





Safe and reliable

Level and pressure instrumentation for the process industry

Production processes are becoming even 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. Leading the way in a worldwide trend towards "intelligent factories", the VEGA instrumentation concept "plics®" provides a modular instrument platform with a standardized adjustment concept that encompasses all measuring principles.

VEGA employs over 1,800 people worldwide, 825 of whom work at its headquarters in Schiltach in the Black Forest. This is where, for over 60 years now, solutions to demanding measuring tasks are being conceived and brought to realization: for chemical and pharmaceutical plants, the food industry, drinking water supply systems, sewage treatment works, landfills, mining operations, power generation, oil exploration and production, ships and airplanes.

VEGA is active in over 80 countries with its global network of subsidiaries and distributors. The company and its products have all the necessary certificates and approvals for worldwide application. This applies to the technical safety, as well as the quality of all products and services.

Trend-setting measurement technology orientates itself around the people who use it. Every plics® sensor is assembled according to the customer's specifications, fulfilling their application requirements perfectly.

VEGA has thought the “easy is better” principle through from start to finish. plics® is perfectly positioned to solve measuring tasks from the most demanding level and pressure challenges.

The plics® modular principle

The idea is simple: each instrument is assembled from prefabricated components after the order is received. This way VEGA customers get the optimal device to meet their requirements, made to measure and fast. This is where the plics® modular concept pays dividends, as these instruments are more cost efficient over their entire life cycle.





The components

Every plics® instrument consists of multiple components: First, the sensing element is combined with the process fitting required and a housing of plastic, aluminium or stainless steel. Then, the electronics module is inserted. On top of that comes the universal display and adjustment module PLICSCOM. The optional Bluetooth feature also allows any transmitter to be adjusted wirelessly from a distance of approximately 25 meters.

VEGA makes measurement technology easy

Handling measurement technology always means responsibility. Its good to know that VEGA is constantly working to make both instrument configuration and adjustment even more simple. That's because the simpler and easier something is to use, the more reliable it becomes: reducing the probability of mistakes and increasing functional reliability.





Malfunction

Maintenance required

Check function

Outside of specification

Event memory (List of the parameter changes and event in the instrument)				
Graph		All	Update	
Date/Time	Status	Event type	Event description	
21.06.2012 13:27:35	Change	By PC (directly)	Linearization type	
21.06.2012 13:27:35	Change	By PC (directly)	Vessel height D	
21.06.2012 13:27:35	Change	By PC (directly)	Socket correction h	
21.06.2012 13:21:20	Incoming	F105 (Failure)	Measured value is determ	
21.06.2012 13:21:20	Outgoing	F105 (Failure)	Measured value is determ	
21.06.2012 13:21:15	Outgoing	F105 (Failure)	Measured value is determ	
21.06.2012 13:21:14	Incoming	F105 (Failure)	Measured value is determ	
21.06.2012 13:21:13	Change	By PC (directly)	False signal suppression	
21.06.2012 13:21:13	Change	By PC (directly)	False signal suppression	
21.06.2012 13:19:14	Outgoing	F105 (Failure)	Measured value is determ	



Display and adjustment module



PLICSCOM



VEGA CONNECT



PLICSLED

Electronics



4 ... 20 mA/
HART



Profibus PA



Foundation
Fieldbus



Level switch

Housing



Plastic



Stainless steel



Aluminium



Plastic double
chamber



Stainless steel
double chamber



Aluminium
double chamber

Process fitting



Thread



Flange



Hygienic
fitting



Customer-
specific

Sensor



Radar



Ultrasonic



Vibration



Process
pressure



Differential
pressure



Guided radar



Microwave
barrier



Capacitive



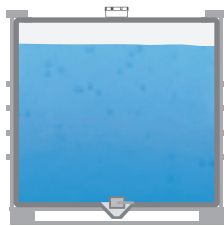
Hydrostatic

Quickfinder

				Liquids					Bulk solids				Gases	Process				
				Conduc- tive	Non-con- ductive	Non- contact	Changing media	Interface	Powders	Granules	Changing media	Non- contact		up to +60 °C	up to +100 °C	up to +150 °C		
page																		
Continuous level measurement	Radar (IIoT)	VEGAPULS Air	9															
	Radar	VEGAPULS	13															
	Guided radar	VEGAFLEX	21															
	Ultrasonic	VEGASON	27															
	Capacitive	VEGACAL	29															
	Hydrostatic	VEGABAR	53															
		VEGAWELL	53															
	Radiation-based	FIBERTRAC	57															
		SOLITRAC	57															
	Differential pressure	VEGADIF	55															
	Magnetic level gauge/bypass	VEGAMAG	24															
		VEGAPASS	25															
Point level detection	Vibration	VEGASWING	39															
		VEGAVIB	41															
		VEGAWAVE	43															
	Capacitive	VEGAPOINT	33															
		VEGACAP	35															
	Conductive	VEGAKON	45															
		EL	46															
	Radar	VEGAMIP	19															
	Radiation-based	MINITRAC	58															
		POINTRAC	58															
Pressure measurement	Process pressure	VEGABAR	49															
	Hydrostatic	VEGABAR	53															
		VEGAWELL	53															
	Differential pressure	VEGADIF	55															
Flow meas- urement	Differential pressure	VEGADIF	55															
	Radiation-based	MINITRAC	58															
		WEIGHTRAC	58															
Density measurement	Differential pressure	VEGADIF	55															
	Hydrostatic	VEGABAR	53															
		VEGAWELL	53															
	Radiation-based	MINITRAC	58															
Signal processing	Software and display instruments	PLICSCOM	62															
		PLICSLED	62															
		VEGACONNECT	62															
		VEGADIS	63															
	Controllers	VEGAMET	65															
		VEGASCAN	67															
		VEGATOR	68															
	Wireless communication	PLICSMOBILE	71															
		Wireless router	72															
	Separating and protective instruments	VEGATRENN	75															

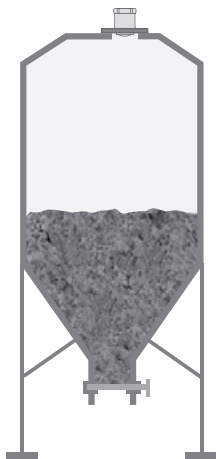


IIoT | Level | VEGAPULS Air series



Area of application

Radar sensors of the VEGAPULS Air series are used for non-contact level measurement of liquids and bulk solids. They operate completely independently and do not require any wiring for energy supply or transmission of measured values. Built-in batteries allow operation for up to 10 years. Integrated wireless interfaces transmit the data from the sensor directly or via router to VEGA Inventory System.






Measuring principle

Via the antenna system integrated in the instrument housing, the measuring instrument transmits short radar signals in the direction of the medium. The product surface reflects the signal waves, which are then received by the antenna system. The instrument calculates the level from the received radar signals and the entered container height. The level, together with other instrument data, is sent to the Industrial Internet of Things (IIoT) via wireless interface.


Advantages

The battery integrated in the sensor and the transmission of measured values via wireless network allow a fast, cost-effective installation for remote and mobile measuring points. The device parameters preset specifically for the application and the wireless parameterisation via app allow easy setup and commissioning. The non-contact, 80-GHz radar level measurement is especially characterised by its high accuracy and reliability. The measuring result is not influenced by changing temperatures, fluctuating pressures or changing products.

	VEGAPULS Air 23	VEGAPULS Air 41	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" 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 (-100 ... +200 kPa)	-1 ... +2 bar (-100 ... +200 kPa)
Accuracy	±5 mm	±2 mm	±2 mm
Frequency range	80 GHz	80 GHz	80 GHz
Signal output	NB-IoT (LTE-CAT-NB1), LTE-M (LTE-CAT-M1), LoRaWAN	NB-IoT (LTE-CAT-NB1), LTE-M (LTE-CAT-M1), LoRaWAN, Bluetooth	NB-IoT (LTE-CAT-NB1), LTE-M (LTE-CAT-M1), LoRaWAN, Bluetooth
Display/adjustment	VEGA Inventory System	VEGA Tools app, PACTware, VEGA Inventory System	VEGA Tools app, PACTware, VEGA Inventory System
Voltage supply	Integrated batteries 2x 3.6 V (lithium)	Integrated batteries 5x 3.6 V (lithium)	Integrated batteries 5x 3.6 V (lithium)
Approvals	–	–	–
Benefit	<ul style="list-style-type: none"> ▪ Easy mounting “outside”, as it is optimised for measurement through the tank top ▪ Minimal installation work thanks to self-sufficient supply and wireless interface ▪ Exact measuring results regardless of the medium and the ambient conditions 		
	<ul style="list-style-type: none"> ▪ Minimal installation work thanks to self-sufficient supply and wireless interface ▪ Exact measuring results regardless of the medium, the process and the ambient conditions ▪ Easy extension of the operating time through use of exchangeable batteries 		

IIoT | Level | 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, PoE adapter
Benefit	<ul style="list-style-type: none"> • Easy setup and commissioning through preconfigured settings • Connection of multiple LoRaWAN sensors up to 15 km away • Intelligent solution in situations with missing or poor NB-IoT/LTE-M network coverage at the measuring points 	

	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"> ▪ VEGA Hosting Service: independent of operating system ▪ Local server: MS Windows Server 2012 or higher as well as MS SQL Server 2012 or higher
Adjustment	With standard web browser
Versions	<ul style="list-style-type: none"> ▪ VEGA Hosting Service (VH)
Technology	Web-based
Benefit	<ul style="list-style-type: none"> ▪ Simple centralized inventory monitoring and management ▪ More transparency through connected assets and facilities ▪ Avoidance of production stoppages through increased supply security ▪ Reduction of transport costs through optimized replenishment planning



Level I Radar



Area of application

Radar sensors in the VEGAPULS series are used for non-contact level measurement of liquids and bulk solids. They measure all kinds of liquids, even under high pressure and extreme temperatures, in solvents as well as aggressive liquids, they are also suitable for use in applications with stringent hygiene requirements. VEGAPULS sensors can also measure the lightest to the heaviest of bulk solids with absolute reliability, even in the presence of dust and noise, without being affected by buildup or condensation.

Measuring principle



The measuring instrument sends out short microwave signals toward the medium via the antenna system. The product surface reflects the signal waves, which are then received back by the antenna system. The instrument calculates the level from the running time of the microwave signals and the entered tank height.

Advantages

Non-contact radar technology is characterized by a particularly high measurement accuracy. The measurement is not affected by changing medium properties or by changing process conditions such as temperature, pressure or intense dust generation. User-friendly adjustment without vessel filling and emptying saves time and the sensors are maintenance free.



