

Residential
Ultrasonic Water Meter
User's Manual
&
Installation Guide
(S11)
DN15-25



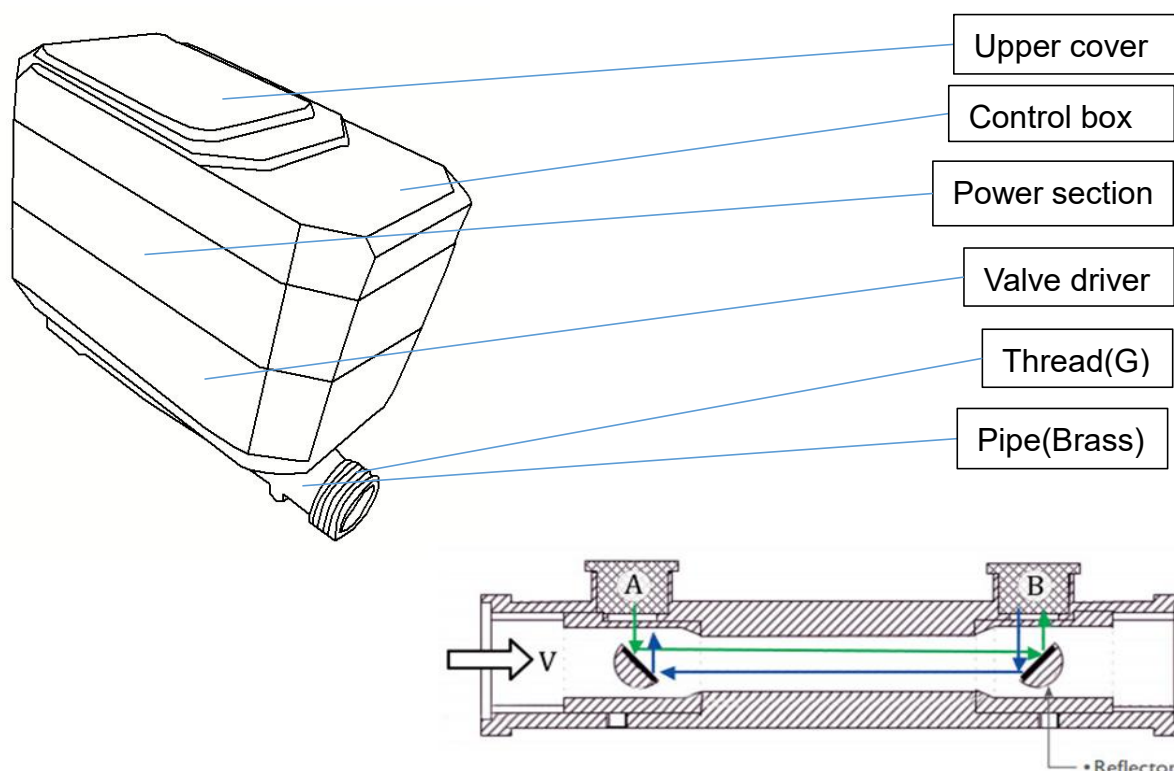
I .Overview

It is a metering instrument to continuously measure, record and display volume of water flowing through sensor by use of ultrasonic time difference method. Please read this manual carefully before use, so as to use it to best advantage and avoid unnecessary loss.

- ▲ Not affected by impurity, chemicals and magnetic materials in medium;
- ▲ No moving parts in measuring mechanism, free of wear and tear, and accuracy does not degrade over the life of the meter;
- ▲ Support any angle installation;
- ▲ Alarm when the shell is disassembled;
- ▲ Support counter current detection and accurate measurement;
- ▲ Support not full pipe detection;
- ▲ Low pressure drop;
- ▲ IP68 protection level, can adapt to various harsh installation environments;
- ▲ Support wired and wireless remote transmission methods: RS485/modbus; GPRS; LoRa; LoRawan; NB-IOT

II .Composition

It is composed of flow sensor, Built-in ball valve, wireless module, lithium battery, calculator, pipe fittings, etc., detailed as follows.



