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V 3112

EU-TYPE EXAMINATION CERTIFICATE

Number: TCM 142/16 - 5405

Addition 12

This addition replaces all previous versions of this certificate in full wording.

In accordance: with Directive 2014/32/EU of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments (implemented in Czech Republic by Government Order No. 120/2016 Coll.).

Manufacturer: APATOR POWOGAZ S.A.
Jaryszki 1c
62-023 Żerniki
Poland

For: water meter – ultrasonic

type: ULTRIMIS (UL)

Accuracy class: 2

Temperature class: T30, T50 and T70

Valid until: 6 November 2026

Document No: 0511-CS-A033-16

Description: Essential characteristics, approved conditions and special conditions, if any, are described in this certificate.

Date of issue: 9 April 2024

Certificate approved by:

RNDr. Pavel Klenovský

1 Characteristics of instrument

The ultrasonic water meters type ULTRIMIS (UL) are designed to measure, memorise and display the volume at metering conditions of water passing through the measurement transducer in the sense of the Directive 2014/32/EU of the European Parliament and of the Council of the harmonisation of the Member States relating to the making available on the market of measuring instruments (implemented in Czech Republic by Government Order No. 120/2016 Coll.), as amended.
The water meters type ULTRIMIS (UL) are ultrasonic water meters with an electronic indicating device.
The water meters type ULTRIMIS (UL) consist of a brass or a composite 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 meters have two indication modes: normal resolution mode and high resolution mode (which is used during the calibration process). The water meter displays the volume resolution of 0.00001 m^3 on the digital display in the high resolution mode. Water meter is without any buttons with LCD display and communication interfaces. The adjustment and reading/setting metrological data is realized electronically using NFC. The access to the metrological parameters is secured by password. Legally non-relevant part of communication with meter is possible by radio module with frequency 433 MHz or 434 MHz or 868 MHz and used frequency is marked on the register. There is a possibility of one or two-way communication by described radio modules. Radio modules are not matter of this certificate and the compliance to other regulations i.e. RED Directive or other should be covered by other document.
Ultrasonic water meter has a separation of software. The version of SWs and CRCs are displayed in the auto-rounding menu on LCD in second row in the form:
Axx.xx – SW version of legally relevant part
bxx.xx – CRC of legally relevant part
Cxx.xx – SW version of legally non-relevant part
dxx.xx – CRC of non-legally relevant part
The water meters type ULTRIMIS (UL) can be equipped by radio module which is not part of this certificate.
The water meters type ULTRIMIS (UL) shall be installed to operate in any position. Horizontal position with the indicating device at the bottom was tested according to points 7.3 and 7.4.4 of ISO 4064 with all results were under MPE, but this position is not subject of this certificate.
The water meters type ULTRIMIS (UL) can be equipped with the inlet straightener according to the documentation listed in the chapter 7.
ULTRIMIS (UL) water meter can be equipped with communication modules working based on wM-Bus and/or LoRaWAN protocols.

2 Main characteristics

Basic technical data of water meters type ULTRIMIS (UL):

Manufacturer:	Apator POWOGAZ S.A.						
Model number:	UL2.5		UL4	UL6.3	UL10	UL16	UL25
Nominal diameter:	15	20	20	25	25 /32	40	50
Type details:							
Q_1 [m^3/h]:	flowrates are shown in Table *flowrates*						
Q_2 [m^3/h]:							
Q_3 [m^3/h]:							
Q_4 [m^3/h]:							
Q_3/Q_1:	800; 400; 250						500; 400; 250
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):	±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:	T30, T50, T70		T30, T50				
Water pressure class:	MAP 10, MAP 16						
Pressure loss class:	*ΔP40* for T30 and T50 *ΔP25* for T30, T50, T70		*ΔP40*		*ΔP25*		
Reverse flow:	*Not designed to measure*						
Environmental class:	B or O						
Electromagnetic environment:	E1, E2						
Maximum admissible temperature [°C]:	50; 70						
Maximum admissible pressure [MPa]:	1.6						
Orientation limitation:	No limitation						
Indicating range [m^3]:	999 999						
Resolution of the indicating device [m^3]:	0.001						
Resolution of the device for rapid testing [m^3]:	0.00001						
EUT testing requirements (OIML R 49-2:2013, 8.1.8):							
Category:	Ultrasonic water meters						
Case:	B						
Installation details:							
Connection type (screw thread):	G ¾ B or G ⅞ B / G ¾ B or G 1 B		G 1 B	G 1 ¼ B	G 1 ¼ B or G 1 ½ B	G 2 B or flange	G2 ½ B or flange
Minimum straight length of inlet pipe [mm]:	0						
Minimum straight length of outlet pipe [mm]:	0						
The installation sensitivity class:	U0D0						
Flow conditioner (details if required):	No						
Mounting:	-						
Other relevant information:	-						
Length [mm] – brass body:	80 - 165	105-190	105 - 190	165 - 260	260	300	200 - 300
Length [mm] – composite body:	80 - 110	105 - 130	105 - 130	-	-	-	-
Installation details (electrical):							
Wiring instructions:	-						
Mounting arrangement:	-						
Orientation limitations:	-						
Power supply:							
Type (battery, mains AC, mains DC):	non-replaceable battery						
U_{max} [V]:	3.6						
U_{min} [V]:	2.5						
Minimum battery life time [years]:	10 years						
Frequency [Hz]:	-						
Software:							
Legally relevant part of software:							