	VEGAPULS C 11	VEGAPULS C 21/C 22	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: Threads G1, 1 NPT VEGAPULS C 22: Adapter for ceiling mounting	Threads G1, 1 NPT
Process temperature	-40 ... +60 °C	-40 ... +80 °C	-40 ... +80 °C
Process pressure	-1 ... +3 bar (-100 ... +300 kPa)	-1 ... +3 bar (-100 ... +300 kPa)	-1 ... +3 bar (-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	VEGA Tools app, PACTware	VEGA Tools app, PACTware
Approvals	–	ATEX, IEC, cCSAus, cFMus, NEPSI, EAC, mcerts, INMETRO, KOSHA/KTL, CCOE, EG 1935/2004, FDA, NSF, KTW, WHG, VLAREM, Ship	ATEX, IEC, cCSAus, cFMus, NEPSI, EAC, INMETRO, KOSHA/KTL, CCOE, EG 1935/2004, FDA, NSF, KTW, WHG, VLAREM, Ship
Benefit	<ul style="list-style-type: none"> • Maintenance-free operation through non-contact 80 GHz radar technology • Low-cost sensor for simple measuring tasks • User-friendly, wireless setup and diagnosis via Bluetooth with mobile devices or PC 	<ul style="list-style-type: none"> • Maintenance-free operation through non-contact 80 GHz radar technology • Low-cost sensor for simple measuring tasks • User-friendly, wireless setup and diagnosis via Bluetooth with mobile devices or PC 	<ul style="list-style-type: none"> • Maintenance-free operation through non-contact 80 GHz radar technology • Unaffected by vessel internals thanks to very good signal focusing • User-friendly, wireless setup and diagnosis via Bluetooth with mobile devices or PC


Level I Radar

	VEGAPULS 11	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 (-100 ... +300 kPa)	-1 ... +3 bar (-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	VEGAPULS 21: VEGA Tools app, PACTware VEGAPULS 31: Integrated on-site display and 3-key operation, VEGA Tools app, PACTware
Approvals	–	ATEX, IEC, cCSAus, cFMus, NEPSI, EAC, mcerts, INMETRO, KOSHA/KTL, CCOE, EG 1935/2004, FDA, NSF, KTW, WHG, VLAREM, Ship
Benefit	<ul style="list-style-type: none"> • Maintenance-free operation through non-contact 80 GHz radar technology • Low-cost sensor for simple measuring tasks • User-friendly, wireless setup and diagnosis via Bluetooth with mobile devices or PC 	

VEGAPULS 61	VEGAPULS 62	VEGAPULS 63
		
Liquids under simple process conditions	Storage containers, reactors and process vessels with various process conditions	Aggressive liquids or with hygienic requirements
up to 35 m	up to 35 m	up to 35 m
Plastic horn antenna of PP or encapsulated horn antenna of PVDF	Horn antenna, parabolic antenna or standpipe antenna ½" of 316L	Hygienically encapsulated horn antenna of PTFE or PFA
Thread G1½, 1½ NPT Mounting strap, compression flanges from DN 80, 3" Adapter flanges from DN 100, 4"	Thread from G1½, 1½ NPT Flanges from DN 50, 2"	Flanges from DN 50, 2" Slotted nut Hygienic fittings
-40 ... +80 °C	-196 ... +450 °C	-196 ... +200 °C
-1 ... +3 bar (-100 ... +300 kPa)	-1 ... +160 bar (-100 ... +16000 kPa)	-1 ... +16 bar (-100 ... +1600 kPa)
±2 mm	±2 mm	±2 mm
K-band, 26 GHz	K-band, 26 GHz	K-band, 26 GHz
4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus
PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app
ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2
<ul style="list-style-type: none"> ▪ Economical solution through wide variety of mounting options ▪ Maintenance-free operation with encapsulated antenna system 	<ul style="list-style-type: none"> ▪ Optimal solution for nearly all applications through different antenna versions ▪ Simple planning and engineering thanks to large temperature and pressure range 	<ul style="list-style-type: none"> ▪ Continuous maintenance-free operation through high chemical resistance ▪ Optimal cleaning to meet strict hygienic requirements thanks to front-flush mounting

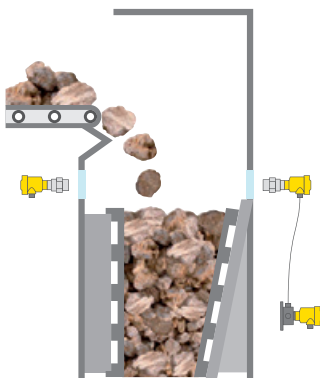
Level I Radar

	VEGAPULS 64	VEGAPULS 66	VEGAPULS 67
			
Application	Liquids under various process conditions or with hygienic requirements	Liquids under difficult process conditions	Bulk solids in vessels of average height
Measuring range	up to 30 m	up to 35 m	up to 15 m
Antenna	Plastic horn antenna of PP, thread with integrated horn antenna, flange with encapsulated antenna system	Horn antenna of 316L or enamel or standpipe 2" of 316L	Completely encapsulated plastic horn antenna of PP
Process fitting	Mounting strap, thread from G $\frac{3}{4}$, $\frac{3}{4}$ NPT, flanges from DN 50, 2", compression flanges from DN 80, 3", hygienic fittings	Flanges from DN 50, 2"	Mounting strap, compression flanges from DN 80, 3" Adapter flanges from DN 100, 4"
Process temperature	-196 ... +200 °C	-60 ... +400 °C	-40 ... +80 °C
Process pressure	-1 ... +25 bar (-100 ... +2500 kPa)	-1 ... +160 bar (-100 ... +16000 kPa)	-1 ... +2 bar (-100 ... +200 kPa)
Accuracy	±1 mm	±8 mm	±2 mm
Frequency range	W-band, 80 GHz	C-band, 6 GHz	K-band, 26 GHz
Signal output	4 ... 20 mA/HART	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus
Display/adjustment	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app
Approvals	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2	ATEX, IEC, FM, CSA, SIL2, EAC (GOST), UKR Sepro
Benefit	<ul style="list-style-type: none"> • Ideal solution for very small and narrow vessels through extreme signal focusing • High plant availability, hence insensitive to buildup and contamination 	<ul style="list-style-type: none"> • Universal use through different antenna versions 	<ul style="list-style-type: none"> • Economical solution through wide variety of mounting options • Maintenance-free operation with encapsulated antenna system

	VEGAPULS 68 (SR 68)	VEGAPULS 69
		
	Bulk solids for average to large vessels	Bulk solids for smaller or very large vessels
	up to 75 m, SR 68: up to 30 m	up to 120 m
	Horn or parabolic antenna of 316L	Plastic horn antenna of PP, metal jacketed lens antenna with rinsing air connection of PEEK, thread with integrated horn antenna
	Thread from G1½, 1½ NPT, flanges from DN 50, 2"	Mounting strap, compression flanges from DN 80, 3"; flanges from DN 80, 3", thread G1½, 1½ NPT
	-196 ... +450 °C SR 68: -40 ... +250 °C	-40 ... +200 °C
	-1 ... +160 bar (-100 ... +16000 kPa) SR 68: -1 ... +100 bar (-100 ... +10000 kPa)	-1 ... +20 bar (-100 ... +2000 kPa)
	±2 mm	±5 mm
	K-band, 26 GHz	W-band, 80 GHz
	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus
	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app
	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, only VEGAPULS 68: Ship, SIL2	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro
	<ul style="list-style-type: none"> Optimal solution for almost all applications due to different antenna versions and materials Simple planning and engineering thanks to large temperature and pressure range 	<ul style="list-style-type: none"> Ideal solution for very narrow or very large containers through extreme signal focusing Maintenance-free operation with encapsulated antenna system



Point level detection | Radar



Area of application

The microwave barriers of the VEGAMIP series are suitable for non-contact point level detection of liquids and bulk solids of any kind. Even point level detection of high-purity liquids through the container wall is possible. When it comes to bulk solids, the microwave barrier lends itself well for heavy and dust-generating media or for blockage detection in conveying systems.




Measuring principle

The microwave barrier works like a light barrier: if the microwave beam between transmitter and receiver is blocked by the rising medium, the measuring signal is damped. This change is detected by the receiver and converted into a switching signal.



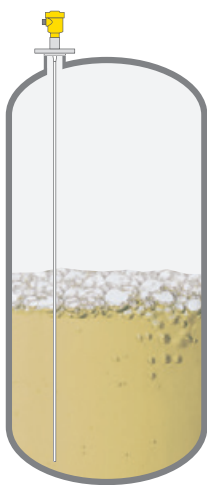
Advantages

This method allows point level detection without direct contact with the medium. Dirt, buildup and abrasion on the sensor are eliminated, allowing a wear and maintenance-free operation.

	VEGAMIP T61	VEGAMIP R61	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 +450 °C with mounting adapter	-40 ... +80 °C +450 °C with mounting adapter	-40 ... +80 °C +450 °C with mounting adapter
Process pressure	-1 ... +4 bar (-100 ... +400 kPa)	-1 ... +4 bar (-100 ... +400 kPa)	-1 ... +4 bar (-100 ... +400 kPa)
Frequency range	K-band, 24 GHz	K-band, 24 GHz	K-band, 24 GHz
Signal output	–	Relay, transistor	Relay, transistor
Approvals	ATEX, IEC, NEPSI, FM, CSA, EAC (GOST), UKR Sepro	ATEX, IEC, NEPSI, FM, CSA, EAC (GOST), UKR Sepro	ATEX, IEC, NEPSI, CSA, EAC (GOST)
Benefit	<ul style="list-style-type: none"> Simple installation and mounting, as transmitter requires no parameterization Universal transmitter for VEGAMIP R61 and VEGAMIP R62 saves time during planning and reduces costs of stockkeeping 	<ul style="list-style-type: none"> Compact instrument saves time and money when installing and connecting, as no separate controller is required 	<ul style="list-style-type: none"> Separate instrument version allows installation in hard-to-reach or dangerous locations Simple adjustment procedure saves time and money when setting up and commissioning



Level I Guided Wave Radar



Area of application

The GWR sensors of the VEGAFLEX series are suitable for level measurement in liquids and bulk solids. In liquids, they can also detect the interface between two media. They measure liquid levels very reliably, even under high pressure and extreme temperatures. They can be used in simple as well as in aggressive media and are also suitable for applications with stringent hygiene requirements. The sensors are able to measure light and heavy bulk solids with absolute reliability, even in the presence of dust and noise.



Measuring principle

High-frequency microwave pulses are coupled onto a cable or rod and guided along the probe. The pulses are reflected by the surface of the medium. The instrument calculates the level from the running time of the radar pulses versus the programmed tank height.





Advantages

GWR sensors operate independently of noise, pressure or temperature fluctuations and are also completely unaffected by changes in density, foaming, steam or dust. Buildup on the probe or on the container wall hardly affects the measurement. This allows simple, straightforward system design and engineering. The menu-driven adjustment routines enable simple, time-saving and confident setup.

	VEGAFLEX 81	VEGAFLEX 82
		
Application	All kind of liquids, applications with steam, buildup, foam generation, condensation as well as ammonia	Light-weight and heavy-weight bulk solids of all kind, applications with strong dust generation, condensation or buildup
Measuring range	Cable probe up to 75 m of 316 or Alloy C22 Rod probe up to 6 m of 316L, Alloy C22, Alloy C276, Duplex, 304L or Alloy 400 Coax probe up to 6 m of 316L, Alloy C22 or 304L	Cable probe up to 75 m of 316 or 316 PA coated Rod probe up to 6 m of 316L or Alloy C22
Version	Exchangeable cable (ø 2 mm, ø 4 mm) Exchangeable rod (ø 8 mm, ø 12 mm) Coax (ø 21.3 mm, ø 42.2 mm)	Exchangeable cable (ø 4 mm, ø 6 mm, ø 11 mm) Exchangeable rod (ø 16 mm)
Process fitting	Thread from G $\frac{3}{4}$, $\frac{3}{4}$ NPT, flanges from DN 25, 1"	Thread from G $\frac{3}{4}$, $\frac{3}{4}$ NPT, flanges from DN 25, 1"
Process temperature	-60 ... +200 °C	-40 ... +200 °C
Process pressure	-1 ... +40 bar (-100 ... +4000 kPa)	-1 ... +40 bar (-100 ... +4000 kPa)
Accuracy	±2 mm	±2 mm
Signal output	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus
Display/adjustment	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app
Approvals	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, FDA, INMETRO, NEPSI, KOSHA, CCOE	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, INMETRO, NEPSI, KOSHA, CCOE
Benefit	<ul style="list-style-type: none"> Comprehensive diagnostic options ensure low-maintenance operation and thus high plant availability Shortenable probes enable simple standardization and maximum flexibility in planning Factory calibration simplifies setup considerably 	

