

DC Powered EFM

Model MUT2200-MC406

The MUT2200 with MC406 is a battery powered electromagnetic water meter for use in district metering areas (DMA), water abstraction, and custody transfer measurement of potable water (MI-001, OIML R49), irrigation, and many other applications. Unlike other water meters, the MUT2200 is a maintenance-free meter, offering a much wider range of flow, in a compact or remote mounted version. Thanks to the optimized flow profile, the MUT2200 can be installed virtually anywhere with minimal straight inlet or outlet runs. With optional pressure and temperature sensors, GSM/GPRS integrated modem and 12...24Vdc power source, the meter is the perfect solution for pressure management systems. The highly robust structure, allows burial installation or the use in flooded areas. A full on-site verification without process interruption can be carried out using the Field Vericator service tool.



Features & Benefits

- No moving parts
- Neglectable pressure drop
- Long lasting stability and precision
- Zero maintenance
- Extremely sturdy structure
- High chemical resilience
- Wider range of measurement

Typical Applications

- District metering of potable water
- Distribution, municipal water
- Industrial waste water
- Industrial process liquids, muds and concretes
- Fiscal measures, custody transfer
- Irrigation
- Booster pump stations
- Lift stations

High performances to a low cost of ownership:

Capability to read flow velocities of 0.015 m/s (MID-001 OIML R49 certified), within Class 2 accuracy

Multiple outputs:

pulse, analog 4-20mA, Modbus, frequency, Hart protocol and programmable output

No data lost:

Data automatically stored in the internal EEPROM memory. Up to 100.000 lines of active datalogging

Information always available:

Add-on communication module GSM/GPRS automatically sends the information via SMS, e-mail or on a website portal with personal ID and password. Accessible also from smart phones and tablets. Configurable FTP communication

Flow - pressure – temperature: all at the same time:

Add on modules of temperature and pressure readying make the MUT2200 with MC406 one of the most complete electromagnetic flowmeter available in the market

Easy management, easy programming:

A software is supplied with the unit to allow users to communicate with the MC406 via IRCOM port to any pc, lap top or windows tablet.

Certifications and compliance:

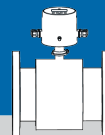
OIML R49-MID Class 1 (on request) / EX - IEC IECEx (on request and only separate version) / NSF ANSI61 (On model MUT2300US)

Always verified:

The FIELD VERIFICATOR is available for full on-site verification, without interruption of the process

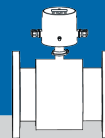
Empty pipe detection:

Empty pipe electrode supplied as standard ($\geq$ DN65). Empty pipe detection on measuring electrodes standard for all sizes



Converter Specifications

Transmitter type	Battery powered - 2 x D Cell 3.6 V * / 12-24VDC	
Battery life	Lithium battery pack up to 10 years	
Accuracy	0.2% +/- 2mm/s (0.08 inch/s), insertion sensors 2% of rate +/- 2mm/s (0.08 inch/s)	
Temperature	Ambient: -20 ... +60 C° (-4 ... +140 F) Media -25 ... 80 C° (-13 ... +176 F) Storage -40 ... +70 C° (-22 ... +158 F)	
Enclosure	Technopolymer case with aluminum bottom on compact vertical version. IP 68. Remote wall mount bracket in carbon steel zinc plated	
Cable entries	4X M16 Glands I/O - 2X M20 x 1.5. Glands junction box in remote version	
Custody transfer	Type approved OIML R49-1 2013 / EN 14154 MID EN-ISO 4064 - Certificate n. T10713	
Conformity	EMC: EN 61010 - LVD: EN 61326 ; EN/IEC 60529 IP68	
Sensor type	Up to DN300	
Flow velocity range	0.015 m/s up to 10 m/s (0.05 ft/s up to 33 ft/s)	
Sampling rate	Standard mode 1 / 5 Hz up to 1 / 60 Hz (default 1 / 15 Hz) max 3.125 Hz	
Installation	Integral (compact) or remote with factory mounted sensor cable in 5 m (16.4 ft) up to 30 m (98.4 ft)	
Digital filters	Damping - cutt-off (0.05 m/s default) - bypass - peak cut	
Display and keys	LCD display - Index, menu, and symbols icons for dedicated information 4 Push buttons to access all functions Totalizer informations can be displayed with 5 decimal digits	
Displayed informations	Live flowrate Total positive totalizer (T+), Total negative totalizer (T-) Partial positive totalizer (P+), Partial negative totalizer (P-) Time & date, Converter temperature. Process pressure and temperature (if available). Parameters corresponding code and value	
Flow Units	m, m3, l, ML, ft3, GAL, AC FT, AC IN	
Outputs	2 pulses passive outputs (MOS), individual galvanically isolated - clean contact Maximum load +/- 35V DC, 100 mA short circuit protected	
Communication	Integrated IrComm interface	
Datalogging	100,000 lines of data with a frequency of log between 1 minute and 120 minutes (default 15 minutes)	
Add on modules	GSM/GPRS Module Pressure (1) and temperature (2) Energy metering ready	
Totalizers	4 (2 positive and 2 negative)	
Data protection	Password available, automatic firmware check and recover during the update	
Alarms and status	Status icon displayed and alarm logged in the datalogger	
Self diagnostic	Alarms available: excitation failure empty pipe on the 4th electrode empty pipe on the measuring electrodes	high temperature high voltage supply pulse overlapped wet electronic board
External verification	Field verifcator available for calibration verification and electronic status	
Software for communication and programming	Commissioning (equal settings of meters) - Data print for documentation - Data export (CSV file) - Firmware update - Read instant flowrate - Read and write all non volatile parameters - Download internal datalogger - View instrument event logger	



