OIML CS Certification System	CMI	V 3112

OIML Member State Czech Republic	**OIML Certificate No.** R49/2013-A-CZ1-24.06

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: JANZ - Contagem e Gestao de Fluídos, S.A.Obergrundstrasse 119
> Address: Avenida Infante D. Henrique, 288, 1950-421 Lisboa, PT

Manufacturer

> Name: JANZ - Contagem e Gestao de Fluídos, S.A.Obergrundstrasse 119
> Address: Avenida Infante D. Henrique, 288, 1950-421 Lisboa, PT

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

> Water meter – ultrasonic, dry dial
> Smartio

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-V109-23 dated 11 November 2024 that includes 25 pages including annex 1.
  - Test report No. 6015-PT-P5013-24 that includes 201 pages including annex 1 – 2.

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

0511-UL-V109-23

OIML Certificate History

Revision No.	Date	Description of the modification
-	11 November 2024	Issuing certificate

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

Date: 11 November 2024

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

The water meters type Smartio are ultrasonic water meters with an electronic indicating device. The water meters type Smartio consist of a cast 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 0.00001 m^3 on the digital display. Water meter is without any buttons with LCD display. 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. Non-legally relevant parts have no inadmissible influence on legally relevant software, measured data or specific parameters.

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 Smartio 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 Smartio can be equipped by impulse module which is not part of this certificate.

The water meters type Smartio are by powered mains battery 3.6V.

The water meters shall be installed to operate in any positions.

Marking and inscriptions

The water meters types Smartio shall be clearly and indelibly marked with the following information:

- Water meter type
- Unit of measurement (m3) (on display)
- Numerical value Q3 in m3/h (Q3 ×.×) and the ratio Q3 / Q1,
- 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 16)
- The temperature class (T50)
- The pressure loss class (Δp 10, Δp 16, Δp 25)
- The installation sensitivity class (U0 D0)
- Environmental classification (B or O)
- Electromagnetic environmental class (E2)
- 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.

Characteristics

Basic technical data of water meters types Smartio:

Manufacturer:	JANZ - CONTAGEM E GESTAO DE FLUÍDOS, S.A.	
Model number:	Smartio	
Nominal diameter:	*15*	*20*
Type details:		
Q_1 [m³/h]:		
Q_2 [m³/h]:	flowrates are shown in Table *Basic metrological data (flowrates)*	
Q_3 [m³/h]:		
Q_4 [m³/h]:		
Q_3/Q_1:	$\leq$ 1000 1 for Q_3=2.5m3/h $\leq$ 630 1 for Q_3=1.6m3/h	$\leq$ 1000 for Q_3=4m3/h $\leq$ 630 for Q_3=2,5m3/h
Q_2/Q_1:	1.6	
Q_3/Q_4:	1.25	
Measuring principle:	ultrasonic	
Accuracy class:	2	
Maximum permissible error for the lower flowrate zone (MPE$_l$):	$\pm$5 %	
Maximum permissible error for the upper flowrate zone (MPE$_u$):	$\pm$2 %	
Temperature class:	T50	
Water pressure class:	MAP 16	
Pressure loss class:	Q_3 1.6 $\Delta p10$ Q_3 2.5 $\Delta p16$	Q_3 2.5 $\Delta p16$ Q_3 4.0 $\Delta p25$
Maximum admissible temperature [°C]:	50	
Maximum admissible pressure [MPa]:	1.6	
Orientation limitation:	any	
Indicating range – testing mode/user mode [m³]:	*9 999 / 999 999*	
Resolution of the indicating device testing mode/user mode [m³]:	*0.00001 /0.001*	
Resolution of the device for rapid testing [pulse/dm³]:	*100*	
Resolution of the indicating device for rapid testing [m³]:	*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):	NPSM or G type ¾", 7/8", 1"	NPSM or G type 7/8", 1", 1 1/4"
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:	-	
Orientation:	any	
Length [mm]:	$\geq$ *105mm*	$\geq$ *105mm*
Reverse flow:	*Designed to measure*	
Mechanical environment class :	B, O	

Electromagnetic environment class:	E2
Temperature range ambient:	-25 °C / 70 °C
Power supply:	
Type (battery, mains AC, mains DC)[1]:	Non replaceable battery
U_{max} (V)[1]:	3.6
U_{min} (V)[1]:	1.9
Frequency[1]:	-
Minimum battery lifetime [years]:	16 years
Software version[1]	
Software version (of legally relevant SW):	0.6.28 1.0.1
CRC checksum (of legally relevant SW):	0x854EBACF, 0x13372073 0x3A681C19, 0x1d901C40
Other specification of software:	
Specific requirements for embedded software for built-for-purpose measuring instrument (type P)	
Extension I1: Water meters	
Extension S: Software separation	
Extension D: Download of Legally Relevant Software	

