



RAVEN-EYE®

New Generation Open Channel Non-Contact Radar Velocity Sensor

The RAVEN-EYE® is a new generation radar velocity sensor. In combination with an appropriate level sensor, it provides an improved approach to open channel flow monitoring compared to older radar flowmeters. 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. A combined or detached ultrasonic or radar level sensing device or a submerged bubbler or pressure sensor convert's the RAVEN-EYE® into custom-tailored non-contact open channel area/velocity flow meter.

Use the RAVEN-EYE® in combination with the RTQ flow logger series for portable monitoring and for permanent monitoring with the UNI-TRANS™ which displays 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.

The RAVEN-EYE® has an open communication standard allowing the sensor to be connected to PLC's or third party loggers and monitors.



TECHNICAL SPECIFICATIONS RAVEN-EYE®

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	0,25 to 2,00 m (with ULS-02) 0,25 to 6,00 m (with ULS-06)
Accuracy	± 1% of reading, + zero stability <small>Includes non-linearity, hysteresis and temperature effects for US</small>
Zero Stability	± 2 mm
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.

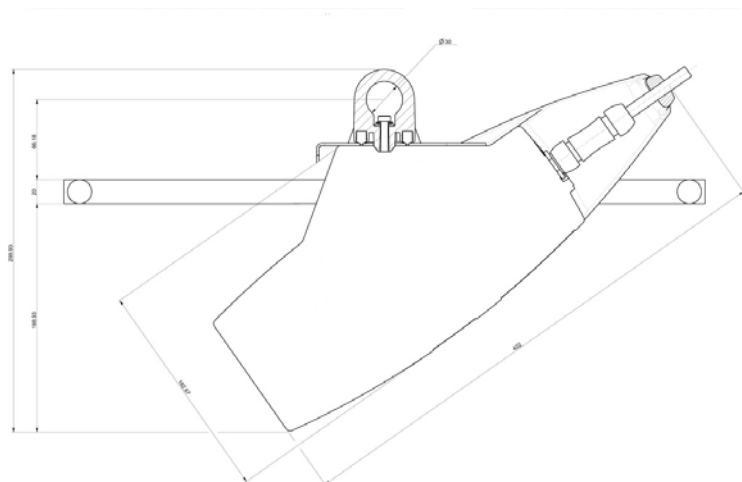
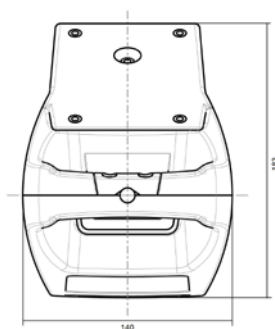
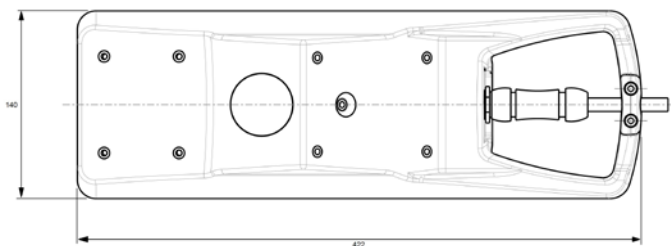
Conversion of water level and pipe size to fluid area. Multiplication of fluid area by average velocity to obtain the flow rate.

Conversion Accuracy: ±5.0% of reading
Assumes pipe is 0 to 90% full

Communication

RS-485 communications port with Modbus ASCII slave communication protocol

TECHNICAL SPECIFICATIONS RAVEN-EYE®



Outputs

4-20 mA 1 (for raw surface velocity or average velocity)

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

Sensor Cable

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

OPTION: ATEX Certification in progress