EU-type examination certificate

Number **T10713** revision 13
Project number 4086814

Issued by	NMi Certin B.V., designated and notified by the Netherlands to perform tasks with respect to conformity asssessment procedures mentioned in article 17 of Directive 2014/32/EU, after having established that the measuring instrument meets the applicable requirements of Directive 2014/32/EU, to:
Manufacturer	Euromag International S.r.l. Via Balla, 55 35010 Villafranca Padovana (PD) Italy
Measuring instrument	An electromagnetic **water meter** Type : MUT1000EL, MUT2200EL and MUT2300 with electronic converter MC406M and MC406AM

Further properties are described in the annexes:
- Description T10713 revision 13;
- Documentation folder T10713-10;
- Evaluation report ER10713 revision 13.

Valid until	31 March 2036
Initially issued	31 March 2016
Remark	This revision replaces the previous versions, except for its documentation folder.

Issuing Authority **NMi Certin B.V., Notified Body number 0122**
8 October 2026

Certification Board

NMi Certin B.V.
Thijsseweg 11
2629 JA Delft
The Netherlands
T +31 88 636 2332
certin@nmi.nl
www.nmi.nl

This document is issued under the provision that no liability is accepted and that the manufacturer shall indemnify third-party liability.

The designation of NMi Certin B.V. as Notified Body can be verified at https://webgate.ec.europa.eu/single-market-compliance-space/home

Reproduction of the complete document only is permitted.

This document is digitally signed and sealed. The digital signature can be verified in the blue ribbon at the top of the electronic version of this certificate.

PRODUCTS RvA C 681

1 General information on the water meter

All properties of the water meter, whether mentioned or not, shall not be in conflict with the legislation.

1.1 Essential parts

The measurement sensor can have the following cylindrical measuring tube:
- Full bore for type MUT1000EL (without flanges) or MUT2200EL (with flanges); or
- Reduced bore for type MUT2300.

Description	Documents	Remarks
Measurement sensor		
MUT1000EL MUT2200EL MUT2300	10713/6-01, 10713/6-02, 10713/1-01, 10713/3-02, 10713/4-03, 10713/12-01, 10713/12-02, 10713/12-03	The inside of the cylindrical measuring tube is covered with an insulating liner. Through the liner, the 3 or 4 electrodes are in contact with the liquid. The flow sensor is equipped with a magnetic circuit containing 2 electromagnetic coils.
Calculator and indicating device		
Electronic signal converter and meter reading. Used to drive the magnetic spools and convert the electrode voltage to a flow rate. See documentation number: - MC406M: ▪ Compact version: 10713/1-03 and 10713/7-02 ▪ Remote version: 10713/3-03 and 10713/7-03 - MC406AM ▪ Compact version: 10713/4-04 and 10713/7-04 ▪ Remote version: 10713/4-05 and 10713/7-05 - MC406M/AM with Bluetooth&RS485 and/or 4-20mA output ▪ Compact version: 10713/7-06 ▪ Remote version: 10713/7-07 and 10713/12-04		
MC406M (compact version only)	10713/0-03, 10713/0-04	The electromagnetic environmental classification is E2.
MC406M (compact and remote version)	10713/3-04, 10713/3-05, 10713/3-06, 10713/6-03, 10713/4-06, 10713/4-07, 10713/7-08 10713/10-01	The electromagnetic environmental classification is E2 for the compact version and E1 for the remote version. Including optional GSM board.
MC406AM (compact and remote version)	10713/4-08, 10713/4-09	The MC406AM is on basis of MC406M version 2.2.4 with additional power supply board and optional GSM board. The electromagnetic environmental classification is E2.

MC406M/AM with Bluetooth&RS485 and/or 4-20mA output (compact and remote version)	10713/7-09, 10713/7-10, 10713/7-11, 10713/7-12 10713/10-02 10713/10-03 10713/10-04 10713/10-05 10713/10-06 10713/10-07	The electromagnetic environmental classification is E1.

