

RAVEN-EYE®

New Generation Open Channel Non-Contact Radar Flow Meter



The RAVEN-EYE® is the newest non-contact RADAR area/velocity flow meter for open channel flow measurements from Flow-Tronic. The new sensor combines advanced digital Doppler radar velocity sensing technology with most modern and powerful DSP processor technology allowing a patent pending self-learning average velocity calculation. The need for empirical models or time consuming site calibration become obsolete.

Use the RAVEN-EYE® 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.

The RAVEN-EYE® provides the user with highly accurate flow measurements under a wide range of flow and site conditions. By measuring the velocity of the fluid above the water surface, the RAVEN-EYE® eliminates accuracy and reliability problems inherent with submerged sensors, including sensor disturbances and sensor fouling.

The RAVEN-EYE® is ideal for monitoring flows from corrosive liquids or with high solids content.

Technical Specifications

The RAVEN-EYE® is a universal non-contact level/velocity flow sensor that can be connected to the RTQ flow logger series or the UNI-TRANS™ monitor & transmitter. Optionally it can also be connected to any device using the Modbus ASCII communication protocol.

Velocity Measurement

Method	Radar
Range	±0,15 to ±9 m/s (bi-directional)
Accuracy	± 0,5%, + zero stability
Zero Stability	± 0,02 m/s
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
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Flow Measurement

Method:	Conversion from surface velocity measurement to average velocity based on patent pending self learning model using velocity distribution measurements. Conversion of water level and pipe size to fluid area. Multiplication of fluid area by average velocity to obtain the flow rate.
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Conversion Accuracy:	±5.0% of reading Assumes pipe is 0 to 90% full
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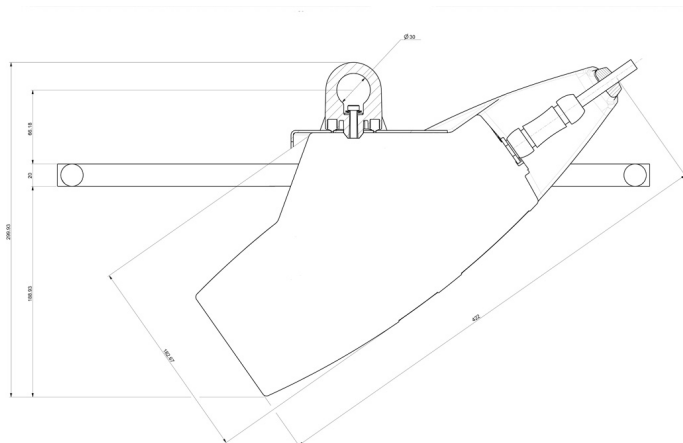
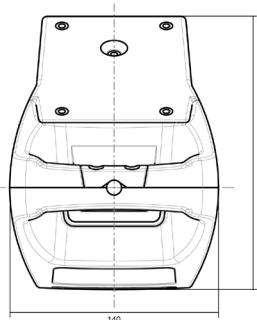
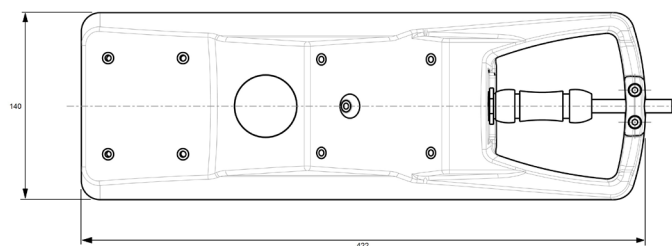
Communication

RS-485 communications port with Modbus ASCII slave communication protocol



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Technical Specifications

Outputs

4-20 mA

1 for validated surface velocity (vQP) or validated surface velocity including median filter (vQPMF)

Internal Temperature Measurement

Method Digital sensor
Range -40° to 80° C

Internal Humidity Measurement

Method Digital sensor
Range 0 to 100 %

Internal Pressure Measurement

Method Digital sensor
Range 0 to 1500 HPa

Material & Dimensions

Enclosure Polyurethane (PU)
Dimensions 422 mm L, 140 mm W, 183 mm H
Vertical blocking when mounted : 300 mm
Weight 3,85 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
ATEX II 3G Ex ib IIB T4

Sensor Cable

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

*Specifications are subject to change without notice
Updated: April 2014*