EU-type examination certificate

Number **T10362** revision 43
Project number 2548615

Issued by

NMi Certin B.V.,
designated and notified by the Netherlands to perform tasks with respect to conformity modules 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

MeteRSit
Viale dell'Industria, 31
35129 Padova
Italy

Measuring instrument

A **thermal-mass flow gas meter**

Type	:	x4850xx x4851xx x4852xx x4853xx x4854xx x4855xx
Manufacturer's mark or name	:	MeteRSit
Destined for the measurement of	:	Gas volume of natural gas, type H or L
Accuracy class	:	Class 1,5
Environment classes	:	M1 / E2
Gas temperature range	:	-25 °C / +55 °C
Ambient temperature range	:	-25 °C / +55 °C
Designed for	:	Condensing humidity
Intended location	:	Open

Further properties are described in the annexes:
- Description T10362 revision 43;
- Documentation folder T10362-32.

Valid until

1 July 2031

Remark

This revision replaces the previous versions, except for its documentation folder.

Issuing Authority

NMi Certin B.V., Notified Body number 0122
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Certification Board

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1 General information about the gas meter

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

The meter is based on a thermal principle as described in documentation no. 10362/31-28.

The meter is executed as follows:
- A gas meter with an electronic register, indicating the volume at base conditions only, conform paragraph 2.2 of ANNEX IV (MI-002).

1.1 Essential parts

1.1.1 Flow sensor

Description	Documentation	Remarks
G1.6 / G2.5 / G4 / G6 MMU6	10362/31-04 or 10362/31-05	
G10 / G16 / G25 MMU16 / MMU25 / MMU40	10362/31-06 or 10362/31-60	

Producer	Type	Evaluation Certificate	Remarks
SENSIRION AG	SGM6104	TC11095	Flow tube including sensor chip on PCB

1.1.2 Printed circuit boards

Description	Documentation	Remarks
CPU board G1.6 / G2.5 / G4 / G6	 10362/31-33 or 10362/31-34	 MR35C_B0001_E 2238025
G10 / G16 / G25 MMU25 / MMU40	10362/31-35 or 10362/31-36 or 10362/31-37	MS02C_B0001_C MS02C_B0001_F MS02C_B0001_M
CPU board and GPRS board G1.6 / G2.5 / G4 / G6	 10362/31-38 or 10362/31-39 or 10362/31-41 or 10362/31-42 or 10362/39-01	 2238029 2238039 CS1600Z005-01 CS1601Z001-01 CS1603Z002-01
G10 / G16 / G25 MMU25 / MMU40	10362/31-44 or 10362/31-45 or 10362/31-43 or 10362/39-02	MS02C_B0009_F MS02V_B0009_F CS1604Z001-02 CS1604Z001-03

Description	Documentation	Remarks
CPU and MBUS board G1.6 / G2.5 / G4 / G6	10362/31-46 or 10362/31-47 or 10362/31-48 or 10362/31-49 or 10362/31-50	2238028 2238040 2238040 CS1601Z003-01 CS1601Z001-01
CPU and NB-IoT board G1.6 / G2.5 / G4 / G6	10362/31-51 or 10362/31-52 or 10362/35-01 10362/39-03	CS1603Z002-01 CS2238063-02 CS7238030-03 CS7238030-04
CPU and Zigbee board MMU6	10362/34-02	CS7238028-02
Walk-by board G1.6 / G2.5 / G4 / G6	10362/36-01	2238087
GPRS board	10362/31-53 or 10362/31-54 or 10362/31-55	MR35C_B0009_C MS02C_B0009_B Antenna
MBUS board	10362/31-56 or 10362/31-57 or 10362/31-58	MR35C_B0010_B MS01C_B0010_E Antenna
Connection board	10362/31-59	2238027

1.2 Essential characteristics

1.2.1 See EU-type examination certificate no. T10362 revision 43 and the characteristics mentioned below.

1.2.2 Approved meter types : x485xxx

Type	G-value	Maximum Q_{max} [m^3/h]	Minimum Q_{min} [m^3/h]	Q_t [m^3/h]
x4850xx	G2.5	4	0,025	0,4
	G4 MMU6	6	0,04	0,6
	G4 extended	6	0,016	0,25
x4851xx	G6	10	0,060	1,0
x4852xx	G10 MMU16	16	0,100	1,6
x4853xx	G16 MMU25	25	0,160	2,5
x4854xx	G25 MMU40	40	0,250	4,0
x4855xx	G1.6	2,5	0,016	0,25

If higher values are chosen for Q_{min} and/or lower values for Q_{max}, it has to be taken into account that $Q_{max} / Q_{min} \geq 150$. For Q_t it has to be taken in account that the minimum value is not lower than the minimum value as indicated in the table above and that $Q_t \leq 0,1\ Q_{max}$.