1.2 Essential characteristics

1.2.1 Flow characteristics of full bore type MUT1000EL or MUT2200EL

Meter size	Ø in- and outlet [mm]	Flow rates [m³/h]				Ratio Q3/Q1
		Minimum Q1	Transitional Q2	Permanent Q3	Overload Q4	
DN32	32	0,125	0,2	25	31,25	200
DN40	40	0,2	0,32	40	50	200
DN50	50	0,315	0,504	63	78,75	200
DN65	65	0,5	0,8	100	125	200
DN80	80	0,8	1,28	160	200	200
DN100	100	1,25	2	250	312,5	200
DN125	125	2	3,2	400	500	200
DN150	150	3,15	5,04	630	787,5	200
DN200	200	5	8	1000	1250	200
DN250	250	8	12,8	1600	2000	200
DN300	300	12,5	20	2500	3125	200
DN350	350	15,625	25	2500	3125	160
DN400	400	20	32	4000	5000	200
DN450	450	31,5	50,4	6300	7875	200
DN500	500	39,375	63	6300	7875	160
DN600	600	39,375	63	6300	7875	160

Please note that the flow rates Q1, Q2, Q3 and Q4 can be freely chosen as long as:
- Values mentioned for Q1 and Q2 are minimum values and the ratio Q2/Q1 = 1,6;
- Values mentioned for Q3 and Q4 are maximum values and the ratio Q4/Q3 = 1,25;
- The ratio Q3/Q1 is at least 40.

1.2.2 Flow characteristics of reduced bore type MUT2300

Meter size	Ø in- and outlet [mm]	Flow rates [m³/h]				Ratio Q3/Q1
		Minimum Q1	Transitional Q2	Permanent Q3	Overload Q4	
DN50	50	0,126	0,203	40	50	315
DN65	65	0,2	0,32	63	78,75	315
DN80	80	0,317	0,5	100	125	315
DN100	100	0,5	0,81	160	200	315
DN125	125	0,5	0,81	160	200	315
DN150	150	1,27	2,03	400	500	315
DN200	200	2	3,2	630	787,5	315
DN250	250	5	8	1000	1250	200
DN300	300	8	12,8	1600	2000	200
DN350	350	10	16	1600	2000	160
DN400	400	12,5	20	2500	3125	200
DN450	450	20	32	4000	5000	200
DN500	500	25	40	4000	5000	160
DN600	600	25	40	4000	5000	160

Please note that the flow rates Q1, Q2, Q3 and Q4 can be freely chosen as long as:
- Values mentioned for Q1 and Q2 are minimum values and the ratio Q2/Q1 = 1,6;
- Values mentioned for Q3 and Q4 are maximum values and the ratio Q4/Q3 = 1,25;
- The ratio Q3/Q1 is at least 40.

1.2.3 Water temperature class
- T30 (+0,1 °C / +30 °C); or
- T50 (+0,1 °C / +50 °C)

1.2.4 Maximum admissible pressure (MAP)
- 1,6 MPa (16 bar)

1.2.5 Orientation limitation
The sensor can be used in horizontal, vertical or diagonal position (all positions).

1.2.6 Flow profile sensitivity class
- U0 and D0 (0 x DN upstream and 0 x DN downstream)

1.2.7 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.

1.2.8 Pressure loss class

- Full bore type MUT1000EL or MUT2200EL based on documentation 10713/6-01, 10713/6-02 and 10713/12-01.
  - All sizes: Δp 10 (0,010 MPa or 0,10 bar)

- Reduced bore type MUT2300 based on documentation 10713/1-01
  - For sizes < DN80: Δp 25 (0,025 MPa or 0,25 bar)
  - For sizes ≥ DN80: Δp 40 (0,040 MPa or 0,40 bar)

- Reduced bore type MUT2300 based on documentation 10713/4-03, 10713/12-02 and 10713/12-03.
  - For sizes < DN250: see below table
  - For sizes ≥ DN250: Δp 40 (0,040 MPa or 0,40 bar)

