

AXIS INDUSTRIES PUBLIC LIMITED LIABILITY COMPANY

WATER METERS

QALCOMATIC FLOW C

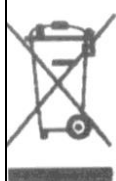
QALCOMATIC FLOW H



Technical description
Installation and operation guide
PLMATICF01

IMPORTANT INFORMATION ON WASTE MANAGEMENT

The water meters conform to the Rules on Management of WEEE adopted pursuant to the Directive 2012/19/EU of the European Parliament and of the Council.



Meters marked with this label must not be disposed into the litter container together with other waste materials!

It shall be delivered to the respective collection point, in order to allow processing of the electrical and electronic equipment. By taking due disposal actions of this product you will contribute to protection of the environment and human health against possible adverse impact, which may be caused by inappropriate disposal.

Information on the operating electrical and electronic equipment collection points is available on the website www.epa.lt or you can contact your municipality.

1. APPLICATION AND DESCRIPTION

The electronic water meter with autonomous power supply, designed for metering of cold water (0.1 - 30) °C (QALCOMATIC FLOW C - marked in blue) and hot water (30 - 90) °C (QALCOMATIC FLOW H - marked in red) flowing in pipelines used in apartments, single family houses or other premises of similar type. Water pressure must not be higher than 1.6 MPa.

It is a single-jet dry type meter. The water flow running through the meter rotates the impeller with a mounted asymmetric metal plate, which changes the measuring coils decrement by rotational frequency, which is then measured by the electronic block, that also records the number of rotations and calculates the volume of water running through, and displays the readings on the indicator.

Remote data reading can be enabled by the use of optical interface, and by activating the wired M-bus or wireless (radio) connection interface in the remote data collection system.

The meter is protected against the external effects of the magnetic field.

The counter shall be fastened to the meter frame using a transparent cap, which eliminates the possibility of accessing the indication device without damaging the cap. This structure of the cap performs the function of a seal.

The meters may be mounted both horizontally and vertically.

The meter mounting length may be 80 mm or 100 mm with connection thread G ¾B" or 130 mm with connection thread G 1B".

Meter's permanent flowrate (Q_3) can be 1.6 m³/h, 2.5 m³/h or 4 m³/h.

Minimum flowrate (Q_1) and permanent flowrate (Q_3) ratio Q_3/Q_1 (R) can be optionally 50, 63, 80, 100, 125, 160 or 200.

Depending on the temperature class, the meter can be used for metering cold (T30) or hot (T30/90) water.

Composition of the meter order code:

Water meter QALCOMATIC FLOW C – □ □ □ □ □ – □

Type and temperature class:		
Temperature class T30:	FLOW C	
Temperature class T30/90:	FLOW H	
Communication interface type:	none	0
	radio	1
	M-bus	2
Connection length and type:	80 mm G ¾ B"	1
	110 mm G ¾ B"	2
	130 mm G1 B"	3
Permanent flowrate Q ₃ :	1.6 m ³ /h	1
	2.5 m ³ /h	2
	4 m ³ /h	3
Flows Q ₃ /Q ₁ ratio (R) in horizontal position:	R50-H	2
	R63-H	3
	R80-H	4
	R100-H	5
	R125-H	6
	R160-H	7
	R200-H	8
Flows Q ₃ /Q ₁ ratio (R) in vertical position:	R50-V	2
	R63-V	3
	R80-V	4
	R100-V	5
Installation kit:	Included	1
	Not included (or omitted)	0

2. TECHNICAL SPECIFICATIONS

Water meter with connection diameter G ¾“:

Q ₃ Permanent flowrate (m ³ /h)	1.6					2.5				
Q ₃ /Q ₁ (R)	125	100	80	63	50	200	160	125	100	80
Q ₁ Minimum flowrate (m ³ /h)	0.0128	0.016	0.020	0.025	0.032	0.0125	0.015	0.020	0.025	0.031
Q ₂ Transitional flowrate (m ³ /h)	0.020	0.025	0.032	0.040	0.051	0.020	0.025	0.032	0.040	0.050
Q ₄ Overload flowrate (m ³ /h)	2	2	2	2	2	3.125	3.125	3.125	3.125	3.125
Mounting position	H	H	H	H, V	H, V	H	H	H	H, V	H, V
Pressure loss class (pressure loss class at Q ₃ , bar)	ΔP 25 (0,25)					ΔP 63 (0,63)				

