

EU-Type Examination Certificate

Measuring Instrument Directive

Certificate number: DK-0200-MI001-022

Issued by FORCE Certification A/S, Denmark
EU-notified body number 0200

In accordance with Annex II Module B of the Directive 2014/32/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of measuring instruments (MID).

Issued to: **Kamstrup A/S**
Industrivej 28, Stilling
DK-8660 Skanderborg

Type of instrument: Water meter

Type designation: KWM2210 (flowIQ® 2200)

Valid until: 2029-05-14

Number of pages: 10, including appendix

Date of issue: 2022-10-26

Version: 13
This new version of DK-0200-MI001-022 is issued due to a minor editorial addition. The previous certificate is withdrawn.

Approved by



Michael Møller Nielsen
Certification Manager

Processed by



Lars Poder
Examiner

The conformity markings may only be affixed to the above type approved equipment. The manufacturer's Declaration of Conformity may only be issued and the notified body identification number may only be affixed on the instrument when the production/product assessment module (D or F) of the Directive is fully complied with and controlled by a written inspection agreement with a notified body.
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FORCE Certification references: TASK no.: 119-28312.14 and ID no.: 0200-MID-10740-11

Appendix to

EU-Type Examination Certificate Measuring Instrument Directive

Number: DK-0200-MI001-022

Issued by FORCE Certification A/S, Denmark

EU-notified body number 0200

Version	Issue date	Changes
DK-0200-MI001-022	2019-05-14	Original certificate
DK-0200-MI001-022 ver 1	2019-05-23	New software version added
DK-0200-MI001-022 ver 2	2019-11-04	New software version added, new communication module added, new dynamic ranges up to R800 added
DK-0200-MI001-022 ver 3	2020-01-27	New software and LinkIQ update added
DK-0200-MI001-022 ver 4	2020-04-03	New LinkIQ software version added
DK-0200-MI001-022 ver 5	2020-06-12	New LinkIQ software version added
DK-0200-MI001-022 ver 6	2020-06-25	New LinkIQ software version added
DK-0200-MI001-022 ver 7	2020-11-26	Minor editorial change on page 4
DK-0200-MI001-022 ver 8	2021-01-06	Update of flow ASIC, new LinkIQ software version added
DK-0200-MI001-022 ver 9	2021-03-25	New LinkIQ software version added
DK-0200-MI001-022 ver 10	2021-05-06	New LinkIQ software version added, component for temperature measurement added
DK-0200-MI001-022 ver 11	2021-07-01	New LinkIQ software version added
DK-0200-MI001-022 ver 12	2021-09-22	New LinkIQ software version added
DK-0200-MI001-022 ver 13	2022-10-26	Description of SW changes (legally relevant and non-legally relevant) added

Applied standards and documents:

OIML R 49:2013 (ISO 4064:2017)

WELMEC Guide 7.2:2020

The instruments/measuring systems shall correspond with the following specifications:

Type designation:

KWM2210 (flowIQ® 2200)

Description:

KWM2210 is an integrated and hermetically sealed static water meter based on the ultrasonic measuring principle. The meter body is made of PPS composite material.

The volume measurements are made by means of bidirectional ultrasonic technique according to the transit time method. KWM2210 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.

KWM2210 is power supplied from an internal lithium battery with a lifetime up to 16 years. A separate pulse interface can be used for converting the data telegram into volume pulses during calibration of the meter.

Technical documentation (Reference numbers):

- 119-28312.14
- 119-28312.13
- 119-28312.12
- 119-28312.11
- 119-28312.10
- 119-28312.09
- 119-28312.08
- 119-28312.07
- 119-28312.06
- 119-28312.05
- 119-28312.04
- 119-28312.03
- 119-27456.02
- 119-27456.01

Technical data

Flow designation

Meters with $Q_3 = 4.0 \text{ m}^3/\text{h}$

Dynamic range Q_3/Q_1	800	630	500	400	315	250	200	160	125	100
Q_1 Minimum flow rate [l/h]	5	6.4	8	10	12.7	16	20	25	32	40
Q_2 Transitional flow rate [l/h]	8	10.2	12.8	16	20.3	25.6	32	40	51.2	64
Q_3 Permanent flow rate [m^3/h]	4.0									
Q_4 Overload flow rate [m^3/h]	5.0									

Meters with $Q_3 = 2.5 \text{ m}^3/\text{h}$

Dynamic range Q_3/Q_1	800	630	500	400	315	250	200	160	125	100
Q_1 Minimum flow rate [l/h]	3.5	4	5	6.3	7.9	10	12.5	15.6	20	25
Q_2 Transitional flow rate [l/h]	5.6	6.4	8	10	12.7	16	20	25	32	40
Q_3 Permanent flow rate [m^3/h]	2.5									
Q_4 Overload flow rate [m^3/h]	3.125									

