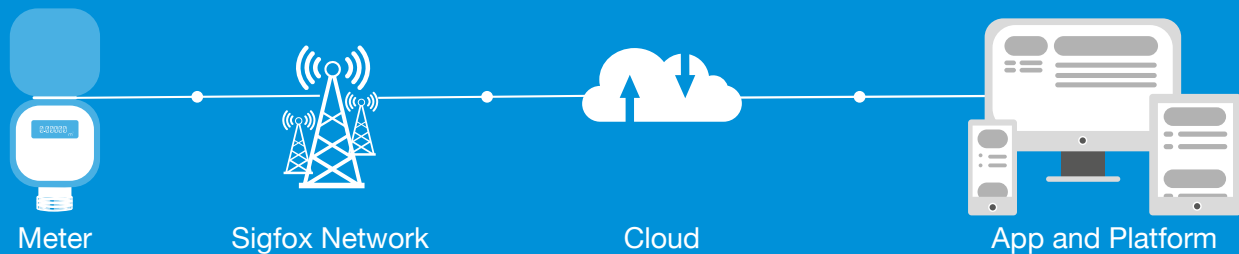




IoT Ultrasonic Water Meter with Sigfox communication

Scope of Application

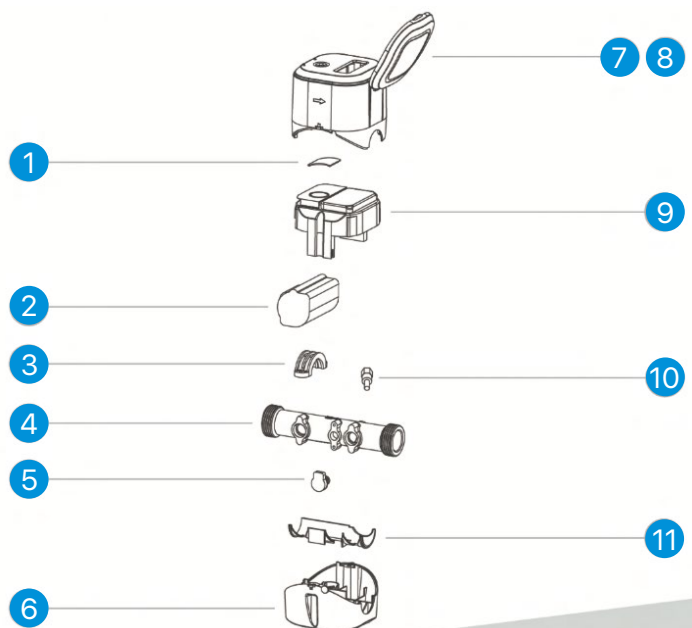
Designed for residential areas, using an accurate water metering system for the end user.



Features

- Large dynamic range to 400:1.
- Integrated mechanical design with protection class of IP68, able to work in long-term water immersion.
- Ultrasonic measuring technology with no mechanical moving parts and pressure loss, improves device serving time.
- Micro power consumption technology, battery-powered with lifetime over 10 years.
- Low starting flowrate (as low as $0.0015\text{m}^3/\text{h}$) .
- Utilize data analysis platform built with self-developed system comprehensively integrated with IoT platform, seamless connected, apply Big Data and Cloud computing technology to further discover water supply information and resources.

No.	Name
1	Patch Antenna
2	Battery
3	Pressing Piece
4	Pipe Section
5	Pressure Sensor
6	Water Meter Lower Case
7	Water Meter Cover
8	Water Meter Upper Case
9	Water Meter Mechanism
10	Temperature Sensor
11	Pad





Technical Parameters

Item		Parameter	
		Residencial Ultrasonic Water Meter (Sigfox)	
Accuracy		Class 2	
Nominal Diameter		DN15~DN25	DN15~DN40
Dynamic Range		≥ 250	
Maximum Working Pressure		1.6MPa	
Working Environment		$-25^{\circ}\text{C} \sim +55^{\circ}\text{C}$, $\leq 100\%\text{RH}$	
Rating of Temp.		T30、T50, default T30	T30、T50、T70, default T30
Rating of Upstream Flow Field Sensitivity		U10	
Rating of Downstream Flow Field Sensitivity		D5	
Category of Climate & Mechanical Environment Conditions		Class C	
Class of Electromagnetic Compatibility		E1	
Operation		Photosensitive key	
Display Indication		LCD, 10-digital+prompting character	LCD, 8-digital+prompting character
Values Displayed		Accumulated flow rate (m^3), Instantaneous flow rate (m^3/h), Water temperature ($^{\circ}\text{C}$), Accumulated effective running time (h), Date (YY/MM/DD), Time (hh/mm/ss), Software version、Screen test	
Display Resolution		Accumulated flow rate 0.00001 m^3 Instantaneous flow rate 0.00001 m^3/h Water temperature 0.01 $^{\circ}\text{C}$	Accumulated flow rate 0.001 m^3 Water temperature 0.01 $^{\circ}\text{C}$
Display Range		Accumulated flow rate : 0 $\text{m}^3 \sim +19999.99999 \text{ m}^3$	Accumulated flow rate : 0 $\text{m}^3 \sim +99999.999 \text{ m}^3$
Data Communication		Photoelectric Interface, Sigfox (Report 4 time per day with last 6 hours' data)	
Power Supply		Battery DC3.6V (one battery can work continuously over 10 years)	
Protection Class		IP68	
Storage Temp.		$-25^{\circ}\text{C} \sim +55^{\circ}\text{C}$, $\leq 100\%\text{RH}$	
Pressure Parameter	Range	0~1.6MPa	
	Accuracy ($0^{\circ}\text{C} \sim +40^{\circ}\text{C}$)	$-0.002 \sim 0.002\text{MPa}$	
Temperature Parameter	Range	$0^{\circ}\text{C} \sim 50^{\circ}\text{C}$	
	Accuracy	$\pm 1^{\circ}\text{C}$	