III.Display Functions

S11 Wireless Ultrasonic Water Meter has two main display interfaces:

Their respective display contents and switch mode between interfaces are shown as follows: Press and hold the key in awake state to enter the mode selection interface (P1, P2, P3, P4).

It enters into sleeping mode without any operations in 30 minutes, no indication

Mode	No.	Display content	Display description
P1	1	X.XXX m ³	Cumulative flow
	2	- X.XXX m ³	Reverse cumulative flow
	3	X.XXX m ³ /h	Flow rate
	4	- X.XXX m ³ /h	Reverse flow rate
	5	XX-XX-XX	Duration of operation(year-month-day)
	6	XX.XX °C	Water temperature
	7	XXXXXX	Vendor code
	8	XXXXXXXXXX	Meter S/N
	9	X.XX V	Voltage
	9	XXX XXX	Version No.
	1	ST1 BIT X=1	Status bit description
P2	1	XX-XX	History month
	2	X m ³	Historical traffic

Cycle to display 23 months of data			
P3	1	XX-XX-XX	Date
	2	XX-XX-XX	Time (h-min-s)
	3-8	XXXX	Meter factor
	9	XX	Instrument status
P4		X.XX L	Cumulative flow
	1	X.XX L	Accumulative flow(test)-Auto reset
			Reverse accumulative flow
			Reverse accumulative flow(test)-Auto reset
		X.XXX m ³ /h	Flow rate
	2	X.XXX m ³ /h	Flow rate (test)-Auto reset
	3	XX.XX °C	Temperature
4	XXXX	Dynamic parameters	

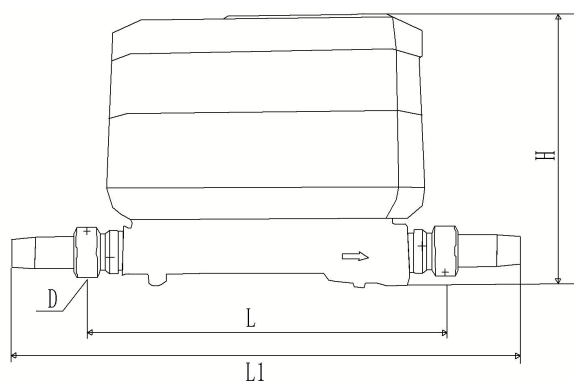
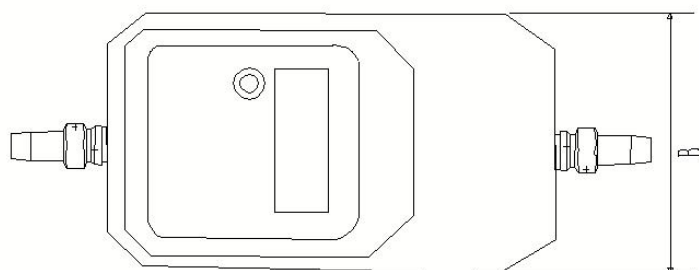
BIT X Description:

BIT 0 =1	BIT 1 =1	BIT 2 =1	BIT 3 =1	BIT 4 =1	BIT 5 =1	BIT 5 =1
Reserved bit	Night traffic	Low battery	Counter current	Placeholder	Non-full tube	sensor fault

IV. Technical Parameters

Nominal diameter(mm)	15	20	25	32	40
Max flow Q4(m ³ /h)	3.125	5	7.87	12.5	20
Nominal flow Q3(m ³ /h)	2.5	4	6.3	10	16
Transitional flow Q2(m ³ /h)	0.02	0.032	0.05	0.08	0.128
Min flow Q1(m ³ /h)	0.01	0.016	0.0252	0.05	0.08
Start-up flow(m ³ /h)	0.005	0.005	0.008	0.01	0.015
Max flow	99999999.9				
Measuring range	Q3/Q1, R250				
Accuracy class	Class B				
Pressure loss class	≤0.063 MPa				
Working pressure	1.6 MPa				
Temperature class	T30/T50/T70				
Temperature range	(5~55)°C				
Environment class	Indoor, Class B				
Electromagnetic class	E1(Residential, Commercial, Industrial)				
Power supply	Built-in lithium battery DC 3.6V				
Battery capacity	16 Ah >8years				
Installation position	Any angle				
Display	LCD, 8 digits + additional characters				
Flow profile sensitivity class	U10/D5				
Communication interface	RS485 modbus/ LoRa/ LoRawan/GPRS/NB-IOT				
Protection class	IP68				

