



Industry Information – Water and Sewage

Instrumentation for sustainable
water and sewage management

Looking Forward **VEGA**



Contents

Responsibility for people and products	3
Partnership for a demanding industry	4
plics® – easier is better	6
Adjustment and system integration	8
Application examples:	
Rain overflow basin	10
Flow rate in open channels	11
Sewage pumping stations	12
Sludge treatment	14
Gas production	16
Fresh water from deep wells	18
Pressure in drinking water pipelines	19
Groundwater	20
River level	21
Dams	22
Instrument overview	23

Responsibility for people and products

VEGA's range of products and services for level measurement, point level and pressure are setting the standard in the water management sector. That's because VEGA systematically combines the latest technologies with comprehensive industry-specific knowledge. And because the company's guiding principle has absolute priority: long-term, fair collaboration based on high esteem for products and people.

A complete line-up of measurement technology

Since the 1990's, VEGA has been the undisputed technological leader in the area of radar level measurement. Additional measuring principles, such as ultrasonic, guided microwave, radiation based and capacitive measurement, round out the company's line-up of level and switching instrumentation. VEGA pressure transmitters measure hydrostatic pressure as well as process and differential pressure.

Modular and cost efficient: plics®

plics® is VEGA's unique modular instrument system. It allows a customized combination of sensor, process fitting, electronics and housing for the user, who thus gets exactly the measurement technology he really needs. And he can put the instrument into operation very quickly with the simple, standardised adjustment procedures.

Reliability for water supply and distribution

- Highest availability and operational reliability through high-resistance materials and SIL classification
- Robust housing technology for use in rough environmental conditions
- High protection rating up to IP 68 for applications in floodable areas
- Non-contact measuring techniques reduce the amount of servicing required, especially in the area of sewage measurement
- All necessary approvals for the sewage industry available

Partnership for a demanding industry

Water is equatable with life itself. The European Water Charter states the following: Article I: “There is no life without water. Water is a valuable resource that is essential for all human activity.” Article V: “When water is returned to its natural medium after being used, it must not jeopardize any later uses, it may have, either public or private.” VEGA offers water management professionals a wide variety of technical solutions that do justice to this aspiration.

Quality for people and environment

Robust, reliable measurement technology is a basic prerequisite for guaranteeing a sufficient supply of good, clean drinking water. The utilisation of natural resources, as well as the cleaning and recycling of waste water, are important components of the water supply system. River level measurement and flood protection are further demanding applications in responsible water management. By imposing stringent quality requirements on its measurement technology, VEGA makes its own contribution to environmental protection and ensuring an uninterrupted supply of drinking water.

Always the right measurement technology

To measure water dependably in the different application areas, different measuring principles are required. In the case of drinking water, for example, primarily hydrostatic pressure transmitters are used for monitoring the levels in deep wells and drinking water reservoirs.

In many applications involving sewage treatment, non-contact measuring sensors render valuable service – without direct contact to the dirty water, this reduces the costs of servicing and maintenance considerably.





Water with different properties

Whether drinking water, effluent or sludge – the properties of the measured media couldn't be more different when it comes to consistency, density and conductivity. That's why different measuring principles exactly matching the respective measuring requirement are used for the widely different applications. The right combination of long-standing application experience and innovative instrument technology guarantees an optimal solution for the user.

Process adaptations for every application area

An important prerequisite for the reliable function of a sensor is the right process fitting. VEGA offers a great variety of mounting options for all measuring principles. Since it is not always possible to modify the on-site connection technology, VEGA delivers each sensor with suitable connections – mechanical as well as electrical. All sensors are available with analogue 4 ... 20 mA/HART connection technology or as a digital instrument version.

plics[®] – easier is better

Indicating and adjustment module

- PLICSCOM
- VEGACONNECT

Electronics

- 4 ... 20 mA/ HART
- Profibus PA
- Foundation Fieldbus
- Level switch

Housing

- Plastic
- Stainless steel
- Aluminium
- Plastic double chamber
- Stainless steel double chamber
- Aluminium double chamber

Process fitting

- Thread
- Flange
- Hygienic connection
- Customer-specific

Sensor

- Radar
- Ultrasonic
- Guided microwave
- Capacitive
- Vibration
- Microwave barrier
- Process pressure
- Hydrostatic
- Differential pressure

Explosion protection (Ex)

Safety standards (SIL)

Hygienic standards (Hyg)

Ship approvals (Anchor icon)



Forward-looking measurement technology orientates itself around the people who use it. That's why we developed plics® – the world's first modular product system for instrumentation. Every one of our sensors is custom built from plics® components and thus optimally fulfils the requirements of every industry and its specific applications.

Simpler planning with plics®

Being able to select and combine sensor, process fitting, electronics and housing without restrictions simplifies instrument selection and engineering for applications in machines and systems. Cost reduction with plics® thus starts already in the planning stage.

Clear advantages for plant construction

Short delivery times, uncomplicated connection and fast setup and commissioning save the plant builder a lot of time and expense. The configuration, wiring and setup of VEGA instruments are always the same, so whoever knows this can readily install and operate any plics® measurement technology and application.

Assistance for the user

plics® delivers a convincing performance in daily use because of its high operational reliability, simplified maintenance and the reduced replacement part stocks resulting from designs using many identical components. In this area, the consistency of technology and operation simplifies and accelerates work with different plics® instruments. Adjustment always follows the same concept and is carried out via the menu-driven procedures in PLICSCOM, via on-site adjustment with a PC or via the control room.

plics® is refreshingly simple

plics® provides the best prerequisites for maximum product quality through reliable and exact measurements. To ensure responsible handling of water, plics® instruments come with all the relevant instrument and material certificates of the water and sewage industry.

