

80G Radar Level Transmitter



Area of application

Radar sensors of the ROHEVEL-FRT series are used for non-contact level measurement of liquids and bulk solids.

In liquids

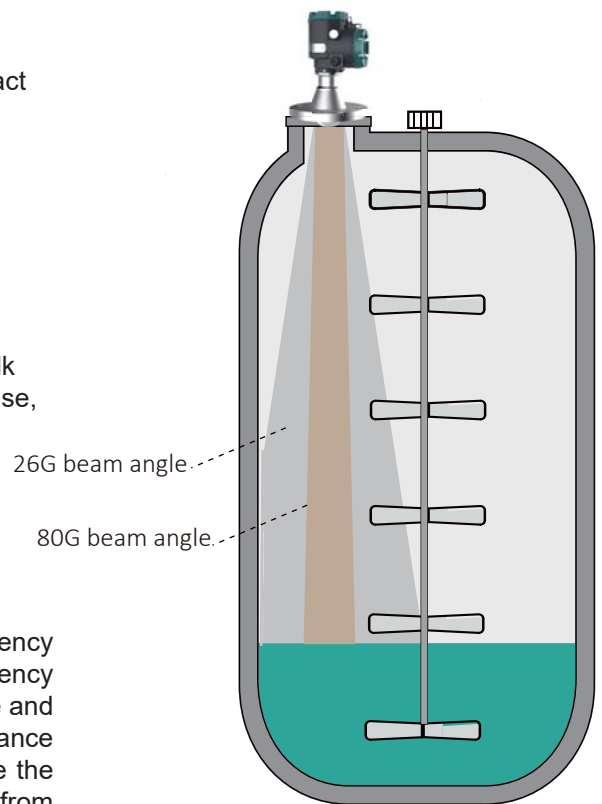
They measure all kinds of liquids, even under high pressure and extreme temperatures, in simple as well as aggressive liquids.

In bulk solids

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 radar uses 80GHz Frequency Modulated Continuous Wave. The FMCW radar emits a high frequency signal whose frequency increases linearly during the measurement phase (called the frequency sweep). The signal is emitted, reflected from the measuring surface and received with a time delay, t . Delay time, $t=2d/c$, where d is the distance to the product surface and c is the speed of light in the gas above the product. For further signal processing the difference Δf is calculated from the actual transmit frequency and the receive frequency. The difference is directly proportional to the distance.



Advantages

IsoLens Technology

Isolated emitting and receiving signal enable full range measurement without dead zone.

EverCheck

Real time self-monitoring on voltage, current and chip. Output warning when abnormality present.

WavesMemo

Wave management concept. To help understand abnormal output, ROHEVEL-FRT storages wave automatically.

MultiTrack

Due to new MultiTrack wave tracking algorithm, ROHEVEL-FRT get highest reliability.



Level | 80GHz Radar

ROHEVEL-FRT5201



ROHEVEL-FRT5101



Application	Applicable for continuous level measurement of aggressive liquids with lower demands on pressure and temperature ranges.	Applicable for continuous level measurement of water, wastewater, river, open channel, wet wells, lift station and simple chemical tanks
Measuring range	0 ~ 30m	0 ~ 30 m
Process fitting and beam angle	Plastic horn antenna: Flange DN80,3" Beam angle 3° Rod type antenna: Thread G1½, NPT1½ ; Beam angle 7° Thread G3, NPT3; Beam angle 3°	Flange DN80,3" Mounting strap Beam angle 3°
Power	3 W	3 W
Response time	< 2 s	< 2 s
Frequency	80 GHz	80 GHz
Media-contracting materials	Process fittings: PP Antenna: PP Seal: PP,PTFE	Process fittings: PP Antenna: PP Seal: PP,PTFE
Process temperature	-40 °C ~ +130 °C	-40 °C ~ +130 °C
Process pressure	-1.0 kgf/cm ² ~ 2kgf/cm ²	-1.0 kgf/cm ² ~ 2kgf/cm ²
Resolution	1 mm	1 mm
Accuracy	± 2 mm	± 2 mm
Repeatability	± 1 mm	± 1 mm
Signal output	4 ~ 20 mA HART	4 ~ 20 mA HART
Display and Adjustment	LCD display, Tank side display and Tank side hub.	LCD display, Tank side display and Tank side hub.
Protect level	IP67	IP67
Electrical connection	2 × M20*1.5(Cable diameter 9 ~ 13 mm) 2 × M16*1.5(Cable diameter 6 ~ 9 mm) 1/2NPT	2 × M20*1.5(Cable diameter 9 ~ 13 mm) 2 × M16*1.5(Cable diameter 6 ~ 9 mm) 1/2NPT
Ex information	ATEX II 1/2G EEx ia IIC T6/ATEX II 1/2G EEx d (ia) IIC T6 Ex ia IIC T6 Ga/Ex d ia(ia Ga)IIC T6/T2 Gb	ATEX II 1/2G EEx ia IIC T6 Ex ia IIC T6 Ga

