



DATASHEET

Digital Microwave Tank Gauge

8900d Digital Radar



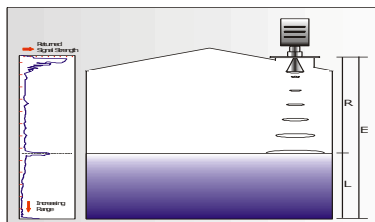
Application

- 8900d digital radar is designed for use in custody transfer tank gauging applications and exceeds the requirements of UK weights and measures standards for tank gauging. With OIML R85 Certification

Features and Benefits

- ± 0.5 mm level accuracy FMCW range measurement with reference to SIRA Test Certificate No: Sira 58D20905ALab
- DSP data extraction via dual FFT algorithm
- Graphical Display Panel
- Integrated temperature probe interface $\pm 0.1^\circ\text{C}$
- Water level and density inputs
- Optional integrated graphical display
- Optional Tank-side Remote Display
- 4-wire combined power and communications cabling
- Compatible with MTG Diamond Tank Gauging System and other Host Systems
- Simple commissioning and maintenance through Diamond diagnostic interface
- Antenna options for fixed roof and stillpipe applications
- Gas tight process connection rated to 40 bar.

Measuring Principle




In FMCW, or frequency modulated continuous wave, radar measurement the emitted radar signal frequency is modulated between two values and the difference between the transmitted signal and the return echo signal is measured. This difference frequency is directly proportional to the distance from the target.

8900d uses a dual FFT algorithm together with peak tracking to ensure that the liquid level is correctly identified and processed.

The gauge is known as a 'digital radar' due to

- the digital techniques employed to generate the highly accurate linear frequency sweep within the synthesized pulse and
- the high order digital signal processing using to analyse the return signal which and which delivers the resulting 'picture' of the tank and its contents.

SPECIFICATION

GENERAL DESCRIPTION	High Accuracy Microwave Tank Gauge – Non-intrusive FMCW radar level detection with auxiliary inputs for temperature, density and water interface	
APPLICATION	Custody Transfer / Inventory Management Problematic Petrochemicals	
PERFORMANCE	Level Accuracy Level Measuring Range Temperature Accuracy Temperature Measuring Range	± 0.5mm Ref: Test Cert: Sira 58D20905ALab 0-40 Metres ± 0.1°C (from Spot/Multiple Averaging/Multiple Spot Probe) -50°C to +200°C
ELECTRICAL	Electrical Safety Power Supply Power Consumption Microwave Emissions Lightning Protection	 II 1/2G Ex d [ia] IIB T4 (t _{amb} = -20oC to +45oC) 15-24Vdc 88-264 Vac 47-64 Hz Less than 12 Watts Less than 0.1m W/cm ² Full Galvanic and Optical Isolation to 5kA
COMMUNICATION & CONTROL SYSTEMS	Host communications Alarm Outputs Auxiliary Inputs Temperature Integral Display Remote Display unit	Electrical Interfaces: RS485 2-wire half duplex 4-20mA 4-20mA Wireless Protocols: Modbus RTU, MTG proprietary, HART® 4 off Digital Outputs 4 Inputs, each with the following option • Discrete, un-isolated • Discrete, optically isolated • Analogue, 4-20mA 10 RTD inputs from Spot/Multiple Averaging/Multiple Spot Probe, Cu or Pt elements Illuminated Graphics Display Panel with selectable display Scrolling LCD display (intrinsically safe)
PHYSICAL	Exterior Protection Environmental Protection Tank Operating Temperature Working Pressure Weight Process Connection Antenna Sizes	Standard: Aluminium LM25 Option: Stainless Steel AISI 316 IP67/NEMA 4 -70°C to +200°C Up to 40 bar max 26Kg 2", 3", 4", 6", 8", 10", 12", 18", 24" as required Nominal in inches (horn external diameter in mm) • 2" (50 mm) • 4" (98 mm) • 6" (147 mm) • 8" (194 mm) • 10" (250 mm) • Parabolic Antenna (425 mm)

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