

DC Powered, Zero D, EFM

Model MUT2300-MC406

The MUT2300 with MC406 is a battery-powered electromagnetic water meter for DMA, water abstraction, custody transfer of potable water (MI-001, OIML R49), irrigation, and other applications. It is maintenance-free and offers a wide flow range in compact or remote-mounted versions. Its optimized flow profile allows installation without straight inlet or outlet runs, even behind bends, valves, or reducers, while ensuring stable measurement at very low flow rates with negligible pressure loss. Optional pressure and temperature sensors, an integrated GSM/GPRS modem, and a 12–24 VDC power option make it ideal for leak detection and pressure management. The robust design supports buried or flooded installations, and on-site verification can be performed without interrupting operation using the Field Vericator 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
- Overnight applications with very low flow rate
- Industrial process liquids, muds and concretes
- Installation in small places without straight distances
- 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 • 0.05 ft/s (MID-001 OIML R49 certified), within Class 1 / Class 2 accuracy

Up to 10 years of battery life:

High-efficiency, technologically advanced battery powered converter

U0-D0:

Zero upstream and downstream distances (MID-001 OIML R49 certified)

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

Empty pipe detection:

Empty pipe electrode supplied as standard ($\geq$ DN65 • 2½"). Empty pipe detection on measuring electrodes standard for all sizes

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

Add on modules of temperature and pressure readying make the MUT2300 with MC406 one of the most complete electromagnetic flowmeter available in the market

Easy management, easy programming:

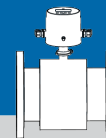
A software is supplied with the unit to allow users to communicate with the MC406 via ICOM port to any pc, lap top or windows tablet.

Certifications and compliance:

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

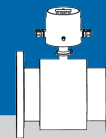
Always verified:

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



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

Available size inches/mm	1" - 12" Inch / DN25 - 300 mm
Flanges Connections Available	EN1092-1 PN 10/16, ANSI 150, AS 2129 (table D, E, F), AS 4087, KS10K, Others on request
Pressure	21 bar - 305 psi
Temperature	Operating: -104°F/+176°F (-40°C/+80°C) Storage: -22°F/+158°F (-30...+70°C)
Accuracy	0,2% +/- 2mm/s • 0,2% +/- 0.08inch/s
Linear Material	Hard rubber (Ebonite)
Electrodes Materials	AISI316L (standard), Hastelloy C, Hastelloy B, Titanium, Tantalum, Platinum
Protection Degree	IP68 (EN 60529) permanents submersion at 1,5m (4,92ft)
Pressure Drop Class	DN≤80 ΔP10 (<0.10 bar) • DN≥100 ΔP16 (<0.16 bar) DN≤ 3" ΔP150 (<1.5 psi) • DN≥ 4" ΔP250 (<2.5 psi)
Digital filters	Damping - cutt-off (0,05 m/s • 0,16 ft/s default) - bypass - peak cut
Conformity	EMC: EN 61010 - LVD: EN 61326 ; EN/IEC 60529 IP68

The electromagnetic flowmeter designed for the toughest applications

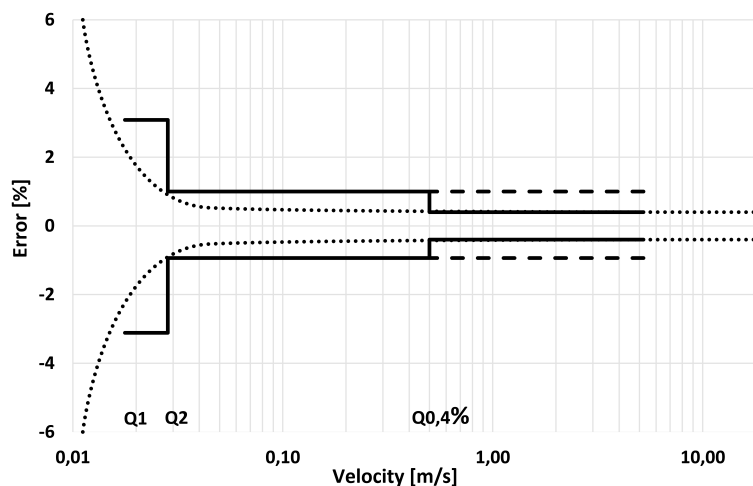


Modbus



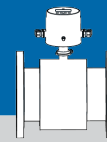
Measuring Accuracy

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)	DN50 2"	DN65 2½"	DN80 3"	DN100 4"	DN125 5"	DN150 6"	DN200 8"	DN250 10"	DN300 12"
Q1 Minimum Flow	0.12	0.2	0.31	0.5	0.8	1,25	3.15	5	8
Q2 Transitional Flow	0.2	0.32	0.5	0.8	1.28	2	5.04	8	12.5
Q3 Permanent Flow	25	40	63	100	160	250	630	1000	1000
Q4 Maximum Flow (Short Time)	31	50	78	125	200	312	787	1250	1250



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.

