Japsin Instrumentation®

ISO 9001:2015 CERTIFIED ORGANIZATION

User Manual

Ultrasonic Water Meter

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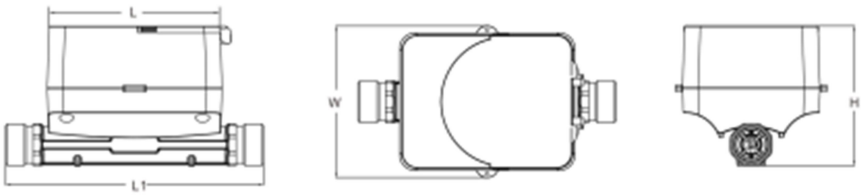
2 Technical Specification

General Information

Diameter	DN15	DN20	DN25	DN32	DN40
Length	165mm	190/195mm	225/260mm	180/260mm	200/300mm
$Q_3(m^3/h)$	2.5	4	6.3	10	16
Start Flow(L/h)	2	2	3	5	7
Meteorologic Class	Q_3/Q_1=100/125/160/200/250/400/500;				
Accuracy Class	Class 2				
Pressure Stage	MAP16		Pressure Loss		△p≤63
Temperature	T30/T50/T70; Default T30				
Data Storage	730 daily data storage，48 months history data； （Customization data storage mode according to customer requirements）				
Interface & Communication	Infrared、M-BUS、RS485、NB-IOT、LORAWAN、Pulse（Optional）				
Power	DC3.6V Lithium Battery				
Protection	IP68				
Temperature Requirements	Medium Tempersture: 0.1°C-90°C				
	Ambient opersting Tempersture: 1°C- 70°C				
	Ambient storage Tempersture: -15°C- 70°C				
Installation	Horizontal or Vertical				
Durability	Life Period ⩾ 6+1 years				

Flow Parameter

Diameter(mm)	Min. Flow(Q1)	Min. Flow(Q2)	Min. Flow(Q3)	Min. Flow(Q4)
	L/h		m^3/h	
DN15	10.0	16.0	2.5	3.125
DN15	6.25	10.0	2.5	3.125
DN15	15.625	25.0	2.5	3.125
DN20	16.0	25.6	4.0	5.0
DN20	10.0	16.0	4.0	5.0
DN20	25.0	40.0	4.0	5.0
DN25	15.75	25.2	6.3	7.875
DN32	25.0	40.0	10.0	12.5
DN40	40.0	64.0	16.0	20.0



Dimension

Nominal Diameter	DN15	DN20	DN25	DN32	DN40
Thread	G3/4	G1	G1 1/4	G1 1/2	G2
L(mm)	116.5	116.5	116.5	116.5	116.5
L1(mm)	165	190/195	225/260	180/260	200/300
H(mm)	96.5	96.5	107	110	115
W(mm)	97	97	97	97	97

3 Meter Details

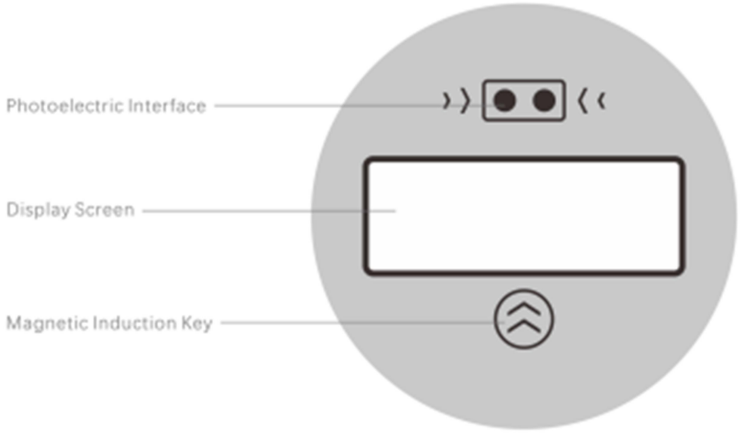
Product Components

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.

Transducer: Adopting High-performance piezoelectric devices, makes the meter very stable and highly accurate. The reflector material is stainless steel which prevents all sediments wear resistance, impact resistance, aging resistance, high temperature resistance, corrosion resistance... etc.