V. Outline Dimension



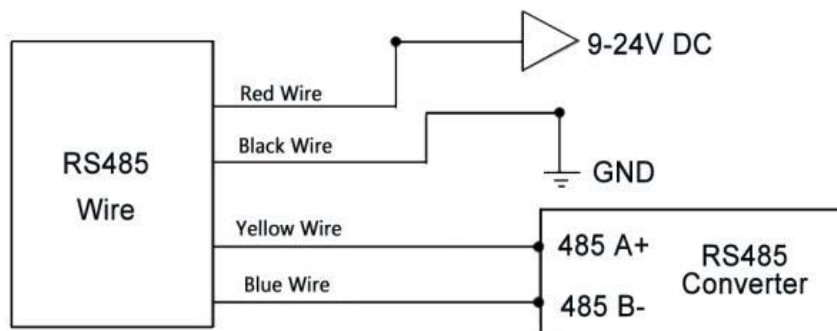
Caliber(mm)	DN15	DN20	DN25	DN32	DN40
L(mm)	165	195	225	180	200
L1(mm)	260	300	346	305	330
W(mm)	83	83	83	83	83
H(mm)	135	135	138	140	142
Pipe thread connection	R $\frac{1}{2}$	R $\frac{3}{4}$	R1	R1 $\frac{1}{4}$	R1 $\frac{1}{2}$
Water meter thread	G $\frac{3}{4}$ B	G1B	G1 $\frac{1}{4}$ B	G1 $\frac{1}{2}$ B	G2B

Note: The above technical parameters are subject to change for customization.

VI. Interface/Communication

The ultrasonic water meter will have one of the many options output pre-selected when placing the order. This section will describe each output:

Modbus/RS485 output



LoRa/NB-IOT /GPRS wireless transmission

Power	(2.1~3.6) V	(2.9~3.6) V	(2.9~3.6) V
Working	(488~	Full band	Full band
Transmit	50mW	360mW	200mW
Average	18uA	15uA	15uA
Transmission	1km	(1~15) km	(1~20) km

Wireless type	Instructions for use
LoRa	It uses free public wireless frequency bands and a private lora protocol, and requires a Lora concentrator. (The repeater can be selected according to the on-site environment)
LoRawan	It uses the free lorawan network and public protocols and requires the lorawan public gateway.
GPRS	It uses authorized wireless GPRS(2g)frequency bands and uses operator networks.
NB-IoT	It uses authorized wireless frequency bands and uses operator networks. Need to lay the NB-IOT base station on site

Note:

- ★ The lora frequency can be customized according to actual requirements
- ★ The frequency of uploading data is not more than once a day, otherwise it will affect the service life of the battery;
- ★ If the water meter is immersed in water, it will greatly weaken the ability of wireless transmission;
- ★ The management party needs to regularly record and verify the readings of the body part of the water meter.

