

## Ultrasonic Water Meter Instructions LXC-15B-25B



### Overview

- LXC-B Smart ultrasonic water meter is developed based on the principle of ultrasonic transit-time measurement technology. In other words, by using a state-of-the-art signal processing to determine the travel time difference between the ultrasonic waves, which results in highly accurate velocity measurement. The instrument integrates measurement,

calculation and display. It uses micro-power technology. A battery can be used for more than eight years and we use ER26500 default, if you have special requirement we can change it to ER34615. It can measure the minimum flow rate of  $0.01 \text{ m}^3/\text{h}$  very accurately and according to the international standard OIML R49/MID. At the same time, the instrument has the characteristics of small size, high stability and strong anti-interference ability.

- Ultrasound flow measurement technology is used to achieve multi-angle installation that doesn't affect the meter accuracy, nor the system pressure loss.
- Mainly used for household measurement of residential quarters.
- with Lora communication mode can be connected to a concentrator. the Wireless data collector produced by our company use GSM mobile or Ethernet network for data transmission to form a wireless monitoring system. When the pipeline network runs abnormally, it can actively report the abnormal information of all the devices connected to the network.

## **Implementation standard of this product**

ISO4064: 2014/OIML: R49-2013/MID

GB/T778.1-2007: Measurement of Water Flow in Closed Full Pipelines, Cold Water Meters for Drinking and Hot Water Meters Part 1: Specifications

GB/T778.2-2007: Water Flow Measurement in Closed Full Pipeline, Requirements for Installation of Drinking Cold Water Meter and Hot Water Meter Part 2.

GB/T778.3-2007: Measurement of Water Flow in Closed Full Pipelines, Test Methods and Equipment for Drinking Cold Water Meters and Hot Water Meters Part 3.

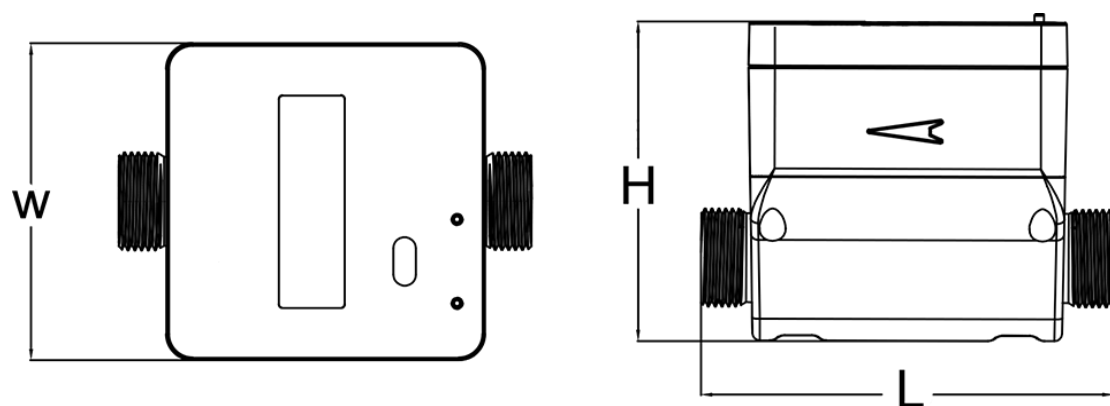
Ex-factory verification is based on the National Metrological Verification Regulation of the People's Republic of China "JJG 162-2009 Verification Regulation of Cold-Water Meters" standard.

