

## QHR104 Radar Water Level Sensor



### Features

- Non-contact measurement of water level
- Measuring range up to 35 meters
- Accuracy up to  $\pm 3$  mm
- SDI-12 interface
- Insensitive to fog, precipitation and air temperature fluctuation
- Installation with minimal construction work

### PLICSCOM features

- 4-key easy adjustment
- Splash-proof even with cover open
- Trend and echo curve visualization
- Data memory capable
- Display options in gauge head, or via remote display

QHR104 is a Radar water level sensor for continuous level measurement. The product uses the pulsed radar principle to determine the water level without making direct contact with the water. It is insensitive to mud, drift material, weeds and aggressive substances such as sewage and brackish water.

### Clear and Easy Installation

Installation is easy with minimum construction work. The few construction elements, e.g. a bridge jib, do not interfere with measurement; interference could result in a narrowing of measured cross-section, and do not disturb the hydraulics. Possible false echoes caused by nearby supports etc, are removed by internal configuration of the software.

QHR104 is excellent where driftwood, debris, water traffic, or ice could damage stilling wells or other structures. The sensor can easily be relocated in the event of a storm changing the flow pattern, or if the river bed is sandy.

### Reliable Measurement Accuracy

The measurement accuracy is not influenced by air humidity (including fog), precipitation or air temperature fluctuations within the measuring range.

Further advantages include the low energy consumption, short measuring cycle, no dead angles and the short mounting distance.

### Technology

The measuring principle is based on the pulsed radar principle. Measurement is done in pulses, the so-called pulse procedure, where a transmitter sends out a short microwave pulse, followed by a period when the receiver picks up the signals reflected by the water. The received signal is conveyed to the integrated evaluation system. The time travelled by the pulse corresponds with the distance travelled to and from the surface of the water.

### Programming and Configuration by PLICSCOM Module

The QHR104 Radar Water Level Sensors can be programmed and configured with a pluggable PLICSCOM module. Push-button programming with a large screen display allows easy access to the instrument. The PLICSCOM is able to copy and paste sensor data to make setting up multiple sensors easy. Manufacturing data, diagnostic data, and all setup parameters can be viewed and accessed via the plicscom. After setup the PLICSCOM serves as an indicating instrument: measured values can be read directly in the requested unit and presentation style. The integrated background lighting of the display can be switched on via the adjustment menu.

# Technical Data

Measuring principle	Radar, Impulse procedure (K-band, 26 GHz)	Vibration resistance	Mechanical vibrations with 4 g and 5 ... 100 Hz
Applications	River, stream, lake, tidal sea, reservoir and stilling well water level measurements	Transmitter housing material	Aluminium double chamber / IP66 / IP67
Pulse energy	1 mW max.	Electromagnetic Compatibility	Conformity with Part 15 of the FCC directives and fulfills the RSS-210 regulations
Resolution	1 mm		Pulse Energy 1mW max
Temperature sensitivity	max. 5 mm over the entire temperature range -40 ... +80 °C	OPTIONS	
Sensor response time	SDI-12 measurement sequence 1 sec (typ), 5 sec (max)	PLICSCOM module	order code VE211985
Cable entry	1/2 NPT	Signal cable	length specified in order
Supply current	Typ. 15 mA / max. 50 mA DC	Installation arm and enclosure available for e.g. bridge installation, specify in order	
Surge protection	Built in, 1.5 kVA		
Operating temperature	-40 ... +80 °C (storage -40 ... +80 °C)		

	QHR104-1	QHR104-3
Vaisala order code	VE211254	VE211253
Measuring ranges	35 meters	20 meters
Accuracy	±3 mm	±5 mm
Output interface	SDI-12 interface - Baud rate 1200 bps - 7-bit, even parity, 1 stop bit	SDI-12 interface - Baud rate 1200 bps - 7-bit, even parity, 1 stop bit
Power supply	9.6 ... 16 VDC	9.6 ... 16 VDC
Process fitting	Swiveling holder with Flange 2"/316L	Mounting strap 170 mm
Antenna	Horn antenna ø 95 mm/430 mm/316L	Plastic horn antenna ø 80 mm / PP
Beam angle	8 °	10 °

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