- Protection rating IP 68 also for compact instruments with on-site adjustment
- Housing materials for severe chemical and mechanical challenges
- Protection for settings in the adjustment module
- Splash water protection also during adjustment

Where man and machine meet: adjustment and system integration

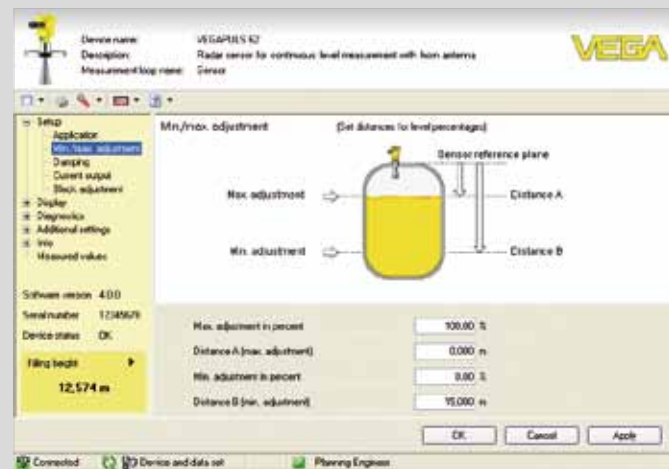


On-site instrument adjustment with PLICSCOM

The indicating and adjustment module PLICSCOM can be plugged into any plics® instrument at any time. It functions as a measured value indication on the instrument and as an on-site adjustment device. The structure of the adjustment menu is clearly organized and makes setup and commissioning easy. In addition, the status messages are displayed in clear, readable text. When an instrument is exchanged, PLICSCOM ensures fast availability of the measuring point: all sensor data are saved by pressing a key on the PLICSCOM and later copied into the replacement sensor.

Instrument adjustment via PC and control system

FDT/DTM technology is an innovative, manufacturer-independent description technology for field instruments. Complex field instruments can be operated as easily with laptop computers and PCs as with the current engineering and operating environments of control systems. With DTMs, the sensors are configurable down to the last detail and important adjustments can be carried out easily and quickly. As a system-independent operating system for DTMs, PACTware is the first choice for many field device manufacturers. VEGA also delivers the corresponding field device descriptions for system environments that depend on EDD description technology.



All current standards for measurement data transmission

VEGA offers practice-oriented solutions: from the proven 4 ... 20 mA/HART measurement data transmission to fieldbus technologies like Profibus PA or Foundation Fieldbus to wireless transmission. For level detection, the selection ranges from contactless electronic switch to relay and transistor right through to NAMUR signal.

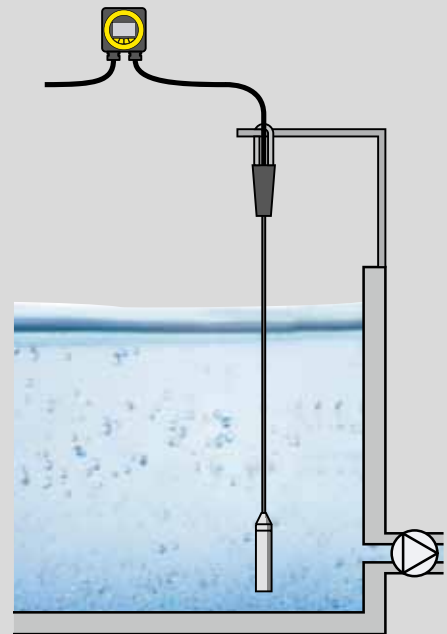
Communication at all levels

VEGA supports all important standards for uniform, centralized field instrument operation. If the instruments are integrated in primary management or control systems, the field instruments can be accessed for adjustment, servicing and diagnosis purposes via the existing infrastructure. Both DTM as well as EDD description technologies are supported.

Rain overflow basin

Flood protection

To relieve the sewer network and sewage plant during heavy rains, on-site preflooders or rain overflow basins are deployed to absorb the fast-rising waters. Duration and strength of the flooding are measured in the basins. Since the preflooders and rain overflow basins are usually far away from the sewage plant, high priority is placed on installing absolutely maintenance-free measurement technology.



Level measurement with VEGAWELL 52

High precision and operational reliability are decisive for a reliable logging of the operating data from on-site preflooders or rain overflow basins. The suspension pressure transmitter VEGAWELL 52 provides both. The absolutely front-flush and abrasion-resistant ceramic measuring cell is continuously surrounded and therefore cleaned by the flowing water. Even extremely dirty water or mud cannot cause blockage of the measuring cell.

Indication and adjustment with VEGADIS 62

The VEGADIS 62 is an external indicating and adjustment unit. The 4 ... 20 mA/HART connection technology and variable mounting options in the field allow the unit to be installed at a distance of up to 1.5 km away from the sensor.