## Technology parameters

	DN15	DN20	DN25
Range & Capacity- R250			
Q <sub>3</sub> (Q <sub>max/permanent</sub> )	2.500m <sup>3</sup> /h	4.000m <sup>3</sup> /h	6.300m <sup>3</sup> /h
Q <sub>4</sub> (Q <sub>overload</sub> )	3.125m <sup>3</sup> /h	5.000m <sup>3</sup> /h	7.875m <sup>3</sup> /h
Q <sub>2</sub> (Q <sub>transitional</sub> )	0.016m <sup>3</sup> /h	0.0256m <sup>3</sup> /h	0.040m <sup>3</sup> /h
Q <sub>1</sub> (Q <sub>min</sub> )	0.010m <sup>3</sup> /h	0.016m <sup>3</sup> /h	0.0252m <sup>3</sup> /h
Start Flow rate	0.003m <sup>3</sup> /h	0.005m <sup>3</sup> /h	0.005m <sup>3</sup> /h
Dynamic Range	R250		
Standard	ISO4064: 2014 / OIML: R49-2013		
Measured medium	Water, homogeneous liquid, and filled with measured pipes.		
Battery	3.6V, Li-battery ER26500(Default)/ER34615		
Battery Life	≥10 Years		
Consumption	<0.2mW		
Pressure loss	DN15-DN25: Δ p40		
EMC	E1		
Environmental Classification	Class B		
Protection Class	IP68		
Medium Temperature	T50		
Storage Temperature	-25~55℃		
MAP	PN16		
Accuracy	±5% in range Q <sub>1</sub> ≤Q<Q <sub>2</sub>		
	±2% in range Q <sub>2</sub> ≤Q≤Q <sub>4</sub>		
Head Loss	0.4bar@Q <sub>3</sub>		
Sensitivity of upstream flow field	U10		
Sensitivity of downstream flow field	D5		
Climatic and mechanical environmental grades	B		
Key-press	Touch-screen key		
Display	LCD 9 digit + prompt		
Menu Contents	Instantaneous flow (m <sup>3</sup> /h), cumulative flow (m <sup>3</sup> ), screen detection, table address, cumulative working time (h), date (year/month/day), caliber, software version		
Display range	Total flow: 0m <sup>3</sup> ~ +99999.9999m <sup>3</sup>		

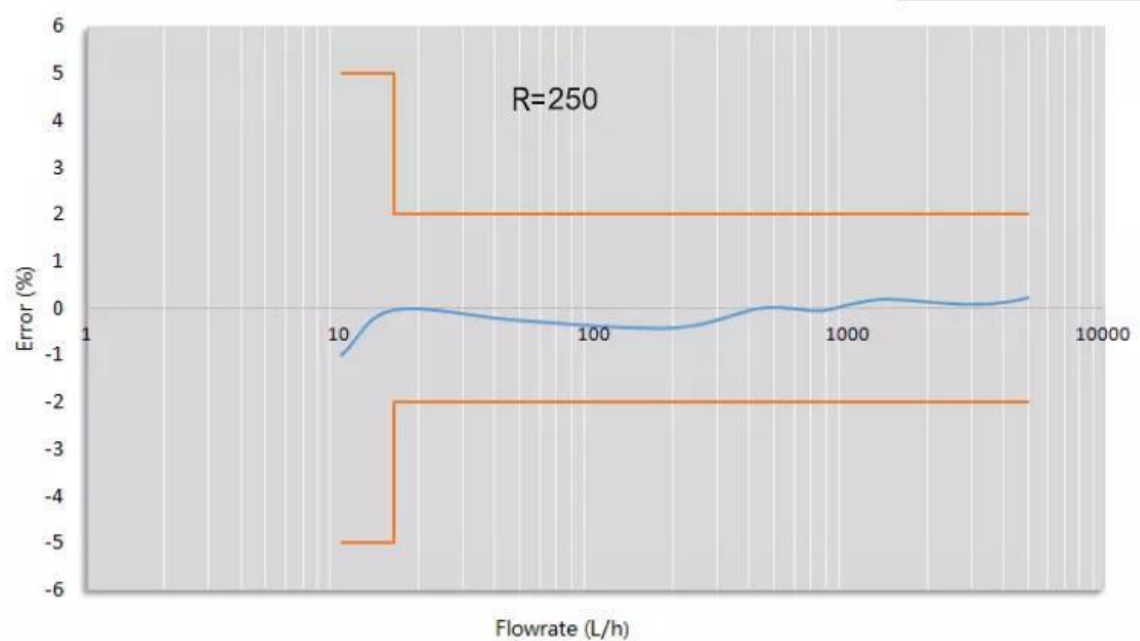
Communication	
LoRaWan	865MHz/ 868MHz/ 902MHz/ 915MHz and others
M-Bus	EN13757/CJ188
RS485	EN13757/CJ188
Pulse Output	10L/H or Customized

## Outline dimension



Diameter (mm)	DN15	DN20	DN25
Thread	G $\frac{3}{4}$ B	G1B	G1 $\frac{1}{4}$ B
L(mm)	110	130	160
H(mm)	80	85	90
W(mm)	85	85	85

