METEOROLOGY
HYDROLOGY
ENVIRONMENTAL MONITORING

Non-contact discharge measurement for sewage systems, canals and industrial water bodies

Description

The radar sensors of the PCTSP039 series continuously measure the discharge of open canals and semi-filled pipes in sewage systems. With the contact-free measurement dirt or other solids in the water do not disturb the sensor. This is especially advantageous for the measurement of wastewater. A compact design allows an installation in manholes or in sewage systems.

FEATURES AND ADVANTAGES

- Non-contact measuring, maintenance free system
- Calculation of the discharge by continuous measurement of velocity and water level
- No structural work necessary in the water
- Appropriate sizes of the system for different water levels
- Measuring range: water level up to 8 m, velocity 0.10 to 15 m/s (depending on the flow conditions)
- Watertight and resistant housing (IP68)
- Simple installation and integration in existing measuring and control systems
- Multiple data interfaces: RS-485, SDI-12, Modbus, analog and pulse

FIELDS OF APPLICATION

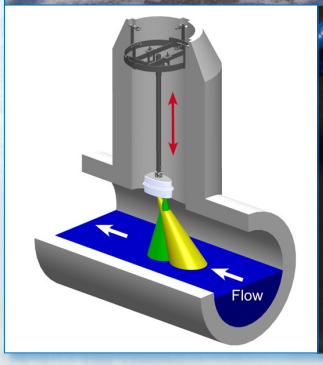
Various applications are possible with the radar sensors of the PCTSP039-series. For example measurements in sewage systems, purification plants, canal systems, manholes, semi-filled pipes as well as other technical water bodies. Interesting measurement results could be the inflowing sewage in a sewage plant, regulation of the plant and cost allocation in wastewater associations or the measuring of duration and frequency of rain and flood events for the canal management and environmental or water authorities. Those have to determine the water amount and discharge rate at central measuring spots in the rainwater canals or at rainwater overflow basins, where the compact sensors of the PCTSP03x series are very useful.

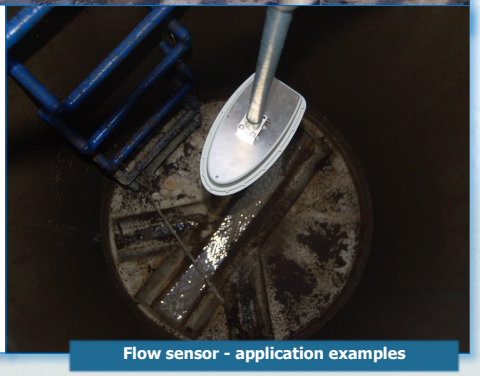
IMPLEMENTATION

With the compact design and flexible mounting equipment, the sensor can be installed very easily for example under bridges, at superstructures of closed channels or in a manhole of a sewage canal. The possibility to install the measuring device outside of the water is a crucial advantage. With this, a congestion of the sensor can be prevented, what often happens at immersed sensors. Therefore, the system is practically maintenance free. As an option, a flexible mounting device for installation in manholes of the canal network can be delivered additionally to the sensor.

The system is supplied with the SQ-commander software in order to communicate with the sensor locally, to create a cross-sectional profile, to configure the sensor settings and to view the measurement data.

Non-contact flow sensor





Flow sensor - application examples

Technical specifications may be varied without prior notice

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Technical specifications

GENERAL CHARACTERISTICS	
Voltage supply	6 … 30Vdc - Surge and reverse polarity protection
Consumption @ 12Vdc (Typical)	1,5Ah per day. Draining peak 91mA (inrush current)
Output	RS-485 ASCII / Modbus RTU SDI-12 Analogues 4…20 mA (14 bit, max. load 250 Ω) Digitals (low: 0V, high: Vsupply, max. 1.5 A)
Operating conditions	Temperature: -40 … 60°C — Relative humidity: 0 … 100%
Protection range	IP 68
Lightning protection	Indirect lightning protection integrated with with a discharge capacity of 0,6KW Ppp
Instrument body material	Zytel 103HSL NC010, resistant to aggressive substances typical of sewage canals
Mounting arm	Ø 30
Dimensions	272 x 152.2 x 185.5 mm
Weight	1,55Kg
SUPERFICIAL SPEED	
Detectable measuring range	0,08 … 16m/s (wave-dependent)
Accuracy	0,01m/s
Resolution	1mm/s
Direction recognition	+/-
Measurement duration	5 … 240s
Measurement interval	8s … 5h
Measurement frequency	24 GHz (K-Band)
Radar opening angle	12°
Distance from water surface	0,50 … 35m
Vertical tilt	Internally measured
AUTOMATIC COMPENSATION OF VERTICAL ANGLE	
Accuracy	± 1°
Resolution	± 0,1°
WATER LEVEL MEASUREMENT	
Measuring range (distance between sensor and water surface)	0,05…8m
Measurement frequency	80 GHz
Resolution	≤ 2mm
Radar opening angle	8°

Ordering codes

Non-contact discharge sensor - 8mm	**PCTSP039**

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Ver. E.1.1 07/09/2023