



OIML Member State
SLOVAKIA

OIML Certificate No.
R49/2013-A-SK1-25.01

OIML CERTIFICATE ISSUED UNDER SCHEME A

OIML Issuing Authority

Name: **Slovak Legal Metrology (SLM)**
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Product Certification Body
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Person responsible: Ing. Dušan Šmigura, PhD., Director of PCB

Applicant

Name: **Huizhong Instrumentation Co., Ltd.**
Address: No.126 West Gaoxin Road, High-Tech
Industrial Development Zone
Tangshan 063020, China

Manufacturer

Name: **Huizhong Instrumentation Co., Ltd.**
Address: No.126 West Gaoxin Road, High-Tech
Industrial Development Zone
Tangshan 063020, China

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

Water meter type **SCL-61H-100, R400**

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



**OIML Certificate No.
R49/2013-A-SK1-25.01**

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. 2025/ER058/SK1 dated 9th January 2025 that includes 18 pages.

The technical documentation relating to the identified type is contained in documentation file name: „Technical documentation file Huizhong_SCL_00 to 07“ dated 4th December 2024 that includes 266 pages.

OIML Certificate History

Revision No.	Date	Description of the modification
0	9 th January 2025	Certificate first issued
-	-	-

Identification, signature and stamp

The OIML Issuing Authority




Dušan Šmigura

Date: 9th January 2025

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 water meter type **SCL-61H-100, R400** 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 measurement of volume of clean water in residential use.

The water meter type SCL-61H-100, R400 is compact ultrasonic water meter with electronic indication device. The measurement is based on ultrasonic bidirectional transit-time principle.

The flow is measured by the difference in time-of-flight of ultrasonic pulses with flow (downstream) and opposite to flow (upstream).

The water meter type SCL-61H-100, R400 can be installed to operate in the horizontal position with indication device on the top or in the vertical position.

Reverse flow:

- designed for measurement of reverse flow is water meter type:
 - o SCL-61H-100, R400 with software version V1-2.2;
- not designed for measurement of reverse flow are water meters types:
 - o SCL-61H-100, R400 with software version V1-1.1.

2. Description

2.1 Parts of the water meter type SCL-61H-100, R400:

Essential parts of the water meter:

Flow sensor:

- cylindrical brass body with inlet and outlet threaded connections;
- the inner plastic element (casing pipe) placed in the cylindrical brass and in the plastic body;
- two reflection sheeds installed in the center of the pipe at an angle of 45 degrees with the axis of the 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:

- plastic housing of the calculator with indication device directly mounted on the flow sensor;
- main PCB board with LCD display and optical sensor;
- non-replaceable lithium battery. The end of battery life indicator is activated when the battery voltage is below 3,6 V, lifetime 13 years;
- electronic LCD display (scrolling with using of optical sensor) with 10 digits and indication range of 19999,99999 m³ / 199999,9999 m³ according to tables in point 3.
The sub-multiples of a cubic meter are indicated on the display by the comma under numbers and above the numbers. When the maximum indication range of the volume totalization is reached, the indication range will continue measuring starting from zero cubic meter.

Non-essential parts:

- thermistor;
- pressure sensor (optionally).

2.2 Metrological functions

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



2.3 Operation and presentation of legal data

- a) the total measured volume (m³) is presented by means of the electronic LCD display;
- b) the following displays are available by means of short overlaps of the optical infrared sensor by the finger:
- total measured volume (m³);
 - flow rate (m³/h);
 - water temperature (°C);
 - cumulative effective running time (h);
 - pressure (kPa) - where applicable;
 - date (day-month-year);
 - time (hour-minute-second);
 - meter ID;
 - display test (an “eights” test);
 - display test (a “blanks” test);
 - checksum
 - software version number.

2.4 Software specification

Software version and checksum of legally relevant software:

Software versions	Checksum	Remarks
V1-1.1	3651	NB-IoT
	10200	NB-IoT with pressure sensor
	65167	M-Bus/RS485/Pulse
V1-2.2	49536	NB-IoT/LoRaWAN/W-MBus with reverse function (optional) with pressure sensor (optional)

The software version and checksum can be checked through the scrolling display.

2.5 Accountable alarms

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

2.6 Integrated equipment and functions

- optical interface;
- NB-IoT;
- M-Bus;
- RS-485;
- RF, Pulse, Sigfox (optional);
- LoRaWAN;
- W-MBus.

Via the parts listed in the point 2.6 no legally relevant data shall be altered. Data transferred via these parts are not considered as a metrological relevant data.



