

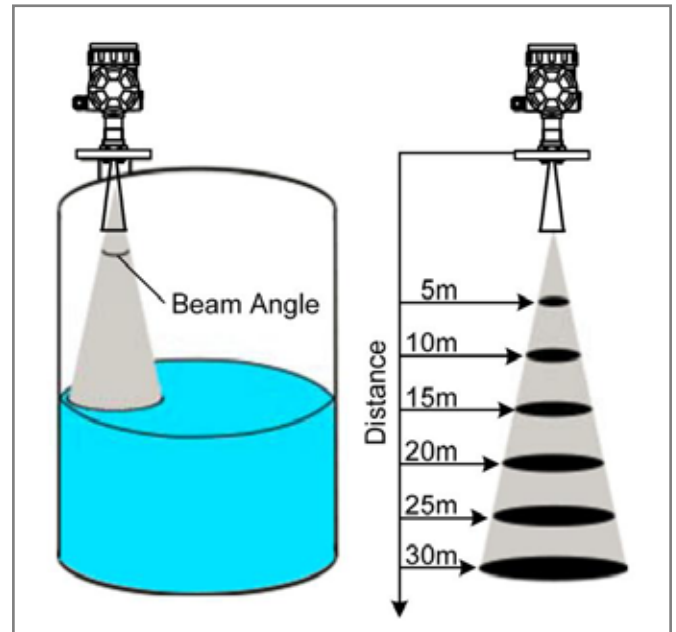
KRG radar level transmitters



KRG Serie

KRG serie includes radar level transmitters. Using 26GHz microwaves*, the liquid reflect them back to the instrument. The travel time, proportional to the distance between the surface and the gauge, is processed by the instrument electronics and generated an output signal. KRG instrument works in a non-contact and a non-mechanical way, so:

- It has a least request of maintenance for longterm
- It can't be damaged by the process liquid
- It has a long durability



Application fields

KRG Series can be used for:

- Tank level measurement
- Natural and artificial basins level measurement
- Level measurement for aggressives fluids
- Fire protection system monitoring
- Flow-rate for open channels.

General futures

- "Full range search mode" function boosts detection speed and tracks up to 2 m/s level change
- Delayed echo generated by multi-bounce between liquid surface and tank will be eliminated
- In case of disturbed input signal, KRG can predict output signal by analyzing data reported previously
- Possibility to calculate level and flow-rate of open channels
- Level measurement up to 30 meters with ± 2 mm accuracy (depending by sensor type)



* Electromagnetic waves with frequencies between 300 MHz and 300 GHz



Transmitter head Tecnical features

- Supply: EX d → DC 18V-36V
EX ia → DC 12V-30V
Non-EX → DC10.5V-36V
- Output: 4-20 mA+HART®
- Frequency: 26 GHz
- Beam angle: 8° (4in cone antenna / flush antenna)
18° (2in cone antenna / flush antenna)
25° (1in rod antenna)
- Measuring field: see figure
- Accuracy: cone / flush antenna ± 2 mm
rod ± 3 mm
- Repeatability: ± 1 mm
- Max working pressure: 1.5 MPa (15 bar)
- Storage temperature range: Ex -40-+60°C
Non-Ex -40-+70°C
- Process temperature range: see tables
- Tracking rate: 2 m/s
- Protection rating: IP66, NEMA4X

