



Level | Radar



Area of application

Radar sensors of 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 simple as well as aggressive liquids, and they are suitable for applications with stringent hygiene requirements. The sensors can also measure from the lightest to the heaviest 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 radar pulses toward the measured product 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 radar pulses and the entered tank height.




Advantages





Non-contact radar technology is characterized by a particularly high measurement accuracy. The measurement is affected neither by fluctuating product properties nor by changing process conditions such as temperature, pressure or intense dust generation. User-friendly adjustment without vessel filling and emptying saves time.



	VEGAPULS WL 61	VEGAPULS 61	VEGAPULS 62
			
Application	Water processing and sewage water applications, flow measurement in open flumes and gauge monitoring	Liquids in small vessels under simple process conditions	Storage containers, reactors and process vessels with various process conditions
Measuring range	up to 15 m	up to 35 m	up to 35 m
Antenna	Plastic horn antenna of PP	Plastic horn antenna of PP or encapsulated horn antenna of PVDF	Horn antenna, parabolic antenna or standpipe antenna ½" of 316L
Process fitting	Thread G1½, mounting strap, compression flanges from DN 80, 3"	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"
Process temperature	-40 ... +80 °C	-40 ... +80 °C	-196 ... +450 °C
Process pressure	-1 ... +2 bar (-100 ... +200 kPa)	-1 ... +3 bar (-100 ... +300 kPa)	-1 ... +160 bar (-100 ... +16000 kPa)
Accuracy	±2 mm	±2 mm	±2 mm
Frequency range	K-band	K-band	K-band
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	PACTware, VEGADIS 82	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82
Approvals	ATEX, IEC, EAC (GOST), UKR Sepro, CSA	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2
Benefit	<ul style="list-style-type: none"> ▪ Economical solution through diverse and easy mounting options ▪ Immersion-proof IP 68 housing enables continuous maintenance-free operation 	<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

Level I Radar

	VEGAPULS 63	VEGAPULS 64	VEGAPULS 65
			
Application	Aggressive liquids or with hygienic requirements	Liquids under simple process conditions or hygienic requirements	Liquids under simple process conditions
Measuring range	up to 35 m	up to 30 m	up to 35 m
Antenna	Hygienically encapsulated horn antenna of PTFE, FKM or EPDM	Plastic horn antenna of PP, thread with integrated horn antenna, flange with encapsulated antenna system	Rod antenna, PVDF and PTFE
Process fitting	Flanges from DN 50, 2" slotted nut hygienic fittings	Mounting strap, Thread from G $\frac{3}{4}$, $\frac{3}{4}$ NPT, flanges from DN 50, 2", adapter flanges from DN 100, 4", hygienic fittings	Thread from G1 $\frac{1}{2}$, 1 $\frac{1}{2}$ NPT flanges from DN 50, 2"
Process temperature	-196 ... +200 °C	-40 ... +200 °C	-40 ... +150 °C
Process pressure	-1 ... +16 bar (-100 ... +1600 kPa)	-1 ... +20 bar (-100 ... +2000 kPa)	-1 ... +16 bar (-100 ... +1600 kPa)
Accuracy	±2 mm	±2 mm	±8 mm
Frequency range	K-band	W-band	C-band
Signal output	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus	4 ... 20 mA/HART	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus
Display/Adjustment	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82
Approvals	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2
Benefit	<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 	<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"> • Thin rod antenna allows installation in small vessel openings

VEGAPULS 66	VEGAPULS 67	VEGAPULS 68 (SR 68)	VEGAPULS 69
			
Liquids under difficult process conditions	Bulk solids for smaller to average vessel heights	Bulk solids for average to large vessel heights	Bulk solids for smaller or very large vessels
up to 35 m	up to 15 m	up to 75 m, SR 68: up to 30 m	up to 120 m
Horn antenna of 316L or enamel or standpipe 2" of 316L	Completely encapsulated plastic horn antenna of PP	Horn or parabolic antenna of 316L	Plastic horn antenna of PP, metal jacketed lens antenna with rinsing air connection of PEEK
Flanges from DN 50, 2"	Mounting strap compression flanges from DN 80, 3"	Thread from G1½, 1½ NPT flanges from DN 50, 2"	Mounting strap, compression flanges from DN 80, 3"; flanges from DN 80, 3", adapter flanges from DN 100, 4"
-60 ... +400 °C	-40 ... +80 °C	-196 ... +450 °C SR 68: -40 ... +250 °C	-40 ... +200 °C
-1 ... +160 bar (-100 ... +16000 kPa)	-1 ... +2 bar (-100 ... +200 kPa)	-1 ... +160 bar (-100 ... +16000 kPa) SR 68: -1 ... +100 bar (-100 ... +10000 kPa)	-1 ... +3 bar (-100 ... +300 kPa)
±8 mm	±2 mm	±2 mm	±5 mm
C-band	K-band	K-band	W-band
4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus
PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82	PLICSCOM, PACTware, VEGADIS 81, VEGADIS 82
ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, Overfill protection, Ship, SIL2	ATEX, IEC, FM, CSA, SIL2, EAC (GOST), UKR Sepro	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro, only 68: Ship, SIL2	ATEX, IEC, FM, CSA, EAC (GOST), UKR Sepro
<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 	<ul style="list-style-type: none"> • Optimal solution for almost all applications via 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