Sensor Specifications

Flow tube material	AISI 304 (std), AISI 316
Flanges material	Carbon steel painted (std), AISI 304, AISI 316
Electrodes material	Electrodes material Hastelloy C (std), Hastelloy B, Titanium, Tantalio, Platinum
Internal lining and liquid temperature	Internal lining: PTFE Ebonite Liquid temperature: Standard -40 /+130°C (up to +180° on request) -40°C / +80°C
Available Sizes	½"-100" ; DN15-2500 mm
Flange standards available	EN1092-1, ANSI 150, ANSI 300, ANSI 600, ANSI 900, DIN 2501, BS 4504, AS 2129 (TABLE D - E - F), AS 4087, ISO 7005-1, KS 10K
Protection Degree	IP68 1.5 m continuous immersion (EN 60529)
Electrical connections	Cable glands M20 x 1.5 + terminal block + sealing resin

The electromagnetic flowmeter designed for the toughest applications

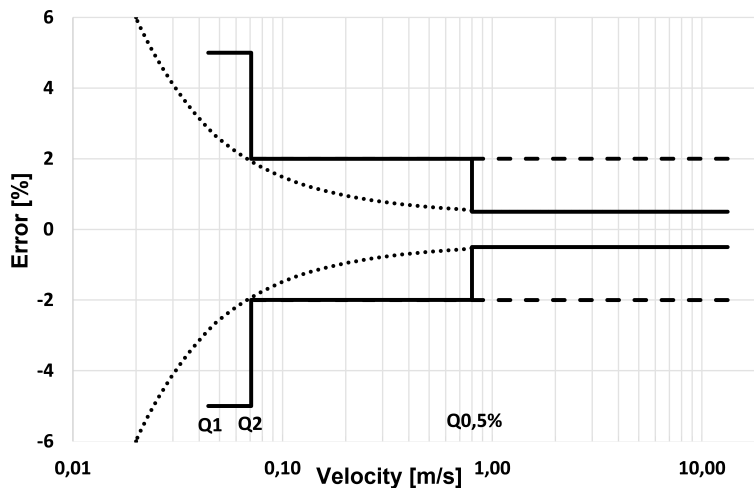


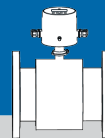
Modbus



Measuring Accuracy

Each flowmeter is standard wet calibrated under reference conditions by direct volume comparison. The performance of the flowmeter is defined and documented in an individual calibration certificate. Accuracy 0.2% +/- 2mm/s (0.2% +/- 1mm/s on request)





