



OIML Member State
Czech Republic

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

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)*

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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-V096-22 dated 9 January 2025 that includes 31 pages including annex 1

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

0511-UL-V096-22

OIML Certificate History

Revision No.	Date	Description of the modification
-	10 January 2025	Issuing certificate

The OIML Issuing Authority

RNDr. Pavel Klenovský
Head of Certification Body

Date: 10 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.

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 meter type 280W-... is ultrasonic water meter. There are two modification of water meter, type 280W-R is intended for residential applications and type 280W-D / 280W-SD for sub-metering.

The water meters type 280W-... intended for metering cold potable water, based on an ultrasonic transit-time principle, with straight inlet (5 times the diameter) and outlet (3 times the diameter) length, 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 equipped with the electronic indicating device. The display is a digital type, and can show up to 9 digits. The water meters type 280W-... 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 normal resolution mode is used during normal operation. The water meter displays in the normal resolution mode up to 000000.001 m³/h flow rate and 0000000.001 m³ volume on the digital display.

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

The water meters type 280W-... can be installed to operate in any position.

The water meters type 280W-... are not designed to measure reverse flow.

Marking and inscriptions

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

- Unit of measurement (m³)
- Numerical value Q₃ in m³/h (Q₃ ×.×) and the ratio Q₃ / Q
- OIML certificate of conformity number
- Name of trademark of the manufacturer
- Year of manufacture, two last digits of the year of manufacture, or the month and year of manufacture and 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×)

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

Basic technical data of water meters type 280W-... DN15 TO DN 25

Manufacturer:	SPIRE METERING TECHNOLOGY		
Model number:	280W-R, 280W-D 280W-SD		
Nominal diameter:	DN15	DN20	DN25
Type details:			
Q ₁ [m ³ /h]:	0.016	0.016	0.0252
Q ₂ [m ³ /h]:	0.0256	0.0256	0,0403
Q ₃ [m ³ /h]:	2.50	2.50	6.3
Q ₄ [m ³ /h]:	3.13	3.13	5.00
Q ₃ /Q ₁ :	250		

Q_2/Q_1 :	1.6		
Q_4/Q_3 :	1.25		
Measuring principle:	ultrasonic		
Accuracy class:	2		
Maximum permissible error for the lower flowrate zone (MPE _l):	±5 %		
Maximum permissible error for the upper flowrate zone (MPE _u):	±2 %		
Temperature class:	T30 and T50		
Water pressure class:			
Pressure loss class:	ΔP 63	ΔP 40	ΔP 25
Environmental class:	B, O (-25 to 55) °C		
Electromagnetic environment:	E2		
Maximum admissible temperature [°C]:	50		
Maximum admissible pressure [MPa]:	1.6		
Orientation limitation:	any		
Indicating range [m ³]:	999 999		
Resolution of the indicating device [m ³]:	0.001		
Resolution of the device for rapid testing [m ³]:	0.000001		
EUT testing requirements (OIML R 49-2:2013, 8.1.8):			
Category:	Ultrasonic water meters, Coriolis water meters, fluidic water meters		
Case:	B		
Installation details:			
Connection type (screw thread):	G 3/4 B	G 1 B	G 1 ¼ B
Minimum straight length of inlet pipe [mm]:	U5		
Minimum straight length of outlet pipe [mm]:	D3		
Flow conditioner (details if required):	no		
Mounting:	any		
Orientation:	any		
Other relevant information:			
Length [mm]:	165	190	260
Reed switch power supply (U_{max} / I_{max}):	N/A		
Reed switch K-factor (impulse / L):	N/A		
Installation details (electrical):			
Wiring instructions:	-		
Mounting arrangement:	-		
Orientation limitations:	-		
Power supply:			
Type (battery, mains AC, mains DC):	battery		
U_{max} (V):	3.8V DC		
U_{min} (V):	3.0V DC		

Frequency:	-
Minimum battery life time [years]:	15
Software version (of legally relevant SW):	151F
CRC checksum (of legally relevant SW):	1849

Basic technical data of water meters type 280W-... DN32 and DN 40

Manufacturer:	SPIRE METERING TECHNOLOGY	
Model number:	280W-R, 280W-D 280W-SD	
Nominal diameter:	DN32	DN40
Type details:		
Q_1 [m ³ /h]:	0.04	0.06
Q_2 [m ³ /h]:	0.06	0.1024
Q_3 [m ³ /h]:	10	16
Q_4 [m ³ /h]:	12.5	20
Q_3/Q_1 :	250	
Q_2/Q_1 :	1.6	
Q_4/Q_3 :	1.25	
Measuring principle:	ultrasonic	
Accuracy class:	2	
Maximum permissible error for the lower flowrate zone (MPE _l):	±5 %	
Maximum permissible error for the upper flowrate zone (MPE _u):	±2 %	
Temperature class:	T30 and T50	
Water pressure class:	1.6MPa	
Pressure loss class:	Δp_{63}	Δp_{63}
Environmental class:	B, O (-25 to 55) °C	
Electromagnetic environment:	E2	
Maximum admissible temperature [°C]:	50	
Maximum admissible pressure [MPa]:	1.6	
Orientation limitation:	any	
Indicating range [m ³]:	999 999	
Resolution of the indicating device [m ³]:	0.001	
Resolution of the device for rapid testing [m ³]:	0.000001	
EUT testing requirements (OIML R 49-2:2013, 8.1.8):		
Category:	Ultrasonic water meters, Coriolis water meters, fluidic water meters	
Case:	B	
Installation details:		
Connection type (screw thread):	G ½ B	G 2 B
Minimum straight length of inlet pipe [mm]:	U5	
Minimum straight length of outlet pipe [mm]:	D3	



Flow conditioner (details if required):	no	
Mounting:	any	
Orientation:	any	
Other relevant information:		
<i>Length [mm]:</i>	230 mm	245 mm
<i>Reed switch power supply (U_{max} / I_{max}):</i>	N/A	
<i>Reed switch K-factor (impulse / L):</i>	N/A	
Installation details (electrical):		
Wiring instructions:	-	
Mounting arrangement:	-	
Orientation limitations:	-	
Power supply:		
Type (battery, mains AC, mains DC):	battery	
U_{max} (V):	3.8V DC	
U_{min} (V):	3.0V DC	
Frequency:	-	
<i>Minimum battery life time [years]:</i>	15	
<i>Software version (of legally relevant SW):</i>	151F	
<i>CRC checksum (of legally relevant SW):</i>	1849	

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.

