

w-H2O™ Series

USW-3



ULTRASONIC WATER METER

- **Class C**
- **Potable water metering, 0.1°C - 60°C**
- **No moving components**
- **Tamper-proof**
- **Leak detection**
- **AMR ready**
- **Insensitive to sand, sediment or other particles**
- **Vacuum-sealed for humidity resistance**
- **Long lifespan with consistent performance**

USW-3 represents the latest innovation of USonic Metering's w-H2O™ inline ultrasonic water meter series.

This smart meter, in accordance with OIML R49, is designed specifically to capture water consumption in residential & commercial applications while integrating into an AMR/AMI network and billing solutions.

**EACH AND EVERY
DROP COUNTS**



- **SUBMETERING**
- **LEAKAGE DETECTION**
- **AMR/AMI/BMS**
- **BILLING**

FEATURES AND BENEFITS

Manufactured to be rugged, the USW-3 water meter has a sensor body constructed of high quality brass. With no moving components, once installed the meter remains accurate and maintenance free. The non-obstructive sensor design leads to no blockage and miniscule pressure drops. This robust design is ideal for challenging environments such as those in desert applications.

With USonic METERING's USW-3 **you can:**

- Remain proactive and identify leakage in order to capture lost revenue by detecting leaks as low as a few drops per second.
- Guarantee enduring meter performance even in harsh environments such as Middle East and Africa, as the unit is insensitive to sand, sedimentation and other particles.
- Reliably operate the unit with excellent long-term stability backed by a 10 year warranty, as accuracy does not degrade over time.
- Combat environmental elements with the sand-proof and submersible IP68 enclosure.
- Reduce operational costs over the long run.
- Prevent condensation from display and electronics due to vacuum-sealed design.
- Capture precise readings with robust ultrasonic transit-time technology.
- Ensure optimal field performance with a 15 year battery life.
- Register accurate readings as air is not measured.
- Detect reverse flow.
- Reliably integrate into AMR/AMI networking solutions using M-Bus, radio and pulse.
- Automatically switch to power over M-Bus when available to conserve battery.
- Remain confident with a tamperproof design.
- Reduce pump costs with our low pressure drop design.

**EACH AND EVERY
DROP COUNTS**

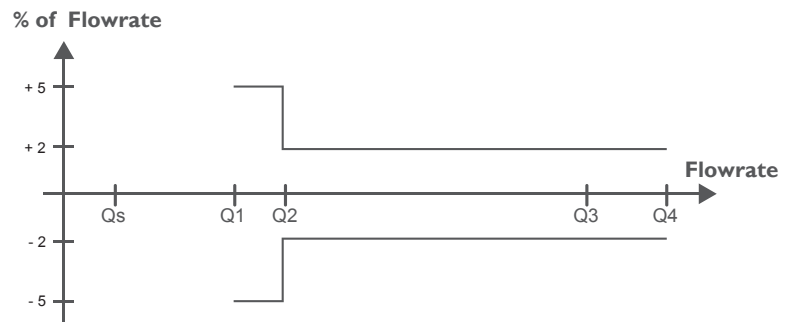
TECHNICAL SPECIFICATIONS

Size		Nominal Flowrate Q3		Overload Flowrate Q4		Transitional Flowrate Q2		Minimum Flowrate Q1		Starting Flowrate QS		Pressure Loss ΔP @ Q3
(mm)	(in)	(m ³ /h)	(gpm)	(m ³ /h)	(gpm)	(l/h)	(gph)	(l/h)	(gph)	(l/h)	(gph)	(Bar)
15	½	2.5	11	3.125	13.8	16	4.22	10	2.64	2	.52	0.63
20	¾	4	17.6	5	22	25.6	6.7	16	4.22	3	.79	0.40
25	1	6.3	27.7	7.8	34.3	40.3	10.6	25.6	6.7	4	1	0.25
32	1¼	10	44	12.5	55	64	16.9	40	10.5	6	1.5	0.25
40	1½	16	70.4	20	96.8	102.4	27	60	15.8	8	2.1	0.25
50+	2	Please check the big sizes and C & I datasheet.										

OPERATING PRINCIPLE

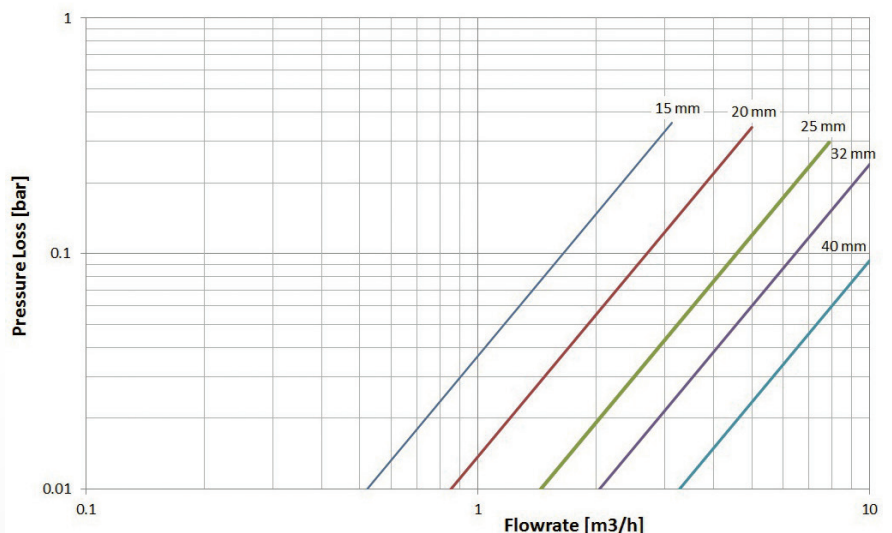
Using the ultrasonic transit-time measuring technology, emitted ultrasound beams are sent back and forth between two ultrasonic transducers. The liquid velocity is determined by the difference in measured transit-times between beams sent into (downstream) and against (upstream) the direction of liquid flow.

