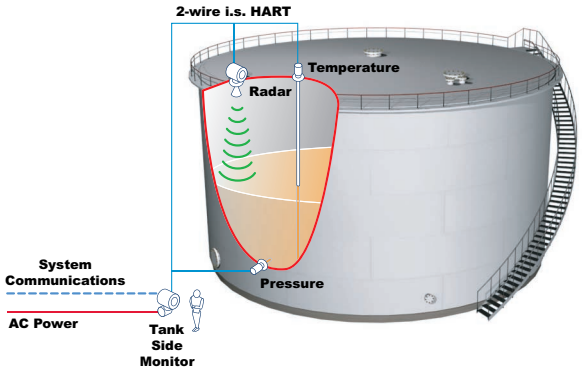
# FMR67 Series Radar Tank Gauges

Smart 80 GHz radar tank gauge for continuous and non-contact level measurement with an accuracy rate of ±1 mm for liquids and ±3 mm for solids.

## 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
- 2"/50 mm PTFE drip-off antenna, or 3”/80 mm PTFE flush mount antenna
- Purge air connection for cleaning in extreme conditions, NPT 1/4" or G 1/4"
- Standard range to 164 ft (50m) with the 2” antenna, or up to 410 ft (125 m) with the 3” antenna
- Easy on-site 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) and transfer configuration setting from device to device
- Easy commissioning and diagnostics using Windows® based software
- HART protocol
- High temperatures: Suitable for process temperatures from -40° C (-40° F), up to 200° C (392° F) with high-temperature seal and antenna
- Pressure: -1 to +16 bar (-14.5 to +232 psi)
- Approved for use in explosive hazardous locations
- Optional: Integrated over voltage protection
- SIL 2 approved for overspill protection system applications or SIL 3 for standalone applications
- Optional remote display (FHX50)
- Bluetooth® wireless technology for commissioning, operation, and maintenance via free iOS/Android app SmartBlue, with optional BT10 Bluetooth module




Example Tank Gauging System

## Product Options

**Approvals & Certifications**

- FM, CSA, ATEX, IECEx, NEPSi, KC, INEMETRO, JPN, and TIIS

**Antenna**

- Drip-off, PTFE 50mm/2" antenna
- PTFE flush mount, 80 mm / 3" antenna

**Seals**

- FKM Viton GLT, -40 to 80 °C ( -40 to 176 °F), for Drip-off, PTFE 50mm/2" antenna
- FKM Viton GLT, -40 to 150 °C ( -40 to 302 °F), for PTFE flush mount, 80 mm / 3" antenna
- FKM Viton GLT, -40 to 200 °C ( -40 to 392 °F), for PTFE flush mount, 80 mm / 3" antenna

**Process Connections**

- NPS 3" or NPS 4” Cl.150 RF, 316/316L flange ASME B16.5
- DN80 or DN100 PN10/16 B1, 316L flange EN1092-1
- Thread ANSI MNPT1-1/2, 316L
- Thread ISO228 G1-1/2, 316L
- 10K 80A or 100A RF, 316L flange JIS B2220
- Align. device, UNI 4"/DN100/100, Alu, max 14.5lbs/PN1/1K, suitable for 4" 150lbs/DN100 PN16/10K 100
- Align. device, UNI 6"/DN150/150, Alu, max 14.5lbs/PN1/1K, suitable for 6" 150lbs/DN150 PN16/10K 150
- Align. device, UNI 8"/DN200/200, Alu, max 14.5lbs/PN1/1K, suitable for 8" 150lbs/DN200 PN16/10K 200
- Align. device, UNI 10"/DN250/250, Alu, max 14.5lbs/PN1/1K, suitable for 10" 150lbs/DN250 PN16/10K 250
- UNI flange 3"/DN80/80, 316L or PP, max 4bar abs/58psia, suitable for NPS 3" Cl.150/DN80 PN16/10K 80
- UNI flange 4"/DN100/100, 316L or PP, max 4bar abs/58psia, suitable for NPS 4" Cl.150/DN100 PN16/10K 100
- UNI flange 6"/DN150/150, 316L or PP, max 4bar abs/58psia, suitable for NPS 6" Cl.150/DN150 PN16/10K 150
- UNI flange DN200/8"/200, 316L max PN1/14.5lbs/1K, suitable for NPS 8" Cl.150/DN200 PN10 PN16/10K 200
- UNI flange DN250/10"/250, 316L max PN1/14.5lbs/1K, suitable for NPS 10" Cl.150/DN250 PN10 PN16/10K 250

**Output Options**

- HART

**Gland Entry**

- Metric, NPT, G

**Accuracy**

- Accuracy, ±1mm (0.04in) for liquids
- Accuracy, ±3mm (0.12in) for solids

## 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 FMR67 under reference operating conditions (DIN EN IEC 61298-2 / DIN EN IEC 60770-1) with no major interference reflections inside the signal beam.