Meter size	Pressure loss class	Alternative pressure loss class
DN50	Δp 25	Δp 10 for Q3 ≤ 25 m³/h
DN65	Δp 25	Δp 10 for Q3 ≤ 40 m³/h
DN80	Δp 40	Δp 16 for Q3 ≤ 63 m³/h
DN100	Δp 40	Δp 16 for Q3 ≤ 100 m³/h
DN125	Δp 16	N/A
DN150	Δp 40	Δp 16 for Q3 ≤ 250 m³/h
DN200	Δp 16	N/A

1.2.9 Temperature range ambient

- -25 °C / +55 °C

1.2.10 Environmental classification

- M1 / O (installed outdoors)

1.2.11 Electromagnetic environmental classification

- See paragraph 1.1 for the classification.

1.2.12 Power supply MC406M

The water meter is powered by means of a replaceable battery of 3,6 V (operating range: 2,9 - 3,7 V).

1.2.13 Power supply MC406AM

The water meter is powered by means of:

- A replaceable battery of 3,6 V (operating range: 2,9 - 3,7 V); or
- DC mains 10 - 28 V.

1.2.14 Measuring principle

The magnetic field, generated through the 2 magnetic coils, induces a voltage across the flowing (conductive) liquid (Faraday's law for conductors moving through a magnetic field).

This induced voltage is measured with the 2 electrodes and is directly proportional to the flow speed. By taking into account the pipe dimensions the flow rate can be calculated, displayed and outputted. By integrating over time the total measured volume can be calculated and displayed.

The other 2 electrodes are used to detect empty pipe and to fix the voltage reference to ground.

1.2.15 Operation and presentation of legal data

The meter is equipped with an electronic LCD display and can be operated using the four push buttons. The display has two lines which can be used for visualization of the totalizer and other options by using the button P3 and P4. See documentation number for operation 10713/7-01.

The display register is built up as followed, where the volume amount in whole cubic meters are presented at the first line and the decimals of the cubic meters (after the comma) are presented at the second line.

Display of full bore type MUT1000EL or MUT2200EL:

Meter size	Indicating range (minimum value) [m³]	Verification scale interval (minimum resolution) [m³]
DN32	99 999	0,0001
DN40, DN50	99 999	0,001
DN65, DN80, DN100	999 999	0,001
DN125, DN150	999 999	0,01
DN200, DN250, DN300	9 999 999	0,01
DN350, DN400, DN450, DN500, DN600	9 999 999	0,1

Display of reduced bore type MUT2300:

Meter size	Indicating range (minimum value) [m³]	Verification scale interval (minimum resolution) [m³]
DN50	99 999	0,0001
DN65	99 999	0,001
DN80, DN100, DN125, DN150	999 999	0,001
DN200	999 999	0,01
DN250, DN300, DN350, DN400	9 999 999	0,01
DN450, DN500, DN600	9 999 999	0,1

The following volume totalizers are used (herewith the partial totalizer is resettable):

- Total positive totalizer (T+) and
- Total negative totalizer (T-)
- Partial positive totalizer (P+)
- Partial negative totalizer (P-)

1.2.16 Accountable alarms
During the measuring process the calculator and indicating device detects automatically if a fault condition occurs and eventually stops the measurement reporting an alarm indication on the display. See documentation number 10713/7-01.

1.2.17 Software specification (refer to WELMEC 7.2):
- Software type P;
- Risk Class C;
- Extension D, while extensions L, T and S are not applicable.