VEGAWELL 52

- Robust construction
- Long-term stable
- Wear and maintenance-free
- Extremely simple setup and commissioning



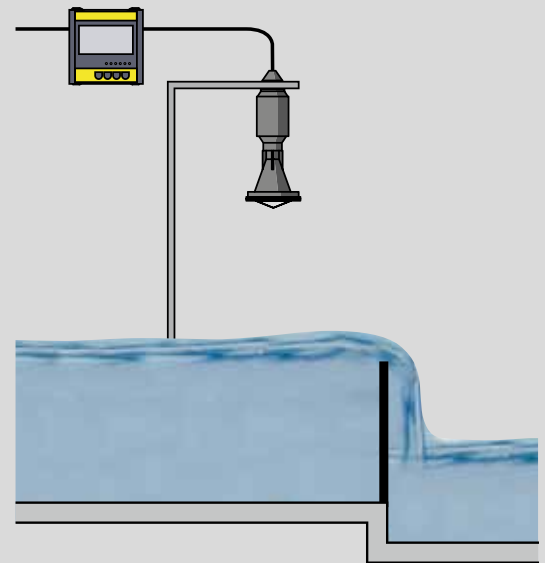
VEGADIS 62

- 4 ... 20 mA/HART sensor input
- Mounting and indication at any location
- No additional voltage supply required
- Robust housing technology

Flow rate in open channels

Measurement of effluent

The quantity of effluent that enters a sewage plant is an important criterion for effective control of the complex system. It determines the amount of air needed in the aeration basin. The air controls the activity of the bacteria that break down the contaminating substances. To keep the sensors from getting soiled due to the high solid content of the waste water, a non-contact measurement of the flow volume is usually recommended.



Non-contact level measurement with VEGAPULS WL 61

The radar sensor VEGAPULS WL 61 is able to measure the level in open channels with very high precision. Since the measurement is completely unaffected by temperature fluctuations, air movements and light foam generation on the liquid surface, VEGAPULS WL 61 represents the optimal solution for this application.

Data conditioning with VEGAMET 391

VEGA offers the compact signal conditioning instrument VEGAMET 391 for direct on-site processing of the flow-rate data. Beside the relay outputs, there is a totalizer for flow-rate measurement and a generous data memory. VEGAMET 391 is equipped with an analogue current output, as well as digital interfaces for measurement data transmission.



VEGAPULS WL 61

- Non-contact, maintenance-free measurement
- Very high precision
- Integrated flow characteristics
- Simple mounting
- Protection class IP 68



VEGAMET 391

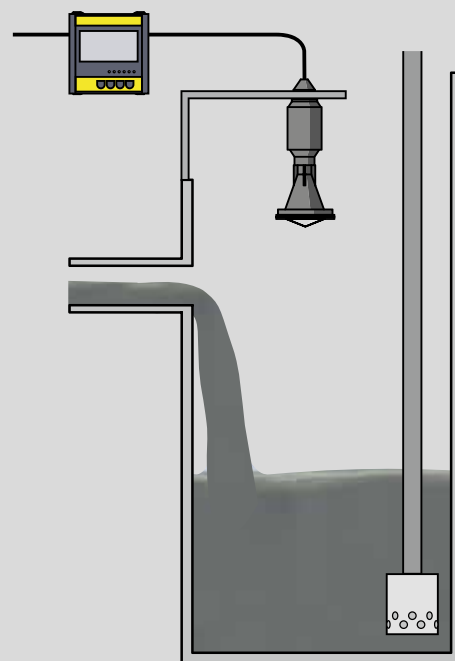
- Inputs for 4... 20 mA/HART sensors
- Integrated linearization curve and totalizer for flow measurement
- Ethernet and modem interface

Sewage pumping stations

Sewage on the way to cleaning

If the natural downward slope from residential areas to the sewage plant is not sufficient, it is increased by an appropriate amount through pumping stations.

Level measurement in the sink is indispensable for guaranteeing smooth, cost-efficient operation of the pumps. Non-contact measurement is ideal here, because it keeps the sensor away from the heavily contaminated waste water and thus the maintenance requirements low. The often cramped installation conditions in the pump shafts are an additional challenge for the implemented measurement technology.



Level measurement in the pump shaft

In demanding measuring applications in pump shafts, where the high performance of radar technology makes a big difference due to the cramped conditions or the increased generation of foam, the radar sensor VEGAPULS WL 61 delivers reliable service.

For simple applications in pump shafts, the non-contact ultrasonic sensor VEGASON 61 is employed. It measures the level independently of sewage consistency and is completely maintenance-free.

Pump control with VEGAMET 391

The compact signal conditioning instrument VEGAMET 391 is ideal for simple, on-site control of the pumps. An integrated pump switching function allows optimal operation of smaller systems with up to four pumps without the expense of a separate control system.



VEGAPULS WL 61

- Non-contact, maintenance-free measurement
- Independent of other installations
- Not affected by foam formation
- Simple mounting



VEGASON 61

- Contactless and maintenance-free
- Measuring range up to 5 m
- Simple mounting

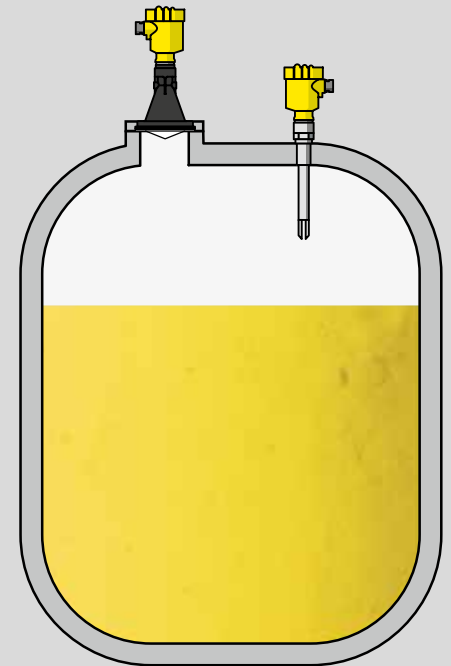


VEGAMET 391

- For 4 ... 20 mA/HART sensors
- Intelligent pump management
- Integrated linearization curve and totalizer for flow measurement
- Large digital and quasi-analogue display

Dosing and precipitation station

Chemicals are needed for sewage treatment, for example, chemical precipitation. In this process, phosphates and nitrates are settled out and separated. Beside lime solution and iron(III) chloride, acids and lyes are also stored for treatment of the digested sludge and for neutralization. These substances are subject to laws governing the use of substances hazardous to water. Appropriate overfill safeguards must therefore be installed on the storage tanks.



