

Metern Magnetic Flowmeter System MTLD for Water/Wastewater & Utility Applications



THE MTLD MAGNETIC FLOWMETER

Metern reliability customized for Water, Wastewater and Utility applications

Available in flanged and wafer style

PTFE and Neoprene Liners

Line sizes available from 1/2-in. (15 mm) to 48-in. (1200mm).

Options for:

Diagnostic Suite for improved maintenance practices

Diagnostic Suite for simplified meter verification

MTLD Series Electromagnetic Flowmeter

Economical Premier Products, Premier Performance

METERN corporation offers a broad selection of electromagnetic (Mag) flow meters for industrial, water, and waste water flow measurement applications worldwide. The units are offered in a wide variety of sizes and flow ranges for many industrial as well as OEM service.

■ Features and benefits

- No moving parts; Virtually no pressure drop;
- Minimal maintenance
- Wide range of nominal diameters;
- Broad selection of lining and electrode materials



■ Applications

Agricultural; Food & Beverage; Chemical; Pulp & Paper; Water & Waste Water

■ General Specification

Power Supply: 110-240Vac (Optional: 24 Vdc)

Power Consumption: 10W

Accuracy:

± 0.5% accuracy of rate from 0.3-10 m/s

± 1.0% accuracy of rate from 0.1-0.3 m/s

Repeatability: 0.2%

Minimum Fluid Conductivity:

5.0 micromhos/cm

Flow Direction: Unidirectional or bidirectional, 2 separate totalizers (programmable)

Analog Outputs: 4-20mA, 750ohms Max Load

Output Frequency: Scaled Pulse output, (open collector) Max 5Khz

Noise Damping: Programmable

Pulse Width: Programmable up to 500ms

Zero-point Stability: Automatic correction

Ambient Temperature: -4 to 140° F (-20 to 60° C)

Electrode Materials:

SS316L;

Optional: Titanium; Hastelloy Alloy C; Tantalum

Liner Material: PTFE, FEP, Hard Rubber

Fluid Temperature:

PTFE: 120°C Standard (Customized: 180°C)

Rubber: 60°C

Pressure Limits:

1.0 Mpa; Optional 1.6; 2.5; 4.0 Mpa

Coil Power: Pulsed DC

Pipe Spool Material: SS316

Meter Housing Material:

Carbon Steel welded or SS304 (Sanitary Connection)

Flanges:

Carbon Steel - Standard (ISO 7005-1)

ANSI, DIN and JIS Flange Connections

Optional Stainless Steel Grounding Rings

MODEL AND SELECTION

Table 1: Model Selection Guidance

| Model Suffix Code | | | | | | | | | | Description | |
|--------------------|--|---|---|--|------|--|--|--|--|-------------|--|
| MTLD - | | | | | | | | | | | |
| Diameter | | | | | | | | | | | Four Digitals; for example: 0010: 10 mm; 0015: 15 mm; 0100: 100 mm 1000: 1000mm |
| Transmitter | | S | | | | | | | | | Compact type |
| | | L | | | | | | | | | Remote type |
| Electrode Material | | | M | | | | | | | | Stainless steel 316L |
| | | | T | | | | | | | | Titanium |
| | | | D | | | | | | | | Tantalum |
| | | | H | | | | | | | | Hastelloy Alloy C |
| Signal Output | | | 0 | | | | | | | | No output |
| | | | 1 | | | | | | | | 4-20mA/1-5KHz |
| Liner material | | | | | X | | | | | | Hard Rubber |
| | | | | | P | | | | | | Polyurethane |
| | | | | | F4 | | | | | | F46 |
| | | | | | Pr | | | | | | Propylene oxide |
| | | | | | F | | | | | | PTFE |
| Power Supply | | | | | -0 | | | | | | 110-240Vac |
| | | | | | -1 | | | | | | 20-36V DC |
| | | | | | -2 | | | | | | Battery Power Supply |
| Communication | | | | | 0 | | | | | | No communication |
| | | | | | 1 | | | | | | RS485 |
| | | | | | 2 | | | | | | MODBUS |
| | | | | | 3 | | | | | | HART |
| | | | | | 4 | | | | | | GPRS |
| Grounding Ring | | | | | 0 | | | | | | No grounding ring |
| | | | | | 1 | | | | | | Grounding ring |
| | | | | | 2 | | | | | | Grounding Electrode |
| Connection | | | | | -DXX | | | | | | DXX: D06, D10, D16, D25, D40 D06: DIN PN6; D10: DIN PN10 D16: DIN PN16; D25: DIN PN25 D40: DIN PN40 |
| | | | | | -AX | | | | | | AX: A1, A3, A6 A1: ANSI 150#; A3: ANSI 300# A6: ANSI 600#; A9: ANSI 900# |
| | | | | | -JX | | | | | | JX: J1, J2, J4 J1: JIS 10K; J2: JIS 20K; J4: JIS 40K |
| | | | | | -TR | | | | | | Tri-Clamp for sanitary Type (Body material: Stainless Steel) |