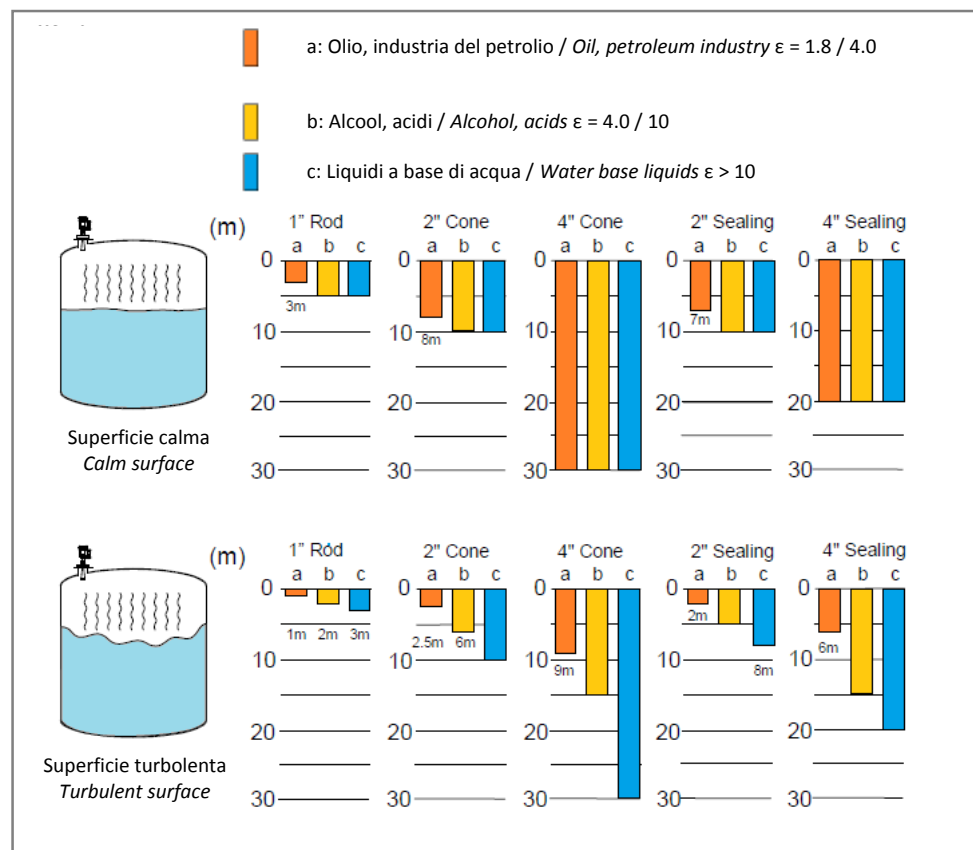


Measuring performances

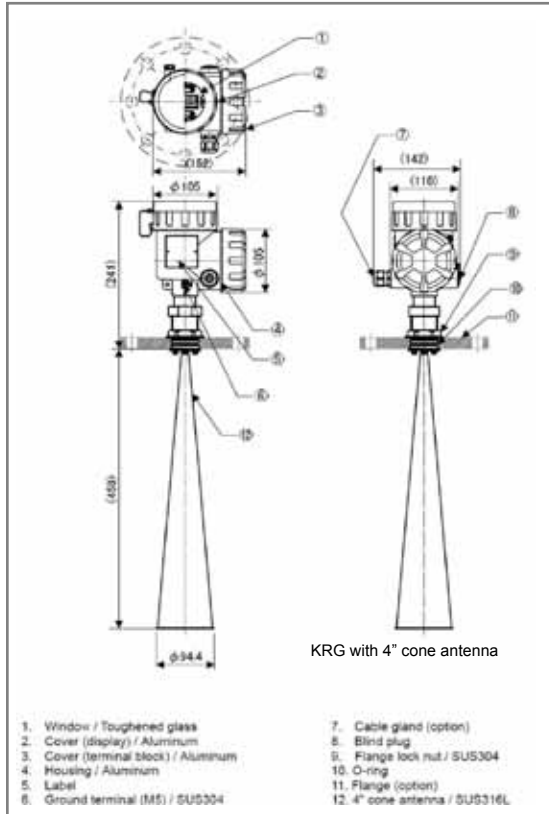
Measuring performances will be decided by products character (dielectric constant ϵ), surface conditions and antenna size. Generally the liquid which has higher dielectric constant number such as water is easily to measure, and calm liquid surface is the same.

On the contrary, low dielectric constant liquid, turbulence surface or dirty antenna conditions are relatively difficult to measure.

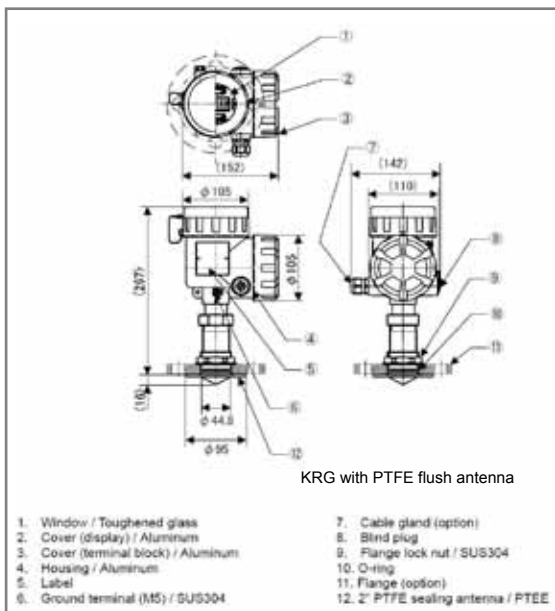
Below graphs, show suitable antennas, products and ranges.



