or a regular deletion can reset the alarm.
1 – on	The alarm condition is cleared after successful (!) transmission. The point in time depends on the configuration of the real-time alarm and the event type.

16.4 Event limit (event count max)

As soon as a specific event occurs, a timer starts with a runtime of 24 hours for the event period. During this time, only a limited number of events are generated, the number of which is set to the maximum number of events.

16.5 Alarm conditions and thresholds

Alarms have specific thresholds and/or alarm conditions that cause the alarm to trigger or reset.

16.6 Alarms

Error code	Events	Description
	**Leakage alarm**	Detects leaks on the consumption side due to continuous flow (no 0-flow for at least 15 minutes in 24 hours)
	Alarm state change log | *Non-real time* | *No autoclear* | *Event count max 1/day*	
	**Burst pipe alarm**	Detects large leaks and burst pipes by monitoring sustained high consumption (flow of more than 900 ltrs/hr for 60 mins).
	Alarm current state | *Real time* | *Autoclear* | *Event count max 1/day*	
	**Stagnation warning**	Detects stagnation or blockages in the pipe when there is no flow for more than 72 hours. The alarm is reset when 20 litres have flowed through.
	Alarm state change log | *Non-real time* | *No autoclear* | *Event count max 2/day*	
	**Backflow alarm**	Detects water flowing through the meter in the wrong direction. Display symbol: above the flow direction indicator.
	Alarm current state | *Real time* | *Autoclear* | *Event count max 1/day*	

	**Dry meter**	Detects that there is no water in the measuring tube (this can also occur if the transducers are damaged or if there is something other than water in the measuring tube, such as ice or sludge).
TAMPER	**Tampering alarm**	Detects tampering attempts via the NFC interface (multiple access attempts without a valid certificate)
	Alarm state change log | *Real time* | *Autoclear* | *Event count max 1/day*	
	Temperature alarm (temperature too high)	Detects water temperature that is too high. The alarm is set at 50°C and cleared at 45°C.
	Alarm state change log | *Non-real time* | *No autoclear* | *Event count max 2/day*	
	**Temperature alarm (temperature too low)**	Detects water temperature that is too low. The alarm is triggered at a water temperature below 5°C and cleared at a temperature above 7°C.
	Alarm state change log | *Non-real time* | *No autoclear* | *Event count max 2/day*	
	**Ice alarm**	Detects water temperatures near freezing (2°C for 1h).
	Alarm current state | *Real time* | *No autoclear* | *Event count max 1/day*	
	**Low battery warning**	The calculated remaining battery life is less than 180 days.
	Alarm state change log | *Non-real time* | *No autoclear* | *Event count max 1/day*	
	**Battery voltage low (ID111) or empty (ID 123)**	Detects a drop in battery voltage to below 3.15 V (battery empty or defective)
	Low: Alarm state change log | *Non-real time* | *Autoclear* | *Event count max 2/day* *Empty: Alarm state change log* | *Non-real time* | *No autoclear* | *Event count max 1/day*	
	Incorrect installation (ID 124)	The meter detects installation against the flow direction if the reverse volume is greater than the forward volume. Incorrect installation is only detected if the measured forward volume is still below 1000 ltrs).

	Alarm current state | *Non-real time* | *No autoclear* | *Event count max 1/day*	
	Maximum flow exceeded (ID 125)	Detects flow from 1.25x Q4 Example For a meter with a nominal flow Q3=4m³/h, Q4 is 5m³/h. The alarm message is then triggered at 6.25 m³/h.
	Alarm state change log | *Non-real time* | *Autoclear* | *Event count max 1/day*	
⚠	**General error (ID 127)**	An internal error has occurred, e.g. a memory error, an error in the measuring electronics or the meter is dirty.
	Alarm current state | *Non-real time* | *Autoclear* | *Event count max 1/day*	

Other events

	Reset (ID113)	The device has restarted
	Time synchronisation (ID 114)	The device time has been updated
	Firmware update	A firmware update has been performed
	Adjustment	The meter has been adjusted
	Commissioning	The meter has been activated for the first time
	Bubble detection	There are bubbles in the volume flow
	Calculator temperature too low	The temperature in the electronics housing is below 0°C
	Configuration	Adjustment values changed
	Configuration	Device time changed
	Configuration	Data log deleted
	Configuration	Historical data deleted

	Configuration	Min/max values deleted
	Configuration	Times deleted
	Configuration	Communication interface configured via NFC

17 UltraConnect

The meter has an NFC interface according to ISO/IEC 14443.

- The NFC interface is used to read the devices (e.g. for troubleshooting), to configure and test and adjust them.
- The NFC interface is secured by X.509 certificates. This means that only authorised users with certain user rights can access the meter. Furthermore, access is only possible with signed Landis+Gyr software.

Landis+Gyr offers the UltraConnect service software for this purpose.

UltraConnect is available for Android (from Android 6) via the Google Play Store*. An Android smartphone or tablet with an NFC interface is required for the connection.

UltraConnect enables the following actions.

- Read data
- Analyse consumption data
- Manual start-up
- Set high-resolution display
- Configure meter
- Check meter
- Install firmware updates
- Export and send data

UltraConnect is already equipped with a certificate during the download. This identifies the software as original Landis+Gyr software and also allows read-only access to the meter data (**consumer** certificate).
To ensure that unauthorised access to third-party data does not occur, each meter is also secured with a 6-digit, individual PIN code. You can obtain the PIN code via the electronic delivery note.

To make changes to the device, a certificate with higher rights is required.

- **Installer** Allows manual commissioning (switch on communication interface)
- **Service** Certificate for service technicians, which allows them to change metrologically non-relevant parameters (e.g. communication settings)
- **Lab** Certificate for test laboratories, which allows the devices to be tested and adjusted

Note: To obtain a certificate with higher rights, please contact Landis+Gyr. You will then receive a QR code that can be scanned with the app and initiates the authentication process.