VII. Notices for Installation

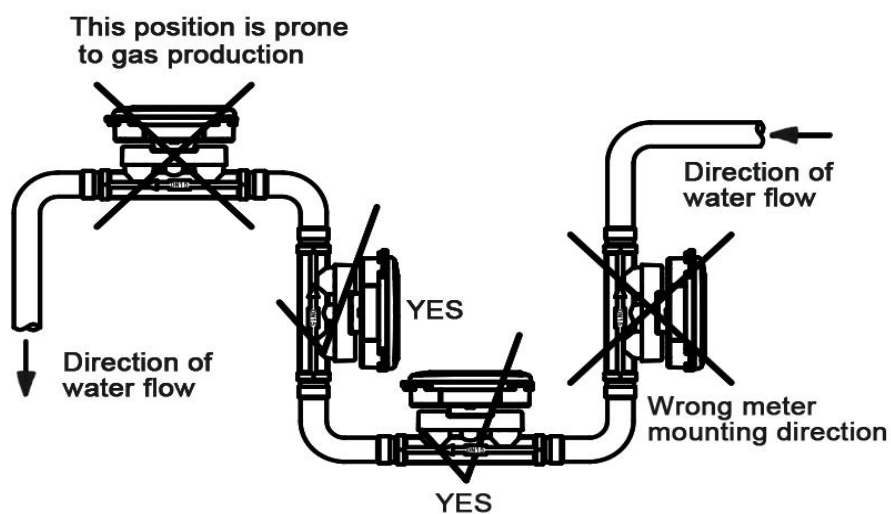
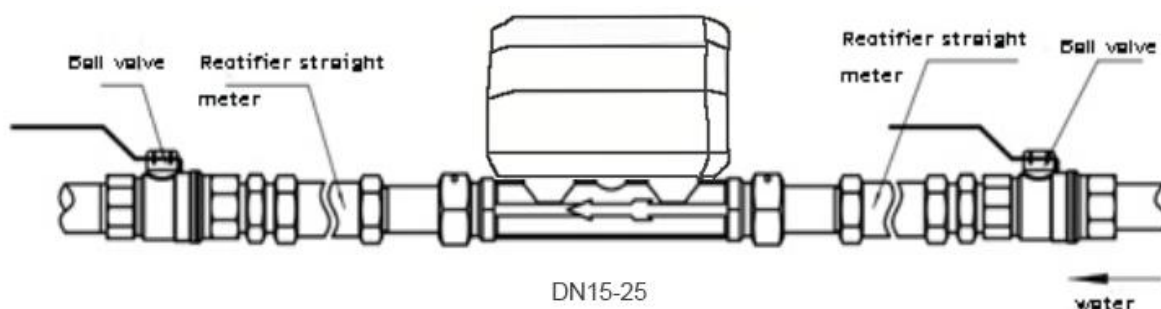
- ★ Flush pipes before installation to avoid gravels and other foreign objects;
- ★ Install a valve and filter before the water meter;
- ★ Do not touch the electrical part or pull wires to avoid damage during installation;
- ★ When the water meter is installed in a horizontal or inclined way, the ultrasonic flow probe on pipes shall be placed horizontally, and when installed in a vertical way, make sure the water flows from down to up.
- ★ Please note that the arrow direction on the pipe shall be consistent with the water flow direction during installation;
- ★ The joint washer shall be installed correctly to avoid misaligned washer blocking

water and affecting accuracy of the water meter;

★ The water meter shall not be installed at the place that may be affected by strong mechanical vibrations;

Special Notices: 1. Be sure to install an on-off valve and filter before the water meter and another on-off valve is recommended after it for maintenance. In order to prevent backflow, a check valve should be installed in front of or behind the water meter.

Installation Figure:



★ Before using this water meter, the pipe must be filled with water, otherwise it will lead to inaccurate or even non-measurement;

★ When installing the water meter, should be reserved length of DN*10 in front of the water meter. And should be reserved the length of DN*5 behind the water meter;

★ The water meter shall refresh the display at every 4s, and read the water meter (including the starting value and end

value) 4s at least after the valve is closed when test the water meter, otherwise the testing results may be affected;

★ Please make sure the medium flow is within the flow range of the water meter during test and use, otherwise it may result in damage to the water meter;

★ In case of any malfunction (e.g. metering failed, etc.) during use, please contact the related management department immediately and do not repair it by yourself;

★ The product is designed with a disposable anti-disassembly seal which shall be removed only by appointed personnel, or otherwise it shall be excluded from the free after-sales service.