Level measurement with VEGAPULS 61

The radar measuring principle is particularly suitable for continuous level measurement of toxic and corrosive substances because it operates contactlessly, i.e. without direct contact with the medium. With its plastic-encapsulated antenna, the VEGAPULS 61 radar sensor is chemically highly resistant and thus ideal for this application.

Overfill protection with VEGASWING 63

Sensors for level detection represent an important safety element when it comes to overfill prevention in containers with toxic media. Due to its universal range of application, the vibrating level switch VEGASWING 63 is particularly suitable for water-endangering substances. To match the type and degree of corrosiveness of the medium, sensors fabricated of 316 L, Hastelloy, as well as plastic or enamel coating are available.



VEGAPULS 61

- Non-contact measurement
- High chemical resistance
- Wear and maintenance-free



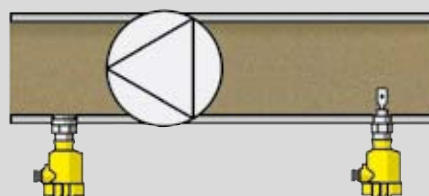
VEGASWING 63

- High reproducibility
- High-resistance materials like PFA, ECTFE, Hastelloy C4, enamel

Sludge treatment

Return flow in the sludge pumping station

Different sludges settle out in the individual settling basins of a sewage plant. These sludges are removed from the basins by means of special pumps. During this process, the pressure in the pipes must be monitored and the pumps must be prevented from running dry.



Pressure measurement with VEGABAR 52

The pressure transmitters used in the pipes must be resistant to the abrasive sludge. VEGABAR 52 with front-flush ceramic CERTEC® measuring cell is particularly well suited for this application, since it is vibration proof and highly resistant to abrasion.



VEGABAR 52

- Ceramic CERTEC® measuring cell
- High resistance against abrasion
- Exceptionally vibration proof
- Front-flush
- Resistant to pressure and vacuum shocks

Pump dry run protection with VEGASWING 61

Due to the compact size of VEGASWING 61 and its only 40 mm long tuning fork, the instrument can be deployed at any desired location in the pipelines. The robust sensor delivers a clear switching signal and thus prevents pump overheating.

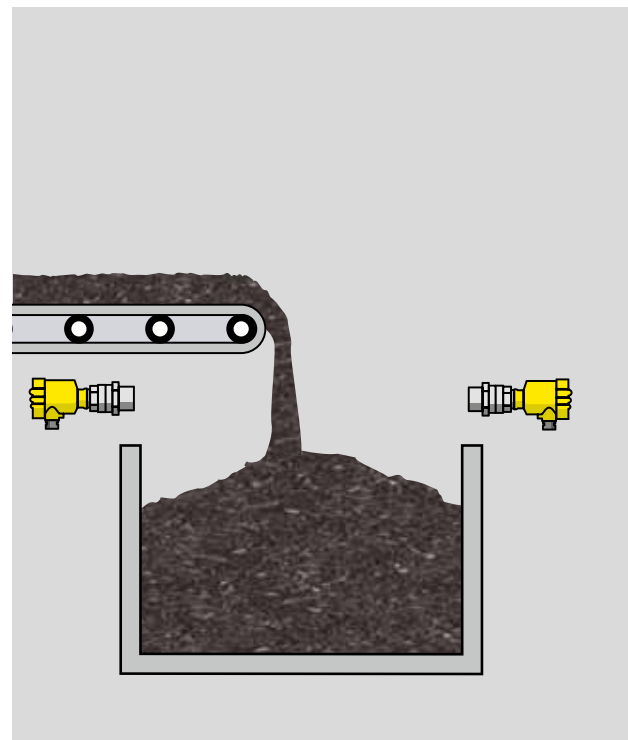


VEGASWING 61

- Universal level detection for liquids
- Adjustment-free
- Robust tuning fork

Sludge disposal

Sludge disposal is getting more and more difficult due to statutory regulations. The use of sludge in agricultural applications, as was common in the past, is now only possible to a limited extent. Today, the optimal way to dispose of sludge is by incineration. To guarantee an economical transport as well as effective burning, it is necessary to dry the sludge. Sludge with high moisture content is dried in various processes until it has a residual moisture content of approx. 10 % and then stored in silos or containers. Exact and reliable measurement technology is required for operating the drying systems cost-effectively.



Level detection with VEGAMIP 61

The abrasive sludge is stored in different types of containers, depending on the process. Only a measuring system that is not affected by the mechanical stresses can guarantee a reliable level detection. Non-contact measurement with a microwave barrier represents the ideal solution. The filling of silos and open containers can thus be monitored without direct contact with the medium.

Since the microwave barrier is mounted on the outside of the container, mechanical damage is impossible, even when the transport container is being removed.



