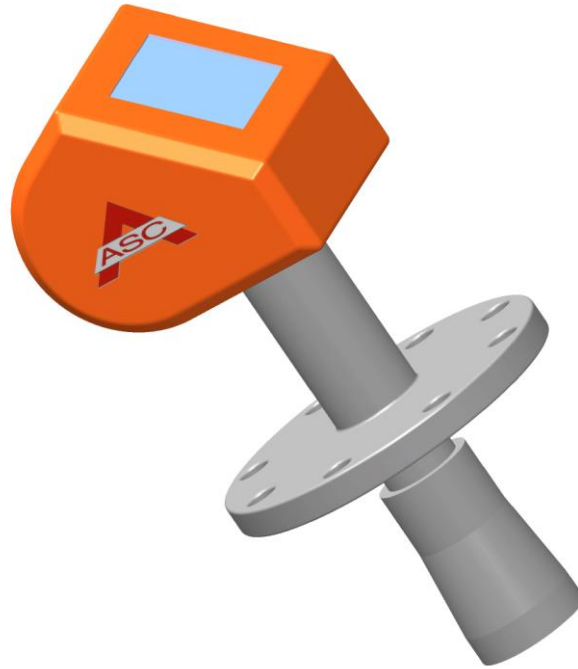


MWS-3000-K-24

MICROWAVE LEVEL METER



FEATURES:

- FMCW to enhance precision
- Measurements unaffected by environmental conditions such as dust, heat, noise, vapor, or light
- Simple configuration for easy installation and maintenance
- Minimal maintenance

APPLICATIONS:

- Measurement of distance, level, and volume of liquids, pastes, and solids

DESCRIPTION

The MWS-3000-K-24 gauge is a level meter based upon FMCW (frequency modulated continuous wave) radar signal. It is designed for measuring distance, level, volume and reflectivity of liquids, pastes, slurries, and solids. It can also form part of an overflow protection system.

The MWS-3000-K-24 is a new-generation level meter with a wizard-driven setup, fully potted electronic subassemblies.

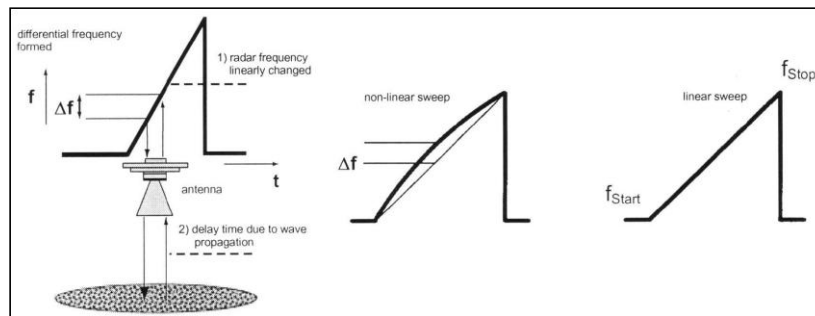
Today most popular sensors types at industry applications that could meet the performance requirements for high-accuracy non-contact level measurement are laser, acoustic, microwave radar. While laser and acoustic sensors work well in liquid level measurement, they become helpless at conditions of high dust level, strong air current and extremely high noise.

The whole measuring system consists of a flange system and a signal converter. The flange system includes the microwave window, which protects the converter electronics from the process and the antenna system. The compact signal converter contains the microwave generator and the entire signal processing system, including provision of a 4-20mA DC output signal or digital interface.

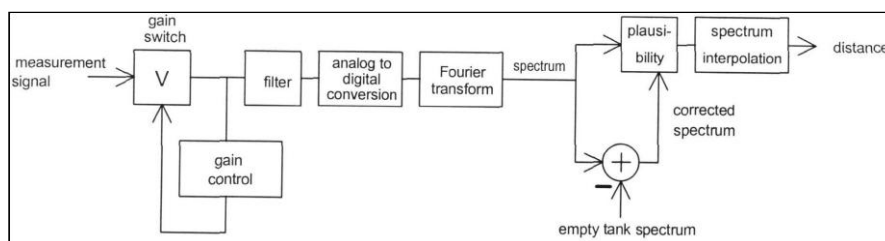
OPERATING PRINCIPLE

The FMCW-radar transmits a high frequency signal whose frequency increases linearly during the measurement phase. The signal emitted via an antenna, is reflected on the measuring surface and received after a time delay t . For further signal processing, the difference df is calculated from the actual transmit frequency and the received frequency. The difference is directly proportional to the distance, i.e., a large frequency difference corresponds to a large distance and vice versa.

The frequency difference is transformed via a Fourier transformation (FFT) into a frequency spectrum and then the distance is calculated from the spectrum.

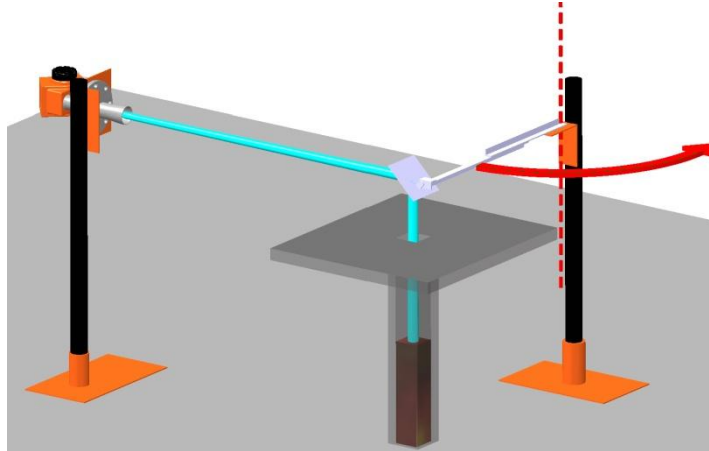


Internal Signal Processing



TYPICAL APPLICATIONS

- Any level Measurement when a very good accuracy is needed



Level measurement using plate at 45° angle for signal reflection

SPECIFICATIONS:

Microwave oscillation power	5mW
Measures per second	1
Wires	2
Accuracy	3mm \pm 0.03% of measured distance (if > 10 m)
Measuring range	0.5 to 80m (1,5 to 262 ft)
Output	4-20mA or 3.8 - 20.5mA / HART
Error signal	3.6mA and 22mA
Ambient temperature	-40° to 80°C (-40° to 175°F)
Flange temperature	-40° to 200°C (-40° to 300°F)
Operating pressure	-1 to 40 bar
Antenna type	Length: 125mm Diameter: 75mm (3")
Weight	11kg (24.3 lb)
Length	305 mm (12")
Frequency	24GHz
Sweep (resolution)	2GHz
A/D converter	16 bits
Gain steps	8
Extensions	-
Transmission angle (with the vertical)	5°
Expansion	8cm/m
Curved Extension	No

CONNECTION AND DIMENSIONS

