



## Product overview

**VEGA**





# Safe and reliable

## Level and pressure instrumentation for the process industry

Production processes are becoming ever more complex. So it's important that the measurement technology used to control and monitor them is all the more understandable and intuitive. VEGA has set itself the goal of developing innovative measurement technology that is easy to install and operate while providing maximum safety and reliability.

Under extreme conditions on oil platforms and in mining, in mechanical and plant engineering, in hygiene-sensitive industries like food and pharmaceutical, even under wildly fluctuating weather conditions commonly found in water and waste water applications: In virtually every industry VEGA has been demonstrating its application competence, which is founded on over 60 years experience.

With about 2,000 employees worldwide, more than 900 of whom work at the headquarters in Schiltach in the Black Forest, VEGA operates subsidiaries and locations in more than 80 countries. The large sales and service team offers technical consultation and top-quality products that come with all the necessary certificates and approvals for worldwide use.

## Product lines VEGA sensors

### PRO

Unlimited variety in highest quality and precision.

That means: all integration options available, any mounting situation, all process fittings available, highest pressures, lowest temperatures and use with all conceivable media. Every sensor of the **PRO line** is optimised to meet the individual requirements of various industrial sectors and is precisely tailored to the specific application.

### BASIC

Compact and precise all-rounders.

That means: optimal measurement technology for standard processes and basic applications that still has the reassurance of being "made by VEGA". Available in all the important standard versions and with numerous connection variants. Every sensor of the **BASIC line** is easy to integrate and quickly ready for operation.

### AIR

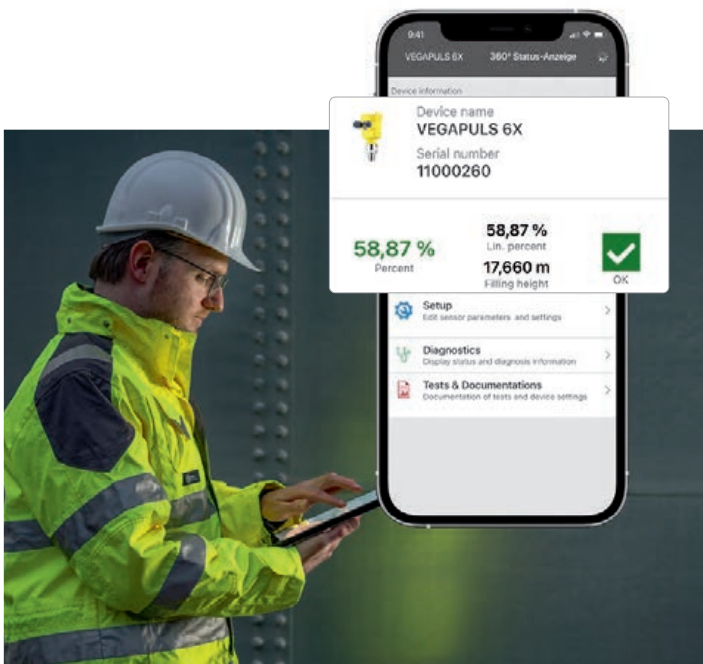
Reliable data security even without cables.

Sensors of the **AIR line** are used in mobile applications wherever reliable and precise levels create added value for work processes. The wireless standards LoRA, NBloT or LTEM transmit your data securely to the VEGA cloud server. Ideal for automatic reordering or just-in-time emptying – anywhere in the world.

# Digitalisation

## INDUSTRY 4.0 – THE WAY TO A SMART AGE

In the smart age, intelligent solutions provide an optimal analysis of sensor data and generate an abundance of useful information. This makes the daily work easier and safer. The most important prerequisites for this: trust and stability. VEGA provides future-proof applications, highest possible data security as well as maximum protection and confidentiality. Industry 4.0 with VEGA – for the long term.



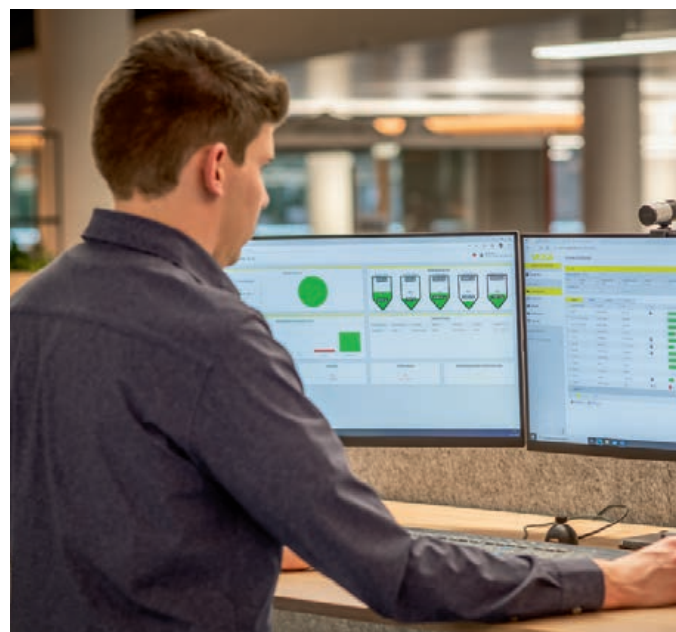
### — User-friendly and secure – the **VEGA Tools app**

Thanks to the sensor's Bluetooth function, setup and commissioning is easier than ever – especially in hard-to-reach locations or harsh industrial environments. When it comes to data protection and security, VEGA considers it extremely important to comply with the highest standards – from access management to secure data encryption.

### — **VEGA Inventory System**

VEGA Inventory System gives the supplier a reliable insight into the inventories of his customers at all times. The current measurement data is combined and compared to the values from the consumption history. This analysis optimises requirement, inventory and delivery planning.

It also saves resources and costs.







## **myVEGA** – Advantages in every phase

The myVEGA customer portal provides you with comprehensive information via permanent and complete digital storage of all documents relating to your VEGA products – Discover your benefits in every single phase.

### **Planning**

In your personal customer portal you'll find everything you need to plan your own customised measurement technology. Access a universal configurator, create and store projects and generate 2D and 3D drawings of your configured instruments.

### **Setup and commissioning**

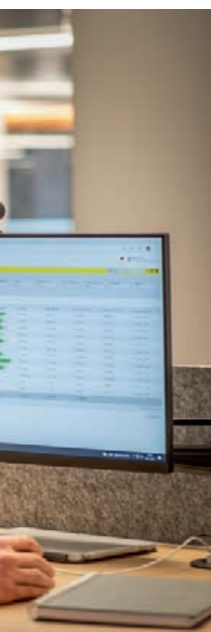
In your personal account, you will find all the important documents and test certificates for setting up and commissioning your VEGA sensors. Manage your access data with "Pins & Codes" for contactless setup and commissioning using the VEGA Tools app.

### **Ordering**

After planning, you can view the prices and delivery times via myVEGA and request quotations for your specific products or order directly online. This includes everything from your individually configured instrumentation to accessories and spare parts.

### **History**

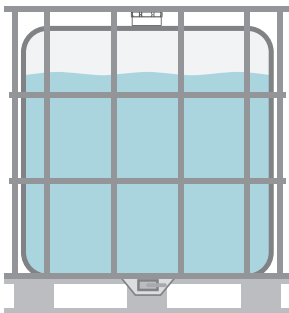
Keep an eye on all your transactions. With myVEGA you can view your entire order history – regardless of the date of your registration. Track the status of your order. The shipment tracking function keeps you informed about the progress of your order.





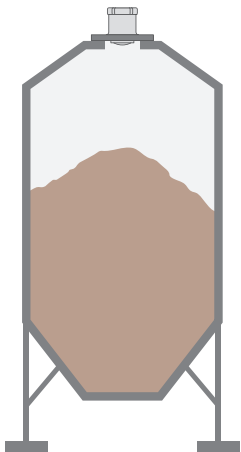


# IIoT | Level | VEGAPULS Air series



## Autonomous, mobile level measurement: VEGAPULS Air

VEGAPULS Air stand-alone radar sensors measure the levels in silos, mobile containers or liquids in tanks safely and reliably, even in remote or difficult-to-access locations. The battery-powered IIoT sensors communicate their measured values to the cloud wirelessly and require neither expensive cabling nor their own on-site Internet access.



### The advantages

- ✓ Easy installation thanks to long-life battery supply and wireless technology
- ✓ Exact measuring results, independent of medium as well as process and ambient conditions
- ✓ Economical IIoT solutions transfer level information to the cloud



AIR

**VEGAPULS Air 23**

AIR

**VEGAPULS Air 41**

AIR

**VEGAPULS Air 42**

|                     |  |   |  |
|---------------------|--|---|--|
| Application         | Liquids and bulk solids in plastic tanks without process fitting                   | Liquids and bulk solids in simple process conditions                                | Liquids and bulk solids in simple process conditions               |
| Measuring range     | 3 m  | 15 m  | 30 m   |
| Antenna             | Integrated   | Integrated  | Integrated   |
| Process fitting     | –  | Threads: G1½, 1½ NPT, R1½   | Compression flanges DN 80, 3"<br>Adapter flanges from DN 100, 4"   |
| Mounting connection | Adhesive adapter, tensioning strap, ceiling mounting                               | Mounting strap  | –  |
| Process temperature | -20 ... +60 °C   | -20 ... +60 °C  | -20 ... +60 °C   |
| Process pressure    | –  | -1 ... +2 bar<br>(-100 ... +200 kPa)  | -1 ... +2 bar<br>(-100 ... +200 kPa)                               |
| Accuracy            | ±5 mm  | ±2 mm   | ±2 mm  |
| Frequency range     | W-band (80 GHz)  | W-band (80 GHz)   | W-band (80 GHz)  |
| Signal output       | NB-IoT (LTE-CAT-NB1),<br>LTE-M (LTE-CAT-M1), LoRaWAN                               | NB-IoT (LTE-CAT-NB1),<br>LTE-M (LTE-CAT-M1), LoRaWAN,<br>Bluetooth                  | NB-IoT (LTE-CAT-NB1),<br>LTE-M (LTE-CAT-M1), LoRaWAN,<br>Bluetooth |
| Display/adjustment  | VEGA Inventory System  | VEGA Tools app, PACTware/DTM,<br>VEGA Inventory System                              | VEGA Tools app, PACTware/DTM,<br>VEGA Inventory System             |
| Voltage supply      | Integrated batteries<br>2x 3.6 V (lithium)   | Integrated batteries<br>5x 3.6 V (lithium), exchangeable                            | Integrated batteries<br>5x 3.6 V (lithium), exchangeable           |
| Approvals           | ATEX, UKEX, IECEx  | –   | –  |
| Benefit             | ✓ Easy mounting “outside”, as it is optimised for measurement through the tank top | ✓ Minimal installation work thanks to self-sufficient supply and wireless interface |  |

# IIoT | Level I | VEGAPULS Air series

## LoRa Gateway (indoor)



## LoRa Gateway (outdoor)



|                   |   |   |
|-------------------|---|---|
| Application       | Gateway for connecting LoRaWAN sensors to VEGA Inventory System | Gateway for connecting LoRaWAN sensors to VEGA Inventory System |
| Input             | LoRaWAN   | LoRaWAN   |
| Output            | GPRS/UMTS/LTE (2G, 3G, 4G)                                      | GPRS/UMTS/LTE (2G, 3G, 4G)                                      |
| Display           | LED   | LED   |
| Mounting          | Wall mounting   | Wall and tube mounting  |
| Temperature range | -20 ... +55 °C  | -40 ... +60 °C  |
| Voltage supply    | 100 ... 230 V AC, 50/60 Hz                                      | 100 ... 230 V AC, 50/60 Hz,<br>PoE adapter                      |
| Benefit           | ✓ Easy setup and commissioning through preconfigured settings   |   |

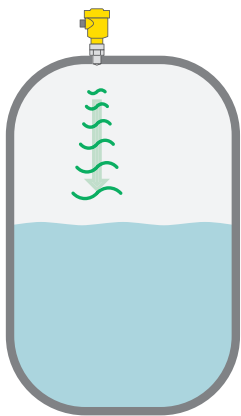
## VEGA Inventory System



|                               |  |
|-------------------------------|--|
| Application                   | System for inventory monitoring as well as remote enquiry and visualization of measurement and location data   |
| Recommended operating systems | <ul style="list-style-type: none"> <li>▪ VEGA Hosting Service: independent of operating system</li> <li>▪ Local server: MS Windows Server 2016 or 2019 as well as MS SQL Server 2014 or higher</li> </ul>  |
| Adjustment                    | With standard web browser  |
| Versions                      | <ul style="list-style-type: none"> <li>▪ VEGA Hosting Service (VH)</li> <li>▪ Local servers (LS)</li> </ul>  |
| Technology                    | Web-based  |
| Benefit                       | <ul style="list-style-type: none"> <li>✓ Simple centralized inventory monitoring and management</li> <li>✓ More transparency through connected assets and facilities</li> <li>✓ Avoidance of production stoppages and increased supply security</li> <li>✓ Reduction of transport costs with optimized logistics planning</li> </ul> |



# Level I Radar



## Level measurement with radar

In continuous non-contact level measurement with radar, the sensor sends microwave signals towards the medium from above. The surface of the medium reflects the signals back in the direction of the sensor. Using the received microwave signals, the sensor determines the distance to the product surface and calculates the level from it. Liquids and bulk solids are commonly measured with this measuring technique.