Level I Guided Wave Radar

	VEGAFLEX 83	VEGAFLEX 86
		
Application	Aggressive liquids or liquid media with stringent hygienic requirements, applications with steam, buildup, foam generation or condensation	Virtually all liquids under extreme pressure and temperature conditions, applications with buildup, foam generation or condensation
Measuring range	Cable probe up to 32 m of PFA Rod probe up to 4 m of PFA or 1.4435 (BN)	Cable probe up to 75 m of 316 or Alloy C22 Rod probe up to 6 m of 316L or Alloy C22 Coax probe up to 6 m of 316L, Alloy C22, Duplex or Alloy C276
Version	Cable (ø 4 mm) Rod (ø 8 mm, ø 10 mm)	Exchangeable cable (ø 2 mm, ø 4 mm) Exchangeable rod (ø 8 mm, ø 16 mm) Coax (ø 21.3 mm, ø 42.2 mm)
Process fitting	Flanges from DN 25, 1", hygienic fittings, clamp, slotted nut	Thread from G $\frac{3}{4}$, $\frac{3}{4}$ NPT, flanges from DN 25, 1"
Process temperature	-40 ... +150 °C	-196 ... +450 °C
Process pressure	-1 ... +16 bar (-100 ... +1600 kPa)	-1 ... +400 bar (-100 ... +40000 kPa)
Accuracy	±2 mm	±2 mm
Signal output	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus
Display/adjustment	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app
Approvals	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, EHEDG/3-A, FDA, INMETRO, NEPSI, KOSHA, CCOE	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, steam boiler, Overfill protection, Ship, SIL2, INMETRO, NEPSI, KOSHA, CCOE
Benefit	<ul style="list-style-type: none"> Gap-free hygienic design ensures good cleanability with simple methods Maintenance-free operation increases profitability of the plant 	<ul style="list-style-type: none"> Comprehensive diagnostic options guarantee low-maintenance operation and thus high plant availability Shortenable probes enable simple standardization and maximum flexibility in planning

Level | Magnetic level gauge | Bypass

Application range


VEGAMAG bypass level indicators are ideal for measuring and indicating the level of liquids without auxiliary energy. They can also determine where the interface between two different media is located. Due to the large selection of materials, VEGAMAG instruments can also be used for aggressive liquids.

Measuring principle

The VEGAMAG visually communicates the contents of the level in the tank. It consists of an external vertical bypass float chamber with lateral process fittings into the tank. The float chamber contains a float with an integrated permanent magnet which, as the level moves up and down, causes the individual magnetised flags inside a level indicator scale mounted to the side of the chamber to rotate and change colour.

Advantages

The level inside a tank can be displayed without auxiliary energy and is visible from a distance. The VEGAMAG level indicator can be completely decoupled from the tank by means of valves built into the process fittings. This allows maintenance to be performed without interrupting the process in the main tank. If required, a level switch can be retrofitted to the level indicator.

	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 PED 2014/68/EU EAC 032/2013
Process fitting tank	Flanges from 1/2"/DN15 Threaded connections from 1/2" Welding sockets from 1/2"
Process temperature	-196 °C ... +450 °C
Process pressure	0 ... +100 bar (0 ... +10000 kPa)
Measurement accuracy	±5 mm
Approvals	ASME 31.3 PED 2014/68/EU EAC 032/2013
Benefits	<ul style="list-style-type: none"> • Measurement and on-site indication without auxiliary energy • Manufactured according to customer specifications • Minimal maintenance

Application range


VEGAPASS is a bypass chamber mounted on the outside of a liquid tank, which is designed to hold a level, point level or interface measuring instrument. Due to the large selection of materials, VEGAPASS instruments can also be used for aggressive liquids.

Measuring principle

VEGAPASS is an externally mounted standpipe with lateral process fittings that effectively communicates the level inside the tank to the outside world. By adding a suitable instrument into the chamber, an electronic measurement of level, point level or interface can be carried out. VEGAPASS and the additional measuring instrument form a measuring system, which is engineered and delivered pre-assembled on request.

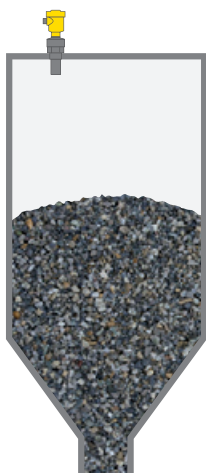
Advantages

VEGAPASS can be completely isolated from the tank by means of valves built into the process fittings. This allows maintenance to be performed without interrupting the process in the main tank. VEGAPASS and the additionally selected measuring instrument are optimally matched to each other and designed to suit customer requirements.

	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 PED 2014/68/EU EAC 032/2013
Process fitting tank	Flanges from 1/2"/DN15 Threaded connections from 1/2" Welding sockets from 1/2"
Process temperature	-196 °C ... +450 °C
Process pressure	0 ... +205 bar (0 ... +20500 kPa) depends on the built-in sensor
Measurement accuracy	depends on the built-in sensor
Approvals	ASME 31.3 PED 2014/68/EU EAC 032/2013 depends on the built-in sensor
Benefits	<ul style="list-style-type: none">• Complete solution comprising bypass vessel and measurement technology• Designed and manufactured according to customer specifications• Maintenance-free, as there are no moving parts



Level I Ultrasonic



Area of application

The ultrasonic sensors of the VEGASON series are suitable for non-contact level measurement of liquids and bulk solids in simple applications with stable measuring conditions. Typical applications with liquids are storage tanks and open basins. Bulk solids applications usually involve level measurement in open containers and small vessels.

Measuring principle

VEGASON sends pulses of ultrasonic sound waves in the direction of the medium to be measured. These pulses are reflected by the surface of the medium and then received back by the sensor. The instrument calculates the level from the running time of the sound waves versus the programmed tank height.

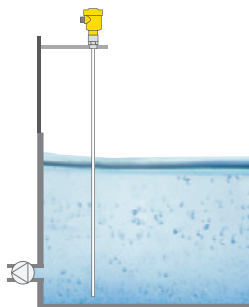
Advantages

The compact design allows for easy installation of the sensor. Since the properties of the medium do not affect the level measurement, setup and commissioning can be carried out without medium. The low-cost, non-contact measuring method allows wear and maintenance-free operation.

	VEGASON 61	VEGASON 62
		
Application	Liquids and bulk solids in small vessels	Liquids and bulk solids in small vessels
Measuring range	Liquids: 0.25 ... 5 m Bulk solids: 0.25 ... 2 m	Liquids: 0.4 ... 8 m 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 (-20 ... +200 kPa)	-0.2 ... +2 bar (-20 ... +200 kPa)
Accuracy	±10 mm	±10 mm
Signal output	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus
Display/adjustment	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82
Approvals	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Ship, SIL2	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Ship, SIL2
Benefit	<ul style="list-style-type: none"> ▪ Maintenance-free operation through non-contact measuring method ▪ Reliable measurement, independent of medium properties ▪ Low-cost solution for simple applications 	



Level | Capacitive

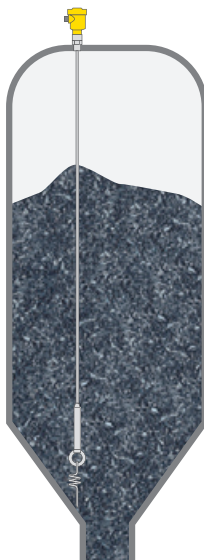


Area of application

The robust level sensors of the VEGACAL series are used for level measurement in bulk solids and homogeneous liquids that have stable electrical properties. With the fully insulated instrument version, aggressive liquids as well as very adhesive products can be measured. The partly insulated version is preferably used for bulk solids.


Measuring principle

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


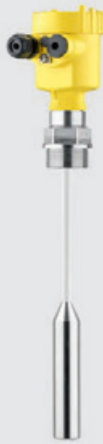


Advantages

This level measuring method is very economical and allows measurement over the entire sensor length without blocking distance. Thanks to shortenable cable and rod versions, the sensors can be adapted to any application and are very easy to install. Its robust mechanical design is the basis for reliable, trouble and maintenance-free operation and a long service life.

	VEGACAL 62	VEGACAL 63	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 G½, ½ NPT, flanges from DN 25, 1"	Thread from G½, ½ NPT, flanges from DN 25, 1"	Thread from G¾, ¾ 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, VEGADIS 81, VEGADIS 82, VEGA Tools app	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app
Approvals	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI, KOSHA	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI, KOSHA	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI, KOSHA
Benefit	<ul style="list-style-type: none"> Maximum container utilization, because entire probe length is used for measuring Cost savings thanks to simple installation and setup 		

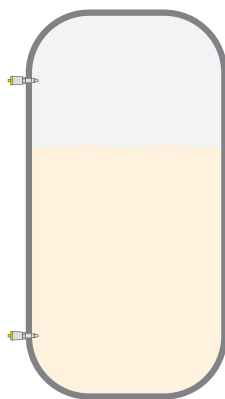
Level I Capacitive

	VEGACAL 65	VEGACAL 66
		
Application	Bulk solids, non-conductive liquids	Liquids and bulk solids, not abrasive
Measuring range	up to 32 m	up to 32 m
Version	Partly insulated cable of steel, 316L, Alloy, PTFE, PEEK, PA	Fully insulated cable of steel, 316L, PTFE
Process fitting	Thread from G1, 1 NPT, flanges from DN 50, 2"	Thread from G1, 1 NPT, flanges from DN 50, 2"
Process temperature	-50 ... +200 °C	-50 ... +150 °C
Process pressure	-1 ... +64 bar (-100 ... +6400 kPa)	-1 ... +40 bar (-100 ... +4000 kPa)
Signal output	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus
Display/adjustment	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app
Approvals	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI, KOSHA	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI, KOSHA
Benefit	<ul style="list-style-type: none"> • Maximum container utilization, because entire probe length is used for measuring • Cost savings thanks to simple installation and setup 	

	VEGACAL 67	VEGACAL 69
		
	Bulk solids with high process temperatures	Liquids in non-conductive vessels
	Rod up to 6 m; cable up to 40 m	up to 4 m
	Rod or cable of steel, 316L, ceramic	Fully insulated double rod made of PTFE, PP, FEP
	Thread from G1½, 1½ NPT, flanges from DN 50, 2"	Flanges from DN 50, 2"
	-50 ... +400 °C	-50 ... +100 °C
	-1 ... +16 bar (-100 ... +1600 kPa)	-1 ... +2 bar (-100 ... +200 kPa)
	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus
	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app
	–	ATEX, IEC, EAC (GOST), UKR Sepro
	<ul style="list-style-type: none"> Exact measuring results in almost all bulk solids and high temperature ranges 	<ul style="list-style-type: none"> Simple, fast installation thanks to compact, double rod design



Point level | Capacitive



Area of application

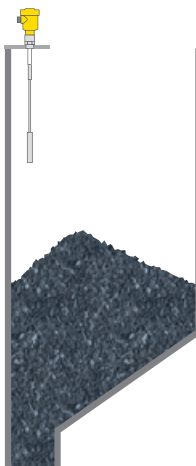
The point level sensors of the VEGAPOINT and VEGACAP series are used in homogeneous liquids and bulk solids in tanks and pipelines. They serve as overflow protection and dry run protection. They can also be used for foam detection and liquid media differentiation, e.g. oil-water detection.

Measuring principle

In capacitive level measurement, sensor and vessel form the two electrodes of a capacitor. Any change in capacitance due to a level change is converted into a switching signal. The capacitive measuring principle places no special requirements on installation and mounting.



