		V 3112

OIML Member State Czech Republic	**OIML Certificate No.** R49/2013-A-CZ1-2020.01 Revision 2

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: GWF AG
Address: Obergrundstrasse 119
6005 Luzern
Switzerland

Manufacturer

Name: GWF AG
Address: Obergrundstrasse 119
6005 Luzern
Switzerland

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

Ultrasonic water meter, type sonico EDGE

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 reports:

- OIML type evaluation report No. 0511-ER-V049-23 dated 19th June 2023 that includes 57 pages including annexes
  - Test report No. 6015-PT-P5006-23 issued by CMI dated 13th June 2023 that includes 5 pages including annexes
  - Test report No. 6011-PT-SW007-23 issued by CMI dated 14th June 2023 that includes 7 pages including annexes

- OIML type evaluation report No. 0511-ER-V041-21 dated 30th September 2021 that includes 148 pages including annexes
  - Test report No. 6015-PT-P5001-20 issued by CMI dated 18th May 2020 that includes 65 pages including annexes
  - Test report No. 6015-PT-P5005-21 issued by CMI dated 21th September 2021 that includes 97 pages including annexes
  - Test report No. 8551-PT-E0197-20 issued by CMI dated 4th February 2021 that includes 12 pages including annexes
  - Test report No. 6011-PT-SW020-21 issued by CMI dated 30th August 2021 that includes 8 pages with annexes

- OIML type evaluation report No. 0511-ER-0001-20 dated 18 May 2020 that includes 33 pages
  - Test report No. 6015-PT-P5001-20 issued by CMI dated 18.5.2020 that includes 65 pages including annexes
  - Test report No. 8551-PT-E0054-20 issued by CMI dated 28 February 2020 that includes 9 pages including annexes
  - Test report No. 6011-PT-SW007-20 issued by CMI dated 6 May 2020 that includes 7 pages with annexes

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

0511-UL-V040-19, 0511-UL-V041-21, 0511-ER-V049-23

OIML Certificate History

Revision No.	Date	Description of the modification
-	15 May 2020	Issuing certificate
Revision 1	11 October 2021	The changes Q_3, temperature class and addition of reverse flow measurement and the extension of the nominal diameters of family of water meter.
Revision 2	27 June 2023	Change of name of company from GWF MessSysteme AG to GWF AG Addition of optional SW, CRC and hardware version

The OIML Issuing Authority
RNDr. Pavel Klenovský
Head of Certification Body

Český metrologický institut
-3-

Date: 27 June 2023

Measuring system description

The water meters type sonico EDGE are designed to measure, memorise and display the volume at metering conditions of water passing through the measurement transducer.
The water meters type sonico EDGE are ultrasonic water meters with an electronic indicating device.
The water meters type sonico EDGE consist of a cast iron body with connecting screw threads, one pair of ultrasonic transducers and the electronic indicating device. The electronic indicating device is formed by LCD display shown volume and flow. The water meter displays the volume resolution of 0.0001 m^3 and 0.001 m^3 on the digital display. Water meter is without any buttons with LCD display and communication interfaces. Legally non-relevant part of communication with meter is possible by optical sensor connected on the register. Ultrasonic water meter has ~~a~~ separation of software. The version of SWs and CRCs are displayed in the auto-rounding menu on LCD display in the time period in the form:

- CRC of legally relevant part
- SW version of legally relevant part
- CRC of legally relevant part
- SW version of legally relevant part

The water meters type sonico EDGE displays the indication of each volume on the display every two minutes – separately delivered volume for reverse flow and separately delivered volume for forward flow. The permanently shown delivered volume is the difference between two delivered volumes (for reverse and forward flow).
The water meters type sonico EDGE can be equipped by impulse module which is not part of this certificate.
The water meters type sonico EDGE are by powered mains 24V DC and the water meters body contain a battery for a temporary power failure.
The water meters have on mains power cable shielding – magnetic ferrite.
The water meters shall be installed to operate in arbitrary positions.

Marks and inscriptions

The water meters type sonico EDGE 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 / Q1,
- EU-type examination certificate 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 (on display)
- Maximum admissible pressure (MAP ××)
- The temperature class (T××)
- The pressure loss class (Δp ××)
- The installation sensitivity class (Ux Dx)
- Power voltage
- Environmental classification (M)
- Electromagnetic environmental class (E1)
- Software version
- Hardware version
- Type approval sign according to national regulations

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.
The environmental classification and electromagnetic environmental class may be given on a separate datasheet, unambiguously related to the meter by a unique identification, and not on the meter itself.