### The advantages

- ✓ Non-contact level measurement with radar is characterized by especially high measurement accuracy
- ✓ Measurement is unaffected by the measured medium and the process conditions
- ✓ User-friendly adjustment saves time

PRO

## VEGAPULS 6X



|                     |  |
|---------------------|--|
| Application         | Liquids and bulk solids for all process conditions   |
| Measuring range     | up to 120 m  |
| Antenna             | Integrated antenna, horn antenna, lens antenna, parabolic antenna  |
| Process fitting     | Thread from G $\frac{3}{4}$ ",<br>flanges from DN20/ $\frac{3}{4}$ ",<br>hygienic fittings   |
| Process temperature | -196 ... +450 °C   |
| Process pressure    | -1 ... +160 bar<br>(-100 ... +16000 kPa)   |
| Accuracy            | $\pm 1$ mm   |
| Frequency range     | W-band (80 GHz), C-band (6 GHz), K-band (26 GHz)   |
| Signal output       | 4 ... 20 mA/HART, APL, Profibus PA, Foundation Fieldbus, Modbus  |
| Display/adjustment  | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82,<br>VEGA Tools app  |
| Approvals           | ATEX, UKEX, IECEx, FM, CSA, NEPSI, EAC (GOST), INMETRO, TIIS,<br>KOSHA/KTL, CCOE, UKR Sepro, Overfill protection, Ship, SIL2/3, food |
| Benefit             | ✓ Universal use through different antenna versions   |

# Level I Radar

BASIC

## VEGAPULS C 11



BASIC

## VEGAPULS C 21/C 22



BASIC

## VEGAPULS C 23



|                     |   |  |  |
|---------------------|---|--|--|
| Application         | Liquids and bulk solids in simple process conditions                            | Liquids and bulk solids in simple process conditions   | Liquids and bulk solids in simple process conditions   |
| Measuring range     | 8 m   | 15 m   | 30 m   |
| Antenna             | Integrated plastic horn antenna made of PVDF                                    | Integrated plastic horn antenna made of PVDF   | Integrated plastic horn antenna made of PVDF   |
| Process fitting     | Threads G1½, 1½ NPT   | Threads G1½, 1½ NPT  | –  |
| Mounting connection | Threads G1, 1 NPT   | VEGAPULS C 21:<br>Threads G1, 1 NPT<br><br>VEGAPULS C 22:<br>Adapter for ceiling mounting                                      | Threads G1, 1 NPT  |
| Process temperature | -40 ... +60 °C  | -40 ... +80 °C   | -40 ... +80 °C   |
| Process pressure    | -1 ... +3 bar<br>(-100 ... +300 kPa)  | -1 ... +3 bar<br>(-100 ... +300 kPa)   | -1 ... +3 bar<br>(-100 ... +300 kPa)   |
| Accuracy            | ±5 mm   | ±2 mm  | ±2 mm  |
| Frequency range     | W-band (80 GHz)   | W-band (80 GHz)  | W-band (80 GHz)  |
| Signal output       | 4 ... 20 mA   | 4 ... 20 mA/HART, SDI 12, Modbus   | 4 ... 20 mA/HART, SDI 12, Modbus   |
| Display/adjustment  | VEGA Tools app, PACTware/DTM  | VEGA Tools app, PACTware/DTM   | VEGA Tools app, PACTware/DTM   |
| Approvals           | –   | ATEX, UKEX, IECEx, cCSAus, cFMus, NEPSI, EAC, mcerts, INMETRO, KOSHA/KTL, CCOE, CE 1935/2004, FDA, NSF, KTW, WHG, VLAREM, Ship | ATEX, UKEX, IECEx, cCSAus, cFMus, NEPSI, EAC, INMETRO, KOSHA/KTL, CCOE, CE 1935/2004, FDA, NSF, KTW, WHG, VLAREM, Ship |
| Benefit             | ✓ User-friendly, wireless setup and diagnosis via Bluetooth with mobile devices |  | ✓ Unaffected by vessel internals thanks to very good signal focusing   |



**BASIC**

**VEGAPULS 11**



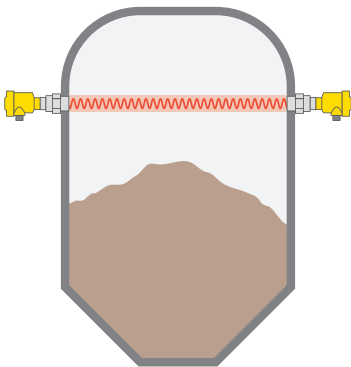
**BASIC**

**VEGAPULS 21/31**



|                     |  |   |
|---------------------|--|---|
| Application         | Liquids and bulk solids in simple process conditions | Liquids and bulk solids in simple process conditions  |
| Measuring range     | 8 m  | 15 m  |
| Antenna             | Integrated plastic horn antenna made of PVDF         | Integrated plastic horn antenna made of PVDF  |
| Process fitting     | Threads G1½, 1½ NPT                                  | Threads G1½, 1½ NPT   |
| Process temperature | -40 ... +60 °C                                       | -40 ... +80 °C  |
| Process pressure    | -1 ... +3 bar<br>(-100 ... +300 kPa)                 | -1 ... +3 bar<br>(-100 ... +300 kPa)  |
| Accuracy            | ±5 mm  | ±2 mm   |
| Frequency range     | W-band (80 GHz)                                      | W-band (80 GHz)   |
| Signal output       | 4 ... 20 mA  | 4 ... 20 mA/HART  |
| Display/adjustment  | VEGA Tools app, PACTware/DTM                         | VEGAPULS 21:<br>VEGA Tools app, PACTware/DTM<br><br>VEGAPULS 31:<br>Integrated on-site display and 3-key operation,<br>VEGA Tools app, PACTware/DTM |
| Approvals           | -  | ATEX, UKEX, IECEx, cCSAus, cFMus, NEPSI, EAC, mcerts, INMETRO, KOSHA/KTL, CCOE, CE 1935/2004, FDA, NSF, KTW, WHG, VLAREM, Ship                      |
| Benefit             | ✓ Low-cost sensor for simple measuring tasks         |   |

# Point level detection | Radar



## Point level detection with microwave barrier

The microwave barrier functions like a light barrier: when the medium gets in the way of the microwave beam between the transmitter and the receiver, the signal is attenuated. This change is detected by the receiver and converted into a switching signal.

The microwave barrier is ideal for point level detection of liquids and bulk solids. Another area of application is backup detection on conveyor belts.

### The advantages

- ✓ Point level detection of high-purity fluids right through the vessel wall, no openings required
- ✓ Microwave barrier is never in contact with the medium, sensor cannot get soiled
- ✓ Wear and maintenance free operation over long periods

PRO

**VEGAMIP T61**



PRO

**VEGAMIP R61**



PRO

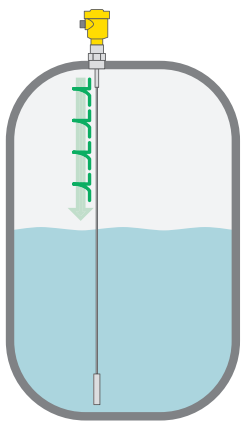
**VEGAMIP R62**



|                     |   |   |   |
|---------------------|---|---|---|
| Application         | Bulk solids, liquids  | Bulk solids, liquids  | Bulk solids, liquids in dangerous mounting or hard-to-reach locations                     |
| Version             | Emitter   | Receiver  | Receiver with separate version  |
| Measuring range     | up to 100 m   | up to 100 m   | up to 100 m   |
| Antenna             | Inside horn antenna with PTFE cover, plastic horn antenna with PP cover     | Inside horn antenna with PTFE cover, plastic horn antenna with PP cover   | Inside horn antenna with PTFE cover, plastic horn antenna with PP cover                   |
| Process fitting     | Thread G1½, 1½ NPT, flanges, clamp, mounting strap                          | Thread G1½, 1½ NPT, flanges, clamp, mounting strap  | Thread G1½, 1½ NPT, flanges, clamp, mounting strap  |
| Process temperature | -40 ... +80 °C<br>+450 °C with mounting adapter                             | -40 ... +80 °C<br>+450 °C with mounting adapter   | -40 ... +80 °C<br>+450 °C with mounting adapter   |
| Process pressure    | -1 ... +4 bar<br>(-100 ... +400 kPa)  | -1 ... +4 bar<br>(-100 ... +400 kPa)  | -1 ... +4 bar<br>(-100 ... +400 kPa)  |
| Frequency range     | K-band (24 GHz)   | K-band (24 GHz)   | K-band (24 GHz)   |
| Signal output       | –   | Relay, transistor   | Relay, transistor   |
| Display             | –   | Control lamp (LED) or pluggable display module PLICSLED   | Control lamp (LED) or pluggable display module PLICSLED                                   |
| Approvals           | ATEX, UKEX, IECEx, NEPSI, FM, CSA, EAC (GOST), UKR Sepro                    | ATEX, UKEX, IECEx, NEPSI, FM, CSA, EAC (GOST), UKR Sepro  | ATEX, UKEX, IECEx, NEPSI, CSA, EAC (GOST)   |
| Benefit             | ✓ Simple installation and mounting, as emitter requires no parameterization | ✓ Compact instrument saves time and money when installing and connecting, as no separate controller is required | ✓ Separate instrument version allows installation in hard-to-reach or dangerous locations |



# Level I Guided Wave Radar



## Measurement of level and interface with guided wave radar (GWR)

In level measurement with guided wave radar, microwave pulses are conducted along a cable or rod probe and reflected by the product surface. The measuring probe of the TDR sensor ensures that the signal reaches the medium undisturbed. Liquids, bulk solids and separation layers (interfaces) in liquids are commonly measured with this measuring technique.

### The advantages

- ✓ Measurement operates independently of noise, pressure or temperature fluctuations and is completely unaffected by changes in density, foaming, steam or dust
- ✓ Buildup on the probe or on the container wall hardly affects the measurement
- ✓ Menu-driven adjustment allows simple, fast and confident setup

PRO

**VEGAFLEX 81**



PRO

**VEGAFLEX 82**



|                     |  |
|---------------------|--|
| Application         | All kind of liquids, applications with steam, buildup, foam generation, condensation as well as ammonia  |
| Measuring range     | Cable probe up to 75 m of 316 or Alloy C22 or Duplex<br>Rod probe up to 6 m of 316L, Alloy C22, Alloy C276, Duplex, 304L or Alloy 400<br>Coax probe up to 6 m of 316L, Alloy C22 or 304L |
| Version             | Exchangeable cable (ø 2 mm, ø 4 mm)<br>Exchangeable rod (ø 8 mm, ø 12 mm)<br>Coax (ø 21.3 mm, ø 42.2 mm)   |
| Process fitting     | Thread from G $\frac{3}{4}$ , $\frac{3}{4}$ NPT, flanges from DN 25, 1"  |
| Process temperature | -60 ... +200 °C  |
| Process pressure    | -1 ... +40 bar<br>(-100 ... +4000 kPa)   |
| Accuracy            | ±2 mm  |
| Signal output       | 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus   |
| Display/adjustment  | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app   |
| Approvals           | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, FDA, INMETRO, NEPSI, KOSHA, CCOE   |
| Benefit             | ✓ Unaffected by temperature, pressure and dust generation  |

|                     |   |
|---------------------|---|
| Application         | For light to heavy-weight bulk solids of all kinds, applications with strong dust generation, condensation or buildup |
| Measuring range     | Cable probe up to 75 m of 316 or 316 PA coated<br>Rod probe up to 6 m of 316L or Alloy C22                            |
| Version             | Exchangeable cable (ø 4 mm, ø 6 mm, ø 11 mm)<br>Exchangeable rod (ø 16 mm)  |
| Process fitting     | Thread from G $\frac{3}{4}$ , $\frac{3}{4}$ NPT, flanges from DN 25, 1"   |
| Process temperature | -40 ... +200 °C   |
| Process pressure    | -1 ... +40 bar<br>(-100 ... +4000 kPa)  |
| Accuracy            | ±2 mm   |
| Signal output       | 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus  |
| Display/adjustment  | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app  |
| Approvals           | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, INMETRO, NEPSI, KOSHA, CCOE       |

# Level I Guided Wave Radar

**PRO**

**VEGAFLEX 83**



**PRO**

**VEGAFLEX 86**



|                            |  |
|----------------------------|--|
| <b>Application</b>         | Aggressive liquids or liquid media with stringent hygienic requirements, applications with steam, buildup, foam generation or condensation |
| <b>Measuring range</b>     | Cable probe up to 32 m of PFA<br>Rod probe up to 4 m of PFA or 1.4435 (BN)   |
| <b>Version</b>             | Cable (ø 4 mm)<br>Rod (ø 8 mm, ø 10 mm)  |
| <b>Process fitting</b>     | Flanges from DN 25, 1", hygienic fittings, clamp, slotted nut  |
| <b>Process temperature</b> | -40 ... +150 °C  |
| <b>Process pressure</b>    | -1 ... +16 bar<br>(-100 ... +1600 kPa)   |
| <b>Accuracy</b>            | ±2 mm  |
| <b>Signal output</b>       | 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus   |
| <b>Display/adjustment</b>  | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app   |
| <b>Approvals</b>           | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, EHEDG, 3-A, FDA, INMETRO, NEPSI, KOSHA, CCOE           |
| <b>Benefit</b>             | ✓ Gap-free hygienic design ensures good cleanability with simple methods   |

|                            |   |
|----------------------------|---|
| <b>Application</b>         | Virtually all liquids under extreme pressure and temperature conditions, applications with buildup, foam generation or condensation                     |
| <b>Measuring range</b>     | Cable probe up to 75 m of 316 or Alloy C22<br>Rod probe up to 6 m of 316L, Alloy C22, Duplex or Alloy C276<br>Coax probe up to 6 m of 316L or Alloy C22 |
| <b>Version</b>             | Exchangeable cable (ø 2 mm, ø 4 mm)<br>Exchangeable rod (ø 8 mm, ø 16 mm)<br>Coax (ø 21.3 mm, ø 42.2 mm)  |
| <b>Process fitting</b>     | Thread from G $\frac{3}{4}$ , $\frac{3}{4}$ NPT, flanges from DN 25, 1"   |
| <b>Process temperature</b> | -196 ... +450 °C  |
| <b>Process pressure</b>    | -1 ... +400 bar<br>(-100 ... +40000 kPa)  |
| <b>Accuracy</b>            | ±2 mm   |
| <b>Signal output</b>       | 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus  |
| <b>Display/adjustment</b>  | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app  |
| <b>Approvals</b>           | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, steam boiler, Overfill protection, Ship, SIL2, INMETRO, NEPSI, KOSHA, CCOE                           |
| <b>Benefit</b>             | ✓ Comprehensive diagnostic options guarantee low-maintenance operation and thus high plant availability   |





# Level I Magnetic level gauge I Bypass

## Bypass level indicator without power supply

The bypass magnetic level indicator VEGAMAG 81 signals the level inside a vessel without the need for external energy. The measuring system is particularly suitable for measuring liquids, aggressive liquid media or for interface detection, for example in storage tanks where there is no access to power sources.

The measuring system consists of a bypass that is mounted on the side of the tank as a communicating pipe. An integrated float with a permanent magnet contactlessly transmits the level to the externally mounted magnetic indicator. The colours on the indicating scale change according to the filling level.

**The advantages**

- ✓ On-site level indicator functions without power source (no auxiliary energy required)
- ✓ The level indication by means of a magnetic roller display cannot become soiled, because the indicator doesn't touch the medium
- ✓ Easy maintenance, as the bypass chamber can be isolated from the process via valves

### VEGAMAG 81



|                      |  |
|----------------------|--|
| Application          | Bypass vessel for liquid-holding tanks, for measuring and indicating levels without auxiliary energy (directly communicating vessel) |
| Measuring range      | up to 4 m  |
| Version              | ASME B31.3<br>PED 2014/68/EU<br>EAC 032/2013   |
| Process fitting tank | Flanges from 1/2", DN 15<br>Threaded connections from 1/2"<br>Welding sockets from 1/2"  |
| Process temperature  | -196 °C ... +450 °C  |
| Process pressure     | 0 ... +100 bar<br>(0 ... +10000 kPa)   |
| Measurement accuracy | ±5 mm  |
| Approvals            | ASME 31.3<br>PED 2014/68/EU<br>EAC 032/2013  |
| Benefits             | ✓ Measurement and on-site indication without auxiliary energy  |

## Bypass for continuous level measurement of liquids

In combination with a level or point level sensor, the VEGAPASS 81 bypass chamber enables continuous level measurement outside a container. Depending on the measuring instrument used, it is especially suitable for measurement in high temperature or pressure environments or for aggressive media.

