MSFM4-TX Multi-Sensor Flow Meter

DETECTRONIC
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Product Datasheet

MSFM4-TX

Multi-Sensor Flow Meter

The MSFM4-TX is a next-generation multi-sensor flow meter designed to provide accurate and reliable monitoring of water and wastewater flows.

Combining advanced ultrasonic velocity, hydrostatic depth, and optional non-contact level sensing, the MSFM4-TX offers continuous measurement even in the most challenging environments. Engineered for flexibility, it supports multiple sensor inputs, making it an adaptable solution for diverse applications. With robust environmental protection and industry approvals, the MSFM4-TX is a dependable tool for flow monitoring, regulatory compliance, and operational efficiency.

Key Features and Benefits

- **Flow Proportional Sampling:** (Optional Feature) A pulse can be triggered to an automatic water sampler once a set volume of water has passed. This ensures sample collection is directly linked to flow conditions, improving water quality assessments and regulatory compliance. This feature is not available on the standard model and must be specified as an additional option. This ensures sample collection is directly linked to flow conditions, improving water quality assessments and regulatory compliance.
- **Reverse Flow Detection:** Continuously monitors and detects reverse flow events in the network, providing critical data to identify potential blockages, surcharges, tidal influence and system inefficiencies. This functionality enhances predictive maintenance strategies and helps prevent infrastructure damage.
- **Multi-Sensor Configurability:** Supports a combination of velocity, depth, and level sensors to meet diverse monitoring needs. Includes an expansion interface for additional sensors, allowing for tailored configurations. This flexibility ensures the system maintains operational efficiencies by adapting to specific site requirements.
- **Flexible Communications:** Equipped with Bluetooth (BLE) for seamless local configuration and 2G/LTE-M/NB-IoT for remote data transmission, enabling efficient data access from both field teams and central control rooms. Supports Modbus over RS485 for integration with SCADA systems, allowing real-time data acquisition and seamless interoperability with existing monitoring infrastructure. The ability to use an internal or external antenna ensures connectivity in a wide range of deployment scenarios.

Recommended applications

- Combined sewer overflows (CSOs)
- Sanitary sewer overflows (SSOs)
- Stormwater networks
- Open Channels
- Flow Surveys
- Inflow and infiltration studies
- Sewer hydraulic Model Validation
- Industrial Effluent Monitoring

Technical Specifications

Velocity Sensor	
Type	1MHz ultrasonic Doppler using dual piezoelectric elements
Range	0.03m/s to 4.00m/s
Accuracy	±2.5% FS (±1% in calibrated range 0.05m/s - 2.00m/s)

Depth Sensor	
Type	Hydrostatic pressure
Range	0.0m to 10m
Accuracy	±0.2% FS

Optional Radar Level Sensor (LIDoTT®)	
Type	Pulsed Coherent Radar Sensor
Range	0.000 - 7.00m
Accuracy	±5mm

Environmental & Certifications	
Operating temperature	-20°C to +60°C
Ingress Protection	IP68 / NEMA6P
Impact Resistance	IK09
Certifications	CE / UKCA, ATEX, Ex ic IIB T4Gc, Ex II 3G

Physical Specifications	
Dimensions	280mm (h) x 150mm (w) x 100mm (l)
Weight	[Weight Required]

Power & Connectivity	
Power Supply	External battery pack or SCADA interface (6V supply, 3V6, DC, <20mA avg.)
Communication	Bluetooth (BLE), 2G/LTE-M/NB-IoT GPRS
Integration	Modbus RS485 for SCADA systems
Antenna	Internal/External

Inputs & Outputs	
Inputs	Modbus RS485 x2 (LIDoTT Sensors, DI-4 Flow Meter), Expansion interface (Rain Gauge, additional sensors)
Outputs	Sampler/dosing output (open drain transistor, 220Ω resistor)
Integration	Modbus RS485 for SCADA systems
Antenna	Internal/External

Data Logging & Memory	
Storage	Solid-state, 16,240 hours (22 months)
Channels	8
Capacity	Over 58 million samples per channel
Data Overwrite	Automatic ring storage
Sampling	Configurable (2, 5, 15, 60 min)

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+44 (0)1282 449124

detectronic.org