An explanation of all type designations is presented in chapter 13 of document no. 10362/31-03.

1.2.3 Type of gas
- The meter is suitable for a natural gas type H, with a Gross Wobbe Index between 45,7 MJ/m^3 and 54,7 MJ/m^3 at 15 °C and 1,01325 bar, or;
- The meter is suitable for a natural gas type L, with a Gross Wobbe Index between 39,1 MJ/m^3 and 44,8 MJ/m^3 at 15 °C and 1,01325 bar.

1.2.4 Maximum p_{max} : 0,5 bar

1.2.5 Sample frequency
The gas meter uses a random sample time with an average of 2,0 seconds. Alternatively a specific test mode can be activated for a maximum duration of 24 hours, during which the gas meter uses a fixed sample time of 0,4 seconds. The test mode can be activated through optical communication or as described in document no. 10362/31-25.

1.2.6 Error messages : see documentation no. 10362/31-23.

1.2.7 Software specification (refer to WELMEC 7.2):

- Software type P;
- Risk Class C;
- Extension S.

Software version	Identification number (checksum)	G-value	Remarks
EL40 EL40	A7345A73 3F8C0F42	G1.6 G2.5 G4 extended	The software version and checksum are displayed in the display sequence in menu SW1.
GL20 GL20 GL40 GL40 GL45	1B98163C E06D5DC3 8AAEF5ED 9658D989 8C4516C6	G4 MMU6	
JL40 JL40	A7BCEB12 568CB31F	G6	
BL40	AE0F5A61	G10 MMU16	
CL13 CL40	D1DD9B83 306988F6	G16 MMU25	
DL13 DL40	050A7042 52840ABD	G25 MMU40	

Software specification (refer to WELMEC 7.2)

- Software type P;
- Risk Class C;
- Extensions S and D.

Metrology processing software

Software version	Identification number (checksum)	G-value	Remarks
EL30	3CA2E7AF	G1.6 G2.5 G4 extended	The checksum is shown in the display sequency in menu SW1.
GL30	457E70AC	G4	
JL30	917875FB	G6	

Bootloader

Software version	Identification number (checksum)	Interface	Remarks
O430	375B8BF8	GPRS	The checksum is shown in the display sequency in menu SW3.
U530	CD16D523	WMBUS	
W530	CD16D523	Walk-By	

Software specification (refer to WELMEC 7.2):

- Software type P;
- Risk Class C;
- Extension S.

Software version	Identification number (checksum)	G-value	Remarks
EL10	ADB2	G1.6 G2.5 G4 extended	From 1 July 2021 onwards, for the software versions with identifications as mentioned in this table, conformity with the essential requirements of directive 2014/32/EU is not demonstrated and instruments with these software identifications may no longer be placed on the market. The software version and checksum are displayed in the display sequence in menu SW1.
EL10 E132 E167 G182 G192 G193 G194 GL01 GL10 GL10 I192	ADB2 03EF D029 A1A8 18FB 03B6 1CCF 5812 8096 1FA8 8F41	G4 MMU6	
A132 A167 J182 J192 J193 J194 JL01 JL10 L192	CA53 7199 BDC1 3484 4586 5FFA B0DE 7EEA D8DD	G6	
B166 B183 B192 B194 BL01 BL10	6CA4 82D8 B8EF 22FA BD57 4175	G10 MMU16	
C182 C192 C194 CL01 CL10 CL11 F154 F166	C9BE BC94 F780 62F5 B51F F7E8 E336 7D4C	G16 MMU25	

Software version	Identification number (checksum)	G-value	Remarks
D182 D192 D194 DL01 DL10 DL11 H154 H166	E589 E889 416D CBFE 38FA 3EF9 6B95 F29E	 G25 MMU40	

1.3 Essential shapes

The nameplate is bearing at least, good legible, the following information:
- CE marking including the supplementary metrological marking (M + last 2 digits of the year in which the instrument has been put into use);
- Notified Body identification number, following the supplementary metrological marking;
- EU-type examination certificate no. T10362;
- Manufacturer's name, registered trade name or registered trade mark;
- Manufacturer's postal address;
- Serial number of the meter and year of manufacture;
- Q_{max}, Q_t and Q_{min};
- Maximum working pressure p_{max};
- Ambient temperature range;
- Gas temperature range;
- Groups of gases for which the meter is approved;
- Base temperature (t_b);
- Specific centre temperature (t_{sp});
- Base pressure (p_b);
- Accuracy class;
- Resistance to high temperatures, marked with a 'T' (optional);
- For use in an open environment it is marked with 'H3'.

