



Radar Sensor RQ-30L

Discharge measurement for open rivers with external water level data

Innovative radar sensor for non-contact discharge measurement of rivers, open channels and canals with the possibility to use and integrate external water level data.

Features and advantages

- Discharge measurement by means of innovative radar technology and through integration of external data (water level and cross section profile)
- Upgrading of existing measuring sites with additional surface velocity measurement
- Well proven RQ radar technology: non-contact measuring, maintenance free and flood-proof
- No structural work is necessary in the water
- Recognition of flow direction and hysteresis effects
- Measurement in tidal waters
- Measurement in backwater situations
- Measures even where weed growth prevails and in waters with high turbidity
- Measuring range 0.08 ... 16 m/s (depending on flow conditions)
- Analogue outputs 4 to 20 mA (optional)

Fields of application

The RQ-30L is mainly applied where existing measuring sites (e.g. gauging sites) should be upgraded in terms of quality without the need for big investments. While the water level can be measured as before, the radar sensor improves the accuracy by additionally determining the surface flow velocity. Therefore the RQ-30L is a very effective extension to all sites where the water level should (or must) be measured by a separate instrument other than the RQ-30.

Measuring principle

The water level (water gauge) is determined by any measurement device other than the RQ-30L and provided to the same as an analogue data input for the discharge calculation.

Technical details

General

- **Dimensions** 241 mm x 246 mm x 154 mm
- **Total weight** 2.7 kg
- **Protection class** IP 67
- **Power supply** 6 ... 30 V
- **Power consumption at 12V** standby approx. 1.5 mA; active operation approx. 140 mA
- **operating temperature** -40...85 °C (-40...185 °F)
- **Miscellaneous** over voltage protection, reverse power protection, lightning protection

Surface velocity measurement

- **Measuring range** 0.08 ... 16 m/s (depending on flow conditions)
- **Accuracy** +/- 0.01 m/s; +/- 1 % FS
- **Resolution** 1 mm/s
- **Direction recognition** +/-
- **Measurement duration** 5 ... 240 sec.
- **Measurement interval** 8 sec. ... 5h
- **Measuring frequency** 24 GHz (K-Band)
- **Radar opening angle** 12°
- **Distance to water surface** 0.50 ... 35 m
- **Necessary minimum swell** 3 mm

Automatical vertical angle compensation

- **Accuracy** +/- 1°
- **Resolution** +/- 0.1°

Interface

- **Interface** 1 x SDI-12; 1 x RS 485 or Modbus; transfer rate: 1.2 to 115.2 kBd; protocol: various ASCII-protocols; output: discharge rate, flow velocity, water level, quality parameters
- **Input (water level values)** electrical signal: 4 ... 20 mA or 0 ... 2.5 V
- **Output** 3x analogue outputs, 4 ... 20 mA; for water level, flow velocity and discharge rate