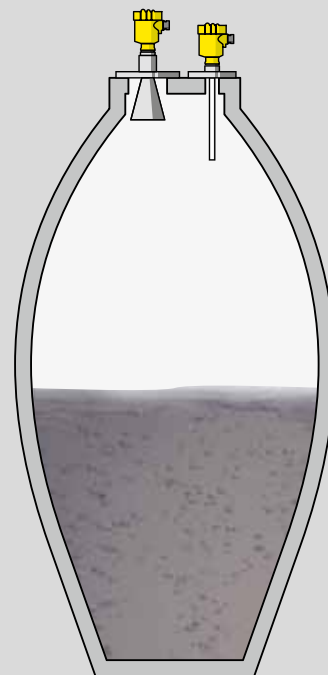
VEGAMIP 61

- Non-contact level detection
- Robust and maintenance-free
- Immune to fouling and contamination
- Simple mounting and adjustment

Gas production

Digestion tower

The gas that arises in the digestion tower is stored in gasometers and used to cover the energy needs of the sewage plant itself, or fed into a gas distribution system. Level measurement in the digestion tower is a prerequisite for optimal operation of the entire system. To prevent foam from getting into the gas plant, especially when foam generation is intense, a reliable level detection system able to detect widely different foam consistencies is required.



Level measurement with VEGAPULS 68

Due to the methane gas created in the digestion process, a measuring principle is required that operates without being influenced by changing gas concentrations and fluctuating pressure. The non-contact VEGAPULS 68 radar sensor is the ideal solution for this measuring task because it detects the surface of the medium reliably without influence from sludge density and other process conditions.

Level detection with VEGACAP 64 ensures reliable max. signal

Since heavy buildup on instrumentation in the digestion tower is usually expected, the electrode of VEGACAP 64, which is completely immune to buildup, is well suited for this measuring task. Even centimetre thick encrustations and buildup on the sensor don't impair the function of this measuring system.



VEGAPULS 68

- Non-contact measurement
- Approved for Ex areas
- Measuring range up to 35 m

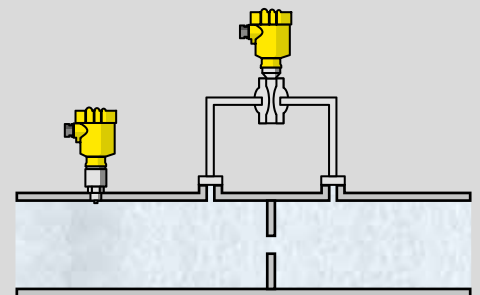


VEGACAP 64

- Immune to buildup and adjustment-free
- Easy setup and commissioning
- Rugged and maintenance-free

Pressure and flow measurement

To ensure reliable control of the entire system, the pressure in the pipelines must be accurately measured. Depending on the pipeline network, the gas pressure can be between 26 and 60 mbar. Due to the small measuring range, the pressure transmitter must deliver very precise, repeatable results. The gas quantity produced is precisely determined to ensure correct and accurate invoicing to the gas customer. Pressure transmitters used on gas mains as well as level sensors used on gasometers are subject to legal regulations concerning hazardous substances – the deployed sensors must therefore have all the necessary approvals.



Gas pressure measurement with VEGABAR 52

VEGABAR 52 with ceramic CERTEC® measuring cell delivers high-quality measuring results even when applied to very small measuring ranges. The ceramic measuring cell is hysteresis-free and has long-term stability. The instrument delivers an intrinsically safe output signal and fulfils the requirements of ATEX EEx ia IIC T6.

Gas volume measurement with VEGADIF 65

The gas extracted from the digestion tower is measured with a metering orifice and a differential pressure transmitter. The differential pressure that arises at the orifice plate is proportionate to the flow volume. VEGADIF 65, with its small, adjustable measuring range, detects the slight pressure difference reliably and accurately.



VEGABAR 52

- High precision
- Ceramic CERTEC® measuring cell
- Small measuring ranges possible



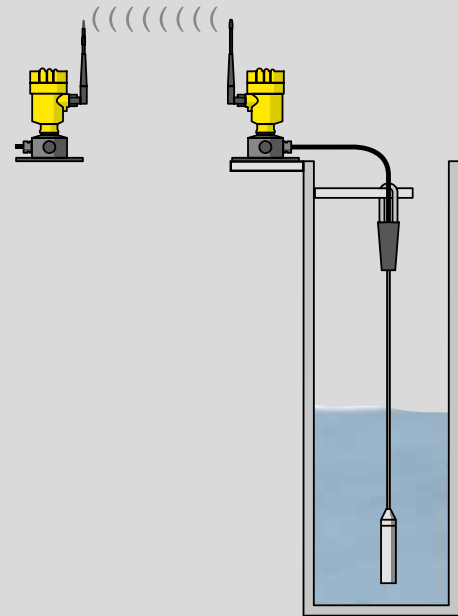
VEGADIF 65

- Metallic differential pressure measuring cell
- Small measuring ranges down to 10 mbar
- Measurement deviation < 0.075%

Fresh water from deep wells

From the depths of the earth

Groundwater in deep wells or bored wells is pumped to the surface from depths of up to several hundred metres by powerful underwater pumps and forwarded for treatment and distribution. Every well has a maximum capacity dependant on the existing groundwater, the permeability of the ground and the well design. The production of drinking water from deep wells thus has to ensure that no more water is extracted than is naturally replenished by groundwater. Level measuring systems in deep wells must therefore operate absolutely reliably without maintenance and deliver high-quality measuring results.



Level measurement with VEGAWELL 52

VEGAWELL 52 with ceramic CERTEC® measuring cell is ideal for level measurement in deep wells. It has a diameter of only 22 mm and an integrated overvoltage protection and provides a reliable, maintenance-free measurement.

Wireless transmission of measuring signals with PLICSRADIO

PLICSRADIO allows wireless transmission of measurement data over distances of up to one kilometre. The receiver is equipped with 4 ... 20 mA, Ethernet or modem interfaces that in turn allow the transmitted signals to be forwarded via mobile radio communications or telephone network.