Advantages




These low-cost point level sensors can be installed in tanks or pipes in any position. Thanks to shortenable cable and rod versions, VEGACAP sensors can be adapted to suit their application and are very easy to install. Their robust mechanical design is the basis for reliable, trouble-free and maintenance-free operation and a long service life. The excellent cleanability and hygienic design of VEGAPOINT sensors make them particularly suitable for use in the food and pharmaceutical industries.



	VEGAPOINT 11	VEGAPOINT 21/31
		
Application	Water-based liquids	VEGAPOINT 21: liquids VEGAPOINT 31: bulk solids
Version	Compact version	Compact version
Process fitting	Threads from G½, ½ NPT, universal connector for hygiene adapter	Threads from G½, ½ NPT, universal connector for hygiene adapter
Process temperature	-20 °C ... +100 °C/ 1 h @ +135 °C	-40 °C ... +115 °C/ 1 h @ +135 °C
Process pressure	-1 ... +25 bar (-100 ... +2500 kPa)	-1 ... +25 bar (-100 ... +2500 kPa)
Signal output	Three-wire: PNP/NPN, IO-Link	Three-wire: PNP/NPN, IO-Link
Approvals	EG 1935/2004, FDA, ADI	ATEX, IEC, EG 1935/2004, FDA, 3-A, EHEDG, ASME BPE, USP Class VI, ADI, China FDA, WHG, VLAREM, SVTI, Ship
Benefit	<ul style="list-style-type: none"> ▪ Low-cost level switch with extremely small installation dimensions ▪ Adjustment-free for easy setup ▪ Highly visible, adjustable full-colour multidirectional (360°) switching status display 	<ul style="list-style-type: none"> ▪ Low-cost level switch with extremely small installation dimensions ▪ Adjustment-free for easy setup ▪ Highly visible, adjustable full-colour multidirectional (360°) switching status display ▪ User-friendly, wireless setup and diagnosis via Bluetooth with smartphone

Point level | Capacitive

	VEGAPOINT 23	VEGAPOINT 24
		
Application	Liquids and bulk solids	Adhesive media or flush mounting
Version	Compact version with tube extension up to 1 m	Compact version
Process fitting	Thread from G½, ½ NPT, universal connector for hygiene adapter	Thread from G½, ½ NPT, universal connector for hygiene adapter
Process temperature	Tube extension ≤ 250 mm: -40 °C ... +115 °C/1 h @ +135 °C Tube extension > 250 mm: -40 °C ... +80 °C/1 h @ +135 °C	-40 °C ... +115 °C/1 h @ +135 °C
Process pressure	-1 ... +25 bar (-100 ... +2500 kPa)	-1 ... +25 bar (-100 ... +2500 kPa)
Signal output	Three-wire: PNP/NPN, IO-Link	Three-wire: PNP/NPN, IO-Link
Approvals	ATEX, IEC, EG 1935/2004, FDA, 3-A, EHEDG, ASME BPE, USP Class VI, ADI, China FDA, WHG, VLAREM, SVTI, Ship	ATEX, EG 1935/2004, FDA, 3-A, EHEDG, USP Class VI, ADI, China FDA, WHG, VLAREM, SVTI
Benefit	<ul style="list-style-type: none"> • Low-cost level switch with selectable switching point position/tube extension • Adjustment-free for easy setup • Highly visible, adjustable full-colour multidirectional (360°) switching status display • User-friendly, wireless setup and diagnosis via Bluetooth with smartphone 	<ul style="list-style-type: none"> • Inexpensive level switch, optimised for adhesive media • Absolutely front-flush measuring cell • Highly visible, adjustable full-colour multidirectional (360°) switching status display • User-friendly, wireless setup and diagnosis via Bluetooth with smartphone

	VEGACAP 62	VEGACAP 63	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 up to 4 m
Process fitting	Thread from G½, ½ NPT, flanges from DN 25, 1"	Thread from G½, ½ NPT, flanges from DN 25, 1"	Thread from G¾, ¾ 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
Approvals	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI
Benefit	<ul style="list-style-type: none"> • Rugged, resistant designs • Cost savings thanks to simple installation and setup 		

Point level | Capacitive

	VEGACAP 65	VEGACAP 66	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
Approvals	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, NEPSI	–
Benefit	<ul style="list-style-type: none"> • Rugged, resistant designs with capability to ignore buildup on sensor • Cost savings thanks to simple installation and setup 		<ul style="list-style-type: none"> • Universal use in bulk solids thanks to wide temperature range

	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, 1½ NPT
	-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
	ATEX, EAC (GOST), UKR Sepro	Overfill protection	Overfill protection	Overfill protection
	<ul style="list-style-type: none"> Simple, fast installation thanks to compact, double rod design 	<ul style="list-style-type: none"> Minimal time and cost expenditure thanks to simple setup without medium Exact switching point even with heavy buildup 		



Point level | Vibration | Liquids



Area of application

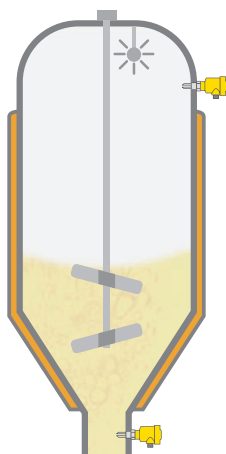
The point level sensors of the VEGASWING series are used as overfill and dry run protection in liquids. They are also suitable for safety-related applications up to SIL2. Special materials and coated versions also allow their use in aggressive media.

Measuring principle

The tuning fork of VEGASWING is made to vibrate by a piezo drive. If the medium comes into contact with the tuning fork, the vibration frequency is reduced. The electronics responds by triggering a switching signal.

Advantages

With a tuning fork only 40 mm long, VEGASWING works reliably in all liquids – regardless of the installation position. Pressure, temperature, foam and viscosity do not influence the switching accuracy. The low-cost point level sensors are easy to install and can be set up and commissioned without medium.



	VEGASWING 51/53	VEGASWING 61/63	VEGASWING 66
			
Application	Liquids	Liquids	Liquids under high and low temperatures
Version	VEGASWING 51: Compact version VEGASWING 53: Tube extension up to 1 m	VEGASWING 61: Compact version VEGASWING 63: Tube extension up to 6 m	Compact version or with tube extension up to 3 m
Material	316L	316L, ECTFE, PFA, enamel, Alloy 400, Duplex, Alloy C22	Inconel 718 (tuning fork), 316L, Alloy C22
Process fitting	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"
Process temperature	-40 ... +150 °C	-50 ... +250 °C	-196 ... +450 °C
Process pressure	-1 ... +64 bar (-100 ... +6400 kPa)	-1 ... +64 bar (-100 ... +6400 kPa)	-1 ... +160 bar (-100 ... +16000 kPa)
Signal output	Transistor output, contactless electronic switch, IO-Link	Relay, transistor, two-wire, NAMUR output, contactless electronic switch	Relay, transistor, two-wire output
Approvals	VEGASWING 51: Overfill protection, Ship, CSA-OL, EHEDG, FDA, EG 1935/2004, EAC (GOST) VEGASWING 53: EHEDG, FDA, EG 1935/2004	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2, KOSHA, NEPSI, INMETRO	ATEX, IEC, CSA, EAC (GOST), UKR Sepro, Overfill protection, steam boiler, Ship, SIL2, KOSHA, NEPSI, INMETRO, VdTÜV 100
Benefit	<ul style="list-style-type: none"> Minimal time and cost expenditure thanks to simple setup without medium Accurate and reliable function through medium-independent switching point Minimal costs for maintenance and servicing 		

Controllers see page 64–69



Point level | Vibration | Bulk solids



Area of application

The point level sensors of the VEGAVIB series are used as overfill protection and as empty detector in silos and bunkers containing bulk solids. Typical applications include materials such as plastic granules, pellets and non-adhesive media. The sensors are also suitable for safety-related applications up to SIL2.

Measuring principle

The rod element of VEGAVIB is made to vibrate by a piezo drive. If this vibrating rod comes in contact with the medium, the vibration amplitude is damped. The electronics responds by triggering a switching signal.



Advantages

The sensors are easy to clean and therefore ideal for use in food and pharmaceutical products. Mounting position and grain size have no effect on their functional reliability. The sensors are easy to install and can be set up and commissioned without medium.

	VEGA VIB S61	VEGA VIB 61/63	VEGA VIB 62
			
Application	Granuled and coarse-grained bulk solids	Granuled and coarse-grained bulk solids	Granuled and coarse-grained bulk solids (with suspension cable up to 80 m)
Version	Compact version or with tube extension up to 1.5 m	VEGA VIB 61: Compact version VEGA VIB 63: Tube extension up to 6 m	Suspension cable up to 80 m
Measuring range	Bulk solids from 100 g/l	Bulk solids from 20 g/l	Bulk solids from 20 g/l
Material	316L	316L, Carbocer coating	316L and PUR or FEP, Carbocer coating
Process fitting	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
Process temperature	-50 ... +250 °C	-50 ... +250 °C	-40 ... +150 °C
Process pressure	-1 ... +16 bar (-100 ... +1600 kPa)	-1 ... +16 bar (-100 ... +1600 kPa)	-1 ... +6 bar (-100 ... +600 kPa)
Signal output	Relay, transistor output	Relay, transistor, two-wire, NAMUR output, contactless electronic switch	Relay, transistor, two-wire, NAMUR output, contactless electronic switch
Approvals	ATEX	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, SIL2, KOSHA, NEPSI, INMETRO	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, SIL2, KOSHA, NEPSI, INMETRO
Benefit	<ul style="list-style-type: none"> Minimal time and cost expenditure thanks to simple setup without medium Reliable function through medium-independent switching point Minimal costs for maintenance and servicing 		

Controllers see page 64–69



Point level | Vibration | Powders



Area of application

The point level sensors of the VEGAWAVE series are used as overfill protection and empty detection in silos and bunkers containing powdery bulk solids. Typical applications are silos containing powdery media such as flour, cement or sand as well as containers with fine-grained bulk materials such as plastic granules, fine gravel or styrofoam beads. The sensors are also suitable for safety-related applications up to SIL2.




Measuring principle

The tuning fork of VEGAWAVE is made to vibrate by a piezo drive. When the medium covers the fork, the vibration amplitude is damped. The electronics responds by triggering a switching signal.

Advantages

The sensors are robust and non-sensitive to buildup and function reliably in any position. They are easy to install and can be set up and commissioned without medium.

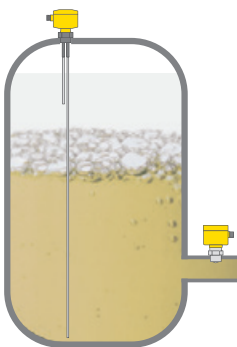


	VEGAWAVE S61	VEGAWAVE 61/63	VEGAWAVE 62
			
Application	Powders and fine-grained bulk solids	Powders and fine-grained bulk solids	Powders and fine-grained bulk solids
Version	Compact version or with tube extension up to 1.5 m	VEGAWAVE 61: Compact version VEGAWAVE 63: Tube extension up to 6 m	Suspension cable up to 80 m
Measuring range	Bulk solids from 8 g/l	Bulk solids from 8 g/l	Bulk solids from 8 g/l
Material	316L	316L, Carbocer coating	316L and PUR or FEP, Carbocer coating
Process fitting	Thread G1½	Thread G1½, 1½ NPT, flanges from DN 50, 2", hygienic fittings	Thread G1½, 1½ NPT, flanges from DN 50, 2", hygienic fittings
Process temperature	-50 ... +150 °C	-50 ... +250 °C	-40 ... +150 °C
Process pressure	-1 ... +25 bar (-100 ... +2500 kPa)	-1 ... +25 bar (-100 ... +2500 kPa)	-1 ... +6 bar (-100 ... +600 kPa)
Signal output	Relay, transistor output	Relay, transistor, two-wire, NAMUR output, contactless electronic switch	Relay, transistor, two-wire, NAMUR output, contactless electronic switch
Approvals	ATEX	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, SIL2	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, SIL2
Benefit	<ul style="list-style-type: none"> Minimal time and cost expenditure thanks to simple setup without medium Reliable function through medium-independent switching point Minimal costs for maintenance and servicing thanks to robust design 		

Controllers see page 64–69



Point level | Conductive



Area of application

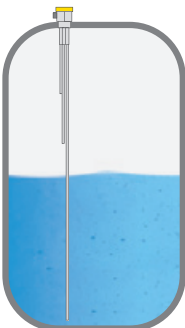
The conductive point level sensors of the VEGAKON series are used in conductive liquids as overfill protection, pump control or dry run protection in vessels and pipelines.



