

# MC406 MUT7000 Electromagnetic Flowmeter



TECHNICAL GUIDE: **FM1.5**

## Application

Custody transfer

Irrigation

UO-D0

## Approvals/Standards

MID APPROVAL

OIML approved

Modbus ready

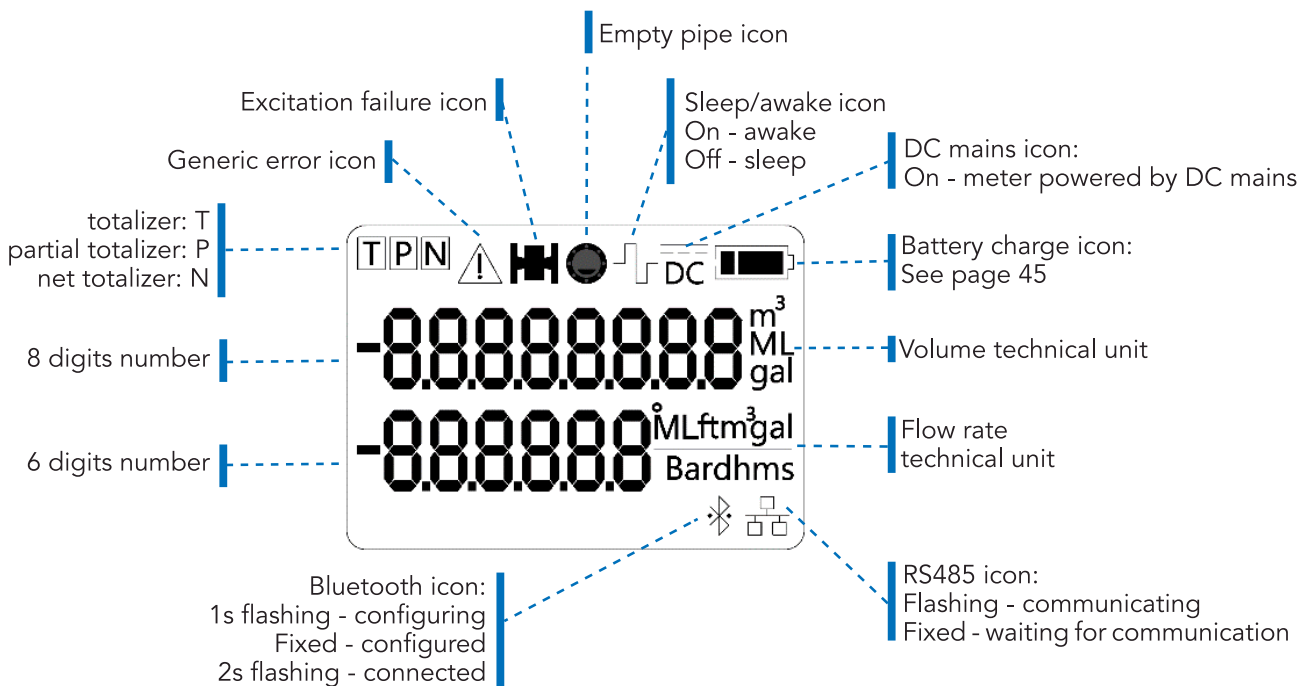
## A revolutionary perspective of the flow metering

The MUT7000 is a battery powered and 12/24V 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 MUT7000 is a maintenance-free meter, offering a much wider range of flow, in a compact version. Thanks to the optimized flow profile, the MUT7000 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. Made from highly resistant Grilamid polymer, reinforced with 60% nylon, the meter is the perfect solution for leak detection, and pressure management systems. The highly robust and at same time light weight structure, allows burial installation or the use in flooded areas. Victualic OGS process

connections make the flowmeter compatible with almost all installations, adapting flanges of all type and standards are also available. Easy and quick to install, users will find this flowmeter the perfect solution compared not only to mechanical meters, but to any other electromagnetic flowmeters. The inbuilt logger functionality provides total flexibility - enabling data to be interrogated in precise detail through the smart and user-friendly Mag-Net app, available on Apple store and Google play.

### Key advantages

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



### Communications options

Pulse output    Modbus    Bluetooth

### Measurement performance

Accuracy up to ± 0.2% ± 0.2 mm/s

Range [R] up to R400

### Environmental conditions

IP68 to 1.5 m

-20 to 60 °C Ambient

## Applications

- District metering of potable water
- Distribution, municipal water
- Overnight applications with very low flow rate
- Installation in small places without straight distances
- Leak detection and monitoring
- Fiscal measures, custody transfer
- Irrigation

## Product's benefit

### **Long-lasting performance**

Battery powered up to 10 years or 12vdc.

