



Wireless Instrumentation Totalizer/Flow Meter Turbine Head



Totalizer/Flow Meter Turbine Head Description

The wireless turbine meter interface is a key component of DataPORT™ wireless monitoring systems. The wireless Turbine Flow-meter provides wireless access to a proven flow measurement technology that can be applied to a wide variety of liquid and gas applications. It is available with or without the turbine meter itself and with a selection of intrinsically safe pickups compatible with flow elements from virtually every major manufacturer.

Each field unit is self-powered and contains a magnetic pickup, signal conditioning circuitry, and an RF transceiver. Pulse data from the pickup is monitored, converted to a rate and total in user defined units. This information is transmitted to the Base Radio for centralized monitoring and data collection. Updates between once per second and once per minute may be specified. The RF base station and Field Units operate in the 902 MHz to 928 Mhz license free band making the installation and maintenance easy and worry free.

Technical Specifications

Accuracy

- 1% of sensor range including combined effects of linearity, hysteresis, repeatability and temperature.
- Rate accuracy dependent fluids and meter body and calibration.

Range and Resolution

- The TFM Field Unit can be used with virtually any size turbine meter.
- Standard turbine sizes are 3/8 inch to 12 inches liquid flow rates ranging from 0.25 GPM to 12,000 GPM.
- Gas ranges are available from 0.1 to 12000 ACFM for standard products.
- Extended ranges and materials compatibilities are available.
- Turn-down of 10:1 is standard. 40:1 or better is available with special low-drag pick-up coil
- Both rate and total are provided.

Stability

Combined zero and span stability: less than $\pm 0.1\%$ of sensor URL per year at 70F.

Operating Ambient Environment

- Operating: -40°F to +185°F (-40°C to +85°C)
Process: -40°F to +250°F (-40°C to 121°C) process temperature, steady state sensor
- Humidity limits: 0 to 95%, non-condensing

Power Characteristics

- Self-contained power 'C' size 3.6 V lithium battery
- Up to five year battery life (depends on sample rate and RF update rate (field replaceable))

RF Characteristics

902 MHz – 928 MHz Frequency Hopping Spread Spectrum (FHSS) FCC certified ISM license-free band
Up to 3000' range from Base Radio with clear line of sight; 500' to 1000' typical range with obstructions

Self-Diagnostics

Low battery alarm-indicates the need to replace the battery (approximately one month warning)
Extensive self-diagnostics

Technical Specifications—Continued

Local Configuration

- Integrated LCD display with membrane switch buttons
- Entry of “K” factor
- Configure sampling and RF parameters locally using membrane switches.
- 22 point table for scale and fit.
- Base Radio logger computes corrected flows using pressure and temperature from support sensors.

Materials of Construction

- Type 316 stainless steel base and diaphragm
- Standard ½ “ MNPT (other options available)
- GE Lexan® cover. V-0 rating and UV stable
- CSA Type 4 or 4X weather proof enclosure

Operating Shock and Vibration

- Certified per IEC EN00068 2-6 (vibration) and 2-27 (shock)
- Certified to withstand 6 g's, 15 minutes per axis from 9-500 H

Electromagnetic Compatibility (CE Compliance)

Meets EN 50082-1 general immunity standard and EN 55011 compatibility emissions standard

Industrial Certification with Integral Antenna

- Rated for industrial use FM Rated -40° F to +185° F (-40° C to +85° C);
- FM Approved as explosion-proof (XP) for Class I, Division 1, Groups B,C,&D, T6 @ ambient temperatures +40°; T5 @ ambient temperatures +85°C; as dust ignition-proof for Class II/III, Division 1, Groups E, F, & G, T6; indoor and outdoor (Type 4X) hazardous (classified) locations. (Pending)
- CSA Approved as explosion-proof (XP) for Class I, Division 1, Groups B, C, & D, T4@ ambient temperatures +40° C; as dust ignition-proof for Class II/III, Division 1, Groups E, F, & G; indoor and outdoor (Type 4X) hazardous (classified) locations. (Pending)
- NEMA 4X weather-proof housing
- Meets EN 50082-1 general immunity standard and EN 55011 compatibility emissions standard.

Intrinsic Safety Parameters

- FM Class T4 for max operating temp $\leq +85^{\circ}\text{C}$
- CSA Temp Code T3, operating temp $\leq +85^{\circ}\text{C}$
- CSA Class I, Div 2 Temp Code T4, operating temp $\leq +85^{\circ}\text{C}$

Extended Sensors

The Wireless Gauge pressure gauges, model numbers DT-RP-GP xxx are available with extended sensors. The extended sensors enable installation of the electronics wireless unit in an elevated unobstructed location to allow adequate transmission range. The extension cable is an extremely rugged, double jacketed, double shielded cable that is rated for use on off-shore rigs and maintains the environmental integrity and the intrinsic safety ratings of the unit.

High gain antennas are also available

Local Configuration

Integrated LCD display with membrane switch buttons
Display provides pressure reading and error messages, if applicable
Configure sampling and RF parameters locally using membrane switch buttons