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 FLOWTRONIC. 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 IFQ MONITOR™ and 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 ±1,5 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 ULS02/RAV0002)
0,00 to 5,75 m (with ULS06/RAV0006)
Accuracy: ±0,2% of reading (with ULS06/RAV0006)
±0,3% of reading (with ULS02/RAV0002)
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 420 mA loop powered sensor

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% of reading
Assumes pipe is 0 to 90% full

Communication
RS485 communications port with Modbus ASCII slave communication protocol

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**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 1,500 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 range: -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: May 2016*