



MultySonic 8000

Ultrasonic flow meters for open channels, semi- or fullfilled pipes



Features

- Maintenance-free
- Recording backflow & back up
- No culverts required
- Ex-approved
- High accuracy
- For channels from 0,2 to 50 m wide
- For different channel profiles
- Easy software updates via USB
- Remote control via internet

Description

The ultrasonic flow meter MultySonic 8000 has been especially designed for flow measurement of fluids in pipes (semi- or fullfilled pipes), rivers and streams with a width of 0.2m – 50m. Measurements can take place in pressure pipes up to 100 bars and under highly variable levels. A variety of sensor forms and materials permit use under heavy mechanical load and in aggressive media with pH values from 3.5 to 10.

Measurement principle

Measurement of the flow speed is carried out at several levels according to the ultrasonic transit time method principle in combination with an ultrasonic level sensor. A big advantage of the transit time method is the absolute determination of the mean flow rate between two fixed sensors. This makes complicated and questionable calibrations unnecessary.

Applications

Sewage plants

- Monitoring of sewage plants inflow and outflow according to the German self-monitoring regulation (EkVO)
- Control of rain trapping ponds
- Feeding of parallel ponds
- Monitoring the after-purification

Drain water associations and city works

- Recording the exact discharge quantities
- Recognition of false water quantities
- Checking and acquisition of the canal hydrology
- Recording velocity profiles

Thermal power stations

Here, MultySonic 8000 reliably carries out

- The monitoring of tapped and recycled cooling water quantities for accounting purposes
- Energy balancing to avoid impermissible flow heating
- Exact determination of the mean water temperature, even in case of temperature skeins
- Optimization of the pump performance

Special advantages

IDM accuracies in pressure pipes with little construction effort. Reliable quantity acquisition in the inflow of river power stations, turbine acceptance measurements. Exact, mean temperature measurement of the medium. Installing and dismantling possible under operating conditions. Exact calculation of discharge costs with government agencies.

Applications

Storage power stations and pumped storage power stations

- Turbine and pump monitoring
- Optimization of the turbine efficiency
- Turbine acceptance according to international standards
- Checking the required water quantities
- Pipe rupture monitorin

General advantages

- Flow measurement independent of medium viscosity
- Suitable for electrically non-conducting media
- Practically no pressure loss
- Retrospective installation without pipe interruption is possible
- Maintenance-free

River power stations

- Efficiency optimization and vane control
- Monitoring of environment protection requirements



Technical data

Flow meter	
Number of mesurement cards	1 to 4
Supply	90 – 230 VAC (24 V DC upon request)
System of protection	IP65, optional Eexd
Display	Touchscreen, grafics, 320x240 points, LED background lit
Interfaces	USB, RS232, LAN
Processor	64 Bit RISK
Operating system	Embedded Linux
Dimensions (b x h x t)	300 x 400 x 210 mm
Weight	Approx. 6 kg
Installation	Wall mounting, M8/M10
Number of independent measure- ment points	1-8
Approvals	CE, Exd
Ultrasonic board	
Measurement principles	Running time difference, pulse Doppler, pulse energy
Number of ultrasonic transducers	8
Number of paths	4
Ultrasonic boards per measuring transducer	1 to 4 (1 to 16 measurement paths)
Number of measurement points	1 to 4
Frequency range	0,2 to2 MHz
Path lengths	0,1 to 150m
Measurement range	-20 to 20 m/s
Resolution	<0,001 m/s
Number of measuremnts	Up to 100/s (path length dependent)
	The I/O board works autonomously with ist own processor
Approvals	CE, Exd
O-board	
Inputs 4-20 mA	8 counts, external or own supply
Outputs 4-20mA	4 counts, external or own supply
Outputs digital	2 counts, open collector, external or self-supplied (24 VDC)
Relay	2 counts, basic/NO/NC
I/O boards per measurement trans- ducer	1 or 2
	External or own supply is defined via a switch on the I/O board
	The I/O board works autonomously with its own processor

Technical data: Sensor

Sensor type	1,0 MHz	0,5 MHz	0,2 MHz	Quicklock
	For internal assembly	For internal assembly	For internal assembly	For pipe assembly from the outside
Frequency	1 MHz	0,5 MHz	0,2 MHz	1 MHz
Path lengths	0,1 - 10 m	0,5 - 40 m	3 - 150 m	0,1 - 10 m
Path angle	15 - 75° (45° Std.)	15 - 75° (45° Std.)	Freely selectable	15 - 75° (45° Std.)
Temperature range	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C
Pressure range	Max. 10 bars	Max. 3 bars	Max. 2 bars	PN 6/16/40/100
Material (coming in contact with the medium)	PVC/PU/V4A (others upon request)	PVC/PU/V4A (others upon request)	PVC/PU/V4A (others upon request)	PVC/V4A (others upon request)
Cable length	10 - 150 m	10 - 150 m	30 - 300 m	10 - 150 m
Cable type	RG 58	RG 58	RG 58	RG 58
Delivery	By default, the sensor is supplied with a wall mounting, other mounting systems upon request.	By default, the sensor is supplied with a wall mounting, other mounting systems upon request.	The sensor mounting is specifically projected and manufactured depending on the application.	The sensor can be supplied in different structural shapes. Installing and dismantling under operating pressure possible as an option (Quicklock version)

Accuracy

Inflow path	Accuracies					
	> 10D			< 5D		
Paths / Crosswise measurements	2	4	6	2x2	4x2	6x2
 Filled pipes and filled rectangular crosssections	1,5 - 2%	0,5 - 1%	0,50%	1,5 - 2%	0,5 - 1%	0,50%
 Open channels Partially filled pipes, running water	3 - 4%	2 - 3%	1 - 2%	3 - 4%	2 - 3%	1 - 2%

