

# Ultrasonic Water Meter Installation and Operation Manual

## ◆ Overview

- This series of ultrasonic intelligent water meters are developed based on the principle of ultrasonic measurement of propagation velocity difference method. The instrument integrates measurement, integration, and display. It adopts micro-power consumption technology. A battery can be used for more than 6 years. It can achieve accurate measurement of a minimum flow of  $0.001\text{m}^3/\text{h}$ . At the same time, the instrument has a small size, good stability and resistance. Features such as strong interference capability.
- Using ultrasonic flow measurement technology, multi-angle installation can be realized, instrument measurement is not affected, and pipeline pressure loss is minimized.
- Specially used for household measurement in small residential areas
- With Lora communication series ultrasonic smart water meter, it can realize self-organizing network three-level architecture data transmission by connecting with wireless data collector and concentrator equipment produced by our company. The communication frequency of water meter and collector is 865-867MHz (India), and the collector and The communication frequency of the concentrator is 470Mhz (customized development is also possible). The concentrator uses GSM mobile public network for data transmission. The data can be uploaded to the meter reading data management platform developed by our company to form a wireless monitoring system. The water meter operation status can be checked every day , When the pipe network is running abnormally, actively report the information about the pipe network running abnormally. This series ultrasonic smart water meters can be connected to the GSM wireless data collector produced by our company

and use the GSM mobile public network for data transmission to form a wireless monitoring system. When the pipe network is operating abnormally, it will actively report the information about the abnormal operation of the pipe network.

- This product implements standards  
 "GB/T778.1-2007 Measurement of water flow in closed full pipelines, drinking water meters and hot water meters Part 1: Specifications"  
 "GB/T 778.2-2007 Measurement of Water Flow in Closed Full Pipelines, Cold Drinking Water Meters and Hot Water Meters Part 2 Installation Requirements"  
 "GB/T778.3-2007 Measurement of water flow in closed full pipelines, drinking water meters and hot water meters-Part 3 Test methods and test equipment"
- The factory verification is based on the National Metrological Verification Regulations of the People's Republic of China "JJG 162-2009 Cold Water Meter Verification Regulations" standard.

## ◆ Technical parameters

**Sheet 1-1 Specification**

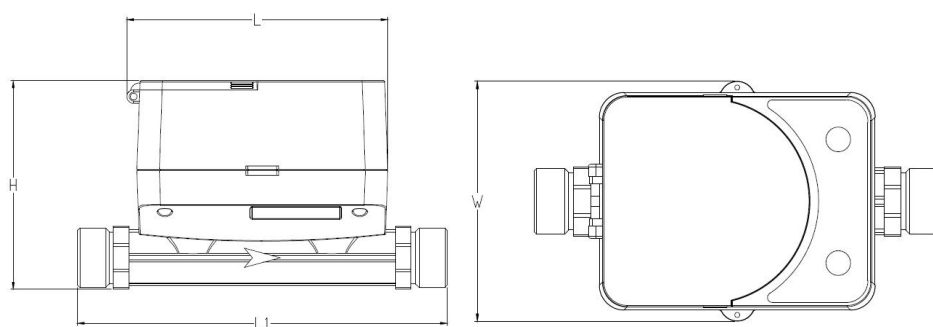
Item	Data
Diameter(mm)	DN15、 DN20
$Q_3/Q_1$	250
Pressure lose level	DN15、 DN20: $\Delta p_{40}$
	DN25、 DN32、 DN40: $\Delta p_{63}$
Measured medium	Water, homogeneous liquid, and fill the pipe under test
level of accuracy	Class 2
Maximum allowable working pressure	1.6MPa
Working environment	$5^{\circ}\text{C} \sim +55^{\circ}\text{C}$ , $\leq 100\% \text{RH}$
Temperature level	T30

Upstream flow field sensitivity level		U10
Downstream flow field sensitivity level		D5
Climate and mechanical environment rating		Class B
Electromagnetic compatibility level		E1
Button		Magnetic key
Monitor		LCD 8 digits + prompt
Display content		Instantaneous flow rate (m <sup>3</sup> /h), cumulative flow rate (m <sup>3</sup> ), screen detection, meter address, cumulative working time (h), date (year/month/day), caliber, software version
Display range		Accumulative volume: 0m <sup>3</sup> ~+9999.9999m <sup>3</sup>
Communication	Optical interface	Baud rate 2400bps, using custom protocol based on CJ/T 188
	M-BUS	Baud rate 2400bps, transmission distance ≤1200m, CJ/T 188 custom protocol
Pulse transmission		In verification mode, pulse output
Power supply		Battery powered DC3.6V (the battery can work continuously for more than 6 years)
Power consumption		<0.2mW
Protection level		IP65
storage temperature		-25℃~+55℃
Data line length		1.0 m
Instrument installation location		Water supply pipe

## Sheet 1-2 Flow data

Diameter	Common flow $Q_3$ (m <sup>3</sup> /h)	Demarcation flow $Q_2$ (m <sup>3</sup> /h)	Min flow $Q_1$ (m <sup>3</sup> /h)	Overload flow $Q_4$ (m <sup>3</sup> /h)	Pulse equivalent
DN15	2.5	0.016	0.010	3.125	0.002L
DN20	4.0	0.025	0.016	5	0.002L

