

EC-Type Examination Certificate

Measuring Instrument Directive

Certificate number: DK-0200-MI001-017

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

In accordance with The Danish Safety Technology Authority's statutory order no. 313 of March 30, 2016 which implements the Directive 2014/32/EC 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

Valid until: 2023-03-22

Number of pages: 10, including appendix

Date of issue: 2016-10-26

Version: 7
This new version of DK-0200-MI001-017 is issued due to a new meter variant.
This certificate replaces all previous versions.

Approved by



Kurt Rasmussen
Certification Manager

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

FORCE Certification references: TASK no.: 116-26995.11 and ID. No.: DK-0200-MID-01461

DK-0200-MI001-017

Appendix to

EC-Type Examination Certificate Measuring Instrument Directive

Number: DK-0200-MI001-017

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

Version	Issue date	Changes
DK-0200-MI001-017	2013-03-22	Original certificate
DK-0200-MI001-017 rev 1-2013	2013-09-23	Certificate withdrawn
DK-0200-MI001-017 rev 2-2013	2013-10-11	New updated technical data section, new type number overview
DK-0200-MI001-017 rev 1-2014	2014-10-24	New type designation – flowIQ™ 3100 changed to flowIQ® 3100, new antenna and temperature measuring feature added, new software versions, new type number overview
DK-0200-MI001-017 rev 3	2015-02-09	Changes to top PCB, new software versions, new meter variant added, new type number overview
DK-0200-MI001-017 rev 4	2015-08-19	New meter variant added, new type number overview
DK-0200-MI001-017 rev 5	2015-09-17	New meter variant added, new type number overview
DK-0200-MI001-017 ver 6	2016-09-07	New meter variant added, new type number overview
DK-0200-MI001-017 ver 7	2016-10-26	New meter variant added, new type number overview

Applied standards and documents:

OIML R 49:2006, OIML R 49:2013 (ISO 4064:2014)

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

Type designation:

flowIQ® 3100

DK-0200-MI001-017

Description:

The flowIQ® 3100 is an integrated and hermetically sealed static water meter, based on the ultrasonic measuring principle. The flowIQ® 3100 consists of a meter housing, which is formed as a vacuum chamber of injection moulded PPS composite, mounted on a meter body of brass or 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 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 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 numbers:

- 116-26995.11
- 116-26995.05
- 114-33017.03.07
- 114-33017.03.08
- 114-33017.03.05
- 113-21029.0001.0005
- 113-21029.0001.0003
- 113-21029.0001.0002

DK-0200-MI001-017

Technical data

Instrument type according to : OIML R 49:2006
 Instrument type : Complete meter
 Temperature of medium : T30
 Also approved T50 according to OIML R 49:2006

Pressure stage
 Threaded meter : PN16
 Flanged meter : PN25

Flow rate Q₃ and connection:
 Threaded meter : 1.6 m³/h G³/₄B x 110 mm
 : 2.5 m³/h G³/₄B x 110 mm
 : 2.5 m³/h G1B x 190 mm
 : 4.0 m³/h G⁵/₄B x 260 mm
 : 6.3 m³/h G⁵/₄B x 260 mm
 : 10 m³/h G2B x 300 mm

Flanged meter : 16 m³/h DN50 x 270 mm

Dynamic range Q₃/Q₁ : 1.6 m³/h 100/1 and 160/1
 : 2.5 m³/h 100/1 and 250/1
 : 4.0 m³/h 100/1 and 250/1
 : 6.3 m³/h 100/1 and 250/1
 : 10 m³/h 100/1 and 250/1
 : 16 m³/h 100/1 and 250/1

Accuracy class : 2

Environment class : E1 and E2, M1
 (Class B and C according to OIML R 49)

Climatic class : 2...55 °C condensing
 Open and closed location (Outdoor and indoor)

Sensitivity to irregularity upstream : U0
 velocity field classes

Sensitivity to irregularity downstream : D0
 velocity fields classes

Protective class : IP68

Durability specification : 16 years

Installation : May be installed in any position

Power supply : 3.65 VDC Lithium battery, 16 years life time

Software version :