Meters with $Q_3 = 1.6 \text{ m}^3/\text{h}$

Dynamic range Q_3/Q_1	800	630	500	400	315	250	200	160	125	100
Q_1 Minimum flow rate [l/h]	2	2.5	3.2	4	5.1	6.4	8	10	12.8	16
Q_2 Transitional flow rate [l/h]	3.2	4	5.1	6.4	8.1	10.2	12.8	16	20.5	25.6
Q_3 Permanent flow rate [m^3/h]	1.6									
Q_4 Overload flow rate [m^3/h]	2.0									

Meter dimensions

Meter with Q_3	Overall meter length [mm]	Meter connection	Diameter [DN]
4.0 [m^3/h]	130, 190	G1B	20
2.5 [m^3/h]	105, 130, 190	G1B	20
2.5 [m^3/h]	110, 170	G $\frac{3}{4}$ B	15
1.6 [m^3/h]	110, 170	G $\frac{3}{4}$ B	15

Other designations

Instrument type:	Complete water meter
Temperature class:	T30 (0.1 – 30 °C) Also tested T50 according to OIML R 49:2013
Pressure stage:	PN6, PN10 and PN16
Accuracy class:	2
Electromagnetic environment class:	E1 and E2
Mechanical environment class:	M1, Class B and O (building and outdoors)
Climatic class:	-25 °C – 55 °C, condensing
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
Battery lifetime:	Up to 16 years

Communication

Communication modules:

Module designation	Module description
02K-13	Wireless M-Bus, 868 MHz, mode C1
	Wireless M-Bus, 868 MHz, mode T1 OMS
02K-59	LinkIQ, Wireless M-Bus

Approved software versions

Module description	Version no.	Checksum for metrological part of the SW	Description
Wireless M-Bus C1/T1 OMS	H1G1	H1: 15880 (Dec) / G1: 2E83 (Hex)	N
	J1G1	J1: 35631 (Dec) / G1: 2E83 (Hex)	N
	J1H1	J1: 35631 (Dec) / H1: D568 (Hex)	N
Wireless M-Bus C1/T1 OMS LinkIQ	K1G1	K1: 8123 (Dec) / G1: 2E83 (Hex)	N
	K1H1	K1: 8123 (Dec) / H1: D568 (Hex)	N
	L1G1	L1: 63641 (Dec) / G1: 2E83 (Hex)	N
	L1H1	L1: 63641 (Dec) / H1: D568 (Hex)	N
	M1G1	M1: 14885 (Dec) / G1: 2E83 (Hex)	N
	M1H1	M1: 14885 (Dec) / H1: D568 (Hex)	N
	N1G1	N1: 28632 (Dec) / G1: 2E83 (Hex)	N
	N1H1	N1: 28632 (Dec) / H1: D568 (Hex)	N
	P1H1	P1: 923 (Dec) / H1: D568 (Hex)	N
	P1J1	P1: 923 (Dec) / J1: B2CD (Hex)	L
	P1K1	P1: 923 (Dec) / K1: 456F (Hex)	N
	Q1J1	Q1: 3386 (Dec) / J1: B2CD (Hex)	L
	Q1K1	Q1: 3386 (Dec) / K1: 456F (Hex)	N
	R1K1	R1: 26504 (Dec) / K1: 456F (Hex)	N
	S1K1	S1: 650851818 (Dec) / K1: 456F (Hex)	N

N: Non-legally Relevant Software Change

L: Legally Relevant Software Change

Verification procedure

According to: Directive 2014/32/EU and OIML R 49:2013.

Errors: Maximum permissible errors according to the Directive 2014/32/EU of the European Parliament and Council of February 26, 2014 on measurement instruments (MID), ANNEX III (MI-001).

Procedure: Flow rate requirements according to OIML R 49:2013.
It is also a possibility to use water at a temperature of $20\text{ °C} \pm 10\text{ °C}$.

