Radar level sensor for water management

Looking Forward VEGA

Reliable function under all conditions

The new radar sensor VEGAPULS WL 61 is ideal for all applications in level, gauge and flow rate measurement in water purification and sewage treatment facilities. Completely unfazed by environmental influences, radar measurement technology enables reliable, high-precision logging of water levels.

The advantages of radar measurement

VEGAPULS WL 61 uses short radar signals to measure the distance to the surface of the water. Because the signals propagate independently of the surrounding environment, neither fluctuating temperatures, fog, rain or snowfall can influence the measurement. Its high precision remains unaffected under all operating conditions. This is a critical advantage, especially for flow rate measurement in open channels, since differences of even a few millimetres can cause significant measurement errors.

Integration into existing systems

Due to the many different mounting options, VEGAPULS WL 61 can be simply integrated into any area of a facility. The installation options range from simple wall mounting to suspension from the sensor cable. Electrical connection of the sensor is just as simple and versatile. All types are available, whether analogue 4 ... 20 mA signal with superimposed HART communication, or digital interface with Profibus PA or Foundation Fieldbus.

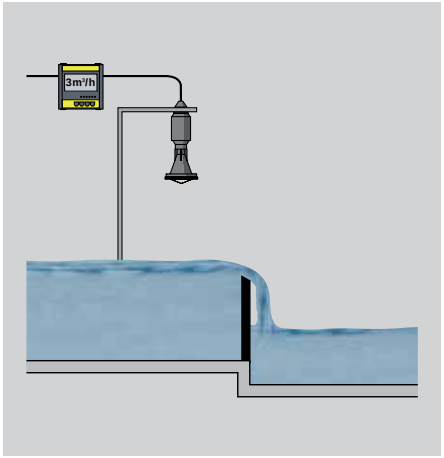
“VEGAPULS WL 61 measures level and flow in open channels with very high precision – under all conditions. This advantage over the ultrasonic measuring technique as well as its flexible mounting and connectivity options make it the ideal sensor for water management systems.”

VEGAPULS WL 61: All advantages at a glance

- Non-contact gauge, level and flow rate measurement
- High economy through wear and maintenance-free operation
- Universally employable due to extensive mounting options
- Very high precision even under strong temperature fluctuations
- Integrated linearization curves for level and flow
- Submersible due to protection rating IP 66/68 (2 bar)

All applications under control

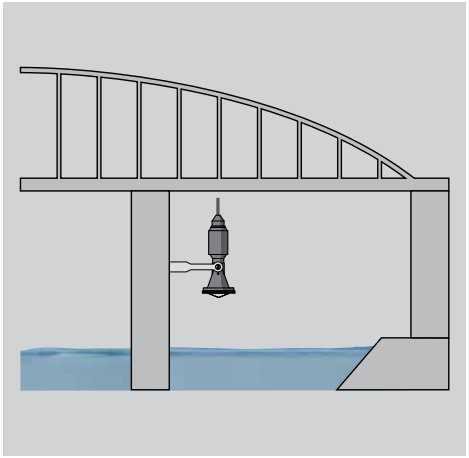
VEGAPULS WL 61 is optimized for the widely different applications in the water/waste water industry. The large number of mounting options and different connection concepts predestine the sensor for the typical application areas in this sector.



Flow rate measurement in open channels

VEGAPULS WL 61 is the ideal sensor for flow rate measurement in open channels and at outfall weirs. Unaffected by temperature, wind and weather, the radar sensor measures the actual flow with high precision.

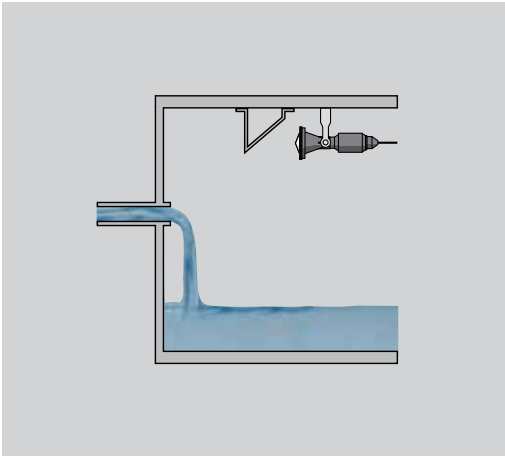
- High precision +/-2 mm
- Independent of environmental influences
- Flow measurement in conjunction with VEGAMET 391



Level measurement of rivers and canals

Due to its compact design, VEGAPULS WL 61 lends itself particularly well for monitoring the levels of rivers, canals and lakes. The sensor can be simply mounted on different structures like bridges or sluices.

