

ULTRASONIC WATER METER

QALCOSONIC F1 (IP65)



APPLICATION

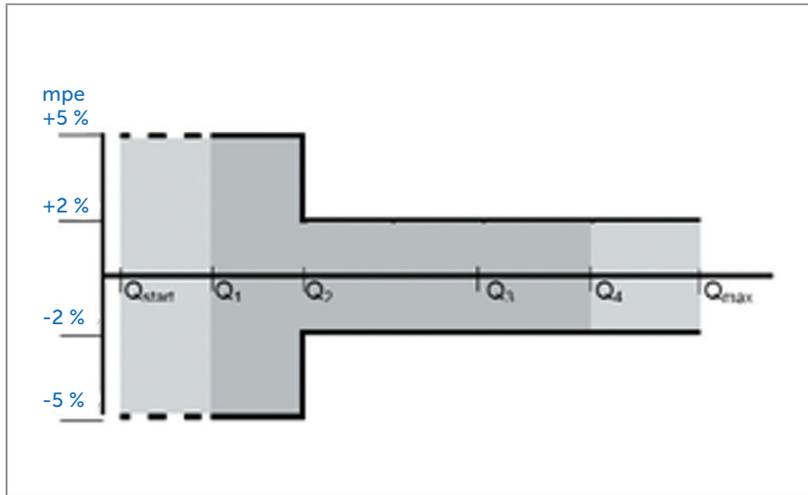
Ultrasonic water meter QALCOSONIC F1 (IP65) is designed for measurement of cold and hot water consumption in households and blocks of flats, as well for industrial applications.

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

SPECIAL FEATURES

- Temperature class T30, T30/90, T90
- Nominal flow 1.6 / 2.5 / 4.0 / 6.3 / 10 / 16 / 25 / 40 / 63 / 100 m³/h
- Dynamic range up to Q₃/Q₁ = R 250/400
- No straight sections required up to DN50 including
- No measurement of air
- Environment protection class B
- Protection class: IP65 calculator / IP67 flow sensor
- Nominal pressure PN16/25 bar
- Pressure $\Delta P_{25/63}$
- Temperature measurement Pt500, 0°C ... 180°C
- Metering archive
- Battery lifetime > 12 years
- Power supply options: Battery/External
- Optional communication modules
- Mounting in any installation position
- WMBUS modes: Axis (bidirectional), S1 and T1 OMS modes
- "Walk By", "Drive By"

MEASURING ACCURACY CLASS 2



APPROVALS

MID type approval available
Compliance to the standard OIML R49,
EN 14154

AMR INTERFACES

Optical
(WMBUS modes: Axis (bidirectional), S1 and
T1 OMS modes)
M-Bus/CL
LON
MiniBus
Pulse output
MODBUS RS485
IoT (LoRa)

OPTICAL INTERFACE

Integrated into the front panel of calculator. It is designed for data reading via M-bus protocol and parameterization of the meter.

RADIO INTERFACE

The internal radio module provides data reading via WMBUS telegram:

- Current total volume
- Current total volume
- Current flow
- Current date and time
- Accounting date information
- Error date

Wired M-BUS INTERFACE

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

DATA REGISTRATION

Hourly, daily and monthly parameter values

- Integral volume of liquid
- Integrated pulse value in pulse input 1
- Integrated pulse value in pulse input 2
- Maximum flow rate value and date
- Operating time without an error
- Total error code
- Time when the flow rate exceeded 1.2 Q4
- Time when the flow rate was less than Q1

UNIVERSAL PULSE INPUTS/OUTPUTS

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

ERROR CODES

ERROR code indication in case of errors.

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



POWER SUPPLY:

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

- AA battery 3,6 V 2,4 Ah (Li-SOCl₂) battery, operation time at least 11 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), operation time at least 11 years (without reading data through digital interfaces).
- 230 V (+ 10% - 30 %) 50 / 60Hz AC power supply, current consumption is not more than 10 mA, the meter should be equipped with external power supply unit and an external transformer TRS.

