

EC-Type Examination Certificate Measuring Instrument Directive

Number: DK-0200-MI001-003

Issued by FORCE-Dantest CERT, Denmark
EC-notified body number 0200

In accordance with The Danish Safety Technology Authority's statutory order no. 436 of 16 May 2006 which implements the Directive 2004/22/EC of the European Parliament and Council of March 31, 2004 on measuring instruments (MID)

Issued to: **Kamstrup A/S**
 Industrivej 28, Stilling
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Reference No.: 80.976-021/07
Type of instrument: Water meter
Type designation: MULTICAL® 41 (type 66-Z)
Valid until: November 16, 2017
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Approved by


Hans Falster
Director

Processed by


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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.

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Appendix to EC-Type Examination Certificate Measuring Instrument Directive

Number: DK-0200-MI001-003

Issued by FORCE-Dantest CERT, Denmark
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Applied standards and documents:

OIML R49: 2006

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

Type designation:

MULTICAL® 41 (type 66-Z)

Description

MULTICAL® 41 is a static water meter based on the ultrasonic principle. The meter consists of a calculator and a flow part, which constitute a water meter.

The electrical connection between the calculator and the flow part is a 140 cm long cable.

The calculator unit has a display indicating registered volume, and additionally via a pushbutton other information can be shown on the display. If the pushbutton is left untouched for 150 seconds, the display automatically reverts to the indication of registered volume. System errors, if any, will appear from the display.

Volume measurement is carried out by means of bidirectional ultrasound technique according to the transit time Method.

MULTICAL® 41 is supplied from an internal lithium battery with a lifetime of up to 12 years. Alternatively, the meter can be mains supplied, either from 24 VAC or 230 VAC.

In addition to the water meter's own data, MULTICAL[®] 41 displays accumulated consumption for two extra meters that supply a contact signal to MULTICAL[®] 41 via a Reed switch. The contact signals from the extra meters are connected via the communication modules.

A multi-poled plug is placed under the top cover that is used partly for calibration and adjustment during verification and partly in connection with communication modules.

The calculator is equipped with an optical data communication interface according to IEC 870, which makes it possible to read measuring values through a window in the cover plate.

Technical documentation
FORCE-Dantest CERT File no. 80.976-021/07

Technical data

Instrument type according to: OIML R49: 2006

MULTICAL[®] 41, G1 x 190 mm and G³/₄ x 165

Accuracy class: 2

Flowdata

Q1	0.016 m ³ /h
Q2	0.0256 m ³ /h
Q3	1.6 m ³ /h
Q4	2.0 m ³ /h

Verification tolerance

± 5% Q1 ≤ Q < Q2

± 2% Q2 ≤ Q ≤ Q4

Unit of measurement: m³

Temperature: 0.1 - 30°C

Pressure: PN = 16 bar

Environment class: E1, M1

Climatic class: 5...55°C, non-condensing, closed location.

Durability specification: 12 Years

Installation angle: Horizontally, vertically or at an angle

Power supply: 230 VAC

24 VAC

3.65 VDC, Lithium battery, D-cell

Software version: SE 3.01

The meter is approved as followed.

Without check valve ore strainer.

With check valve ore strainer.

With strainer.

With check valve.

Type of check valve: Anti-pollution check valve,
EN 13959:2004, Family E, type B.

Verification

Errors:

Maximum permissible errors according to 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 49:2006

Water temperature $20^{\circ}\text{C} \pm 10^{\circ}\text{C}$.

Flows:

$$Q_1 \leq Q \leq 1.1 Q_1$$

$$Q_2 \leq Q \leq 1.1 Q_2$$

$$0.9 Q_3 \leq Q \leq Q_3$$

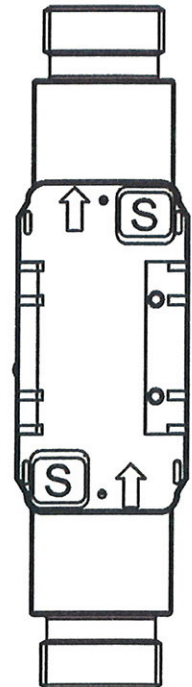
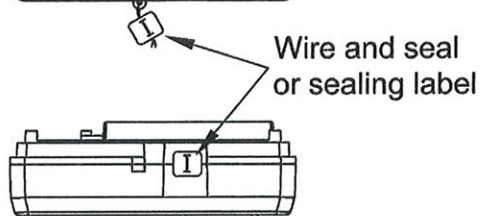
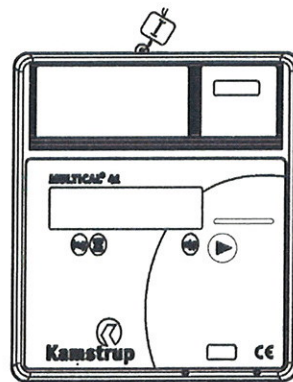
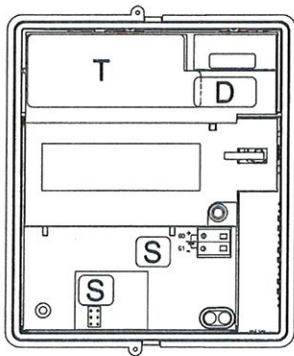
The water meter can be verified in one of the following ways:

- a) Volume direct via the display. However, this method requires long measuring periods due to the resolution of the display.
- b) Volume in testing mode, where volume is read with higher resolution Volume quantity (Q') 1 [ml]. The flow meter is set in testing mode using one of the following methods:
 - 1) Pressing the button in the bottom left side (to the left of the test and module connection plug) for 5 seconds until a "P" is shown in the left side of the display, or
 - 2) Via the test plug of the calculator.

In connection with verification according to b) Kamstrup's test interface no. 66-99-109, serial communication via the test plug, and controlled start/stop can be used.

Seals and markings

- D** Security seal or module D/F label (Depending on type label)
- S** Security seals
- T** Type label
- I** Installation seals



Labelling and inscriptions

Manufacturer designation or logo
Type, production year and serial number
EC-Type examination certificate number
Tmax
Pmax
Ambient temperature
Climatic class
Accuracy class
Software version
Unit of measurement, m³
Direction of flow
Power supply

Modules

The meter can be supplied and used with the following modules.
XXX is a configuration and marking code.

Communication modules:

66-0L-000-XXX	Radio/Pulse inputs
66-0M-000-XXX	Radio with external antenna /Pulse input
66-0P-000-XXX	M-Bus/pulse inputs
66-0Q-000-XXX	Data/Pulse output
66-0R-000-XXX	Data/Pulse inputs
66-0S-000-XXX	M-Bus/Pulse inputs
66-0T-000-XXX	Modem
66-0U-000-XXX	Radio/Pulse inputs
66-0W-000-XXX	Radio with external antenna /Pulse input

Supply modules:

66-00-200-XXX	Battery, D-cell
66-00-700-XXX	230 V AC supply module
66-00-800-XXX	24 V AC supply module



DANAK

PROD Reg.nr. 7025



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EXAMPLE OF TYPE LABEL

1234569

WATER METER

Q3: 1.6 m³/h DN15 PN16
Q1: 0.016 m³/h G³/₄B*165 mm
Q4: 2.0 m³/h Q2: 0.026 m³/h

Type: 66Z0005718
S/N: 1234569/2007
Prog: 32119
Con: 8200000
SW: SE 3.01
Class: 2 (E1,M1)
Non-cond/Closed
DK-0200-MI001-003
IP 54(5...55°C)
T: 0.1-30 °C
Q3/Q1: 1/100