



octave

Ultrasonic Water Meters

A T u n e d M e a s u r e





The OCTAVE Ultrasonic Meters

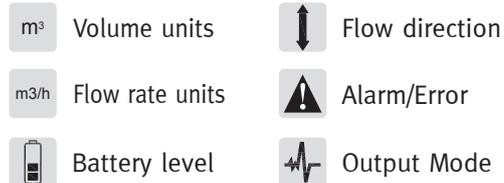
A revolutionary, precise and ultra reliable ultrasonic bulk water meter with no moving parts. With superior hydraulic and batteries that last more than 10 years, the Octave is today's best choice for bulk meters.

- **Applications**
Utilities, Waterworks, Industrial and Agricultural applications
- **Available Sizes**
DN50-DN300 (2"-12") with cast iron body
DN40 and DN50 (1½"-2") with polymer body
DN50- DN200 (2"-8") with stainless steel body
- **Standards**
MID 2004/22/EC (based on OIML R49 EN 14154 and ISO 4064:2005)
AWWA C750
WRAS
NSF
ACS
- **Construction**
Cast Iron - epoxy coated
Optional: SS316 for sizes 2" - 8" (DN50- DN200, only AWWA standard)
or Highly Reinforced Polymer for 1½" and 2" (DN40 and DN50, only threaded version)

Technical Specifications

Maximum Working Pressure	16 bar
Liquid Temperature	0.1 up to 50 °C
Precision Class	ISO 4064 rev.2005, Accuracy class 2
Configuration	Compact - The display is built in to the unit
Power Source	2 D size Li-battery: 10 years life time
Environmental Protection	IP 68, Ambient operation temp. -25°C up to +55°C
Display Units	Multi line 9 digit LC display (Flow rate and volume units are programmable)
Volume Display Options	1. Net (Forward less reverse) 2. Forward only 3. Forward & reverse alternating
Outputs (optional)	4-20mA (powered loop) Dual digital pulses process (open collector) Dry Contact Encoder output
Coupling Threads (only 1 1/2" and 2")	BSP, NPSM
Connections	Flanges according to ISO, BS 10 and ANSI 150
Severity levels	Mechanical class M1 Electromagnetic environment class E1
Pressure Loss	ΔP 16

Digital Display

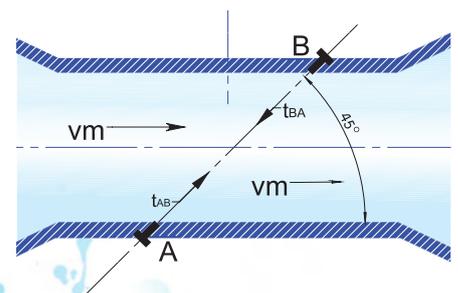


Measuring Principle

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_{AB} (Transit time of ultrasonic waves from sensor A to sensor B) and T_{BA} (from sensor B to A) are measured continuously. The time difference ($T_{BA} - T_{AB}$) is directly proportional to the mean flow velocity (V_m) of the liquid. The flow rate is a result of the velocity multiplied by the cross section area of the flow tube size.



Octave Features



- Excellent long-term stability and reliability
- Rugged mechanical design - Submersible (IP68)
- Bi-directional - including bi-directional outputs
- Flexible data formats including flow directions, flow rates and volumes

- AMR and cellular networks ready
- Alerts and statistics features (in AMR option only)
- Dual line LCD
- Programmable Display (units and outputs resolution)
- EMI / RFI Protection

Octave Line-Up of Advanced Ultrasonic Water Metering

The Octave family of products offers the water metering field advanced technologies with exceptional levels of accuracy which are suitable for four different applications:



GRID

Octave is a revolutionary precise and exceptionally reliable ultrasonic bulk water meter, perfectly suitable for large projects, as key meters in grids and DMA (District Metered Areas). The Octave combines superior hydraulic characteristics with advanced alert, data and statistical features.

- The world's leading solution for handling bulk flow rates
- Diameter sizes from 2" up to 12"
- Made with highly durable materials - epoxy coating, cast iron and more
- Reliability at the highest level

DISTRICT

All of the recognized advantages of Octave, featuring with highly durable materials - cast iron complex, polymeric materials and a variety of new diameter sizes. Suitable for use in medium flow rates from apartment buildings to small neighborhoods/housing projects:

- Polymeric version available in diameter sizes 1½" and 2"
- Reduced weight to ease load on the plumbing systems and prevent distortions
- Low friction sensibility and high durability time
- Cost effective
- Made from recyclable materials
- Sizes 2"- 4" in cast iron complete the range for district uses

INDUSTRIAL

The Octave Stainless Steel is especially suited to water metering in challenging environments such as production plants, mining and industrial processes (AWWA Standard only).

- Diameter sizes from 2" up to 8" (ANSI flanges only!)
- Reliable operation in harsh environments
- Suitable for handling aggressive water in industrial processes
- Low friction sensibility and high durability over time

AGRICULTURE

For agricultural appliances the Octave is perfectly suitable as main meter with it's high accuracy, low headloss, electronic information options and diverse electrical outputs.

