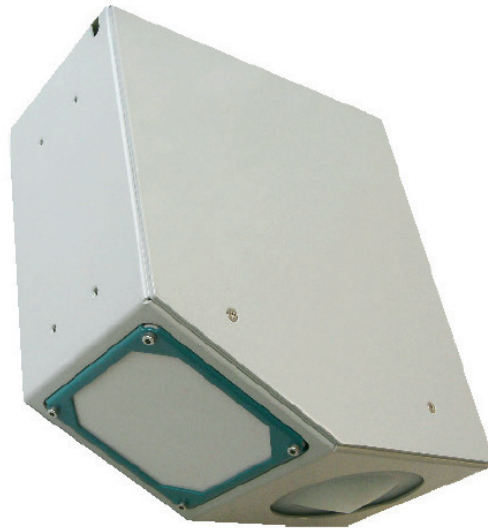




FLOW RATE MEASURING DEVICE

Contactless flow rate measurement sensor



PRODUCT DESCRIPTION

The ETG contactless flow rate measuring device is a sensor able to directly measure the flow rate data of rivers and canals.

The sensor can be easily installed on bridges, pre-existing structures without having to in any way come into contact with the water flow.

The sensor integrates a Doppler effect velocity measuring device and a hydrometric level measuring device inside of it. Since it has a smart internal unit it reliably obtains the flow rate data in real time starting from the two parameters just listed.

OPERATION

The water flow velocity is measured using the well-known Doppler effect. A radar signal with 24 GHz frequency is transmitted in the direction of the water flow to monitor. The signal, partially reflected by the surface of the water flow, will be once again received by the sensor. The received signal will however be at a frequency other than the starting frequency, and the difference between the two signals will be univocally linked to the water flow velocity. From a careful spectrum analysis made automatically on the received signal, the sensor will then be able to calculate the water flow velocity without ever coming into contact with it.

The Q flow rate will then be calculated by multiplying the water flow velocity data by the area of the wet section of the water flow.

This surface data is taken from the hydrometric level data measured by the sensor. Since a formula for calculating the section surface is implemented, in view of the hydrometric level value measured by the sensor also the current wet surface will be precisely measured.

MAIN FEATURES

Maintenance-free:

since it is not submerged in the water body, the sensor does not require any particular cleaning or risks being struck by floating materials.

Simple installation:

the ETG flow rate sensor easily adapts to any installation situation using specially studied supports and working radii.

Solar panel powered:

in view of the low consumption of the sensor, it can be powered by solar panels.

High reliability:

the sensor is equipped with advanced self-diagnostic systems and is also able to signal the presence of plant invasion in the instrumented section; this feature is essential and very useful for promptly starting the river bed cleaning activity.

The sensor was designed to operate outdoors continually. The target beneath the sensor must be kept free of rocks and various obstacles that might invalidate its measurement.

COMPONENTS THAT CAN BE ADDED OR BE BUILT INTO THE PRODUCT

none

TECHNICAL SPECIFICATIONS

SPECIFICATIONS	
LEVEL MEASUREMENTS	
Level ranges available	0-15 metres (standard version), 0-35 metres (optional version)
Resolution	1 mm
Accuracy	± 2 mm
Radar frequency	26 GHz (Banda K)
Radar aperture angle	10°
VELOCITY MEASUREMENTS	
Resolution	1 mm/s
Accuracy	±0,01 m/s; ±1%
Measurement frequency	24 GHz
Radar aperture angle	12°
VELOCITY MEASUREMENT RANGE	0.10 SM S