Version no.	Checksum for metrological part of the software
xxxx0501/E1	25048
xxxx0601/F1	47849
xxxx0701/G1	22098
xxxx0801/H1	55019
xxxx0A01/J1	3880
xxxx0B01/K1	51612
xxxx0C01/L1	2941
xxxx0D01/M1	52475
xxxx0E01/N1	24735
xxxx1001/P1	62145
xxxx1101/Q1	44419

Software version Type 10 :

Version no.	Checksum for metrological part of the software
xxxx0301/C1	40484

Software version Type 30 :

Version no.	Checksum for metrological part of the software
xxxx0401/D1	44771

DK-0200-MI001-017

Technical data

- Instrument type according to : OIML R 49:2013
- Instrument type : Complete meter
- Temperature of medium : T30
Also approved T50 according to OIML R 49:2013
- Pressure stage
- Threaded meter : PN16
- Flanged meter : PN25
- Flow rate Q₃ and connection:
- Threaded meter : 1.6 m³/h G⁵/₄ x 175 mm
: 2.5 m³/h G⁵/₄ x 175 mm
: 4.0 m³/h G⁵/₄ x 175 mm
: 6.3 m³/h G⁵/₄ x 175 mm
- Flanged meter : 25 m³/h DN65 x 300 mm
: 40 m³/h DN80 x 300 mm
- Dynamic range Q₃/Q₁ : 1.6 m³/h 100/1 and 160/1
: 2.5 m³/h 100/1 and 250/1
: 4.0 m³/h 100/1 and 250/1
: 6.3 m³/h 100/1 and 250/1
: 25 m³/h 100/1 and 250/1
: 40 m³/h 100/1 and 250/1
- Accuracy class : 2
- Environment class : E1 and E2, M1
(Class B and C according to OIML R 49)
- Climatic class : 2...55 °C condensing
Open and closed location (Outdoor and indoor)
- Sensitivity to irregularity upstream : U0
- velocity field classes
- Sensitivity to irregularity downstream : D0
- velocity fields classes
- Protective class : IP68
- Durability specification : 16 years
- Installation : May be installed in any position
- Power supply : 3.65 VDC Lithium battery, 16 years life time
- Software version

Version no.	Checksum for metrological part of the software
xxxx0501/E1	25048
xxxx0601/F1	47849
xxxx0701/G1	22098
xxxx0801/H1	55019
xxxx0A01/J1	3880
xxxx0B01/K1	51612
xxxx0C01/L1	2941
xxxx0D01/M1	52475
xxxx0E01/N1	24735
xxxx1001/P1	62145
xxxx1101/Q1	44419

Software version Type 10

Version no.	Checksum for metrological part of the software
xxxx0301/C1	40484

Software version Type 30

Version no.	Checksum for metrological part of the software
xxxx0401/D1	44771

DK-0200-MI001-017

Type number combination

Type 031- □□ □ 0 □ □ □□

Communication

Wireless M-Bus, 868 MHz, Mode C1	66
Wireless M-Bus, 868 MHz, Mode T1 OMS	67
Wireless M-Bus, 868 MHz, Mode C1 - OMS – ver. 2	46
Wireless M-Bus, 868 MHz, Mode T1 - OMS – ver. 2	47
Wired M-Bus	30
Sigfox EU 1- way	10