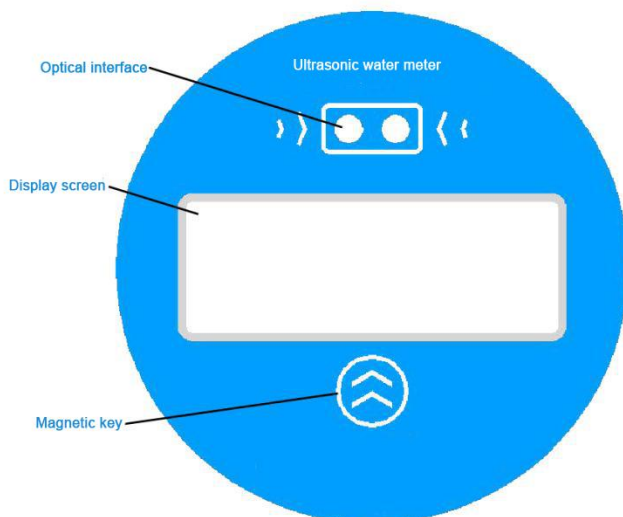
## ◆ Dimensions



Diameter (mm)	DN15	DN20	DN25	DN32	DN40
Thread	G $\frac{3}{4}$ B	G1B	G1 $\frac{1}{4}$ B	G1 $\frac{1}{2}$ B	G2B
L(mm)	116.5	116.5	116.5	116.5	116.5
L1(mm)	165	195	225	180	200
H(mm)	96.5	96.5	107	110	115
W(mm)	97	97	97	97	97

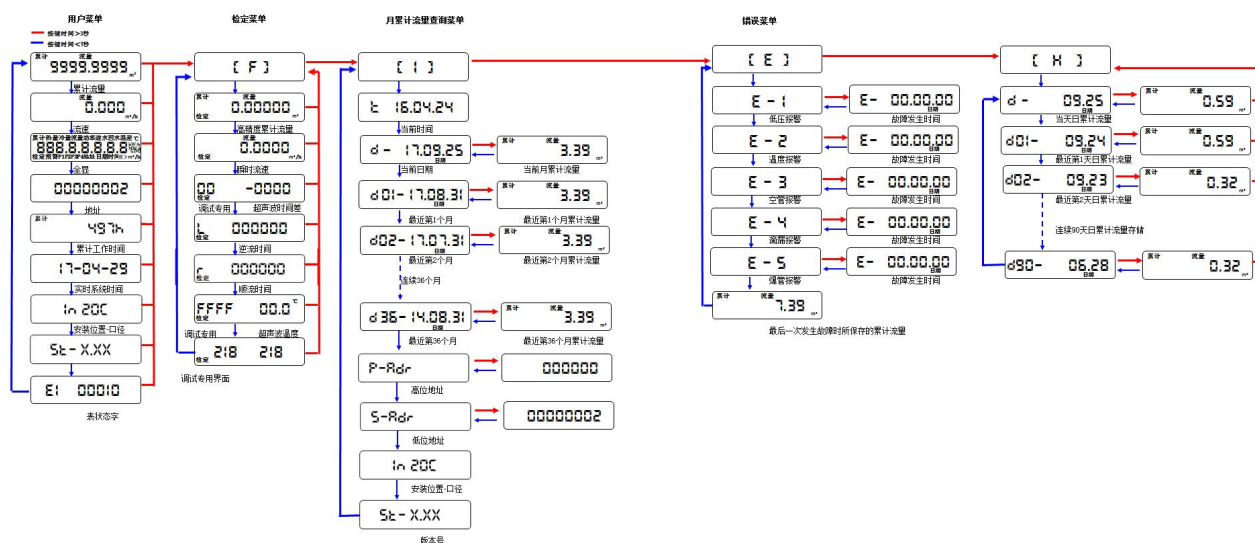
## ◆ Operation introduction

### 1. Panel instructions



## 1. Operating instructions

The user can use the magnetic bar to switch between the displays, view the relevant data measured by the meter, and display it in a loop:



## ◆ Installation and connection

### 1 Installation and connection requirements

◇ It must be installed strictly according to the professional design position, and it is strictly prohibited to move without permission.

### 2 Instrument installation location

◇ Install in the vertical pipeline where the liquid flows upward (or diagonally upward), followed by the horizontal pipeline, try to avoid the liquid downward

(Or obliquely downwards) the flowing pipe to prevent the liquid from filling the pipe.

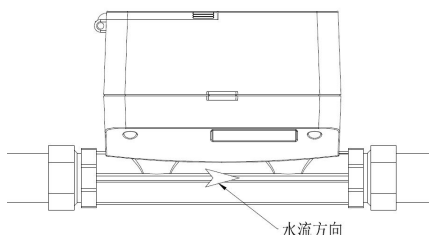
◇ Do not choose the installation position at the highest point of the pipeline to prevent abnormal measurement due to accumulation of bubbles in the pipeline

### 3. installation method

◇ Cut off the water supply pipeline where the instrument is installed, leaving a place for installing the instrument, as shown in the figure:



◇ Align the instrument with the pipe concentrically, and use a wrench to connect the pipe with the instrument thread together and tighten, and the instrument installation is complete



## ◆ Verification function

The verification method of this meter follows 《JJG 162-2009 Verification Regulations for Cold Water Meters》

## ◆ Troubleshooting

◇ Water meter display :

Indicates that the battery is low and should be replaced as soon as possible

◇ The water meter shows a negative number

Check if the direction of water inlet and outlet are reversed, if not the above problem, please return to the original factory for solution.

◇ **Cold water meter data is abnormal or jumps randomly**

- ① Incorrect installation position, installed at the down water level
- ② The front and rear straight pipe sections are too short, the bend is too large, and the diameter of the pipe in front of the surface is relatively large

◇ **The cold water meter has flow and no temperature**

Please do not dismantle it privately and return it to the original factory for solution.