## Accuracy Curve

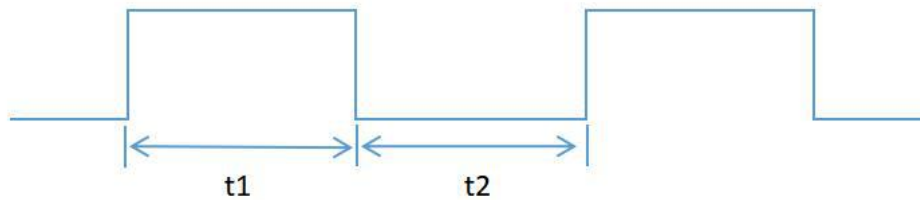


## Communication mode information:

### Pulse Parameters

1. Pulse Width:  $t_1=500\mu s$ ,  $t_2 \geq 500\mu s$

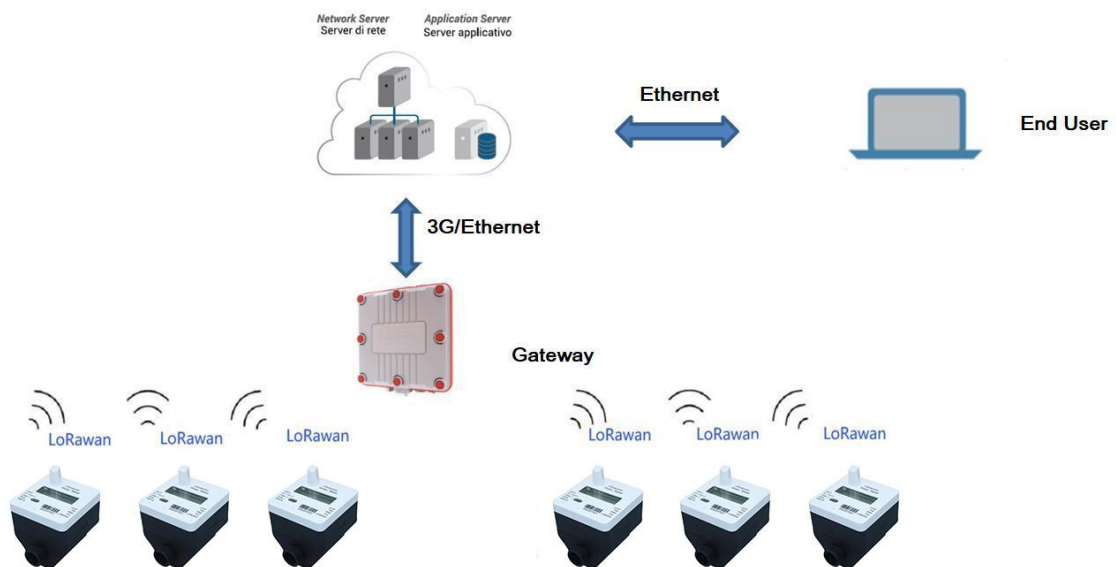
Or Pulse Width: 125 milliseconds for option