- Diameter sizes from 2" up to 12"
- No moving parts
- Reliable and accurate

Technical Information

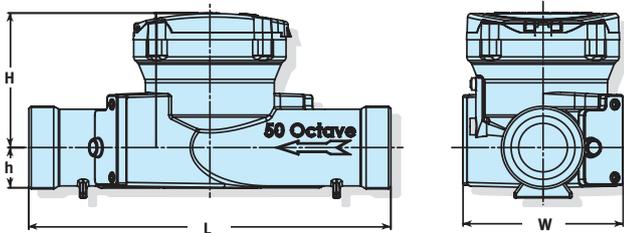
Dimensions

Model		Octave									
Nominal size	(mm)	40 Threaded	50 Threaded	50	65	80	100	150	200	250	300
	(inch)	1½ Threaded	2 Threaded	2	2.5	3	4	6	8	10	12
L - Length without couplings (mm)		300	300	200	200	225	250	300	350	449	499
W - Width (mm)		113	113	165	185	200	220	285	340	406	489
H - Height (mm)		155	155	194	210	210	223	282	332	383	456
h - Height (mm)		35	35	40	90	90	103	140	165	203	245
Weight (kg) - cast iron body			8	9	11.5	13	15	32	45	68	96
Weight (kg) - polymer body		1.4	1.45								

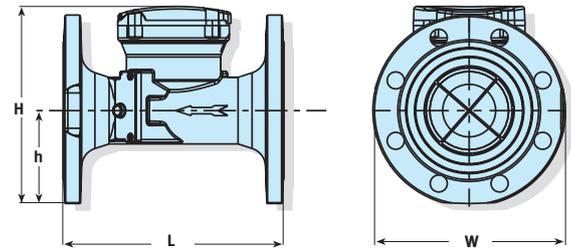
Dimensions Stainless Steel Meters

Model		Octave Stainless Steel				
Nominal size	(mm)	50	80	100	150	200
	(inch)	2	3	4	6	8
L - Length without couplings (mm)		254	305	356	457	508
W - Width (mm)		147	190	229	280	343
H - Height (mm)		165	216	250	276	327
h - Height (mm)		53	90	115	130	162
Weight (kg)- stainless steel body		5.5	11.5	17	27	51

Threaded



Flanged



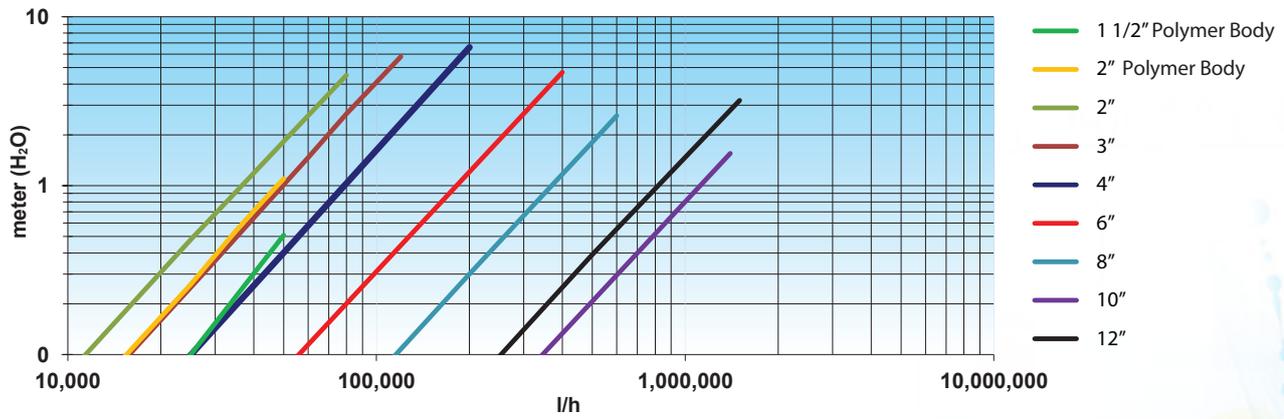
Actual Octave Performance Data

flowrate m³/h	meter size									
	DN 40 - 1½"	DN 50 - 2"	DN 65 - 2.5"	DN 80 - 3"	DN 100 - 4"	DN 150 - 6"	DN 200 - 8"	DN 250 - 10"	DN 300 - 12"	
Q4	65	65	70	100	150	320	510	1250	1250	
Q3	40	40	50	63	100	250	400	1000	1000	
Q2	0.125	0.125	0.150	0.200	0.320	0.600	1.000	3.2	3.2	
Q1	0.060	0.060	0.070	0.080	0.100	0.400	0.800	2	2	
starting flow	0.025	0.025	0.025	0.025	0.025	0.2	0.2	0.5	0.5	
R- Q3/Q1	667	667	714	787	1000	625	500	500	500	

Performance Acc. ISO 4064-rev. 2005 Performance Minimum Requirements

flowrate m³/h	meter size									
	DN 40 - 1½"	DN 50 - 2"	DN 65 - 2.5"	DN 80 - 3"	DN 100 - 4"	DN 150 - 6"	DN 200 - 8"	DN 250 - 10"	DN 300 - 12"	
Q4	50	50	50	80	125	313	500	1250	1250	
Q3	40	40	40	63	100	250	400	1000	1000	
Q2	0.256	0.125	0.125	0.200	0.320	0.800	1.280	3.2	3.2	
Q1	0.16	0.080	0.080	0.125	0.200	0.500	0.800	2	2	
R- Q3/Q1	250	500	500	500	500	500	500	500	500	

Head Loss Curve 1½" - 12"



Installation Requirements

- The water meter can be installed in any position
- The meter must be full with water all the time
- For details view the installation manual



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