Battery Supply

16 years battery life time **C**

Meter size

Q3 [m ³ /h]	Connection	Length [mm]	Dynamic Range	
1.6	G ³ / ₄ B (R ¹ / ₂)	110	100	A
2.5	G ³ / ₄ B (R ¹ / ₂)	110	100	B
2.5	G1B (R ³ / ₄)	190	100	C
4.0	G ⁵ / ₄ B (R1)	260	100	G
6.3	G ⁵ / ₄ B (R1)	260	100	H
10.0	G2B(R ¹ / ₂)	300	100	J
16.0	DN50	270	100	L
25.0	DN65	300	100	M
40.0	DN80	300	100	N
1.6	G ³ / ₄ B (R ¹ / ₂)	110	160	P
2.5	G ³ / ₄ B (R ¹ / ₂)	110	250	R
2.5	G1B (R ³ / ₄)	190	250	S
4.0	G ⁵ / ₄ B (R1)	260	250	T
6.3	G ⁵ / ₄ B (R1)	260	250	U
10.0	G2B(R ¹ / ₂)	300	250	V
16.0	DN50	270	250	W
25.0	DN65	300	250	Q
40.0	DN80	300	250	X
1.6	G ⁵ / ₄ B (R1)	175	100	1
2.5	G ⁵ / ₄ B (R1)	175	100	2
4.0	G ⁵ / ₄ B (R1)	175	100	3
6.3	G ⁵ / ₄ B (R1)	175	100	4
1.6	G ⁵ / ₄ B (R1)	175	160	5
2.5	G ⁵ / ₄ B (R1)	175	250	6
4.0	G ⁵ / ₄ B (R1)	175	250	7
6.3	G ⁵ / ₄ B (R1)	175	250	8

Meter type

Cold water meter **8**

Country code

(Language on label etc.) **XX**

DK-0200-MI001-017

Verification procedure

- According to: Directive 2004/22/EC and OIML R 49
- Errors: Maximum permissible errors according to the Directive 2004/22/EC of the European Parliament and Council of March 31, 2004 on measurement instruments (MID), Annex MI-001.
- Procedure: The test points and verification according to OIML R 49.
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 flowIQ® 3100 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

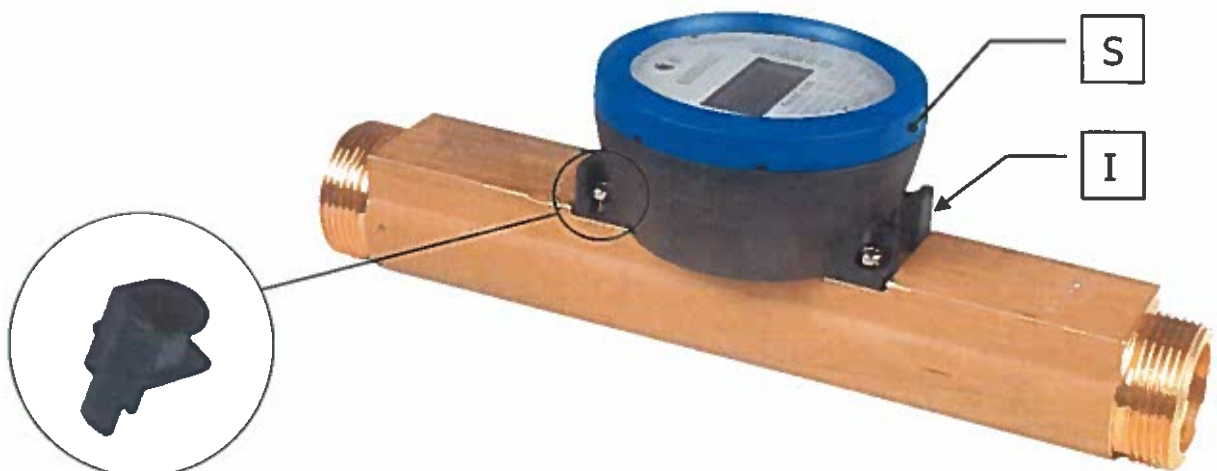
Pulse Interface type 66-99-143 mounted on flowIQ® 3100 water meter via the optical support type 6561-331



DK-0200-MI001-017

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)



DK-0200-MI001-017

Inscriptions

Front cover for flowIQ® 3100

System designation
Manufacturer designation or logo
Manufacturer postal address
Type, production year and serial number
Accuracy class
Mechanical and electromagnetic environment classes
Flow limits
Temperature of medium
Maximum working pressure (PN)
Dynamic Range (Q_3/Q_1) ⁽¹⁾
Software version (e.g.: SW:J1)

Regulations regarding installation angle

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

⁽¹⁾ flowIQ® 3100 water meter may be labelled with a lower dynamic range than used under the verification procedure.

DK-0200-MI001-017

Photos of flowIQ® 3100

