

FMR50 Radar Tank Gauge

Smart radar tank gauge for continuous and non-contact level measurement with an accuracy rate of ± 2 mm

Varec®



Highlights

- 2-wire technology: Reduces on tank wiring costs and allows easy implementation into existing systems.
- Non-contact measurement: Tank top is almost independent from product properties.
- Standard range up to 98 ft (30 m). Extended range up to 131 ft (40 m) using Advanced Dynamics.
- Easy onsite operation using built-in touch control display without opening enclosure (or optional push button display with cover removed).
- Access historic data from device integrated memory (HistoROM).
- Easy commissioning and diagnostics using Windows® based software.
- HART, PROFIBUS PA, or FOUNDATION Fieldbus protocols.
- High temperatures: Suitable for process temperatures up to -40 °F (-40 °C), up to 266 °F (130 °C) with high-temperature antenna.
- High pressure: Suitable for pressures from -14.5 psi (-1 bar) up to 43.5 PSI (3 bar).
- Approved for use in explosive hazardous locations.
- Integrated over voltage protection.
- SIL 2 approved for overspill protection system applications or SIL 3 in case of homogeneous or heterogeneous redundancy.
- Optional remote display (FHx50).

FMR50 Radar Tank Gauge (RTG)

The FMR50 RTG is used for basic supply, process and storage applications.

Product Options

Approvals & Certifications

- FM, CSA, ATEX, IECEx, NEPSi, and TIIS

Antenna & Seals

- 1½", 3", or 4" (40 mm, 80 mm or 100 mm)
Encapsulated PVDF or PP cladded horn antennas

Process Connections

- 1½" thread
- Optional mounting bracket with slip-on (DN80, DN100 or DN150) flange

Output Options

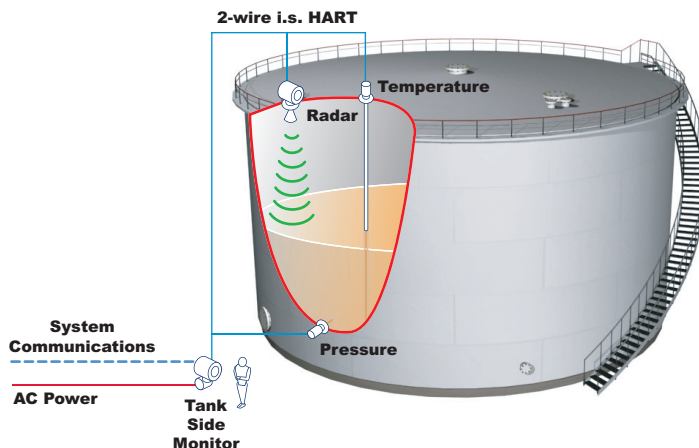
- HART, PROFIBUS, and Foundation Fieldbus

Gland Entry

- Metric, NPT, G

Languages

- Over 20 national languages available



Example tank gauging system using the 4590 Tank Side Monitor and 4532/4539 Average Temperature Converter

Technical Specifications

Note! This product conforms to all applicable industry standards and approvals, such as climate class, electromagnetic (EMC), vibration, and radio frequency (RF). See product installation manual.

Note! These specifications apply to the FMR50 under reference operating conditions (DIN EN 61298-2,) with no major interference reflections inside the signal beam.

