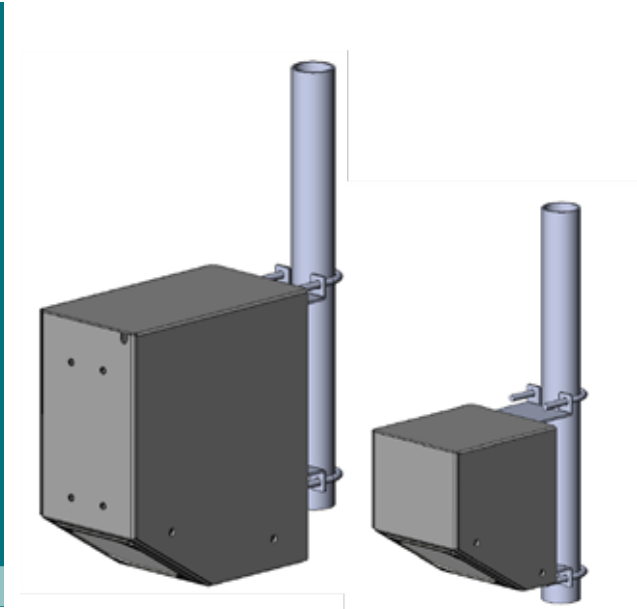


RQ-30La

Discharge measurement system with external water level sensor








The RQ-30La sensor is a continuous measurement device for the contact-free determination of the water discharge of open rivers and channels. It combines two sensors in one system. The first determines the water level by measuring the transit time of a radar signal. The second simultaneously measures the flow velocity of the water surface by means of the Doppler frequency shift. These two measurements are internally combined and thus provide the water discharge by using a pre-defined calibration of the measurement site.

The RQ-30La is designed for applications where a level sensor already exists or an external device is required.

Due to the contact-free measurement method the RQ-30La can be installed on extension arms without costly structural measures in the channel or river. This also has the advantage that the sensor is located outside the danger area of flood events and that it requires little maintenance over many years.

Backwater situations caused by inflows, weirs and downstream standing water bodies show no stable relation between water level and discharge. In many situations hysteresis effects with different relations for rising and falling water levels occur. Therefore, the determination of such relations is affected by substantial uncertainty. Only additional information about flow velocity permits the calculation of discharge under these difficult conditions.

-  Automatic discharge calculation based on hydraulic model with multiple k-factors.
-  Sensor self check with status and error output.
-  AI-based machine learning for compensation of environmental influences and early detection of errors.
-  3-point velocity calibration certificate.
-  Discharge calculation inside the RQ-30La.

Versions

Art	Version
19819	RQ-30La contact-free discharge sensor with interface for existing 4...20 mA level sensor, 0.1...15 m/s

Art	Version
21599-CL	SQ-R non-contact flowmeter for sewage and wastewater flow monitoring, with radar level and velocity sensors

Scope of delivery

Qty	Art	Item
1	-	RQ-30La in the required version
1	-	Manual and Commander Software on USB stick

Accessories

Art	Accessory
18711	Data cable for RQ-30 / RG-30, LiYCY 12x0,25mm ² , 10 m
18712	Data cable for RQ-30 / RG-30, LiYCY 12x0,25mm ² , 20 m
15833	Data cable for RQ-30 / RG-30 / SQ, 12x0,25 mm ² , up to 60m
15543	Data cable for configuration and testing of RQ-30 / RG-30 / SQ
20470	Q-Commander software V1.0

Specifications

Physical and environmental	
Power supply	6...30 VDC; Reverse voltage protection, overvoltage protection
Power consumption at 12 VDC	Standby approx. 1 mA Active measurement approx. 140 mA
Inputs	Analog input 4...20 mA for external water level sensor
Outputs	RS-485 ASCII / Modbus RTU SDI-12 Analog output 4...20 mA (14 bit, max. load 250 Ω) Digital output (low: 0V, high: Vsupply, max. 1.5 A)
Operating temperature	-40...75 °C (-40...167 °F)
Operating temperature	-40...60 °C (-40...140 °F)
Storage temperature	-40...60 °C (-40...140 °F)
Relative humidity	0...100 %
Protection rating	IP 67
Lightning protection	Integrated protection against indirect lightning with a discharge capacity of 0,6 kW Ppp
Housing material	Powder coated aluminum, vandalism-proof
Mounting bracket	Ø34...48 mm
Size L x W x H	241 x 154 x 246 mm (9.49 x 6.06 x 9.69 in)
Weight	2.7 kg (5.95 lb)

Velocity	
Detectable measurement range	0.08...16 m/s (depending on waves)
Detectable measurement range	0.08...18 m/s (depending on waves)
Accuracy	± 0.01 m/s
Resolution	1 mm/s
Direction recognition	+/-
Measurement duration	5...240 s
Measurement interval	8 s...5 h
Measurement frequency	24 GHz (K-Band)
Radar opening angle	12°
Distance to water surface	0.50...35 m 0.05...130 m (0.16...426.51 ft)
Vertical inclination	Measured internally

Automatic vertical angle compensation	
Accuracy	± 1 °
Resolution	± 0.1 °