For more information on the certificate process, see Certificate Handling

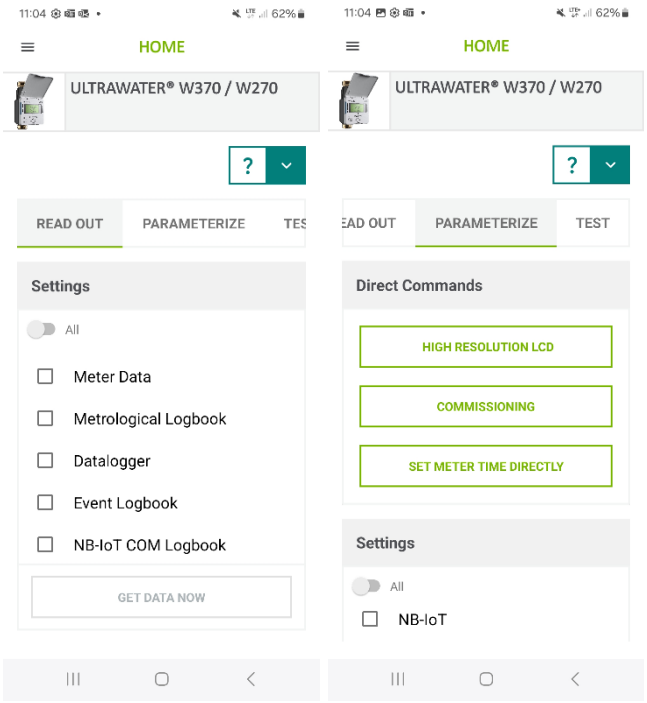


Fig. 20: UltraConnect screenshots

*Windows on request

18 Error messages

The meter regularly performs a self-diagnosis and can recognise and display various error messages.

Error code	Error	Cause/Solution	Reset error via service software
	Leakage	Cause: Constant consumption; solution: Check the installation for leaks.	X
	Burst pipe	Cause: Constant high consumption; solution: Check the installation for burst pipe.	X
	Internal error	Cause: Device error; solution: Notify customer service.	-
	No water in measuring section	Cause: No water in the measuring section; solution: Vent the installation.	-
TAMPER	Tampering	Cause: The meter has detected unauthorised access attempts; solution: Check the meter for tampering.	X
	Stagnation	Cause: Permanent stagnant water: Solution: Flush the installation.	X
	Frost	Cause: Water temperature too low; solution: Protect the meter against low temperatures.	X
	Backflow	Cause: Backflow against the installation direction; solution: Check the installation direction.	-
	Battery warning	Cause: Battery life of <180 days remaining; solution: Plan to replace the meter.	-
	Critical battery level	Cause: Battery voltage too low; solution: Replace the meter.	-

	Test mode active	Cause: Test mode active; solution: Notify customer service.	-

19 Order codes (type designation)

Order designations	
1. Meter series	**Code**
Ultrasonic water meter W370	UW31
Ultrasonic water meter W270	UW21
2. Meter type	**Code**
Cold water meter T50	1
Hot water meter T70	3
3. Size for W370	**Code**
Nominal flow 2.5 m³/h, DN15, installation length 110 mm, pressure class MAP16, connection G ¾"	J0
Nominal flow 2.5 m³/h, DN15, installation length 134 mm, pressure class MAP16, connection G ¾"	J5
Nominal flow 2.5 m³/h, DN15, installation length 165 mm, pressure class MAP16, connection G ¾"	K5
Nominal flow 2.5 m³/h, DN20, installation length 130 mm, pressure class MAP16, connection G 1"	K0
Nominal flow 2.5 m³/h, DN20, installation length 190 mm, pressure class MAP16, connection G 1"	L0
Nominal flow 4 m³/h, DN20, installation length 105 mm, pressure class MAP16, connection G 1"	L5
Nominal flow 4 m³/h, DN20, installation length 130 mm, pressure class MAP16, connection G 1"	M0
Nominal flow 4 m³/h, DN20, installation length 154 mm, pressure class MAP16, connection G 1"	M5
Nominal flow 4 m³/h, DN20, installation length 190 mm, pressure class MAP16, connection G 1"	N0
3. Size for W270	**Code**
Nominal flow 2.5 m³/h, DN15, installation length 110 mm, pressure class MAP16, connection G ¾"	X4
Nominal flow 2.5 m³/h, DN20, installation length 130 mm, pressure class MAP16, connection G 1"	X6
Nominal flow 4 m³/h, DN20, installation length 130 mm, pressure class MAP16, connection G 1"	Y0
Nominal flow 4 m³/h, DN20, installation length 190 mm, pressure class MAP16, connection G 1"	Y4
4. Measuring range	**Code**

R160	01
R250	02
R400	03
5. Communication	**Code**
LoRaWan® + wM bus + NFC	7
NB-IoT (LwM3M) + NFC	9
6. Country / Country of use	
Dial for Germany (German)	DE
English neutral dial	EN
7. Manufacturer's label	**Code**
Landis+Gyr manufacturer's label	00
Other manufacturer's labels available on request	XX
Accessories	
8. Non-return valve	**Code**
No non-return valve fitted ex-factory	0R
Non-return valve fitted ex-factory (max. 65°C, 90°C for short periods)	1R
9. Seals	**Code**
Without seals	0A
1 pair of seals	1A
10. RFID tag	**Code**
Without RFID tag	00
Further order details	
Communication services	**Code**
Connectivity service, integrated SIM card; (requires service contract)	SIM: 01
Special Options / Protocol	**Code**
Default: No protocol	P0
Test protocol (Excel file by e-mail)	PE
Annual set date (default: 01.01.), freely selectable	ddmm
Monthly set date (default: 01.), freely selectable	dd

20 Additional order information

20.1 Additional order details for NB-IoT communication

Note: The meter has an eSIM fitted ex-factory. This is not exchangeable. Therefore, it is always necessary to order the devices with the Landis+Gyr Connectivity Service so that the devices can connect to the network.

For devices with Nb-IoT communication, Landis+Gyr requires the following additional information.

