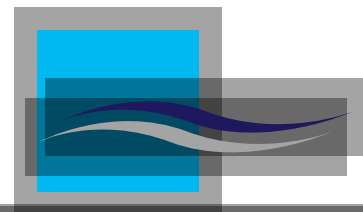
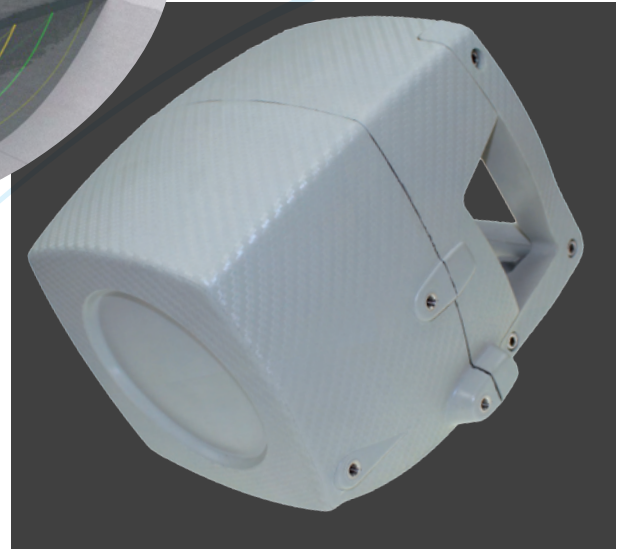
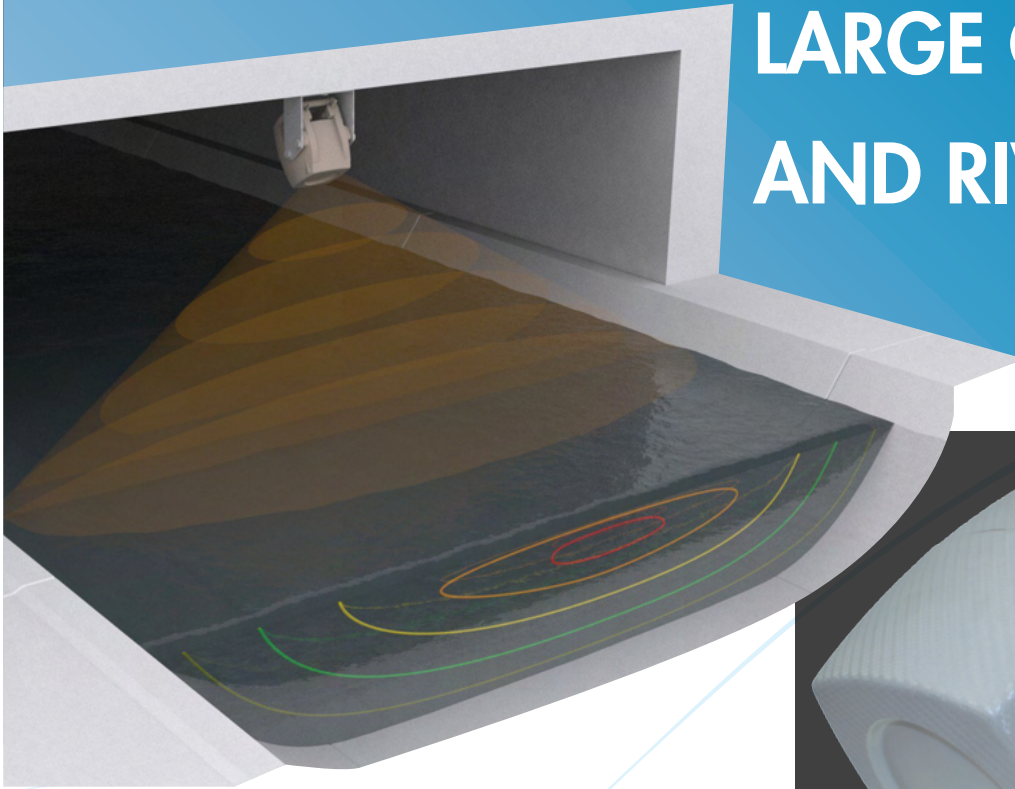


PHOENIX™

OPEN CHANNEL NON-CONTACT RADAR
FLOW METER FOR RIVERS

THE SOLUTION FOR LARGE CHANNELS AND RIVERS



FLOW-TRONIC SA
NV

PHOENIX™

OPEN CHANNEL NON-CONTACT RADAR
FLOW METER FOR RIVERS

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.



Technical specifications

Velocity Measurement

Method	Radar
Type	Continuous Wave Doppler
Range	$\pm 0,10$ to ± 15 m/s (depending on flow conditions) (bi-directional / flow direction detection)
Frequency	24,125 GHz (K-Band)
Accuracy	$\pm 1\%$
Resolution	1 mm
Distance to water	0,50 ... 35 m

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	0,01 to 15 m (standard range) 0,01 to 35 m (extended range)
Accuracy	± 2 mm of reading
Resolution	1 mm
Operation temp.	-40 ... +70 °C
Frequency	26 GHz (K-Band)

Optional Separate Level Measurement

Method	Any 4-20 mA loop powered sensor
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Communication

Modbus	RS-485 communications port with Modbus ASCII slave communication protocol
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Outputs (optional)

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

Dimensions	166 mm H x 157 mm W x 178 mm L
Weight	2,60 kg
Material	Robust PU
Protection	IP68
Color	Grey

Environmental Conditions

Operating temperature range	-30° to 70° C
Storage temperature range	-40° to 80° C

Certifications

CE	
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Technical data contained in this brochure is subject to change without prior notice, indicative only and not binding

Main benefits

- Accurate flow measurement
- Cost-effective
- Non-contact: the sensor is positioned above the water surface
- Easy installation
- Robust IP68 (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



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