Software version / CRC checksum:	03.00 / 5563; 04.01 / 235E; 04.10 / 62C7611F; 05.00 / 8F1DCB26
Previous Software version / CRC checksum:	01.01 / 4C5b; 01.03 / 0A74; 02.01 / 6C74
Other specification of software:	
Specific requirements for embedded software for built-for-purpose measuring instrument (type P)	
Extension I1: Water meters	
Extension T: Transmission of Measurement Data via Communication Networks (NFC)	
Extension S: Software separation	
Additional specification (certified):	
Wireless communication WMBUS (T1, T2, C1); LoRa	
Information specified by the manufacturer (information in the table below are not certified):	
IP68 protection degree	

Table *Flowrates*

Model number:	UL 2.5			UL 4		
Nominal diameter (DN):	15 / 20			20		
Q_1 [m³/h]:	0.003	0.006	0.010	0.005	0.010	0.016
Q_2 [m³/h]:	0.005	0.010	0.016	0.008	0.016	0.026
Q_3 [m³/h]:	2.50	2.50	2.50	4.00	4.00	4.00
Q_4 [m³/h]:	3.13	3.13	3.13	5.00	5.00	5.00
Q_3/Q_1:	800	400	250	800	400	250

Model number:	UL 6.3			UL 10		
Nominal diameter (DN):	25			25 / 32		
Q_1 [m³/h]:	0.008	0.016	0.025	0.013	0.025	0.040
Q_2 [m³/h]:	0.013	0.025	0.040	0.020	0.040	0.064
Q_3 [m³/h]:	6.30	6.30	6.30	10.00	10.00	10.00
Q_4 [m³/h]:	7.88	7.88	7.88	12.50	12.50	12.50
Q_3/Q_1:	800	400	250	800	400	250

Model number:	UL 16				
Nominal diameter (DN):	40				
Q_1 [m³/h]:	0.025	0.040	0.020	0.040	0.064
Q_2 [m³/h]:	0.040	0.064	0.032	0.064	0.102
Q_3 [m³/h]:	10.00	10.00	16.00	16.00	16.00
Q_4 [m³/h]:	12.50	12.50	20.00	20.00	20.00
Q_3/Q_1:	400	250	800	400	250

Model number:	UL 25		
Nominal diameter (DN):	50		
Q_1 [m³/h]:	0.050	0.0625	0.100
Q_2 [m³/h]:	0.080	0.100	0.160
Q_3 [m³/h]:	25.0	25.0	25.0
Q_4 [m³/h]:	31.3	31.3	31.3
Q_3/Q_1:	500	400	250

3 Tests

Technical tests of the water meters type ULTRIMIS (UL) were performed in compliance with the International Recommendation OIML R 49 Edition 2013 (E), with conformity to ISO 4064, Test Reports No. 6015-PT-P0023-16, 8551-PT-E0094-16, 6015-PT-P0010-17, 6015-PT-P0027-18, 6015-PT-P0053-18, 6015-PT-P0029-19, 6015-PT-P0007-20, 6015-PT-P0063-20 and 6011-PT-SW005-20 and Type Evaluation Report No. 0511-ER-V145-20 (with related Test Reports No. 6015-PT-P0046-21, EMC test report No. 8551-PT-E0054-21 and Software validation Test Report No. 6011-PT-SW005-21 according to WELMEC 7.2, 2019), Type Evaluation report No. 0511- ER-V104-21 (with Test Report No. 6015-PT-P0010-22) and Type Evaluation report No. 0511-ER-V105-21 (with Test Report 6015-PT-P0020-22, No. 6011-PT-SW006-22 and EU-type examination certificates for Radio Equipment Directive 2014/53/EU, Annex III, module B, No. 0220-CC-V0027-22, No. 0220-CC-V0033-22, No. 0220-CC-V0034-22).