- **SIM card (optional)**
  The meter is equipped with an eSIM ex-factory. For technical reasons, it is not possible to change the provider. Therefore, under special circumstances, it is possible to integrate your own eSIMs ex-factory by agreement.
  "SIM:01" is the designation for Landis+Gyr Connectivity Service SIMs. By default, and if no other information is provided, this option is selected.
- **Bootstrap server**
  A bootstrap server is a special server that handles the initial configuration and management of IoT devices. Its main tasks include providing connection information for the LwM2M server, assigning security parameters and managing access rights. (Example: *coap:\\ichbineinbeispiel.com:5080)*
- **Operator ID (optional)**
  The water meter with Landis+Gyr Connectivity Service automatically searches for the best network for which roaming is allowed. If there is a preference, a preferred network can be specified. (*Example: 26202 for Vodafone Germany, Nb-IoT)*
- **APN (only without L+G Connectivity Service)**
  An Access Point Name (APN) is the name of a gateway that connects a mobile network to another computer network, often the Internet. APN settings are necessary for a device to access the Internet via the mobile network.
  The choice of APN depends on the SIM card installed.
- **Bands (optional).**
  The water meter can communicate on bands 3, 5, 8, 20 and 28. The integrated modem can scan a maximum of three bands. To keep energy consumption low, as few bands as possible should be scanned. The preferred band should be scanned first. Therefore, both the number of bands (1 to 3) and the order of the bands can be selected (e.g. *20, 8, 3*). The default setting is two bands. *8, 20*, suitable for most regions in Europe.

Example of an order with NB-IoT

Pos10:

UW31-1N002-**9**-DE00 0R0A00	Order code
SIM:01	Connectivity service
PE	with test protocol
Bootstrap server: coap:\\ichbineinbeispiel.com:5080	Bootstrap server address

Pos20:

SER-CVF.MSA	Data service subscription

20.2 Additional order details for wM bus and/or LoRaWan® communication

Note: It is possible to switch between LoRaWan® and wM bus at any time using UltraConnect.

The meters are configured ex-factory with settings for operating the wM bus interface and the LoRaWan® interface. The devices are then able to use both protocols, one of which is preset.

20.2.1 Additional order details (general):

Note: The factory setting can be changed at any time using UltraConnect on site.

Wireless switch (select communication type)

- **LoRaWan®:** When the interface is activated, the meter communicates via LoRaWan®.
- **wM bus:** When the interface is activated, the meter communicates via wM bus.

20.2.2 Additional order details (wM bus):

- **Data telegram wM bus**
  The meter can send various telegrams with different content. There are 9 predefined telegrams available.
  A description of the telegrams can be found in the chapter “Communication”.
  If necessary, specific telegrams can also be defined.
- **Protocol type:**
  - C1A (default setting),
  - T1A

  wM bus recognises various modes that differ in terms of data rate and coding.
  The meter uses C1 (compact, high data rate) as default. T1 (frequent transmit) is also still available for compatibility reasons.
  Both protocol types are unidirectional (only sending, no receiving of commands).
  Please check which protocol type your gateway supports.
- **Transmission interval wM bus:**
  - 30 secs (default setting),
  - 15 mins

  The meter transmits its data telegrams regularly every
  - 30 secs (default setting, suitable for mobile reading) or
  - every 15 mins (suitable for stationary reading via gateways)
- **Security mode**
  The transmitted data is usually encrypted (mandatory in many countries such as Germany).

Three modes are available:
- Mode 0 (no encryption),
- Mode 5/A (OMS, AES-128 encryption, default setting),
- Mode 7/B (OMS, AES-128 encryption and CMAC, for smart meter gateway)

20.2.3 Additional order information (LoRaWan®):

- **LoRaWan® data telegram:**
  The meter can send various telegrams with different content. There are 9 predefined telegrams available.
  A description of the telegrams can be found in the chapter “Communication”.
  If necessary, specific telegrams can also be defined.
- **LoRaWan® transmission interval:**
  - 1 hour,
  - 8 hours
  - 12 hours (default setting)

  The meter transmits its data telegrams regularly every
  - 12 hours (default setting) or
  - 8 hours or
  - every hour (for higher resolution).

It is also possible to store the following settings ex-factory:

- **Activation type**
  - ABP or
  - OTAA (default setting)
- **Eco-mode activation**
  Eco-mode activation limits the transmission interval when the reception quality is poor, for improved battery life. The default setting is “activated” and is only relevant for special transmission intervals of less than one hour.
- **Time synchronisation**
  The meter synchronises the meter time with the server time. Default setting: activated.

Example of an order with wM bus

Pos10:

UW31-1N002-**7**-DE00 0R0A00	Order code: W370 with LoRaWan® and wM bus
Wireless switch: wM bus	wM bus preset
Data telegram 02	Telegram 02 selected
Protocol type: T1A	
Transmission interval wM bus: 15 mins	Unless otherwise stipulated select a transmission interval of 30 seconds.

Example of an order with LoRaWan®

Pos10:

UW31-1N002-**7**-DE00 0R0A00	Order code: W370 with LoRaWan® and wM bus
Wireless switch: LoRaWan®	LoRaWan® preset

Unless otherwise stipulated default settings are also set (transmission interval 12 hrs, activation OTAA, eco-mode and time synchronisation active).

20.3 Further additional order details

Landis+Gyr devices can be extensively configured ex-factory.

Examples of customer-specific settings are:

- **Alarm thresholds**
- **Activate/deactivate alarms**
- **Deactivate automatic transmission start**

Please contact Sales for customer-specific settings.

