

OIML Member State
The Netherlands

Number R49/2013-A-NL1-19.02 revision 3
Project number 3822834
Page 1 of 5

Issuing authority
Person responsible: NMi Certin B.V.
M.Ph.D. Schmidt

Applicant and
Manufacturer: Euromisure WIKA Instruments S.a.s. di WIKA Italia S.r.l.
Via G. Borghisani, 4
26035 Pieve S. Giacomo (CR)
Italy

Identification of the
certified type: An electromagnetic **water meter**
Type: FLC-1000EL, FLC-2200EL and FLC-2300
with electronic converter FLC-406M and FLC-406AM

Characteristics: See page 2 and further

This OIML Certificate is issued under scheme A.

This Certificate attests the conformity of the above identified type (represented by the sample(s) identified in the OIML Type Evaluation Report) with the requirements of the following Recommendation of the International Organization of Legal Metrology (OIML):

R49-1 (2013) "Water meters intended for the metering of cold potable water and hot water"

Accuracy class: 1 and 2

This Certificate relates only to the metrological and technical characteristics of the type of measuring instrument covered by the relevant OIML International Recommendation identified above. This Certificate does not bestow any form of legal international approval.

This certificate and supporting reports comply with the requirements of OIML-CS-PD-07 clause 6.2.

Important note: Apart from the mention of the Certificate's reference number and the name of the OIML Member State in which the Certificate was issued, partial quotation of the Certificate and of the associated OIML Type Evaluation Report(s) is not permitted, although either may be reproduced in full.

Issuing Authority: **NMi Certin B.V., OIML Issuing Authority NL1**
13 December 2024

Certification Board

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

The notification of NMi Certin B.V. as Issuing Authority can be verified at www.oiml.org

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.



OIML Member State
The Netherlands

Number R49/2013-A-NL1-19.02 revision 3
Project number 3822834
Page 2 of 5

The conformity was established by the results of tests and examinations provided in the associated reports:

- NMI-15200444-01 dated 31 March 2016 that includes 39 pages;
- 150701670 dated 30 March 2016 that includes 42 pages;
- NMI-16200309-01 revision 1 dated 22 March 2018 that includes 77 pages;
- 160600944/MUT 2200, DN 50, full bore dated 28 October 2016 that includes 31 pages;
- 160600948/MUT 2200, DN 65, full bore dated 28 October 2016 that includes 31 pages;
- 160600939/MUT 2300, DN 80, reduced bore dated 28 October 2016 that includes 34 pages;
- NMI-1902198-01 dated 3 December 2018 that includes 16 pages;
- NMI-2186686-01 dated 24 May 2019 that includes 43 pages;
- NMI-2186686-02 dated 24 May 2019 that includes 47 pages;
- NMI-2463352-01 dated 18 January 2021 that includes 27 pages;
- NMI-3369067-01 dated 10 May 2022 that includes 13 pages.
- NMI-3670720-01 dated 22 September 2023 that includes 12 pages.

Characteristics of the measuring instrument

In table 1 the general characteristics of the measuring instrument are presented.

The measurement sensor can have the following cylindrical measuring tube:

- Full-bore for type FLC-1000EL (without flanges) or FLC-2200EL (with flanges); or
- Reduced bore for type FLC2300.

Tables 2 and 3 give an overview of the general characteristics of the family of instruments.

The construction of the measuring instrument is recorded in the documentation folder number T11690-4.

Table 1 General characteristics

Measuring principle	Electromagnetic
Accuracy class of FLC-2200EL	2
Accuracy class of FLC-2300	1
Environmental class	M1 / O (installed outdoors)
Electromagnetic environment	E1 for remote version of converter FLC-406M E2 for compact version of converter FLC-406M E2 for compact and remote version of converter FLC-406AM E1 for compact and remote version of converter FLC-406M/AM with Bluetooth & RS485 and/or 4-20mA output
Temperature range ambient	-25 °C / +55 °C
Water temperature class	T50 (+0,1 °C / +50 °C)
Maximum admissible pressure (MAP)	1,6 MPa (16 bar)
Orientation	All positions (Horizontal, vertical or diagonal)
Flow profile sensitivity class	U0 and D0 (0 x DN upstream and 0 x DN downstream)