Measuring principle

When the electrodes of the sensor come in contact with a conductive liquid, a small alternating current begins to flow. The electronics responds by triggering a switching command.




Advantages

The simple, robust mechanical construction of the sensors ensures maintenance-free, cost-effective and reliable point level detection in all areas of industrial processes. The sensors, which can be installed in any position, provide a direct switching output. All measuring instruments offer the possibility of detecting at several switching points in a vessel. The VEGAKON sensors are designed as compact level switches, while the EL probes are designed to be used in combination with controllers of the VEGATOR series.





	VEGAKON 61	VEGAKON 66
		
Application	Conductive liquids	Conductive liquids
Version	Compact level switch with front-flush partly insulated electrode and one switching point	Compact level switch with partly insulated rod electrodes and max. two switching points
Probe length	–	0.12 ... 4 m
Material	316L, PTFE	316Ti, PP
Process fitting	Thread G1, cone DN 25, Varivent	Thread G1½
Process temperature	-40 ... +150 °C	-40 ... +100 °C
Process pressure	-1 ... +25 bar (-100 ... +2500 kPa)	-1 ... +6 bar (-100 ... +600 kPa)
Signal output	Relay, transistor output	Relay, transistor output
Approvals	–	–
Benefit	<ul style="list-style-type: none"> ▪ Time and cost saving setup without adjustment with medium ▪ Optimal cleanability thanks to front-flush mounting ▪ Maintenance-free operation ensured by robust measuring probe that is not affected by buildup 	<ul style="list-style-type: none"> ▪ Reliable pump control through multiple-rod probe ▪ Minimal stockkeeping through exchangeable rod probes ▪ Simple and versatile with cut to length probes

Point level | Conductive

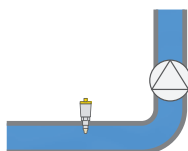
	EL 1	EL 3	EL 4
			
Application	Conductive liquids	Conductive liquids	Conductive liquids
Probe length	up to 4 m	up to 6 m	up to 4 m
Version	Partly insulated rod with one switching point	Partly insulated rod with max. four switching points	Partly insulated rod with max. four switching points
Material	316Ti, PTFE	316Ti, PTFE	316Ti, PP
Process fitting	Thread G1½	Thread G1½	Thread G1½
Process temperature	-50 ... +130 °C	-50 ... +130 °C	-20 ... +100 °C
Process pressure	-1 ... +63 bar (-100 ... +6300 kPa)	-1 ... +63 bar (-100 ... +6300 kPa)	-1 ... +6 bar (-100 ... +600 kPa)
Signal output	VEGATOR 131, VEGATOR 132	VEGATOR 131, VEGATOR 132	VEGATOR 131, VEGATOR 132
Approvals	ATEX, Overfill protection	ATEX, Overfill protection	–
Benefit	<ul style="list-style-type: none"> ▪ Easy installation in confined spaces through small sensor dimensions ▪ Low costs for maintenance and repair thanks to robust design ▪ Simple and versatile with cut to length probes 	<ul style="list-style-type: none"> ▪ Simple setup and commissioning with minimal time and costs ▪ Maintenance-free thanks to robust construction ▪ Simple and versatile with cut to length probes 	<ul style="list-style-type: none"> ▪ Reliable pump control through multiple-rod probe ▪ Minimal stockkeeping through use of exchangeable rod probes ▪ Simple and versatile with cut to length probes

Controllers see page 64–69

EL 6	EL 8
	
Conductive liquids	Conductive liquids
up to 50 m	up to 3 m
Partly insulated cable with max. four switching points	Partly insulated rod with one switching point
316Ti, PP/FEP	316Ti, PE
Thread G1½	Thread G½
-20 ... +100 °C	-10 ... +60 °C
-1 ... +6 bar (-100 ... +600 kPa)	-1 ... +6 bar (-100 ... +600 kPa)
VEGATOR 131, VEGATOR 132	VEGATOR 131, VEGATOR 132
–	–
<ul style="list-style-type: none"> ▪ Cost-effective pump control through multiple-cable probe ▪ Minimal stockkeeping through use of exchangeable cable probes ▪ Simple and versatile with cut to length probes 	<ul style="list-style-type: none"> ▪ Low-cost point level detection ▪ Easy installation in confined spaces through small sensor dimensions



Process pressure



Area of application



The process pressure transmitters and pressure switches of the VEGABAR series can measure the pressures and levels of liquids, gases and vapours. As well as general applications, there are special designs for use in chemically aggressive liquids, and in hazardous or hygienic areas. The instruments are ideal for detecting relative or absolute pressure in applications with condensation or rapid temperature changes, and can also measure the temperature of the medium. Their versatility and precision enable use for submersible hydrostatic level measurement in liquids or slurries. All VEGABAR series 80 transmitters can be interconnected to create an electronic differential pressure system.

Measuring principle




The pressure of the measured medium acts on a pressure measuring cell, which converts it into an electronic signal. There is a range of measuring cell technologies employed in the VEGABAR range: Ceramic-capacitive CERTEC® and MINI-CERTEC®, metallic METEC®, piezoelectric and strain gauge cells – to best meet individual application requirements.


Advantages

These instruments cover a particularly large measuring range, from vacuum to extremely high pressures. Their integrated self-monitoring function guarantees high operational reliability. An especially high degree of safety and dependability is guaranteed by the process pressure transmitters that use dry, ceramic-capacitive measuring cells. They are characterized by their high overload resistance, long-term stability and thermal shock compensation.

	VEGABAR 18	VEGABAR 19
		
Application	Liquids and gases	Liquids and gases, even at high pressure
Deviation	0.5 %	0.5 %
Measuring cell Measuring cell seal	Ceramic measuring cell FKM	Metallic measuring cell –
Process fitting	½" standard thread	½" standard thread
Process temperature	-40 ... +100 °C	-40 ... +100 °C
Measuring range	Relative 0 ... +25 bar (0 ... +2500 kPa)	Relative 0 ... +100 bar (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	<ul style="list-style-type: none"> ▪ Low-cost version with extremely small installation dimensions ▪ High plant availability due to the highly robust overload and vacuum resistance of the ceramic measuring cell 	<ul style="list-style-type: none"> ▪ Low-cost version with extremely small installation dimensions ▪ Universally applicable due to fully welded metallic measuring cell construction

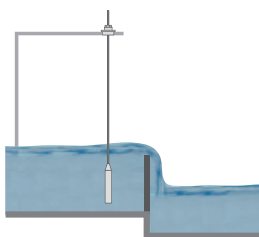
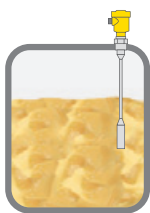
Process pressure

	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	Optional flush thread and hygienic fittings, universal connector for hygiene adapter	Optional flush thread and hygienic fittings, universal connector for hygiene adapter	Optional flush thread and hygienic fittings, universal connector for hygiene adapter
Process temperature	-40 ... +130 °C/ 1 h @ +135 °C steam	-40 ... +130 °C/ 1 h @ +135 °C steam	-40 ... +130 °C/ 1 h @ +135 °C steam
Measuring range	Absolute and relative -1 ... +60 bar (-100 ... +6000 kPa)	Absolute and relative -1 ... +1000 bar (-100 ... +100000 kPa)	Absolute and relative -1 ... +60 bar (-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 Three-wire: PNP/NPN, 4 ... 20 mA, IO-Link	Two-wire: 4 ... 20 mA Three-wire: PNP/NPN, 4 ... 20 mA, IO-Link	Two-wire: 4 ... 20 mA Three-wire: PNP/NPN, 4 ... 20 mA, IO-Link
Display/adjustment	PACTware, VEGA Tools app, IODD	PACTware, VEGA Tools app, IODD	Integrated on-site display and 3-key operation, PACTware, VEGA Tools app, IODD
Approvals	ATEX, IEC, cULus, NEPSI, EAC, INMETRO, IA, CCOE, TIIS, KOSHA/KTL, SEPRO, EG 1935/2004, FDA, China FDA, Ship	ATEX, IEC, cULus, NEPSI, EAC, INMETRO, IA, CCOE, TIIS, KOSHA/KTL, SEPRO, EG 1935/2004, FDA, 3-A, EHEDG, China FDA, Ship	ATEX, IEC, cULus, NEPSI, EAC, INMETRO, IA, CCOE, TIIS, KOSHA/KTL, SEPRO, EG 1935/2004, FDA, China FDA, Ship
Benefit	<ul style="list-style-type: none"> • Simple inventory management thanks to configurable signal output • Highly visible, adjustable full-colour multidirectional (360°) switch status display • User-friendly, wireless setup and diagnosis via Bluetooth with smartphone • Simple integration into control systems through IO-Link communication 	<ul style="list-style-type: none"> • Simple inventory management thanks to configurable signal output • Highly visible, adjustable full-colour multidirectional (360°) switch status display • User-friendly, wireless setup and diagnosis via Bluetooth with smartphone • Simple integration into control systems through IO-Link communication 	<ul style="list-style-type: none"> • Simple inventory management thanks to configurable signal output • Simple setup thanks to large on-site display with VDMA operation and additional texts • Simple integration into control systems through IO-Link communication

	VEGABAR 39	VEGABAR 81	VEGABAR 82	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 –	Chemical seal system –	CERTEC®, MINI-CERTEC® FKM, EPDM, FFKM	Piezoresistive/thin film strain gauge/METEC® –
	Optional flush thread and hygienic fittings, universal connector for hygiene adapter	Thread from G½, ½ NPT, flanges from DN 25, 1", hygienic fittings of 316L, Alloy 400, Tantalum, gold	Thread from G½ of 316L, Duplex, PVDF, Alloy, flanges from DN 15, ½", hygienic fittings	Thread from G½, ½ NPT, flanges from DN 25, 1", hygienic fittings of 316L, Alloy
	-40 ... +130 °C/ 1 h @ +135 °C steam	-90 ... +400 °C	-40 ... +150 °C	-40 ... +200 °C
	Absolute and relative -1 ... +1000 bar (-100 ... +100000 kPa)	Absolute and relative -1 ... +1000 bar (-100 ... +100000 kPa)	Absolute and relative -1 ... +100 bar (-100 ... +10000 kPa)	Absolute and relative -1 ... +1000 bar (-100 ... +100000 kPa)
	up to 4-fold measuring range	Depending on chemical seal system	up to 200-times measuring range	up to 150-times measuring range
	Two-wire: 4 ... 20 mA Three-wire: PNP/NPN, 4 ... 20 mA, IO-Link	4 ... 20 mA, 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus	4 ... 20 mA, 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus	4 ... 20 mA, 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus
	Integrated on-site display and 3-key operation, VEGA Tools app, IODD	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app
	ATEX, IEC, cULus, NEPSI, EAC, INMETRO, IA, CCOE, TIIS, KOSHA/KTL, SEPRO, EG 1935/2004, FDA, 3-A, EHEDG, China FDA, Ship	ATEX, IEC, FM, CSA, EAC (GOST), Overfill protection, Ship, SIL2/3, EG 1935/2004, FDA	ATEX, IEC, FM, CSA, EAC (GOST), Overfill protection, Ship, SIL2/3, EG 1935/2004, FDA, 3-A	ATEX, IEC, FM, CSA, EAC (GOST), Overfill protection, Ship, SIL2/3, EG 1935/2004, FDA, 3-A, EHEDG
	<ul style="list-style-type: none"> • Simple inventory management thanks to configurable signal output • Simple setup thanks to large on-site display with VDMA operation and additional texts • Simple integration into control systems through IO-Link communication 	<ul style="list-style-type: none"> • Optimal process adaptation through selection of various product-contacting materials, media and temperature couplers • Reliable measurement, even with extreme product temperatures 	<ul style="list-style-type: none"> • High resistance to abrasion and corrosion through use of high-quality Sapphire Ceramic® • High plant availability through maximum overload resistance and absolute vacuum resistance • Absolutely front-flush process fittings ensure maintenance-free operation 	<ul style="list-style-type: none"> • Universal application thanks to fully welded measuring cell • Reliable measurement even at high pressures • Excellent accuracy, even with strongly fluctuating process temperatures



Hydrostatic



Area of application




The hydrostatic pressure transmitters VEGAWELL and VEGABAR were specifically designed to measure levels in a wide range of liquids with widely different properties. They can also measure the temperature of the medium.

