

# FMR50 Radar Tank Gauge

Smart radar tank gauge for continuous and non-contact level measurement with an accuracy rate of  $\pm 2$  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

- $1\frac{1}{2}$ ", 3", or 4" (40 mm, 80 mm or 100 mm)  
Encapsulated PVDF or PP cladded horn antennas

### Process Connections

- $1\frac{1}{2}$ " thread
- Optional mounting bracket with slip-on (DN80, DN100 or DN150) flange

### Output Options

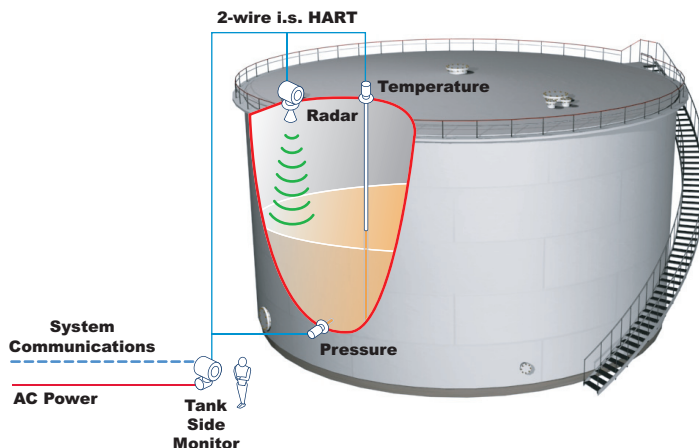
- HART, PROFIBUS, and Foundation Fieldbus

### 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.

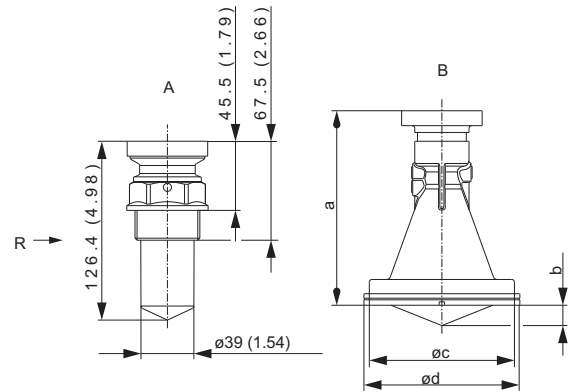
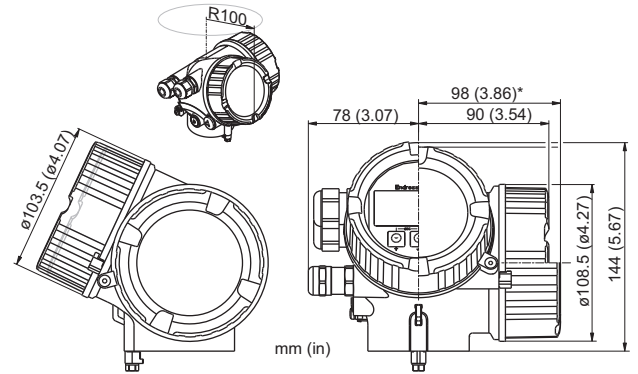
- Temperature = +75 °F (+24 °C) ±9 °F (±5 °C)
- Pressure = 960 mbar abs. (14 psia) ±100 mbar (±1.45 psi)
- Humidity = 60% ±15%
- Reflector: metal plate with a minimum diameter of 1 m (40 in)
- No major interference reflections inside the signal beam

<b>Maximum Measured Error</b>	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
<b>Power Consumption</b>	min. 60 mW, max. 900 mW
<b>Current Consumption</b>	HART: 3.6 to 22 mA PROFIBUS PA: max. 14 mA FOUNDATION Fieldbus: max. 14 mA
<b>Weight</b>	2.7 – 3.4 kg (6 – 7.5 lb) plus weight of flange
<b>Enclosure</b>	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
<b>Antenna</b>	IP 68 (NEMA 6P)
<b>Conduit Entries</b>	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
<b>Ambient Temperature</b>	Unit: -40 °F and +176 °F (-40 °C and +80 °C) Display: -4 °F and +158 °F (-20 °C and +70 °C)
<b>Operating Frequency</b>	K-band 26 GHz, Up to 8 devices can be installed in the same tank
<b>Dielectric Constants</b>	- 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.

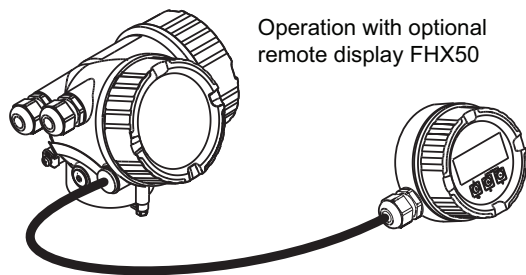
**Dimensions**

**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)
øc	107 mm (4.21 in)	127 mm (5 in)
ød	115 mm (4.53 in)	135 mm (5.31 in)



Operation with optional remote display FHX50