



OIML Member State
Czech Republic

OIML Certificate No.
R49/2013-A-CZ1-25.01
Revision 1

OIML CERTIFICATE ISSUED UNDER SCHEME A

OIML Issuing Authority

Name: Czech Metrology Institute
Address: Okružní 31, 638 00 Brno, Czech Republic

Person responsible: Jan Kalandra

Applicant

Name: Spire Metering Technology
Address: 34 Saint Martin Dr., Suite 13 A-9, MA 01752 Marlborough, USA

Manufacturer

Name: Spire Metering Technology
Address: 34 Saint Martin Dr., Suite 13 A-9, MA 01752 Marlborough, USA

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

water meter - ultrasonic
280W-...

Designation of the module (if applicable)

-

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

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. 0511-ER-V163-24 dated 11 December 2025 that includes 36 pages including annex 1

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

0511-UL-V163-24

OIML Certificate History

Revision No.	Date	Description of the modification
Addition 0	10 January 2025	Issuing certificate
Addition 1	15 December 2025	Addition new ratio R500 and new dimensions DN 32 – DN 40

The OIML Issuing Authority

RNDr. Pavel Klenovský

Head of Certification Body

Date: 15 December 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.

Measuring system description

The water meters type 280W-... are designed to measure, memorise and display the volume at metering conditions of water passing through the measurement transducer.

The water meters type 280W-... are designed to measure, memorise and display the volume at metering conditions of water passing through the measurement transducer.

The ultrasonic water meters type 280W-R intended for metering cold potable water, based on an ultrasonic transit-time principle, without flow conditioner and there are equipped with an electronic calculating/indicating device. The display shows the measurements in cubic meter volume and cubic meter per hour flow rate. The meter is not designed to measure reverse flow. The meter does not require any extra-mechanical housing or adjustments.

The meter is intended for mount to any position, the connecting horizontal, vertical and diagonal pipework with the flow axis in the horizontal, vertical and diagonal plane and with the indicating device positioned at the top and at the side. The body of meter is from brass.

The meter is equipped with the electronic indicating device. The display is a digital type, and can show up to 9 digits. The meter has two indication modes: High resolution mode and normal resolution mode. The high resolution mode is used during the calibration process. The water meter displays the volume resolution of 0.000001 m³ on the digital display in the high resolution mode.

The water meters type can be equipped by M-bus transmitter which can be used for remote reading.

Marking and inscriptions

The water meters types type 280W- shall be clearly and indelibly marked with the following information:

- Water meter type
- Unit of measurement (m³)
- Numerical value Q₃ in m³/h (Q₃ ×.×) and the ratio Q₃ / Q
- OIML certificate of conformity number
- Manufacturer's name, registered trade name or registered trade mark
- Year of manufacture, two last 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)
- Maximum admissible pressure (MAP ××)
- The temperature class (T××)
- The pressure loss class (ΔP ××)
- The installation sensitivity class (U× D×)

There are additional data required for water meter with the electronic indicating device:

- For a non-replaceable battery: the latest date by which the meter shall be replaced
- Environmental classification (B or O)
- Electromagnetic environmental class (E2)
- Software version / checksum (on digital display)

There are additional data required if the water meter is equipped with an ancillary device:

- Output signals for ancillary devices (type / levels)
- External power supply requirements (voltage – frequency)
- Sensor reading (impulse / L)

These markings shall comply with the requirements of OIML R 49 and shall be visible without dismantling the water meter after the instrument has been placed on the market or put into use.

Characteristics

Manufacturer:	Spire Metering Technology		
Model name:	280W-...		
Nominal diameter:	15	20	25
Type details:			
Q_1 [m ³ /h]:	flowrates are shown in Table <i>Basic metrological data (flowrates)</i>		
Q_2 [m ³ /h]:			
Q_3 [m ³ /h]:			
Q_4 [m ³ /h]:			
Q_3/Q_1 :	250; 400; 500		
Q_2/Q_1 :	1.6		
Q_4/Q_3 :	1.25		
Measuring principle:	ultrasonic		
Accuracy class:	2		
Temperature class:	T50; T30		
Water pressure class:	MAP16		
Pressure loss class:	Δp_{63}	Δp_{40}	Δp_{25}
Reverse flow:	Not designed to measure		
Mechanical environment class (OIML R 49-1:2013/ Directive 2014/32/EU): ¹	B, O / M1		
Electromagnetic environment: ¹	E2		
Temperature range ambient:	-25 °C / 55 °C		
Maximum admissible temperature [°C]:	50		
Maximum admissible pressure [MPa]:	1.6		
Orientation limitation:	any		
Indicating range – testing mode/user mode [m ³]:	999 999		
Resolution of the indicating device testing mode/user mode [m ³]:	0.001		
Resolution of the device for rapid testing [pulse/dm ³]:	-		
Resolution of the indicating device for rapid testing [m ³]:	0.000001		
EUT testing requirements (OIML R 49-2:2013, 8.1.8):			
Category:	Ultrasonic water meters		
Case:	B		
Installation details:			
Connection type (screw thread):	$G\frac{3}{4}"B$	$G1"B$	$G1\frac{1}{4}"B$
Minimum straight length of inlet pipe [mm]:	0		
Minimum straight length of outlet pipe [mm]:	0		
Flow profile sensitivity class:	U0D0		
Flow conditioner (details if required):	No		