4 Conformity marks and inscription:

The water meters type ULTRIMIS (UL) shall be clearly and indelibly marked with the following information:

- Water meter type (ULTRIMIS (UL))
- Unit of measurement (m^3)
- Numerical value Q_3 in m^3/h (Q_3 ×.×) and the ratio Q_3 / Q_1,
- EU-type examination certificate number
- Manufacturer´s name, registered trade name or registered trade mark
- Post address of manufacturer
- 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 ××)
- Any position or Letter H (horizontal position) and/or V (vertical position)
- The temperature class (T××)
- The pressure loss class (ΔP ××)
- The installation sensitivity class (U× D×)
- For a non-replaceable battery: the latest date by which the meter shall be replaced
- Environmental classification (B or O)
- Electromagnetic environmental class (E×)
- Software version / checksum
- CE marking and metrology marking in line with the Directive 2014/32/EU

These markings shall be visible without dismantling the water meter after the instrument has been placed on the market or put into use. Examples are in Figure 1.

5 Additional specifications:

The water meters type ULTRIMIS (UL) shall be put onto the market in line with the procedure of conformity assessment according to the Annex D or F of the Directive 2014/32/EU as well as in compliance with the technical description of this report and shall be tested in accordance with the requirements determined in ISO 4064-1:2017, respectively OIML R 49-1:2013.

A metrological test may only be performed by a producer, or a notified body respectively in line with the conformity assessment procedure by the D or F Annexes of the Directive 2014/32/EU, respectively.

6 Ensuring the integrity of the instruments:

The ULTRIMIS (UL) meters have to be sealed by embedding of the clamp on cover of the meter to the body of the meter (Figure 2). The cover can be removed only destroying this part. The cover has to be equipped with safeguarding marks. Water meter is equipped with electronic tamper detection that shows any attempt of tamper on the LCD display.

7 Drawing of the instrument:
Water meter type ULTRIMIS (UL) are manufactured according to the technical documentation of manufacturer. Technical documentation contains following drawings:

Document reference	Date	Brief description
R-009.11/22_01/EN	05.02.2024	Product life cycle
5021-310000	12.3.2024	UL2.5 DN15 L80 drawing of brass body with inlet strainer
5024-310000	12.3.2024	UL2.5 DN15 L165 drawing of brass body with inlet strainer
5025-310000	12.3.2024	UL2.5-01 DN15 L110 drawing of polymer body with inlet strainer
5026-310000	12.3.2024	UL2.5-01 DN15 L80 drawing of polymer body with inlet strainer
5041-310000	12.3.2024	UL4 DN20 L105 drawing of brass body with inlet strainer
5043-310000	12.3.2024	UL4 DN20 L190 drawing of brass body with inlet strainer
5045-310000	12.3.2024	UL4-01 DN20 L130 drawing of polymer body with inlet strainer
5046-310000	12.3.2024	UL2.5-01 DN15 L110 drawing of polymer body with inlet strainer
5050-310000	13.3.2024	UL6.3 DN25 L260 drawing of brass body with inlet strainer
5051-310000	13.3.2024	UL6.3 DN25 L165 drawing of brass body with inlet strainer
5060-310000	13.3.2024	UL10 DN32 L260 drawing of brass body with inlet strainer
5070-310000	13.3.2024	UL16 DN40 L300 drawing of brass body with inlet strainer
5121-310000	11.3.2024	UL2.5 DN15 T70 L80 drawing of brass body with inlet strainer
5124-310000	11.3.2024	UL2.5 DN15 L165 drawing of brass body with inlet strainer
5125-310000	12.3.2024	UL2.5-01 DN15 L110 drawing of polymer body with inlet strainer
5126-310000	12.3.2024	UL2.5-01 DN15 L80 drawing of polymer body with inlet strainer
5141-310000	11.3.2024	UL4 DN20 T70 L105 drawing of brass body with inlet strainer
5143-310000	11.3.2024	UL4 DN20 L190 drawing of brass body with inlet strainer
5145-310000	12.3.2024	UL4-01 DN20 L130 drawing of polymer body with inlet strainer
5146-310000	12.3.2024	UL4-01 DN20 L105 drawing of polymer body with inlet strainer

History of additions

Addition No.	Description
Addition 0	Issuing certificate.
Addition 1	Added new software and changed screw connection.
Addition 2	Added DN40 and water pressure class MAP10, new SW.
Addition 3	Changed software version and checksum; editorial changes.
Addition 4	New radio module with frequency (433, 434 or 868) MHz for communication with water meter – legally non-relevant part.

