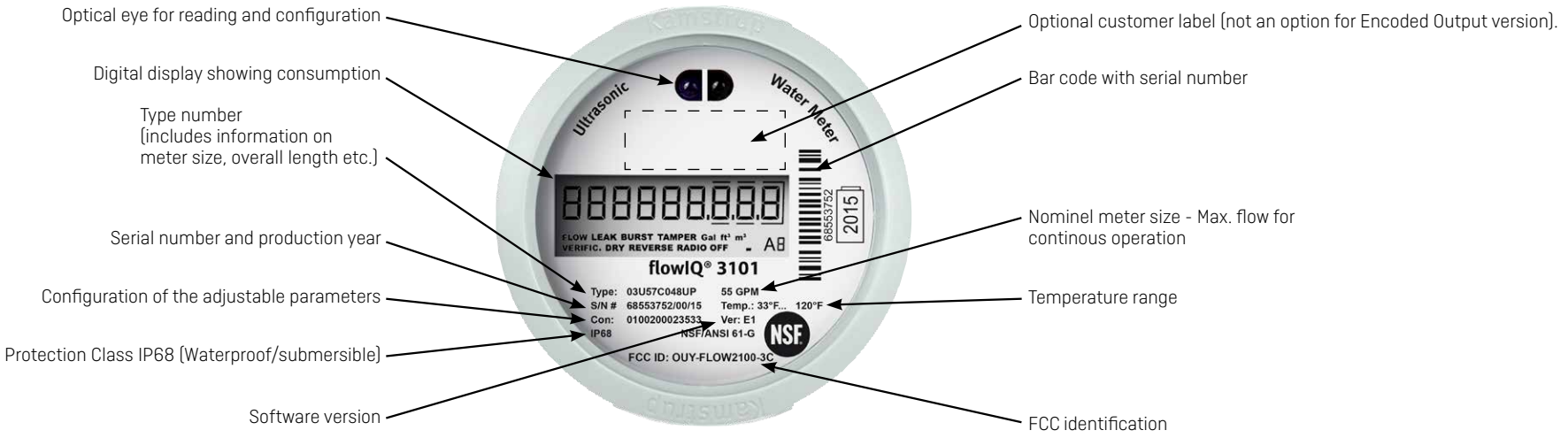
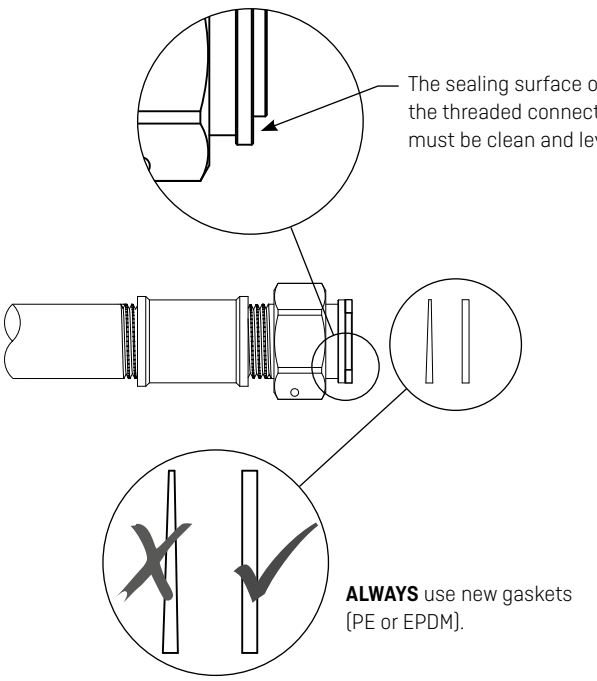
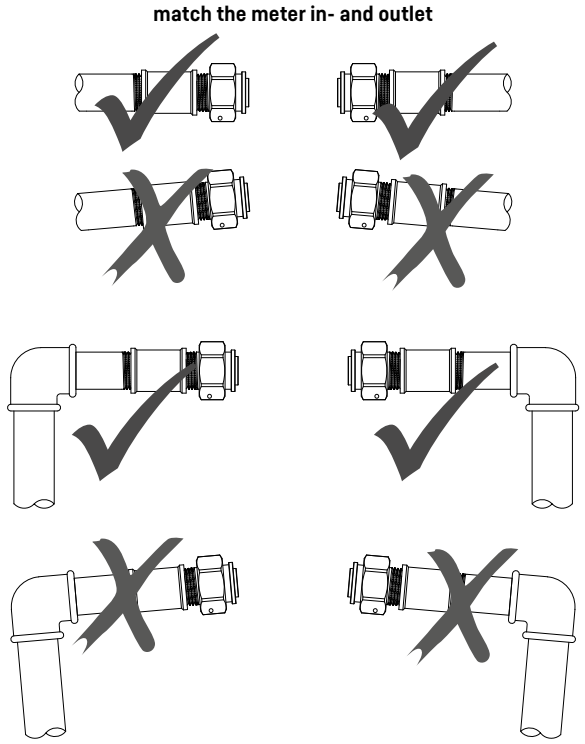


