

RADAR



RMG 01

OPERATING PRINCIPLE

A radar signal is emitted by the antenna, reflected by the surface of the product to be measured and received after a delay time t .

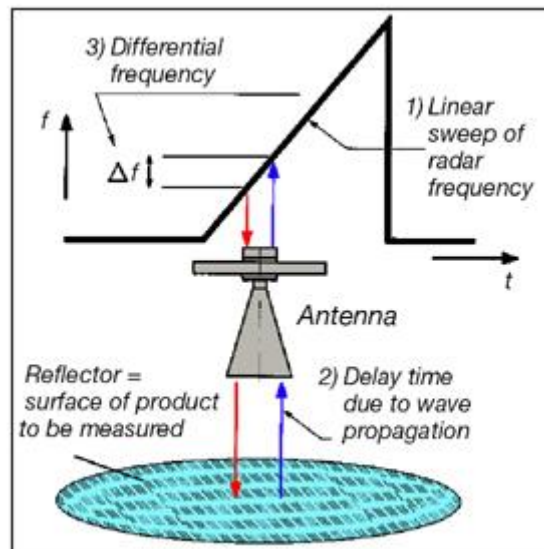
FMCW – frequency-modulated continuous wave
The FMCW radar uses a high-frequency signal (approx. 10 GHz).

During the measurement, the frequency increases by 1 GHz (linear frequency sweep) (1). The signal is transmitted, reflected by the surface of the product to be measured and then received after a delay time (2). The difference between the transmitting and the receiving frequency is used for further signal processing (3).

This difference is directly proportional to the distance, i.e. a great frequency difference implies a great distance and vice versa.

This frequency difference is converted into a frequency spectrum by means of a Fast Fourier Transformation (FFT) and serves as a basis for the determination of the distance.

The level results from the difference between tank height and distance.



RMG 02

Advantages

The FMCW radar technology offers the following advantages over the pulse radar method:

- Higher bandwidth of the microwave signal, higher resolution.
- Reliable suppression of interference signals.
- Higher transmitting frequency, smaller angle of radiation, less interfering reflection
- Higher transmitting frequency
- Smaller antenna diameter at identical measuring range

Measuring quality

Interference signals resulting from beams, welding seams and components contained in the tank are detected as "permanent targets" and suppressed, provided that the signal received from the surface of the product to be measured is greater than these interference signals.

Sporadic interference signals which may result, for example, from the paddles of stirrers, from deposits falling down or from parts of the material filling flow are detected and suppressed by the microprocessor-controlled system.



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RadaraFox[®] RMG 01

Radara Level Indicator



- **High accuracy 2-wire technology**
- **Output 4 – 20 mA/HART interface**
- **Easy to install, simple to commission**
- **Maintenance-free, non contact measurement**

Measuring ranges

0.5 m to 20 m

Antenna-materials

Stainless steel 1.4571, 1.4435,
Hastelloy, Titanium, Tantalum, Enamel, PTFE, PP

Process connections

Flanges to DIN or ANSI
Hygienic Dairy Fittings to DIN 11851 / SMS,
Tri-Clamp or 1½" BSP (G1½")

Process conditions

Pressure –1...+64bar
Flange Temperature –60...+250°C
For materials with dielectric greater than 1.5

Excellence in Level Measurement



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RadarFox[®] RMG 02

Radar Level Indicator



- Universally applicable unit for difficult applications
- For high accuracy level measurement to +/- 1mm
- HART, PROFIBUS PA, Fieldbus Foundation, RS 485 communication possibilities
- 'Ex' certified units for zone 0 (ATEX)

Measuring ranges

0.5 m to 100 m

Antenna materials

Stainless steel 1.4571, 1.4435, Hastelloy, Titanium, Tantalum, Enamel, PTFE, PP

Process connections

Flanges to DIN or ANSI, Hygienic dairy fittings to DIN 11851 / SMS, Tri-Clamp or 1½" BSP (G 1½")

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