VEGAWELL 52

- Front-flush, ceramic measuring cell CERTEC®
- Extremely long-term stable
- High overload resistance
- Wear and maintenance-free

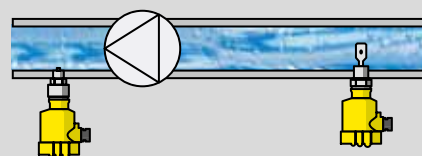
PLICSRADIO

- Simple and reliable radio link
- Sensors supplied by PLICSRADIO
- Battery operation possible
- Wall or pipe mounting

Pressure in drinking water pipelines

Drinking water for all consumers

To transport drinking water to even the most remote reservoirs, pumping stations need to generate the necessary water pressure and are equipped with sensors that continuously monitor it. Since the pumping stations are often far away from the control centres, a maintenance-free, reliable measurement technology is an absolute must.



Pipe pressure monitoring with VEGABAR 52

The pressure transmitter VEGABAR 52 meets the high requirements of pressure monitoring of drinking water pipes with its ceramic CERTEC® measuring cell. Highly resistant to pressure surges and equipped with long-term stability, the sensor is the optimal solution for this measuring task. A long service life and extremely low maintenance costs are guaranteed.



VEGABAR 52

- High overload resistance
- Ceramic measuring cell suitable for foodstuffs

Dry run protection with VEGASWING 61

The VEGASWING 61 level switch lends itself well for dry run protection on drinking water pumps. Its short, 40 mm long tuning fork works reliably, even in pipes with very small diameters. The high functional reliability of this vibrating level switch provides truly optimal protection for the pumps.



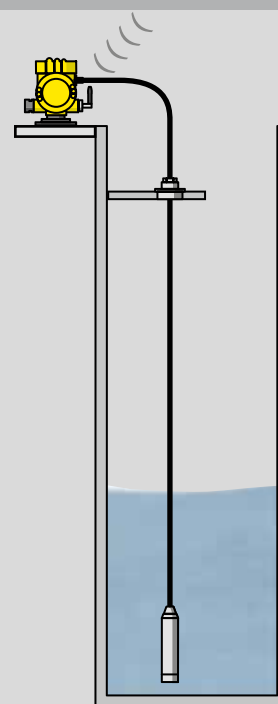
VEGASWING 61

- Switching point independent of process conditions
- High reliability and functional safety

Groundwater

Groundwater

Groundwater is a fundamental component of the ecosystem and of great ecological and economic importance. It serves as a drinking water supply and is also used by industry and agriculture. Continuous monitoring of the water table is an important prerequisite for maintaining a reliable supply of drinking water. Groundwater levels are still checked manually via sounding pipes, but nowadays automatic level measurement and wireless data transfer are much in demand.



Measuring the groundwater level with VEGABAR 66

VEGABAR 66 is a suspension pressure transmitter for level measurement in wells and sounding pipes. The sensor element is a completely encapsulated CERTEC® measuring cell with a front-flush, abrasion resistant ceramic diaphragm.

PLICSMOBILE

PLICSMOBILE is used for remote transmission of measurement data via the public GSM/GPRS mobile phone network. Thanks to their high protection rating of IP 67 or IP 68, the instruments can also be installed in demanding environments. The measured values can be accessed via SMS and e-mail as well as the Internet.



VEGABAR 66

- Oil-free, ceramic-capacitive CERTEC® measuring cell
- Encapsulated cable assembly
- High overload resistance
- Self cleaning effect through front-flush design

PLICSMOBILE T61

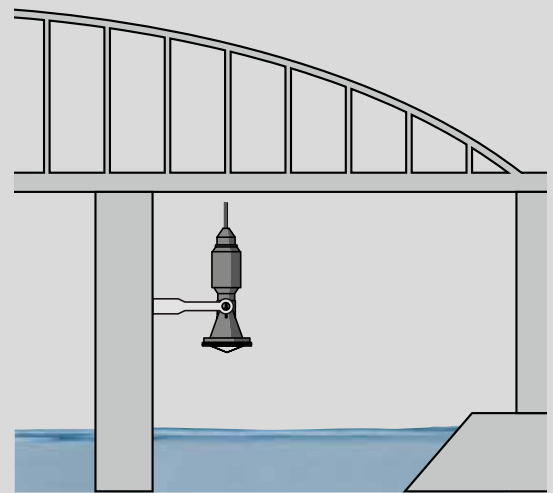
- Automatic transmission of measurement data via SMS or e-mail
- Data transmission to Internet portal
- Battery or accumulator operation possible
- Quadband technology

River level

Safe from floods

Due to climate change, extreme precipitation events which often cause heavy flooding are occurring more and more frequently. In order to be able to monitor the height of river levels timely and accurately, reliable sensors are an absolute necessity. Different measuring principles are used, depending on the application.

Hydrostatic pressure transmitters or guided microwave sensors are often deployed in classic sounding pipes. Non-contact radar sensors are especially suitable for mounting on existing sounding pipes or under bridges.



River level measurement

The radar sensor VEGAPULS WL 61 is the ideal solution for level measurement outdoors or in sounding pipes. This compact sensor (protection class IP 68) offers a wide variety of mounting options and can be easily integrated into existing structures – this reduces installation costs considerably.

The hydrostatic suspension pressure transmitter VEGAWELL 52, is particularly suitable for use in existing sounding pipes. Its robust ceramic CERTEC® measuring cell is very reliable, remaining fully functional even when covered by crustacion deposits or sediment.