The following may be stated on either the nameplate or in the user manual:
- mechanical environment class;
- electromagnetic environment class.

The following may be stated on either the nameplate or on the flow tube:
- Evaluation Certificate no. TC11095 (if applicable).

Metrological relevant data may also be presented on the indicating device.

An example of the markings are shown in document no. 10362/31-24, 10362/31-62 and 10362/34-01.

1.3.1 Sealing: see chapter 2.

1.4 Conditional parts

1.4.1 Housing
The gas meter has a housing, which has sufficient tensile strength.
The meters G10, G16, G25, MMU25 and MMU40 can be closed using screws or rivets that are evenly divided over the top cover.
Examples of the housing are stated in documentation no. 10362/31-01, 10362/31-02, 10362/31-07, 10362/31-08, 10362/31-09, 10362/31-10, 10362/31-11, 10362/31-61, 10362/31-12, 10362/31-13, 10362/31-14, 10362/31-15, 10362/31-16, 10362/31-17, 10362/31-18 and 10362/31-19.

1.4.2 Indicating device
The indication takes place in m3, by at least 5 digits (G1.6, G2.5, G4, G6 and MMU6) or at least 6 digits (G10, G16, G25, MMU16, MMU25 and MMU40) before the comma and 3 digits after the comma. The way of presentation is described in document no. 10362/31-22 and 10362/34-03.

1.4.3 Tariff control
The meter is provided with more than one register. A tariff control is available by means of an internal clock.

1.4.4 Shut-off valve (optional)
The x4850xx, x4851xx and x4855xx type meters can be provided with a shut-off valve as described in document no. 10362/31-20 or 10362/31-21.

1.4.5 Optical communication
The meter is provided with optical communication. Via the communication no legally relevant data can be altered.

1.4.6 Wireless communication (optional)
The meter can optionally be provided with communication via GPRS, RF MBus (169 MHz), NB-IoT, ZigBee (2.4 GHz) or Walk-by (865 MHz). Changing legally relevant data via the wireless communication is in accordance with the WELMEC 7.2, extension D.

1.4.7 Battery power supply
The gas meter is powered by either one Lithium 3,6 V DC size D battery, 2 Lithium 3,6 V DC size D batteries (G1.6, G2.5, G4 , G6, G10, G16, G25, MMU6, MMU16, MMU25 and MMU40) or by 1 size D battery + 1 size AA battery (G10, G16 and G25).

The normal lifetime is at least 15,8 years for G1.6, G2.5, G4 and G6 MBus meters, 13 years for G1.6, G2.5, G4, G6, G10, G16, G25, MMU16, MMU25 and MMU40 GPRS meters with size D internal battery, 8,2 years for G10, G16 and G25 GPRS meters with AA internal battery.
A low battery alarm is generated after 90% of lifetime. On request alarms can be issued also for additional battery levels.

1.5 Conditional characteristics

1.5.1 Adjustment
At the end of the manufacturing process, the calibration procedure is performed. The indication is adjustable by applying linear interpolation as described in document no. 10362/40-02.

1.6 Conditional shapes

1.6.1 Connection

G1.6, G2.5, G4, G6 and MMU6
The meter is executed with a double pipe connection.
The diameter of the connections is at least 32 mm.
The distance between the middle of the in- and outlet connection is 153 mm maximally.

G10, G16, G25, MMU16, MMU25 and MMU40
The meter is executed with a double pipe connection.
The diameter of the connections is at least 45 mm.
The distance between the middle of the in- and outlet connection is 335 mm maximally.

2 Seals

The following items of the meter have metrological sealing:
The front plastic meter cover, that contains the electronics and the battery compartment, is closed by welding to either the plastic base (G1.6, G2.5, G4, G6, MMU6 and MMU16) or to the metal meter case (G10, G16, G25, MMU25, MMU40) and cannot be opened without damage. Therefore no specific sealing is applied. See document no. 10362/31-30 and 10362/34-04.

The metal meter case that contains the flow sensor of the G10, G16, G25, MMU25 and MMU40 sizes is either closed by:
- Rivets and cannot be opened without damage and therefore no specific sealing is applied.
  or
- Screws in this case the meter needs to be sealed with:
  - at least 2 seals or rivets, an example is shown in documentation no. 10362/31-31;
    or
  - the top cover plate need to be sealed to the steel enclosure, an example is shown in documentation no. 10362/31-32.

The battery is integral with the gas meter but in a separate compartment, which can be sealed by a utility seal. See document no. 10362/31-31.