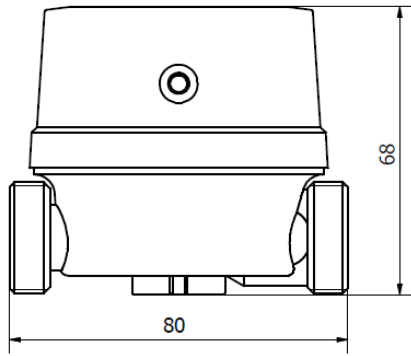
Water meter with connection diameter G 1“:

Q ₃ Permanent flowrate (m ³ /h)	2.5					4				
Q ₃ /Q ₁ (R)	125	100	80	63	50	200	160	125	100	80
Q ₁ Minimum flowrate (m ³ /h)	0.020	0.025	0.031	0.040	0.050	0.020	0.025	0.032	0.040	0.050
Q ₂ Transitional flowrate (m ³ /h)	0.032	0.040	0.050	0.063	0.080	0.032	0.040	0.051	0.064	0.080
Q ₄ Overload flowrate (m ³ /h)	3.125	3.125	3.125	3.125	3.125	5	5	5	5	5
Mounting position	H	H	H	H, V	H, V	H	H	H	H, V	H, V
Pressure loss class (pressure loss class at Q ₃ , bar)	ΔP 25 (0,25)					ΔP 63 (0,63)				

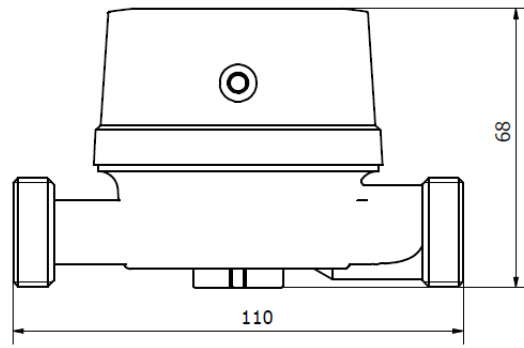
Connection diameter	G ¾“ , G 1“
Connection length	G ¾“ : 80 mm, 110 mm; G 1“: 130 mm
Temperature class QALCOMATIC FLOW C	T30 (0.1...30 °C)
Temperature class QALCOMATIC FLOW H	T30/90 (30...90 °C)
Pressure class (maximum allowable pressure)	MAP 16 (16 bar)
Flow profile sensitivity class:	U0 D0
Mechanical environment class:	M1
Electromagnetic environment class:	E1
Ambient temperature:	+5 °C...+55 °C
Working environment class:	B
Transportation and storage ambient temperature:	+5 °C...+55 °C
Ambient humidity:	up to 98 % (without condensation)
Reverse flow:	allowed, displayed, but not measured
Software version	1.01
Control pulse (optical) value	0.002 litre/pulse
Sensitivity threshold (horizontal position)	G ¾“ : 8 l/h, G 1“: 13 l/h
Meter output, where flowrate (Q) exceeds allowable limits	
Q ≤ 2Q ₄	linear measurement
Q > 2Q ₄	limited 2Q ₄
Protection class	IP64 or IP68
Power supply	internal battery 3.6 V (not replaced during utilisation)
Battery service life	12 years + 6 months
Radio transmission frequency of data	868 MHz
Mbus interface cable length	1.2 m
Volume measurement unit	m ³
Volume indicator resolution	0.001 m ³
Maximum value of volume indicator	99999.999 m ³
Maximum permissible error (MPE) of volume measurement, where flowrate value is between Q ₂ (inclusive) and Q ₄ :	
- QALCOMATIC FLOW C water meter	± 2 %
- QALCOMATIC FLOW H water meter	± 3 %
Volume measurement MPE, where flowrate value are from Q ₁ to Q ₂ (exclusive) and at any water temperature	± 5 %.
Weight, no more than	L=80 mm - 0.4 kg, L=110 mm - 0.42 kg,

L=130 mm - 0.62 kg

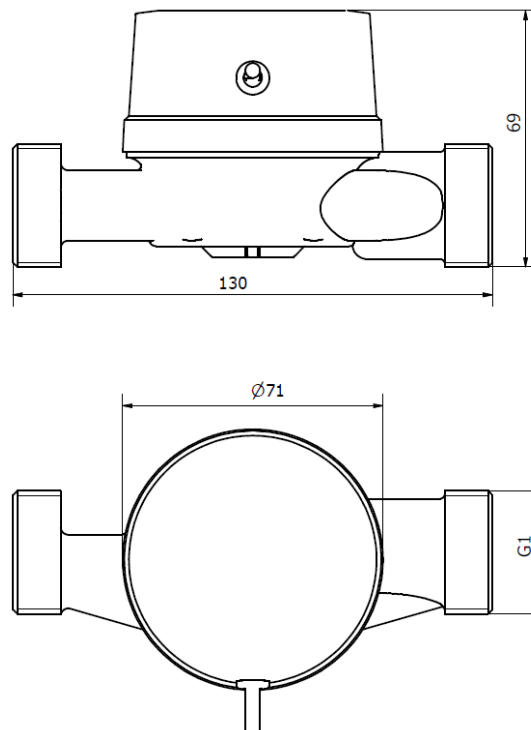
Dimensions and connection measurements:



Picture 2. Meter installation length 80 mm, connection thread G 3/4 B"



Picture 3. Meter installation length 110 mm, connection thread G 3/4 B"



Picture 3. Meter installation length 130 mm, connection thread G1B"

3. STRUCTURE

The meter comprises the flowrate measuring device (sensor) installed inside the frame and the electronic indication device (counter).

The flowrate sensor is mounted in the pipeline. The frame is made of nickel plated brass that has a measuring chamber with a single-jet impeller on the inside. The inlet is provided with the grids/filters, which protect the meter from large impurities found in the pipeline.

The counter comprises an electronic block with an 8-digit display (LCD). The operating voltage is supplied from the internal 3.6 V lithium battery. The front panel features the optical interface (IR) for remote data reading. The counter can be rotated at up to 360 degrees in respect of the frame.

4. KIT

Quantity, units	
Water meter QALCOMATIC FLOW C or QALCOMATIC FLOW H	1
Technical description. Installation and operation guide.	1
Installation accessories, kit:	
connection nozzles (external thread $\frac{1}{2}$ ", connection nut $\frac{3}{4}$ ")	1*
* Included in the kit according to special request of clients	

5. INSTALLATION PROCEDURE

5.1. The meter must be installed in an easily accessible place (to facilitate meter reading and maintenance).

5.2. First, it is necessary to close the valve and empty the water in the pipe.

5.3. Both horizontal and vertical installation is possible. In any event, it is necessary to ensure convenient reading of the data. The meter must be installed into the system in such a way that the direction arrow on the frame matches the direction of the water flow.

5.4. The labelled flowrate ratio R with marking H corresponds to the horizontal installation position, when the meter indicator is positioned in the horizontal plane, while the indicated flowrate ratio R with marking V corresponds to the vertical installation position, when the meter indicator is not positioned horizontally.

5.5. Straight parts in front and in the back of the meter are not mandatory. Use only original inserts for proper sealing.