21 Pressure loss, weight and dimensions of packaging

W370

Nominal flow Q3		2.5	2.5	2.5	2.5	[m³/h]
Total length		110	165	130	190	[mm]
Connection thread		G ¾	G ¾	G 1	G 1	
Nominal diameter		DN15	DN15	DN15	DN20	
Maximum flow rate Q4		3.125	3.125	3.125	3.125	[m³/h]
Minimum flow rate Q1@ R250		10	10	10	10	[ltrs/hr]
Response limit (variable)		2	2	2	2	[ltrs/hr]
Overflow		5	5	5	5	[m³/h]
Vibration sensor (leak detection)		-	-	-	X	
Weight		440	500	540	630	[g]
Packaging dimensions	Length Width Height	117 85 95	172 85 95	141 85 95	197 85 95	[mm] [mm] [mm]

Nominal flow Q3		4	4	4	4	[m³/h]
Total length		105	130	154	190	[mm]
Connection thread		G 1	G 1	G 1	G 1	
Nominal diameter		DN20	DN20	DN20	DN20	
Maximum flow rate Q4		5	5	5	5	[m³/h]
Minimum flow rate Q1@ R250		16	16	16	16	[ltrs/hr]
Response limit (variable)		3	3	3	3	[ltrs/hr]
Overflow		8	8	8	8	[m³/h]
Vibration sensor (leak detection)		-	-	X	X	
Weight		510	540	560	630	[g]
Packaging dimensions	Length Width Height	117 85 95	141 85 95	161 85 95	197 85 95	[mm] [mm] [mm]

W270

Nominal flow Q3		1.6	2.5	2.5	2.5	4	4	[m³/h]
Total length		110	105	110	130	130	190	**[mm]**
Connection thread		G ¾	G ¾	G ¾	G 1	G 1	G 1	
Nominal diameter		DN15	DN15	DN15	DN20	DN20	DN20	
Maximum flow rate Q4		2	3.125	3.125	3.125	5	5	**[m³/h]**
Minimum flow rate Q1@ R250		6.4	10	10	10	16	16	**[ltrs/hr]**
Response limit (variable)		2	2	2	2	3	3	**[ltrs/hr]**
Overflow		3.2	5	5	5	8	8	**[m³/h]**
Weight		280	270	280	290	290	310	**[g]**
Packaging Dimensions	**Length** **Width** **Height**	117 85 95	117 85 95	117 85 95	141 85 95	141 85 95	197 85 95	**[mm]** **[mm]** **[mm]**

22 Annex

22.1 Battery lifetime

W270 | W370
Understanding Battery Lifetime

Landis+Gyr

W270 and W370 are designed for a battery lifetime of 15 years. However, there are multiple factors that may influence the real battery lifetime negatively or positively.
This document helps you to understand the basis of the lifetime calculation, the limiting factors and how to get the best lifetime estimation.

1 How does Landis+Gyr calculate the battery lifetime ?

W270 and W370 are designed for a battery lifetime of 15 years under the following conditions:

	Nb-IoT	LoRa®	wM-Bus/OMS
Security mode	all	all	all
Temperature average	33.5°C	33.5°C	33.5°C
Reporting interval	24h	8h	60s
Payload	Up to 1.5 kB	51 B	50 B
Firmware updates over-the-air	1 per 3 years	-	-
Coverage	**ECL0 ECL1**	DR0-5	-
NFC readout	Daily	Daily	Daily
NFC datalogger readout	Weekly	Weekly	Weekly

What is ECL?
Enhanced Coverage Level. In case of low signal strength, the network (not the device) can activate ECL. There are three levels:

- ECL0 – Cell Edge
- ECL1 – Deep Coverage
- ECL2 – Extreme Coverage

While ECL2 provides coverage even in deep underground situations, it drastically increases the power consumption and can even halve the battery lifetime of a meter.

W270 | W370
Understanding Battery Lifetime

Landis+Gyr

2 Can the battery lifetime expectation change?

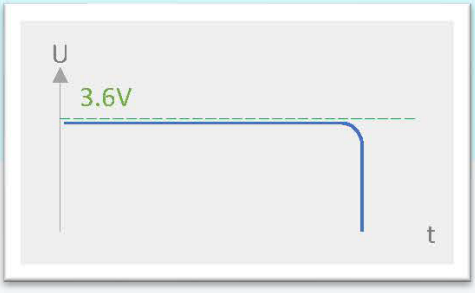
Yes. Many things can influence the battery lifetime in the field:

- Temperature (lower is better)
- Configuration change (e.g. change of the reporting interval)
- More or less firmware updates over-the-air
- Changes in network coverage (e.g. installation of a new base station)
- Tolerances of the meter's components
- Failures

3 Is it possible to calculate the real battery lifetime?

Yes.
Landis+Gyr has developed an algorithm to accurately predict the remaining battery lifetime. Therefore, the device constantly measures and monitors its real power consumption.
This way, the *Advanced Battery Management* includes all kinds of influences on the battery lifetime.
In addition, the battery lifetime is calculated dynamically, so in case any conditions or settings change, the predicted end of battery life will be updated accordingly.

W270 and W370 use Li-$SOCl_2$-batteries. This battery type is designed for ultra-long life and an extremely low self-discharge.
In addition, the delivered voltage of 3.6V stays constant across the whole lifetime of the battery. While this is extremely beneficial for a long-life meter design, it is impossible to tell the remaining battery lifetime by measuring the voltage.



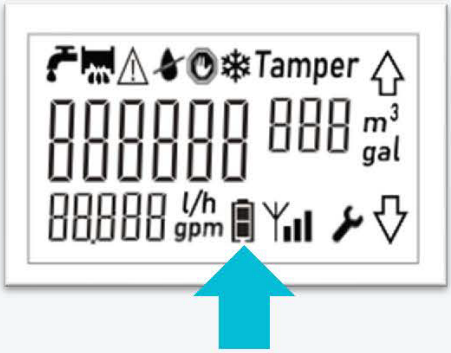
W270 | W370
Understanding Battery Lifetime

Landis+Gyr

4 Where do I find the predicted remaining battery lifetime?

1. On the display

The displays shows a battery symbol to indicate if action is required:



No action required
Battery lifetime expected to be more than 540 days

Plan exchange
Battery lifetime expected to be less than 540 days

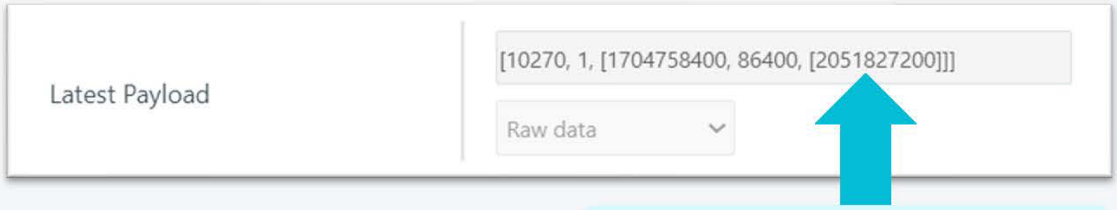
Exchange now
Battery lifetime expected to be less than 180 days

