



OIML Member State  
SLOVAKIA

OIML Certificate No.  
R49/2013-A-SK1-2020.02

**OIML CERTIFICATE ISSUED UNDER SCHEME A**

**OIML Issuing Authority**

Name: **Slovak Legal Metrology (SLM)**  
Address: Hviezdoslavova 1124/31, 974 01 Banská Bystrica, Slovakia  
Person responsible: Jaromír Markovič, Director General

**Applicant**

Name: **Ningbo Aimei Meter Manufacture Co., Ltd.**  
Address: 68, West Town Road, Shangtian Town, Fenghua  
Zhejiang, China 3155

**Manufacturer**

Name: **Ningbo Aimei Meter Manufacture Co., Ltd.**  
Address: 68, West Town Road, Shangtian Town, Fenghua  
Zhejiang, China 3155

**Identification of the certified type** (*the detailed characteristics are defined in the additional pages*)

Water meter type UWM

**Designation of the module** (*if applicable*)

Ultrasonic water meter intended for the metering of cold potable water

This OIML 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):

OIML R 49, Edition (year): 2013

For accuracy class (if applicable): 2



**OIML Certificate No.**  
**R49/2013-A-SK1-2020.02**

This OIML Certificate relates only to metrological and technical characteristics of the type of measuring instrument covered by the relevant OIML Recommendation identified above.

This OIML Certificate does not bestow any form of legal international approval.

The conformity was established by the results of tests and examinations provided in the associated OIML type evaluation report:

No. 2020/ER011/SK1 dated 17<sup>th</sup> July 2020 that includes 16 pages.

The technical documentation relating to the identified type is contained in documentation file:

Ningbo Aimei\_UWM\_00 dated 15<sup>th</sup> June 2020 that includes 73 pages.

**OIML Certificate History**

Revision No.	Date	Description of the modification
0	17 <sup>th</sup> July 2020	Certificate first issued
-	-	-

Identification, signature and stamp

The OIML Issuing Authority

Jaromír Markovič

Date: 17<sup>th</sup> July 2020

*Important note:* Apart from the mention of the Certificate's reference number and the name of the OIML Member State in which the Certificate is 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.



## 1. Designation

The ultrasonic water meter type UWM is designed to measure, memorise and display the volume of water passing through the measurement transducer at metering conditions. The water meter is intended for the metering of volume of cold potable water in residential use and is intended for non-resettable measurements between two constant partners.

The water meter type UWM is compact ultrasonic water meter with electronic indication device. The measurement is based on ultrasonic bidirectional transit-time principle.

The water meter type UWM can be installed to operate in all positions and is not designed to measure the reverse flow.

## 2. Description

Essential parts of the water meter type UWM:

- Flow sensor:
  - cylindrical brass body with inlet and outlet threaded connections;
  - inner plastic element with two mirrors (sound path) placed in the cylindrical brass body;
  - two ultrasonic sensors placed on the upside of the cylindrical brass body;
  - flow straightener placed directly in the cylindrical brass body on the inlet side.
- Calculator and indication device:
  - plastic housing of the calculator with indication device directly mounted on the flow sensor;
  - main PCB board with LCD display and optical sensor;
  - electronic LCD non-permanent (automatic scrolling) display with 10 digits and indication range of 99999.99999 m<sup>3</sup>. The sub-multiples of a cubic meter are indicated on the display by the comma and top and bottom lines. The measured volume is displayed for 10 s. When the maximum indication range of the volume totalization is reached, the indication range will continue measuring starting from zero cubic meter.
  - non-replaceable lithium battery.

Non-essential parts of the water meter type UWM:

- non return valve (optional).

## 3. Metrological functions

Metrological functions of water meter type UWM:

- measuring, memorizing and displaying the volume of water passing through the water meter

## 4. Integrated equipment and functions

Integrated equipment and functions of water meter type UWM:

- not applicable.



## 5. Software specification

Table 1

Software versions	Size	Checksum	Remarks
V1.3	DN 15	21574	-
	DN 20	22681	-

The software version and checksum can be checked through the automatic scrolling display on the screen indicating together the software version in the form 13 and value of checksum. The software version and checksum is also indicated on the data plate in the form SW 13 21574 for DN15 and in the form SW 13 22681 for DN20.

### 5.1 Accountable alarms

During the measuring process the calculator and indication device detects automatically if a fault condition occurs and eventually stops the measurement reporting an alarm indication on the display.