Measuring principle

The hydrostatic pressure of the liquid column acts on a pressure measuring cell, which converts it into an electronic signal. Ceramic-capacitive and metallic pressure measuring cells are used for this purpose in the instruments.

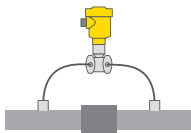
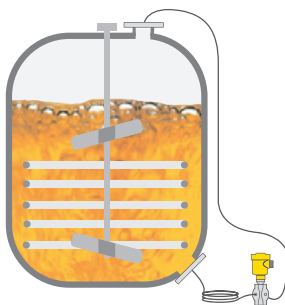
Advantages

Level measurement by means of pressure technology is totally unaffected by foam or internal vessel installations. The hydrostatic pressure transmitters can be precisely adapted to the process by selecting an appropriate measuring cell and suitable housing materials.

	VEGAWELL 52	VEGABAR 86	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 Measuring cell seal	CERTEC®/MINI-CERTEC® FKM, EPDM, FFKM	CERTEC® FKM, EPDM, FFKM	METEC® –
Process fitting	Straining clamp, thread, suspension cable, threaded fitting of 316L, PVDF, Duplex, Titanium	Straining clamp, suspension cable, threaded fitting, thread from G1½, 1½ NPT, flanges from DN 40, 2" of 316L, PVDF	Straining clamp, suspension cable, threaded fitting, thread from G1½, 1½ NPT, flanges from DN 50, 2" of 316L
Process temperature	-20 ... +80 °C	-20 ... +100 °C	-12 ... +100 °C
Measuring range	Absolute and relative 0 ... +60 bar (0 ... +6000 kPa)	Absolute and relative 0 ... +25 bar (0 ... +2500 kPa)	Absolute and relative 0 ... +25 bar (0 ... +2500 kPa)
Overload resistance	up to 150-times measuring range	up to 200-times measuring range	up to 150-times measuring range
Signal output	4 ... 20 mA 4 ... 20 mA/HART + PT 100	4 ... 20 mA, 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus	4 ... 20 mA, 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus
Display/adjustment	PACTware, VEGADIS 82	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app
Approvals	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2/3	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2/3
Benefit	<ul style="list-style-type: none"> ▪ High measurement certainty through very high overload and vacuum resistance of the ceramic measuring cell ▪ High plant availability through integrated overvoltage protection ▪ Versatile application thanks to robust housing and cable design 	<ul style="list-style-type: none"> ▪ High plant availability through very high overload and vacuum resistance of the ceramic measuring cell ▪ Self-cleaning effect through front-flush design ▪ Low costs for maintenance and servicing through wear-free ceramic measuring cell 	<ul style="list-style-type: none"> ▪ High measurement certainty even with quickly changing process temperatures ▪ High plant availability through vacuum-proof design ▪ Very good cleanability and high chemical resistance through choice of appropriate materials



Differential pressure



Area of application




The differential pressure transmitter VEGADIF was specially developed for level measurement of liquids and gases in pressurized vessels. It is also suitable for pressure monitoring across filters and pumps as well as for flow measurement of gases, vapours and liquids in conjunction with a flow element. When used in conjunction with a CSB or CSS chemical seal assembly, VEGADIF can also be deployed for density and interface measurement.

Measuring principle

Different pressures act on the two sides of an oil-filled differential pressure measuring cell. This converts the pressure differential into an electronic signal. A piezo measuring cell is used as the pressure measuring cell.

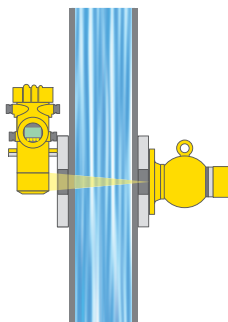
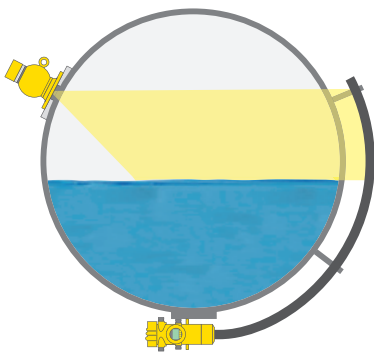
Advantages

The differential pressure transmitter VEGADIF is characterized by its especially wide application spectrum. Even differential pressures of only a few mbar can be accurately measured. Media at extreme temperatures can be measured by adding a chemical seal assembly.

	VEGADIF 85	Chemical seal CSB/CSS	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 ... +120 °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-times 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, VEGADIS 81, VEGADIS 82, VEGA Tools app	–	PLICSCOM, PACTware, VEGADIS 82, VEGA Tools app
Approvals	ATEX, IEC, CSA, EAC (GOST), Overfill protection, Ship, SIL2/3	In combination with VEGADIF 85	ATEX, IEC, FM, CSA, EAC (GOST), Overfill protection, Ship, SIL2/3
Benefit	<ul style="list-style-type: none"> • Measurement of extremely low differential pressures through high-precision measurement data acquisition • High operational reliability through integrated overload diaphragm • Universally applicable thanks to wide selection of measuring ranges and process fittings 	<ul style="list-style-type: none"> • High chemical resistance through choice of appropriate diaphragm materials • Versatile solutions through free configurability • Reliable measurement, even in extreme temperatures 	<ul style="list-style-type: none"> • Exact differential pressure measurement without capillary lines • Cost savings through simultaneous output of absolute and differential pressure • Universal use through simple combination of sensors from VEGABAR series 80



Radiation-based



Area of application

The radiation-based sensors of the PROTRAC series enable precise measurement of liquids and bulk solids under extreme process conditions such as high temperatures and pressures or aggressive media. They can detect level, point level, interface, density or mass flow contactlessly and reliably without interfering with the process. Radiation-based measurement is the solution in applications where other measuring principles reach their limits.

Measuring principle

A minimally radioactive isotope emits focused gamma rays. The sensor, which is mounted on the opposite side of the process, receives this radiation. Because gamma rays are attenuated when penetrating matter, the sensor can calculate the level, point level, density or mass flow from the intensity of the incoming radiation.

Advantages

The radiation-based measuring principle offers maximum operational safety and reliability even under the toughest application conditions. Measurement is independent of pressure, temperature and the aggressiveness of the medium. The measuring system can be installed on the outside of process vessels during ongoing production, without disturbing the process in any way. This saves installation costs and time.

	FIBERTRAC 31	FIBERTRAC 32	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 ø 42 mm	Sensor with flexible plastic detector ø 60 mm	Sensor with PVT rod detector ø 77 mm
Process pressure	any	any	any
Process temperature	any	any	any
Reproducibility	±0.5 %	±0.5 %	±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, VEGADIS 81, VEGADIS 82, VEGA Tools app	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app
Approvals	ATEX, IEC, NEPSI, FM, CSA, EAC (GOST), INMETRO, CCOE, TIIS, KOSHA/KTL, Overfill protection, SIL2	ATEX, IEC, NEPSI, FM, CSA, EAC (GOST), INMETRO, CCOE, TIIS, KOSHA/KTL, SIL2	ATEX, IEC, NEPSI, FM, CSA, EAC (GOST), INMETRO, CCOE, TIIS, KOSHA/KTL, Overfill protection SIL2
Benefit	<ul style="list-style-type: none"> Simple installation on round and conical vessels via flexible higher sensitivity detector Cost savings through the use of only one sensor for a measuring range of up to 7 m 	<ul style="list-style-type: none"> Simple installation on round and conical vessels via flexible detector Cost savings through the use of only one sensor for a measuring range of up to 7 m and reduces source size needed 	<ul style="list-style-type: none"> Maximum accuracy through PVT detector Simple installation with supplied accessories

Radiation-based

	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
Reproducibility	–	±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, VEGADIS 81, VEGADIS 82, VEGA Tools app	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82, VEGA Tools app
Approvals	ATEX, IEC, NEPSI, FM, CSA, EAC (GOST), INMETRO, CCOE, TIIS, Overfill protection, SIL2	ATEX, IEC, NEPSI, FM, CSA, EAC (GOST), INMETRO, CCOE, TIIS, KOSHA/KTL, Overfill protection	ATEX, IEC, NEPSI, FM, CSA, EAC (GOST), INMETRO, CCOE, TIIS
Benefit	<ul style="list-style-type: none"> • High process reliability through buildup detection • Simple installation with supplied accessories 	<ul style="list-style-type: none"> • Simple retrofitting during ongoing production processes • Exact measuring results independent of process conditions 	<ul style="list-style-type: none"> • Wear-free due to non-contact measurement

	VEGASOURCE 31	VEGASOURCE 35	SHLD1
			
Application	Source container for radioactive isotope	Source container for radioactive isotope	Source container for radioactive isotope
Measuring range	–	–	–
Version	Cs-137: For activities up to 18.5 GBq (500 mCi) Co-60: For activities up to 0.74 GBq (20 mCi)	Cs-137: For activities up to 111 GBq (3000 mCi) 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
Reproducibility	–	–	–
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	–	–	–
Display/adjustment	–	–	–
Approvals	–	–	–
Benefit	<ul style="list-style-type: none"> Reliable shielding allows use without control areas Operational safety through optional pneumatic ON/OFF switching 		<ul style="list-style-type: none"> Ideal for mass flow detection with an aperture angle of 45° and 60° Simple mounting through compact design and low weight



Software and display instruments



Area of application

Calibration of sensors and visualization of measured values via on-site display units. The visualization and monitoring of measured values can also be carried out via the web-based VEGA Inventory System.



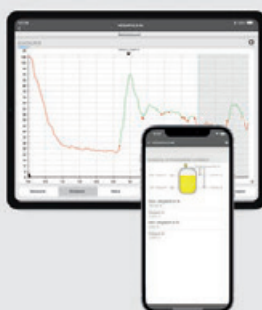
Systems

Any sensor can be completely configured with the adjustment software PACTware or the VEGA Tools app. Alternatively, the adjustment module PLICSCOM can be used to configure a sensor directly on site. The web-based visualization software VEGA Inventory System collects readings from sensors connected anywhere in the world and displays them in a clear, well-organized layout.