Addition 5	Added diameter DN50, added SW version: 04.01 with: CRC: 235E
Addition 6	Added brass body length 190 mm for UL2.5 DN20, fix maximal total length L165mm of UL 2.5 DN15
Addition 7	Changed meter electronic and added SW version: 04.10 with: CRC: 62C7611F; added radio modules that are not covered by the certificate
Addition 8	Change of the address from Klemensa Janickiego 23/25, 60-542 Poznań to Jaryszki 1c, 62-023 Żerniki
Addition 9	Added temperature class T70 for DN15 and DN20
Addition 10	Added communication protocol LoRa
Addition 11	Correcting a typo in the address
Addition 12	Adddition of the new inlet straightener

Figure 1: The water meter type ULTRIMIS (UL) – example of register:

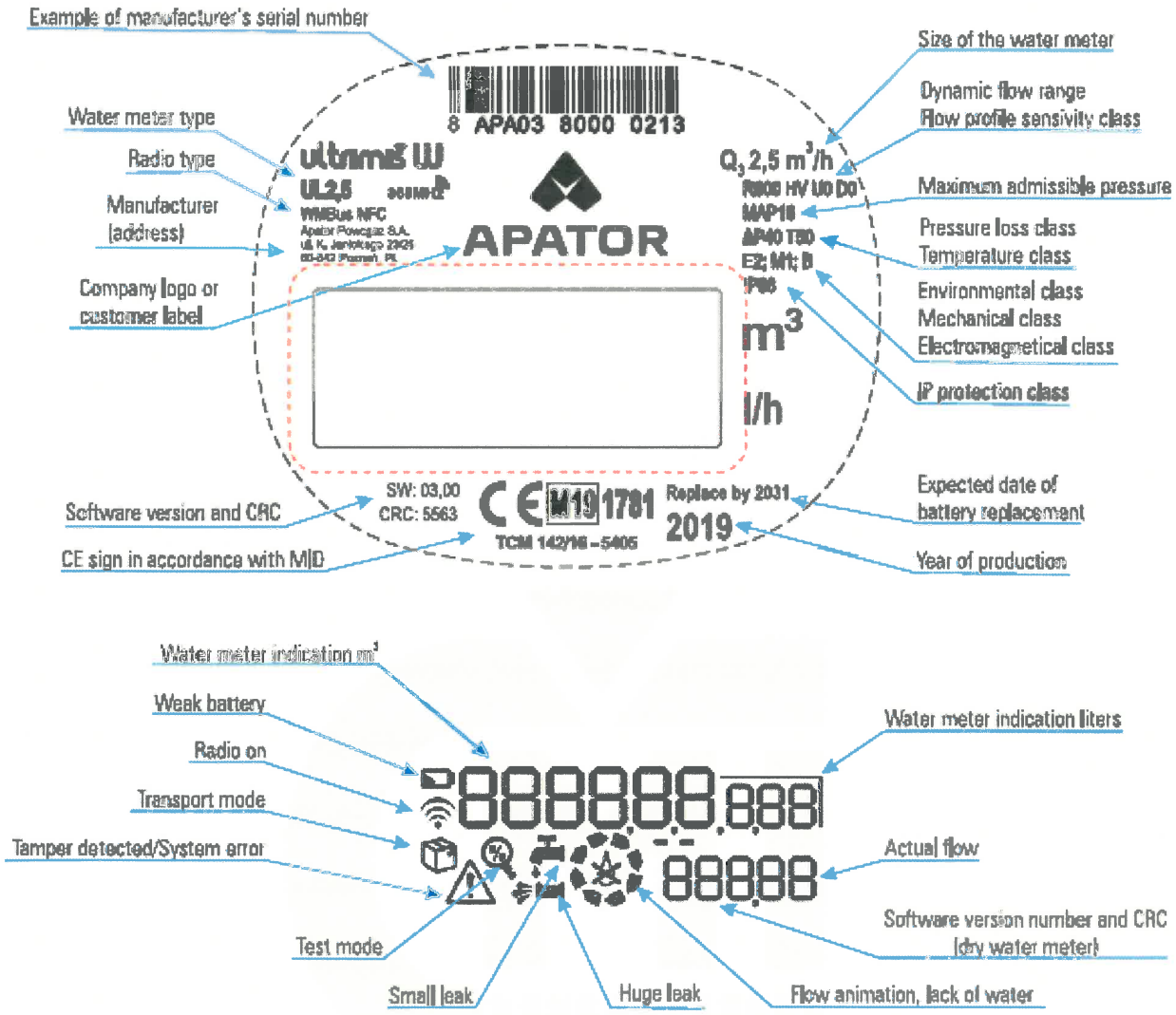

Figure 2: The water meter type ULTRIMIS (UL) – view and sealing (including safeguarding mark):