Table 1 Technical and metrological characteristics

Manufacturer:	GWF AG; Obergrundstrasse 119; 6005 Luzern; Switzerland					
Model number:	sonico EDGE					
Nominal diameter:	*50*	*65*	*80*	*100*	*125*	*150*
Type details:						
Q_1 [m³/h]:	flowrates are shown in Table *Basic metrological data (flowrates)*					
Q_2 [m³/h]:						
Q_3 [m3/h]:						
Q_4 [m³/h]:						
Q_3/Q_1:						
Q_2/Q_1:	1.6					
Q_4/Q_3:	1.25					
Measuring principle:	ultrasonic water meter					
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 % for water having a temperature ≤ 30 °C ±3 % for water having a temperature > 30 °C					
Temperature class:	T50 – for horizontal position with the indicating device at top (H↑) T50 – for horizontal position with the indicating device at side (H→) T30 – for vertical position with flow from bottom to top (V↑) T30 – for vertical position with flow from top to bottom (V↓)					
Water pressure class:	MAP 16					
Pressure loss class:	*Δp10*					
Reverse flow	*Designed to measure*					
Environmental class:	M					
Electromagnetic environment:	E2					
Maximum admissible temperature [°C]:	30 or 50					
Maximum admissible pressure [MPa]:	1.6					
Orientation limitation:	Arbitrary orientation					
Indicating range [m³]:	*999 999*					
Resolution of the indicating device [m³]:	*0.0001*					
Resolution of the device for rapid testing [m³]:	-					
EUT testing requirements (OIML R 49-2:2013, 8.1.8):						
Category:	E					
Case:	B					

Installation details:						
Connection type (screw thread):	flange					
Minimum straight length of inlet pipe [mm]:	0 (U0)					
Minimum straight length of outlet pipe [mm]:	0 (D0)					
Flow conditioner (details if required):	-					
Mounting:	-					
Orientation:	Arbitrary orientation					
Other relevant information:	-					
Length [mm]:	*200; 270; 300*	*200; 300*	*200; 225; 300; 350; 370*	*250; 350; 360; 370*	*250*	*300; 500*
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):	Mains DC					
U_{max} (V):	26.4					
U_{min} (V):	19.2					
Frequency:	-					
Minimum battery life time [years]:	-					
Software version (of legally relevant SW):	Main – 1.72; LCD – 1.20 Main – 2.49; LCD – 2.49					
CRC checksum (of legally relevant SW):	Main – 0xC870AC3F; LCD – 0x3B50E7CB Main – 0x2216675E; LCD – 0x5A4FF0Ad					
Hardware version	V21-V4 V2.1-V4.1					

Manufacturer:	GWF AG; Obergrundstrasse 119; 6005 Luzern; Switzerland		
Model number:	sonico EDGE		
Nominal diameter:	*200*	*250*	*300*
Type details:			
Q_1 [m^3/h]:	flowrates are shown in Table *Basic metrological data (flowrates)*		
Q_2 [m^3/h]:			
Q_3 [m3/h]:			
Q_4 [m^3/h]:			
Q_3/Q_1:			
Q_2/Q_1:	1.6		
Q_4/Q_3:	1.25		
Measuring principle:	ultrasonic water meter		

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 % for water having a temperature ≤ 30 °C ±3 % for water having a temperature > 30 °C		
Temperature class:	T50 – For horizontal position with the indicating device at top (H↑) T50 – for horizontal position with the indicating device at side (H→) T30 – vertical position with flow from bottom to top (V↑) T30 – for vertical position with flow from top to bottom (V↓)		
Water pressure class:	MAP 16		
Pressure loss class:	*Δp10*		
Reverse flow	Designed to measure		
Environmental class:	M		
Electromagnetic environment:	E2		
Maximum admissible temperature [°C]:	30 or 50		
Maximum admissible pressure [MPa]:	1.6		
Orientation limitation:	Arbitrary orientation		
Indicating range [m^3]:	*999 999*	*999 999*	*9 999 999*
Resolution of the indicating device [m^3]:	*0.0001*	*0.0001*	*0.001*
Resolution of the device for rapid testing [m^3]:	-		
EUT testing requirements (OIML R 49-2:2013, 8.1.8):			
Category:	E		
Case:	B		
Installation details:			
Connection type (screw thread):	flange		
Minimum straight length of inlet pipe [mm]:	0 (U0)		
Minimum straight length of outlet pipe [mm]:	0 (D0)		
Flow conditioner (details if required):	-		
Mounting:	-		
Orientation:	Arbitrary orientation		
Other relevant information:	-		
Length [mm]:	*350; 520*	*450*	*500*
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):	Mains DC
U_{max} (V):	26.4
U_{min} (V):	19.2
Frequency:	-
Minimum battery life time [years]:	-
Software version (of legally relevant SW):	Main – 1.72; LCD – 1.20 Main – 2.49; LCD – 2.49
CRC checksum (of legally relevant SW):	Main – 0xC870AC3F; LCD – 0x3B50E7CB Main – 0x2216675E; LCD – 0x5A4FF0Ad
Hardware version	V21-V4 V2.1-V4.1

Security measures

The sonico EDGE meters have to be sealed by connecting the plastic seal on the plastic meter cover and the plastic seal in the meter body screw. The lock ferrite on the cable is sealed by the security sticker and wire security seal connecting ferrite with water meter. The water meter cannot be accessed without damaging seal.