

LPG Gauge RTG 3960

BENEFITS

- Highest reliability
- Verification of measurement with closed tank. Non-contact measurement
- Still-pipe installation of antenna ensuring strong echo even under surface boiling and turbulent conditions.
- Custody transfer accuracy
- SIL 2 Safety Functions
- TÜV Overfill Protection
- Integrated in TankRadar Rex inventory tank gauging system.
- Emulates other vendor's field buses



The RTG 3960 gauge measures the level in Liquefied Petroleum Gas (LPG) or Liquefied Natural Gas (LNG) tanks using a 4-inch still-pipe as a waveguide. It gives high reliability with no moving parts and no contact with the liquid. All electronics are housed in the explosion-proof housing, located outside the tank. Reference devices make it possible to verify measurements without opening the tank - no need for expensive calibration chambers and large-size valves.

The still-pipe ensures a sufficiently strong echo even under surface boiling and turbulent conditions.

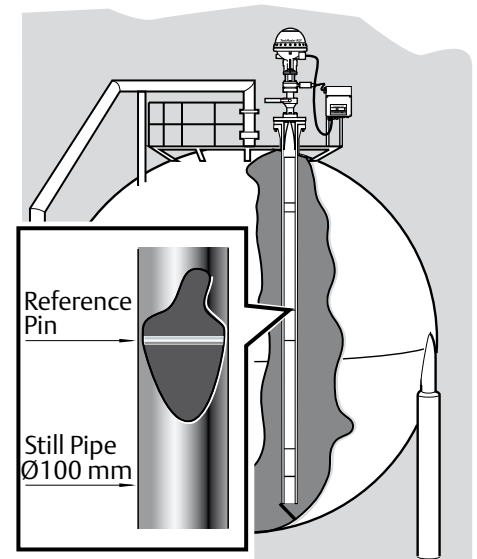
The gauge uses state-of-the-art Frequency Modulated Continuous Wave (FMCW) radar technology. For highest measuring accuracy the gauge can be equipped with a pressure sensor for calculation of vapor content.

High versatility

The 3960 has inputs for temperature sensors, HART® based pressure sensors and other analog inputs as well as analog and relay outputs. All data is transmitted on the two-wire TRL/2 field bus. As an option the gauge can be equipped with other output buses such as Foundation™ fieldbus Profibus DP or Tiway. It can also emulate other vendor's buses when installed in existing tank gauging systems.

Designed for high pressure use

The pressure seal is a quartz window approved for use in pressure vessels up to 25 bars (365 psig). The gauge has an optional fire proof block valve and a vapor pressure sensor.



The reference devices inside the 4 inch still pipe enable measurements to be checked during operation.

Installation

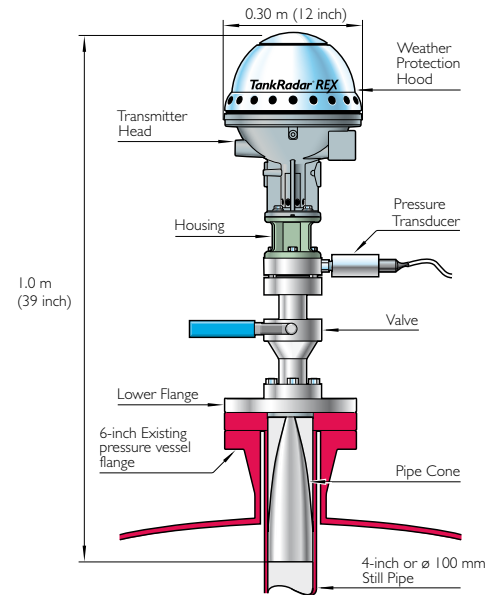
The gauge consists of two main parts; the exchangeable transmitter head housing all electronics (installed on top of the tank) and the antenna which is the only part in contact with tank atmosphere.

The gauge fits to a 6-inch flange and requires installation of a customer supplied still-pipe. In order to verify measurements in the pressurized tank, a reference pin is installed in a still-pipe hole at the top, and a deflection plate with reflection ring is installed at the bottom. Existing cabling is used for data transmission.

Safety functions

TankRadar Rex can replace a traditional Hi-Hi alarm device. With the RTG 3950 it is possible to use the gauge for overfill protection and simultaneously use it for high accuracy level measurement.

The Rosemount TankRadar Rex (RTG 3900 Series) has been assessed by third party and considered suitable for use in SIL 2 safety functions according to IEC 61508/61511. The decision on the usage of proven-in-use devices, however, is always with the end-user. The safety function is based on the relay outputs, by using either one or a combination of two, for overfill or dry run protection. TankRadar Rex is approved as an overfill protection device by TÜV (Technische Überwachungsverein)¹.



Specification	
Measuring principle	FMCW radar with digital reference and temperature control.
Antenna type	High precision cone.
Instrument accuracy	± 0.5 mm (± 5/256 in.)
Measuring range	0,5 to 60 m (1,6 to 200 ft). For longer measuring range, please consult your Rosemount Tank Gauging representative
Temperature	Ambient temperature -40° C to +70° C (-40° F to +158° F) Operating temperature at ball valve: -55° C to 90° C (-67° F to 194° F) Operating temperature in tank: -170° C to 90° C (-274° F to 194° F)
Maximum pressure	Up to 25 bar (365 psig).
Material exposed to tank atmosphere	Acid proof steel EN 1.4436 (AISI 316) and quartz.
Supply voltage	100-240 VAC, 50-60 Hz. Optional 34-70 VAC, 20-28 VDC (max 30 W) or 48-99 VDC.
Outputs/inputs	Outputs: TRL/2 field bus, 1 pc 4-20 mA, Profibus DP, Foundation Fieldbus™, Tiway, 2 pcs relays, other vendor's field buses. Inputs: Temperature (Pt 100), 2 pcs 4-20 mA (of which one HART® Master).
Display	On separate DAU, RDU or remotely in control room.
Still-pipe dimensions and flange	4-in (Sch 10 or Sch 40) or 100 mm inner diameter stainless steel. 6-in flange.
Housing	Aluminium, designed for IP 66 & 67.
Weight	38 kg (84 lbs) for 6-in. 150 psi 48 kg (106 lbs) for 6-in. 300 psi
Hazardous locations certifications	ATEX: CE 0575 II 1/2 G EEx d[ia] IIB T6 IECEx: Ex d IIB T6 UL: Class I, Div I, Groups C and D

Technical details are subject to change without prior notice. For more technical details see the Rex Technical Description.

1. TÜV is a German testing authority responsible for testing overfill protection equipment according to the requirements stated in the German Federal Water Act (WHG) concerning water protection.

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Tank Gauging

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