



# octave

Ultrasonic Bulk Water Meter



## OCTAVE - 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

### 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 then 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
- 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

### Applications

Waterworks and industrial applications

### Available Sizes

- DN 50 (2")
- DN 65 (2.5")
- DN 80 (3")
- DN100 (4")
- DN150 (6") in development
- DN200 (8") in development

### Construction

Cast Iron - epoxy coated drinking water approval

### Primary digit display



### 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 attached 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 rates and volumes)
<b>Output (optional)</b>	Programmable dual open collector pulse output Powered loop 4-20 mA

- Flow direction
- Alarm/Error
- Output mode
- Coil/3G/GSM-Active comm.
- m<sup>3</sup> volume units
- m<sup>3</sup>/h flow rate units
- Leak detector
- Battery level



### Performance data

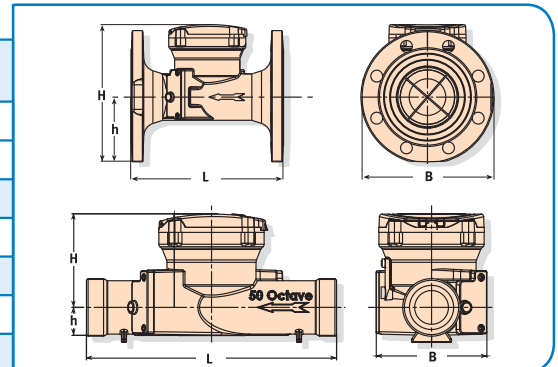
flowrate (m <sup>3</sup> /h)	meter size			
	DN50 - 2" 2" Threaded	DN65-2.5"	DN80 - 3"	DN100 - 4"
maximum peak flow (for short time)	75	90	120	200
Q <sub>4</sub>	65	80	100	150
Q <sub>3</sub>	40	50	63	100
Q <sub>2</sub>	0.125	0.150	0.200	0.320
Q <sub>1</sub>	0.060	0.070	0.080	0.100
starting flow	0.015	0.015	0.015	0.015

### Meter Performance Acc. Iso 4064 - rev. 2005

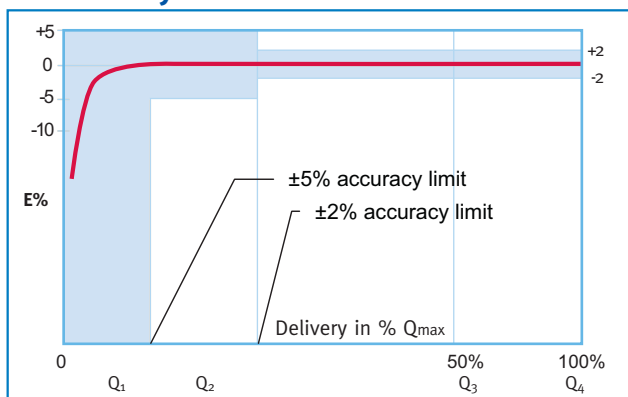
flowrate (m <sup>3</sup> /h)	meter size		
	DN50 - 2"	DN80 - 3"	DN100 - 4"
Q <sub>4</sub>	50	80	125
Q <sub>3</sub>	40	63	100
Q <sub>2</sub>	0.125	0.200	0.320
Q <sub>1</sub>	0.080	0.125	0.200
R <sub>10-Q3/Q1</sub>	500	500	500

### Dimensions

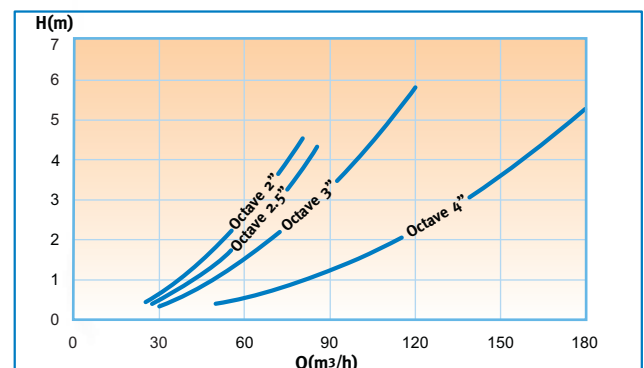
Model		Octave				
Nominal size	(mm)	50	50 Threaded	65	80	100
	(inch)	2	2 Threaded	2.5	3	4
L - Length (mm)		200	300	200	225	250
W - Width (mm)		165	113	185	200	220
H - Height (mm)		194	155	210	210	223
h - Height (mm)		40	35	90	90	103
Weight (kg)		9	8	11.5	13	15



### Accuracy Curve

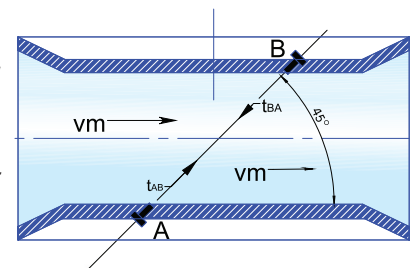


### Head Loss Curve



### 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 product. The flow rate is a result of the velocity multiplied by the cross section of the size of the meter.



### 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		

### 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 (U<sub>0</sub> - D<sub>0</sub>).

6" and 8" in development - expected release in the 3<sup>rd</sup> quarter of 2011.