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

Sticker:



4 Power Supply

Brand	SUNMOON	
Type	Lithium Battery	
Model No.	ER26500H	ER34615H
Rated capacity	9000mAh	19000mAh
Rated voltage	3.6V	3.6V
Max recommended continuous operating current	100mA	150mA
Max pulse current	200mA	300mA
Reference weight	53g	105g
Max dimension	26.2X50mm	34.2X61.5mm
Operating temperature	-55°C ~ +85°C	-55°C ~ +85°C
Power Consumption (1 time/24h)	6-8 years	8-12 years

5 Communication way

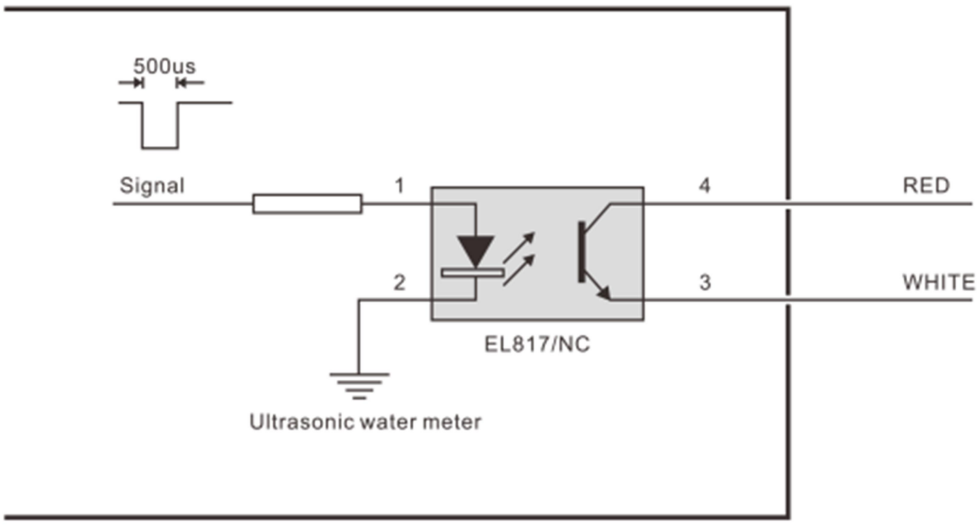
M-BUS(Optional)

Voltage: 24 - 45V
Current: M-Bus loads

Addressing: primary or secondary
Note: A higher frequency is not allowed and may result in meter malfunction!
Data transmission in the compatibility mode (= standard, one data frame) or in the full mode (3 data frames) possible.
If the meter is equipped with "M-bus", it is delivered with a two wire cable, which can be lengthened with a cable 2 x 0.75mm2 (put a distributing box). Pay attention to the proper polarity in case of the pulse output. If the meter is read out via M-bus, the allowed mean frequency of reading must not be exceeded. Any more reading is not allowed and may result in a damage to meter.

Pulse Output (Optional)

Pulse output for flow, with 1m cable connected, with galvanic isolation
Pulse significance: 1-100 L/Pulse
Pulse length: 1-100 ms (Programmable)
Voltage: Open Drain Output



RS-485(Optional)

Cable: connected with four-core cable
Voltage: 5-24V

LoRaWAN (Optional)

ISM Band	EU433	EU868	AU915
Lora Mac	Class A		
Network Access Mode	OTAA or ABP		
Transmitting Power	19±1 dBm(max)		
Data transmission	Each 24h as default		

NB-IoT (Optional)

LTE Band	B5	B8	B20	B28
Data transmission	Each 24h as default			

Sigfox (Optional)