- Simple integration into existing systems
- High precision +/-2 mm
- Unobtrusive design protects against vandalism

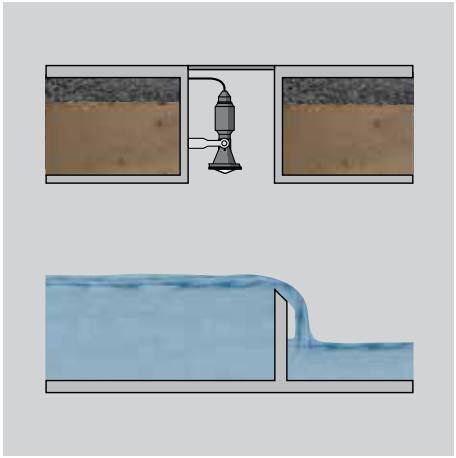


Floodwater in the storm water overflow tank

To optimally utilize the total capacity of a storm water overflow tank, the measuring signal of VEGAPULS WL 61 can be easily deflected by a sloping metal plate.

- Sensor submersible due to IP 66/68 (2 bar) rating
- Non-contact and thus wear-free measurement

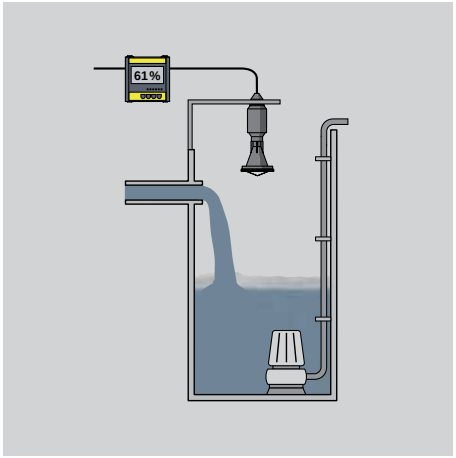
"The housing of VEGAPULS WL 61 was especially developed for applications in water management systems. It's easy to install and of course absolutely watertight."



Flow measurement in a chamber outfall

VEGAPULS WL 61 offers considerably more than just precision flow measurement. Event-driven measured values can also be stored in the sensor and made available for later documentation.

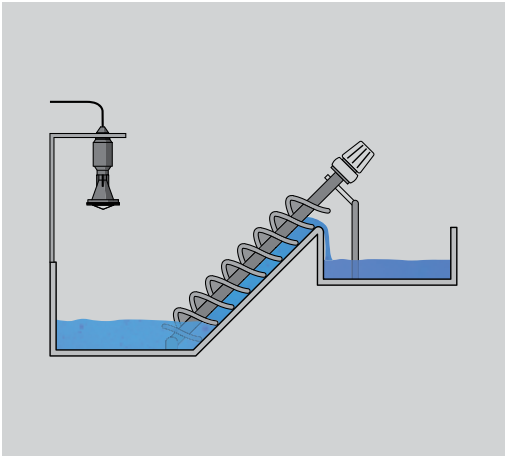
- Small minimum distance to water surface
- Integrated flow characteristics
- Data logger for up to 100,000 measured values



Level measurement in the pump shaft

The highly focused measuring signal of VEGAPULS WL 61 offers substantial advantages especially in cramped spaces. The sensor works reliably, even if there is foam and buildup on the shaft walls.

- Wide variety of mounting options
- Pump control in conjunction with VEGAMET 391



Screw pump in the sewage lift station

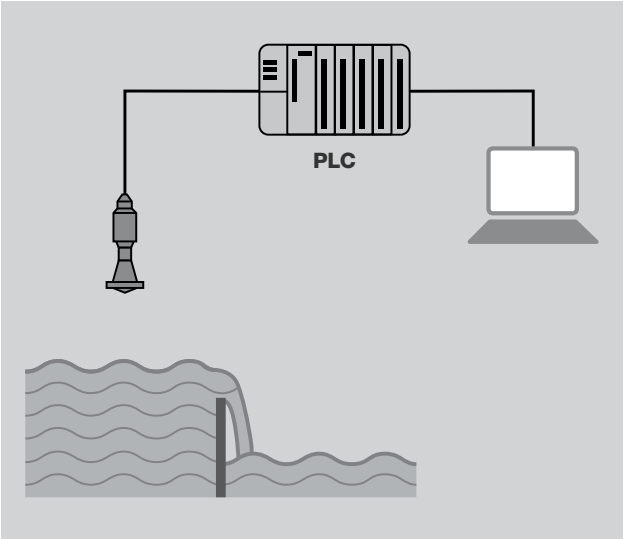
VEGAPULS WL 61 can be easily mounted above the intake of the screw pumps. It controls the operation of the pumps reliably, even if the waste water has a high solid content.