The guided microwave sensor is an interesting solution for applications in which existing mechanical sensors are to be replaced. VEGAFLEX 61 reliably detects the surface of the water without being affected by other installations in the sounding pipe.



VEGAPULS WL 61

- Non-contact, maintenance-free measurement
- Accuracy +/-2 mm
- High long-term stability
- Simple mounting



VEGAWELL 52

- Front-flush ceramic measuring cell
- High precision 0.1%
- High-resistance materials



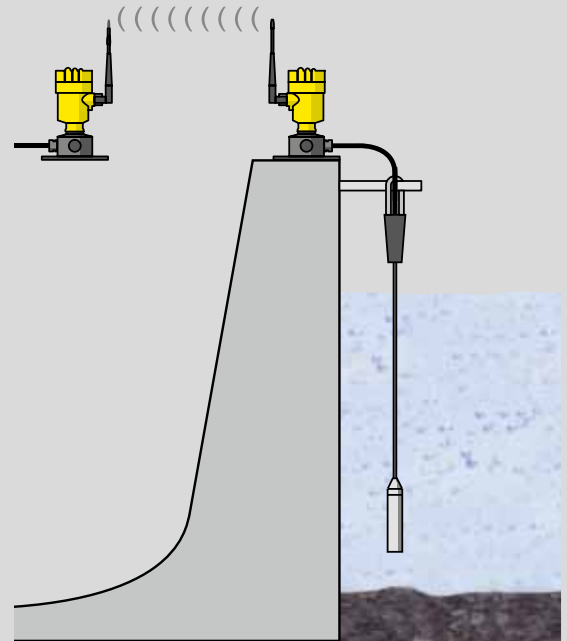
VEGAFLEX 61

- Simple mounting
- High precision
- Maintenance-free operation

Dams

Dams at drinking water reservoirs

To manage drinking water reservoirs correctly and safely, exact information about the water levels of the tributary streams and the reservoir itself is required. Since the necessary infrastructure at the points of inlet is often lacking, measurement data transmission via radio link is usually considered the solution of choice.



Water level measurement with VEGAWELL 52

With its front-flush CERTEC® measuring cell, the suspension pressure transmitter VEGAWELL 52 reliably measures the level of tributary streams as well as the reservoir itself. Different measuring cells with various measuring ranges allow optimal adaptation to the respective application.

Wireless transmission of measurement signals with PLICSRADIO

PLICSRADIO enables wireless transmission of measured values up to a distance of one kilometre. The receiver is equipped with 4 ... 20 mA, Ethernet or modem interfaces that forward the measurement signals e.g. via mobile radio communications or telephone network.



VEGAWELL 52

- Front-flush ceramic measuring cell CERTEC®
- Very long-term stable
- High overload resistance
- Wear and maintenance-free



PLICSRADIO

- Simple and reliable radio link
- Sensor supply via PLICSRADIO
- Battery operation possible

Instrument overview



VEGAPULS 61



Radars sensor for continuous level measurement of bulk solids

- Non-contact measurement
- Encapsulated antenna system
- Wear and maintenance-free
- Unaffected by pressure, temperature, gas and dust
- High measuring precision

Process temperature: -40 ... +80 °C (-40 ... +176 °F)

Process pressure: -1 ... +2 bar (-100 ... +200 kPa)

Process fitting: Thread G1½ A or 1½ NPT
Flanges from DN 80 or ANSI 3"
or mounting strap

Measuring range: up to 15 m (49 ft)



VEGAPULS WL 61



Radars sensor for continuous level measurement of liquids

- Non-contact measurement
- Simple installation
- High protection rating IP 66/68 (2 bar)
- Wear and maintenance-free
- Unaffected by pressure, temperature, gas and dust

Process temperature: -40 ... +80 °C (-40 ... +176 °F)

Process pressure: -1 ... +2 bar (-100 ... +200 kPa)

Process fitting: Thread G1½ A
Flanges from DN 80 or ANSI 3"
or mounting strap

Measuring range: up to 15 m (49 ft)



VEGAPULS 68



Radars sensor for continuous level measurement of bulk solids

- Non-contact measurement
- Simple installation
- Wear and maintenance-free
- Unaffected by pressure, temperature, gas and dust
- High measuring precision

Process temperature: -200 ... +450 °C (-328 ... +842 °F)

Process pressure: -1 ... +160 bar (-100 ... +16000 kPa)

Process fitting: Thread G1½ A or 1½ NPT
Flanges from DN 50 or ANSI 2"

Measuring range: up to 75 m (246 ft)

The pictured instruments are standard models.



Instrument overview



VEGAFLEX 61



TDR sensor for continuous level measurement

- Setup without adjustment
- Independent of product properties
- Insensitive to dust, steam, buildup and condensate
- Wear and maintenance-free
- High measuring precision

Process temperature: -40 ... +150 °C (-40 ... +302 °F)

Process pressure: -1 ... +40 bar (-100 ... +4000 kPa)

Process fitting: Thread from G $\frac{3}{4}$ A or $\frac{1}{4}$ NPT
Flanges from DN 25 or ANSI 1"

Measuring range: Cable up to 32 m (105 ft)
Rod up to 4 m (13 ft)



VEGASON 61



Ultrasonic sensor for continuous level measurement

- Non-contact measurement
- Independent of product properties
- Adjustment without medium
- Integrated temperature sensor for correction of sound running time
- Measuring precision ± 10 mm

Process temperature: -40 ... +80 °C (-40 ... +176 °F)

Process pressure: -0.2 ... +2 bar (-20 ... +200 kPa)