Maximum Permissible Flow Meter Indication Error OIML R 49-1 Class 2



• USW-3 Provides Better Accuracy Than R49 Standard.

Pressure Loss vs. Flowrate



• Non-obstructive Sensor Design Guarantees Low Pressure Loss.

TECHNICAL SPECIFICATIONS

Rated Operating Conditions

Maximum Admissible Pressure (MAP):	16 bar (1.6 MPa)
Static Current:	<10uA
Battery Life:	20 years
Network Power Supply:	Automatically switch to M-Bus or RS485
Accuracy Class:	Class 2 (AWWA C715-18)
Metrology Class:	Class C
Back Flow Detection:	Yes
Operating Temperature:	0.1°C to 60°C (32°F to 140°F)
Ambient Class:	Outdoor
Ingress Protection:	IP68 waterproof, submersible
Pipe Joint Options:	BSP or NPT
AMR/AMI Connectivity:	M-Bus, Wireless M-Bus 433/868MHz, LORA, RS485/Modbus

Wireless M-Bus technical specifications:

The USW-3 ultrasonic water meter has a module with embedded Wireless M-Bus protocol. This Wireless M-Bus chip can be selected based on the two widely used frequencies (433MHz and 868MHz) and complies to EN 13757-4 except for channel frequencies. Different frequencies for S, T and R mode are implemented to support the powerful wireless M-Bus protocol where the nominal operational frequencies are not license free.

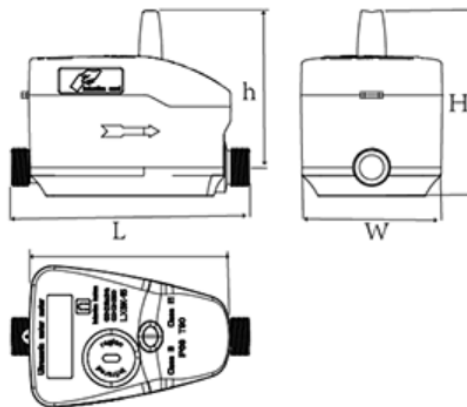
EN 13757-4 is an open standard which aims for equipment inter-operation and has a dedicated modes optimized for battery operated devices. The network topology is point to multi-point or peer to peer with an optional repeater. The module has a data encryption mode and a one-pin antenna connection. When coupled with our quarter-wave antennas a line-of-sight range of over 800 meters can be achieved and up to 2-3 km for High Power version.

Features:

- Embedded Wireless M-Bus protocol supporting EN 13757-4 mode S, T, C and R2
- Compact module makes it the best choice for residential applications
- Interface encryption for data security and use custom encryption key when necessary
- Ultra low power mode which extends the battery lifetime
- 2 channels in mode S T and C, 10 channels in mode R2
- No external components. The antenna is built-in the meter
- Designed for EX compliance

Parameter	433MHz model	868MHz model
Frequency bands	433.05 – 434.70 MHz	868.7 – 869.2 MHz
Number of channels	12	1
Mode (T1, T2, S1, S2 and R2)	4.8, 32.768, 100	32.768, 100
Max output power	10 dBm	10 dBm
Sensitivity, R/S/T	-106/-102/-101 dBm	-102/-101 dBm
Supply voltage	2.0 – 3.6	2.0 – 3.6
Current consumption, RX/TX	24 / 37 mA	24 / 37 mA
Sleep current	Typ 0.3 µA	Typ 0.3 µA
Protocol	EN13757-4	EN13757-4

Dimensions:



Model	USW-31-DN15	USW-31-DN20	USW-31-DN25	USW-31-DN32	USW-31-DN40
Size	DN15	DN20	DN25	DN32	DN40
L-Length (mm)	165	195	225	260	300
I-Length (mm)	111.90	111.90	111.90	111.90	111.90
H-Overall height (mm)	125	125	125	135	135
W-Width (mm)	105	105	105	105	105
Weight (kg)	0.85	1.1	1.25	1.95	2.15

About USonic Metering

USonic Metering is a global leader in flow and energy management solutions. Through continuous innovation, we transform complex ultrasonic technology into affordable, reliable solutions for accurate flow and energy measurement. USonic Metering offers water, heat, electricity and gas meters as well as AMR/AMI solutions. To find out how we can help today, please tell us about your application.