3. Technical and metrological data

Table 1 Water meters SCL-61H-100, R400

Characteristics	Unit	SCL-61H-100, R400					
		15	20	25	32	40	50
Nominal diameter DN	mm	15	20	25	32	40	50
Permanent flowrate Q_3	m ³ /h	2,5	4	6,3	10	16	25
Minimum flowrate Q_1	m ³ /h	0,010	0,016	0,025	0,040	0,064	0,100
		0,0079	0,0127	0,020	0,032	0,051	0,0794
		0,0063	0,010	0,016	0,025	0,040	0,0625
Transitional flowrate Q_2	m ³ /h	0,016	0,0256	0,040	0,064	0,1024	0,160
		0,0127	0,0203	0,032	0,051	0,081	0,127
		0,010	0,0160	0,025	0,040	0,064	0,100
Overload flowrate Q_4	m ³ /h	3,125	5	7,875	12,5	20	31,25
Ratio Q_3/Q_1	R	250					
		315					
		400					
Ratio Q_2/Q_1	-	1,6					
Connection thread	mm	G ¾ B	G1 B	G1 ¼ B	G 1 ½ B	G2 B	G2 ½ B
Construction length L	mm	110/165	130/154/ 190/195	160/225/ 260	160/180	200/245/ 300	294/300
Installation orientation	-	H/V with indication device on top					
Water temperature range (temperature class)	°C	0,1 to 50 (T30, T50)					
Maximum admissible pressure MAP	bar	16					
Pressure loss class Δp	bar	0,63 / 0,40					
		$\Delta p_{63} / \Delta p_{40}$					
MPE in upper flowrates range $Q_2 \leq Q \leq Q_4$	%	± 2 (at $\theta \leq 30^\circ\text{C}$) ± 3 (at $\theta > 30^\circ\text{C}$)					
MPE in lower flowrates range $Q_1 \leq Q < Q_2$	%	± 5					
Capacity of calculator	m ³	19999,99999			199999,9999		
Scale interval (resolution of the indicating device)	m ³	0,00001			0,0001		
Accuracy class	-	2					
Mechanical class	-	M1					
Climatic class	°C	- 25 to + 70					
Electromagnetic class	-	E2					
Climatic and mechanical environmental conditions (class) according to EN ISO 4064-1/OIML R 49-1	-	O (fixed meters installed outdoors)					
Flow profile sensitivity class	-	U0D0					
Battery	-	non-replaceable li-battery 3,6 V, life time 13 years					

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 (T30, T50);
- j) pressure loss class (Δp);
- k) letter H, if the meter can only be operated in the horizontal position, letter V, if the meter can only be operated in the vertical position;
- l) the latest date by which the meter shall be replaced;
- m) environmental classification;
- n) installation sensitivity class;
- o) electromagnetic environmental class;
- p) type approval sign according to national regulations.

Designation of trademarks on the water meters

The manufacturer uses following trademarks on the water meter:



5. Security measures

The water meter type SCL-61H-100, R400 shall be protected against unauthorized manipulation and opening by two lead seals ensuring the connection of the upper cover (prevents access to the PCB and software) with the lower part of the water meter (contains the body of the water meter). (Fig: 2).



6. Figures



Fig. 1a: Illustrative views of the water meters type SCL-61H-100, R400

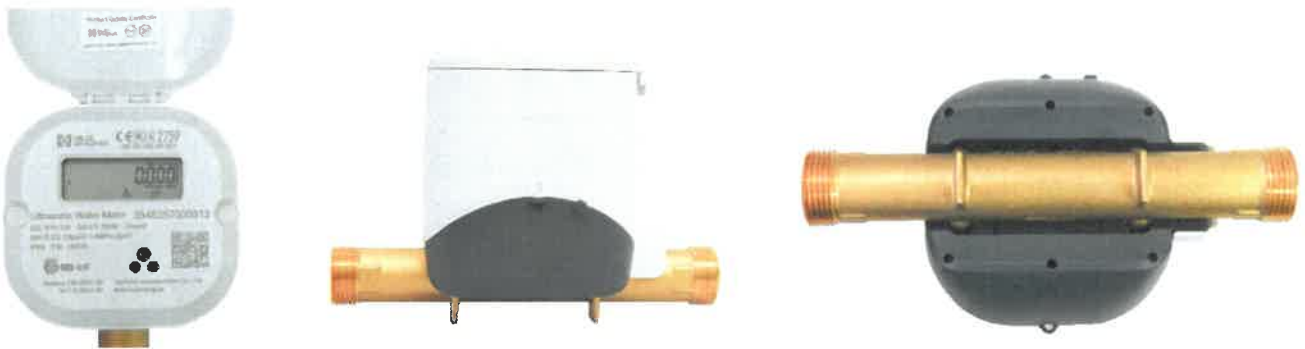


Fig. 1b: Alternative illustrative views of the water meters type SCL-61H-100, R400