Model Code: MTL0-0150SM1F-011-A1

Explanation - Diameter: 150mm; Transmitter: Compact; Electrode Material: SS316L;

Signal Output: 4-20mA/Pulse; Liner Material: PTFE; Power Supply: 110-240Vac;

Communication: RS485; Grounding Ring: Yes, (for PVC Pipe); Connection: ANSI 150# Flange

Technical Data

Measuring system

| | |
|--------------------------|--------------------------------|
| Measuring principle | Faraday's law |
| Application range | Electrically conductive fluids |
| Measured Value | |
| Primary measured value | Flow velocity |
| Secondary measured value | Volume flow |

Design

| | |
|----------------------|--|
| Features | Fully welded maintenance-free sensor |
| | Flange version with full bore flow tube |
| | Standard as well as higher pressure ratings |
| | Large diameter range from DN25...3000 with rugged liners approved for drinking water |
| | Industry specific insertion lengths |
| Modular construction | The measurement system consists of a flow sensor and a signal converter. It is available as compact and as separate version. |
| Compact version | With 511B converter: 110-240Vac Power |
| | With 521B converter: 18-36V DC Power |
| | With W800L/W800W: Battery Power |
| Remote version | In wall mount version with 211B converter (110-240Vac) or 221B converter (18-36V DC) |
| | With W800F converter: Battery Power |
| Measurement range | -12...+12 m/s / -40...+40 ft/s |

Measuring accuracy

| | |
|----------------------|--|
| Reference conditions | Flow conditions similar to EN 29104 |
| | Medium: Water |
| | Electrical conductivity: $\geq 300 \mu\text{S/cm}$ |
| | Temperature: +10...+30°C / +50...+86°F |
| | Inlet section: $\geq 5 \text{ DN}$ |
| | Operating pressure: 1 bar / 14.5 psig |
| Flow Meter Accuracy | Standard: 0.5% of rate |
| | Optional: 0.2% of rate |

Operating conditions

| Temperature | |
|------------------------------------|---|
| Process temperature | Hard rubber liner: -5...+60°C |
| | Polypropylene liner: -5...+90°C |
| | PTFE liner: -5...+120°C |
| Ambient temperature (all versions) | Standard (with aluminum converter housing): -20...+60°C (Protect electronics against self-heating with ambient temperatures above 55°C) |
| Storage temperature | -20...+70° |
| Pressure | |
| EN 1092-1 | DN2200...3000: PN 2.5 |
| | DN1200...2000: PN 6 |
| | DN200...1000: PN 10 |
| | DN65...150: PN 16 |
| | DN10...50 : PN 40 |
| | Other pressures on request |
| ISO insertion length | Optional for DN15...600 |
| ASME B16.5 | 1...24": 150 lb RF |
| | Other pressures on request |
| JIS | DN10...1000 / 2...40": 10 K |
| | Other pressures on request |
| Pressure drop | Negligible |

| Fluid | |
|------------------------------------|--------------------|
| Physical condition | Conductive liquids |
| Electrical conductivity | ≥ 5 μS/cm |
| Permissible gas content (volume) | ≤ 5% |
| Permissible solid content (volume) | ≤ 70% |

Installation conditions

| | |
|----------------|--|
| Installation | Take care that flow sensor is always fully filled |
| | For detailed information see chapter "Cautions for Installation" |
| Flow direction | Forward and reverse |
| | Arrow on flow sensor indicates positive flow direction. |
| Inlet run | ≥ 5 DN |
| Outlet run | ≥ 2 DN |

Materials

| | |
|---------------------------------------|--|
| Sensor housing | Sheet steel, polyurethane coated |
| | Other materials on request |
| Measuring tube | Austenitic stainless steel |
| Flanges | Carbon steel, polyurethane coated |
| | Other materials on request |
| Liner | Standard |
| | DN10...40: F46 |
| | DN50...300: PTFE or Hard Rubber DN300...2200: Hard rubber |
| Connection box (only remote versions) | Standard: polyurethane coated die-cast aluminum |
| Measuring electrodes | Standard: Stainless steel 316L |
| | Option: Hastelloy C, titanium, tantalum |
| | Other materials on request |
| Grounding rings | Standard: Stainless steel |
| | Option: Hastelloy C, titanium, tantalum |
| Grounding electrodes (option) | Same material as measuring electrodes. |

Process connections

| | |
|--------------------------|--|
| Flange | |
| EN 1092-1 | DN25...3000 in PN 6...40 |
| ASME (ANSI) | 1...120" in 150 lb RF |
| JIS | 25...1000 in 10...20K |
| Design of gasket surface | RF |
| | Other sizes or pressure ratings on request |

Measurable Flow Rate Range:

Note: The flow range as blow is for reference only. Consult the factory if you have special requirement. Refer to the nameplate or certificate for actual flow range.