Kamstrup Water Metering · 1040 Crown Pointe Pkwy, Ste. 320 · Atlanta, GA 30338
T: +1 (404) 835-6716 · F: +1 (678) 387-3602 · info-us@kamstrup.com

flowIQ® 3101 - Encoded Output version



The adjacent piping must be parallel and match the meter in- and outlet



FCC Cautions

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF Exposure compliance statement: This device may be used with no restrictions, since the source-based time-averaged output power is ≤ 60/f(GHz) mW.

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

1 This device may not cause harmful interference, and

2 This device must accept any interference received, including interference that may cause undesired operation.

kamstrup

flowIQ® 3101 - RF
& flowIQ® 3101 - Encoded Output
Installation guide

Kamstrup A/S • 55121388_D2_US_12.2016

1 General information

Read this guide before installing the water meter.

flowIQ® 3101 is a compact electronic water meter used for water consumption measurement in the tap water supply of homes, commercial and industrial buildings. The meter is watertight and thus, well suited for mounting in small pump stations and meter pits, which are frequently filled with water.

flowIQ® 3101 is hermetically closed, and therefore it is not possible to service the meter without breaking the seal. This means that all service, must be carried out at Kamstrup Headquarters.

Certain changes of configuration, however, are possible via the built-in optical eye without dismounting the meter from the installation. Further details appear in the data sheet.

1.1 Permissible operating conditions / measuring ranges

Temperature of medium water meter:	33-120 °F
Max. operating pressure:	– Thread: 250 PSI (17 bar) – Flange: 250 PSI (17 bar)
Mechanical environment:	Fixed installation with minimum vibration.
Electromagnetic environmental class:	Residential and commercial
Protection class:	IP68-rated (waterproof-submersible)
Climatic environment:	35 °F - 130 °F. Condensing humidity. (indoors mounted in utility rooms and outdoors in meter pits). Installation in direct sunlight must be avoided. The meter must be protected from freezing as well.

1.2 Installation requirements

Prior to installation of flowIQ® 3101, the system should be flushed while a fitting piece replaces the meter.

Please check that stop valves are tight and operate as intended and that the pipe system is without corrosion and damages. Damaged components, if any, must be replaced.

Close the main stop valve in front of the meter and let a tap run until the pressure in the system has been equalized. Close the stop valve after the meter before disassembling the pipe system.

Having assembled the pipe system, all sealing surfaces of existing couplings must be cleaned to remove possible remaining pieces of gasket. Remove adhesive wafers from the meter's inlet and outlet and mount the meter. Always use new gaskets in original quality.

The flow direction is indicated by an arrow on the meter. Install the meter with an orientation that makes it easy for the consumer to read the display.

During installation it must be secured that the meter is mounted without mechanical bias in the connection pipes. Do not attempt to correct oblique piping by means of the meter.

At the same time make sure that the threaded length of the couplings does not prevent proper tightening of the sealing surface and that couplings with similar pressure ratings are used.If meters are mounted in meter pits or outdoors, both the meter pit and the meter must be protected against freezing.

Service

When the meter has been mounted in the system neither welding nor freezing is allowed. Dismount the meter from the system before starting such work.