RCZ Serial	RCZ 1/6/7	RCZ 2/4
EIRP/dBm (max)	16	24
Data transmission	Configurable	

6 Display Information

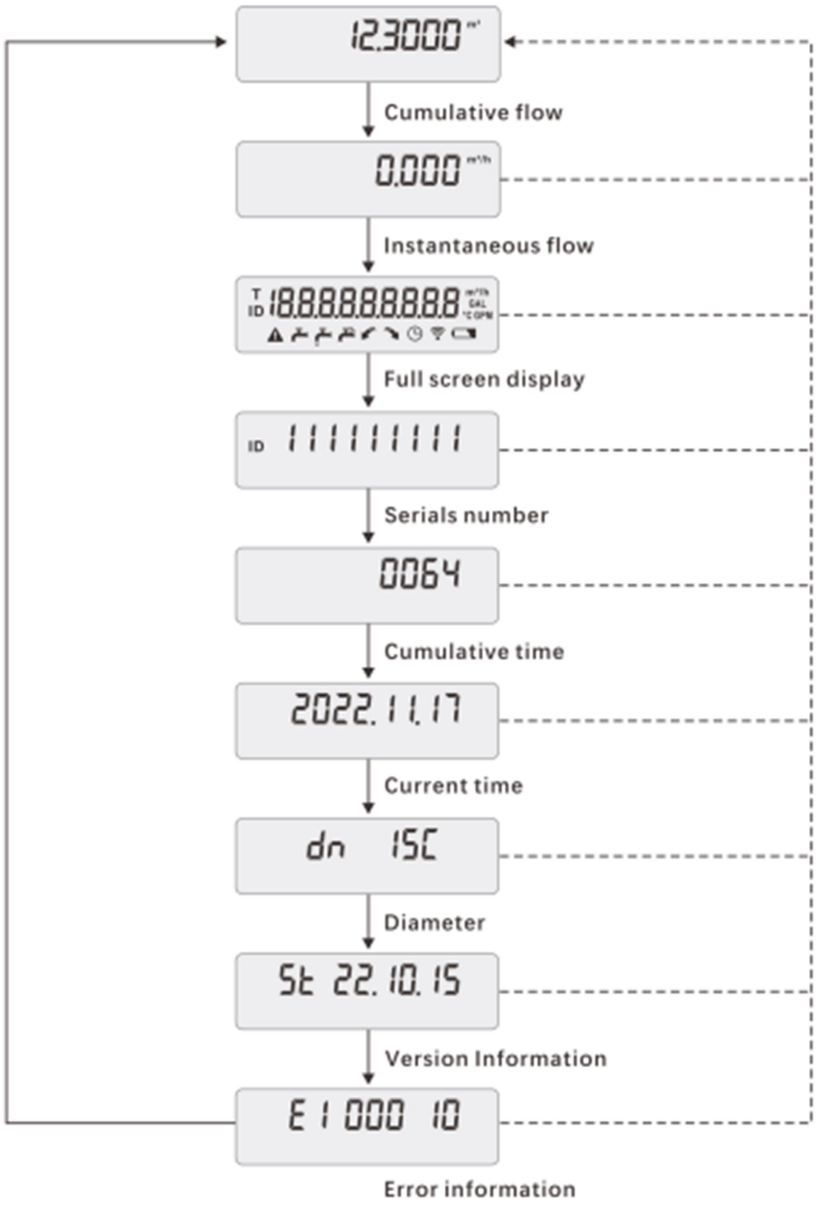
No.	LCD Icons	Meaning
1		Normal water flow
2		Real time
3		Pipe burst
4		Reverse water flow
5		Leakage
6		Reserved position
7		Alarm warning
8	ID	Meter address
9	GAL	Gallon (unit)
10	m^3/h	Cubic meter per hour
11	m^3	Cubic meter(unit)
12	h	Hour(unit)
13	GPM	Gallon per minute
14	°C	Water temperature
15		Low battery
16	T	Reserved position
17		NB-Iot communicate normally
18		Full screen

Menu List (User Loop)

Cover the button for 3 seconds and holding it on will bring up the four menus for users to select.

Main Menu

Shortly covering the button to display items under the Main Menu one by one in the following order to check the measurement data:



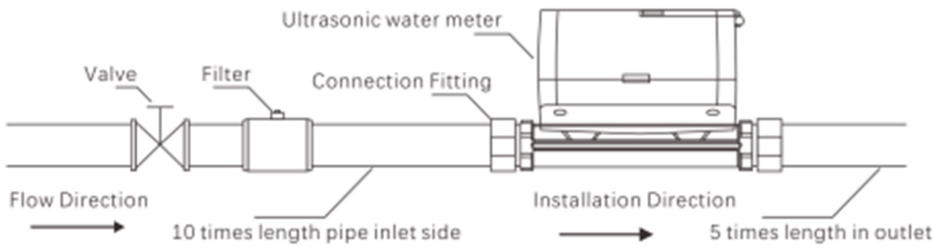
Press and hold for more than 3 seconds

Press and hold for less than 3 seconds

7 Installation And Connection

Installation conditions

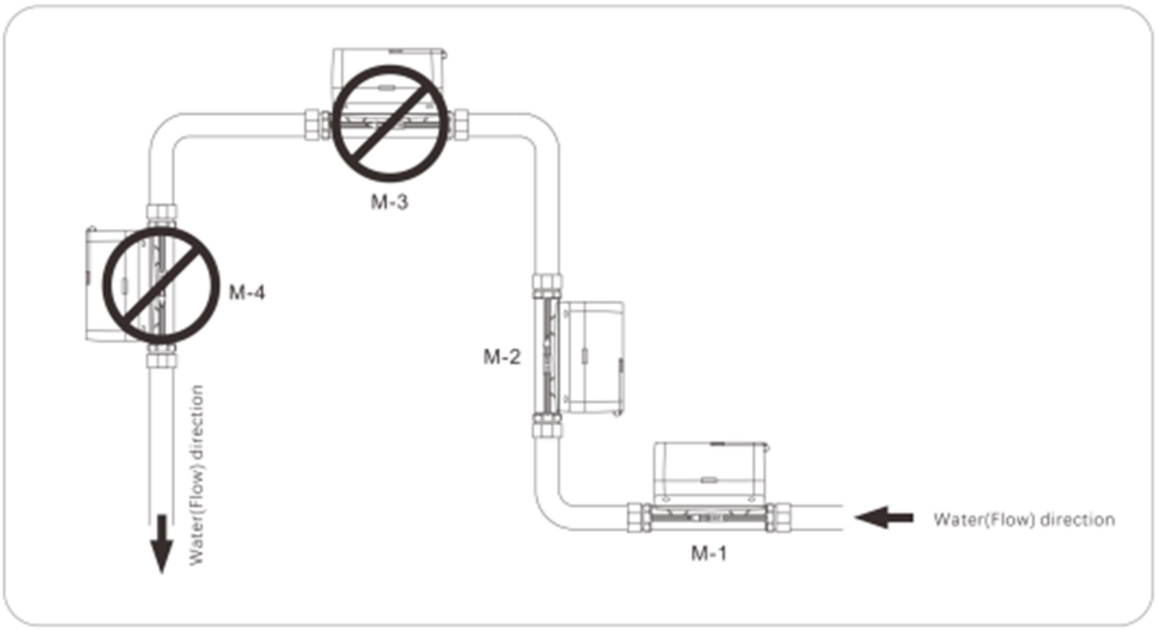
1. The ultrasonic water meter is a precision measuring instrument, so it needs to be handled lightly.
2. When installing, make sure the arrow mark of the meter is consistent with the direction of water flow in the pipe before installation.
3. There should be enough space for maintenance during installation.
4. In order to ensure the accuracy of measurement, at least 10 times the length of straight pipe should be reserved in front of the meter and at least 5 times the length of straight pipe should be reserved after the meter, as shown in the figure below



Requirements for installation location

- The installation shown in M-1 is correct, the meter is mounted low in the pipe, there is back pressure at the back end of the meter, and no air bubbles are generated that would affect the accuracy of the measurement, this is a horizontal installation.
- The installation shown in M-2 is correct, and this mounting position also does not generate air bubbles for the same reason as A. This figure shows a vertical installation.
- The installation shown in M-3 is incorrect, as the meter is mounted high in the pipe, where air bubbles tend to accumulate and affect measurement accuracy.
- The installation shown in M-4 is incorrect. This installation is a vertical installation with a downward water inlet, which is not allowed.

Requirements for installation location



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Notes for installation and use

1. Please flush the pipe before installation to prevent stones and other debris in the pipe, which will affect the use of the water meter.
2. Straight pipe sections should be installed before and after the meter to ensure the requirements of U10/D5.
3. For harsh water environment, install a filter or check valve before the meter.
4. The fluid in the pipe should be free from air bubbles.
5. The wireless water meter should be installed in a place with good signal, and the environment with weak wireless signal should be equipped with external antenna (such as manhole, pipe well).

6.The meter should be far away from AC power and high-frequency radiation source at least 2m above, to avoid electromagnetic influence on the measurement.
7. The meter should be away from high temperature radiation sources and avoid direct sunlight.
8. Avoid pulling the antenna during installation and use to prevent the antenna from being damaged and affecting the communication.
9. Please do not test pressure greater than 1.6MPa to ensure that the flow is within the flow range of the meter.
10. Installation must be in the direction of the flow indication arrow on the pipe section, and take horizontal and vertical installation.
11. When installing outdoor pipes, please do a good job of pipe and water meter insulation to prevent freezing and cracking in winter.
12. The meter should be installed in a dry environment as much as possible.

Issues and solutions

No.	Behavior	Reason	Solution
1	No display	PCB is broken	Change meter
2		Water in PCB	Change meter
3		Power used out	Change battery
4	High instantaneous flow	Wrong install direction	Adjust installation
5		Bubble in pipe	Ventilation
6	Not go at all times	Bubble in pipe	Ventilation
7	No instantaneous flow	Valve is closed	Open valve
8		Transducer is broken	Change meter
9		Bubble in pipe	Ventilation
10	in LCD	Low voltage of battery	Change battery

Transportation and Storage

1.The water meter should be stored in the original package at an ambient temperature of -15℃~70℃ and without corrosive gases in the air.
2. When the water meter is stored on the shelf, the height of stacking the whole box should not exceed 6 layers.

Service Commitment

ZP meter is committed to providing users with timely and high-quality after-sales service, sincerely promise the following.

1. The instrument is free of charge within 12 months from the date of sale, without charging the cost of work and original parts.
2. Beyond the free warranty period to the site maintenance, only the maintenance travel and original cost charges.
3. The following conditions are not covered by the free warranty, only the basic charges such as labor and cost or the cost price will be charged for replacement.

- Damage to the product caused by human factors on your part.
- Non-instrument failure due to system shutdown, external abnormalities, failure to operate according to instructions, etc.
- Damage to the meter due to irresistible causes, such as lightning strikes, etc.