Continuous Level Measurement

Radar Sensors for Liquid and Solid Level Measurement
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Leadership in Radar Technology

When it comes to measuring the level of materials in process and storage vessels, the VEGAPULS 60 series of through-air radar sensors represents the most advanced technology available. The VEGAPULS overcomes difficult environmental conditions, offering superior measurement reliability and accuracy. With the most complete line of radar sensors on the market, VEGA sets a new standard for radar in continuous level measurement.

Why Use Radar?

Radar technology is non-contact, making it ideal for many continuous level measurement applications. The VEGAPULS quickly evaluates signals and dynamically suppresses false echoes to ensure the accuracy of its level reporting. A large measurement memory and the ability to account for signal attenuation due to buildup supports the reliability of the technology.

Radar is an ideal replacement technology for pressure transmitters and DP cells that constantly require zero-point recalibration. By utilizing electromagnetic microwaves, VEGAPULS radar instrumentation is able to provide accuracy up to ±2 mm! In addition, the instruments will not need recalibration after initial configuration and will not experience zero point drift or fluctuations due to change in specific gravity, temperature, or pressure. This translates into less time spent on setup, maintenance, and troubleshooting, as well as a worry-free installation that will perform beyond expectation.

VEGAPULS 60 Series

- Self-learning echo processing makes the measurement more reliable as time passes
- Real time clock in the sensor enhances diagnostic capabilities and process insight
- PLICSCOM on-board adjustment tool and quick selection of various application parameters offer purchasing flexibility and reduced inventory needs
- Various antenna materials, frequencies, and process connections answer industry-specific demands
- Non-contact measurement maximizes process uptime with wear and maintenance-free operation
plics® – Easy is Better

**Instrument Platform plics®: Level Measurement Made to Order**

Commercially available standard solutions for level measurement do not leave the user much leeway for truly optimal instrumentation. In contrast, the instrument platform plics® provides a variety of antenna styles and three different emitting frequencies, both of which are chosen based on application requirements. The plics platform allows for the most suitable combination of sensor, process fitting, electronics, and housing to be created. The result is an instrument that is highly reliable, economical, and user friendly. With sensors that offer reliable measurement using through-air radar, and construction based on the plics principle, VEGA continues to lead the way in solving difficult and important applications.

How We Earn Your Business

**The Right Instrument for Every Application**

VEGA is committed to supplying instruments that work in all applications, not just those with ideal conditions. All new instruments are tested in extreme heat, dust, chemical, moisture, and cold environments before they are released. VEGA’s goal is to enable customers to achieve operational efficiency with every measured process.

**Performance Guarantee**

To demonstrate our commitment to specifying the right instrument for each application, VEGA Americas offers a Performance Guarantee — if our recommended solution does not perform exactly as expected, we’ll make it right.

**24 Hour Support**

The VEGA Field Service team is trained to provide telephone, email, or on-site customer service. Whether starting up, configuring, or troubleshooting the system, VEGA Field Service provides necessary steps to ensure the measuring device and its outputs run efficiently. Through service and training, VEGA supports all users throughout the life of the installed solutions.
VEGAPULS 61, 62, and 63 – Measurement of Liquids

Ideal for All Liquids:
VEGAPULS 61, 62, and 63

The VEGAPULS 61 is an economical solution through its simple and versatile mounting possibilities. With its various antenna versions and wide temperature and pressure range, the VEGAPULS 62 is ideal for almost all applications—even under difficult process conditions. The encapsulated antenna system protects the VEGAPULS 63 against contamination. The antenna system also ensures an optimum cleanability with front-flush mounting—even with high hygienic requirements.

VEGAPULS 61

- Measuring range: up to 115 ft (35 m)
- Pressure range: -14.5 ... +42.5 psi (-1 ... +3 bar)
- Temperature range: -40 ... +176°F (-40 ... +80°C)
- Accuracy: ±2 mm
- Output signal: 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus

Level Measurement of Chemicals

The VEGAPULS 61 is perfect for measuring the level of chemicals in intermediate bulk container tote tanks. The chemicals inside are very reflective to radar waves, making it an easy measurement. Because microwaves can measure through plastic, there is no need to create an opening in the tote. The tote simply needs to be placed below the radar sensor.

- Versatile mounting makes it easy to find a location above the tote that avoids the steel frame
- Measurement is non-invasive; new tote simply slides into position, replacing the empty tote

Wellpad Production Tank Level Measurement

Through-air radar sensors are ideal for measuring the total level of condensate, oil, and water in storage tanks. Non-contact level measurements with the VEGAPULS 62 decreases maintenance costs in corrosive salt water applications.

