



Level measurement with radar

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

The advantages

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

PRO

VEGAPULS 6X



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

Level I Radar

BASIC

VEGAPULS C 11



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VEGAPULS C 21/C 22



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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/DTM	VEGA Tools app, PACTware/DTM	VEGA Tools app, PACTware/DTM
Approvals	–	ATEX, UKEX, IECEx, cCSAus, cFMus, NEPSI, EAC, mcerts, INMETRO, KOSHA/KTL, CCOE, CE 1935/2004, FDA, NSF, KTW, WHG, VLAREM, Ship	ATEX, UKEX, IECEx, cCSAus, cFMus, NEPSI, EAC, INMETRO, KOSHA/KTL, CCOE, CE 1935/2004, FDA, NSF, KTW, WHG, VLAREM, Ship
Benefit	✓ User-friendly, wireless setup and diagnosis via Bluetooth with mobile devices		✓ Unaffected by vessel internals thanks to very good signal focusing

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VEGAPULS 11



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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/DTM	VEGAPULS 21: VEGA Tools app, PACTware/DTM VEGAPULS 31: Integrated on-site display and 3-key operation, VEGA Tools app, PACTware/DTM
Approvals	-	ATEX, UKEX, IECEx, cCSAus, cFMus, NEPSI, EAC, mcerts, INMETRO, KOSHA/KTL, CCOE, CE 1935/2004, FDA, NSF, KTW, WHG, VLAREM, Ship
Benefit	✓ Low-cost sensor for simple measuring tasks	