The bypass consists of a standpipe assembly that is attached to the side of the container normally via two valved, isolatable process fittings. This type of mounting ensures that the level in the standpipe and the level in the container are exactly the same. On request, a VEGAPASS chamber and measuring instrument can be ordered together, pre-assembled and calibrated at the factory.

### The advantages

- ✓ From one source: optimally matched complete solution consisting of bypass chamber and suitable measurement technology
- ✓ Maintenance-free, as there are no moving parts
- ✓ Tailor-made: customer-specific adaptation to your process

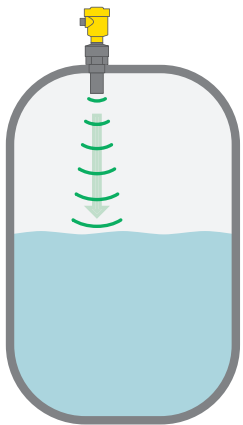
## VEGAPASS 81



|                      |   |
|----------------------|---|
| Application          | Bypass chamber for liquid tanks to accommodate level, point level or interface sensors (communicates the direct vessel level) |
| Measuring range      | up to 4 m   |
| Version              | ASME B31.3<br>PED 2014/68/EU<br>EAC 032/2013  |
| Process fitting tank | Flanges from ½", DN 15<br>Threaded connections from ½"<br>Welding sockets from ½"   |
| Process temperature  | -196 °C ... +450 °C   |
| Process pressure     | 0 ... +205 bar<br>(0 ... +20500 kPa)<br>depends on the built-in sensor  |
| Measurement accuracy | depends on the built-in sensor  |
| Approvals            | ASME 31.3<br>PED 2014/68/EU<br>EAC 032/2013<br>depends on the sensor technology installed                                     |
| Benefits             | ✓ Complete solution comprising bypass vessel and measurement technology   |



# Level I Ultrasonic



## Ultrasonic level measurement

In non-contact ultrasonic level measurement, the sensor emits ultrasonic pulses in the direction of the medium, which then reflects them back.

The elapsed time from emission to reception of the signals is proportional to the level in the tank. Ultrasonic sensors are ideal for simple standard applications, both for liquids and bulk solids.

### The advantages

- ✓ Non-contact level measurement for a wide range of media
- ✓ Suitable for bulk solids and liquids
- ✓ Adjustment without medium or filling



PRO

**VEGASON 61**



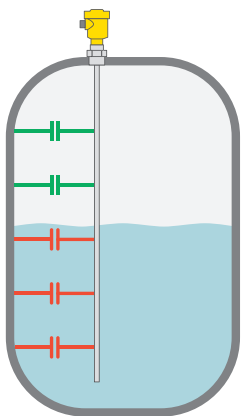
PRO

**VEGASON 62**



|                     |   |  |
|---------------------|---|--|
| Application         | Liquids and bulk solids in small vessels                          | Liquids and bulk solids in small vessels                         |
| Measuring range     | Liquids: 0.25 ... 5 m<br>Bulk solids: 0.25 ... 2 m                | Liquids: 0.4 ... 8 m<br>Bulk solids: 0.4 ... 3.5 m               |
| Transducer          | of PVDF   | of PVDF  |
| Process fitting     | Thread G1½, 1½ NPT  | Thread G2, 2 NPT   |
| Process temperature | -40 ... +80 °C  | -40 ... +80 °C   |
| Process pressure    | -0.2 ... +2 bar<br>(-20 ... +200 kPa)                             | -0.2 ... +2 bar<br>(-20 ... +200 kPa)                            |
| Accuracy            | ±10 mm  | ±10 mm   |
| Signal output       | 4 ... 20 mA/HART, Profibus PA,<br>Foundation Fieldbus             | 4 ... 20 mA/HART, Profibus PA,<br>Foundation Fieldbus            |
| Display/adjustment  | PLICSCOM, PACTware/DTM,<br>VEGADIS 81, VEGADIS 82                 | PLICSCOM, PACTware/DTM,<br>VEGADIS 81, VEGADIS 82                |
| Approvals           | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST),<br>UKR Sepro, Ship, SIL2  | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST),<br>UKR Sepro, Ship, SIL2 |
| Benefit             | ✓ Maintenance-free operation through non-contact measuring method |  |

# Level I Capacitive



## Capacitive level measurement

In capacitive level measurement, the sensor and the vessel form the two electrodes of a capacitor. Any change in level causes a capacitance change, which is in turn converted into a level signal.

Thanks to versions with shortenable cables and rods, the capacitive level sensors cover a wide variety of applications.

### The advantages

- ✓ Capacitive level measurement enables measurement without blind spots over the entire sensor length
- ✓ Fully insulated capacitive sensors also measure aggressive liquids
- ✓ Cost-effective measurement for trouble-free and maintenance-free operation

PRO

**VEGACAL 62**



PRO

**VEGACAL 63**



PRO

**VEGACAL 64**



|                     |  |  |  |
|---------------------|--|--|--|
| Application         | Bulk solids, non-conductive liquids  | Liquids  | Adhesive liquids   |
| Measuring range     | up to 6 m  | up to 6 m  | up to 4 m  |
| Version             | Partly insulated rod of steel, 316L, Alloy, PTFE, PEEK   | Fully insulated rod of steel, 316L, Alloy, PTFE, PE  | Fully insulated rod of steel, 316L, Alloy, FEP   |
| Process fitting     | Thread from G $\frac{1}{2}$ , $\frac{1}{2}$ NPT, flanges from DN 25, 1"                          | Thread from G $\frac{1}{2}$ , $\frac{1}{2}$ NPT, flanges from DN 25, 1"                          | Thread from G $\frac{3}{4}$ , $\frac{3}{4}$ NPT, flanges from DN 25, 1"                          |
| Process temperature | -50 ... +200 °C  | -50 ... +200 °C  | -50 ... +150 °C  |
| Process pressure    | -1 ... +64 bar (-100 ... +6400 kPa)  | -1 ... +64 bar (-100 ... +6400 kPa)  | -1 ... +64 bar (-100 ... +6400 kPa)  |
| Signal output       | 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus   | 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus   | 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus   |
| Display/adjustment  | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app                                   | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app                                   | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app                                   |
| Approvals           | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI, KOSHA | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI, KOSHA | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI, KOSHA |
| Benefit             | ✓ Maximum container utilization, because entire probe length is used for measuring               |  |  |

# Level I Capacitive

PRO

## VEGACAL 65



PRO

## VEGACAL 66



|                     |  |
|---------------------|--|
| Application         | Bulk solids, non-conductive liquids  |
| Measuring range     | up to 32 m   |
| Version             | Partly insulated cable of steel, 316L, Alloy, PTFE, PEEK, PA                                     |
| Process fitting     | Thread from G1, 1 NPT, flanges from DN 50, 2"  |
| Process temperature | -50 ... +200 °C  |
| Process pressure    | -1 ... +64 bar (-100 ... +6400 kPa)  |
| Signal output       | 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus   |
| Display/adjustment  | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app                                   |
| Approvals           | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI, KOSHA |
| Benefit             | ✓ Maximum container utilization, because entire probe length is used for measuring               |

|                     |  |
|---------------------|--|
| Application         | Liquids and bulk solids, not abrasive  |
| Measuring range     | up to 32 m   |
| Version             | Fully insulated cable of steel, 316L, PTFE   |
| Process fitting     | Thread from G1, 1 NPT, flanges from DN 50, 2"  |
| Process temperature | -50 ... +150 °C  |
| Process pressure    | -1 ... +40 bar (-100 ... +4000 kPa)  |
| Signal output       | 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus   |
| Display/adjustment  | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app                                   |
| Approvals           | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI, KOSHA |
| Benefit             | ✓ Cost savings thanks to simple installation and setup   |

PRO

### VEGACAL 67



Bulk solids with high process temperatures

Rod up to 6 m; cable up to 40 m

Rod or cable of steel,  
316L, ceramic

Thread from G1½, 1½ NPT,  
flanges from DN 50, 2"

-50 ... +400 °C

-1 ... +16 bar  
(-100 ... +1600 kPa)

4 ... 20 mA/HART, Profibus PA,  
Foundation Fieldbus

PLICSCOM, PACTware/DTM,  
VEGADIS 81, VEGADIS 82,  
VEGA Tools app

-

✓ Exact measuring results in almost all bulk solids and high temperature ranges

PRO

### VEGACAL 69



Liquids in non-conductive vessels

up to 4 m

Fully insulated double rod made  
of PTFE, PP, FEP

Flanges from DN 50, 2"

-50 ... +100 °C

-1 ... +2 bar  
(-100 ... +200 kPa)

4 ... 20 mA/HART, Profibus PA,  
Foundation Fieldbus

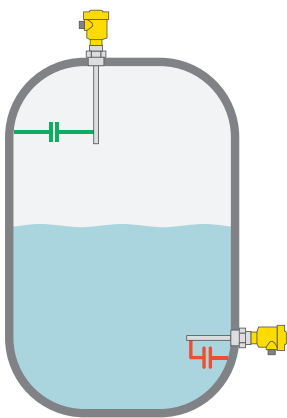
PLICSCOM, PACTware/DTM,  
VEGADIS 81, VEGADIS 82,  
VEGA Tools app

ATEX, UKEX, IECEx, EAC (GOST), UKR Sepro

✓ Simple, fast installation thanks to compact, double rod design



# Point level | Capacitive



## Point level detection with capacitive level switches

In capacitive point level detection, the sensor and vessel form the two electrodes of a capacitor. Any capacitance change caused by a level change is converted into a switching signal. Thanks to the shortenable cable and rod versions, level switches can be perfectly adapted to any application. They are often used for overfill or dry run protection as well as oil/water or foam detection.

### The advantages

- ✓ The level switch can be installed in any position
- ✓ Fully insulated versions also measure aggressive liquids
- ✓ Low-cost point level detection for maintenance-free operation

BASIC

VEGAPOINT 11



BASIC

VEGAPOINT 21/31



|                     |  |   |
|---------------------|--|---|
| Application         | Water-based liquids  | VEGAPOINT 21: liquids<br>VEGAPOINT 31: bulk solids  |
| Version             | Compact version of 316L, PEEK                                      | Compact version of 316L, PEEK   |
| Process fitting     | Threads from G½, ½ NPT,<br>universal connector for hygiene adapter | Threads from G½, ½ NPT,<br>universal connector for hygiene adapter  |
| Process temperature | -20 °C ... +100 °C/<br>1 h @ +135 °C                               | -40 °C ... +115 °C/<br>1 h @ +135 °C  |
| Process pressure    | -1 ... +25 bar<br>(-100 ... +2500 kPa)                             | -1 ... +64 bar<br>(-100 ... +6400 kPa)  |
| Signal output       | Three-wire: PNP/NPN, IO-Link                                       | Three-wire: PNP/NPN, IO-Link, Bluetooth   |
| Display             | LED  | Full-colour multidirectional<br>switching status indication   |
| Approvals           | CE 1935/2004, FDA, ADI   | ATEX, UKEX, IECEx, CE 1935/2004, FDA, 3-A,<br>EHEDG, ASME BPE, USP Class VI, ADI, China<br>FDA, WHG, VLAREM, SVTI, Ship |
| Benefit             | ✓ Adjustment-free for easy setup                                   | ✓ Highly visible, adjustable full-colour<br>multidirectional (360°) switching status<br>display                         |

# Point level | Capacitive

BASIC

## VEGAPOINT 23



BASIC

## VEGAPOINT 24



|                     |   |
|---------------------|---|
| Application         | Liquids and bulk solids   |
| Version             | Compact version of 316L, PEEK with tube extension up to 1 m   |
| Process fitting     | Thread from G½, ½ NPT, universal connector for hygiene adapter  |
| Process temperature | Tube extension ≤ 250 mm:<br>-40 °C ... +115 °C/1 h @ +135 °C<br><br>Tube extension > 250 mm:<br>-40 °C ... +80 °C/1 h @ +135 °C |
| Process pressure    | -1 ... +64 bar<br>(-100 ... +6400 kPa)  |
| Signal output       | Three-wire: PNP/NPN, IO-Link, Bluetooth   |
| Display             | Full-colour multidirectional switching status indication  |
| Approvals           | ATEX, UKEX, IECEx, CE 1935/2004, FDA, 3-A, EHEDG, ASME BPE, USP Class VI, ADI, China FDA, WHG, VLAREM, SVTI, Ship               |
| Benefit             | ✓ Low-cost level switch with selectable switching point position/tube extension   |

|                     |  |
|---------------------|--|
| Application         | Adhesive media or front flush mounting   |
| Version             | Compact version of 316L, PEEK  |
| Process fitting     | Thread from G½, ½ NPT, universal connector for hygiene adapter                             |
| Process temperature | -40 °C ... +115 °C/1 h @ +135 °C   |
| Process pressure    | -1 ... +64 bar<br>(-100 ... +6400 kPa)   |
| Signal output       | Three-wire: PNP/NPN, IO-Link, Bluetooth  |
| Display             | Full-colour multidirectional switching status indication                                   |
| Approvals           | ATEX, UKEX, CE 1935/2004, FDA, 3-A, EHEDG, USP Class VI, ADI, China FDA, WHG, VLAREM, SVTI |
| Benefit             | ✓ Optimised for adhesive media via front-flush installation                                |

PRO

**VEGACAP 62**



PRO

**VEGACAP 63**



PRO

**VEGACAP 64**



|                     |   |   |   |
|---------------------|---|---|---|
| Application         | Liquids and bulk solids   | Liquids and bulk solids, not abrasive   | Adhesive liquids and light-weight bulk solids, not abrasive                               |
| Version             | Partly insulated rod of steel, 316L, PTFE up to 6 m                                       | Fully insulated rod of steel, 316L, PE, PTFE, Alloy up to 6 m                             | Fully insulated rod of steel, 316L, PTFE, Alloy up to 4 m                                 |
| Process fitting     | Thread from G1/2, 1/2 NPT, flanges from DN 25, 1"   | Thread from G1/2, 1/2 NPT, flanges from DN 25, 1"   | Thread from G3/4, 3/4 NPT, flanges from DN 25, 1"   |
| Process temperature | -50 ... +200 °C   | -50 ... +200 °C   | -50 ... +200 °C   |
| Process pressure    | -1 ... +64 bar (-100 ... +6400 kPa)   | -1 ... +64 bar (-100 ... +6400 kPa)   | -1 ... +64 bar (-100 ... +6400 kPa)   |
| Signal output       | Relay, transistor, two-wire output, contactless electronic switch                         | Relay, transistor, two-wire output, contactless electronic switch                         | Relay, transistor, two-wire output, contactless electronic switch                         |
| Display             | Control lamp (LED) or pluggable display module PLICSLED                                   | Control lamp (LED) or pluggable display module PLICSLED                                   | Control lamp (LED) or pluggable display module PLICSLED                                   |
| Approvals           | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI |
| Benefit             | ✓ Rugged, resistant designs   |   |   |