Advantages

Depending on the requirements, the user can set up the sensors either on site or comfortably via laptop, tablet or smartphone. Additional display units can be connected in the measurement loop to display the readings at other locations. It is also very easy to set up a visualization system that allows the readings to be displayed worldwide via a standard browser.

	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 (32 or 64 Bit) Windows 10 (32 or 64 Bit)	<ul style="list-style-type: none"> ▪ VEGA Hosting Service: independent of operating system ▪ Local server: MS Windows Server 2012 or higher as well as MS SQL Server 2012 or higher 	from iOS 8 from Android 5.1
Adjustment	Via computer	With standard web browser	With smartphone With tablet
Versions	<ul style="list-style-type: none"> ▪ Standard version ▪ Full version 	<ul style="list-style-type: none"> ▪ VEGA Hosting Service (VH) ▪ Local server (LS) 	–
Technology	FDT/DTM	Web-based	Bluetooth/App
Benefit	<ul style="list-style-type: none"> ▪ User-friendly, standardized adjustment program for the PC ▪ Extremely user friendly thanks to graphical user interface, project storage and documentation ▪ Extended functional range as full version with additional features such as multiviewer, tank calculation, echo curve storage and advanced diagnostics 	<ul style="list-style-type: none"> ▪ Simple centralized inventory monitoring and management ▪ More transparency through connected assets and facilities ▪ Avoidance of production stoppages through increased supply security ▪ Reduction of transport costs through optimized replenishment planning 	<ul style="list-style-type: none"> ▪ Simple, intuitive and unique adjustment for all plics® sensors as well as sensors with integrated Bluetooth ▪ Can be used for instruments as from 2002 through retrofitting of PLICSCOM with Bluetooth, without software update of the sensor ▪ Secure connection through authentication and encrypted communication

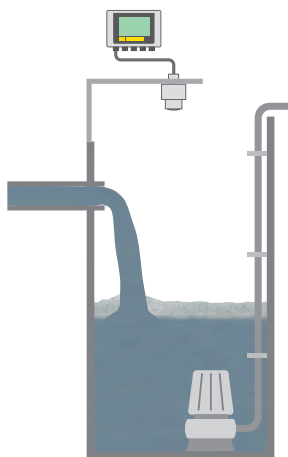
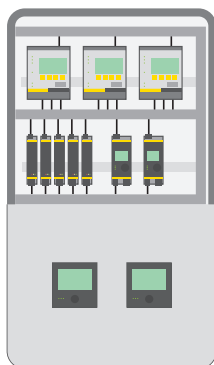
Software and display instruments

	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, on Fieldbus and Modbus sensors	Standard interface on the sensor Bluetooth (optional) 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, EAC (GOST), UKR Sepro	–	–
Benefit	<ul style="list-style-type: none"> ▪ Universally applicable, because compatible with all communication-capable VEGA instruments ▪ Simple connection via supplied adapter 	<ul style="list-style-type: none"> ▪ Good readability through graphics-capable LCD display and built-in lighting ▪ Simple and reliable handling via 4-button operation and intuitive menu structure with plain text display ▪ Universally applicable, because compatible with all plics® sensors, independent of the measuring principle 	<ul style="list-style-type: none"> ▪ Clearly visible switching status display, even in bright daylight ▪ Minimal installation time, as no external wiring is required ▪ Universally applicable ▪ High protection category via integrated module in plics® sensor housing

	VEGADIS 81	VEGADIS 82	VEGADIS 176
			
	External measured value indication and adjustment of plics® sensors	External measured value indication and adjustment of 4 ... 20 mA/HART sensors	Switching cabinet measured value indication of 4 ... 20 mA/HART sensors
	All plics® sensors	4 ... 20 mA/HART sensors	4 ... 20 mA/HART sensors
	Tube, wall mounting or carrier rail	Tube, panel, wall mounting or carrier rail	Panel mounting
	-20 ... +70 °C	-20 ... +70 °C	-10 ... +60 °C
	Standard interface Bluetooth Magnetic pen adjustment	4 ... 20 mA 4 ... 20 mA/HART	4 ... 20 mA 4 ... 20 mA/HART
	Integrated	Integrated	Integrated
	IP66/IP67	IP66/IP67	IP65 front, IP20 rear
	Via standard interface on sensor	Via 4 ... 20 mA current loop	Via 4 ... 20 mA current loop
	–	Standard < 1.7 V, with lighting < 3.2 V	Standard < 1 V, with lighting < 2.9 V
	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, NEPSI, INMETRO, KOSHA	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, NEPSI, INMETRO, KOSHA	ATEX, IEC, FM, CSA
	<ul style="list-style-type: none"> Measured value display and sensor operation at easily accessible locations (up to 50 m away from the sensor) Good readability and simple adjustment via integrated PLICSCOM Universally applicable, because compatible with all plics® sensors, independent of the measuring principle 	<ul style="list-style-type: none"> Measured value display and sensor operation at easily accessible locations (up to 1500 m away from the sensor) Good readability and simple adjustment via integrated PLICSCOM Universally applicable thanks to compatibility with all 4 ... 20 mA sensors and integrated adjustment functions for VEGAPULS WL 61 and VEGAWELL 52 	<ul style="list-style-type: none"> Convenient measured value display in accessible places (up to 1500 m away from the sensor) Excellent visibility via large display Universally applicable thanks to freely scalable display range



Controllers



Area of application

Together with connected sensors, controllers enable a variety of measuring tasks, such as e.g. level, gauge, differential pressure, process pressure, distance, interface and temperature measurement.

Principle of operation

Sensors detect physical values in a vessel and forward them to the controller. Through an adjustment in the controller, the readings can be adapted to the specific conditions of the measuring point. They appear on its display and can be retransmitted via the integrated current or digital outputs connected to field mounted indicators or higher-level control systems. In addition, point level signals can be programmed to control pumps or other actuators via integrated relays.

Advantages

Versatile linearisation and scaling of outputs with differential control capability on dual-sensor variants. The large displays, easy, app-based setup or Ethernet and RS232 communication capability offers simple integration into higher-level systems. Quick and easy installation thanks to a wide range of variants and mounting options. Cost savings through integrated sensor power supply, multi-drop sensor connection, even in explosion protected areas.



	VEGAMET 841/842	VEGAMET 861/862
		
Application	Measured value display, point level alarms, pump control, flow measurement in open channels	Measured value display, point level alarms, 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 2/4x digital input
Output	1/2x 0/4 ... 20 mA current output 3x operating relay 1x fail safe relay (instead of an operating relay)	1/3x 0/4 ... 20 mA current output 4/6x operating relay 1x fail safe relay (instead of an operating relay)
Operating voltage	24 ... 65 V DC 100 ... 230 V AC, 50/60 Hz	24 ... 65 V DC 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 and PACTware or VEGA Tools app	On-site adjustment with 4 keys, smartphone/tablet/PC and PACTware or VEGA Tools app
Approvals	ATEX, IEC, cULus, NEPSI, EAC, INMETRO, TIIS, KOSHA/KTL, SEPRO, CCOE, IA, WHG	ATEX, IEC, cULus, NEPSI, EAC, INMETRO, TIIS, KOSHA/KTL, SEPRO, CCOE, IA, WHG, mcerts
Benefit	<ul style="list-style-type: none"> ▪ Clear, easy-to-read (at distance), user-programmable display ▪ Fast setup thanks to simple intuitive menu navigation and application wizards ▪ Secure, user-friendly wireless operation via Bluetooth with smartphone, tablet or PC 	



Controllers

	VEGAMET 341/342	VEGAMET 391
		
Application	Measured value visualisation, limit value monitoring, pump control, flow measurement in open channels	Measured value indication and simple control functions, remote enquiry of measured values, remote data retrieval, data transmission 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 3x operating relay 1x fail safe relay (instead of operating relay)	1x 0/4 ... 20 mA current output 6x operating relay 1x fail safe relay (instead of operating relay) 1x Ethernet (optional) 1x RS232 (optional)
Operating voltage	24 ... 65 V DC 100 ... 230 V AC, 50/60 Hz	24 ... 65 V DC 24 ... 230 V AC, 50/60 Hz
Mounting	Panel mounting	Front panel or wall mounting Carrier rail 35 x 7.5 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 and PACTware or VEGA Tools app	On-site adjustment with 4 keys, PACTware/DTM
Approvals	ATEX, IEC, cULus, WHG, Ship	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, SIL2
Benefit	<ul style="list-style-type: none"> Clear, easy-to-read (at distance), user-programmable display Fast setup thanks to simple intuitive menu navigation and application wizards Secure, user-friendly wireless operation via Bluetooth with smartphone, tablet or PC 	<ul style="list-style-type: none"> Simple connection of sensor thanks to integrated power supply Excellent visibility via large display

	VEGAMET 141/142	VEGAMET 624	VEGAMET 625	VEGASCAN 693
				
	Measured value visualisation, limit value monitoring, pump control, flow measurement in open channels	Measured value indication, simple control functions as well as remote enquiry of measured values for one 4 ... 20 mA/HART sensor, data transmission via Ethernet	Measured value indication, simple control functions as well as remote enquiry of measured values for two HART sensors, data transmission via Ethernet	Measured value indication and remote enquiry of measured values for up to 15 HART sensors, data transmission via Ethernet
	1/2x 4 ... 20 mA sensor input	1x 4 ... 20 mA/HART sensor input	2x HART sensor input	15x HART sensor input
	1/2x 0/4 ... 20 mA current output 3x operating relay 1x fail safe relay (instead of operating relay)	3x 0/4 ... 20 mA current output 3x operating relay 1x fail safe relay 1x Ethernet (optional) 1x RS232 (optional)	3x 0/4 ... 20 mA current output 3x operating relay 1x fail safe relay 1x Ethernet (optional) 1x RS232 (optional)	1x fail safe relay 1x Ethernet (optional) or 1x RS232 (optional)
	24 ... 65 V DC 100 ... 230 V AC, 50/60 Hz	24 ... 65 V DC 24 ... 230 V AC, 50/60 Hz	24 ... 65 V DC 24 ... 230 V AC, 50/60 Hz	24 ... 65 V DC 24 ... 230 V AC, 50/60 Hz
	Carrier rail 35 x 7.5 acc. to EN 50022	Carrier rail 35 x 7.5 acc. to EN 50022	Carrier rail 35 x 7.5 acc. to EN 50022	Carrier rail 35 x 7.5 acc. to EN 50022
	LCD matrix display, black and white backlight with colour change according to status, relay or measured value	LCD matrix display, background lighting	LCD matrix display, background lighting	LCD matrix display, background lighting
	On-site adjustment with rotary knob/push-button, smartphone/tablet/PC and PACTware or VEGA Tools app	On-site adjustment with 4 keys, PACTware/DTM	On-site adjustment with 4 keys, PACTware/DTM	On-site adjustment with 4 keys, PACTware/DTM
	ATEX, IEC, cULus, WHG, Ship	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Ship	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Ship	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Ship
	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Simple connection of sensor thanks to integrated power supply • Versatile use through relay and current outputs as well as integrated web server • Excellent visibility via large display 		