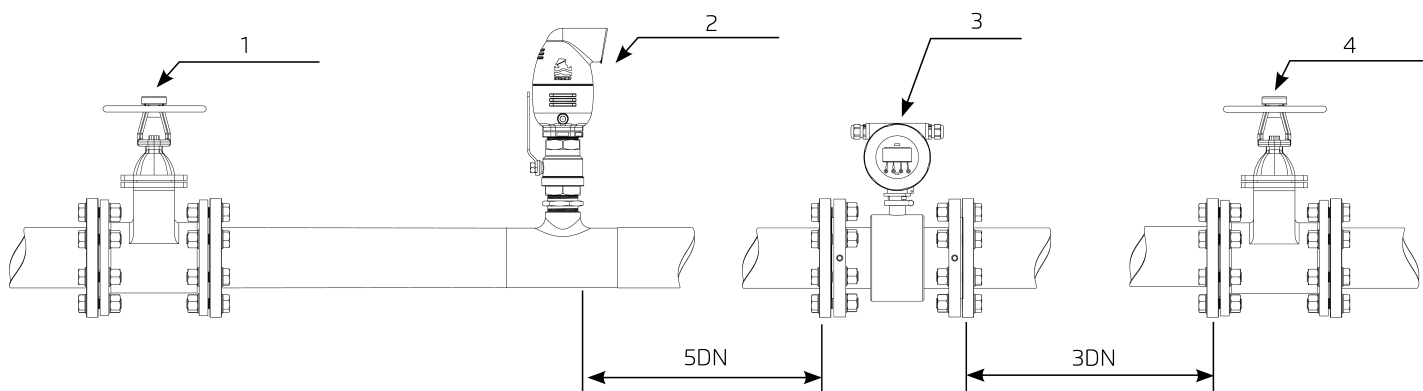
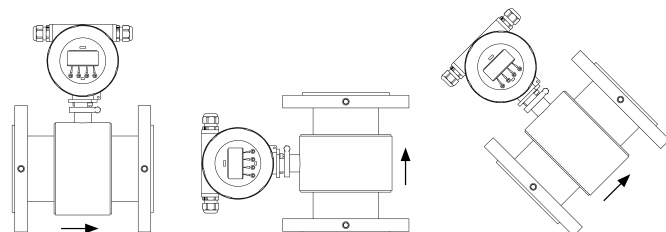
Flow Rate

Size Q @ (m³/h)	DN25 1"	DN32 1¼"	DN40 1½"	DN50 2"	DN65 2½"	DN80 3"	DN100 4"	DN125 5"	DN150 6"	DN200 8"	DN250 10"	DN300 12"	DN350 14"	DN400 16"	DN450 18"
Q1 Minimum Flow	0.08	0.08	0.13	0.2	0.32	0.5	0.8	1.28	2	3.2	5.04	8	12.8	12.8	25
Q2 Transitional Flow	0.13	0.13	0.2	0.32	0.51	0.80	1.28	2.05	3.2	5.12	8.06	12.8	20.5	20.5	40
Q3 Permanent Flow	10	10	16	25	40	63	100	160	250	400	630	1000	1600	1600	2500
Q4 Maximum Flow (Short Time)	12.5	12.5	20	31	50	78	125	200	312	500	787	1250	2000	2000	3125

Size Q @ (m³/h)	DN500 20"	DN600 24"	DN700 28"	DN800 32"	DN900 36"	DN1000 40"	DN1200 48"	DN1400 56"	DN1500 60"	DN1600 64"	DN1800 72"	DN2000 80"	DN2500 100"
Q1 Minimum Flow	25	50	50	100	100	200	320	500	800	1260	2000	3200	4000
Q2 Transitional Flow	40	80	80	160	160	320	512	800	1280	2016	3200	5120	6400
Q3 Permanent Flow	2500	4000	4000	6300	6300	10000	16000	25000	40000	63000	100000	160000	160000
Q4 Maximum Flow (Short Time)	3125	5000	5000	7875	7875	12500	20000	31250	50000	78750	125000	200000	200000

Installation Recommendations

- The arrow on water meter body must be in the same direction with the flow.
- Prior to installation, flush the line to remove debris.
- The water meter must be filled with water to operate.



[1] Isolation Valve

[2] Air Valve

[5DN] Unrestricted pipe,
minimum 5XDN

[3] MUT2200

[4] Isolation Valve

[3DN] Unrestricted pipe,
minimum 3XDN