

# DC Powered, Zero D, EFM

## Model MUT2300-MC406

The MUT2300 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 MUT2300 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 MUT2300 can be installed virtually anywhere without straight inlet or outlet runs, behind pipe bends, slide valves or a reduction in the pipe. Its measuring tube is in fact specifically designed to enable a stable measurement even at the lowest flow rates, maintaining a neglectable pressure loss in all its range. With optional pressure and temperature sensors, GSM/GPRS integrated modem and 12...24Vdc power source, the meter is the perfect solution for leak detection, and 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

#### 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 1 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 [www.euromagdata.com](http://www.euromagdata.com) with personal ID and password. Accessible also from smart phones and tablets. Configurable FTP communication

### 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

#### Empty pipe detection:

Empty pipe electrode supplied as standard ( $\geq$  DN65). 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 Euromag FIELD VERIFICATOR is available for full on-site verification, without interruption of the process



## Convertor 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 % +/- 2 mm/s - insertion sensors 2% of rate +/- 2mm/s                                                                                                                                                                                                                         |                                                                                     |
| Temperature                                | Ambient: -20 ... +60 C° (-4 ... +140 F)<br>Media -25 ... 80 C° (-13 ... +176 F)<br>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 PG9 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                                                                                                                                                                                                                                                            |                                                                                     |
| 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<br>4 Push buttons to access all functions<br>Totalizer informations can be displayed with 5 decimal digits                                                                                                 |                                                                                     |
| Displayed informations                     | Live flowrate<br>Total positive totalizer (T+), Total negative totalizer (T-)<br>Partial positive totalizer (P+), Partial negative totalizer (P-)<br>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 BERMAD 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 BERMAD 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:<br>excitation failure<br>empty pipe on the 4th electrode<br>empty pipe on the measuring electrodes                                                                                                                                                              | high temperature<br>high voltage supply<br>pulse overlapped<br>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

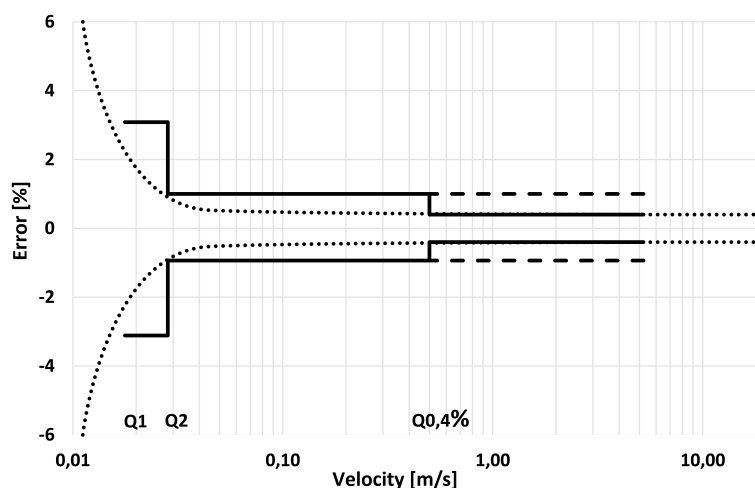
|                               |                                                                                         |
|-------------------------------|-----------------------------------------------------------------------------------------|
| Available size inches/mm      | 1" - 12" Inch / DN25 - 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)<br>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)                                        |
| Digital filters               | Damping - cutt-off (0,05 m/s default) - bypass - peak cut                               |
| Conformity                    | EMC: EN 61010 - LVD: EN 61326 ; EN/IEC 60529 IP68                                       |

The electromagnetic flowmeter designed for the toughest applications



## 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<br>Q @ (m³/h)              | DN50<br>2" | DN65<br>2½" | DN80<br>3" | DN100<br>4" | DN125<br>5" | DN150<br>6" | DN200<br>8" | DN250<br>10" | DN300<br>12" |
|---------------------------------|------------|-------------|------------|-------------|-------------|-------------|-------------|--------------|--------------|
| Q1 Minimum Flow                 | 0.125      | 0.2         | 0.315      | 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<br>(Short Time) | 31.25      | 50          | 78.75      | 125         | 200         | 312.5       | 787.5       | 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.