2. Pulse Equivalent: 10 L/Pulse

3. The yellow cable is Signal, the blue cable is GND (there are sticky notes on the lines)

## Network Topology: LoRaWAN+ LoRaWAN Gateway



The whole system mainly consists of LoRaWAN Wireless Network + LoRaWAN Gateway

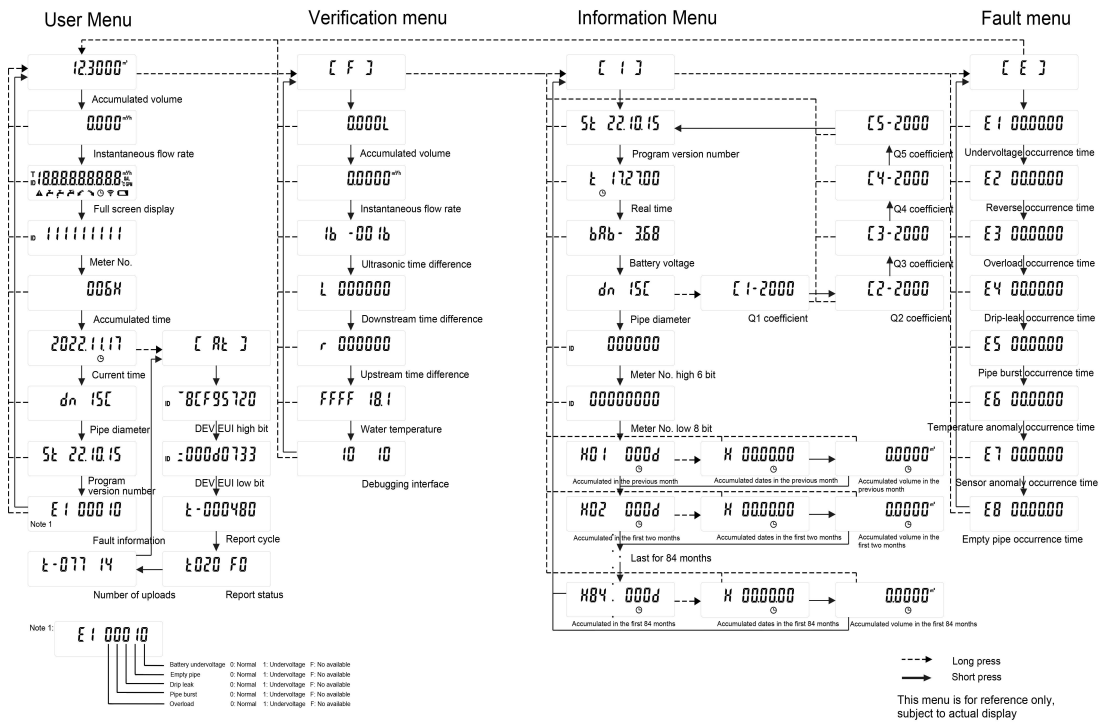
**Ultrasonic pipeline:** The meter's body (pipe) structure has no mechanical moving parts and no wear/tear. Which makes it maintenance free. It is resistant to any disturbance of ripple flow, which make the measurement highly accurate. The structure of the pipe is simply built to overcome the high pressure loss and eliminates any leakage.

Receive signals from flow sensors and temperature sensors for flow calculation, storage, display systems, data transmission, etc.

# LED Menu

User can use magnetic rods to switch between display screens, view the relevant data measured by the instrument. The meter displays the data in a round robin menu structure.

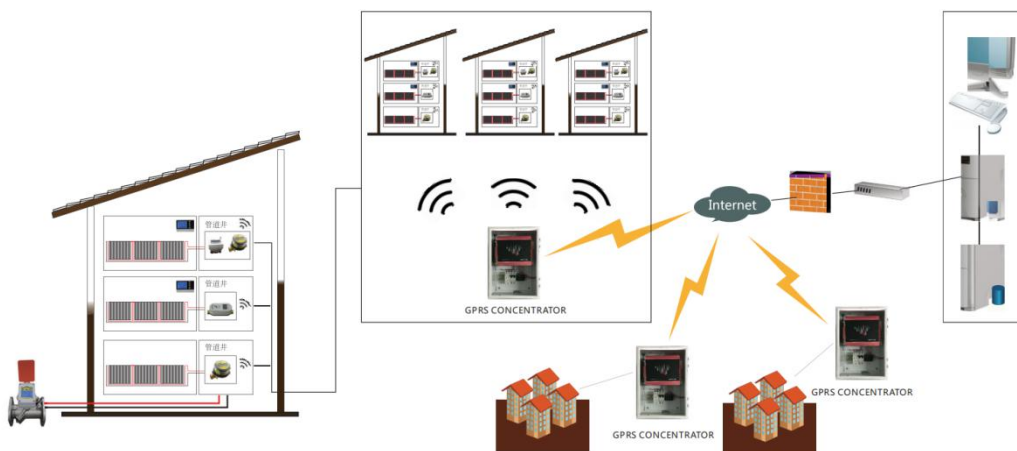
Among the parameters displayed: Instantaneous flow (m<sup>3</sup>/h), cumulative flow (m<sup>3</sup>), screen detection, table address, cumulative working time (h), date (year/month/day), caliber, software version...etc. As shown in the picture below:




Note: The LCD display can be customized according to customer's requirement.