Test points (flows): $Q_1 \leq Q \leq 1.1 Q_1$
 $Q_2 \leq Q \leq 1.1 Q_2$
 $0.9 Q_3 \leq Q \leq Q_3$

Test of water meter via display reading (Standing start/stop)

Preparation: Use the software Kamstrup LABTOOL and an optical head to set the meter in high resolution display mode (00000,001 L)

- Mount the water meter in the test rig
- Connect flow (start)
- Disconnect flow (stop)
- Read the LC-Display and compare the reading to the actual volume

Test of water meter via pulse interface (Flying start/stop)

Preparation: Connect a pulse interface type 66-99-143 to each water meter in the test rig and connect the volume pulse output to the pulse input on the test rig

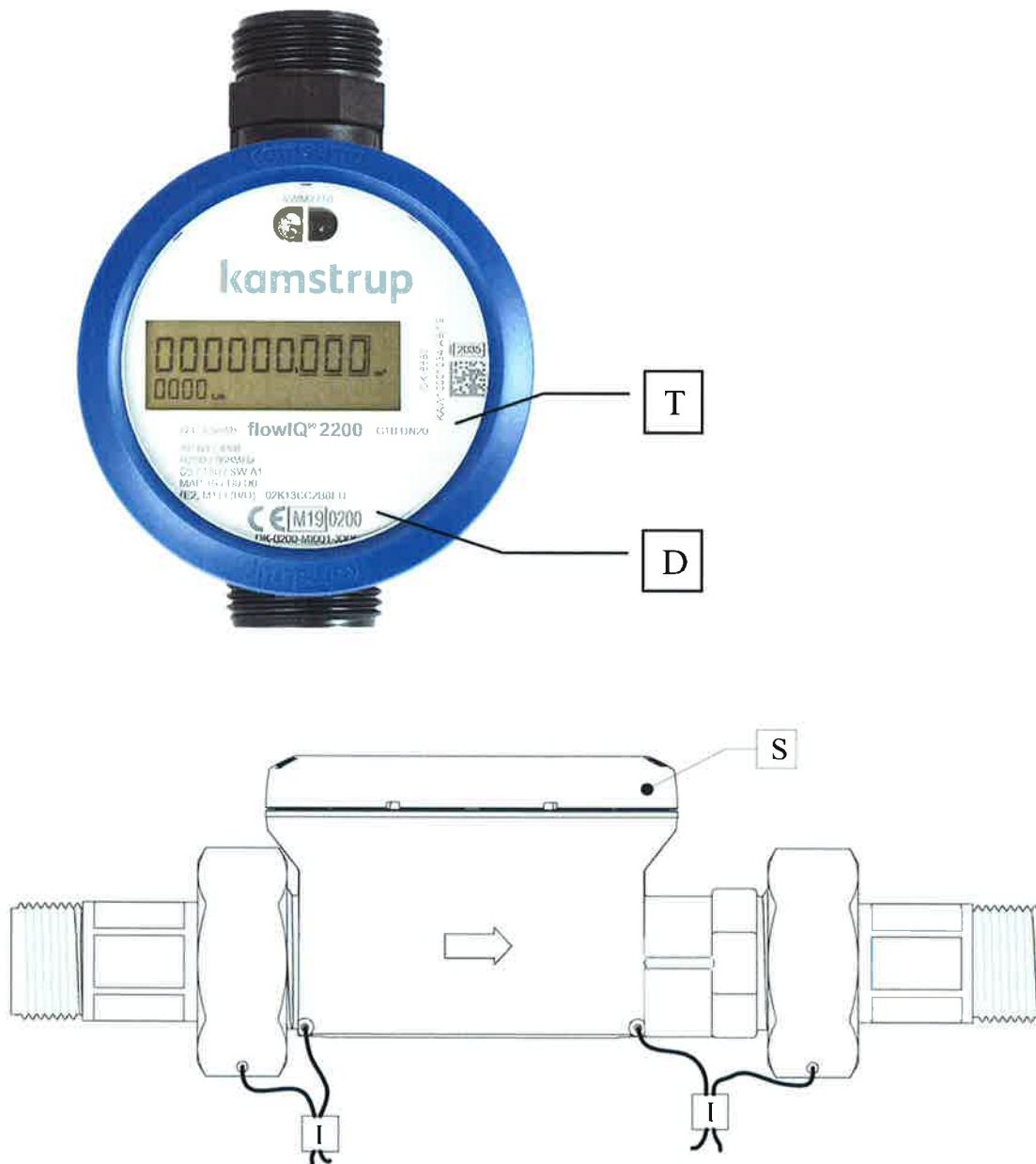
- Mount the water meter in the test rig
- Connect flow and wait for stabilisation of flow rate
- The measuring period is started and stopped
- Compare the EUT volume pulses to the master volume

Pulse Interface type
66-99-143 mounted on
KWM 2210 water meter via the optical
support type 65-61-331



Seals and markings

- D** Module D label (Behind the front glass)
- S** Security seal (Void sealing ring)
- T** Type label (Behind the front glass)
- I** Installation seals (Wire and seals)



Inscriptions

Front cover for KWM2210 (flowIQ® 2200)

- 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) ¹
- Software version (e.g.: SW: S1K1)

¹ KWM2210 water meter may be labelled with a lower dynamic range than used under the verification procedure.

Photo of KWM2210 (flowIQ 2200)