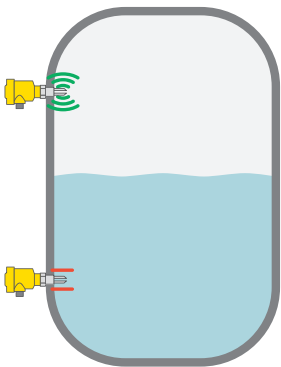
# Point level | Capacitive

|                     | PRO<br>VEGACAP 65   | PRO<br>VEGACAP 66   | PRO<br>VEGACAP 67   |
|---------------------|---|---|---|
|                     |          |          |    |
| Application         | Liquids and bulk solids   | Liquids and bulk solids, not abrasive   | Bulk solids with high process temperatures  |
| Version             | Partly insulated steel cable, 316L, PTFE, PE up to 32 m                                   | Fully insulated steel cable, 316L, PTFE up to 32 m  | Partly insulated steel rod or cable, 316L, ceramic up to 6 m (rod) up to 40 m (cable) |
| Process fitting     | Thread from G1, 1 NPT, flanges from DN 50, 2"   | Thread from G1, 1 NPT, flanges from DN 50, 2"   | Thread from G1½, 1½ NPT, flanges from DN 50, 2"                                       |
| Process temperature | -50 ... +200 °C   | -50 ... +150 °C   | -50 ... +400 °C   |
| Process pressure    | -1 ... +64 bar (-100 ... +6400 kPa)   | -1 ... +40 bar (-100 ... +4000 kPa)   | -1 ... +16 bar (-100 ... +1600 kPa)   |
| Signal output       | Relay, transistor, two-wire output, contactless electronic switch                         | Relay, transistor, two-wire output, contactless electronic switch                         | Relay, transistor, two-wire output, contactless electronic switch                     |
| Display             | Control lamp (LED) or pluggable display module PLICSLED                                   | Control lamp (LED) or pluggable display module PLICSLED                                   | Control lamp (LED) or pluggable display module PLICSLED                               |
| Approvals           | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI | -   |
| Benefit             | ✓ Rugged, resistant designs with capability to ignore buildup on sensor                   |   | ✓ Universal use in bulk solids thanks to wide temperature range                       |



| PRO   | PRO   | PRO  | PRO   |
|---|---|--|---|
| VEGACAP 69  | VEGACAP 27  | VEGACAP 35   | VEGACAP 98  |
|  |  |  |  |
| Liquids, also in non-conductive vessels   | Adhesive, conductive liquids  | Bulk solids  | Liquids, bulk solids  |
| Fully insulated double rod of PTFE, PP, FEP up to 4 m                             | Fully insulated rod of steel, 316Ti, PTFE, PFA up to 4 m                          | Insulated cable of steel, 316Ti, PE, PA12 up to 20 m                               | Fully insulated rod of PP up to 2 m   |
| Flanges from DN 50, 2"  | Thread from G1, 1 NPT, Clamp 1½"  | Thread from G1½, 1½ NPT  | Thread from G1½   |
| -50 ... +100 °C   | -50 ... +200 °C   | -40 ... +80 °C   | -40 ... +80 °C  |
| -1 ... +2 bar (-100 ... +200 kPa)   | -1 ... +63 bar (-100 ... +6300 kPa)   | -1 ... +16 bar (-100 ... +1600 kPa)  | Unpressurized operation   |
| Relay, transistor, two-wire output, contactless electronic switch                 | Relay output  | Relay output   | Relay output  |
| Control lamp (LED) or pluggable display module PLICSLED                           | Control lamp (LED)  | Control lamp (LED)   | Control lamp (LED)  |
| ATEX, UKEX, EAC (GOST), UKR Sepro   | Overfill protection   | Overfill protection  | Overfill protection   |
| ✓ Simple, fast installation thanks to compact, double rod design                  | ✓ Minimal time and cost expenditure thanks to simple setup without medium         |  |   |

# Point level | Vibration | Liquids



## Vibrating level switch for all liquids

VEGASWING level switches detect the levels of liquids reliably with millimetre accuracy, regardless of their mounting position. They can be used universally to signal full or empty levels, protect against overfilling or dry running or protect pumps in containers and pipelines. They are not sensitive to turbulence, foam, vibration and buildup on the tuning fork.

Vibrating level switches operate with a tuning fork that vibrates at its resonance frequency. When the level in the tank changes and the fork is either covered or uncovered, the oscillation frequency changes - this is detected and the output made accordingly.

### The advantages

- ✓ Simple setup and commissioning without adjustment saves time and costs
- ✓ Reliable point level detection, unaffected by installation position, pressure, temperature, foam and viscosity
- ✓ Low operating costs, self-monitoring and maintenance-free

**BASIC**

**VEGASWING 51/53**



**PRO**

**VEGASWING 61/63**



**PRO**

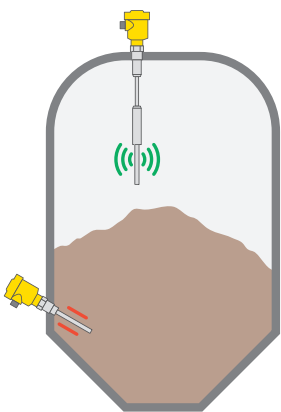
**VEGASWING 66**



|                            |  |   |  |
|----------------------------|--|---|--|
| <b>Application</b>         | Liquids  | Liquids   | Liquids under high and low temperatures  |
| <b>Version</b>             | VEGASWING 51:<br>Compact version<br><br>VEGASWING 53:<br>Tube extension up to 1 m  | VEGASWING 61:<br>Compact version<br><br>VEGASWING 63:<br>Tube extension up to 6 m                         | Compact version or with tube extension up to 3 m   |
| <b>Material</b>            | 316L   | 316L, ECTFE, PFA, enamel, Alloy 400, Duplex, Alloy C22  | Inconel 718 (tuning fork), 316L, Alloy C22   |
| <b>Process fitting</b>     | Thread from G½, ½ NPT, hygienic fittings   | Thread from G¾, ¾ NPT, flanges from DN 25, 1", hygienic fittings  | Thread from G1, 1 NPT, flanges from DN 50, 2"  |
| <b>Process temperature</b> | -40 ... +150 °C  | -50 ... +250 °C   | -196 ... +450 °C   |
| <b>Process pressure</b>    | -1 ... +64 bar<br>(-100 ... +6400 kPa)   | -1 ... +64 bar<br>(-100 ... +6400 kPa)  | -1 ... +160 bar<br>(-100 ... +16000 kPa)   |
| <b>Signal output</b>       | Transistor output, contactless electronic switch, IO-Link  | Relay, transistor, two-wire, NAMUR output, contactless electronic switch                                  | Relay, transistor, two-wire output   |
| <b>Display</b>             | Control lamp (LED)   | Control lamp (LED) or pluggable display module PLICSLED   | Control lamp (LED) or pluggable display module PLICSLED  |
| <b>Approvals</b>           | VEGASWING 51:<br>Overfill protection, Ship, CSA-OL, EHEDG, FDA, CE 1935/2004, EAC (GOST)<br><br>VEGASWING 53:<br>Overfill protection, CSA-OL, EHEDG, FDA, CE 1935/2004 | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, KOSHA, NEPSI, INMETRO | ATEX, UKEX, IECEx, CSA, EAC (GOST), UKR Sepro, Overfill protection, steam boiler, Ship, SIL2, KOSHA, NEPSI, INMETRO, VdTÜV 100 |
| <b>Benefit</b>             | ✓ Minimal time and cost expenditure thanks to simple setup without medium  |   |  |

Controllers see page 64 – 69

# Point level | Vibration | Granulated bulk solids



## Vibrating level switch for granulated bulk solids

VEGAVIB is a level switch for granulated and coarse-grained bulk solids. VEGAVIB reliably and accurately signals the minimum or maximum limit level. The smooth surface of the vibrating rod, without sharp corners or edges, prevents bulk solids from getting stuck or jammed and is easy to clean.

When VEGAVIB is immersed in bulk solids, its vibration is damped. Its electronics converts this damped signal into a switching command which can be used, for example, to protect against overflowing or empty level.

### The advantages

- ✓ Simple setup without adjustment
- ✓ Reliable point level detection unaffected by pressure, temperature or dust generation
- ✓ Maintenance-free operation

**BASIC**

**VEGAVIB S61**



**PRO**

**VEGAVIB 61/63**



**PRO**

**VEGAVIB 62**

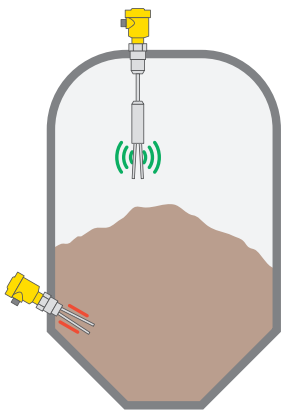


|                            |   |  |  |
|----------------------------|---|--|--|
| <b>Application</b>         | Granuled and coarse-grained bulk solids                                   | Granuled and coarse-grained bulk solids  | Granuled and coarse-grained bulk solids  |
| <b>Version</b>             | Compact version or with tube extension up to 1.5 m                        | VEGAVIB 61:<br>Compact version<br><br>VEGAVIB 63:<br>Tube extension up to 6 m            | Suspension cable up to 80 m  |
| <b>Measuring range</b>     | Bulk solids from 100 g/l  | Bulk solids from 20 g/l  | Bulk solids from 20 g/l  |
| <b>Material</b>            | 316L  | 316L, CarboCer coating   | 316L and PUR or FEP, CarboCer coating  |
| <b>Process fitting</b>     | Thread from G1, 1 NPT   | Thread from G1, 1 NPT, flanges from DN 32, 1½", hygienic fittings                        | Thread from G1, 1 NPT, flanges from DN 32, 1½", hygienic fittings                        |
| <b>Process temperature</b> | -50 ... +150 °C   | -50 ... +250 °C  | -40 ... +150 °C  |
| <b>Process pressure</b>    | -1 ... +16 bar<br>(-100 ... +1600 kPa)                                    | -1 ... +16 bar<br>(-100 ... +1600 kPa)   | -1 ... +6 bar<br>(-100 ... +600 kPa)   |
| <b>Signal output</b>       | Relay, transistor output  | Relay, transistor, two-wire, NAMUR output, contactless electronic switch                 | Relay, transistor, two-wire, NAMUR output, contactless electronic switch                 |
| <b>Display</b>             | Control lamp (LED)  | Control lamp (LED) or pluggable display module PLICSLED                                  | Control lamp (LED) or pluggable display module PLICSLED                                  |
| <b>Approvals</b>           | ATEX, UKEX  | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, SIL2, NEPSI, INMETRO, KOSHA/KTL, CCOE | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, SIL2, NEPSI, INMETRO, KOSHA/KTL, CCOE |
| <b>Benefit</b>             | ✓ Minimal time and cost expenditure thanks to simple setup without medium |  |  |

Controllers see page 64–69



# Point level | Vibration | Powders



## Vibrating level switch for powders

VEGAWAVE reliably detects both minimum and maximum levels of powdery and fine-grained bulk solids with a grain size of up to 10 mm. The tuning fork is suitable for adhesive and abrasive products as well as bulk solids with very low density. Its design means it is unaffected by buildup.

The vibration of VEGAWAVE is damped when covered by any bulk solids. Its electronics converts this signal into a switching command which can be used, for example, to protect against overfilling or empty level.

### The advantages

- ✓ Simple setup without adjustment
- ✓ Reliable point level detection unaffected by pressure, temperature or dust generation
- ✓ Maintenance-free operation

**BASIC**

**VEGAWAVE S61**



**PRO**

**VEGAWAVE 61/63**



**PRO**

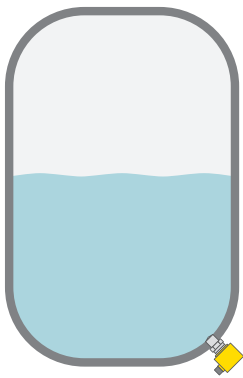
**VEGAWAVE 62**



|                            |   |   |   |
|----------------------------|---|---|---|
| <b>Application</b>         | Powders and fine-grained bulk solids                                      | Powders and fine-grained bulk solids  | Powders and fine-grained bulk solids  |
| <b>Version</b>             | Compact version or with tube extension up to 1.5 m                        | VEGAWAVE 61:<br>Compact version<br><br>VEGAWAVE 63:<br>Tube extension up to 6 m | Suspension cable up to 80 m   |
| <b>Measuring range</b>     | Bulk solids from 100 g/l  | Bulk solids from 8 g/l  | Bulk solids from 8 g/l  |
| <b>Material</b>            | 316L  | 316L, Carbocer coating  | 316L and PUR or FEP, Carbocer coating   |
| <b>Process fitting</b>     | Thread G1½  | Thread G1½, 1½ NPT, flanges from DN 50, 2", hygienic fittings                   | Thread G1½, 1½ NPT, flanges from DN 50, 2", hygienic fittings                   |
| <b>Process temperature</b> | -50 ... +150 °C   | -50 ... +250 °C   | -40 ... +150 °C   |
| <b>Process pressure</b>    | -1 ... +25 bar<br>(-100 ... +2500 kPa)                                    | -1 ... +25 bar<br>(-100 ... +2500 kPa)  | -1 ... +6 bar<br>(-100 ... +600 kPa)  |
| <b>Signal output</b>       | Relay, transistor output  | Relay, transistor, two-wire, NAMUR output, contactless electronic switch        | Relay, transistor, two-wire, NAMUR output, contactless electronic switch        |
| <b>Display</b>             | Control lamp (LED)  | Control lamp (LED) or pluggable display module PLICSLED                         | Control lamp (LED) or pluggable display module PLICSLED                         |
| <b>Approvals</b>           | ATEX, UKEX  | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, SIL2, NEPSI, KOSHA/KTL, CCOE | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, SIL2, NEPSI, KOSHA/KTL, CCOE |
| <b>Benefit</b>             | ✓ Minimal time and cost expenditure thanks to simple setup without medium |   |   |

Controllers see page 64–69

# Point level | Conductive



## Point level detection with conductive point level switches

When the electrodes of the conductive point level sensor come into contact with a conductive fluid, a small alternating current begins to flow.

The electronics then triggers a switching command. Conductive point level sensors are used in all areas of industrial instrumentation, e.g. as overflow protection, pump control or dry run protection.