- Compact design and mounting options allow for protection against overfill in all vessel types
- Accuracy of ± 2 mm is ideal for inventory management
- Radar technology is impervious to foam, buildup, and highly viscous products
- Modbus output available for easy communication with RTU’s
**VEGAPULS 62**

- Measuring range: up to 115 ft (35 m)
- Pressure range: -14.5 ... +2,320 psi (-1 ... +160 bar)
- Temperature range: -328 ... +842°F (-200 ... +450°C)
- Accuracy: ±2 mm
- Output signal: 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus

**VEGAPULS 63**

- Measuring range: up to 115 ft (35 m)
- Pressure range: -14.5 ... +232 psi (-1 ... +16 bar)
- Temperature range: -328 ... +392°F (-200 ... +200°C)
- Accuracy: ±2 mm
- Output signal: 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus

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**Food Mixing and Preparation Vessels**

- Food Mixing and Preparation Vessels

The VEGAPULS 63 radar sensor is ideal for reliable level measurement of food products. The front-flush antenna allows optimal CIP and SIP cleaning, is insensitive to high-pressure water jets, and is not affected by thermal shock.

- Non-contact measurement is unaffected by pressure and temperature fluctuations
- Absolute front-flush antenna withstands food industry cleaning practices
- Available with sanitary tri-clamp connection

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**Aggressive Products**

- Aggressive Products

Extremely toxic intermediate products often result from chemical reactions and need to be stored under very strict safety conditions. The VEGAPULS 62 offers numerous options for measurement under aggressive conditions. Some of those conditions include all plastic, chemically resistant parts, corrosion-resistant metal alloys, and high temperature and pressure designs.

- Construction materials provide the ability to measure in extreme pressure and temperature ranges
- Ceramic process separation offers optimal resistance to chemical diffusion
Solutions for Liquid Level Measurement:

VEGAPULS WL 61, 65, and 66

The VEGAPULS WL 61 is designed for use in water processing, pump stations, as well as for flow measurement in open flumes and gauge monitoring. The VEGAPULS WL 61 is an economical solution through versatile and simple mounting options. The VEGAPULS 65 is particularly suitable for level measurement in vessels with small process fittings and under simple process conditions. The VEGAPULS 66 is ideal for applications with strongly agitated media.

Level Measurement in the Lift Station

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.

- Non-contact measurement
- Measures through most wastewater foam
- NEMA 6P fully submersible
- Pump control in conjunction with VEGAMET 391

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.

- Independent of environmental influences
- Flow measurement available without the use of additional signal conditioner
- Maintenance-free operation
Distillation Column
In the past, displacer systems in briddles have been used for level measurement in distillation columns. This system is maintenance-intensive. Non-contact radar sensors like the VEGAPULS 66 commonly replace displacers. Existing bypass tubes can usually be used for the measurement, so mechanical modifications to the vessel are not necessary.

- Resistant materials allow for operation under extreme process pressures and temperatures
- Mounting options retrofit to existing bypass tubes, eliminating modification costs

Service Tanks on Ships
Cavities and inaccessible places on ships that are used as tanks for drinking water, fuel, and ballast are reliably and precisely measured by a sounding tube and through-air radar sensor. The microwave pulses of the VEGAPULS 66 radar are guided through the tube and are unaffected by vessel obstructions and sidewalls.

- Swiveling holder provides easy sounding
- Non-contact measurement is independent of product characteristics and vessel form
VEGAPULS 67, 68, and 69
– Perfect for Bulk Solids

Versatile and Tough:
VEGAPULS 67, 68, and 69

The VEGAPULS 67, 68, and 69 are radar sensors for continuous level measurement of bulk solids. They are ideal for level measurement in small and large silos, bunkers, stone crushers, and segmented vessels. With different antenna versions and mounting options, these sensors are the optimum solution for virtually all solids applications and processes.

VEGAPULS 67

- Measuring range: up to 49 ft (15 m)
- Pressure range: -14.5 ... +29 psi
  (-1 ... +2 bar)
- Temperature range: -40 ... +176°F
  (-40 ... +80°C)
- Accuracy: ±2 mm
- Output signal: 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus

Height Measurement in the Blending Bed

Having exact information about the current height is especially important for making optimal use of the storage volume of the blending bed hall. The measurement can be very simply carried out by a non-contact radar sensor installed directly at the dropping point of the spreader. Undisturbed by dust and noise, the radar sensor reliably detects the product surface.

- Measuring ranges up to 49 ft (15 m)
- VEGAPULS 67 can be mounted on the spreader and aligned to the product surface with the help of a mounting strap

Steel, Molten Metals

Thanks to its robust construction, the VEGAPULS 68 easily withstands the tough requirements of the blast furnace environment. In addition, the sensor can be separated from the process anytime during operation when mounted on a suitable ball valve.

- Radar signal is unaffected by changing gas composition and temperature
- Small sensor dimensions and easy retrofitting provide mounting flexibility
Lime Powder Measurement

After cooling, burnt lime is classified according to grain size and stored in large silos. Most of it is processed into lime powder for different applications. In the large silos is where the radar sensor VEGAPULS 69, as a non-contact measuring system, really demonstrates its strengths.

- Optimal production planning through accurate measurement of inventory
- Measurement remains unaffected by buildup on the silo walls due to very good signal focusing

Plastic Granule Storage

Thanks to its large dynamic range, VEGAPULS 69 can reliably detect products with poor reflection properties, such as plastics. It is a non-contact and wear-free measurement that ensures accurate data even if the properties of the granulates change.

- Dependable measurement regardless of noise, dust during filling, and abrasive media
- Cost-effective control of production and delivery
- One sensor for all silo sizes simplifies planning