### **U0-D0**

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

### **All-in-one**

Electronic converter integrated in the sensor body compact and lightweight for easy use.

### **Highly resistant**

Grilamid polymer reinforced with 60% nylon with Victaulic OGS process connections.

### **Empty pipe detection**

Empty pipe detection on measuring electrodes standard.

### **Easy management, easy programming**

Mag-Net app available on App Store and Google Play.

### **No data lost**

Data automatically stored in the internal Eeprom memory. Up to 100,000 lines of active data-logging.

### **Certifications and compliance**

OIML R49 MID-001 / WRAS\*/NSF ANSI61\*

\*Pending



## Multiple power options



Internal batteries (up to 10 years life)



Solar



Wind



AC12V

## Configurable and Interactive



In built logger



Easy firmware update



Secured and easy



Contactless



Chart and retrieve data



Apple store









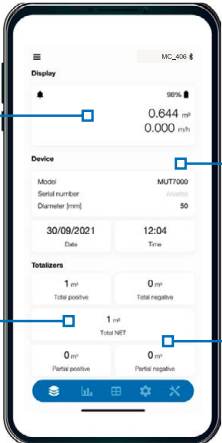
Google Play

## Easy and intuitive interface

Everything you need from your flowmeter with a blink of an APP.

In a fast developing and interconnected world, data must be available and exchanged quick and easy Mag-Net app is the Euromag solution.

 <p><b>Reliable</b> Ultra-low power Bluetooth communication</p>	 <p><b>Contactless</b> A contactless interface allows users to interact with the transmitter up to a range of more than 10m. From the comfort of your car.</p>	 <p><b>Chart and retrieve data</b> The Mag-Net app allow users to view the log file on their smart phone/tablet and download it as CSV file.</p>
 <p><b>Infinite possibilities</b> Consult, analyse, monitor, the data directly with your touch through simple gestures.</p>	 <p><b>Easy and intuitive</b> The Mag-Net app is easy and intuitive to use, allowing users to deal with the instrumentation.</p>	 <p><b>Smart configuration</b> Users can easily configure or change settings of their flow meters using Mag-Net app.</p>

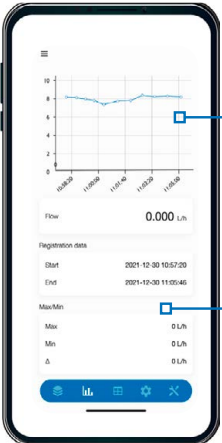


**Easy display of instant flow and totalizer**

**Quick view of model and serial number**

**Easy display of all totalizers**

**Partial totalizers, quick reset**



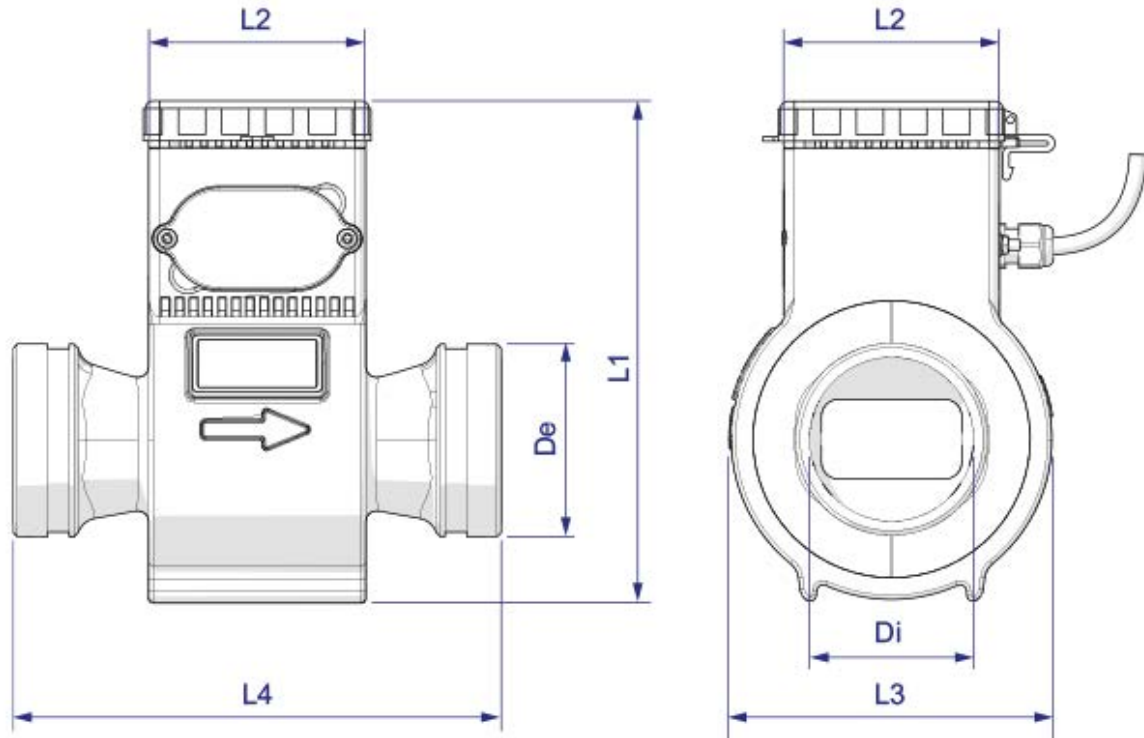
**View the instantaneous flow in the intuitive graph**