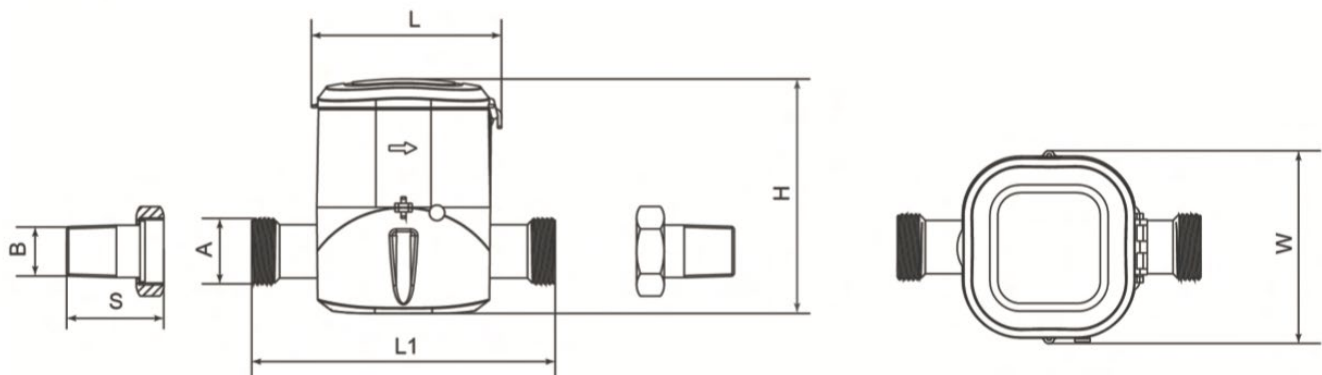
Flow Parameters (R250):

Nominal Diameter(mm)	DN15		DN20			DN25		DN32	DN40	
Min.cutoff	0.0015	0.0015	0.0026	0.0026	0.0026	0.004	0.004	0.006	0.0085	0.0085
Minimum Q ₁	0.006	0.010	0.006	0.010	0.016	0.016	0.025	0.040	0.040	0.064
Transitional Q ₂	0.010	0.016	0.010	0.016	0.025	0.025	0.040	0.064	0.064	0.100
Permanent Q ₃	1.6	2.5	1.6	2.5	4.0	4.0	6.3	10.0	10.0	16.0
Overload Q ₄	2.0	3.125	2.0	3.125	5.0	5.0	7.87	12.5	12.5	20
Pressure Loss	Δp_{25}	Δp_{63}	Δp_{10}	Δp_{25}	Δp_{63}	Δp_{25}	Δp_{63}	Δp_{40}	Δp_{25}	Δp_{40}

Flow Parameters (R400):

Nominal Diameter(mm)	DN15	DN20		DN25	
Min.cutoff	0.002	0.0028	0.003	0.0035	0.0035
Minimum Q ₁	0.00625	0.00625	0.010	0.010	0.01575
Transitional Q ₂	0.010	0.010	0.016	0.016	0.0252
Permanent Q ₃	2.5	2.5	4.0	4.0	6.3
Overload Q ₄	3.125	3.125	5.0	5.0	7.87
Pressure Loss	Δp_{63}	Δp_{63}	Δp_{63}	Δp_{63}	Δp_{63}

Dimension



Residential Ultrasonic Water Meter

Nominal Diameter(mm)	DN15	DN20	DN25
A without Connections	G $\frac{3}{4}$ B	G1B	G1 $\frac{1}{4}$ B
B with Connections	R $\frac{1}{2}$	R $\frac{3}{4}$	R1
L(mm)	97	97	97
L1(mm)	110/165	130	160
H(mm)	119	119	119
W(mm)	98	98	98
S Connection Length(mm)	45	51	59