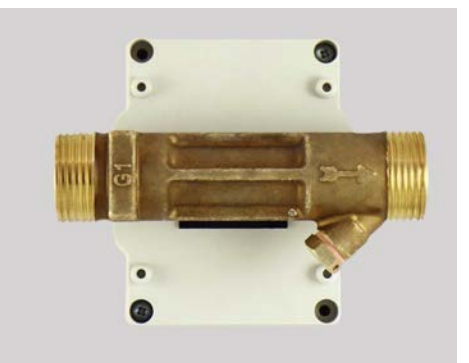
ULTRASONIC WATER METER
QALCOSONIC F1 (IP68)



APPLICATION

Ultrasonic water meter QALCOSONIC F1 (IP68) designed for measurement of cold and hot water consumption in households and blocks of flats, as well for industrial applications.

- Static water meter using ultrasonic technology
- High accuracy
- For residential and commercial use
- Hot and cold water

APPROVALS

MID
OIML R49 Compliant
EN 14154

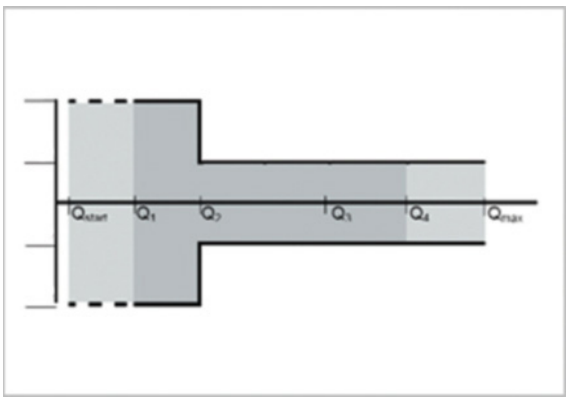
AMR INTERFACES, OPTIONAL.

M-Bus module
CL module
LON module
MODBUS RS485
RF868 MHz module (Default)
MiniBus module
IoT (LoRa)

SPECIAL FEATURES

- Temperature class T30, T30/90, T90
- Nominal flow 1.6 / 2.5 / 4.0 / 6.3 / 10 / 16 / 25 / 40 / 63 / 100 m^3/h
- Dynamic range up to Q_3/Q_1 = R 250/400
- No straight sections required
- No measurement of air
- Ambient class B/C
- Protection class IP 68
- Nominal pressure PN16/25 bar
- Temperature measurement possibility Pt 500, 0-180°C
- Internal data logger
- Battery lifetime > 16 years
- Power supply options: Battery/External power supply
- Optional communication modules
- Measure reverse flow (to additional register)
- Flow direction indication

MEASURING ACCURACY CLASS 2



OPTICAL INTERFACE

Integrated into the front panel of calculator. It is designed for data reading via M-bus protocol and parameterization of the meter and for volume pulse output in test mode.

RADIO INTERFACE

The internal radio module provides data reading via WMBUS telegram: Axis, S1, T1 OMS mode.
IoT (LoRa) as an option.

WIRED M-BUS INTERFACE (SPECIAL ORDER)

The internal M-BUS module provides data reading possibility via M-Bus protocol.

DATA REGISTRATION

- Total volume
- Forward volume
- Reverse volume
- Volume of pulse input 1 (optional)
- Volume of pulse input 2 (optional)
- Maximum flow rate value and date
- Minimum flow rate value and date
- Maximum temperature value and date (if used)
- Minimum temperature value and date (if used)

MESSAGE INDICATIONS:

- Operating time without an error
- Error code
- Time when the flow rate exceeded 1.2 Q_4
- Time when the flow rate was less than Q_1

UNIVERSAL PULSE INPUTS/OUTPUTS (SPECIAL ORDER)

- Pulse cable (optional)
- Two configurable pulse outputs/inputs

ERROR CODES

ERROR and code indication:

- Battery low alarm
- Air in pipe
- Leak detection
- Burst

DATA LOGGER – HISTORY VALUES

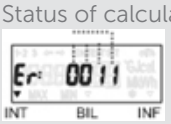
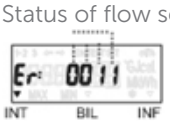
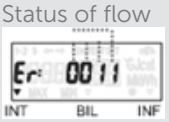
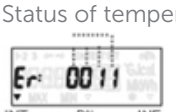
- Every hour, day and month values of the measured parameters are stored in internal memory
- All data from archive can be read by means of the remote reading.
- In addition data logger records of monthly parameters can be seen on the display.