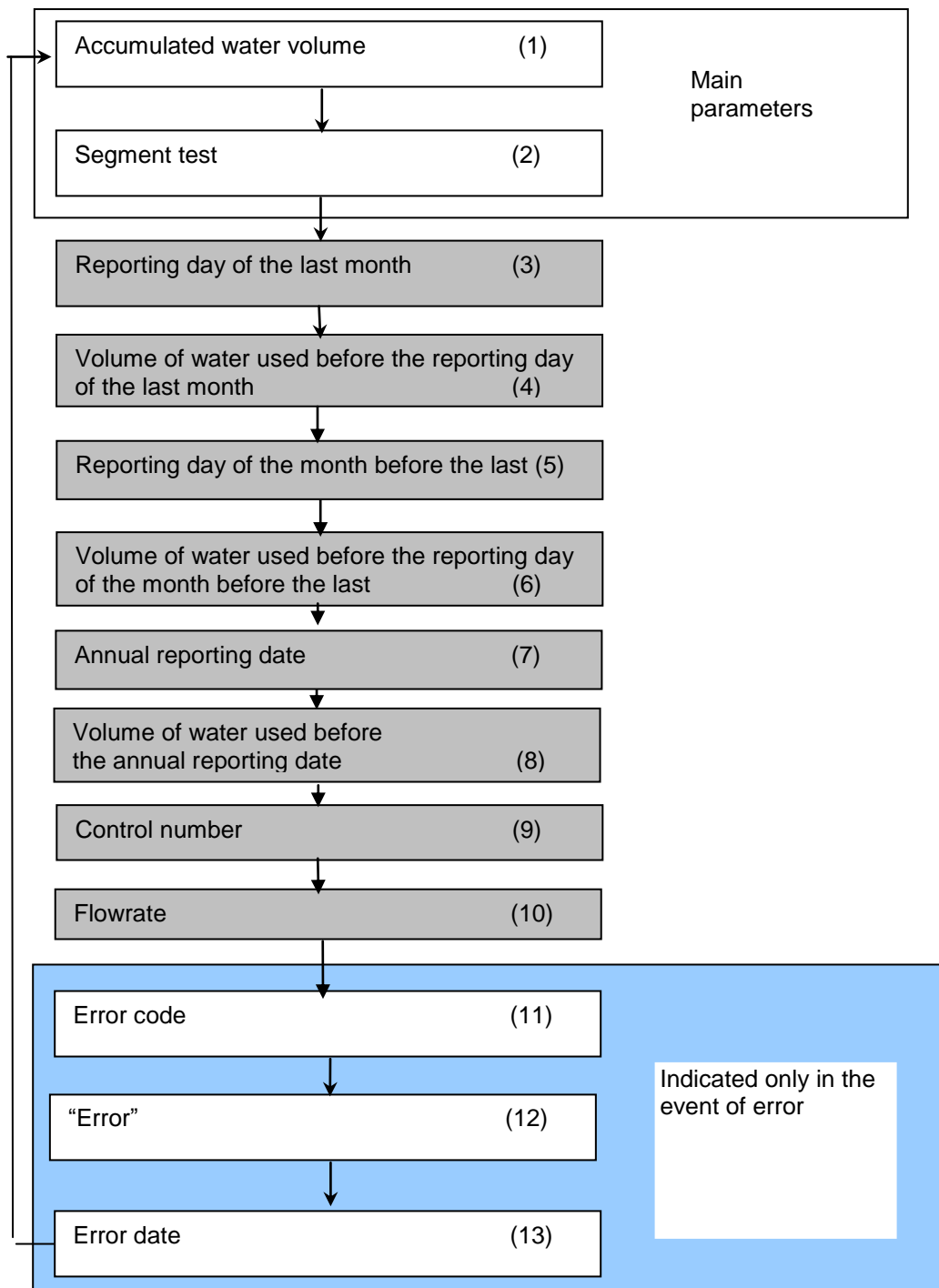
6. OPERATION AND TECHNICAL MAINTENANCE

1. The quality of water greatly affects the service life of the meter. Mechanical additives, rust and other impurities reduce durability of the meter.

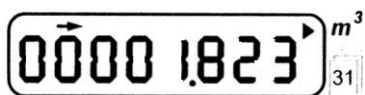
2. **Attention!** Protect the meter against freezing. Damage caused by freezing is unrepairable.

3. Operation procedure

Indicated parameters (segments marked in grey are individual and must be connected separately using AXIS-EVS parameter setting tools):

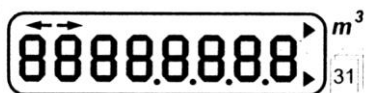


1) accumulated water volume



The accumulated water volume is displayed on the indicator in m^3 where three digits after comma are allocated for its value indication. The example demonstrates that 1,823 l of water has been used.

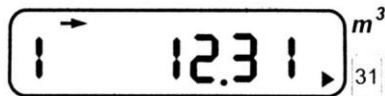
2) segment test



Used to verify whether all segments of the indicator operate faultlessly. All segments of the indicator appear within 0.5 sec and all segments go off within 0.5 sec. Right after that another parameter

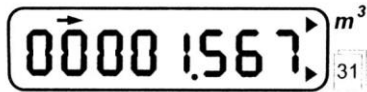
indication window is displayed.

3) reporting day of the last month



Indicator "1" and the last day of the reporting date (month, day) are displayed. When the results of the last reporting day data are inaccessible, the display shows "1 --.---.---".

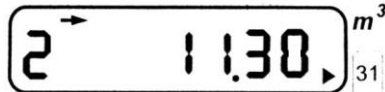
4) volume of water used before the reporting day of the last month



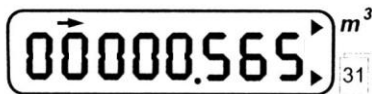
The volume of water used before the last reporting day is displayed. When data are inaccessible, "00000.000" will appear on the display.

5) reporting day of the month before the last

Indicator "2" and the last but one day of the reporting date (month, day) are displayed. When the results of the last but one reporting day data are inaccessible, the display shows "2 --.---.---".

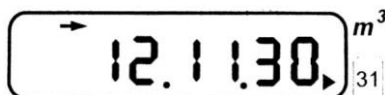


6) volume of water used before the reporting day of the month before the last



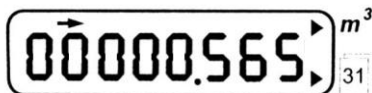
The volume of water used before the last but one reporting day is displayed. When data are inaccessible, "0.000" will appear on the display.