### The advantages

- ✓ Simple, robust and low-cost point level detection
- ✓ Installation of point level sensors possible in any position
- ✓ Detection of multiple switching points within a vessel

PRO

**VEGAKON 61**



PRO

**VEGAKON 66**



|                     |  |
|---------------------|--|
| Application         | Conductive liquids   |
| Version             | Compact level switch with front-flush partly insulated electrode and one switching point |
| Probe length        | -  |
| Material            | 316L, PTFE   |
| Process fitting     | Thread G1, cone DN 25, Varivent  |
| Process temperature | -40 ... +150 °C  |
| Process pressure    | -1 ... +25 bar<br>(-100 ... +2500 kPa)   |
| Signal output       | Relay, transistor output   |
| Display             | Control lamp (LED)   |
| Approvals           | -  |
| Benefit             | ✓ Optimal cleanability thanks to front-flush mounting                                    |

|                     |   |
|---------------------|---|
| Application         | Conductive liquids  |
| Version             | Compact level switch with partly insulated rod electrodes and max. two switching points |
| Probe length        | 0.12 ... 4 m  |
| Material            | 316Ti, PP   |
| Process fitting     | Thread G1½  |
| Process temperature | -40 ... +100 °C   |
| Process pressure    | -1 ... +6 bar<br>(-100 ... +600 kPa)  |
| Signal output       | Relay, transistor output  |
| Display             | Control lamp (LED)  |
| Approvals           | -   |
| Benefit             | ✓ Simple and versatile with cut to length probes  |

# Point level | Conductive

|                     | PRO<br>EL 1   | PRO<br>EL 3   | PRO<br>EL 4   |
|---------------------|---|---|---|
|                     |  |  |  |
| Application         | Conductive liquids  | Conductive liquids  | Conductive liquids  |
| Probe length        | up to 4 m   | up to 6 m   | up to 4 m   |
| Version             | Partly insulated rod with one switching point                                     | Partly insulated rod with max. four switching points                              | Partly insulated rod with max. four switching points                                |
| Material            | 316Ti, PTFE   | 316Ti, PTFE   | 316Ti, PP   |
| Process fitting     | Thread G1/2   | Thread G1 1/2   | Thread G1 1/2   |
| Process temperature | -50 ... +130 °C   | -50 ... +130 °C   | -20 ... +100 °C   |
| Process pressure    | -1 ... +63 bar<br>(-100 ... +6300 kPa)  | -1 ... +63 bar<br>(-100 ... +6300 kPa)  | -1 ... +6 bar<br>(-100 ... +600 kPa)  |
| Signal output       | VEGATOR 131, VEGATOR 132  | VEGATOR 131, VEGATOR 132  | VEGATOR 131, VEGATOR 132  |
| Display             | -   | -   | -   |
| Approvals           | ATEX, UKEX, Overfill protection   | ATEX, UKEX, Overfill protection   | -   |
| Benefit             | ✓ Easy installation in confined spaces through small sensor dimensions            | ✓ Simple and versatile with cut to length probes                                  |   |

Controllers see page 64 –69



PRO

EL 6



Conductive liquids

up to 50 m

Partly insulated cable  
with max. four switching points

316Ti, PP/FEP

Thread G1½

-20 ... +100 °C

-1 ... +6 bar  
(-100 ... +600 kPa)

VEGATOR 131, VEGATOR 132

-

-

✓ Simple and versatile with cut  
to length probes

PRO

EL 8



Conductive liquids

up to 3 m

Partly insulated rod  
with one switching point

316Ti, PE

Thread G½

-10 ... +60 °C

-1 ... +6 bar  
(-100 ... +600 kPa)

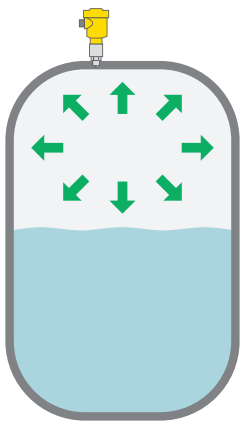
VEGATOR 131, VEGATOR 132

-

-

✓ Easy installation in confined  
spaces through small sensor  
dimensions

# Process pressure



## Process pressure measurement

Pressure transmitters measure the pressure of liquids, gases and vapours in pipes or closed vessels. The pressure of the measured medium acts on a pressure measuring cell, which converts it into an electronic signal.

The process pressure transmitters are ideal for detecting the relative or absolute pressure in applications with condensation or rapid temperature changes.

## The advantages

- ✓ Pressure transmitters handle a very wide measuring range: from vacuum to extreme pressures
- ✓ High operational reliability through integrated self-monitoring
- ✓ High overload resistance, long-term stability and thermal shock compensation of the dry, ceramic-capacitive measuring cell

**BASIC**

**VEGABAR 18**



**BASIC**

**VEGABAR 19**




|                                       |  |  |
|---------------------------------------|--|--|
| Application                           | Liquids and gases  | Liquids and gases,<br>even at high pressure  |
| Deviation                             | 0.5 %  | 0.5 %  |
| Measuring cell<br>Measuring cell seal | Ceramic measuring cell<br>FKM                                      | Metallic measuring cell<br>-   |
| Process fitting                       | ½" standard thread,<br>316L  | ½", 1", standard thread,<br>optional front-flush; 316L                               |
| Process temperature                   | -40 ... +100 °C  | -40 ... +100 °C  |
| Measuring range                       | Relative<br>0 ... +25 bar<br>(0 ... +2500 kPa)                     | Relative<br>0 ... +100 bar<br>(0 ... +10000 kPa)                                     |
| Overload resistance                   | up to 150-fold measuring range                                     | up to 4-fold measuring range   |
| Signal output                         | Two-wire: 4 ... 20 mA  | Two-wire: 4 ... 20 mA  |
| Approvals                             | -  | -  |
| Benefit                               | ✓ Low-cost version with extremely<br>small installation dimensions | ✓ Universally applicable due to fully welded<br>metallic measuring cell construction |

# Process pressure

| BASIC      | BASIC      | BASIC      |
|------------|------------|------------|
| VEGABAR 28 | VEGABAR 29 | VEGABAR 38 |

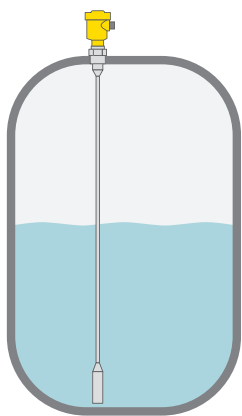


|                     |   |   |   |
|---------------------|---|---|---|
| Application         | Liquids and gases   | Liquids and gases, even at high pressure  | Liquids and gases   |
| Deviation           | 0.3 %   | 0.3 %   | 0.3 %   |
| Measuring cell      | Ceramic measuring cell  | Metallic measuring cell   | Ceramic measuring cell  |
| Measuring cell seal | FKM, EPDM, FFKM   | –   | FKM, EPDM, FFKM   |
| Process fitting     | Thread, optionally with front-flush and hygienic fittings, universal connection for hygienic adapter; 316L, Duplex, PEEK        | Optional front-flush thread and hygienic fittings, universal connector for hygiene adapter; 316L  | Optional front-flush thread and hygienic fittings, universal connector for hygiene adapter; 316L, Duplex, PEEK  |
| Process temperature | -40 ... +130 °C/<br>1 h @ +135 °C steam   | -40 ... +130 °C/<br>1 h @ +135 °C steam   | -40 ... +130 °C/<br>1 h @ +135 °C steam   |
| Measuring range     | Absolute and relative<br>-1 ... +60 bar<br>(-100 ... +6000 kPa)   | Absolute and relative<br>-1 ... +1000 bar<br>(-100 ... +100000 kPa)   | Absolute and relative<br>-1 ... +60 bar<br>(-100 ... +6000 kPa)   |
| Overload resistance | up to 150-fold measuring range  | up to 4-fold measuring range  | up to 150-fold measuring range  |
| Signal output       | Two-wire: 4 ... 20 mA<br>Three-wire: PNP/NPN,<br>4 ... 20 mA, IO-Link   | Two-wire: 4 ... 20 mA<br>Three-wire: PNP/NPN,<br>4 ... 20 mA, IO-Link   | Two-wire: 4 ... 20 mA<br>Three-wire: PNP/NPN,<br>4 ... 20 mA, IO-Link   |
| Display/adjustment  | PACTware/DTM,<br>VEGA Tools app, IODD, Bluetooth,<br>full-colour multidirectional<br>switching status indication                | PACTware/DTM,<br>VEGA Tools app, IODD, Bluetooth,<br>full-colour multidirectional<br>switching status indication                            | Integrated on-site display and<br>3-key operation, PACTware/DTM,<br>VEGA Tools app, IODD, Bluetooth,<br>full-colour multidirectional<br>switching status indication |
| Approvals           | ATEX, UKEX, IECEx, cULus,<br>NEPSI, EAC, INMETRO, IA,<br>CCOE, TIIS, KOSHA/KTL, SEPRO,<br>CE 1935/2004, FDA, China FDA,<br>Ship | ATEX, UKEX, IECEx, cULus,<br>NEPSI, EAC, INMETRO, IA,<br>CCOE, TIIS, KOSHA/KTL, SEPRO,<br>CE 1935/2004, FDA, 3-A, EHEDG,<br>China FDA, Ship | ATEX, UKEX, IECEx, cULus,<br>NEPSI, EAC, INMETRO, IA,<br>CCOE, TIIS, KOSHA/KTL, SEPRO,<br>CE 1935/2004, FDA, China FDA,<br>Ship                                     |
| Benefit             | ✓ Highly visible, adjustable full-colour multidirectional (360°) switch status indication                                       | ✓ Simple integration into control systems through IO-Link communication   | ✓ Simple setup thanks to large on-site display with VDMA operation and additional texts   |

| BASIC<br>VEGABAR 39   | PRO<br>VEGABAR 81   | PRO<br>VEGABAR 82  | PRO<br>VEGABAR 83   |
|---|---|--|---|
|    |    |    |    |
| Liquids and gases, even at high pressure  | Liquids and gases with high temperatures  | Liquids and gases  | Liquids and gases also with high pressures  |
| 0.3 %   | 0.2 %   | 0.2 %; 0.1 %; 0.05 %   | 0.2 %; 0.1 %; 0.075 %   |
| Metallic measuring cell<br>–  | Chemical seal system<br>–   | CERTEC®, MINI-CERTEC®<br>FKM, EPDM, FFKM   | Piezoresistive/thin film strain gauge/METEC®<br>–   |
| Optional front-flush thread and hygienic fittings, universal connector for hygiene adapter; 316L  | Thread from G½, ½ NPT, flanges from DN 25, 1", hygienic fittings of 316L, Alloy, Duplex, Tantalum, gold                   | Thread from G½, flanges from DN 15, ½", hygienic fittings; 316L, Alloy, Duplex, PVDF, PEEK                                     | Thread from G½, ½ NPT, flanges from DN 25, 1", hygienic fittings; 316L, Alloy   |
| -40 ... +130 °C/<br>1 h @ +135 °C steam   | -90 ... +400 °C   | -40 ... +150 °C  | -40 ... +200 °C   |
| Absolute and relative<br>-1 ... +1000 bar<br>(-100 ... +100000 kPa)   | Absolute and relative<br>-1 ... +1000 bar<br>(-100 ... +100000 kPa)   | Absolute and relative<br>-1 ... +100 bar<br>(-100 ... +10000 kPa)  | Absolute and relative<br>-1 ... +1000 bar<br>(-100 ... +100000 kPa)   |
| up to 4-fold measuring range  | Depending on chemical seal system   | up to 200-fold measuring range   | up to 150-fold measuring range  |
| Two-wire: 4 ... 20 mA<br>Three-wire: PNP/NPN,<br>4 ... 20 mA, IO-Link   | 4 ... 20 mA, 4 ... 20 mA/HART,<br>Profibus PA,<br>Foundation Fieldbus, Modbus   | 4 ... 20 mA, 4 ... 20 mA/HART,<br>Profibus PA,<br>Foundation Fieldbus, Modbus  | 4 ... 20 mA, 4 ... 20 mA/HART,<br>Profibus PA,<br>Foundation Fieldbus, Modbus   |
| Integrated on-site display and 3-key operation, VEGA Tools app, IODD, Bluetooth, full-colour multidirectional switching status indication | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app  | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app   | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app  |
| ATEX, UKEX, IECEx, cULus, NEPSI, EAC, INMETRO, IA, CCOE, TIIS, KOSHA/KTL, SEPRO, CE 1935/2004, FDA, 3-A, EHEDG, China FDA, Ship           | ATEX, UKEX, IECEx, FM, CSA, NEPSI, EAC (GOST), INMETRO, CCOE, SEPRO, Overfill protection, Ship, SIL2/3, CE 1935/2004, FDA | ATEX, UKEX, IECEx, FM, CSA, NEPSI, EAC (GOST), INMETRO, CCOE, SEPRO, Overfill protection, Ship, SIL2/3, CE 1935/2004, FDA, 3-A | ATEX, UKEX, IECEx, FM, CSA, NEPSI, EAC (GOST), INMETRO, CCOE, SEPRO, Overfill protection, Ship, SIL2/3, CE 1935/2004, FDA, 3-A, EHEDG |
| ✓ Simple setup thanks to large on-site display with VDMA operation and additional texts   | ✓ Optimal process adaptation through selection of various wetted materials, media and temperature couplers                | ✓ High resistance to abrasion and corrosion through use of high-quality Sapphire Ceramic®                                      | ✓ Reliable measurement even at high pressures   |



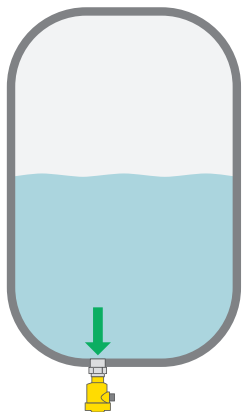
# Hydrostatic



## Hydrostatic pressure measurement

The measuring cell of the pressure transmitter detects minute changes in hydrostatic pressure, which increases or decreases depending on the filling level. The acting pressure is converted into an output signal by the integrated electronics.

Ceramic-capacitive and metallic measuring cells are used to detect the pressure in hydrostatic pressure measurement.