**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.

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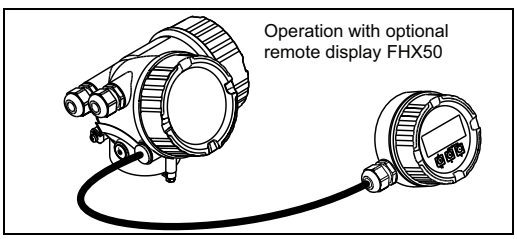
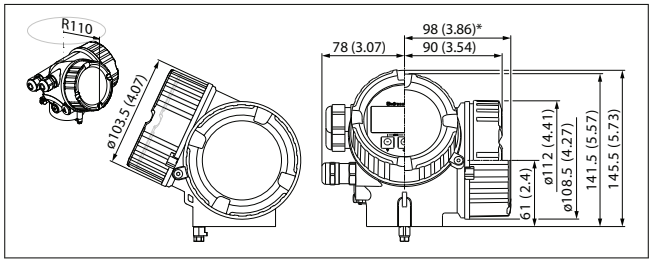
|---|---|
| **Reference Accuracy** | Measuring distance up to 0.8 m (2.62 ft): max. ±4 mm (±0.16 in) - digital, ±0.03% analog<br>Measuring distance > 0.8 m (2.62 ft): ±1 mm (±0.04 in), digital, ±0.02% analog<br><br>Non-repeatability - ≤ 1 mm (0.04 in) |
| **Power Consumption** | • 2-wire; 4-20mA HART: < 0.9 W<br>• 2-wire; 4-20mA HART, switch output: < 0.9 W<br>• 2-wire; 4-20mA HART, 4-20mA: < 2 x 0.7 W |
| **Current Consumption** | HART:<br>Nominal current: 3.6 to 22mA. The start-up current for multidrop mode can be parametrized (is set to 3.6mA on delivery)<br><br>Breakdown signal (NAMUR NE43): adjustable: 3.59 to 22.5mA |
| **Weight** | 3.2 - 3.9 kg (7.11 - 8.61 lb) plus flange weight |
| **Enclosure** | Degree of protection:<br>• With closed housing tested according to:<br>– IP68, NEMA6P (24 h at 1.83 m under water surface)<br>– For plastic housing with transparent cover (display module): IP68 (24h at 1.00 m under water surface)<br>– IP66, NEMA4X<br>• With open housing: IP20, NEMA1<br>• Display module: IP22, NEMA2<br>• Housing GT19: plastic<br>• Housing GT20: aluminium, seawater repellent, powder coated |
| **Antenna** | IP 68 (NEMA 6P) |
| **Conduit Entries** | Gland M20; Material dependent on the approval:<br>– For Non-Ex, ATEX, IECEx, NEPSI Ex ia/ic: Plastics M20x1.5 for cable ⌀5 to 10 mm (0.2 to 0.39 in)<br>– For Dust-Ex, FM IS, CSA IS, CSA GP, Ex nA: Metal M20x1.5 for cable ⌀7 to 10 mm (0.28 to 0.39 in) 1)<br>– For Ex d: No gland available<br><br>Thread<br>– ½" NPT<br>– G ½"<br>– M20 × 1.5<br><br>Plug M12 / Plug 7/8"<br>– Only available for Non-Ex, Ex ic, Ex ia |
| **Ambient Temperature** | Unit: -40 °F and +176 °F (-40 °C and +80 °C)<br>Display: -4 °F and +158 °F (-20 °C and +70 °C) |
| **Operating Frequency** | Approx. 80 GHz, up to 8 devices can be installed in the same tank |
| **Dielectric Constants** | A0 - 1.2 to 1.4 - Butane, liquid nitrogen, liquefied hydrogen<br>A - 1.4 to 1.9 - non-conducting liquids, e.g. liquefied gas<br>B - 1.9 to 4 - non-conducting liquids, e.g. benzene, oil, toluene, etc...<br>C - 4 to 10 - e.g. concentrated acids, organic solvents, esters, aniline, alcohol, acetone, etc...<br>D - > 10 - conducting liquids, e.g. aqueous solutions, dilute acids, and alkalis |

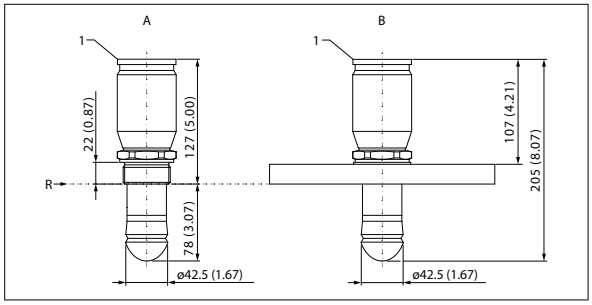



## Dimensions

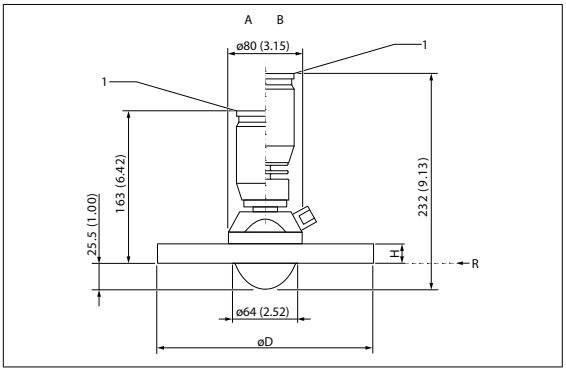
**Note!** Aluminum housing shown with example antenna (not all possible configurations shown).



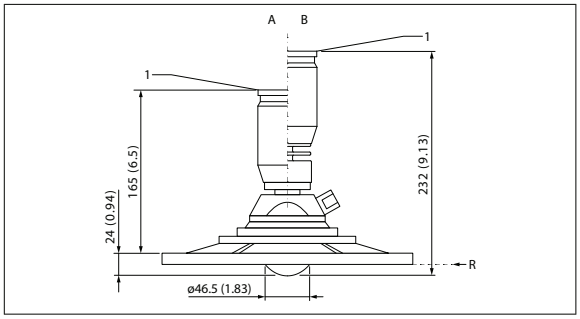

GT20 Housing—Aluminum Coated




FMR67 Drip-Off Antenna without Purge Air Connection




FMR67 Flush-Mounted Antenna with Standard Flange




FMR67 Flush-Mounted Antenna with UNI Flange

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