OIML Member State
The Netherlands

Number R49/2013-A-NL1-19.02 revision 3
Project number 3822834
Page 3 of 5

Reverse flow	The water meter is designed to measure reverse flow																												
Pressure loss class of full-bore sensor types FLC-1000EL or FLC-2200EL	Δp 10 (0,010 MPa or 0,10 bar) for all sizes																												
Pressure loss class of FLC-2300 based on documentation 11690/0-06	Δp 10 (0,010 MPa or 0,10 bar) for sizes < DN80 Δp 16 (0,016 MPa or 0,16 bar) for sizes \geq DN80																												
Pressure loss class of FLC-2300 based on documentation 11690/0-05	Δp 25 (0,025 MPa or 0,25 bar) for sizes < DN80 Δp 40 (0,040 MPa or 0,40 bar) for sizes \geq DN80																												
Power supply	Replaceable battery (2,9 – 3,7 V) DC mains (10 - 28 V) only for FLC-406AM																												
Software identification	<p>Software 'Bootloader':</p> <table border="1"> <thead> <tr> <th>Software versions</th> <th>CRC Checksum</th> </tr> </thead> <tbody> <tr> <td>01.00</td> <td>63A2EDED</td> </tr> <tr> <td>01.01</td> <td>67AEA1E4</td> </tr> <tr> <td>01.02</td> <td>DE7A99AB</td> </tr> </tbody> </table> <p>Software 'Legally relevant firmware':</p> <table border="1"> <thead> <tr> <th>Software versions</th> <th>CRC Checksum</th> </tr> </thead> <tbody> <tr> <td>01.05</td> <td>CAA8A4C7</td> </tr> <tr> <td>01.15</td> <td>6AA50C55</td> </tr> <tr> <td>01.16</td> <td>E93E3A1E</td> </tr> <tr> <td>01.21</td> <td>79413617</td> </tr> <tr> <td>01.23</td> <td>E7DD52E4</td> </tr> <tr> <td>01.36</td> <td>E1A52981</td> </tr> <tr> <td>01.38</td> <td>C2641A99</td> </tr> <tr> <td>01.42</td> <td>2B6CF4C7</td> </tr> <tr> <td>01.44</td> <td>D867EC79</td> </tr> </tbody> </table>	Software versions	CRC Checksum	01.00	63A2EDED	01.01	67AEA1E4	01.02	DE7A99AB	Software versions	CRC Checksum	01.05	CAA8A4C7	01.15	6AA50C55	01.16	E93E3A1E	01.21	79413617	01.23	E7DD52E4	01.36	E1A52981	01.38	C2641A99	01.42	2B6CF4C7	01.44	D867EC79
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OIML Member State
The Netherlands

Number R49/2013-A-NL1-19.02 revision 3
Project number 3822834
Page 4 of 5

Table 2 General characteristics of the family of instruments - Full bore type FLC-2100EL and FLC-2200EL

Meter size	Ø in- and outlet [mm]	Flow rates [m ³ /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	10	16	1600	2000	160

Table 3 General characteristics of the family of instruments - Reduced bore type FLC-2300

Meter size	Ø in- and outlet [mm]	Flow rates [m ³ /h]				Ratio Q3/Q1
		Minimum Q1	Transitional Q2	Permanent Q3	Overload Q4	
DN50	50	0,125	0,2	25	31,25	200
DN65	65	0,2	0,32	40	50	200
DN80	80	0,315	0,504	63	78,75	200
DN100	100	0,5	0,8	100	125	200
DN125	125	0,8	1,28	160	200	200
DN150	150	1,25	2	250	312,5	200
DN200	200	3,15	5,04	630	787,5	200
DN250	250	5	8	1000	1250	200
DN300	300	8	12,5	1000	1250	125

OIML Member State
The Netherlands

Number R49/2013-A-NL1-19.02 revision 3
Project number 3822834
Page 5 of 5

Table 4 General characteristics of the indicating device - Full bore type FLC-1000EL and FLC-2200EL

Meter size	Indicating range (minimum value) [m ³]	Verification scale interval (maximum value) [m ³]
DN32, DN40	9 999 999	0,0001
DN50, DN65, DN80, DN100	9 999 999	0,001
DN125, DN150, DN200, DN250, DN300	9 999 999	0,01

Table 5 General characteristics of the indicating device - Reduced bore type FLC-2300

Meter size	Indicating range (minimum value) [m ³]	Verification scale interval (maximum value) [m ³]
DN50	9 999 999	0,0001
DN65, DN80, DN100, DN125, DN150	9 999 999	0,001
DN200, DN250, DN300	9 999 999	0,01

Certificate history:

This revision replaces the previous version.

Revision	Date	Description of the modification
Initial	4 July 2019	
1	17 November 2022	<ul style="list-style-type: none"> - Addition of TLC-1000EL and full-bore sizes DN32 and DN40 - Lowering pressure loss class of TLC-2300; - Addition of electronic hardware module for optional Bluetooth & RS485 and/or 4-20mA output; - Additional software.
2	18 July 2024	Name change
3	13 December 2024	<ul style="list-style-type: none"> - Update of electronic hardware module - Software update