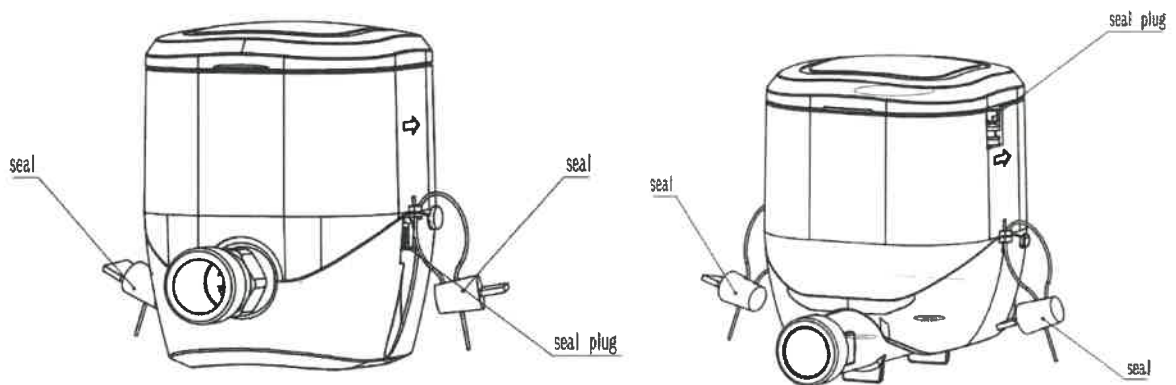


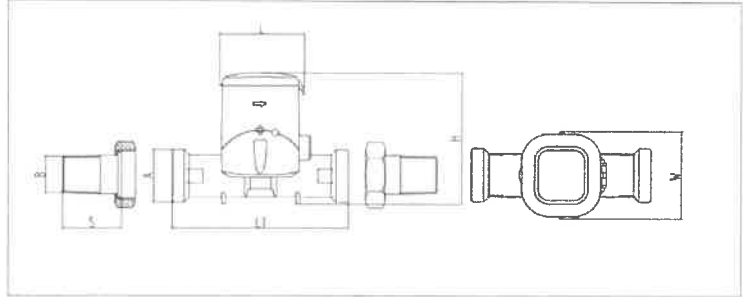
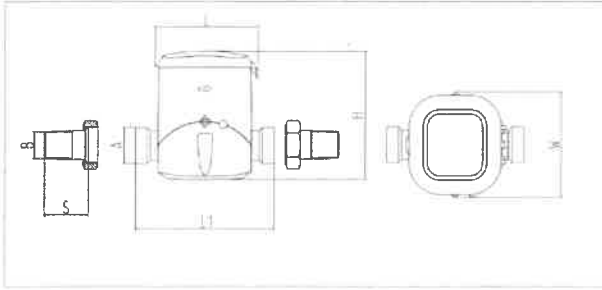
Fig. 2: The sealing of water meter types SCL-61H-100, R400



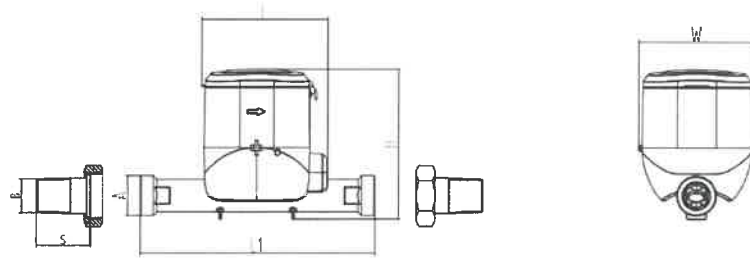
Water meter type SCL-61H-100, R400

DN15, DN20, DN25

DN32, DN40, DN50



Water meter type SCL-61H-100, R400 alternative



Dimensions in mm

Type	DN	L1	L	H	W	A
SCL-61H-100, R400	15	110/165	97	119	98	G ¾ B
	20	130/154/190/195				G 1B
	25	160/225/260				G1 ¼ B
	32	160/180		G 1 ½ B		
	40	200/245/300		G 2B		
	50	294/300		G 2 ½ B		
SCL-61H-100, R400 alternative	15	165	105	121	98	G ¾ B
	20	130/154/190/195		125		G 1B
	25	160/225/260		128		G1 ¼ B
	32	160/180		151		G 1 ½ B
	40	200/245/300		158		G 2B
	50	294/300		97		160

Fig. 3: Dimensions of the water meter SCL-61H-100, R400