Indentification	Software versions	CRC Checksum	Remarks
Bootloader	01.00	63A2EDED	Dated 29/01/2016
	01.01	67AEA1E4	Dated 03/09/2016
	01.02	DE7A99AB	Dated 24/10/2016
	01.02	0CC44DD4	Dated 16/01/2026
Legally relevant firmware	01.05	CAA8A4C7	Dated 19/02/2016
	01.15	6AA50C55	Dated 12/04/2018
	01.16	E93E3A1E	Dated 15/11/2018
	01.21	79413617	Dated 28/03/2019
	01.23	E7DD52E4	Dated 21/10/2019
	01.36	E1A52981	Dated 14/04/2022
	01.38	C2641A99	Dated 06/06/2022
	01.42	2B6CF4C7	Dated 25/01/2023
	01.44	D867EC79	Dated 31/08/2023
	01.47	7144DCB7	Dated 22/07/2026

With the user interface it is possible to display:
- the firmware version and the CRC value by pressing together P1 and P4 buttons. The firmware version and the CRC value will be showed after the display test.
- the download records by pressing together P1 and P3 buttons and step through the download entries using P3 and P4 buttons.

1.3 Essential shapes

1.3.1 Markings
See documentation number 10713/11-01 for an example. The following inscriptions shall be clearly marked on the water meter:
- CE marking including the supplementary metrological marking (M + last two digits of the year of its affixing);
- Notified Body identification number, following the supplementary metrological marking;
- This EU-type examination certificate number T10713;
- Manufacturers name, registered trade name or trade mark;
- Manufacturers postal address;
- Type;

- Year of manufacture and a serial number;
- The permanent flow rate Q3;
- The ratio between Q3 and Q1. This may be indicated as R followed by the ratio;
- The maximum working pressure, indicated as MAP followed by the max. pressure;
- Maximum water temperature, indicated as T50;
- Environmental classification;
- Electromagnetic environmental classification;
- For replaceable battery: The latest date by which the battery shall be replaced.

1.3.2 Further inscriptions

- An arrow indication for the positive direction of the water flow is placed on the measurement sensor.
- For clarification of the totalizers, the following is stated on the name plate:

• T = Non-resettable
• P = Resettable

1.3.3 EMI protection measures

- Grounding of the measurement sensor;
- Grounding of the electronic converter;
- Shielded cables of the I/O cables;
- Grounding of the shielded I/O cables at the receiving side. Conditional parts

1.3.4 Housing

The housing of the calculator and indicating device is made of plastic. Optionally a utility or installation seal may be used for securing housing against opening and access to the battery and cable connections. See documentation number 10713/6-01, 10713/6-02, 10713/1-01, 10713/4-03, 10713/12-01, 10713/12-02 and 10713/12-03.

1.4 Conditional characteristics

1.4.1 Programming

All parameters that influence the determination of the results of measurements are protected on the EEPROM. These can only be changed if the hardware switch located inside the electronics unit is set to close.

1.5 Conditional shapes

1.5.1 Cylindrical pipe

The cylindrical pipe is constructed so that the combination of material and wall thickness is such that the influence due to changing liquid pressure is negligible.

1.6 Non-essential parts

The following outputs can be used, where in case of dispute the display of the indicating device MC406M or MC406AM forms the decisive indication of the water meter:

- Pulse output cable can be used for forward and reverse flow;
- GSM output cable;
- 4-20 mA cable;
- RS485 cable;
- Bluetooth.

2 Seals

The following seals are applied:

- The data plate is fixed to the water meter and secured against removal by seal or it will be destroyed when removed.
- The hardware switch located inside the electronics unit is sealed against activation and changing the parameters on the EEPROM. See documentation number 10713/0-06 and 10713/4-02.
- Optionally a utility or installation seal may be used for securing housing against opening and access to the battery and cable connections. See documentation number 10713/6-01, 10713/6-02, 10713/1-01, 10713/4-03, 10713/12-01, 10713/12-02 and 10713/12-03.

3 Conditions for conformity assessment

- At the initial verification the performance of the water meter has to be determined at least at Q1, Q2 and Q3.
- Bi-directional flow measurement
  During conformity assessment it is sufficient to verify a bi-directional meter only in one direction.
- The correct parameters shall be set by the manufacturer.
- The pulse value (if used) can be set by the manufacturer or user. This should be suitable for the application and should not exceed the maximum frequency of 100 Hz.