## The advantages

- ✓ The temperature of the medium can also be measured
- ✓ Hydrostatic pressure measurement is not affected by foam generation or vessel internals
- ✓ Precise adaptation to the process through selection of appropriate measuring cells and housing materials

PRO

**VEGAWELL 52**



PRO

**VEGABAR 86**



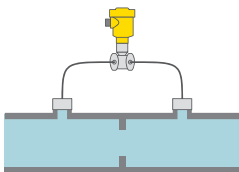
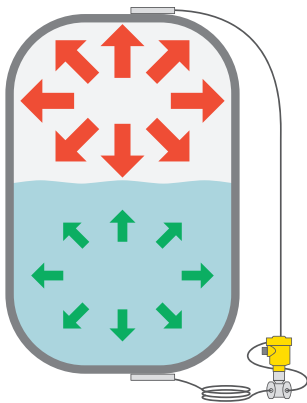
PRO

**VEGABAR 87**



|                                       |   |   |  |
|---------------------------------------|---|---|--|
| Application                           | Liquids   | Liquids   | Liquids  |
| Sensor diameter                       | 22 mm or 32 mm  | 32 mm   | 40 mm  |
| Deviation                             | 0.1 %; 0.2 %  | 0.1 %   | 0.1 %  |
| Measuring cell<br>Measuring cell seal | CERTEC®/MINI-CERTEC®<br>FKM, EPDM, FFKM   | CERTEC®<br>FKM, EPDM, FFKM  | METEC®<br>–  |
| Process fitting                       | Straining clamp, thread,<br>suspension cable, threaded fitting<br>of 316L, PVDF, Duplex, Titanium | Straining clamp, suspension cable,<br>threaded fitting, thread from G1½,<br>1½ NPT, flanges from DN 40, 2"<br>of 316L, PVDF | Straining clamp, suspension cable,<br>threaded fitting, thread from G1½,<br>1½ NPT, flanges from DN 50, 2"<br>of 316L      |
| Process temperature                   | -20 ... +80 °C  | -20 ... +100 °C   | -12 ... +100 °C  |
| Measuring range                       | Absolute and relative<br>0 ... +60 bar<br>(0 ... +6000 kPa)                                       | Absolute and relative<br>0 ... +25 bar<br>(0 ... +2500 kPa)   | Absolute and relative<br>0 ... +25 bar<br>(0 ... +2500 kPa)  |
| Overload resistance                   | up to 150-fold measuring range  | up to 200-fold measuring range  | up to 150-fold measuring range   |
| Signal output                         | 4 ... 20 mA<br>4 ... 20 mA/HART + Pt100   | 4 ... 20 mA,<br>4 ... 20 mA/HART, Profibus PA,<br>Foundation Fieldbus, Modbus   | 4 ... 20 mA,<br>4 ... 20 mA/HART, Profibus PA,<br>Foundation Fieldbus, Modbus  |
| Display/adjustment                    | PACTware/DTM, VEGADIS 82  | PLICSCOM, PACTware/DTM,<br>VEGADIS 81, VEGADIS 82,<br>VEGA Tools app  | PLICSCOM, PACTware/DTM,<br>VEGADIS 81, VEGADIS 82,<br>VEGA Tools app   |
| Approvals                             | ATEX, UKEX, IECEx, FM, CSA,<br>EAC (GOST), UKR Sepro,<br>Overfill protection, Ship                | ATEX, UKEX, IECEx, FM, CSA,<br>NEPSI, EAC (GOST), UKR Sepro,<br>INMETRO, CCOE, SEPRO,<br>Overfill protection, Ship, SIL2/3  | ATEX, UKEX, IECEx, FM, CSA,<br>NEPSI, EAC (GOST), UKR Sepro,<br>INMETRO, CCOE, SEPRO,<br>Overfill protection, Ship, SIL2/3 |
| Benefit                               | ✓ Versatile application thanks<br>to robust housing and cable<br>design                           | ✓ High plant availability through<br>very high overload and vacuum<br>resistance of the ceramic<br>measuring cell           | ✓ High measurement certainty<br>even with quickly changing<br>process temperatures   |

# Differential pressure



## Differential pressure measurement

In differential pressure measurement, different pressures act on an oil-filled, differential pressure measuring cell from two sides. The instrument converts the differential pressure into an electronic signal.

Pressure, level, density and flow of liquids, suspensions, gases and vapours can be measured using the principle of differential pressure.

### The advantages

- ✓ Wide application spectrum thanks to large selection of measuring ranges and process fittings
- ✓ Differential pressure transmitters can detect differential pressures of just a few mbar
- ✓ With a chemical seal installed, media with extreme temperatures can also be safely and reliably measured

PRO

**VEGADIF 85**



PRO

**Chemical seal CSB/CSS**



PRO

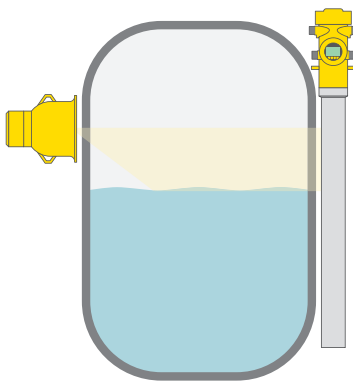
**Electronic differential pressure**



|                     |   |  |  |
|---------------------|---|--|--|
| Application         | Liquids and gases   | Liquids and gases  | Liquids and gases, even at high pressures and temperatures   |
| Deviation           | < ±0.065 %  | –  | 0.2 %; 0.1 %; 0.05 %   |
| Measuring cell      | Metallic measuring cell   | –  | Depending on the sensor of VEGABAR series 80   |
| Process fitting     | ¼-18 NPT, M10, optional with chemical seal assembly, metallic of 316L, Alloy                              | Flanges from DN 40, 2" cells from DN 50, 2" of 316L, Alloy, Tantalum         | Flanges from DN 25, 1", hygienic fittings, thread from G½ of 316L, Duplex, PVDF, Alloy                 |
| Process temperature | -40 ... +105 °C   | -40 ... +400 °C  | -40 ... +400 °C  |
| Measuring range     | -16 ... +16 bar (-1600 ... +1600 kPa)   | -16 ... +16 bar (-1600 ... +1600 kPa)  | ±0.025 ... ±1000 bar (±2.5 ... ±100000 kPa)  |
| Overload resistance | up to 400 bar   | up to 400 bar  | up to 200-fold measuring range   |
| Signal output       | 4 ... 20 mA, 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus   | –  | 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus   |
| Display/adjustment  | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app  | –  | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app   |
| Approvals           | ATEX, UKEX, IECEx, CSA, EAC (GOST), INMETRO, Overfill protection, Ship, SIL2/3                            | In combination with VEGADIF 85   | ATEX, UKEX, IECEx, FM, CSA, NEPSI, EAC (GOST), INMETRO, CCOE, SEPRO, Overfill protection, Ship, SIL2/3 |
| Benefit             | ✓ Measurement of extremely low differential pressures through high-precision measurement data acquisition | ✓ High chemical resistance through choice of appropriate diaphragm materials | ✓ Exact differential pressure measurement without capillary lines                                      |

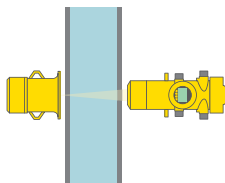


# Radiation-based



## Non-contact measurement with radiation-based measuring principle

Radiation-based measurement is based on focussed gamma rays, i.e. radiation, emitted by a minimally radioactive isotope. The sensor, which is mounted on the opposite side of the container, receives this radiation. Because gamma rays are attenuated when penetrating matter, the highly sensitive sensor can calculate the level, limit level, density or mass flow from the intensity of the incoming radiation received.



### The advantages

- ✓ Maximum operational reliability even under the toughest operating conditions
- ✓ Measurement independent of pressure, temperature and product toxicity or corrosiveness
- ✓ Measuring system can be installed externally and set up during ongoing production



PRO

**FIBERTRAC 31**



PRO

**FIBERTRAC 32**



PRO

**SOLITRAC 31**



|                     |  |   |   |
|---------------------|--|---|---|
| Application         | Level and interface measurement of liquids and bulk solids   | Level and interface measurement of liquids and bulk solids  | Level and interface measurement of liquids and bulk solids                                |
| Measuring range     | up to 7 m  | up to 7 m   | up to 3 m   |
| Version             | Sensor with flexible plastic detector $\varnothing$ 42 mm  | Sensor with flexible plastic detector $\varnothing$ 60 mm   | Sensor with PVT rod detector  |
| Process pressure    | any  | any   | any   |
| Process temperature | any  | any   | any   |
| Non-repeatability   | $\leq 0.5$ %   | $\leq 0.5$ %  | $\leq 0.5$ %  |
| Mounting            | From outside on the vessel   | From outside on the vessel  | From outside on the vessel  |
| Signal output       | 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus   | 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus  | 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus  |
| Display/adjustment  | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app   | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app  | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app                            |
| Approvals           | ATEX, UKEX, IECEx, NEPSI, FM, CSA, EAC (GOST), INMETRO, CCOE, TIIS, KOSHA/KTL, SIL2  | ATEX, UKEX, IECEx, NEPSI, FM, CSA, EAC (GOST), INMETRO, CCOE, TIIS, KOSHA/KTL, SIL2   | ATEX, UKEX, IECEx, NEPSI, FM, CSA, EAC (GOST), INMETRO, CCOE, TIIS, KOSHA/KTL, SIL2       |
| Benefit             | <ul style="list-style-type: none"> <li>✓ Simple installation on round and conical vessels via flexible detector</li> </ul> | <ul style="list-style-type: none"> <li>✓ Cost savings through the use of only one sensor for a measuring range of up to 7 m and reduces source size needed</li> </ul> | <ul style="list-style-type: none"> <li>✓ Maximum accuracy through PVT detector</li> </ul> |

# Radiation-based

|                     | PRO  | PRO   | PRO   |
|---------------------|--|---|---|
|                     | POINTRAC 31  | MINITRAC 31   | WEIGHTRAC 31  |
|                     |                               |                                    |  |
| Application         | Level detection of liquids and bulk solids   | Density measurement of liquids and bulk solids  | Mass flow determination of bulk solids on belts and in screw conveyors              |
| Measuring range     | –  | –   | up to 2800 mm (conveyor width)  |
| Version             | Sensor with PVT rod detector   | Sensor with integrated NaI detector   | With PVT rod detector in protective tube of 316L                                    |
| Process pressure    | any  | any   | any   |
| Process temperature | any  | any   | any   |
| Non-repeatability   | ≤0.5 %   | ≤0.1 %  | 1 % of measuring range final value  |
| Mounting            | From outside on pipeline or on vessel  | From outside on pipeline or on vessel   | Through supplied measuring frame  |
| Signal output       | 8/16 mA/HART, Profibus PA, Foundation Fieldbus   | 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus  | 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus                                  |
| Display/adjustment  | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app   | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app  | PLICSCOM, PACTware/DTM, VEGADIS 81, VEGADIS 82, VEGA Tools app                      |
| Approvals           | ATEX, UKEX, IECEx, NEPSI, FM, CSA, EAC (GOST), INMETRO, CCOE, TIIS, KOSHA/KTL, SIL2                            | ATEX, UKEX, IECEx, NEPSI, FM, CSA, EAC (GOST), INMETRO, CCOE, TIIS, KOSHA/KTL, SIL2                                 | ATEX, UKEX, IECEx, NEPSI, FM, CSA, EAC (GOST), INMETRO, CCOE, TIIS, KOSHA/KTL       |
| Benefit             | ✓ Reliable limit level detection by a PVT scintillator eliminates the need for early replacement of the source | ✓ Simple, retro installation, even in confined spaces, during ongoing production processes thanks to compact design | ✓ Wear-free due to non-contact measurement  |

**VEGASOURCE 31**



**VEGASOURCE 35**



**SHLD1**



|                     | VEGASOURCE 31  | VEGASOURCE 35  | SHLD1   |
|---------------------|--|--|---|
| Application         | Source container for radioactive isotope   | Source container for radioactive isotope   | Source container for radioactive isotope                                  |
| Measuring range     | 5°, 20° (±10°), 40° (±20°)   | 5°, 20° (±10°), 40° (±20°)   | 0°, 15°, 30°, 45°, 60° (±30°)   |
| Version             | Cs-137: For activities up to 18.5 GBq (500 mCi)<br>Co-60: For activities up to 0.74 GBq (20 mCi) | Cs-137: For activities up to 111 GBq (3000 mCi)<br>Co-60: For activities up to 3.7 GBq (100 mCi) | Cs-137: For activities up to 3.7 GBq (100 mCi)                            |
| Process pressure    | any  | any  | any   |
| Process temperature | any  | any  | any   |
| Non-repeatability   | -  | -  | -   |
| Mounting            | Flange DN 100 PN 16, 4" 150 lbs  | Flange DN 100 PN 16, 4" 150 lbs  | Mounting plate or L profile 152 mm (6")                                   |
| Signal output       | Optionally with ON/OFF position switch   | Optionally with ON/OFF position switch   | Optionally with ON/OFF position switch                                    |
| Display/adjustment  | manual, pneumatic  | manual, pneumatic  | manual, pneumatic   |
| Approvals           | -  | -  | -   |
| Benefit             | ✓ Reliable shielding allows use without control areas  |  | ✓ Ideal for mass flow determination with an aperture angle of 45° and 60° |

