

## FRM7001 Radar Manhole Level Gauge

### FEATURES

- Non-contact installation design, compact size and structure.
- Built-in battery, no power supply required.
- High accuracy, low power consumption, strong anti-interference ability, and easy installation.
- High environmental adaptability, corrosion-resistant, explosion-proof, and waterproof.
- Applicable to a variety of scenarios: water level monitoring in lakes, rivers, reservoirs, sewage pipe networks, etc.



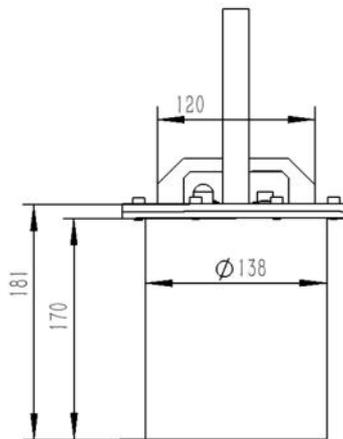
### OVERVIEW

FRM7001 integrated level gauges features a combined radar and pressure design, allowing for the simultaneous use of radar, pressure, or a single level sensor. The radar measurement employs the most advanced ranging mode currently available—FMCW (Frequency Modulated Continuous Wave)—which can replace laser ranging radar and industrial ultrasonic ranging radar. It also supports optional submersible pressure sensors, enabling the measurement of pipeline water levels through a dual-sensor mode of pressure and radar. Algorithm analysis ensures the accuracy of the level gauge measurements.

### SPECIFICATION

Power supply	57Ah rechargeable lithium-ion battery
Radar sensor (configured by the user according to requirements)	Built-in 120G radar sensor module, with the following parameters: Transmit Frequency: 120GHz Output Power (EIRP): 13~20dBm Beamwidth (-3dB): 3° horizontally, 3° vertically Range: 0.2~40m Measurement Accuracy: ±10mm Resolution: 1mm Response Time: 3s
Pressure and level transmitter (configured according to user requirements)	Distance range: 0.1-10m Measurement accuracy: 0.5%F.S Resolution: 1mm
Storage	1. Built-in 64M data storage chip, capable of storing 100,000 data entries, with a storage time of ≥10 years. 2. Built-in ferroelectric memory chip for storing configuration data, with a write/erase cycle capacity of ≥10 billion times.
Wireless Communication	Supports NB/4G wireless transmission, NB transmission is the default, 4G is optional.
Status Acquisition	Built-in current acquisition chip, capable of acquiring real-time device current.
Local Upgrade	Supports local RS485 upgrade program.
Working mode	Supports continuous operation mode and low-power operation mode 1. Continuous Operation Mode: In this mode, the device continuously samples and uploads data. Sensor data is collected periodically, with a configurable collection period; data is also reported periodically, with a configurable reporting period. 2. Low-Power Operation Mode: In this mode, the CPU controls the sensor to power on periodically to collect data. The power-on period and power-on time are configurable; the device reports data periodically, with a configurable reporting period. Reporting methods support real-time reporting and unified reporting.
Battery life	≥12 months of operation in 10-minute data collection/1-hour data transmission mode.
Communication interfaces	Standard configuration includes 1 NB-IoT or 4G wireless transmission interface and 1 RS485 interface.
Antenna Type	Waterproof fiberglass high-gain antenna
Protection Rating	P68
Operating Temperature	-30~85°C
Storage Temperature	-40~85°C

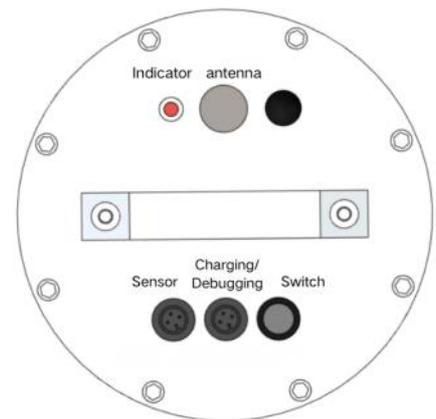
**DIMENSION**



Unit: MM

**PANEL FUNCTIONS**

Panel Classification	Function
Sensors	External sensors, such as Doppler flow meters, level gauges, water quality sensors, etc.
Charging Port/ Debug Port	This interface has the following uses: (1) A charging port for the standard lithium battery, which can be used to charge the battery with the factory-supplied charger. (2) An RS485 interface for device software debugging: Users can use this interface to configure or upgrade software parameters.
Switch	The device power button is in the "pressed" state to turn on the device. Note: The device must be powered off for at least 30 seconds before restarting.
Status Indicators	The device's operating status indicator lights show the following states: Normal operating state: The power indicator light flashes once every 5 seconds. In device off or low-power mode, the indicator light is off.
Antenna	Equipment wireless transmission antenna



**TYPICAL INSTALLATION**