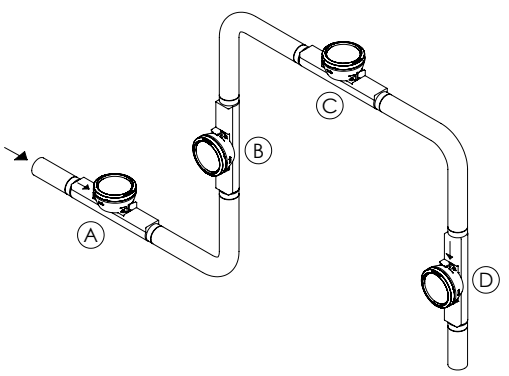
In order to facilitate replacement of the meter, shut off valves should be mounted on either side of the meter.

Under normal operating conditions no pipe strainer is required in front of the meter. Check valves must be mounted in accordance with local regulations.

1.3 Installation angle of flowIQ® 3101

flowIQ® 3101 can be mounted at all angles and positions. Kamstrup Headquarters recommend that the display is mounted so that it is easy to read, if possible.

Thus, the meter can be mounted in a plain horizontal installation. It can be mounted vertically on an ascending pipe, it can be mounted at any angle and it can be mounted with the display pointing downwards, e.g under a roof.



A Recommended water meter position.

B Recommended water meter position.

C Used for 'pit installation'. Air 'build-up' may occur.

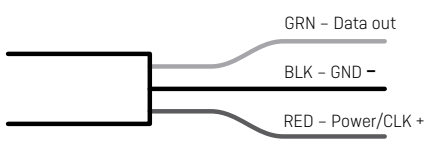
D The meter functions optimally, but the display is 'upside down'.

1.4 Encoded Output

Ground Connection 'GND'
must be connected to the reading device 'GND'.

The connection 'Power/CLK'
must be connected to the reading device 'CLK'.

The connection 'Data Out'
must be connected to reading device 'data input'.



The reading unit must comply with the electrical requirements of the specification for the Sensus protocol UI 1203R20, September 2009.

Most important issues are listed below:

Type:	Open Drain
Maximum input voltage:	15V
Maximum current sink:	5mA
On voltage:	< 0.4V @ 3.2mA
OFF condition:	R > 6MΩ

Frequent reading, more than once per hour, will reduce battery life.

Compability table

	Sensus	ITRON	NEPTUNE
Data	Grn	Red	Red
Ground	Blk	White	Green
Power	Red	Black	Black

1.5 Straight inlet

flowIQ® 3101 requires neither straight inlet nor straight outlet to meet applicable AWWA standards. A straight inlet section will only be necessary in case of heavy flow disturbances before the meter.

1.6 Operating pressure

In order to avoid cavitation and secure correct measurement, under all circumstances, the operating pressure in the pipe installation should observe the test conditions of AWWA M6 manual. The static pressure, immediately after the meter (downstream), must always be minimum 20 PSI (1.4 bar).

1.7 Info codes and display

When flowIQ® 3101 leaves Kamstrup Headquarters, it has been tested and verified, and the counter has been reset.

The number of gallons or cubic feet are displayed by nine large digits. Bars over and under digits indicate decimals after the comma.

A number of info codes can be displayed, of which 'DRY ' and 'RADIO OFF' will be activated and flash upon delivery. Furthermore, the small square in the bottom right-hand corner flashes to indicate that the meter is active.

Info code DRY indicates air in the meter, the info code disappears when the meter is water-filled.

The info code RADIO OFF indicates that the meter is still in transport mode with the built-in radio transmitter turned off. The transmitter turns on automatically when the first quarter gallon of water has run through the meter. The radio transmitter remains on, and the info code signal in the display switches off. The Encoded Output version will not display 'RADIO OFF'.

When the water is running, the symbol 'FLOW' will turn on in the display. If the water is stagnant, the symbol will be off.

The table below describes the different info codes in the display.

Info code flashes in display	Meaning
LEAK	The water has not been stagnant in the meter during the last few days. This can indicate a leakage in the pipe installation.
BURST	The water flow has exceeded a preprogrammed limit for minimum 30 minutes which is a sign of a burst pipe.
TAMPER	Attempt of fraud. The meter is no longer valid for billing purposes.
DRY	The meter is not water-filled.
REVERSE	The water flows through the meter, in the wrong direction.
RADIO OFF*	The meter is still in transport mode with the built-in radio transmitter turned off. The transmitter turns on automatically when the first 1/4 of a gallon of water has run through the meter.
■ (Square 'dot')	One small flashing square indicates that the meter is active.

* RF version only