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	VEGATOR 111: single channel VEGATOR 112: double channel	VEGATOR 121: single channel VEGATOR 122: double channel
Output	VEGATOR 111: 1x operating relay (SPDT), optional 1x fail safe relay (SPDT) VEGATOR 112: 2x operating relay (SPDT)	VEGATOR 121: 1x operating relay (SPDT), optional 1x fail safe or operating relay (SPDT) VEGATOR 122: 2x operating relay (SPDT)
Operating voltage	24 ... 65 V DC 24 ... 230 V AC, 50/60 Hz	24 ... 65 V DC 24 ... 230 V AC, 50/60 Hz
Mounting	Carrier rail 35 x 7.5 acc. to EN 50022	Carrier rail 35 x 7.5 acc. to EN 50022
Display	1x LED voltage supply 1x LED switching signal per channel 1x LED false signal per channel	1x LED voltage supply 1x LED switching signal per channel 1x LED false signal per channel
Approvals	ATEX, IEC, EAC (GOST), Overfill protection, Ship, SIL2, UL	ATEX, IEC, EAC (GOST), Overfill protection, Ship, SIL2, UL
Benefit	<ul style="list-style-type: none"> • Rapid implementation of simple control and regulatory functions • Increased operational reliability through line monitoring and test button • Easy installation via carrier rail 	

	VEGATOR 131/132	VEGATOR 141/142
		
Application	Controller for conductive probes	Controller for 4 ... 20 mA signals for level detection
Input	VEGATOR 131: single channel VEGATOR 132: double channel	VEGATOR 141: single channel VEGATOR 142: double channel
Output	VEGATOR 131: 1x operating relay, optional 1x fail safe relay output (SPDT) VEGATOR 132: 2x operating relay (SPDT)	VEGATOR 141: 1x operating relay (SPDT), optional 1x fail safe relay output (SPDT) VEGATOR 142: 2x operating relay (SPDT)
Operating voltage	24 ... 65 V DC 24 ... 230 V AC, 50/60 Hz	24 ... 65 V DC 24 ... 230 V AC, 50/60 Hz
Mounting	Carrier rail 35 x 7.5 acc. to EN 50022	Carrier rail 35 x 7.5 acc. to EN 50022
Display	1x LED voltage supply 1x LED switching signal per channel 1x LED false signal per channel	1x LED voltage supply 1x LED switching signal per channel 1x LED false signal per channel
Approvals	ATEX, IEC, EAC (GOST), Overfill protection	ATEX, IEC, EAC (GOST), Overfill protection, Ship, SIL2, UL
Benefit	<ul style="list-style-type: none"> ▪ Rapid implementation of simple control and regulatory functions ▪ Increased operational reliability through line monitoring ▪ Easy installation via carrier rail 	



Wireless communication

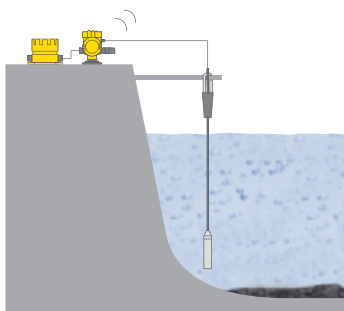


Area of application

Wireless communication devices are used when measured values have to be transferred from remote monitoring stations or mobile tanks to data collection centres. This makes them ideal for use in conjunction with VEGA Inventory System, the software for automatic inventory monitoring. They also enable wireless remote diagnostics and maintenance of their connected sensors.




Principle of operation

Only the transmitting unit is required for wireless communication. It is connected to the sensors via a serial bus cable or via the standard 4 ... 20 mA/HART signal cable. The transmitting unit provides the voltage supply for the sensors, reads out the measured values and transmits them to a data collection centre via the local mobile phone network.




Advantages

Simple operation through the use of open and standardized frequency bands (multi-band technology). High flexibility for the user thanks to free choice of mobile network. Especially fast setup as well as maintenance-free operation when using the VEGA service package "Wireless Data Transmission".

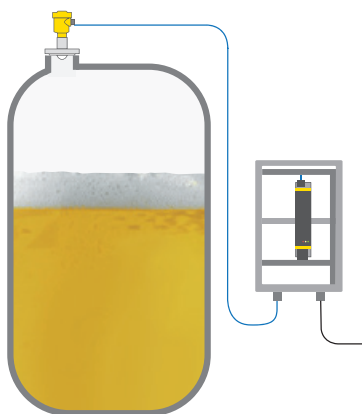
	PLICSMOBILE T81	PLICSMOBILE in the sensor	PLICSMOBILE B81
			
Application	Remote data retrieval and remote parameterization for up to 15 HART sensors	Remote data retrieval and remote parameterization for one HART sensor	Battery and accumulator unit for PLICSMOBILE
Input	1 to 15 HART sensors	1x VEGAPULS 64/69	1x solar panel
Output	VEGA Inventory System, e-mail, SMS	VEGA Inventory System, e-mail, SMS	Power supply of PLICSMOBILE and the connected sensors
Display/adjustment	PACTware and DTM/ VEGA Tools app	PLICSCOM/PACTware and DTM/ VEGA Tools app	–
Technology	GSM/GPRS/UMTS/GPS/LTE/ Bluetooth	GSM/GPRS/UMTS/GPS/LTE/ Bluetooth	–
Mounting	Wall or tube mounting	Integrated in field device	Wall or tube mounting
Temperature range	-20 ... +65 °C	-20 ... +65 °C	Battery: -10 ... +50 °C, -40 ... +80 °C (lithium) Battery pack: -20 ... +50 °C
Voltage supply	9.6 ... 32 V DC	9.6 ... 32 V DC	Battery: 4x 1.5 V 4x 3.6 V (lithium) Battery pack: 4x 1.2 V
Approvals	–	–	–
Benefit	<ul style="list-style-type: none"> ▪ Autonomous solution for remote enquiry of measurement data and remote parameterization of 1–15 sensors ▪ World-wide application through multi-band technology ▪ High flexibility through free choice of mobile network operator ▪ Increased operating time with battery or accumulator via integrated power management ▪ Alarms via e-mail and SMS 	<ul style="list-style-type: none"> ▪ Autonomous solution for remote enquiry of measurement data and remote parameterization via radio module integrated in plics® sensor 	<ul style="list-style-type: none"> ▪ Cost-effective solution for autonomous operation of PLICSMOBILE with battery or accumulator supply ▪ Increased operating time with accumulator via integrated charging circuit and connected external solar panels

Wireless communication

	Wireless router
	
Application	For connecting to the Internet, for controllers with Ethernet interface
Input	Controllers with Ethernet interface
Output	VEGA Inventory System, e-mail
Display	6x LED status indicators
Technology	GPRS/UMTS/LTE
Mounting	Wall mounting, carrier rail 35 x 7.5 according to EN 50022
Temperature range	-40 ... +75 °C
Power supply	9 ... 36 V DC
Approvals	–
Benefit	<ul style="list-style-type: none"> • Cost-effective solution for remote enquiry of measurement data and remote parameterization of 1 - 15 sensors via connection to controllers • Worldwide use via multi-band technology



Isolation and protection devices



Area of application

Isolation devices are used in all applications where hazardous area regulations must be observed. In addition to powering the sensors in the field, they ensure electrical isolation from the connected PLC or process control system.

Principle of operation

Isolation devices separate intrinsically safe circuits from non-intrinsically safe circuits. Distinguishing features are the type of power supply and the size of the Ex-specific characteristic values.

Advantages

Reliable separation of intrinsically safe and non-intrinsically safe circuits. Simple installation, as no additional power supply is required. Simple installation via carrier rail mounting.



	VEGATRENN 141/142	VEGATRENN 151/152
		
Application	Separator for 4 ... 20 mA/HART sensors	Separator for 4 ... 20 mA/HART sensors
Sensors	4 ... 20 mA	4 ... 20 mA
Input and sensor power supply	VEGATRENN 141: single channel VEGATRENN 142: double channel	VEGATRENN 151: single channel VEGATRENN 152: double channel
Output	VEGATRENN 141: single channel VEGATRENN 142: double channel	VEGATRENN 151: single channel VEGATRENN 152: double channel
Operating voltage	VEGATRENN 141: 24 ... 65 V DC 24 ... 230 V AC, 50/60 Hz VEGATRENN 142: 24 ... 31 V DC	Via 4 ... 20 mA current loop
Mounting	Carrier rail 35 x 7.5 acc. to EN 50022	Carrier rail 35 x 7.5 acc. to EN 50022
Voltage loss	–	4 mA < 3 V 20 mA < 5 V
Approvals	ATEX, IEC, cULus, Ship, SIL2	ATEX, IEC, cULus, Ship, SIL2
Benefit	<ul style="list-style-type: none"> ▪ Secure power supply and reliable separation of intrinsically safe and non-intrinsically safe measuring circuits ▪ Complete HART permeability allows unrestricted access to sensor settings ▪ Easy installation via rail mounting and removable, coded terminals 	<ul style="list-style-type: none"> ▪ Reliable separation of intrinsically safe and non-intrinsically safe measuring circuits. ▪ Simple installation, as no additional power supply is required ▪ Easy installation via rail mounting and removable, coded terminals

Isolation and protection devices

	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 acc. to EN 50022 or on carrier rail 32 mm acc. to EN 50035	Carrier rail 35 x 7.5 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: 110 ... 300 V AC/DC, max. 16 A</p>	<p>B62-36G: 9.6 ... 36 V DC, max. 450 mA</p> <p>B62-30W: 12 ... 36 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	ATEX
Benefit	<ul style="list-style-type: none"> • High operational reliability even with impermissible voltage surges • Simple installation via carrier rail mounting 	

	B63-48/B63-32	B81-35
		
	<p>B63-48: Overvoltage arresters for two-wire circuits</p> <p>B63-32: Overvoltage arresters for Profibus PA and Foundation Fieldbus circuits</p>	<p>Pluggable overvoltage arresters for supply and signal circuits</p>
	Direct mounting in the cable entry of the field device	Pluggable to the plics® mains electronics of VEGAPULS series 60, VEGAFLEX series 80, VEGABAR series 80 and VEGADIS 82
	<p>B63-48: 12 ... 48 V DC</p> <p>B63-32: max. 32 V DC</p>	max. 35 V DC
	< 10 kA	< 10 kA
	IP66	-
	-40 ... +85 °C	-40 ... +85 °C
	ATEX	ATEX, IEC, EAC
	<ul style="list-style-type: none"> ▪ High operational reliability even with impermissible voltage surges ▪ Simple installation in the cable gland of the field device ▪ No additional, separate on-site assembly 	<ul style="list-style-type: none"> ▪ 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



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Content

page			
9	VEGAPULS Air	Radar (IIoT)	Continuous level measurement
13	VEGAPULS	Radar	
21	VEGAFLEX	Guided radar	
27	VEGASON	Ultrasonic	
29	VEGACAL	Capacitive	
53	VEGABAR	Hydrostatic	
53	VEGAWELL		
57	FIBERTRAC	Radiation-based	
57	SOLITRAC		
55	VEGADIF	Differential pressure	
24	VEGAMAG	Magnetic level gauge/bypass	
25	VEGAPASS		
39	VEGASWING	Vibration	Point level detection
41	VEGAVIB		
43	VEGAWAVE		
33	VEGAPOINT	Capacitive	
35	VEGACAP		
45	VEGAKON	Conductive	
46	EL		
19	VEGAMIP	Radar	
58	MINITRAC	Radiation-based	
58	POINTRAC		
49	VEGABAR	Process pressure	Pressure measurement
53	VEGABAR	Hydrostatic	
53	VEGAWELL		
55	VEGADIF	Differential pressure	
55	VEGADIF	Differential pressure	Flow measurement
58	MINITRAC	Radiation-based	
58	WEIGHTRAC		
55	VEGADIF	Differential pressure	Density measurement
53	VEGABAR	Hydrostatic	
53	VEGAWELL		
58	MINITRAC	Radiation-based	
62	PLICSCOM	Software and display instruments	Signal processing
62	PLICSLED		
62	VEGACONNECT		
63	VEGADIS		
65	VEGAMET	Controllers	
67	VEGASCAN		
68	VEGATOR		
71	PLICSMOBILE	Wireless communication	
72	Wireless router		
75	VEGATRENN	Separating and protective instruments	