PHOENIX™

OPEN CHANNEL NON-CONTACT RADAR
FLOW METER FOR RIVERS

Main benefits

- Accurate flow measurement
- Cost-effective
- Non-contact: the sensor is positioned above the water surface
- Easy installation
- Robust IP68/NEMA 6 P (PU) enclosure
- Totally sealed sensor: no joints, seals or screws
- Developed for field applications
- Velocity distribution analysis & self-learning technology for average velocity calculation
- Easy integration with SCADA, PLC or telemetry systems
- No maintenance
- No structural work is necessary in the water
- Auto-diagnostic system

Applications

- Rivers
  - Water management
  - Flood prevention
  - River monitoring
  - Canals
  - Streams
  - Mountain torrents
- Wastewater
  - Wide WWTP channels
  - Drains
- Industry
  - Irrigation channels
  - Large channels
  - Hydropower plants

FLOW-TRONIC nv

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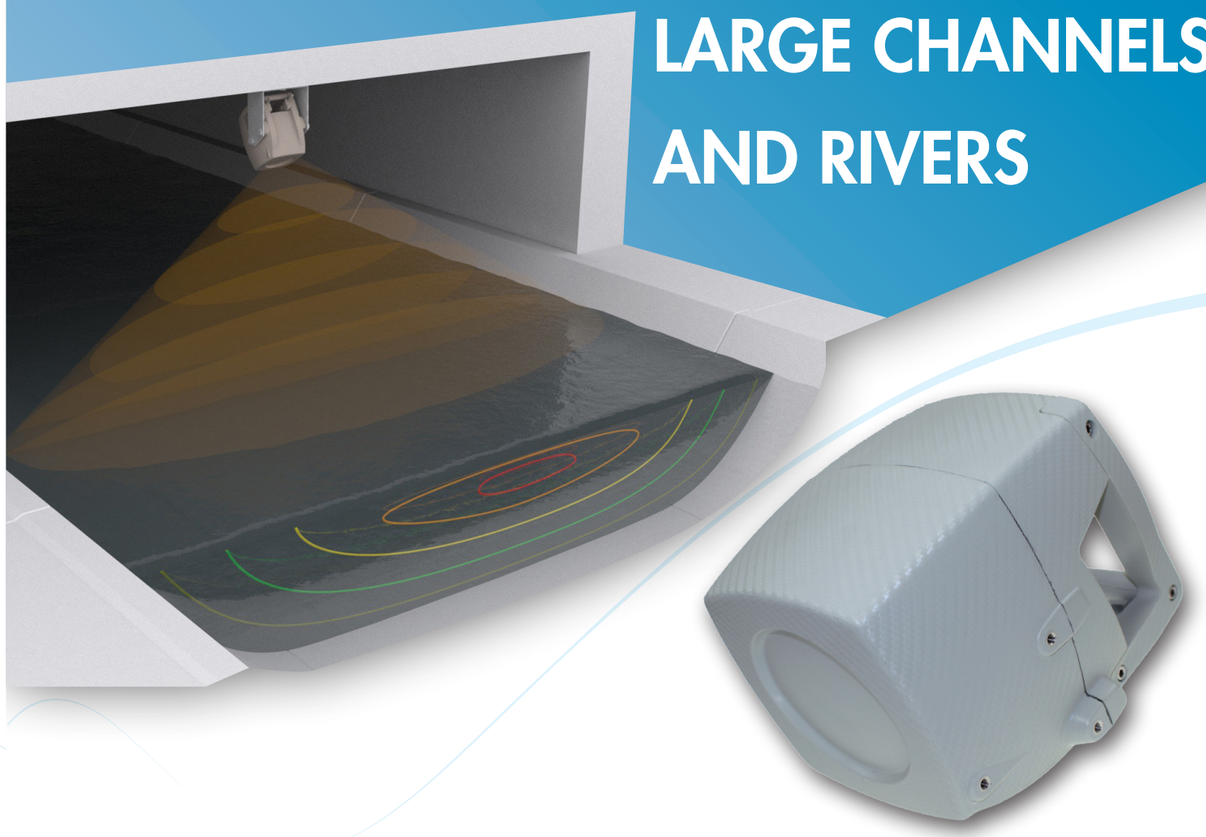
THE SOLUTION FOR LARGE CHANNELS AND RIVERS



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Technical specifications

How does it work?

The PHOENIX is the new non-contact RADAR area/velocity flow meter specially designed **for rivers and large channels**.

The PHOENIX is mounted above the water surface and measures the flow velocity at the water surface using a pulse wave radar and the flow depth with a level sensor (ultrasonic, radar or pressure).

Elaborated opening angle of 32° allows the radar to see a full spectrum of velocities over the river or channel width. The PHOENIX provides **highly accurate** flow measurements under a wide range of flow and site conditions.

Thanks to the **non-contact radar technology** the measuring equipment cannot be harmed by sediments, floating debris or driftwood in the water. The result is very low maintenance and an increased reliability, especially in flood situations.

The PHOENIX is featured with the well-known **auto-diagnostic system** introduced by Flow-Tronic on the RAVEN-EYE. Internal sensors monitor and report the condition or "health" of the measuring system (internal pressure, temperature and humidity).

Flow Measurement Method

- Conversion from surface velocity measurement to average velocity based on profiler measurement (For rivers: ADCP or current meter).
- Possibility to base conversion on models.
- Conversion of water level and profile size to fluid area.
- Multiplication of fluid area by average velocity to obtain the flow rate.

The PHOENIX is a universal non-contact level/velocity flow sensor that can be connected to the RTQ flow logger series or the IFQ MONITOR™. Optionally it can also be connected to any device using the Modbus ASCII communication protocol.

Velocity Measurement	
Method	Radar
Type	Continuous Wave Doppler
Range	±0.33 to ±49.21 ft/s (depending on flow conditions)
	(bi-directional / flow direction detection)
Frequency	24,125 GHz (K-Band)
Accuracy	±1%
Resolution	0.003 ft
Distance to water	1.64 ... 114.83 ft
Radar Opening Angle	
Opening angle	32°
Installation angle	60°
Power	
Supply	4 to 26 VDC
Consumption	1.38 W (during active measurement)
Level Measurement (Radar)	
Method	Radar
Range	0.03 to 49.21 ft (standard range)
	0.03 to 114.83 ft (extended range)
Accuracy	±0.006 ft of reading
Resolution	0.003 ft
Operation temp.	-40 ... +158 °F
Frequency	26 GHz (K-Band)
Optional Separate Level Measurement	
Method	Any 4-20 mA loop powered sensor
Communication	
Modbus	RS-485 communications port with Modbus ASCII slave communication protocol
Outputs (optional)	
4-20 mA	1 for validated surface velocity (vQP) or validated surface velocity including median filter (vQPMF)
Material & Dimensions	
Dimensions	6.5'' H x 6.2'' W x 7'' L
Weight	5.73 lb
Material	Robust PU
Protection	IP68/NEMA 6P
Color	Gray
Environmental Conditions	
Operating temperature range	-22° to 158° F
Storage temperature range	-40° to 176° F
Certifications	CE