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ROHEVEL-FRT5203



ROHEVEL-FRT5205



Application	Applicable for continuous level measurement of liquid in food and pharmaceutical sectors.	Applicable for continuous level measurement of slightly aggressive liquids under high pressure and high temperature.
Measuring range	0 ~ 30m	0 ~ 30 m
Process fitting and beam angle	Flange clamp 3"; Mounting strap; DRD connection Beam angle 3°	Thread G1½, NPT1½ ; Beam angle 7° Thread G3, NPT3; Beam angle 3°
Power	3W	3W
Response time	< 2 s	< 2 s
Frequency	80 GHz	80 GHz
Media-contracting materials	Antenna: PTFE Seal: FKM, EPDM	Process fittings: 316L Antenna: PEEK, PTFE Seal: FKM, EPDM, KALREZ
Process temperature	-40℃ ~ +200℃	-40℃ ~ +200℃
Process pressure	-1.0 kgf/cm ² ~ 16kgf/cm ²	-1.0 kgf/cm ² ~ 20kgf/cm ²
Resolution	1 mm	1 mm
Accuracy	± 2 mm	± 2 mm
Repeatability	± 1 mm	± 1 mm
Signal output	4 ~ 20 mA HART	4 ~ 20 mA HART
Display and Adjustment	LCD display, Tank side display and Tank side hub.	LCD display, Tank side display and Tank side hub.
Protect level	IP67	IP67
Electrical connection	2 × M20*1.5(Cable diameter 9 ~ 13 mm) 2 × M16*1.5(Cable diameter 6 ~ 9 mm) 1/2NPT	2 × M20*1.5(Cable diameter 9 ~ 13 mm) 2 × M16*1.5(Cable diameter 6 ~ 9 mm) 1/2NPT
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Level | 80GHz Radar

ROHEVEL-FRT5206



ROHEVEL-FRT5207



Application	Applicable for continuous level measurement for extremely aggressive liquid in storage containers, reactors or process vessels.	Applicable for continuous level measurement of bulk solid in small silos, bunkers and segmented vessels.
Measuring range	0 ~ 30m	0 ~ 30 m
Process fitting and beam angle	Flange from DN50,2" ; Beam angle 6° Flange from DN80,3" ; Beam angle 3°	Flange DN80,3" ; Beam angle 3°
Power	3W	3W
Response time	< 2 s	< 2 s
Frequency	80 GHz	80 GHz
Media-contracting materials	Process fittings: 316L Antenna: PTFE, PFA, PP	Process fittings: PP Antenna: PP Seal: PP, PTFE
Process temperature	-40 °C ~ +200 °C	-40 °C ~ +130 °C
Process pressure	-1.0 kgf/cm ² ~ 16kgf/cm ²	-1.0 kgf/cm ² ~ 2kgf/cm ²
Resolution	1 mm	1 mm
Accuracy	± 2 mm	± 3 mm
Repeatability	± 1 mm	± 2 mm
Signal output	4 ~ 20 mA HART	4 ~ 20 mA HART
Display and Adjustment	LCD display, Tank side display and Tank side hub.	LCD display, Tank side display and Tank side hub.
Protect level	IP67	IP67
Electrical connection	2 × M20*1.5(Cable diameter 9 ~ 13 mm) 2 × M16*1.5(Cable diameter 6 ~ 9 mm) 1/2NPT	2 × M20*1.5(Cable diameter 9 ~ 13 mm) 2 × M16*1.5(Cable diameter 6 ~ 9 mm) 1/2NPT
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80G Radar Level Transmitter



ROHEVEL-FRT5208



ROHEVEL-FRT5209



Application	Applicable for continuous level measurement of bulk solid in large silos, bunkers and segmented vessels.	Applicable for continuous level measurement of bulk solid in high silos, large bunkers, piles and segmented vessels.
Measuring range	0 ~ 120m	0 ~ 120 m
Process fitting and beam angle	Thread G1½, NPT1½ ; Beam angle 7° Thread G3, NPT3; Beam angle 3°	Flange from DN80,3" Beam angle 3°
Power	3 W	3 W
Response time	< 2 s	< 2 s
Frequency	80 GHz	80 GHz
Media-contracting materials	Process fittings: 316L Antenna: PEEK, PTFE Seal: FKM, EPDM, KALREZ	Process fittings: 316L, PP, PEEK Seal: FKM, EPDM
Process temperature	-40 °C ~ +200 °C	-40 °C ~ +200 °C
Process pressure	-1.0 kgf/cm ² ~ 20kgf/cm ²	-1.0 kgf/cm ² ~ 20kgf/cm ²
Resolution	1 mm	1 mm
Accuracy	± 3 mm	± 3 mm
Repeatability	± 2mm	± 2 mm
Signal output	4 ~ 20 mA HART	4 ~ 20 mA HART
Display and Adjustment	LCD display, Tank side display and Tank side hub.	LCD display, Tank side display and Tank side hub.
Protect level	IP67	IP67
Electrical connection	2 × M20*1.5(Cable diameter 9 ~ 13 mm) 2 × M16*1.5(Cable diameter 6 ~ 9 mm) 1/2NPT	2 × M20*1.5(Cable diameter 9 ~ 13 mm) 2 × M16*1.5(Cable diameter 6 ~ 9 mm) 1/2NPT
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