

## Ultrasonic Bulk Water Meter

ARAD is proud to introduce the OCTAVE, its new revolutionary, precise and ultra reliable ultrasonic bulk water meter.

The new meter includes both superior hydraulic characteristics as well as advanced alert, data and statistics features, new to the world of water metering.

### • Applications

Waterworks and industrial applications

### • Available Sizes

DN50-DN200 (2"-8")

DN250 (10") under R&D process

### • Construction

Cast Iron - epoxy coated

Drinking water approval - WRAS

### Features:

- Dual beam ultrasonic technology for precise and ultra reliable metering
- No moving parts
- Excellent long-term stability and reliability
- Battery powered -10 years life expectancy
- Rugged mechanical design - Submersible (IP68)
- Extremely sensitive and accurate in low flows
- Turndown ratio - better than 1:300
- Working pressure - 16 bar
- Liquid Working temperature - Water 50°C
- Bi-directional - including bi-directional outputs
- Flexible data formats including flow directions, flow rates, volumes and leak detection

### Technical Specifications

<b>Maximum Working Pressure</b>	16 bar
<b>Liquid Temperature</b>	0.1 – 50 °C
<b>Precision Class</b>	ISO 4064 rev.2005
<b>Configuration</b>	Compact - The display is built in to the unit
<b>Power Source</b>	2 D size Li-battery -10 years life time
<b>Environmental Protection</b>	IP 68, Ambient operation temp. -25°C ÷ +55°C
<b>Display Units</b>	Multi line 9 digit LC display (Programmable - m3, USG, CuFt, Acre Feet, Flow rate and volume)
<b>Output (optional)</b>	Powered loop 4-20 mA



- Alerts and statistics features
- AMR and cellular networks ready
- Dual line LCD
- Programmable Display (units and outputs resolution)
- Dual Digital high resolution output and Analog output (4-20mA)
- Ambient operational Temperature : -25°C to 55°C
- EMI / RFI Protection

### Primary Digital Display



- Volume units
- Flow rate units
- Leak detector
- Battery level
- Flow direction
- Alarm/Error
- Output Mode
- Coil/3G/GSM - Active communication

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## Dimensions

Model		Octave						
Nominal size	(mm)	50	50 Threaded	65	80	100	150	200
	(inch)	2	2 Threaded	2.5	3	4	6	8
L – Length without couplings (mm)		200	300	200	225	250	300	350
B – Width (mm)		165	113	185	200	220	285	340
H – Height (mm)		194	155	210	210	223	282	332
h – Height (mm)		40	35	90	90	103	140	165
Weight (kg)		9	8	11.5	13	15	32	45

## Performance data

flowrate m <sup>3</sup> /h	meter size					
	DN50- 2" 2" Threaded	DN65- 2.5"	DN80 - 3"	DN100- 4"	DN150- 6"	DN200- 8"
Q <sub>4</sub>	65	80	100	150	320	510
Q <sub>3</sub>	40	50	63	100	250	400
Q <sub>2</sub>	0.125	0.150	0.200	0.320	0.600	1.000
Q <sub>1</sub>	0.060	0.070	0.080	0.100	0.400	0.800
starting flow	0.015	0.015	0.015	0.015	0.100	0.100
not measurable						
max. peak flow*	75	90	120	200	350	550

\* For short time - as requested by fire-departements

## ISO 4064-rev. 2005 Performance Requirements

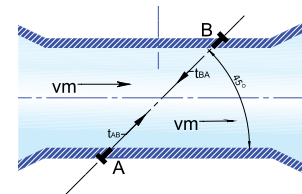
flowrate m <sup>3</sup> /h	meter size				
	DN50 - 2"	DN80 - 3"	DN100 - 4"	DN150- 6"	DN200- 8"
Q <sub>4</sub>	50	80	125	313	500
Q <sub>3</sub>	40	63	100	250	400
Q <sub>2</sub>	0.125	0.200	0.320	0.800	1.280
Q <sub>1</sub>	0.080	0.125	0.200	0.500	0.800
R <sub>10-Q3/Q1</sub>	500	500	500	500	500

## Electrical Output Resolution (Quantity/Pulse) & Pulse Duration

Pulse per selected quantity	M <sub>3</sub>	USG	Cuft	A.F
	Max pulse width [ms]	Max pulse width [ms]	Max pulse width [ms]	Max pulse width [ms]
0.0001	1			
0.001	10			125
0.01	90		3	125
0.1	125	4	32	125
1	125	40	125	125
10	125	125	125	125
100	125	125	125	125
1000	125	125		

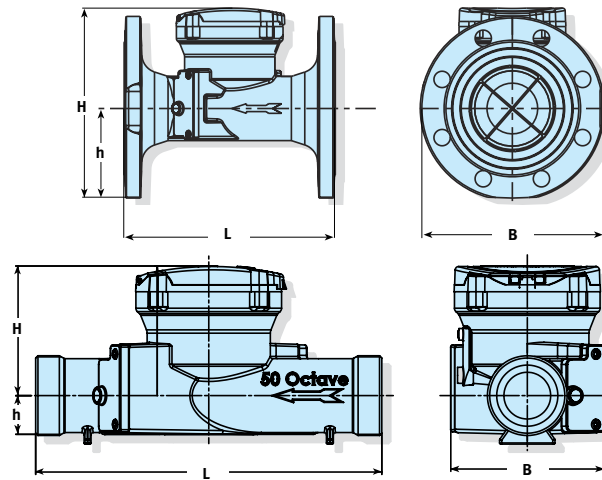
## Measuring Principle

Imagine two identical swimmers crossing a river on the same diagonal line, one with the flow and the other against the flow. The swimmer moving with the flow needs much less time to reach the opposite bank. Ultrasonic waves behave exactly the same way. The sound wave that flows in the direction of the stream moves faster than the one that flows against the stream. The transit times T<sub>AB</sub> (Transit time of ultrasonic waves from sensor A to sensor B) and T<sub>BA</sub> (from sensor B to A) are measured continuously. The time difference (T<sub>BA</sub> - T<sub>AB</sub>) is directly proportional to the mean flow velocity (V<sub>m</sub>) of the liquid. The flow rate is a result of the velocity multiplied by the cross section area of the flow tube size.

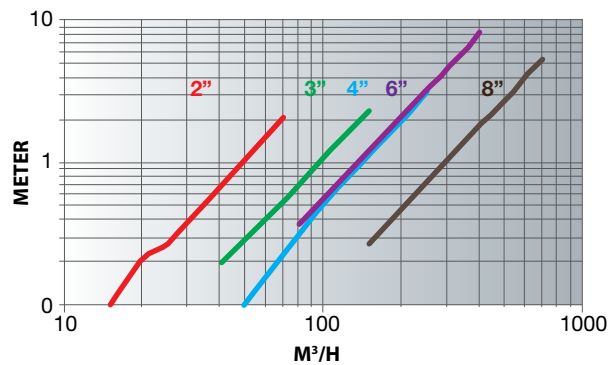


## Installation Requirements

- The water meter can be installed in any position. The meter must be full with water all the time.
- No special requirements for installation (U0 – D0).



## Head Loss Curve



## Accuracy Curve