Process fitting: Thread G1 $\frac{1}{2}$ A or 1 $\frac{1}{2}$ NPT

Measuring range: in liquids up to 5 m (16 ft)
in bulk solids up to 2 m (7 ft)



VEGASWING 61, VEGASWING 63



Vibrating level switch for liquids (VEGASWING 63 with tube extension)

- Setup without adjustment
- Product-independent switching point
- Very high reproducibility
- Wear and maintenance-free

Process temperature: -50 ... +250 °C (-58 ... +482 °F)

Process pressure: -1 ... +64 bar (-100 ... +6400 kPa)

Process fitting: Thread from G $\frac{3}{4}$ A or $\frac{1}{4}$ NPT
Flanges from DN 25 or ANSI 1"

Probe length: Version VEGASWING 63 up to 6 m (20 ft)

The pictured instruments are standard models.



VEGACAP 64



Capacitive rod probe for level detection

- Exact switching point even in strongly adhesive media
- Robust and maintenance-free
- High functional reliability
- Highly resistant PTFE insulation

Process temperature: -50 ... +200 °C (-58 ... +392 °F)

Process pressure: -1 ... +64 bar (-100 ... +6400 kPa)

Process fitting: Thread G $\frac{3}{4}$ A or $\frac{3}{4}$ NPT
Flanges from DN 25 or ANSI 1"

Measuring range: up to 6 m (20 ft)



VEGAMIP T/R 61



Microwave barrier for point level detection in bulk solids and liquids

- Non-contact measurement
- Ideal for rough process conditions
- Unaffected by changing product properties
- Wear and maintenance-free
- Simple instrument adjustment

Process temperature: -40 ... +80 °C (-40 ... +176 °F)

Process pressure: -1 ... +4 bar (-100 ... +400 kPa)

Process fitting: up to G1 $\frac{1}{2}$ A



VEGABAR 52



Pressure transmitter with CERTEC® measuring cell

- Dry, ceramic-capacitive sensor element
- High measuring precision
- Extremely high overload and vacuum resistance
- Very small measuring ranges

Process temperature: -40 ... +150 °C (-40 ... +302 °F)

Process fitting: Manometer connection G $\frac{1}{2}$ A
Thread from G1 A or 1 NPT
Flanges from DN 25 or ANSI 1"
Fittings for the food and paper industries

Measuring range: -1 ... +72 bar (-100 ... +7200 kPa)

Instrument overview



VEGABAR 66, VEGAWELL 52



Suspension pressure transmitter for continuous level measurement of liquids

- Dry, ceramic-capacitive CERTEC® measuring cell
- Front-flush, abrasion resistant ceramic measuring cell
- High overload resistance

Process temperature:	VEGABAR 66:	-20 ... +80 °C (-4 ... +176 °F)
	VEGAWELL 52:	-20 ... +100 °C (-4 ... +212 °F)

Process fitting:	Tension clamp
	Thread from G1 A or 1 NPT

Measuring range:	-1 ... +25 bar (-100 ... +2500 kPa)
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VEGADIF 65



Differential pressure transmitter with metallic measuring diaphragm

- Very good reproducibility and long-term stability
- Measurement deviation < 0.075%
- High-resistance diaphragm materials

Process temperature:	Basic version	-40 ... +120 °C (-40 ... +248 °F)
	Chemical seal	-40 ... +400 °C (-40 ... +752 °F)

Process fitting:	Basic version	NPT ¼-18 acc. to IEC 61518
	Chemical seal	Flanges from DN 32 or ANSI 2"
	Hygienic fittings	from DN 32 or ANSI 2"

Δp measuring range:	0.01 ... 40 bar (1 ... 4000 kPa)
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VEGADIS 62



External indicating and adjustment unit without external energy

- Digital and quasianalogue indication of the measured value
- Sensor operation via HART communication
- No external power supply required
- Protection rating IP 65

Ambient temperature:	-20 ... +70 °C (-4 ... +158 °F)
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Input:	4 ... 20 mA/HART
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Mounting:	Wall, carrier rail, tubemounting
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The pictured instruments are standard models.



VEGAMET 391



Signal conditioning instrument for continuous level measurement

- Comprehensive functions, e.g. scaling, linearization, pump control, flow measurement and flow volume measurement
- Integrated web server
- Measurement value and message transmission via e-mail and SMS
- Suitable for data exchange with WEB-VV

Input:	1 x 4 ... 20 mA/HART
Output:	1 x 0/4 ... 20 mA 6 x level relays or 1 x fail-safe relay and 5 x level relays
Mounting:	Wall, carrier rail and front panel mounting



PLICSRADIO T/R61



Wireless transmitting/receiving unit

- Input for 4 ... 20 mA/HART sensors
- Wireless measured value transmission up to one kilometre
- Switching inputs for two level signals
- FDT/DTM technology

Input:	3 x 4 ... 20 mA/HART and switching inputs
Output:	3 x 4 ... 20 mA 3 x level relays 1 x fail-safe relay Optional Ethernet or Modem interface (RS232)
Mounting:	Wall or tube mounting



PLICSMOBILE T61



External radio unit for plics® sensors

- World-wide use through Quadband technology
- Integrated power management via battery operation
- Suitable for data exchange with WEB-VV
- Measured value and message transmission via e-mail and SMS
- Adjustment via USB interface

Input:	4 ... 20 mA/HART, Profibus PA, FF
Operating voltage:	9.6 ... 32 V DC
Mounting:	Wall or tube mounting



Explosion protection



Safety standards



Hygienic standards



28719-EN-110124

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Looking Forward **VEGA**