# Radiation-based

## VEGASOURCE 81



## VEGASOURCE 82

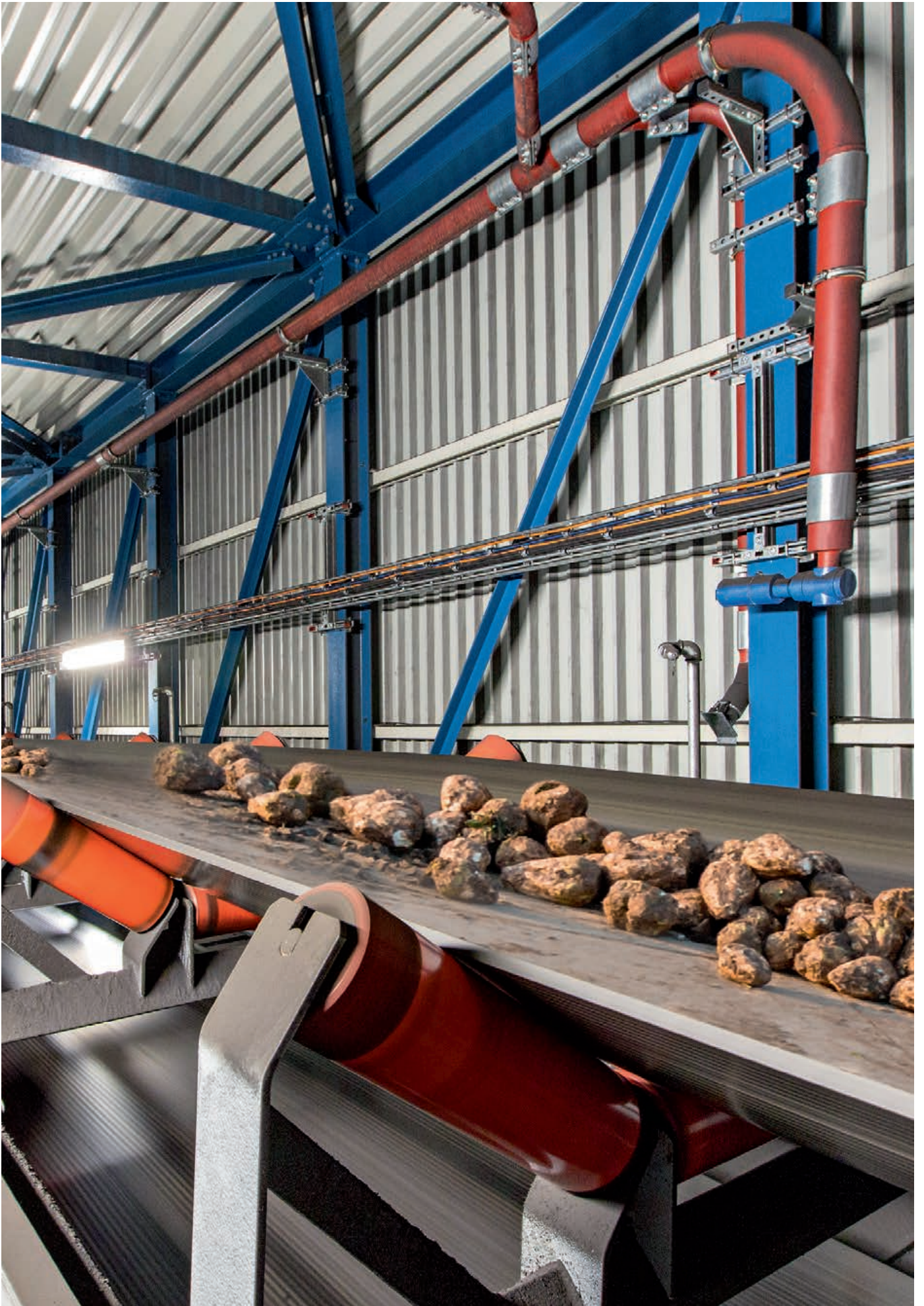


## VEGASOURCE 83



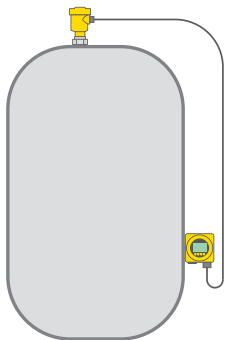
|                     |   |  |  |
|---------------------|---|--|--|
| Application         | Source container for radioactive isotope                                  | Source container for radioactive isotope                         | Source container for radioactive isotope                         |
| Measuring range     | 5°, 30°, 40° (± 20°), 45°, 60° (± 30°)                                    | 5°, 30°, 40° (± 20°), 45°, 60° (± 30°)                           | 5°, 30°, 40° (± 20°), 45°, 60° (± 30°)                           |
| Version             | Cs-137: For activities up to 740 MBq (20 mCi)                             | Cs-137: For activities up to 11 GBq (300 mCi)                    | Cs-137: For activities up to 185 GBq (5000 mCi)                  |
| Process pressure    | any   | any  | any  |
| Process temperature | any   | any  | any  |
| Non-repeatability   | –   | –  | –  |
| Mounting            | Mounting plate 152 x 152 mm (6 x 6")                                      | Mounting plate 216 x 216 mm (8.5 x 8.5")                         | Mounting plate 315 x 315 mm (12.4" x 12.4")                      |
| Signal output       | Optionally with ON/OFF position switch                                    | Optionally with ON/OFF position switch                           | Optionally with ON/OFF position switch                           |
| Display/adjustment  | manual, pneumatic   | manual, pneumatic  | manual, pneumatic  |
| Approvals           | –   | –  | –  |
| Benefit             | ✓ Minimal space requirement due to compact design with low weight (11 kg) | ✓ Trustworthy shielding allows use without control areas (34 kg) | ✓ Trustworthy shielding allows use without control areas (82 kg) |







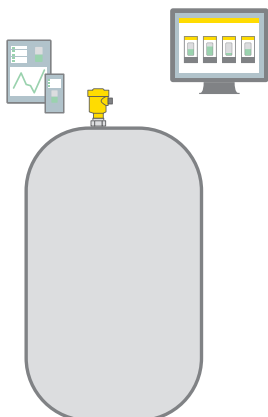
# Software and display instruments



## Display, transmit and evaluate measured values

With our selection of display instruments, adjustment devices and software, measured values are reliably transmitted and every application optimally integrated – regardless of the distance.

The choice is yours: Should display and adjustment take place directly on site local to the sensor? Then you'll be supported by the pluggable display and adjustment module PLICSCOM, or the external adjustment unit VEGADIS. Over short distances up to a maximum of 50 m, Bluetooth can be used. Over long distances, you can receive the data via worldwide mobile networks with the external radio-telemetry unit PLICSMOBILE. Or you can reliably plan and visualise your product stocks anywhere with VEGA Inventory System.



Depending on your requirements, the options range from simple on-site adjustment on the sensor display to laptop, tablet or smartphone.

### DTM Collection



### VEGA Inventory System



### VEGA Tools app



|                               |   |   |  |
|-------------------------------|---|---|--|
| Application                   | Adjustment software for configuration, parameter adjustment, documentation and diagnosis for field devices  | System for inventory monitoring as well as remote enquiry and visualization of measurement and location data  | App for wireless configuration, parameter adjustment and diagnosis of field devices  |
| Recommended operating systems | Windows 8<br>Windows 10<br>Windows 11   | <ul style="list-style-type: none"> <li>• VEGA Hosting Service: independent of operating system</li> <li>• Local server: MS Windows Server 2016 or 2019 as well as MS SQL Server 2014 or 2019</li> </ul>   | from iOS 8<br>from Android 5.1   |
| Adjustment                    | Via computer  | With any current web browser  | With smartphone<br>With tablet   |
| Versions                      | <ul style="list-style-type: none"> <li>• Standard version</li> <li>• Full version</li> </ul>  | <ul style="list-style-type: none"> <li>• VEGA Hosting Service (VH)</li> <li>• Local server (LS)</li> </ul>  | –  |
| Technology                    | FDT/DTM   | Web-based   | Bluetooth/App  |
| Benefit                       | <ul style="list-style-type: none"> <li>✓ User-friendly, standardized adjustment program for the PC</li> <li>✓ Extremely user friendly thanks to graphical user interface, project storage and documentation</li> <li>✓ Extended functional range as full version with additional features such as VEGA DataViewer, tank calculation, echo curve storage and advanced diagnostics</li> </ul> | <ul style="list-style-type: none"> <li>✓ Simple centralized inventory monitoring and management</li> <li>✓ More transparency through connected assets and facilities</li> <li>✓ Avoidance of production stoppages through increased supply security</li> <li>✓ Reduction of transport costs through optimized replenishment planning</li> </ul> | <ul style="list-style-type: none"> <li>✓ Simple, intuitive and unique adjustment for all plics® sensors as well as sensors with integrated Bluetooth</li> <li>✓ Can be used for instruments as from 2002 through retrofitting of PLICSCOM with Bluetooth, without software update of the sensor</li> <li>✓ Secure connection through authentication and encrypted communication</li> </ul> |

# Software and display instruments

|                     | VEGACONNECT  | PLICSCOM  | PLICSLED  |
|---------------------|--|---|---|
|                     |   |   |    |
| Application         | Interface adapter between PC and VEGA instruments  | Measured value indication and adjustment on plics® sensors  | Switching status indication directly on the sensor  |
| Sensors             | All communication-capable VEGA sensors   | All plics® sensors  | All plics® sensors with relay output  |
| Mounting            | Directly in the sensor or in the junction box  | Directly in the sensor or in VEGADIS 81, 82   | Directly in the sensor  |
| Ambient temperature | -20 ... +60 °C   | -20 ... +70 °C  | -40 ... +80 °C  |
| Signal              | Standard interface or HART on the VEGA instrument, USB interface on the PC   | Standard interface on the sensor<br>Bluetooth (optional)<br>Magnetic pen adjustment (optional)  | -   |
| Lighting            | -  | Integrated  | Red-green or yellow-green   |
| Protection          | IP40   | IP66/IP67 in the sensor   | IP66/IP67 in the sensor   |
| Voltage supply      | Via USB interface on the PC  | Via standard interface on the sensor  | 20 ... 253 V AC/DC, 50/60 Hz  |
| Voltage loss        | -  | -   | -   |
| Approvals           | ATEX, UKEX, IECEx, EAC (Gost), UKR Sepro   | -   | -   |
| Benefit             | <ul style="list-style-type: none"> <li>✓ Universally applicable, because compatible with all communication-capable VEGA instruments</li> <li>✓ Simple connection via supplied adapter</li> <li>✓ Fastening by means of hooks or magnets</li> </ul> | <ul style="list-style-type: none"> <li>✓ Good readability through graphics-capable LCD display and built-in lighting</li> <li>✓ Simple and reliable handling via 4-button operation and intuitive menu structure with plain text display</li> <li>✓ Universally applicable, because compatible with all plics® sensors, independent of the measuring principle</li> </ul> | <ul style="list-style-type: none"> <li>✓ Clearly visible switching status indication, even in bright daylight</li> <li>✓ Minimal installation time, as no external wiring is required</li> <li>✓ Universally applicable</li> <li>✓ High protection category via integrated module in plics® sensor housing</li> </ul> |

**VEGADIS 81**

External measured value indication and adjustment of plics® sensors

All plics® sensors

Tube, wall mounting or carrier rail

-20 ... +70 °C

Standard interface  
Bluetooth (optional)  
Magnetic pen adjustment (optional)

Integrated

IP66/IP67

Via standard interface on sensor

-

ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, NEPSI, INMETRO, KOSHA

✓ Measured value display and sensor operation at easily accessible locations (up to 50 m away from the sensor)

**VEGADIS 82**

External measured value indication and adjustment of 4 ... 20 mA/HART sensors

4 ... 20 mA/HART sensors

Tube, panel, wall mounting or carrier rail

-20 ... +70 °C

4 ... 20 mA  
4 ... 20 mA/HART

Integrated

IP66/IP67

Via 4 ... 20 mA current loop

Standard < 2.0 V,  
with lighting < 3.2 V

ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, NEPSI, INMETRO, KOSHA

✓ Measured value display and sensor operation at easily accessible locations (up to 1500 m away from the sensor)

**VEGADIS 176**

Switching cabinet measured value indication of 4 ... 20 mA/HART sensors

4 ... 20 mA/HART sensors

Panel mounting

-10 ... +60 °C

4 ... 20 mA  
4 ... 20 mA/HART

Integrated

IP65 front, IP20 rear

Via 4 ... 20 mA current loop

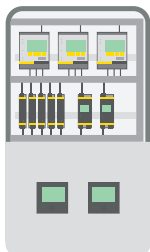
Standard < 1 V,  
with lighting < 2.9 V

ATEX, UKEX, IECEx, FM, CSA

✓ Convenient measured value display in accessible places (up to 1500 m away from the sensor)

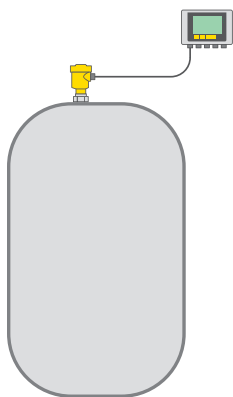
✓ Excellent visibility via large display

# Controllers



Sensors gather measured values in a vessel and forward them to the controller. By adjusting the settings of the controller, the measured values can be adapted to the specific control requirements of the application.

The values appear in the display and can be output through the integrated current outputs that are used to control external displays or higher-level control devices.



## The advantages

- ✓ Versatile application thanks to scalable outputs
- ✓ Simple integration into higher-level systems
- ✓ Easy installation with carrier rails



### VEGAMET 841/842



### VEGAMET 861/862



|                   |   |   |
|-------------------|---|---|
| Application       | Measured value indication, limit value monitoring, pump control, flow measurement in open channels  | Measured value indication, limit value monitoring, pump control, flow measurement in open channels, data logger     |
| Input             | 1/2x 4 ... 20 mA sensor input   | 1/2x 4 ... 20 mA/HART sensor input<br>2/4x digital input  |
| Output            | 1/2x 0/4 ... 20 mA current output<br>3x operating relay<br>1x fail safe relay (instead of an operating relay)   | 1/3x 0/4 ... 20 mA current output<br>4/6x operating relay<br>1x fail safe relay (instead of an operating relay)     |
| Operating voltage | 24 ... 65 V DC<br>100 ... 230 V AC, 50/60 Hz  | 24 ... 65 V DC<br>100 ... 230 V AC, 50/60 Hz  |
| Mounting          | Wall/pipe mounting in the field   | Wall/pipe mounting in the field   |
| Display           | LCD matrix display, black and white backlight with colour change according to status, relay or measured value   | LCD matrix display, black and white backlight with colour change according to status, relay or measured value       |
| Adjustment        | On-site adjustment with 4 keys, smartphone/tablet/PC via Bluetooth (PACTware/DTM or VEGA Tools app)   | On-site adjustment with 4 keys, smartphone/tablet/PC via Bluetooth (PACTware/DTM or VEGA Tools app)                 |
| Approvals         | ATEX, UKEX, IECEx, cULus, NEPSI, EAC (GOST), INMETRO, TIIS, KOSHA/KTL, SEPRO, CCOE, IA, Overfill protection   | ATEX, UKEX, IECEx, cULus, NEPSI, EAC (GOST), INMETRO, TIIS, KOSHA/KTL, SEPRO, CCOE, IA, Overfill protection, mcerts |
| Benefit           | <ul style="list-style-type: none"> <li>✓ Clear, easy-to-read (at distance), user-programmable display</li> <li>✓ Fast setup thanks to simple intuitive menu navigation and application wizards</li> <li>✓ Secure, user-friendly wireless operation via Bluetooth with smartphone, tablet or PC</li> </ul> |   |

# Controllers

## VEGAMET 341/342



## VEGAMET 391



|                   |   |   |
|-------------------|---|---|
| Application       | Measured value indication, limit value monitoring, pump control, flow measurement in open channels  | Measured value indication and simple control functions, remote data retrieval, data transmission optionally via Ethernet                                      |
| Input             | 1/2x 4 ... 20 mA sensor input   | 1x 4 ... 20 mA/HART sensor input  |
| Output            | 1/2x 0/4 ... 20 mA current output<br>3x operating relay<br>1x fail safe relay (instead of operating relay)  | 1x 0/4 ... 20 mA current output<br>6x operating relay<br>1x fail safe relay (instead of operating relay)<br><br>1x Ethernet (optional)<br>1x RS232 (optional) |
| Operating voltage | 24 ... 65 V DC<br>100 ... 230 V AC, 50/60 Hz  | 24 ... 65 V DC<br>24 ... 230 V AC, 50/60 Hz   |
| Mounting          | Panel mounting  | Front panel or wall mounting<br>Carrier rail 35 x 7.5 mm acc. to EN 50022   |
| Display           | LCD matrix display, black and white backlight with colour change according to status, relay or measured value   | LCD matrix display, background lighting   |
| Adjustment        | On-site adjustment with rotary knob/push-button, smartphone/tablet/PC via Bluetooth (PACTware/DTM or VEGA Tools app)  | On-site adjustment with 4 keys, PACTware/DTM  |
| Approvals         | ATEX, UKEX, IECEx, cULus, EAC (GOST), SEPRO, WHG, Ship  | ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, SIL2   |
| Benefit           | <ul style="list-style-type: none"> <li>✓ Clear, easy-to-read (at distance), user-programmable display</li> <li>✓ Fast setup thanks to simple intuitive menu navigation and application wizards</li> <li>✓ Secure, user-friendly wireless operation via Bluetooth with smartphone, tablet or PC</li> </ul> | <ul style="list-style-type: none"> <li>✓ Clear display, readable from a distance</li> <li>✓ Fast setup and commissioning via simple menu guidance</li> </ul>  |

**VEGAMET 141/142**

Measured value visualisation, limit value monitoring, pump control, flow measurement in open channels

1/2x 4 ... 20 mA sensor input

1/2x 0/4 ... 20 mA current output  
3x operating relay  
1x fail safe relay (instead of operating relay)

24 ... 65 V DC  
100 ... 230 V AC, 50/60 Hz

Carrier rail 35 x 7.5 mm acc. to EN 50022

LCD matrix display, black and white backlight with colour change according to status, relay or measured value

