BELUGA™

Open Channel Ultrasonic Digital Doppler Flow Meter Sensor

The BELUGA™ is the newest ultrasonic Doppler area/velocity flow meter sensor for open channel flow measurements from Flow-Tronic. The new sensor combines advanced digital Doppler ultrasonic velocity sensing technology with most modern and powerful DSP processor technology allowing real-time spectral analysis of the velocity distribution through the cross-sectional area.

Use the BELUGA™ in combination with the RTQ flow logger series for portable monitoring and for permanent monitoring with the IFQ Monitor or UNI-TRANS™ which display flow rate, velocity, level and much more.

Technical Specifications

Velocity Measurement

Method	Ultrasonic Doppler
Frequency	1 MHz
Range	-2 to +6 m/s
Accuracy	better than 1% (according to hydraulic and installation conditions compliance)
Resolution	0,001 m/s

Optional Combined Level Measurement (Ultrasonic)

Method	Ultrasonic pulsed echo
Range	0,00 to 1,75 m (with ULS-02)
	0,00 to 5,75 m (with ULS-06)
Accuracy	± 0,2% of reading (with ULS-06)
	± 0,3% of reading (with ULS-02)
	Includes non-linearity and hysteresis
Temp. Error	max. 0,04%/K
Resolution	1 mm

Optional Combined Level Measurement (Radar)

Method	Radar
Range	0,01 to 15 m
Accuracy	± 2 mm of reading
Resolution	1 mm

Optional Separate Level Measurement

Method:	Any 4-20 mA loop powered sensor

Flow Measurement

Method:	Conversion from measured velocity to average velocity based on integrated spectral analysis of the velocity distribution in the cross-sectional area. Conversion of water level and pipe size to fluid area. Multiplication of fluid area by average velocity to obtain the flow rate.

Conversion Accuracy:	±5.0% of reading
	Assumes pipe is 5 to 100% full

Communication

RS-485 communications port with Modbus ASCII slave communication protocol

Outputs

4-20 mA	1 for validated velocity (vQP) or validated velocity including median filter (vQPMF)

Internal Temperature Measurement

Method	Digital sensor
Range	-40° to 80° C

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Technical Specifications

Material & Dimensions

Enclosure	ERTACETAL®
Dimensions	190 mm L, 48 mm W, 28 mm H
	Vertical blocking when mounted : 300 mm
Weight	0,26 kg (without the cable, level sensor and mounting accessories)
Protection rate	IP68

Environmental Conditions

Operating Temperature Range	-20° to 50° C
Storage Temperature	-30° to 60° C

Certifications

Sensor	CE

Sensor Cable

Material	Polyurethane jacketed
Length	Standard:10 m
	Optional: 20 m, 30 m or length as needed up to 300 m

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