Mounting:	In-line		
Orientation:	any		
Other relevant information:	-		
Length [mm]:	165	190	260
Reed switch power supply (U_{\max} / I_{\max}):	-		
Reed switch K-factor (impulse / L):	-		
Installation details (electrical):			
Wiring instructions:	-		
Mounting arrangement:	-		
Orientation limitations:	-		
Power supply:			
Type (battery, mains AC, mains DC):	Battery		
U_{\max} (V):	3.8		
U_{\min} (V):	3.0		
Frequency:	-		
Minimum battery life time [years]:	15 years		
Software version (of legally relevant SW):	151F		
CRC checksum (of legally relevant SW):	1849		
Ancillary devices (not certified):			
Reed sensor power supply (U_{\max} / I_{\max}):	-		
Type	-		
Power supply (U_{\max} / I_{\max}) ² :	-		
K-factor [pulse/Litres]:	-		
Reed sensor power supply (U_{\max} / I_{\max}):	-		
Further information specified by the manufacture (not certified)			
-	-		

Manufacturer:	Spire Metering Technology	
Model name:	280W-...	
Nominal diameter:	32	40
Type details:		
Q_1 [m^3/h]:	flowrates are shown in Table <i>Basic metrological data (flowrates)</i>	
Q_2 [m^3/h]:		
Q_3 [m^3/h]:		
Q_4 [m^3/h]:		
Q_3/Q_1 :	250; 400; 500	
Q_2/Q_1 :	1.6	
Q_4/Q_3 :	1.25	
Measuring principle:	ultrasonic	

Accuracy class:	2	
Temperature class:	T50; T30	
Water pressure class:	MAP16	
Pressure loss class:	$\Delta p 63$	
Reverse flow:	Not designed to measure	
Mechanical environment class (OIML R 49-1:2013/ Directive 2014/32/EU): ¹	B, O / M1	
Electromagnetic environment: ¹	E2	
Temperature range ambient:	-25 °C / 55 °C	
Maximum admissible temperature [°C]:	50	
Maximum admissible pressure [MPa]:	1.6	
Orientation limitation:	any	
Indicating range – testing mode/user mode [m ³]:	999 999	
Resolution of the indicating device testing mode/user mode [m ³]:	0.001	
Resolution of the device for rapid testing [pulse/dm ³]:	-	
Resolution of the indicating device for rapid testing [m ³]:	0.000001	
EUT testing requirements (OIML R 49-2:2013, 8.1.8):		
Category:	Ultrasonic water meters	
Case:	B	
Installation details:		
Connection type (screw thread):	G1½"B	G2"B
Minimum straight length of inlet pipe [mm]:	0	
Minimum straight length of outlet pipe [mm]:	0	
Flow profile sensitivity class:	U0D0	
Flow conditioner (details if required):	No	
Mounting:	In-line	
Orientation:	any	
Other relevant information:	-	
Length [mm]:	230	2245
Reed switch power supply (U _{max} / I _{max}):	-	
Reed switch K-factor (impulse / L):	-	
Installation details (electrical):		
Wiring instructions:	-	
Mounting arrangement:	-	
Orientation limitations:	-	
Power supply:		
Type (battery, mains AC, mains DC):	Battery	
U _{max} (V):	3.8	

U_{\min} (V):	3.0
Frequency:	-
Minimum battery life time [years]:	15 years
Software version (of legally relevant SW):	151F
CRC checksum (of legally relevant SW):	1849
Ancillary devices (not certified):	
Reed sensor power supply (U_{\max} / I_{\max}):	-
Type	-
Power supply (U_{\max} / I_{\max}) ² :	-
K-factor [pulse/Litres]:	-
Reed sensor power supply (U_{\max} / I_{\max}):	-
Further information specified by the manufacture (not certified)	
-	-

¹ The ratio Q_3 / Q_1 shall be chosen according to paragraph 4.1.4 of OIML R 49-1:2013

Basic metrological data (flowrates)

Manufacturer:	Spire Metering Technology											
Model number:	280W-...											
Nominal diameter:	15		20		25			32				
Type details:												
Q_1 [m ³ /h]:	0.005	0.006	0.010	0.008	0.010	0.016	0.013	0.016	0.025	0.020	0.025	0.040
Q_2 [m ³ /h]:	0.008	0.010	0.016	0.013	0.016	0.026	0.020	0.025	0.040	0.032	0.040	0.064
Q_3 [m ³ /h]:	2.50	2.50	2.50	4.00	4.00	4.00	6.30	6.30	6.30	10.00	10.00	10.00
Q_4 [m ³ /h]:	3.13	3.13	3.13	5.00	5.00	5.00	7.88	7.88	7.88	12.50	12.50	12.50
Q_3/Q_1 :	500	400	250	500	400	250	500	400	250	500	400	250

Manufacturer:	Spire Metering Technology											
Model number:	280W-...											
Nominal diameter:	40		-		-			-				
Type details:												
Q_1 [m ³ /h]:	0.032	0.040	0.064	-	-	-	-	-	-	-	-	-
Q_2 [m ³ /h]:	0.51	0.064	0.102	-	-	-	-	-	-	-	-	-
Q_3 [m ³ /h]:	16.00	16.00	16.00	-	-	-	-	-	-	-	-	-
Q_4 [m ³ /h]:	20.00	20.00	20.00	-	-	-	-	-	-	-	-	-
Q_3/Q_1 :	500	400	250	-	-	-	-	-	-	-	-	-

Securing components and verification marks

To prevent tampering with the water meter DN 15, DN 20 and DN 25 DN32 and DN40, and their electronics, a sealing cap is permanently adhered to the 2 screws that are horizontally aligned with the display, surrounding the face plate of the water meter. The seals prevent access to the screws required to open the water meter top cover/face plate.

To prevent tampering with the water meter DN 32 and DN 40 where the pressure sensor is located, a seal with epoxy is used to block the plug with the flowcell. Hardened epoxy will prevent the removal of the plug making it impossible to remove without leaving damages and tampering traces.

Figure 1: The water meter type 280W-... – view and sealing (example):



Figure 2: The water meter type 280W-... – marking (example):