On-site adjustment with rotary knob/push-button, smartphone/tablet/PC via Bluetooth (PACTware/DTM or VEGA Tools app)

ATEX, UKEX, IECEx, cULus, EAC (GOST), INMETRO, TISS, SEPRO, CCOE, IA, Overfill protection, Ship

- ✓ Compact design with display for on-site checking
- ✓ Fast setup and commissioning via simple menu navigation and application wizards
- ✓ Secure, user-friendly wireless operation via Bluetooth with smartphone, tablet or PC

**VEGAMET 624**

Measured value indication, simple control functions as well as remote enquiry of measured values for one 4 ... 20 mA/HART sensor, data transmission optionally via Ethernet

1x 4 ... 20 mA/HART sensor input

3x 0/4 ... 20 mA current output  
3x operating relay  
1x fail safe relay  
1x Ethernet (optional)  
1x RS232 (optional)

24 ... 65 V DC  
24 ... 230 V AC, 50/60 Hz

Carrier rail 35 x 7.5 mm acc. to EN 50022

LCD matrix display, backlight

On-site adjustment with 4 keys, PACTware/DTM

ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, Ship

- ✓ Display for on-site checking
- ✓ Fast setup and commissioning via simple menu navigation

**VEGAMET 625**

Measured value indication, simple control functions as well as remote enquiry of measured values for two HART sensors, data transmission optionally via Ethernet

2x HART sensor input

3x 0/4 ... 20 mA current output  
3x operating relay  
1x fail safe relay  
1x Ethernet (optional)  
1x RS232 (optional)

24 ... 65 V DC  
24 ... 230 V AC, 50/60 Hz

Carrier rail 35 x 7.5 mm acc. to EN 50022

LCD matrix display, backlight

On-site adjustment with 4 keys, PACTware/DTM

ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, Ship

**VEGASCAN 693**

Measured value indication and remote enquiry of measured values for up to 15 HART sensors, data transmission optionally via Ethernet

15x HART sensor input

1x fail safe relay  
1x Ethernet (optional)  
1x RS232 (optional)

24 ... 65 V DC  
24 ... 230 V AC, 50/60 Hz

Carrier rail 35 x 7.5 mm acc. to EN 50022

LCD matrix display, backlight

On-site adjustment with 4 keys, PACTware/DTM

ATEX, UKEX, IECEx, FM, CSA, EAC (GOST), UKR Sepro, Ship

# Controllers

## VEGATOR 111/112



## VEGATOR 121/122



|                   |   |  |
|-------------------|---|--|
| Application       | Transmission of NAMUR signals for level signalling  | Transmission of 8/16 mA signals for level signalling   |
| Input             | 1/2x NAMUR sensor input   | 1/2x two-wire 8/16 mA sensor input   |
| Output            | <p>VEGATOR 111:<br/>1x operating relay (SPDT), optional<br/>1x fail safe relay (SPDT)</p> <p>VEGATOR 112:<br/>2x operating relay (SPDT)</p>   | <p>VEGATOR 121:<br/>1x operating relay (SPDT), optional<br/>1x fail safe or operating relay (SPDT)</p> <p>VEGATOR 122:<br/>2x operating relay (SPDT)</p> |
| Operating voltage | 24 ... 65 V DC<br>24 ... 230 V AC, 50/60 Hz   | 24 ... 65 V DC<br>24 ... 230 V AC, 50/60 Hz  |
| Mounting          | Carrier rail 35 x 7.5 mm<br>acc. to EN 50022  | Carrier rail 35 x 7.5 mm<br>acc. to EN 50022   |
| Display           | 1x LED voltage supply<br>1x LED switching signal per channel<br>1x LED false signal per channel   | 1x LED voltage supply<br>1x LED switching signal per channel<br>1x LED false signal per channel  |
| Approvals         | ATEX, UKEX, IECEx, cULus, CSA, NEPSI, EAC (GOST), CCOE, Overfill protection, Ship, SIL2   | ATEX, UKEX, IECEx, cULus, CSA, NEPSI, EAC (GOST), CCOE, Overfill protection, Ship, SIL2  |
| Benefit           | <ul style="list-style-type: none"> <li>✓ Rapid implementation of simple control functions</li> <li>✓ Increased operational reliability through line monitoring and test button</li> <li>✓ Easy installation via carrier rail</li> </ul> |  |

### VEGATOR 131/132



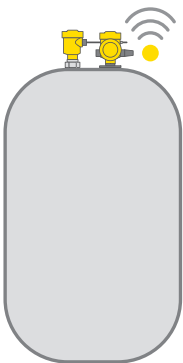
### VEGATOR 141/142



|                   |   |   |
|-------------------|---|---|
| Application       | Controller for conductive measuring probes level signalling   | Controller for 4 ... 20 mA signals for level signalling   |
| Input             | 1/2x conductive rod probe   | 1/2x 4 ... 20 mA sensor input   |
| Output            | VEGATOR 131:<br>1x operating relay,<br>optional<br>1x fail safe relay output (SPDT)<br><br>VEGATOR 132:<br>2x operating relay (SPDT)  | VEGATOR 141:<br>1x operating relay (SPDT),<br>optional<br>1x fail safe relay output (SPDT)<br><br>VEGATOR 142:<br>2x operating relay (SPDT) |
| Operating voltage | 24 ... 65 V DC<br>24 ... 230 V AC, 50/60 Hz   | 24 ... 65 V DC<br>24 ... 230 V AC, 50/60 Hz   |
| Mounting          | Carrier rail 35 x 7.5 mm<br>acc. to EN 50022  | Carrier rail 35 x 7.5 mm<br>acc. to EN 50022  |
| Display           | 1x LED voltage supply<br>1x LED switching signal per channel<br>1x LED false signal per channel   | 1x LED voltage supply<br>1x LED switching signal per channel<br>1x LED false signal per channel   |
| Approvals         | ATEX, UKEX, IECEx, EAC (GOST),<br>Overfill protection   | ATEX, UKEX, IECEx, cULus, CSA, NEPSI,<br>EAC (GOST), CCOE, Overfill protection,<br>Ship, SIL2   |
| Benefit           | <ul style="list-style-type: none"> <li>✓ Rapid implementation of simple control functions</li> <li>✓ Increased operational reliability through line monitoring</li> <li>✓ Easy installation via carrier rail</li> </ul> |   |



# Wireless communication



The wireless communication devices are used when measured values have to be transferred from remote monitoring stations or mobile tanks to data collection centers. They also enable wireless remote diagnostics and maintenance of the connected sensors.

## The advantages

- ✓ Autonomous solution for data acquisition and transmission for IoT projects
- ✓ Simple setup and commissioning via app
- ✓ Integrated energy management
- ✓ Long service life thanks to LTE technology
- ✓ High data transmission security thanks to TLS

**PLICSMOBILE T81****PLICSMOBILE B81**

|                    |   |  |
|--------------------|---|--|
| Application        | Remote data retrieval and remote parameterization for up to 15 HART sensors | Battery and accumulator unit for PLICSMOBILE   |
| Input              | 1 to 15 HART sensors  | 1x solar panel   |
| Output             | VEGA Inventory System, e-mail, SMS  | Power supply of PLICSMOBILE and the connected sensors                                |
| Display/adjustment | PACTware/DTM / VEGA Tools app   | -  |
| Technology         | 2G/3G/4G wireless<br>Bluetooth  | -  |
| Mounting           | Wall or tube mounting   | Wall or tube mounting  |
| Temperature range  | -20 ... +65 °C  | Battery: -10 ... +50 °C,<br>-40 ... +80 °C (lithium)<br>Battery pack: -20 ... +50 °C |
| Voltage supply     | 9.6 ... 32 V DC   | Battery: 4x 1.5 V<br>4x 3.6 V (lithium)<br>Battery pack: 4x 1.2 V                    |
| Approvals          | -   | -  |
| Benefit            | ✓ Economical solution for multiple measuring points                         | ✓ Long-life battery/accumulator operation without mains power supply                 |

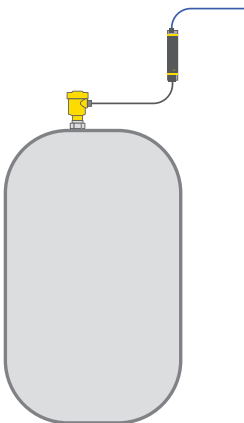
# Wireless communication

|                   | Wireless router   | SignalFire Ranger   | PLICSMOBILE S81   |
|-------------------|---|---|---|
|                   |  |                        |    |
| Application       | For connecting to the Internet, for controllers with Ethernet interface           | Remote data retrieval for 4 ... 20 mA and digital sensors   | Solar panel for charging the PLICSMOBILE B81  |
| Input             | Controllers with Ethernet interface   | 1x analogue:<br>4 ... 20 mA or 1 ... 5 V DC<br><br>2x digital:<br>2 kHz max.                            | –   |
| Output            | VEGA Inventory System, e-mail   | 1x relay:<br>2 A @ 30 V DC; 0,3 A @ 110 V AC;<br>0.5 A @ 125 V AC<br><br>Sensor:<br>13/18 V; 60 mA max. | 17.2 V ... 21.5 V DC<br>max. 1.16 A/20 W  |
| Display           | 6x LED status indicators  | –   | –   |
| Technology        | 2G/3G/4G wireless   | LTE CAT M1/NB-IoT   | –   |
| Mounting          | Wall mounting, carrier rail<br>35 x 7.5 mm according to EN 50022                  | Tube mounting ½" NPT  | Mast holder with adjusting screws for inclination angle                               |
| Temperature range | -40 ... +75 °C  | -40 ... +85 °C  | -40 ... +85 °C  |
| Power supply      | 9 ... 36 V DC   | 4x 3.6 V DC Lithium Thionyl Chloride batteries  | –   |
| Approvals         | –   | cETLus  | –   |
| Benefit           | ✓ Economical solution for connecting multiple controllers via LAN                 | ✓ Autonomous solution for remote data retrieval from analogue or digital sensors                        | ✓ Simple installation options through the use of commercially available solar modules |





# Separating and protective instruments



## Separating instruments

Separators separate intrinsically safe from non-intrinsically safe circuits. Distinguishing features are the type of power supply and the size of Ex-specific characteristics.

These devices are used in all applications where explosion protection regulations must be complied with. In addition to powering the sensors in the field, they provide galvanic isolation from the connected PLC or process control system.

### The advantages

- ✓ Reliable separation of intrinsically safe and non-intrinsically safe circuits
- ✓ Simple installation because no additional power supply is required
- ✓ Simple mounting with carrier rails



### VEGATRENN 141/142



### VEGATRENN 151/152



|                               |   |   |
|-------------------------------|---|---|
| Application                   | Separator<br>for 4 ... 20 mA/HART sensors   | Separator<br>for 4 ... 20 mA/HART sensors   |
| Sensors                       | 4 ... 20 mA   | 4 ... 20 mA   |
| Input and sensor power supply | 1/2x 4 ... 20 mA/HART sensor input  | 1/2x 4 ... 20 mA/HART sensor input  |
| Output                        | 1/2x 4 ... 20 mA  | 1/2x 4 ... 20 mA  |
| Operating voltage             | VEGATRENN 141:<br>24 ... 65 V DC<br>24 ... 230 V AC, 50/60 Hz<br><br>VEGATRENN 142:<br>24 ... 31 V DC   | Via 4 ... 20 mA current loop  |
| Mounting                      | Carrier rail 35 x 7.5 mm<br>acc. to EN 50022  | Carrier rail 35 x 7.5 mm<br>acc. to EN 50022  |
| Voltage loss                  | –   | 4 mA < 3 V<br>20 mA < 5 V   |
| Approvals                     | ATEX, UKEX, IECEx, cULus, EAC (GOST),<br>UKR Sepro, NEPSI, Ship, SIL2   | ATEX, UKEX, IECEx, cULus, EAC (GOST),<br>UKR Sepro, NEPSI, Ship, SIL2   |
| Benefit                       | <ul style="list-style-type: none"> <li>✓ Secure power supply and reliable separation of intrinsically safe and non-intrinsically safe measuring circuits</li> <li>✓ Complete HART permeability allows unrestricted access to sensor settings</li> </ul> | <ul style="list-style-type: none"> <li>✓ Reliable separation of intrinsically safe and non-intrinsically safe measuring circuits</li> <li>✓ Simple installation, as no additional power supply is required</li> </ul> |

# Separating and protective instruments

## B53-19/B61-300/B61-300 FI



## B62-36G/B62-30W



|                      |  |  |
|----------------------|--|--|
| Application          | <p>B53-19: Overvoltage arresters for conductive probes</p> <p>B61-300: Overvoltage arresters of supply and control cables</p> <p>B61-300FI: Overvoltage arresters of supply and control cables with FI protective circuits</p> | <p>B62-36G: Overvoltage arresters for two-wire circuits</p> <p>B62-30W: Overvoltage arresters for Profibus PA and Foundation Fieldbus circuits</p> |
| Mounting             | Carrier rail 35 x 7.5 mm acc. to EN 50022 or on carrier rail 32 mm acc. to EN 50035  | Carrier rail 35 x 7.5 mm acc. to EN 50022 or on carrier rail 32 mm acc. to EN 50035  |
| Operating voltage    | <p>B53-19: max. 19 V AC, 27 V DC</p> <p>B61-300/B61-300 FI: 100 ... 300 V AC/DC, max. 16 A</p>   | <p>B62-36G: 9.6 ... 36 V DC, max. 450 mA</p> <p>B62-30W: 9 ... 32 V DC, max. 450 mA</p>  |
| Nominal leak current | < 10 kA  | < 10 kA  |
| Protection           | IP20   | IP20   |
| Temperature range    | -40 ... +60 °C   | -40 ... +60 °C   |
| Approvals            | -  | ATEX, UKEX   |
| Benefit              | <ul style="list-style-type: none"> <li>✓ High operational reliability even with impermissible voltage surges</li> <li>✓ Simple mounting with carrier rails</li> </ul>  |  |

## B63-48/B63-32



B63-48: Overvoltage arresters  
for two-wire circuits

B63-32: Overvoltage arresters  
for Profibus PA and Foundation Fieldbus  
circuits

Direct mounting in the cable entry  
of the field device

B63-48: 9 ... 48 V DC  
B63-32: max. 32 V DC

< 10 kA

IP66

-40 ... +85 °C

ATEX, UKEX

- ✓ High operational reliability even with impermissible voltage surges
- ✓ Simple installation in the cable gland of the field device
- ✓ No additional, separate on-site assembly

## B81-35



Pluggable overvoltage arresters  
for supply and signal cables

Pluggable to the plics® mains electronics of  
VEGAPULS series 60, VEGAFLEX series 80,  
VEGABAR series 80 and VEGADIS 82

max. 35 V DC

< 10 kA

-

-40 ... +85 °C

ATEX, UKEX, IECEx, EAC

- ✓ High operational reliability of the measuring point through surge protection
- ✓ Simple installation in the terminal compartment of the field device through compact design
- ✓ Easy retrofitting in already installed sensors