**Immediate view of Max, Min flowrate of the system**

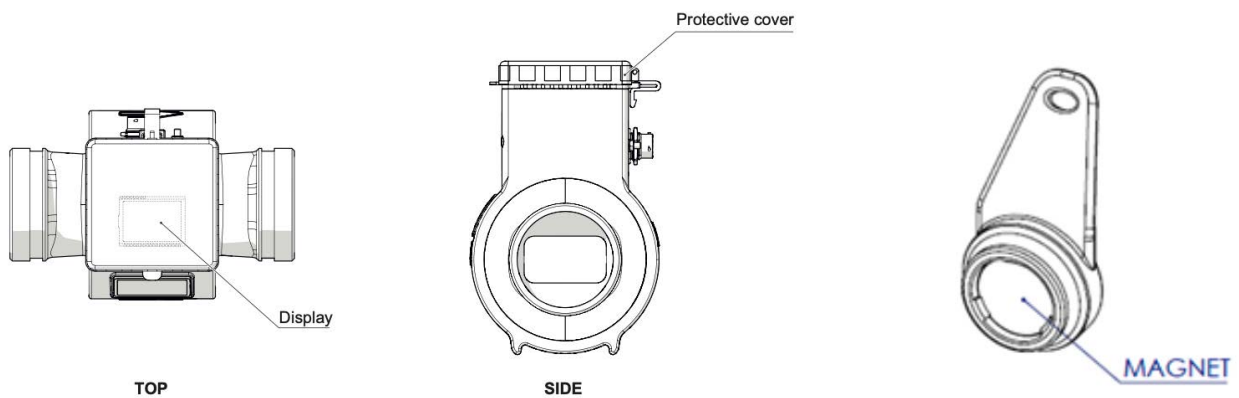


## Technical specifications

The overall dimensions of MUT 7000 are shown below.

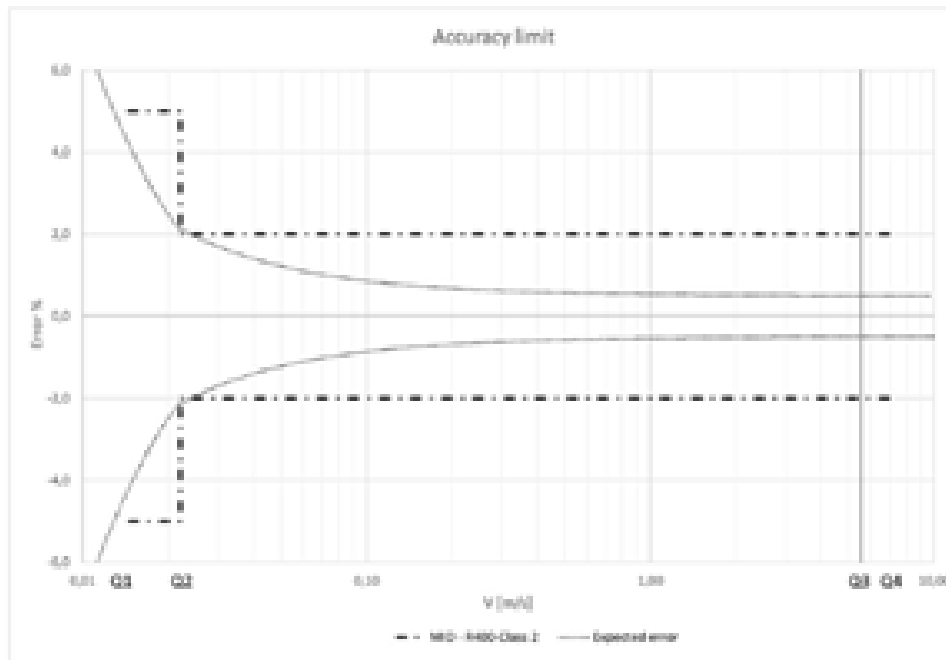


Size	De	L1	L2	L3	L4	L5
DN50 / 2"	60.3	230	100	149	200	100
DN80 / 3"	88.6	230	100	149	225	100
DN100 / 4"	114.3	230	100	149	250	100
DN150 / 6"	168.3	300	100	208	300	100



