OIML Member State SLOVAKIA	**OIML Certificate No.** **R49/2013-A-SK1-26.05**

OIML CERTIFICATE ISSUED UNDER SCHEME A

OIML Issuing Authority

Name: **Slovak Legal Metrology (SLM)**
Address: Geologická 9966/1,
821 06 Bratislava-Podunajské Biskupice, Slovakia
Product Certification Body
Hviezdoslavova 31
974 01 Banská Bystrica, Slovakia
Person responsible: Ing. Dušan Šmigura, PhD., Director of PCB

Applicant

Name: **Hangzhou Licheng Electronic Machinery Co., Ltd.**
Address: 2005, 2nd Floor, Building 2, No. 128 Zhiyi Road
Hangzhou, Zhejiang, China 311121

Manufacturer

Name: **Hangzhou Licheng Electronic Machinery Co., Ltd.**
Address: 2005, 2nd Floor, Building 2, No. 128 Zhiyi Road
Hangzhou, Zhejiang, China 311121

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

Water meter type **U-LY**

Designation of the module *(if applicable)*

Ultrasonic water meter with electronic indication device

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

SLOVAK LEGAL METROLOGY SLM

OIML Certificate No.
R49/2013-A-SK1-26.05

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. 2026/ER035/SK1 dated 4th May 2026 that includes 16 pages.

The technical documentation relating to the identified type is contained in documentation file name: „Technical documentation file Huizhong Licheng_U-LY_00“ dated 4th May 2026 that includes 31 pages.

OIML Certificate History

Revision No.	Date	Description of the modification
0	4th May 2026	Certificate first issued
-	-	-

Identification, signature and stamp

The OIML Issuing Authority

SLOVAK LEGAL METROLOGY SLM

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Dušan Šmigura

Date: 4th May 2026

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 meters type **U-LY** (U-LY-15 and U-LY-20) are designed to measure, memorize and display the volume of water passing through the measurement transducers at metering conditions. The water meters are intended for the measurement of clean water volume in residential use.

The water meters **U-LY** (U-LY-15 and U-LY-20) are residential compact ultrasonic water meter with electronic indication device. The operation principle of ultrasonic water meters is to measure flow by emitting high-frequency sound waves (ultrasound) through water and calculating the time it takes for signals to travel between sensors in both directions.
The water meters **U-LY** (U-LY-15 and U-LY-20) can be installed to operate in all positions. The water meters are not designed to measure the reverse flow.

2. Description

Essential parts of the water meter type U-LY:

Water meter body:
- the plastic cylindrical body firmly connected together with the plastic housing for the calculator.

Flow sensor:
- two reflection sheets installed in the centre of the cylindrical plastic body (pipe section);
- two ultrasonic transducers at the upstream and downstream of the measurement channel (pipe section) to transmit and receive ultrasonic signals.

Calculator and indication device:
- the plastic housing of the calculator with indication device directly mounted on the flow sensor;
- the PCB board;
- the electronic scrolling LCD display with 9 digits and indication range of 999999.999 m^3;
- the decimal values after the decimal point are smaller;
- one non-replaceable lithium battery for measurement functions (U_{min} = 3,0 V; U_{max} = 3,6 V; 12 years battery life).

Non-essential parts of the water meter type U-LY:
- filter;
- strainer;
- communication interfaces: LoRaWAN, NB-IoT, Pulse-Output, WM-bus, M-bus;
- one non-replaceable lithium battery pack for wireless communication (U_{min} = 3,0 V; U_{max} = 3,6 V).

2.1 Metrological functions

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

2.2 Operation and presentation of legal data

The following legal data are available on the automatic scroll LCD display in user mode and test mode:
a) legal software checksum (32128) + legal software version (16);
b) total measured volume (m^3) + flow rate (m^3/h);
c) total measured volume (L) + flow rate (m^3/h).

2.3 Software specification

Legally relevant software version and checksum for water meter U-LY:

Software version	Checksum	Remarks
16	32128	-

The checksum and software version can be viewed via automatic scrolling LCD display.

2.4 Accountable alarms

If a fault condition occurs and the measurement stops, follow the user manual issued by the manufacturer.

2.5 Integrated equipment and functions

Communication interfaces: LoRaWAN, NB-IoT, Pulse-Output, WM-bus, M-bus.

3. Technical and metrological data

Parameter	Unit	U-LY-15	U-LY-20
Nominal diameter DN	mm	DN15	DN20
Permanent flowrate Q_3	m^3/h	2,5	4
Minimum flowrate Q_1	m^3/h	0,005	0,008
Transitional flowrate Q_2	m^3/h	0,008	0,0128
Overload flowrate Q_4	m^3/h	3,125	5
Ratio Q_3/Q_1	-	500	
Ratio Q_2/Q_1	-	1,6	
Connection thread	-	G¾B	G 1B
Construction length L	mm	110	110
Installation orientation	-	all positions	
Water temperature range	°C	0,1 - 50	
Water temperature range class	-	T50	
Maximum admissible pressure (MAP)	bar	16	
Pressure loss Pressure loss class Δp	bar -	0,40 Δp 40	
Ingress Protection (IP) rating	-	IP68	
Maximum permissible error in upper flowrates range $Q_2 \leq Q \leq Q_4$	%	±2% (0,1 - 30°C) ±3% (30 - 50°C)	
Maximum permissible error in lower flowrates range $Q_1 \leq Q < Q_2$	%	±5%	
Scale range – normal precision	m^3	0,001	
Scale range – high precision	L	0,001	
Capacity of calculator – normal mode	m^3	999999,999	
Capacity of calculator – testing mode	L	999999,999	