LCD INDICATOR

- The device is equipped with 8-digits LCD (Liquid Crystal Display) with special symbols to display parameters, measurement units and operation modes.
- The following information can be displayed:

- Integral and instantaneous measured parameters,
- Archive data and set day data,
- Device configuration information.

- Programmable LCD displaying parameters

Code	Description
Status of calculator 	0 - no error, normal operation 1 – warning – less 6 month.to ending battery life 2 – battery low alarm (ending battery life) 8 - electronics failure (tamper attemt)
Status of flow sensor 	0 - no error, normal operation 1 – air measurement alarm (air less 10 min) 2 – reverse flow alarm 4 – meter overload flow alarm (displeed q=1,2· Q)
Status of flow 	0 - no error, normal operation 1 – meter dry alarm (air more then 10 min) 2 – continuous zero flow alarm (more 24 h) 4 – leak / continuous flow alarm (more 1 h)
Status of temperature sensor (if used) 	0 - no error, normal operation 1– low temperature alarm (<3° C) 2 – meter overload temperature alarm (>90° C) 4 – failure of temperature sensor (or disconnected)

POWER SUPPLY

Power supply (one of following depending on meter configuration):

- 2 x AA battery 3,6 V 2,4 Ah (Li-SOCl2) battery, operation time at least 16 years.
- 12..42 V DC or 12...36 V 50/60Hz AC external power supply, used current 10 mA and back up battery AA 3,6 V (Li-SOCl2) (Optional).

TECHNICAL DATA

Flow rate sensor	Q_3 [m³/h]	1.6 / 2.5 / 4.0 / 6.3 / 10 / 16 / 25 / 40 / 63 / 100
	R Q_3 / Q_1 [m³/h]	Q_3 1.6: 250 Q_3 2.5: 250 / 400 Q_3 4.0, 6.3, 10, 16, 25, 40, 63, 100: 250 / 400
Technical data	LCD Display	8-digit
	Protection class [IP]	IP68
	Ambient class	Class B / EN 14 154
	Ambient temperature	+5 ºC...+65 ºC
	Installation place	indoor, outdoor in a pit or inst. box
	Installation position	all installation positions (vertical, horizontal, rising pipe, down pipe)
	Nominal pressure [bar]	PN16/25 bar
	Pressure loss	0.63 / (0.25) bar
	Temperature sensor, two-wired connection, cable length (optional)	Up to 5m.
	Battery lifetime	10-16 years

Q_3, m³/h	R Q_3/Q_1	Q_4, m³/h	Q1, m³/h	Q_2, m³/h	Threshold value, m³/h	Joining to the pipeline (Thread – G, flange–DN)	Overall length L, mm	ΔP (bar x 100)
1,6	R250	2	0,0064	0,01	0,003	G3/4"	110, 165	ΔP 63 or ΔP 25
						G1" or DN20	190	ΔP 25
2,5	R250	3,125	0,01	0,016	0,005	G3/4"	110, 165	ΔP 63
						G1"or DN20	190	ΔP 25
						G1"	130	ΔP 25
2,5	R400	3,125	0,0063	0,01	0,002	G3/4"	110, 165	ΔP 63
						G1"or DN20	190	ΔP 25
4	R250	5	0,016	0,026	0,008	G1"or DN20	190	ΔP 63 or ΔP 25
						G1"	130	ΔP 63
4	R400	5	0,01	0,016	0,003	G1"	130	ΔP 63
						G1"or DN20	190	ΔP 63 or ΔP 25
6,3	R250	7,875	0,0252	0,04	0,012	G1"or DN20	190	ΔP 63
						G1 1/4"or G1 1/2"DN25, DN32	260	ΔP 25
6,3	R400	7,875	0,016	0,026	0,007	G1" or DN20	190	ΔP 63
						G1 1/4"or G1 1/2"DN25, DN32	260	ΔP 25
10	R250	12,5	0,04	0,064	0,02	G1 1/4"or G1 1/2" DN25, DN32	260	ΔP 63
						G2"or DN40	300	ΔP 25

