

Issued by NMI Certin B.V.,
designated and notified by the Netherlands to perform tasks with respect to
conformity assessment 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 KROHNE Altometer
Kerkeplaat 12
3313 LC Dordrecht
The Netherlands

Measuring instrument An electromagnetic **water meter**
Type : WATERFLUX 3070

Further properties are described in the annexes:

- Description T10201 revision 15;
- Documentation folder T10201-8.

Valid until 10 September 2029

Remark This revision replaces the previous version, with exception of the
documentation folder

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C. Oosterman
Head Certification Board

1 General information on the water meter

Properties of this water meter, whether mentioned or not, shall not conflict with the legislation.

1.1 Essential parts

Description	Document	Remarks
Measurement sensor	10201/0-01 10201/0-02 10201/8-01	The inside of the cylindrical measuring tube is provided with a rectangular-like flow cross-section profile. The internal flow sensor is covered with an insulating liner. Through the liner, the 3 electrodes are in contact with the liquid. The flow sensor is equipped with a magnetic circuit containing 2 electromagnetic coils.
Printed circuit board (software version 4.3.1_ or lower)	10201/0-05 10201/4-01 10201/8-03 10201/8-04 10201/8-05	IFC 070 flow converter Signal Converter and meter reading. Used to drive the magnetic spools and convert the electrode voltage to a flow rate.
Printed circuit board (software version 5.0.1_ or higher)	10201/11-06, 10201/11-07, 10201/12-02	

1.2 Essential characteristics

1.2.1 Flow characteristics

Meter size	Flow rates [m ³ /h]				Max. ratio Q3/Q1
	Minimum Q1	Transitional Q2	Permanent Q3	Overload Q4	
DN25	0,025	0,04	16	20	400
DN40	0,0625	0,1	40	50	400
DN50	0,1	0,16	63	78,75	400
DN65	0,1575	0,252	100	125	400
DN80	0,25	0,40	160	200	400
DN100	0,40	0,64	250	312,5	400
DN125	0,625	1,00	400	500	400
DN150	1,00	1,60	630	787,5	400
DN200	1,575	2,52	630	787,5	400
DN250	2,5	4	1000	1250	400
DN300	4,0	6,4	1600	2000	400

Meter size	Flow rates [m ³ /h]				Max. ratio Q3/Q1
	Minimum Q1	Transitional Q2	Permanent Q3	Overload Q4	
DN350	15,625	25	2500	3125	160
DN400	25	40	4000	5000	160
DN450	25	40	4000	5000	160
DN500	39,375	63	6300	7875	160
DN600	63	100,8	6300	7875	100

Please note that the flow rates Q1, Q2, Q3 and Q4 can be freely chosen as long as:

- Values Q3 and ratio Q3/Q1 are selected from paragraph 4.1 of OIML R49-1: 2013(E);
- 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 Water temperature class

- T50 (+0,1 °C / +50 °C)

1.2.3 Maximum admissible pressure (MAP)

- 16 bar(g) for sizes DN200 and smaller;
- 10 bar(g) for sizes DN250 and larger.

1.2.4 Orientation limitation

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

1.2.5 Flow profile sensitivity class

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

1.2.6 Reverse flow

The sensor is also designed to measure reverse flow.

1.2.7 Pressure loss class

- Δp 63 (0,63 bar)

1.2.8 Temperature range ambient

- Software version 4.3.1_ or lower: -10 °C / +55 °C
- software version 5.0.1_ or higher: -25 °C / +55 °C

1.2.9 Environmental classification

- M2 / E2

1.2.10 Measuring principle

In documentation 10201/0-01 the measuring principle is described.

1.2.11 Operation and presentation of legal data

The meter is standard equipped with an electronic display and can be operated using the infrared keys on the display module. The measured volume is presented by means of an electronic display.

The operation is described in documentation 10201/0-01.

The totalizers are approved for legal metrology purposes. In case of software version 4.3.1_ or lower this also applies to pulse outputs A and B.

The display register is built up as follows:

Meter Size	Indicating range (minimum value) [m ³]	Verification scale interval (maximum value) [m ³]
DN25, DN40 and DN50	99.999.999	0,0001
DN65, DN80, DN100, DN125 and DN150	99.999.999	0,001
DN200, DN250, DN300, DN350, DN400 and DN450	99.999.999	0,01
DN500 and DN600	99.999.999	0,1

The parameter "counter multiplier value" has to be set to 1. See documentation 10201/0-01.

1.2.12

Accountable alarms

If malfunctions are detected a visible alarm will be displayed which remains present until the alarm is acknowledged and the cause of the alarm is suppressed.

During the accountable alarms the registration of the volume in the totalizers is stopped.

The validity of the program and the parameters is continuously checked. If these checks fail, an alarm is generated.

1.2.13

Software specification (refer to WELMEC guide 7.2):

- Software type P;
- Risk Class C;
- Extensions L, D, S and T are not applicable.

Software versions	CRC checksum	Remarks
4.0.4_, 4.0.10_, 4.0.11_, 4.0.12_, 4.2.2_, 4.2.4_, 4.2.5_, 4.2.6_, 4.3.0_, 4.3.1_	Not applicable	The software version is displayed after operating the right-hand infrared key.
5.0.1_	4Cb5	The software and belonging checksum can be checked by cycling through the displays. This can be done by pressing the right optical key for 1 second to cycle to the next display.
5.0.2_	71d5	
5.0.3_	CFF7	
5.0.5_	DCAB	

The software version and checksum can be checked by scrolling through the displays with the infrared keys.