## 6. Technical and metrological data

Table 2: Technical and metrological data of the water meter type UWM, DN15

Parameter	Unit	Value							
Nominal diameter DN	mm	15							
Permanent flowrate $Q_3$	m <sup>3</sup> /h	1,6				2,5			
Minimum flowrate $Q_1$	m <sup>3</sup> /h	0,0128	0,01	0,008	0,0064	0,0125	0,01	0,00794	0,00625
Transitional flowrate $Q_2$	m <sup>3</sup> /h	0,02048	0,016	0,0128	0,01024	0,02	0,016	0,0127	0,01
Overload flowrate $Q_4$	m <sup>3</sup> /h	2				3,125			
Ratio $Q_3/Q_1$	R	125	160	200	250	200	250	315	400
Ratio $Q_2/Q_1$	-	1,6							
Connection thread	mm	G ¾ B							
Construction length $L$	mm	110 / 115 / 130 / 165 / 170 / 190							
Installation orientation	-	all positions							
Water temperature range $\theta$ (temperature class)	°C	0,1 to 50 (T30, T50)							
Maximum admissible pressure $M_{AP}$	bar	16							
Pressure loss class $\Delta p$	bar	0,63							
Maximum permissible error in upper flowrates range $Q_2 \leq Q \leq Q_4$	%	± 2 (at $\theta \leq 30^\circ\text{C}$ ) ± 3 (at $\theta > 30^\circ\text{C}$ )							
Maximum permissible error in lower flowrates range $Q_1 \leq Q < Q_2$	%	± 5							



Parameter	Unit	Value
Scale interval (resolution of the indicating device)	m <sup>3</sup>	0,00001
Capacity of calculator	m <sup>3</sup>	99999,99999
Flow profile sensitivity class	-	U0 D0
Battery	-	li-battery 3,6 V, life time 10 years
Environmental classification	-	O
Electromagnetic environmental class	-	E1

Table 3: Technical and metrological data of the water meter type UWM, DN20

Parameter	Unit	Value							
Nominal diameter DN	mm	20							
Permanent flowrate $Q_3$	m <sup>3</sup> /h	2,5				4			
Minimum flowrate $Q_1$	m <sup>3</sup> /h	0,02	0,015625	0,0125	0,01	0,02	0,016	0,0127	0,01
Transitional flowrate $Q_2$	m <sup>3</sup> /h	0,032	0,025	0,02	0,016	0,032	0,0256	0,02032	0,016
Overload flowrate $Q_4$	m <sup>3</sup> /h	3,125				5			
Ratio $Q_3/Q_1$	R	125	160	200	250	200	250	315	400
Ratio $Q_2/Q_1$	-	1,6							
Connection thread	mm	G 1 B							
Construction length $L$	mm	110 / 130 / 165 / 190							
Installation orientation	-	all positions							
Water temperature range $\theta$ (temperature class)	°C	0,1 to 50 (T30, T50)							
Maximum admissible pressure $MAP$	bar	16							
Pressure loss class $\Delta p$	bar	0,63							
Maximum permissible error in upper flowrates range $Q_2 \leq Q \leq Q_4$	%	$\pm 2$ (at $\theta \leq 30^\circ\text{C}$ ) $\pm 3$ (at $\theta > 30^\circ\text{C}$ )							
Maximum permissible error in lower flowrates range $Q_1 \leq Q < Q_2$	%	$\pm 5$							
Scale interval (resolution of the indicating device)	m <sup>3</sup>	0,00001							



Parameter	Unit	Value
Capacity of calculator	m <sup>3</sup>	99999,99999
Flow profile sensitivity class	-	U0 D0
Battery	-	li-battery 3,6 V, life time 10 years
Environmental classification	-	O
Electromagnetic environmental class	-	E1

## 7. Marking and inscriptions

The following data shall be marked on the water meter:

- name or trademark of the manufacturer;
- type name of the water meter;
- unit of measurement m<sup>3</sup>;
- year of manufacture, the last two digits of the year of manufacture, or the month and year of manufacture;
- serial number (as near as possible to the indicating device);
- direction of flow, by means of an arrow (shown on both sides of the body or on one side only provided the direction of flow arrow is easily visible under all circumstances);
- flowrate Q<sub>3</sub> and ratio Q<sub>3</sub>/Q<sub>1</sub> indicated as (R) followed by the ratio value;
- maximum admissible pressure (MAP);
- temperature class;
- pressure loss class;
- the latest date by which the meter shall be replaced;
- environmental classification;
- installation sensitivity class;
- electromagnetic environmental class;
- type approval sign according to national regulations.

## 8. Security measures

The water meter type UWM shall be protected against unauthorised manipulation and opening by the wire with a seal securing the connection between the upper and lower part of plastic housing of the calculator and indication device.