2. On the NB-IoT interface

The NB-IoT interface transmits
- The current battery voltage
- The expected battery level in %
- the expected end of the battery as a date (transmitted as UNIX time stamp format)

This can be found in

Battery Readings (Object ID 10270)



In addition, the meter sets an alarm for
- Battery low (less than 180 days left) or
- Battery critical (Voltage drops)

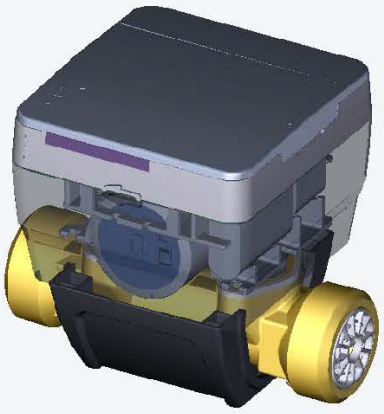
UNIX-timestamp as visible in Friendly® IoT Management portal (exemplary).
Here: 205182700 → January 08, 2035

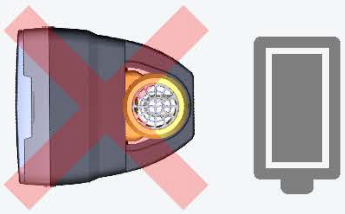
W270 | W370
Understanding Battery Lifetime

Landis+Gyr

5 Why does the manual recommend an installation position?

The batteries are constructed in a way, that they can use their full capacity in all positions, except upside down.
The battery in W370 and W270 is installed laying in a 90° angle compared to the flow tube.
That means, if the meter is installed in any other position than laying on the left side (seen from the outlet), it can use up to 10% more battery capacity.





Avoid this position to use the full battery capacity

22.2 Certificate Handling

W270 | W370
How to: Certificate Handling

Landis+Gyr

REQUIRED DEVICES:

- ✓ Smartphone or tablet with Android 10 or higher
- ✓ UltraConnect App installed
- ✓ Internet connection

BACKGROUND:

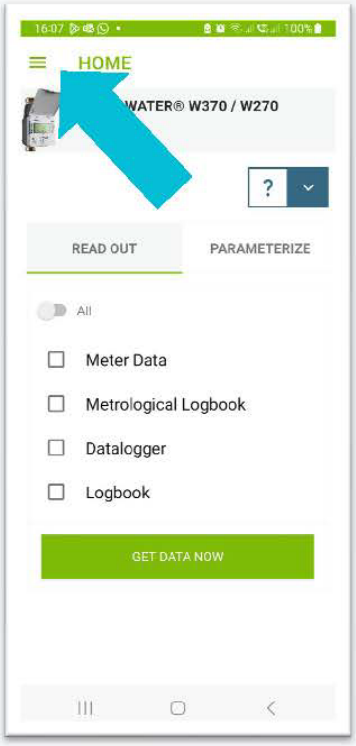
UltraConnect comes with a Consumer level certificate by default.
If you require higher access rights to your meters for installing, commissioning, servicing or testing meters, please provide Landis+Gyr the following information:

- ✓ Number of certificates
- ✓ Certificate Level
- ✓ Organization

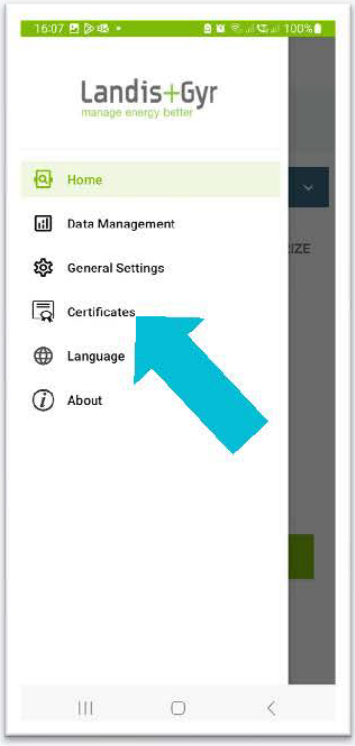
Landis+Gyr will then send you a mail with one CSR token per requested certificate (1st QR code).

