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: Integra Metering SAS
Address: 12 rue Front Grasse; 31 700 Blagnac (France)

Manufacturer

Name: Integra Metering SAS
Address: 12 rue Front Grasse; 31 700 Blagnac (France)

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

Ultrasonic water meter, type Topas SONIC (TSO)

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 reports:

- OIML type evaluation report No. 0511-ER-0044-21 dated 10th November 2021 that includes 39 pages including annexes

- Test report No. 6015-PT-P5008-21 issued by CMI dated 21th October 2021 that includes 50 pages including annexes

- Test report No. 8551-PT-E0134-21 issued by CMI dated 20th September 2021 that includes 7 pages including annexes

- Test report No. 6011-PT-SW027-21 issued by CMI dated 6th November 2021 that includes 3 pages with annexes

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

0511-UL-V044-21

OIML Certificate History

Revision No.	Date	Description of the modification
Addition 0	12 November 2021	Issuing certificate

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

Date: 12 November 2021

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 TOPAS Sonic are designed to measure, memorise and display the volume at metering conditions of water passing through the measurement transducer.

The water meters type TOPAS Sonic are ultrasonic water meters with an electronic indicating device. The water meters type TOPAS Sonic consist of a brass 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 0.001 m3 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 NFC 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

The water meters type TOPAS Sonic displays the indication of each volume on the display every ten seconds - separately delivered volume for reverse flow and separately delivered volume for forward flow.

The water meters type TOPAS Sonic are by powered battery 3.6V DC

The water meters can be installed to operate in arbitrary positions and the internal dimensions of the water meter pipes are always the same for each dimension.

Marks and inscriptions

The water meters type Topas SONIC 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,
- 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 (O)
- Electromagnetic environmental class (E2)
- Software version
- Hardware version
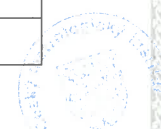- Type approval sign according to national regulations

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:	Integra Metering SAS, 12 rue Front Grasse, 31 700 Blagnac (France)	
Model number:	Sonic TOPAS	
Nominal diameter:	*15*	*20*
Type details:		
Q_1 [m³/h]:	0.005	0.008
Q_2 [m³/h]:	0.008	0.013
Q_3 [m³/h]:	2.5	4
Q_4 [m³/h]:	3.13	5
Q_3/Q_1:	500	
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	
Water pressure class:	MAP16	
Pressure loss class:	*Δp25*	
Environmental class:	*O*	
Electromagnetic environment:	*E2*	
Maximum admissible temperature [°C]:		
Maximum admissible pressure [MPa]:	1.6	
Orientation limitation:	Any	
Indicating range [m³]:	*9 999 999*	
Resolution of the indicating device [m³]:	*0.001*	
Resolution of the device for metrological mode testing [m³]:	*0,00001*	
EUT testing requirements (OIML R 49-2:2013, 8.1.8):		
Category:	B	
Case:	B	
Installation details:		
Connection type (screw thread):	G3/4" B	G1" B
Minimum straight length of inlet pipe [mm]:	0	
Minimum straight length of outlet pipe [mm]:	0	
Flow conditioner (details if required):	No	
Mounting:	Any	
Orientation:	Any	
Other relevant information:	-	

Length [mm]:	110; 115; 130; 135; 145; 165; 170; 190	190; 220
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):	3.6	
U_{min} (V):	3	
Frequency:	-	
Minimum battery life time [years]:	10	
Software version (of legally relevant SW):	1.04	
CRC checksum (of legally relevant SW):	49d8	

Security measures

The TOPAS Sonic doesn't have any specific seals since the screen cover is impossible to remove due to the potting inside of the flowmeter. Removing the hood would be detectable by dead clip design. The software is sealed by a password.