1.2.14

Field Current

In case of software version 4.3.1_ or lower the Field Current can only be set to 16 mA. For software version 5.0.1_ or higher the different Field Currents can be selected and shall be set to 16 mA.

1.3 Essential shapes

1.3.1 Markings

See documentation number 10201/11-04 and 10201/14-01 for an example. The following inscriptions shall be clearly marked on the water meter:

- The CE-marking and the supplementary metrological marking (M + last two digits of the year in which the instrument has been placed on the market);
- Identification number of the notified body responsible for placing on the market (MID conformity assessment modules D or F);
- This EU-type examination certificate number: T10201;
- 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 the remote version:
 - The serial number of the signal converter is mentioned on the measurement sensor and/or the serial number of the measurement sensor is mentioned on the signal converter.

1.3.2 Further inscriptions

- An arrow indication for the positive direction of the water flow is placed on the measurement sensor.

1.3.3 Signal converter

The signal converter is mounted either:

- Directly on the measurement sensor, this is called the compact version.
- Separately from the measurement sensor, this is called the remote version.

A single shielded cable connects the sensor to the signal converter.

1.4 Conditional parts

1.4.1 Housing

The housing of the Signal Converter consists of either:

- a metallic housing with a compact and a remote version.
See documentation 10201/0-04, 10201/2-01 and 10201/8-02.
- a plastic housing with a compact version and a remote version (for the software version 5.0.1_ or higher).
See documentation 10201/2-02 and 10201/11-05.

1.4.2 Cabling remote reading

When the meter is executed as a remote version the cable between the measuring sensor and reading unit should be mounted fixed. During use it should not be possible to move this cable.

- 1.4.3 **Power supply**
 The water meter can be powered by the options stated below.
 With the battery options the replacement date of the battery shall be indicated on the meter. A low battery alarm is generated one year before the meter stops functioning (based on actual settings and measuring situation).
- Internal battery**
 The water meter is powered by one or two 3,6 Volts D-cell Lithium primary (non-rechargeable) batteries located inside the IFC 070 flow converter.
- External battery pack**
 The water meter is powered by an external battery pack with 3,6 Volt output.
 See documentation 10201/11-01.
- FlexPower**
 For the software version 5.0.1_ or higher the FlexPower can be used.
 The external FlexPower has a Lithium battery pack (3.6V-38 Ah) and can be connected with a Y-cable for power input and converter (data) output. The FlexPower is equipped with a power cable for connection to a 10...30V DC supply and a cable for connecting to mains supply (110...230V AC / 50-60Hz). See documentation 10201/11-02 and 10201/11-03.
- 1.5 Conditional characteristics**
- 1.5.1 **Programming**
 Essential parameters, see documentation 10201/0-01, cannot be changed after the access control function is set for "fiscal metering". In order to disable the "fiscal metering" a seal has to be broken, see documentation 10201/0-01.
 The access control function is menu item 13 for software versions 4.0.x^[1] and menu item 1 for software versions 4.2.x_, 4.3.x_ and 5.0.x_^[1]. See documentation 10201/0-01.
- 1.5.2 **Low flow cut off**
 The low flow cut off is a programmable minimum flow. If the flow measured by the meter is below the programmed low flow cut off, the flow will be considered zero and the meter reading will no longer change
 The programmed value cannot not exceed 10 mm/s, see documentation 10201/0-01.
- 1.6 Conditional shapes**
- 1.6.1 **Cylindrical pipe with a rectangular-like flow profile**
 The cylindrical pipe and the internal rectangular like flow cross-section profile are constructed so that the combination of material and wall thickness is such that the influence due to changing liquid pressure is negligible.
- 1.7 Non-essential parts**
- 1.7.1 **Single channel pulse output (optional)**
 This is an extra printed circuit board stacked to the printed circuit board mentioned in paragraph 1.1. This pulse output may not be used for the legal transmission of measured volume.
 See documentation 10201/4-02 and 10201/8-06.

^[1] With x being any number.

1.7.2 Modbus-Interface (optional)

This is an extra printed circuit board stacked to the printed circuit board mentioned in paragraph 1.1. This Modbus output may not be used for the legal transmission of measured volume. Therefore, the Modbus software (version) is not legally relevant. See documentation 10201/11-08, 10201/11-09, 10201/12-03 and 10201/12-04.

1.7.3 Temperature and pressure sensor and transmitter (optional)

The temperature and pressure sensor are mounted in the measurement sensor. The corresponding electronics is mounted in the signal converter. The measured value can be displayed for information purposes only. The values may not be used for conversions. In case of software version 4.3.1_ or lower only the compact version can be used with temperature and pressure sensor and transmitter.

1.8 Non-essential shapes

- Alarm and pulse outputs (double channel for legal transmission of the measured volume)

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. This prevents the access control function (see paragraph 1.5.1) from being unlocked.
- The electronics unit is sealed against removal.

See the drawing numbers 10201/0-04, 10201/2-01, 10201/2-02, 10201/8-02 and 10201/11-05 for examples of the seals.

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.