1 Open the **UltraConnect App.**

2 Select **Menu**



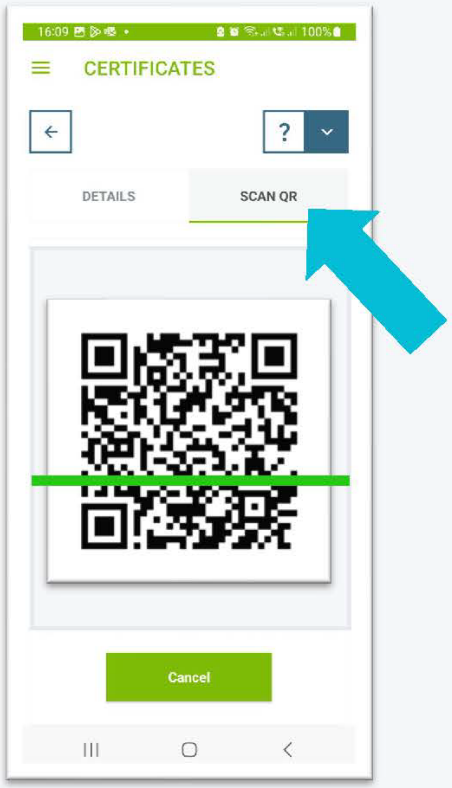
3 Select **Certificates**



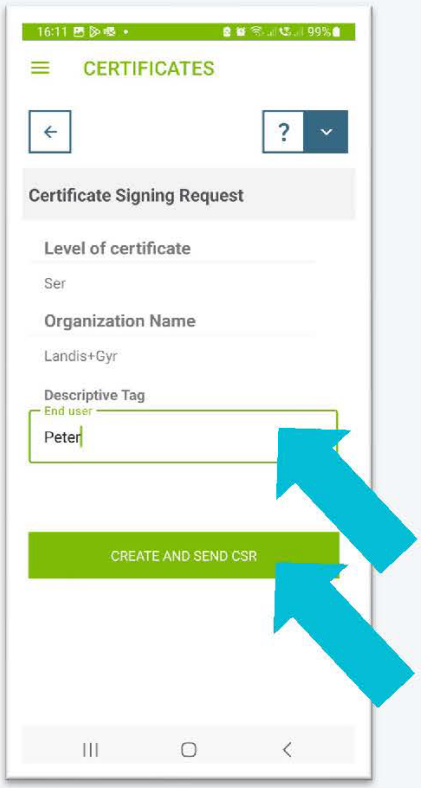
W270 | W370
How to: Certificate Handling

Landis+Gyr

4 Scan your **QR code**



5 Enter a **Descriptive Tag**
Select **Create and Send CSR**



WHAT HAPPENS NOW?

- *After clicking "CREATE AND SEND CSR", a "certificate signing request" is created. UltraConnect then opens your default e-mail app. Please send the created file to* ***certificates.de@landisgyr.com.***
- *Landis+Gyr will process your request as quickly as possible. Following approval, Landis+Gyr will send a* ***second e-mail*** *including the signed certificate as attachment named: {organization}_{Level}_{Tag}.jpg (2nd QR code).*

W270 | W370
How to: Certificate Handling

Landis+Gyr

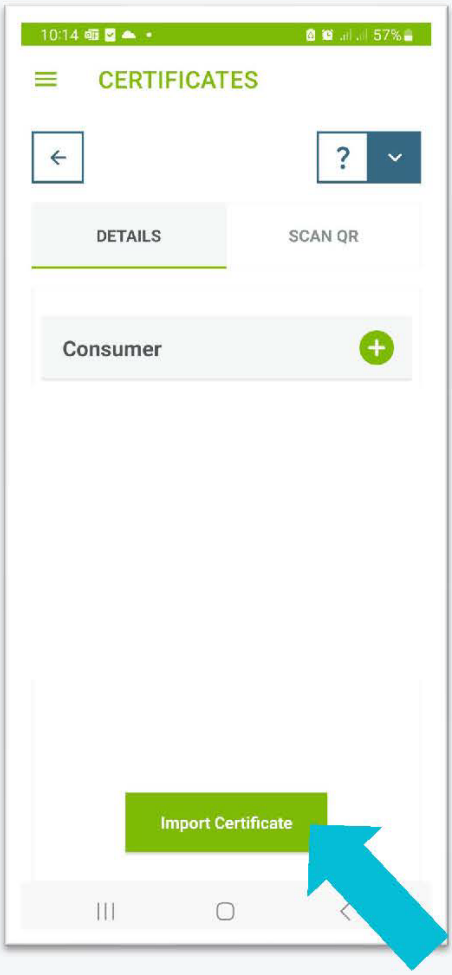
After receiving the mail, open the attached file and scan the QR code as in step 4.

If you do not have a device to display the certificate for scanning, you can alternatively download the certificate file from the mail attachment. Then, import it to UltraConnect by clicking on „Import Certificate“ and navigating to the location where you stored the certificate, e.g.

- *download folder,*
- *cloud storage, etc.*

6 Click **SCAN QR** again

7 **OR:** Select **Import Certificate**



RESULT:

*After successful import, the new certificate will be displayed here and will be **activated by default**.*

22.3 Update the Firmware with UltraConnect

W270 | W370
How to: Update the Firmware with Ultra Connect

Landis+Gyr

REQUIRED DEVICES:

- ✓ Smartphone or tablet with Android 10 or higher
- ✓ Ultra Connect App installed
- ✓ "Service" level certificate
- ✓ Update file from L+G

BACKGROUND:

W270 and W370 allow firmware updates. Updates are released by Landis+Gyr to improve performance, introduce new features or to fix firmware issues.
It is possible to deploy firmware updates over-the-air with NB-IoT, or via the NFC interface with Ultra Connect.

Important: The meters will accept only original L+G firmware updates. 3rd party firmware cannot be installed.

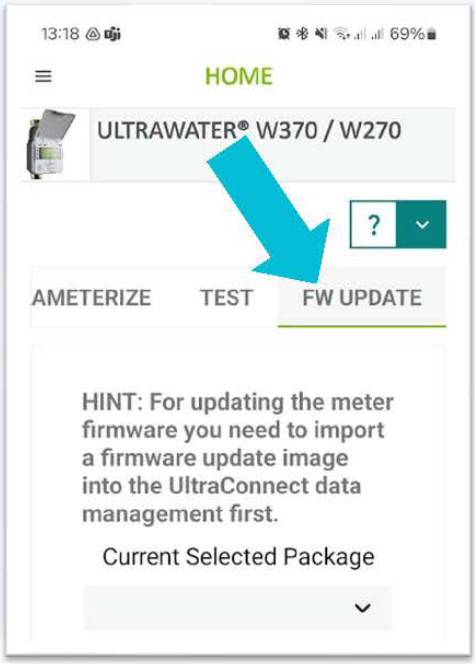
PLEASE MAKE SURE FIRMWARE UPDATES ARE ALLOWED BY LOCAL REGULATIONS BEFORE DEPLOYMENT!

1 Import the update file

Landis+Gyr provides the update file (a file ending with ".upk").
Move this file to your phone. This is typically done by download, cloud folder (e.g. Google Drive) or cable connection to a PC.

