Magnetic-Inductive Flow Meter FMQ

Applications/Specifications

- Magnetic-inductive flowmeter for the measurement of flow rate and volume of fluids with conductivity of ≥ 5 µS/cm
- Suitable for hygienic applications
- Compact construction, simple and precise installation and operation, completely maintenance-free
- Flow measurement of media with low conductivity, such as fully demineralized water
- Flange measurement ranges from DN 10 to DN 100 (3/8" to 4")
- Suitable for analog or digital applications

Magnetic-inductive measuring principle

- Measuring principle based on Faraday's law of induction
- Measuring range: 0.01 ... 10 m/s
- Measuring accuracy: ± 0.5 % ... ± 2 % of rate
- Repeatability: ≤ 0.2 %
- Rugged, maintenance-free measuring system
- Measuring tube made of stainless steel 1.4404 (316L)
- Electrodes made of 1.4435 (316L) or Hastelloy C-4, 2.4610
- Various installation and connection options available

Electronics

- Compact version with integrated electronics
- Remote version with separate electronics housing
- Power supply: 24 V DC ± 20 %
- Output signal: 4 ... 20 mA, HART®, Modbus RS485, PROFIBUS PA, FOUNDATION Fieldbus
- Pulse output, frequency output, status output, limit switch
- Operation via 4 keys and 4-line display with backlighting
- Totalizer function
- Empty pipe detection
- Flow direction detection
- Simulation function
- Min./max. memory
- Error simulation
- Diagnostic functions

Approvals

- Standard
- ATEX
- IECEx
- FM
- CSA
- NEPSI
- Ex nA
- Ex tc

Materials

- Measuring tube: 1.4404 (316L)
- Electrodes: 1.4435 (316L), Hastelloy C-4, 2.4610
- Process connections: 1.4404 (316L)
- Housing: 1.4404 (316L)
- Seals: EPDM, FKM, FFKM

Process connections

- Flange connections: EN 1092-1, ASME B16.5, JIS B2220
- Hygienic connections: DIN 11851, DIN 11864-1, ISO 2853, SMS 1145, ISO 2852, DIN 32676, IDF, RJT
- Threaded connections: DIN 11851, DIN 11864-1, ISO 2853, SMS 1145, ISO 2852, DIN 32676, IDF, RJT
- Special connections on request

Ambient conditions

- Ambient temperature: -20 °C ... +60 °C (-4 °F ... +140 °F)
- Storage temperature: -20 °C ... +60 °C (-4 °F ... +140 °F)
- Medium temperature: -20 °C ... +150 °C (-4 °F ... +302 °F)
- Ambient humidity: 10 ... 95 %, non-condensing
- Protection class: IP67 / NEMA 4X
- Vibration resistance: 10 ... 2000 Hz, 1 g
- Electromagnetic compatibility: EN 61326-1

Dimensions

- Compact version: approx. 200 mm (7.87") x 150 mm (5.91") x 100 mm (3.94")
- Remote version: approx. 200 mm (7.87") x 150 mm (5.91") x 100 mm (3.94")
- Weight: approx. 2.5 kg (5.51 lbs) ... 10 kg (22.05 lbs), depending on nominal diameter and version

Measuring principle

The measuring principle is based on Faraday's law of induction. When a conductive medium flows through a magnetic field, a voltage is induced in the medium. This voltage is proportional to the flow velocity. The induced voltage is detected by two measuring electrodes. A coil system generates a constant magnetic field. The voltage induced in the flowing medium is detected via the electrodes and transmitted to the signal converter. The flow velocity is calculated using the induced voltage. The volume flow is calculated from the flow velocity and the pipe cross-section.

Magnetic-inductive measuring principle