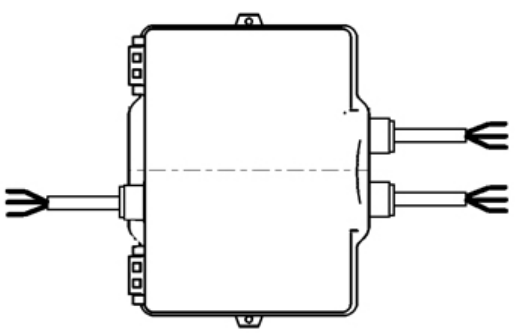
10	R400	12,5	0,025	0,04	0,01	G1 1/4"or G1 1/2" DN25, DN32	260	ΔP 63
						G2"or DN40	300	ΔP 25
16	R250	20	0,064	0,1	0,03	G2"or DN40	300	ΔP 63
						DN50	270	ΔP 25
16	R400	20	0,04	0,064	0,02	G2"or DN40	300	ΔP 63
25	R250	31,25	0,1	0,16	0,05	DN50	270	ΔP 63
						DN65	300	ΔP 25
25	R400	31,25	0,063	0,1	0,03	DN50	270	ΔP 63
40	R250	50	0,16	0,26	0,08	DN65	300	ΔP 63
						DN80	300	ΔP 25
40	R400	50	0,1	0,16	0,05	DN65	300	ΔP 63
63	R250	78,75	0,252	0,4	0,12	DN80	300	ΔP 63
						DN100	360	ΔP 25
63	R400	78,75	0,16	0,26	0,08	DN80	300	ΔP 63
100	R250	125	0,4	0,64	0,2	DN100	360	ΔP 63
100	R400	125	0,25	0,4	0,12	DN100	360	ΔP 63

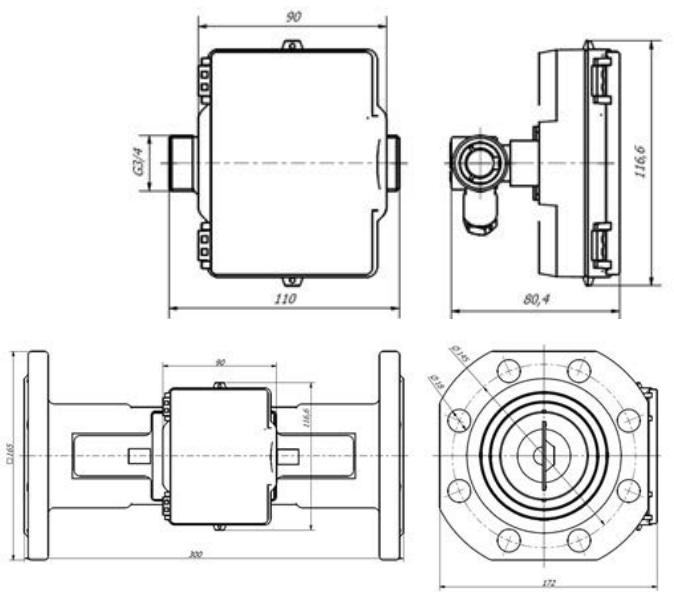
PULSE OUTPUT VALUE DEPENDING ON Q_3, m^3/h

Pulse output value depending on Q_3, m^3/h	1,6 ... 6,3	10 ... 100
Pulse value, L/imp	1	10

DN [mm]	15	20	25	40	50	65	80	100
L [mm]	110/165	130/190	260	300	270	300	300	360
H [mm]	81	85	129/130	144/152	172	180/183	197/200	222/235
G/Flange DN	G3/4"	G1" or DN20	G1 1/4" or DN25	G2" or DN40	DN50	DN65	DN80	DN100

CABLE OUTPUTS (SPECIAL ORDER)



Depending on the order can be up to 3 cables outputs (cable length 1.5m). The cables can have from two to four core wires. Cable core is identified by number and color for different communication module application.

SIZE AND DIMENSIONS