7) annual reporting date



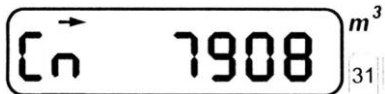
Indicator "2" and the last but one day of the reporting date (month, day, date) are displayed. When the results of the last but one reporting day data are inaccessible, the display shows "2 --.---.---".

8) volume of water used before the annual reporting day



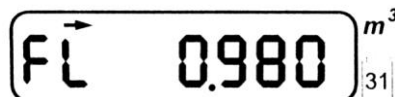
The volume of water used before the last but one reporting day is displayed. When data are inaccessible, "0.000" will appear on the display.

9) control number



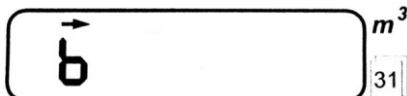
The control number comprises the value of the volume of water used before the last reporting date and the device number. This number is used to verify the correct reading of the value of the water volume accumulated before the last reporting date

10) flowrate



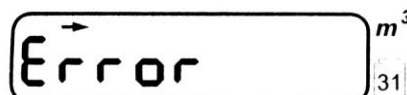
Flowrate is indicated in m^3/h .
Negative flowrate readings are displayed with "-" symbol.
The example shows that the displayed flowrate value is $0.980 m^3/h$.

11) error code



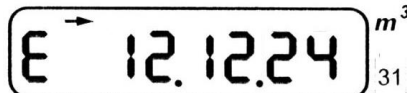
The readings of the error code are displayed only in the presence of an error. Each digit corresponds to the possible cause of error. Several codes of the errors that occurred simultaneously may be displayed (See, Table 1).

12) error



Indicates the error in the meter operation. Displayed only in the event of major failure of the water meter (codes 2, 3, 4 or F).
In the event of failure the meter must be replaced!

13) error date



If a major failure occurs in the water meter, the error date will be displayed.



The arrow on the display will indicate the current direction of the flow. (if the arrow points to the right – positive flow, to the left –

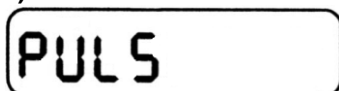
negative flow).

A flashing flow direction arrow means that there is water leakage (uninterrupted water consumption via water taps, toilet pans, etc.). These indicators appear in 1 hour after occurrence of the water outlet and will go off automatically after elimination of leakage.

Special control mode is provided for automatic testing of the meter, which can be turned on or off using AXIS-EVS parameter setting tools via the optical interface.

The control mode allows to form 0.002 l/imp control pulses in the optical interface outlet, and the LCD indicator will display in turn the changing control mode parameters every 2 seconds.

1) PULS note



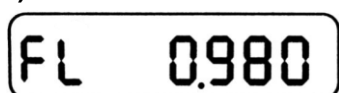
PULS note indicates that the meter is in the control mode and the output pulses are being formed.

2) enhanced threshold water volume accumulated during the control mode



The volume of water accumulated during the control mode is displayed on the indicator in millilitres. The example shows the flow volume of 1,823 litres.

3) flowrate



Flowrate is indicated in m³/h.

Negative flowrate readings are displayed with “-” symbol.

The example shows that the displayed flowrate value is 0.980 m³/h.

When the control mode is on, the main functions of the meter remain activated: the volume of water running through during the control mode will also be added to the value of the accumulated volume of water used, which will be displayed, once the meter operates in a standard mode again.

The control mode will switch off automatically in 12 hours.

Error code, failure description and elimination methods

Table 1

Error code	Failure description	Notes/ instructions
2	The battery service life has expired	The device must be replaced!
3	Failure of the readings storage device	The device must be replaced!
4	Failure of electronic elements	The device must be replaced!
F	Power supplied was disconnected	The device must be replaced!
b	Optical interface reading is blocked (allowable access frequency was exceeded)	Continue reading via the optical interface no sooner than in 4 hours (when the error code indicator disappears)
d	The flowrate exceeds the allowable limits (more than 2 x Q ₄)	Check the equipment settings! If necessary, replace the meter with one with a higher Q ₄

7. WARRANTY

7.1. The manufacturer shall grant a 24-month warranty commencing from the start of operation of the meter, given the user complies with the operation and technical maintenance requirements.

7.2. Manufacturer's address:

Axis Industries AB, Kulautuvos 45a, Kaunas LT-47190, Lithuania. Tel.: (+370-37) 360234, fax.: 360358.