



**OIML Member State**  
Denmark

**OIML Certificate No.**  
R49/2013-A-DK2-25.03 Revision 1

**OIML CERTIFICATE ISSUED UNDER SCHEME A**

**OIML Issuing Authority**

Name: FORCE Certification A/S  
Address: Park Allé 345, 2605 Brøndby Denmark  
Person responsible: Lars Poder

**Applicant**

Name: Kamstrup A/S  
Address: Industrivej 28, 8660 Skanderborg, Denmark

**Manufacturer**

Name: Kamstrup A/S  
Address: Industrivej 28, 8660 Skanderborg, Denmark

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

Ultrasonic water meter, type KWM3231

**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. 124-25964 issued by FORCE Technology on 23 May 2025
- 122-23234-1\_Test\_Report\_KWM2231 issued by FORCE Technology on 18 March 2022
- 124-28583-A1 - Assessment - KWM 3231 LinkIQ module 52 issued by FORCE Technology on 12 December 2024


The technical documentation relating to the identified type is contained in documentation file:  
Task no. 125-21167

**OIML Certificate History**

Revision No.	Date	Description of the modification
Revision 0	7 July 2025	Original certificate
Revision 1	10 April 2026	New meter variant G1¼" x 175 mm, Q <sub>3</sub> =6.3 m <sup>3</sup> /h added

Identification, signature and stamp  
**The OIML Issuing Authority**

Date: 10 April 2026

  
Michael Møller Nielsen  
Certification manager

*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**

KWM3231 is an integrated and hermetically sealed static water meter based on the ultrasonic measuring principle, without any moving parts. The meter body is made of PPS composite material or stainless steel. KWM3231 has a display indicating the registered volume, measuring unit, error codes and more. Furthermore, an optical eye is located on the front, whereby data reading of data loggers and configuration of the meter, can be made for service and diagnostic purposes.

KWM3231 is power supplied from internal lithium batteries (2xA-cell). Battery providing long battery life, even with high performance communication. A separate pulse interface can be used for converting the data telegram into volume pulses during calibration of the meter.

The KWM3231 meter platform is fully IP68 rated – protected against both internal moisture penetration and external water ingress and can thus be submerged in water. This applies throughout the whole lifetime of the meter.

The water meter can and must only be opened by Kamstrup A/S. If the meter has been opened and the sealing has thus been broken, the meter is no longer valid for billing purposes and the warranty is void.

### **Inscriptions**

The water meters type KWM2231 shall be clearly and indelibly marked with the following information:

- System designation
- Manufacturer designation or logo
- Manufacturer postal address
- Type, production year and serial number
- Accuracy class
- Frequency
- Max pressure loss
- Mechanical and electromagnetic environment classes
- Climatic class
- Flow limits
- Sensitivity velocity field classes
- Temperature of medium
- Maximum working pressure (PN)
- Protection class
- Dynamic Range (Q3/Q1)
- Software version (e.g.: SW: D1)
- Meter replacement year
- Direction of flow by means of an arrow shown on both sides of the body

**Technical data for stainless steel meters**

**Flow designations**

Meter size 1" x 190mm DN20

Q <sub>1</sub> Minimum flow rate [l/h]	6.3		
Q <sub>2</sub> Transitional flow rate [l/h]	10		
Q <sub>3</sub> Permanent flow rate [m <sup>3</sup> /h]	2.5	4	6.3
Q <sub>4</sub> Overload flow rate [m <sup>3</sup> /h]	3.1	5	7.9
Dynamic range Q <sub>3</sub> /Q <sub>1</sub>	400 <sup>1)</sup>	630 <sup>2)</sup>	1000 <sup>3)</sup>

Meter size 1¼" x 175 mm DN25

Q <sub>1</sub> Minimum flow rate [l/h]	10		
Q <sub>2</sub> Transitional flow rate [l/h]	16		
Q <sub>3</sub> Permanent flow rate [m <sup>3</sup> /h]	4	6.3	
Q <sub>4</sub> Overload flow rate [m <sup>3</sup> /h]	5	7.9	
Dynamic range Q <sub>3</sub> /Q <sub>1</sub>	400 <sup>1)</sup>	630 <sup>2)</sup>	

Meter size 1¼" x 260mm DN25

Q <sub>1</sub> Minimum flow rate [l/h]	10		
Q <sub>2</sub> Transitional flow rate [l/h]	16		
Q <sub>3</sub> Permanent flow rate [m <sup>3</sup> /h]	4	6.3	10
Q <sub>4</sub> Overload flow rate [m <sup>3</sup> /h]	5	7.9	12.5
Dynamic range Q <sub>3</sub> /Q <sub>1</sub>	400 <sup>1)</sup>	630 <sup>2)</sup>	1000 <sup>3)</sup>