[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:	JANZ - Contagem e Gestao de Fluídos, S.A.											
Model name:	Smartio											
Nominal diameter:	15											
Type details:												
Q_1 [m³/h]:	0.040	0.063	0.032	0.050	0.025	0.040	0.020	0.031	0.016	0.025	0.013	0.020
Q_2 [m³/h]:	0.064	0.100	0.051	0.080	0.041	0.064	0.032	0.050	0.026	0.040	0.021	0.032
Q_3 [m³/h]:	1.600	2.500	1.600	2.500	1.600	2.500	1.600	2.500	1.600	2.500	1.600	2.500
Q_4 [m³/h]:	2.000	3.125	2.000	3.125	2.000	3.125	2.000	3.125	2.000	3.125	2.000	3.125
Q_3/Q_1:	40		50		63		80		100		125	

Manufacturer:	JANZ - Contagem e Gestao de Fluídos, S.A.											
Model name:	Smartio											
Nominal diameter:	15											
Type details:												
Q_1 [m³/h]:	0.010	0.016	0.008	0.013	0.006	0.010	0.005	0.008	0.004	0.006	0.003	0.005
Q_2 [m³/h]:	0.016	0.025	0.013	0.020	0.010	0.016	0.008	0.013	0.006	0.010	0.005	0.008
Q_3 [m³/h]:	1.600	2.500	1.600	2.500	1.600	2.500	1.600	2.500	1.600	2.500	1.600	2.500
Q_4 [m³/h]:	2.000	3.125	2.000	3.125	2.000	3.125	2.000	3.125	2.000	3.125	2.000	3.125
Q_3/Q_1:	160		200		250		315		400		500	

Manufacturer:	JANZ - Contagem e Gestao de Fluídos, S.A.			
Model name:	Smartio			
Nominal diameter:	15			
Type details:				
Q_1 [m³/h]:	0.0025	0.004	0.003	0.0025
Q_2 [m³/h]:	0.004	0.006	0.005	0.004
Q_3 [m³/h]:	1.600	2.500	2.500	2.500
Q_4 [m³/h]:	2.000	3.125	3.125	3.125
Q_3/Q_1:	630	800	1000	

Manufacturer:	JANZ - Contagem e Gestao de Fluídos, S.A.											
Model name::	Smartio											
Nominal diameter:	20											
Type details:												
Q_1 [m³/h]:	0.063	0.100	0.050	0.080	0.040	0.064	0.031	0.050	0.025	0.040	0.020	0.032
Q_2 [m³/h]:	0.100	0.160	0.080	0.128	0.064	0.102	0.050	0.080	0.040	0.064	0.032	0.051
Q_3 [m³/h]:	2.500	4.00	2.500	4.00	2.500	4.00	2.500	4.00	2.500	4.00	2.500	4.00
Q_4 [m³/h]:	3.125	5.00	3.125	5.00	3.125	5.00	3.125	5.00	3.125	5.00	3.125	5.00
Q_3/Q_1:	40		50		63		80		100		125	

Manufacturer:	JANZ - Contagem e Gestao de Fluídos, S.A.											
Model name::	Smartio											
Nominal diameter:	20											
Type details:												
Q_1 [m³/h]:	0.016	0.025	0.013	0.020	0.010	0.016	0.008	0.013	0.006	0.010	0.005	0.008
Q_2 [m³/h]:	0.025	0.040	0.020	0.032	0.016	0.026	0.013	0.020	0.010	0.016	0.008	0.013
Q_3 [m³/h]:	2.500	4.00	2.500	4.00	2.500	4.00	2.500	4.00	2.500	4.00	2.500	4.00
Q_4 [m³/h]:	3.125	5.00	3.125	5.00	3.125	5.00	3.125	5.00	3.125	5.00	3.125	5.00
Q_3/Q_1:	160		200		250		315		400		500	

Manufacturer:	JANZ - Contagem e Gestao de Fluídos, S.A.			
Model name:	Smartio			
Nominal diameter:	20			
Type details:				
Q_1 [m³/h]:	0.004	0.006	0.005	0.004
Q_2 [m³/h]:	0.006	0.010	0.008	0.006
Q_3 [m³/h]:	2.500	4.00	4.00	4.00
Q_4 [m³/h]:	3.125	5.00	5.00	5.00
Q_3/Q_1:	630		800	1000

Securing components and verification marks

The Smartio meters have to be sealed by connecting the plastic seal on the plastic meter cover. The plastic seal is part of the body of the water meter in the form of a plastic frame that holds glass of display on the body of the water meter. The water meter cannot be accessed without damaging seal.

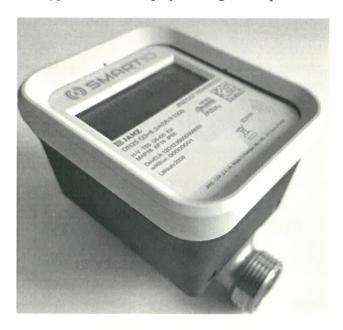Figure: 1 View on water meter types Smartio, display, sealing - example

Figure: 2 Water meter types Smartio – description of display

1. Volume unit indicator (digital)

2. Non-billing relevant lines

3. Volume

4. Tarif number

5. Main flow direction (automatic set)

6. Radio connection status

7. Leakage indicator

8. Test mode information

9. Air in pipe icon

10. System alarm icon

11. Battery level symbol

12. Actual flow direction arrow

13. Flow rate

14. Flow rate unit indicator (digital)