- Pump control via signal conditioning instrument or PLC
- Easy setup
- Maintenance-free operation

Simple integration into existing infrastructure

Regardless of how the measurement signals are to be further processed, VEGA can always provide a suitable solution for integrating the sensor into existing infrastructure. Whether analogue or digital, via an on site signal conditioning instrument or via a PLC, VEGAPULS WL 61 offers all possible alternatives.

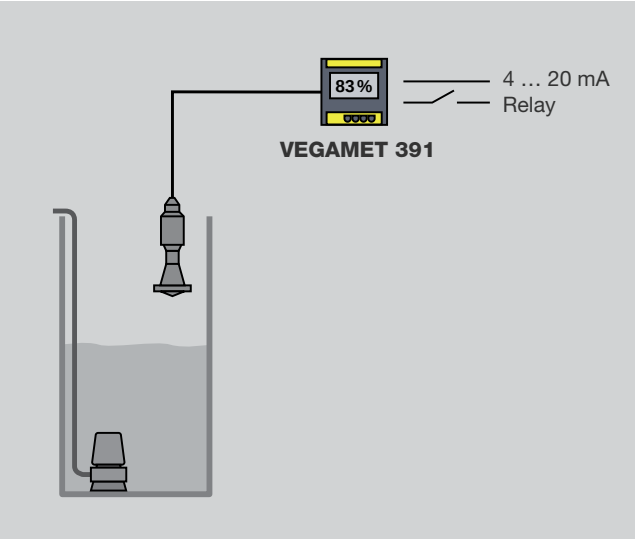
Direct connection to a control system



VEGAPULS WL 61 can be integrated into an existing control system in different ways depending on its configuration. Both analogue and digital sensor versions are available.

- Economical use of existing periphery
- Analogue connection via 4 … 20 mA output with superimposed digital HART signal
- Digital connection via Profibus PA or Foundation Fieldbus

VEGAMET 391 – signal processing on site



The signal conditioning instrument VEGAMET 391 is the ideal solution for direct signal processing on site and for creating a redundant signal processing system. Up to 6 relays and selectable pump switching functions make direct control of complex systems possible without additional equipment.

- Simple adjustment and display directly on the signal conditioning instrument
- Integrated relay contacts for direct control of pumps or alarms
- Flow measurement with flow rate counter
- Data storage directly in the signal conditioning instrument

Configuration and function of VEGAPULS WL 61

Extremely short microwave pulses are emitted by the antenna system in the direction of the water surface, reflected and received back again by the antenna system. The experience gained from more than 250,000 sold radar sensors has been incorporated into the signal processing system. In spite of the complexity of the signal analysis algorithms, adjustment and operation of the instrument are amazingly simple. Application-oriented configurations can be selected in just a few short steps.

Technical data

Max. measuring range	15 m (49.21 ft)
Measurement deviation	+/-2 mm
Process fittings	Collar flange from DN 80, ANSI 3", thread G1½ A, mounting strap
Process pressure	-1 … +2 bar (-100 … +200 kPa)
Process temperature	-40 … +80 °C (-40 … +176 °F)
Operating voltage	9.6 … 36 V DC

Materials

High chemical resistance through PP antenna covers and connection cables with PUR insulation.

Housing

The housing is manufactured from Valox PBT. The encapsulated cable gland ensures protection rating IP 66/68 (2 bar).

Electronics versions

Beside the two-wire electronics version with 4 ... 20 mA/HART output there are two purely digital versions available with Profibus PA or Foundation Fieldbus.

Approvals

The sensor is suitable for use in hazardous areas and licensed acc. to ATEX, IEC, FM and CSA. It was developed for use outdoors in compliance with the technical requirements of EN 302729.

Marschner+Kühn

39659-EN-110309

VEGA Grieshaber KG
Am Hohenstein 113
77761 Schiltach
Germany

Phone +49 7836 50-0
Fax +49 7836 50-201
E-mail info@de.vega.com
www.vega.com

Looking Forward

VEGA