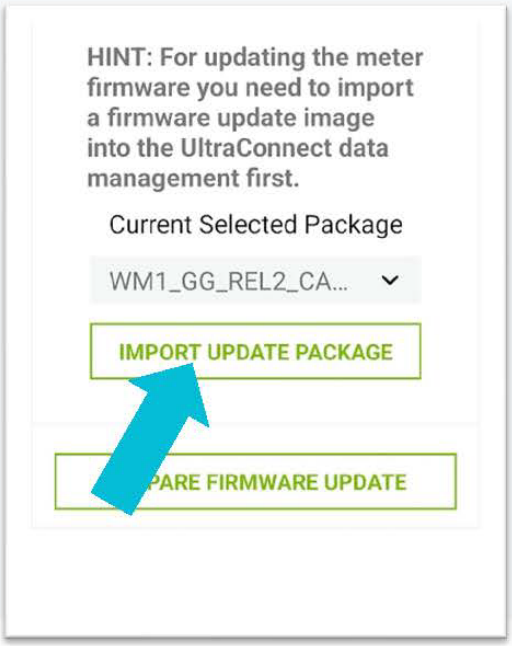
2 Open Ultra Connect

Select the tab "FW UPDATE" in Ultra Connect



3 Import the .upk file

Klick "IMPORT UPDATE PACKAGE" and select the .upk-file on your phone.

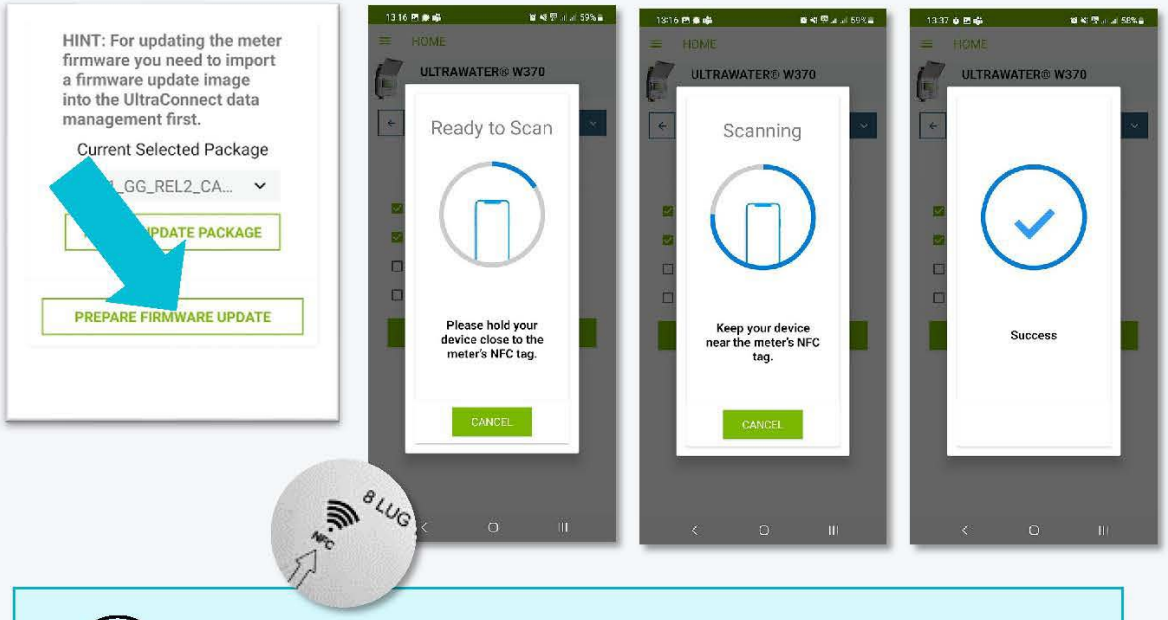


W270 | W370
How to: Update the Firmware with Ultra Connect

Landis+Gyr

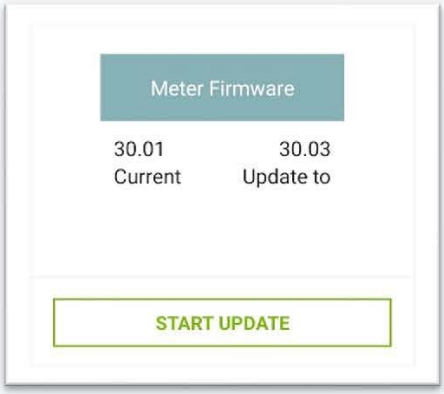
4 Prepare the firmware update

Select “PREPARE FIRMWARE UPDATE”. Afterwards, Ultra Connect asks you to connect to the meter via NFC. Follow the instructions on the screen.



WHAT HAPPENS NOW?

Ultra Connect compares the existing firmware with the new firmware. It also checks the validity and compatibility of the new firmware.
You can only continue the process if the check is successful,

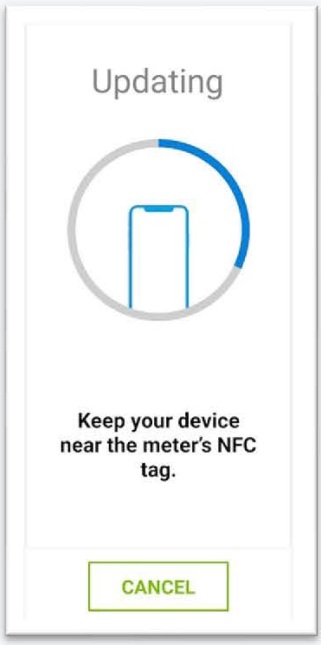


W270 | W370
How to: Update the Firmware with Ultra Connect

Landis+Gyr

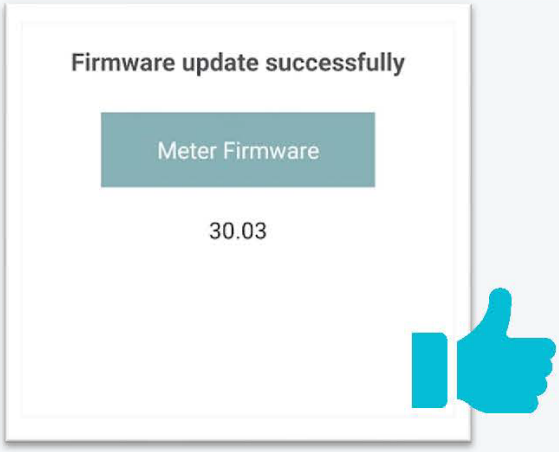
5 Start the Update

Select “START UPDATE”. You will then be asked to establish an NFC connection, again.
Attention: The data transfer can take several minutes. Make sure the phone is kept still during this process.