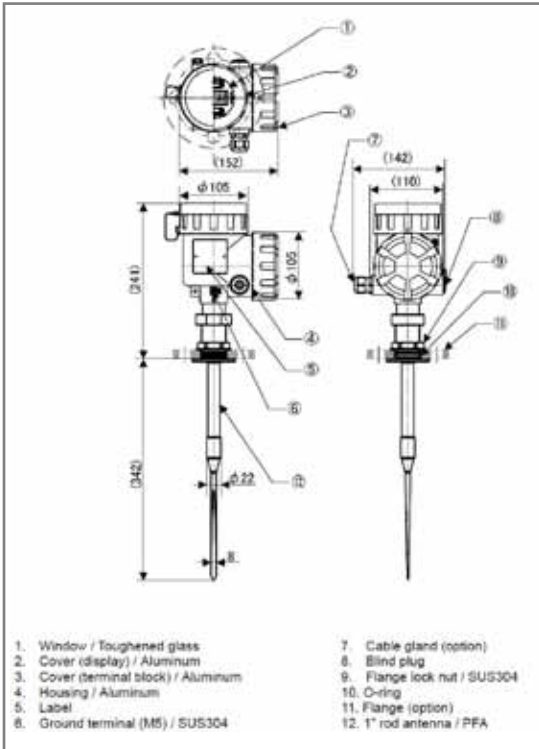
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	Cone 2"	Cone 4"
H max^δ [m]	10	30
Temp [°C]	-40 / +150	
Accuracy	±2 mm	
Press [MPa]	-0.1 / 1.5	

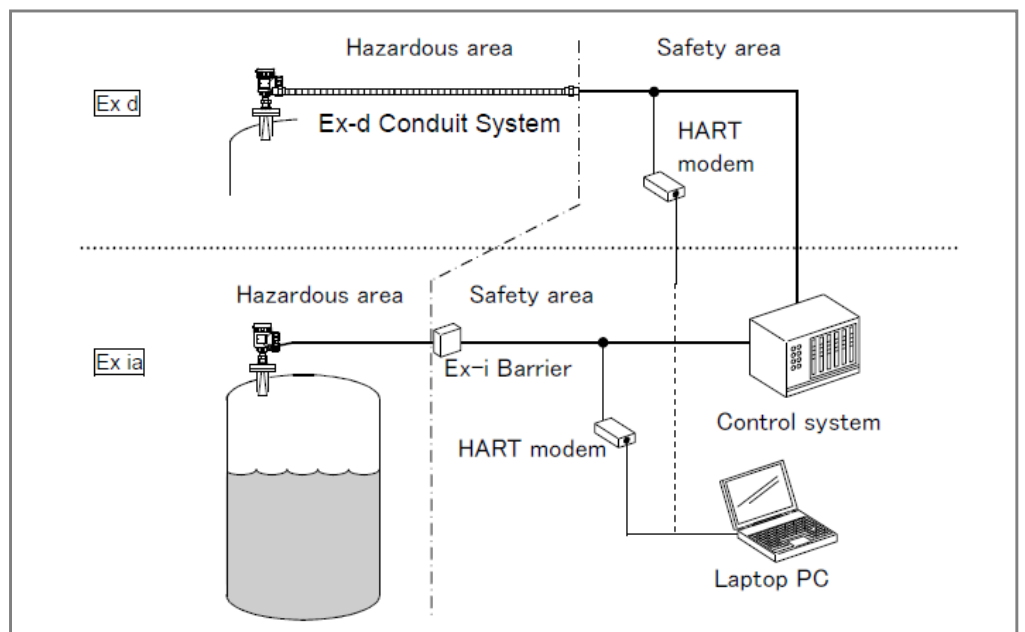


	2" PTFE	4" PTFE
H max [m]	10	20
Temp [°C]	-40 / +200	
Accuracy	±2 mm	
Press [MPa]	-0.1 / 1.5	



	Rod 1"
<i>H max [m]</i>	5
<i>Temp [°C]</i>	-40 / +150
<i>Accuracy</i>	±3 mm
<i>Press [MPa]</i>	-0.1 / +1.5

An example of Ex-d and Ex-ia wiring



Ex approvals

- II 1G Ex ia IIC T4 Ga
- II 2G Ex d ia IIC T4 Gb
- II 1D Ex ia IIIC 135°C Da IP66
- II 2D Ex TB IIIC 135°C Db IP66