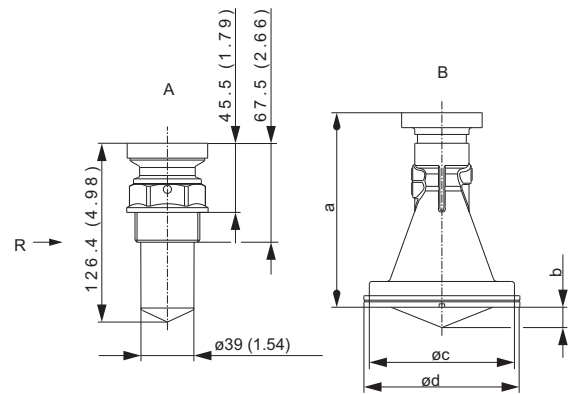
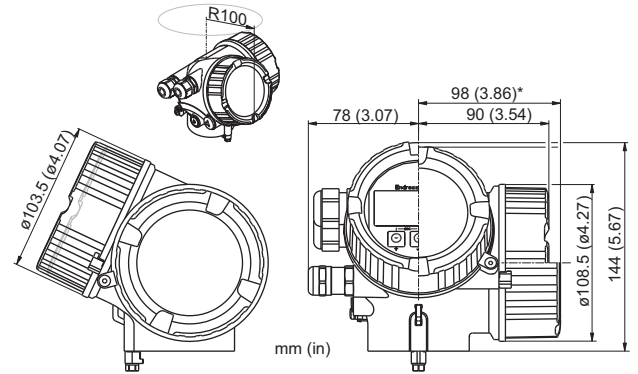
- Temperature = +75 °F (+24 °C) ±9 °F (±5 °C)
- Pressure = 960 mbar abs. (14 psia) ±100 mbar (±1.45 psi)
- Humidity = 60% ±15%
- Reflector: metal plate with a minimum diameter of 1 m (40 in)
- No major interference reflections inside the signal beam

Maximum Measured Error	Standard Range Digital: ± 2 mm (0.08") plus ±0.02% of analogue value Extended Range Digital: ± 3 mm (0.12") plus ±0.02% of analogue value
Power Consumption	min. 60 mW, max. 900 mW
Current Consumption	HART: 3.6 to 22 mA PROFIBUS PA: max. 14 mA FOUNDATION Fieldbus: max. 14 mA
Weight	2.7 – 3.4 kg (6 – 7.5 lb) plus weight of flange
Enclosure	IP66, NEMA4X IP68, NEMA6P (24 h at 1.83 m under water surface) (IP20, NEMA 1 with open housing) Housing GT19: plastic Housing GT20: aluminium, seawater repellent, powder coated
Antenna	IP 68 (NEMA 6P)
Conduit Entries	Cable gland: M20x1,5 (for EEx d: cable entry) Cable entry: G ½ or ½ NPT PROFIBUS PA M12 plug Fieldbus Foundation M12 or 7/8" plug
Ambient Temperature	Unit: -40 °F and +176 °F (-40 °C and +80 °C) Display: -4 °F and +158 °F (-20 °C and +70 °C)
Operating Frequency	K-band 26 GHz, Up to 8 devices can be installed in the same tank
Dielectric Constants	- er 1.9 in free-field applications - er 1.4 in stilling well

Note! Please complete an Application Data Sheet for this equipment to facilitate proper selection of options for your unique application. Contact your Varec Sales Representative for more information.

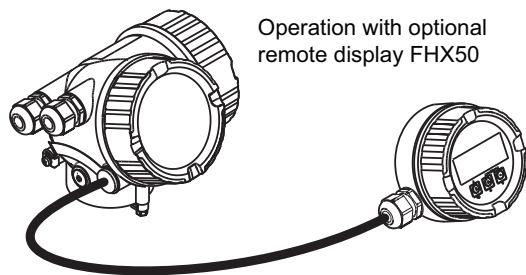
Dimensions

Note! Aluminium housing shown with example antenna (not all possible configurations shown).



- A G1½", NPT1½" threaded version
- B Hom DN80 (3")/DN100 (4") standard version
- R Reference point of the measurement

Dimension	DN80	DN100
a	137.9 mm (5.43 in)	150.5 mm (5.93 in)
b	15 mm (0.59 in)	20 mm (0.79 in)
c	107 mm (4.21 in)	127 mm (5 in)
d	115 mm (4.53 in)	135 mm (5.31 in)



Operation with optional remote display FHX50