

**OIML Member State**  
The Netherlands

Number R49/2013-A-NL1-20.01  
Project number 2254799  
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Issuing authority  
Person responsible: NMi Certin B.V.  
M. Boudewijns

Applicant and  
Manufacturer: ABB Limited  
Oldends Lane  
GL10 3TA Stonehouse  
United Kingdom

Identification of the  
certified type: An electromagnetic **water meter**  
Type: AquaMaster4 FEW4XX.R and FET4 \*

\*) The type designation XX can be on the first X for 1 or 3 (standard or enhanced) and the second X can be 1, 2, 8 or 9 (integral/remote version, optionally sensor only).

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):

**R 49-1 (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.

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**  
14 August 2020

#### 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](http://www.oiml.org)

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The conformity was established by the results of tests and examinations provided in the associated report(s):

- No. NMI-2254799-01 dated 14 August 2020 that includes 235 pages.

### Characteristics of the measuring instrument

In Table 1 the general characteristics of the measuring instrument are presented.  
Table 2 gives an overview of the general characteristics of the family of instruments.  
The construction of the measuring instrument is recorded in the Documentation folder no. T11851-1.

**Table 1 General characteristics**

Measuring principle	Electromagnetic
Accuracy class	1 and 2
Environmental class	B (installed in buildings) for flow transmitter O (installed outdoors) for flow sensor
Electromagnetic environment	E1
Temperature range ambient	+5 °C / +55 °C (for flow transmitter) -25 °C / +55 °C (for flow sensor)
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)
Reverse flow	The sensor is intended to measure reverse flow
Pressure loss class	$\Delta p$ 40 (0,40 bar) for sizes DN40 and DN50 $\Delta p$ 65 (0,65 bar) for sizes larger than DN50
Power supply	AC mains: 85 –240 VAC @ 50/60 Hz Renewable energy power (DC powered): 6 – 32 V Replaceable Battery: 3,6 V (operating range: 2,9 - 3,6 V)
Software identification	Version number: 03.00.03 Checksum: B26AFE6B

**Table 2 General characteristics of the family of instruments**  
**Reduce bore - AC mains powered**

Meter size	Accuracy class	Flow rates [m <sup>3</sup> /h]				Ratio Q3/Q1
		Minimum Q1	Transitional Q2	Permanent Q3	Overload Q4	
DN40	1	0,05	0,08	25	31,25	500
	2	0,025	0,04	25	31,25	1000
DN50	1	0,08	0,128	40	50	500
	2	0,04	0,064	40	50	1000
DN65	1 & 2	0,063	0,1008	63	78,75	1000
DN80	1 & 2	0,1	0,16	100	125	1000
DN100	1	0,32	0,512	160	200	500
	2	0,16	0,256	160	200	1000
DN125	1	0,32	0,512	160	200	500
	2	0,16	0,256	160	200	1000
DN150	1 & 2	0,4	0,64	400	500	1000
DN200	1 & 2	0,63	1,008	630	787,5	1000
DN250	1	2	3,2	1000	1250	500
	2	1	1,6	1000	1250	1000
DN300	1	3,2	5,12	1600	2000	500
	2	1,6	2,56	1600	2000	1000
DN350	1	3,2	5,12	1600	2000	500
	2	1,6	2,56	1600	2000	1000

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.

**Table 3 General characteristics of the family of instruments**  
**Reduce bore - Battery / Renewable energy powered**

Meter size	Accuracy class	Flow rates [m <sup>3</sup> /h]				Ratio Q3/Q1
		Minimum Q1	Transitional Q2	Permanent Q3	Overload Q4	
DN40	1 & 2	0,0625	0,1	25	31,25	400
DN50	1 & 2	0,1	0,16	40	50	400
DN65	1	0,39375	0,63	63	78,75	160
	2	0,1575	0,252	63	78,75	400
DN80	1	0,625	1	100	125	160
DN80	2	0,25	0,4	100	125	400
DN100	1	1	1,6	160	200	160
	2	0,4	0,64	160	200	400
DN125	1	1	1,6	160	200	160
	2	0,4	0,64	160	200	400
DN150	1 & 2	1	1,6	400	500	400
DN200	1 & 2	1,575	2,52	630	787,5	400
DN250	1	6,25	10	1000	1250	160
	2	2,5	4	1000	1250	400
DN300	1	10	16	1600	2000	160
	2	4	6,4	1600	2000	400
DN350	1	10	16	1600	2000	160
	2	4	6,4	1600	2000	400

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.

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**Table 4 General characteristics of the indicating device**  
**Reduce bore – AC mains powered**

Meter size [mm]	Indicating range (maximum value) [m <sup>3</sup> ]	Indicating range (minimum value) [m <sup>3</sup> ]	Verification scale interval (maximum value) [m <sup>3</sup> ]
DN40, DN50, DN65	9999999	99999	0,0001
DN80	9999999	9999999	0,0001
DN100, DN125, DN150, DN200	9999999	9999999	0,001
DN250	9999999	9999999	0,001
DN300, DN350	9999999	9999999	0,01

**Table 5 General characteristics of the indicating device**  
**Reduce bore – Battery / Renewable energy powered:**

Meter size [mm]	Indicating range (maximum value) [m <sup>3</sup> ]	Indicating range (minimum value) [m <sup>3</sup> ]	Verification scale interval (maximum value) [m <sup>3</sup> ]
DN40, DN50	9999999	99999	0,0001
DN65	9999999	99999	0,001
DN80, DN100, DN125, DN150	9999999	9999999	0,001
DN200	9999999	9999999	0,01
DN250, DN300, DN350	9999999	9999999	0,01

### Production location

The water meter is produced at one of the following production locations:

- ABB Limited  
Oldends Lane  
GL10 3TA Stonehouse  
United Kingdom (UK)
- ABB Engineering (Shanghai) Ltd.  
No. 4528, Kangxin Highway  
Pudong New District  
Shanghai, 201319  
P.R. China
- ABB Inc.  
125 E. County Line Road  
Warminster, PA 18974  
United States of America (USA)