RESULT:

After a successful update, Ultra Connect shows the new Firmware Version.
The meter is updated.
You can always see the current firmware version in READ OUT → Meter Data



22.4 Manual Commissioning

W270 | W370
How to: Manual Commissioning

Landis+Gyr

REQUIRED DEVICES:

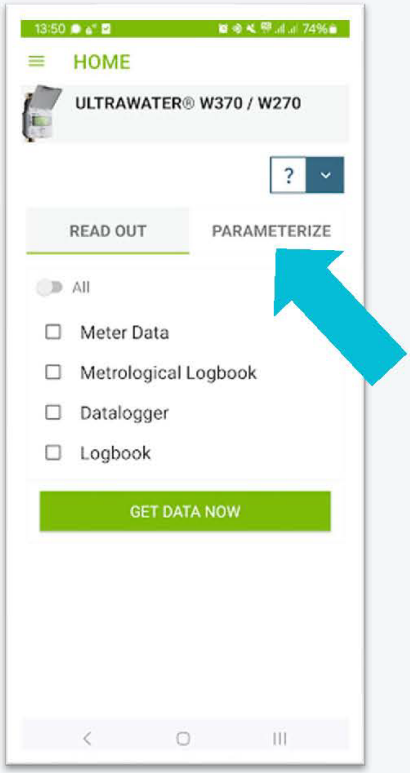
- ✓ Smartphone or tablet with Android 10 or higher
- ✓ NFC (enabled)
- ✓ UltraConnect App installed
- ✓ Installer privileges or higher

NOTE:

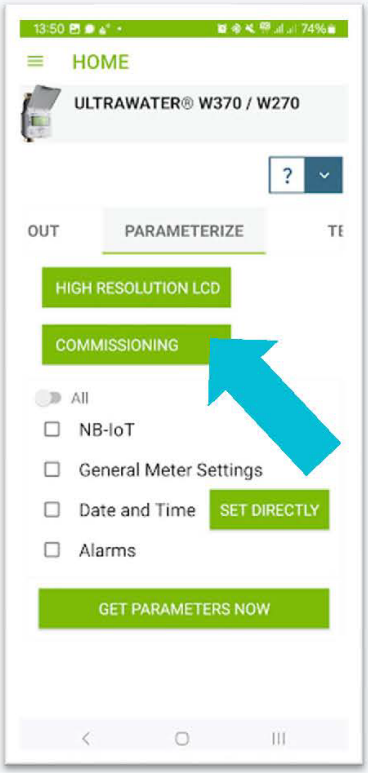
Meters and app communicate via NFC.
Communication via NFC only works within a range of 4 cm or less.
To communicate, the smartphone must be placed directly on the meter's NFC interface.
The meter is marked with "NFC" where the antenna is.
Please check in the description of your smartphone where the NFC antenna is located.
In case of connection problems, please remove any covers from your smartphone.

1 Open the **UltraConnect App.**

2 Select **PARAMETERIZE**



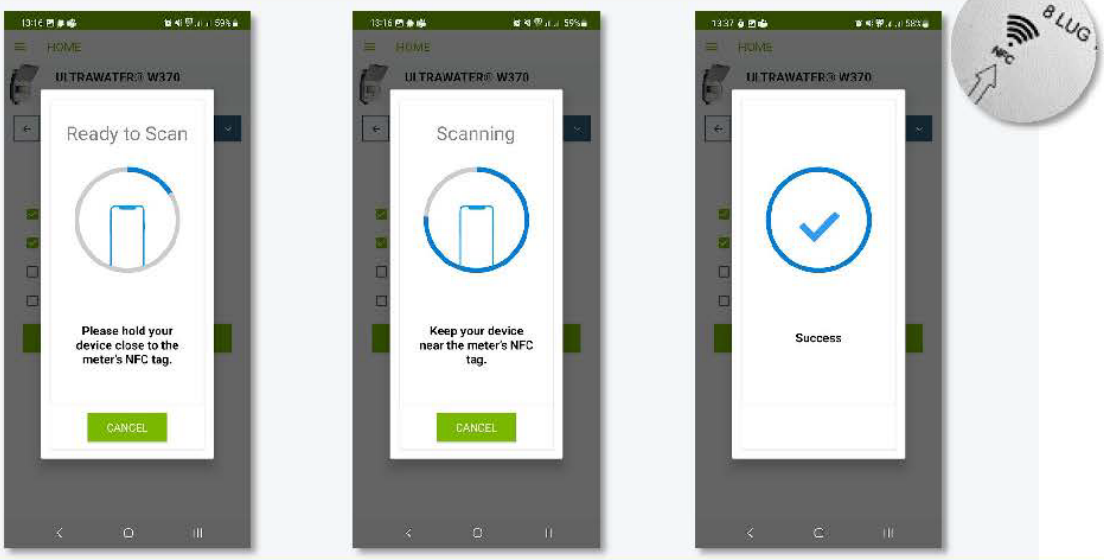
3 Select **COMMISSINING**



W270 | W370
How to: Manual Commissioning

Landis+Gyr

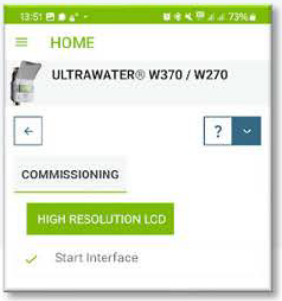
4 Hold the mobile device close (max. 1cm) to the meter's NFC interface until the screen shows **"success"**.



RESULT:

Data will be transferred to the meter. This may take a few seconds. Hold the phone steady and keep it in the same position. After the transmission, the app will show the result.

- The meter leaves the sleep mode. Instead of "Sleep", the display shows volume. The meter starts measuring in a 1s interval.
- The signal quality symbol (📶) starts blinking as long as the meter tries to connect to the network. When a connection is established, it stops blinking and shows the signal quality (low – medium – high)
- The antenna symbol (Y) indicates that the meter has established a connection to the server



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