## Remote reading the meter data from LXC-B

LXC-B Smart ultrasonic water meter can relate to GSM wireless data collector produced by our company and use GSM mobile public network for data transmission to form a wireless monitoring system. When the pipeline network runs abnormally, it can actively report the abnormal information of the pipeline network. It is easy to manage and save on operating costs.



## Actively report the abnormal information of the meter

- Battery level detection: When the battery is low, the LCD will display  , and will report the information to the management system.
- Flow detection: When there is no water in the pipeline and no signal in the transducer, the system will report, store error information and alarm.
- Pipeline leak detection: The flow signal display water running for a long time (such as 24 hours), the system will actively report the error information and alarm.
- Pipeline burst detection: The flow signal display large water flow running for a long time (the yield of water and time can be set), the system will actively report and store the error information, and alarm.
- Flow direction detection: When the water meter is installed in wrong direction, the system will actively report and store the error information and alarm.



## Smart Meter Reading and Controlling Management System



1. Real-time reading
2. Manual/Automatic Reading

3. Charge Settlement Management
4. Subscriber Management System
5. Error Management

6. Operating Authorization
7. Abnormal data diagnosis
8. Data back up and restore...



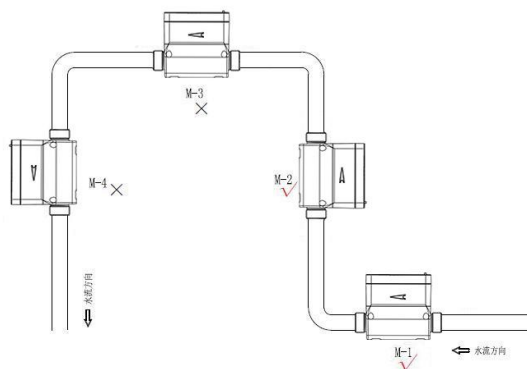
## ◆ Installation and connection

### 1. Installation and Connection Requirements:

Installation should be strictly in accordance to the site professional engineering design, and alteration without engineers permission should be strictly prohibited.

### 2. Instrument Installation Position:

- ◆ Installed in vertical pipeline for upward (or oblique upward) flow of liquid, followed by horizontal pipeline, try to avoid downward flow of liquid. (or oblique downward) flowing pipes to prevent liquid from running with the gravity and create air pockets.
- ◆ Installation position should not be selected at the highest point of pipeline direction to prevent abnormal measurement due to bubble accumulation in pipeline.

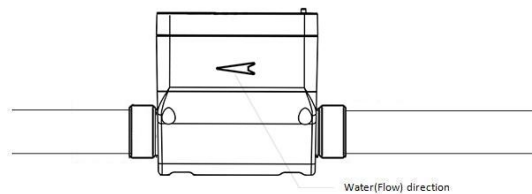


### 3. Installation method

- ◆ Cut off the installation instrument of the water supply pipeline and set aside the location of the installation instrument as shown in the figure.



- ◆ Concentric alignment of instrument,
- ◆ Pipeline and tightening of pipeline blade and instrument thread with the appropriate wrench
- ◆ Instrument installation completed.



## ◆Verification function

The calibration method of this instrument follows the Verification Regulation of JJG 162-2009 Cold Water Meter.

## ◆Troubleshooting

### a) The water meter shown as :

It means that the battery is not enough, and the battery should be replaced as soon as possible.

### b) The water meter is reading negative:

Check whether the flow direction is reversed. If not, please contact us immediately.

### c) Abnormal or random beating of cold-water meter data:

Installation position is incorrect and installed at lower water level.

The front and rear straight section is too short, the bend is too big, and the diameter of the pipe before the table is large.

### d) Water meter has flow and no temperature:

Please do not dismantle it manually and contact us immediately.

## Transportation and storage

1. The water meter should be stored in the original package, the ambient temperature is 5-40C, and the air is free of corrosive gases.
2. when the water meter is stored on the shelf, the stacking height of the boxes should not be more than 5 boxes.

## Disclaimer

1. This water meter is used in residential, commercial and light industry (E1 level) and installed indoors in a fixed water meter (B level).
2. The meter instruction do not contain any explicit or implicit warranties.  
meter has the right to modify and revise the instructions.  
If there are any changes without notice,  
all the actual products will be the main products.

Please contact us if you have any questions or concerns.