

EU-Type Examination Certificate

Measuring Instrument Directive

Certificate number: DK-0200-MID-01858

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

In accordance with the Danish Safety Technology Authority's statutory order no. 1382 of November 25, 2016 which implements the Directive 2014/32/EU of the European Parliament and Council of February 26, 2014 on measuring instruments (MID).

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

Type of instrument: Water meter

Type designation: flowIQ® 3100 (DN100)

Valid until: 2027-02-14

Number of pages: 8, including appendix

Date of issue: 2017-11-27

Version: 1
This new version of DK-0200-MID-01858 is issued due to changes to the meter.
This certificate replaces all previous versions.

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. This EU-type examination certificate may not be reproduced except in full, without written permission by FORCE Certification A/S.

FORCE Certification references: TASK no.: 117-33125.02 and ID No. 0200-MID-03278

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Appendix to

EU-Type Examination Certificate Measuring Instrument Directive

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Revision	Issue date	Changes
DK-0200-MID-01858	2017-02-14	Original certificate
DK-0200-MID-01858 ver 1	2017-11-27	New dynamic range added

Applied standards and documents:

OIML R 49:2013 (ISO 4064:2014)

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

Type designation:

flowIQ® 3100 (DN100)

Description:

The flowIQ® 3100 (DN100) is an integrated and hermetically sealed static water meter, based on the ultrasonic measuring principle. The flowIQ® 3100 (DN100) consists of a meter housing, which is formed as a vacuum chamber of injection moulded PPS composite, mounted on a meter body of stainless steel. This construction ensures that no water will enter the electronic compartment, neither from the flow pipe, nor from the surroundings. The volume measurements are made by means of bidirectional ultrasonic technique, according to the transit time method.

The measure pipe and the electronics are integrated in one construction, which cannot be separated. flowIQ® 3100 (DN100) 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.

flowIQ® 3100 (DN100) is power supplied from an internal lithium battery, with a life time of 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 number:

- 117-33125.02
- 117-21182.01

Technical data

Instrument type:	Complete meter
Temperature class:	T30 (0.1 – 30 °C) Also tested T50 according to OIML R 49:2013
Pressure stage:	PN16
Diameter / connection:	DN100 / flanged meter
Flow rate Q ₃ :	100 m ³ /h
Dynamic range Q ₃ /Q ₁ :	400 – 315 – 250 – 200 – 160 – 125 – 100 – 50
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
Durability specification:	12 years
Orientation requirements:	None
Power supply:	3.65 VDC lithium battery 16 years life time

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Communication and software

Approved communication modules:

Meter type	Module description
031-46	Wireless M-Bus, 868 MHz, mode C1 – ver. 2
031-47	Wireless M-Bus, 868 MHz, mode T1 – OMS – ver. 2

Approved software versions:

Meter type	Version no.	Checksum for metrological part of the software
031-46 031-47	xxxx0101/A1	33593

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Verification procedure

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: The test points and verification according to OIML R 49:2013.
It is also a possible 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 flowIQ® 3100 LABTOOL and an optical head to set the meter in high resolution display mode (000000,001 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)

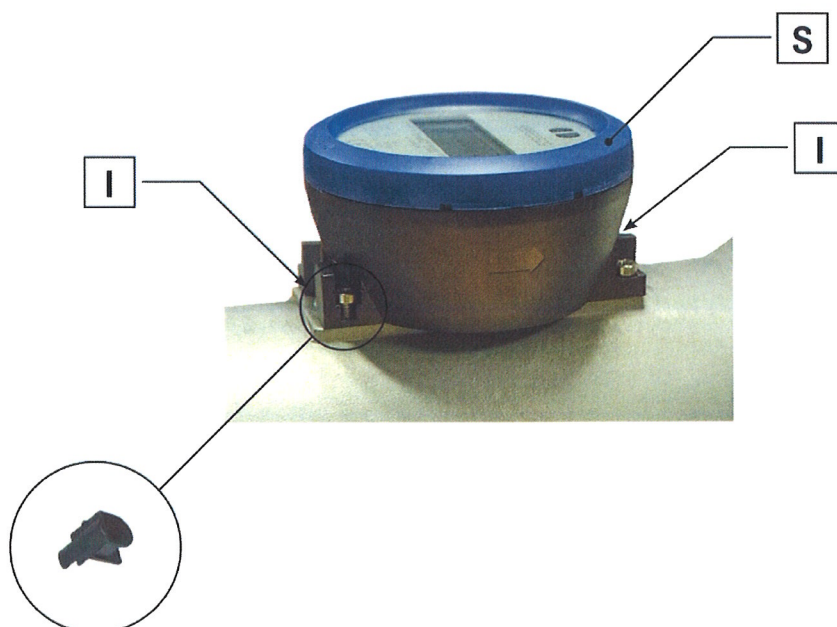
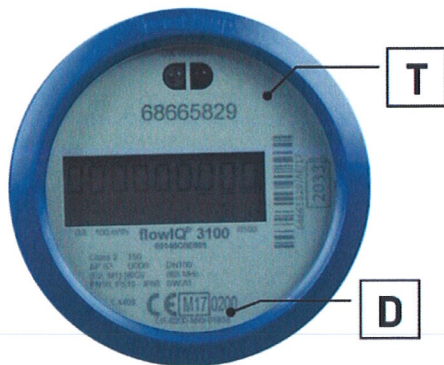
Preparation: Connect a pulse interface type 66-99-143 to each water meter in the test rig and connect the volume pulse output to the pulse input on the test rig

- 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

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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** The meter is sealed (2 seals placed diagonally)



Inscriptions

Front cover

- System designation
- Manufacturer designation or logo
- Manufacturer postal address
- Type, production year and serial number
- Accuracy class
- Mechanical and electromagnetic environment classes
- Climatic class
- Flow limits
- Temperature of medium
- Maximum working pressure (PN)
- Protection class
- Pressure loss class
- Dynamic Range (Q_3/Q_1)¹
- Software version (e.g.: SW:A1)
- Communication frequency

Regulations regarding installation angle

flowIQ® 3100 water meter may be installed in all possible angles and positions.

¹ flowIQ® 3100 may be labeled with a lower dynamic range than used under the verification procedure

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Photos of flowIQ® 3100 (DN100)