Meter size 1½" x 260mm DN32

Q <sub>1</sub> Minimum flow rate [l/h]	16		
Q <sub>2</sub> Transitional flow rate [l/h]	25.6		
Q <sub>3</sub> Permanent flow rate [m <sup>3</sup> /h]	6.3	10	16
Q <sub>4</sub> Overload flow rate [m <sup>3</sup> /h]	7.9	12.5	20
Dynamic range Q <sub>3</sub> /Q <sub>1</sub>	400 <sup>1)</sup>	630 <sup>2)</sup>	1000 <sup>3)</sup>

Meter size 2" x 300mm DN40

Q <sub>1</sub> Minimum flow rate [l/h]	25		
Q <sub>2</sub> Transitional flow rate [l/h]	40		
Q <sub>3</sub> Permanent flow rate [m <sup>3</sup> /h]	10	16	25
Q <sub>4</sub> Overload flow rate [m <sup>3</sup> /h]	12.5	20	31.3
Dynamic range Q <sub>3</sub> /Q <sub>1</sub>	400 <sup>1)</sup>	630 <sup>2)</sup>	1000 <sup>3)</sup>

1) The meters can also be used for dynamics range: R315, R250, R200, R160, R125, R100

2) The meters can also be used for dynamics range: R500, R400, R315, R250, R200, R160, R125, R100

3) The meters can also be used for dynamics range: R800, R630, R500, R400, R315, R250, R200, R160, R125, R100

**Technical data for PPS meters**

**Flow designations**

Meter size 1¼" x 260mm DN25

Q <sub>1</sub> Minimum flow rate [l/h]	10		
Q <sub>2</sub> Transitional flow rate [l/h]	16		
Q <sub>3</sub> Permanent flow rate [m <sup>3</sup> /h]	4	6.3	10
Q <sub>4</sub> Overload flow rate [m <sup>3</sup> /h]	5	7.9	12.5
Dynamic range Q <sub>3</sub> /Q <sub>1</sub>	400 <sup>1)</sup>	630 <sup>2)</sup>	1000 <sup>3)</sup>

Meter size 1½" x 260mm DN32

Q <sub>1</sub> Minimum flow rate [l/h]	16		
Q <sub>2</sub> Transitional flow rate [l/h]	25.6		
Q <sub>3</sub> Permanent flow rate [m <sup>3</sup> /h]	6.3	10	16
Q <sub>4</sub> Overload flow rate [m <sup>3</sup> /h]	7.9	12.5	20
Dynamic range Q <sub>3</sub> /Q <sub>1</sub>	400 <sup>1)</sup>	630 <sup>2)</sup>	1000 <sup>3)</sup>

Meter size 2" x 300mm DN40

Q <sub>1</sub> Minimum flow rate [l/h]	25		
Q <sub>2</sub> Transitional flow rate [l/h]	40		
Q <sub>3</sub> Permanent flow rate [m <sup>3</sup> /h]	10	16	25
Q <sub>4</sub> Overload flow rate [m <sup>3</sup> /h]	12.5	20	31.3
Dynamic range Q <sub>3</sub> /Q <sub>1</sub>	400 <sup>1)</sup>	630 <sup>2)</sup>	1000 <sup>3)</sup>

1) The meters can also be used for dynamics range: R315, R250, R200, R160, R125, R100

2) The meters can also be used for dynamics range: R500, R400, R315, R250, R200, R160, R125, R100

3) The meters can also be used for dynamics range: R800, R630, R500, R400, R315, R250, R200, R160, R125, R100

**Other characteristics:**

Instrument type:	Complete water meter
Temperature class:	T50 (0.1...50 °C)
Water pressure class:	MAWP 16
Accuracy class:	2
Electromagnetic environment class:	E1 and E2
Mechanical environment class:	M1, Class B and O (building and outdoors)
Ambient temperature range:	-25 °C ... 55 °C
Sensitivity to irregularity upstream velocity field classes:	U0
Sensitivity to irregularity downstream velocity field classes:	D0
Protection class:	IP68
Orientation requirements:	Horizontal, vertical or at an intermediate angle
Power supply:	3.65 VDC lithium battery (2 x A-cell)
Battery lifetime:	Up to 16 years

### Security measures

- S** Security seal (Void sealing ring)
- T** Type label (Behind the front glass)
- P** Security seals (Snap points for sealing)
- I** Installation sealing