The MUT 7000 meter is equipped with a magnet for magnetic reed operation.

## MUT7000 ACCURACY CURVE



**MID Annex III (MI-001) - (Directive 2014/32/EU)**

### Flow characteristics

Size	Ø In and Outlet [mm]	Flow rates [m <sup>3</sup> /h]				Ratio Q3/Q1
		Minimum Q1	Transitional Q2	Permanent Q3	Overload Q4	
DN50/ 2"	50	0,10	0,16	40	50	400
ND80/ 3"	80	0,25	0,40	100	125	400
DN100/ 4"	100	0,40	0,64	160	200	400
DN150/ 6"	150	1,00	1,60	400	500	400

### Orientation limitation

The sensor can be used in horizontal, vertical or diagonal position.

### Flow profile sensitivity class

U0 and D0 (0 x DN upstream and 0 x DN downstream)

### Reverse flow

The water meter is designed to measure reverse flow. The reverse flow is recorded on a separate volume totalization. Also, for reverse flow another pulse output is used.

## General technical features

The table below contains the technical data of the MUT 7000.

Features	MUT7000
<b>Structure</b>	Integral Flow meter
<b>DN Range</b>	DN50/2" ÷ DN150/6"
<b>Nominal Pressure</b>	16 bar
<b>Process Connection</b>	Victaulic OGS
<b>Fluid Conductivity</b>	> 20 uS/cm
<b>Process Temperature Range</b>	0 ÷ 80°C (32 ÷ 176°F)
<b>Materials in contact with water</b>	Flow tube: Glass fibre reinforced polyamide Electrodes: AISI316L
<b>Mains power supply</b>	12Vdc (10.8 ÷ 13.2V)
<b>Power supply</b>	Battery powered [estimated useful life: up to 10 years] 3.6 V
<b>Consumption</b>	0,25W ÷ 1W (Mains powered)
<b>Uscite I/O</b>	2 passive outputs (1 programmable), SSR Type (dry contact), galvanically insulated Max load +/- 35VDC, 100 mA protected against short circuits, minimum pulse duration 5ms.
<b>Serial communications</b>	RS 485 - MODBUS RTU
<b>Display</b>	LCD Segment Display, with dedicated status icons, 8+6 digits
<b>User Interface</b>	Magnetic reed / Bluetooth Mobile App / Eromag Link Software
<b>Process memory</b>	100.000 data lines programmable frequency 1 ÷ 120 minutes (15 minutes factory standard)
<b>Metrological certificate</b>	OIML R49-1:2013 / MID 2014/32/EU - Class 2
<b>Temperature range</b>	Ambient: -20 ÷ 60° C (-4 ÷ + 140°F) Process: 0÷80°C (32÷176°F) Storage: -40÷ 70°C (-40÷+158 °F)
<b>Technical units</b>	m, m3, l, ML, ft3, gal
<b>Totalizers</b>	5 (2 positive, 2 negative, 1 NET)
<b>Alarms and status icons</b>	Status icons displayed and alarms recorded in the data logger
<b>Self-diagnostic</b>	excitation failure, excessive ambient temperature, wet electronic board, low battery level, pulses overlapping, Bluetooth communication error, empty pipe, measurement error
<b>Software for communication and programming</b>	Bluetooth Mobile App, Euromag Link Software (through Bluetooth dongle, or RS485 interface)
<b>Data protection</b>	Customisable password protection 3 partition EEPROM Memory for safe data storage, backup and FW update



Scan for more  
information

**Disclaimer:** While every effort has been made to ensure that the information in this document is correct and accurate, users of Hygrade Water product or information within this document must make their own assessment of suitability for their particular application. Product dimensions are nominal only, and should be verified if critical to a particular installation. No warranty is either expressed, implied, or statutory made by Hygrade Water unless expressly stated in any sale and purchase agreement entered into between Hygrade Water and the user.

**November 2024**

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