Parameter	Unit	U-LY-15	U-LY-20
Accuracy class	-	2	
Mechanical class	-	M1	
Environmental class	-	O	
Electromagnetic class	-	E1	
Climatic class	°C	-25 to +55	
Flow profile sensitivity class	-	U0D0	
Battery	-	one non-replaceable lithium battery (U_{min} = 3,0 V; U_{max} = 3,6 V; 12 years life)	

4. Marking and inscriptions

The following data shall be marked on the water meter:

a) name or trademark of the manufacturer;
b) type name of the water meter;
c) unit of measurement m^3;
d) year of manufacture, the last two digits of the year of manufacture, or the month and year of manufacture;
e) serial number (as near as possible to the indicating device);
f) flowrate Q_3 and ratio Q_3/Q_1 indicated as (R) followed by the ratio value;
g) the flow direction shall be marked on a water meter's body in form of an arrow;
h) maximum admissible pressure (MAP);
i) temperature class (T);
j) pressure loss class (Δp);
k) the latest date by which the battery shall be replaced;
l) environmental classification;
m) installation sensitivity class;
n) electromagnetic environmental class;
o) type approval sign according to national regulations.

Designation of trademarks on the water meters

The manufacturer uses following trademarks on the water meter:

LUYO

5. Security measures

The water meters **U-LY** shall be protected against unauthorized manipulation and opening by:

- plastic sealing (Fig. 5).

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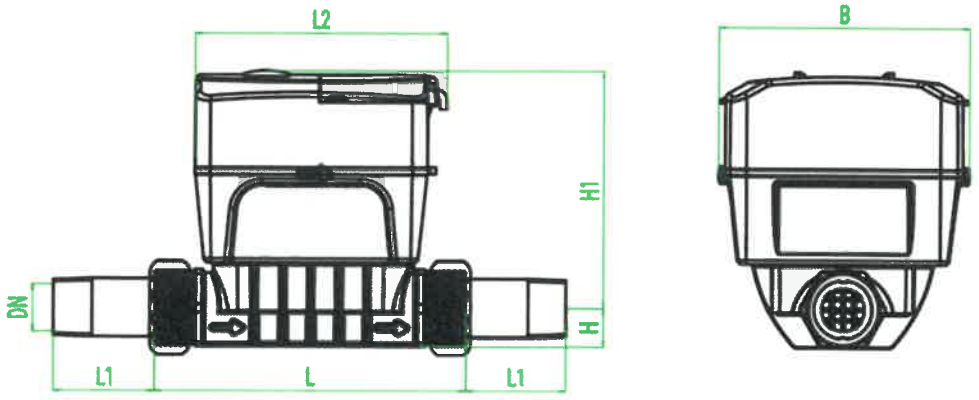
Figures

Fig. 1: Illustrative views of water meter type U-LY



	L	L1	L2	H	H1	B	Connection Thread on Meter	Connection Thread of Coupling
DN15	110	46.5	89	14	83	89	G3/4B	R1/2
DN20	110	49	89	17	84.5	89	G1B	R3/4

Fig. 2: Dimensions of water meters U-LY

LCD display symbols			
			
Symbol	**Meaning**	**Symbol**	**Meaning**
←	Reverse flow		Flashing water temperature is < 0°C
→	Forward flow		Continuously on water temperature is T50 > 50°C or T30 > 30°C
	Battery status - full	°C	degrees Celsius – water temperature
	Battery status - empty	GAL	gallon - unit of water volume
	Water meter in factory/testing mode	L	Liters – unit of water volume
	Air detected in pipe	m^3	cubic meters
	Leakage		Cover open alarm (reserved function, inactive)
	Wate meter is communicating	ERR	ERROR display (reserved function, inactive)
⚠	Flashing – abnormal flow rate ($Q_3<Q\leq Q_4$)	DATE TIME	date and time
⚠	Continuously on – overload / burst ($Q>Q_4$)	GPM	Gallons Per Minute - measures the flow rate of water
	Valve closed (reserved function, inactive)	m^3/h	cubic meters per hour – measures the flow rate of water

Fig. 3: LCD display symbols of water meter type U-LY

LCD display options in User mode			
No.	**Display content**	**Description**	**Unit**
1		Water temperature Flow rate	°C m^3/h
2		32128 - Legal software version number 16 - checksum	-
3		Full eights test	-
4		Blank screen test	-
5		Total volume - consumption of water Flow rate	m^3 m^3/h
6		Total volume – consumption of water Flow rate	L m^3/h

How to enter from User mode to Test mode			
7		Testing mode is activated by attaching the optical connection head to the optical port of the water meter. The spanner symbol appears after successful entrance to testing mode.	-

Fig. 4a: Scrolling options of electronic LCD display in user mode

LCD display options in Testing mode			
1		Full eights test	-
2		Blank test	-
3		Total volume - consumption of water Flow rate	m^3 m^3/h
4		Total volume - consumption of water Flow rate	L m^3/h
5		Total volume - consumption of water Flow rate	m^3 m^3/h
6		Water temperature Flow rate	°C m^3/h
7		32128 - Legal software version number 16 - checksum	-
8		Testing mode off – the spanner symbol disappeared.	-

Fig. 4b: Scrolling options of electronic LCD display in testing mode

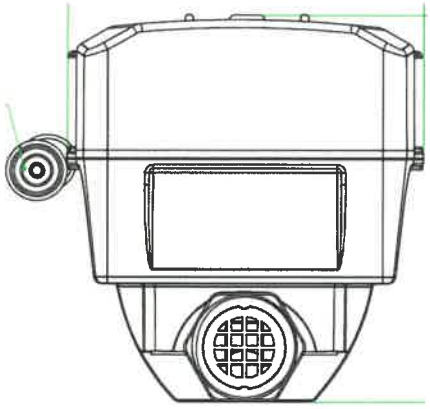


Fig. 5: Sealing of water meter type U-LY