TECHNICAL DATA

| | | |
|------------------------|---|---|
| Flow rate sensor | Q ₃ [m ³ /h] | 1.6 / 2.5 / 4.0 / 6.3 / 10 / 16 / 25 / 40 / 63 / 100 m ³ /h |
| | R Q ₃ / Q ₁ [m ³ /h] | Q3 1.6: 250 Q3 2.5: 250 / 400 Q3 4.0, 6.3, 10, 16, 25, 40, 63, 100: 250 / 400 |
| | Medium Temp. (operating temperature) | 0,1 ... 90°C |
| Technical data | LCD-Display | 8-digit |
| | Protection class | IP65 calculator / IP67 flow sensor |
| | Environment protection | Class B / EN 14 154 |
| | Ambient temperature | +0 °C...+65 °C |
| | 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 |
| | Flow sensor cable length | 1,2m (2,5 m or 5 m – special order) |
| | Temperature sensor, two-wired connection, cable length (optional) | Up to 5 m. |
| | Battery lifetime | 10-12 years |
| Mounting of calculator | Mounting on flow sensor or wall- standard DIN-rail | |

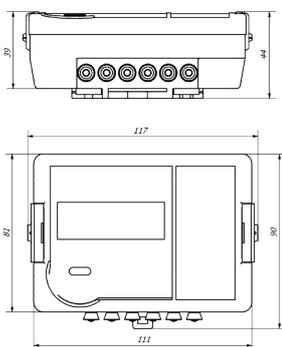
| Q ₃ , m ³ /h | R Q ₃ /Q ₁ | Q ₄ , m ³ /h | Q ₁ , m ³ /h | Q ₂ , m ³ /h | Threshold value of flow rate, m ³ /h | Joining to the pipeline (Thread – G, flange–DN) | Overall length L, mm | ΔP (bar x 100) |
|------------------------------------|-------------------------------------|------------------------------------|------------------------------------|------------------------------------|---|---|----------------------|----------------|
| 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 | 0,003 | 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 | 0,005 | 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 DN25 | 260 | ΔP 25 |
| 6,3 | R400 | 7,875 | 0,016 | 0,026 | 0,008 | G1" or DN20 | 190 | ΔP 63 |
| | | | | | | G1 1/4" or DN25 | 260 | ΔP 63 |
| 10 | R250 | 12,5 | 0,04 | 0,064 | 0,02 | G2" or DN40 | 300 | ΔP 25 |
| | | | | | | G1 1/4" or DN25 | 260 | ΔP 63 |
| 10 | R400 | 12,5 | 0,025 | 0,04 | 0,012 | G1 1/4" or DN25 | 260 | ΔP 63 |
| | | | | | | G2" or DN40 | 300 | ΔP 63 |
| 16 | R250 | 20 | 0,064 | 0,1 | 0,03 | DN50 | 270 | ΔP 25 |
| | | | | | | G2" or DN40 | 300 | ΔP 63 |
| 16 | R400 | 20 | 0,04 | 0,064 | 0,02 | G2" or DN40 | 300 | ΔP 63 |
| | | | | | | DN50 | 270 | 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 |
| | | | | | | DN65 | 300 | ΔP 63 |
| 40 | R250 | 50 | 0,16 | 0,26 | 0,08 | DN80 | 350,300 | ΔP 25 |
| | | | | | | DN65 | 300 | ΔP 63 |
| 40 | R400 | 50 | 0,1 | 0,16 | 0,05 | DN65 | 300 | ΔP 63 |
| | | | | | | DN80 | 350, 300 | ΔP 63 |
| 63 | R250 | 78,75 | 0,252 | 0,4 | 0,12 | DN100 | 350, 360 | ΔP 25 |
| | | | | | | DN80 | 350, 300 | ΔP 63 |
| 63 | R400 | 78,75 | 0,16 | 0,26 | 0,08 | DN80 | 350, 300 | ΔP 63 |
| | | | | | | DN100 | 350, 360 | ΔP 63 |
| 100 | R250 | 125 | 0,4 | 0,64 | 0,2 | DN100 | 350, 360 | ΔP 63 |
| | | | | | | R400 | 125 | 0,25 |

PULSE OUTPUT VALUE DEPENDING ON Q₃, M³/H:

| Pulse output value depending on Q ₃ , m ³ /h | 1,6 ... 6,3 | 10 ... 100 |
|--|-------------|------------|
| Pulse value, L/pulse | 1 | 10 |

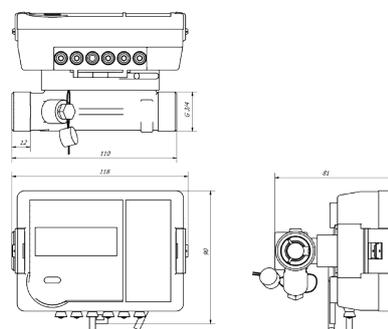
DIMENSIONS OF CALCULATOR

117 mm x 44 mm x 89,5 mm,



SIZES AND DIMENSIONS OF WATER METER

Example – flow sensor Q₃= 1,6/2,5m³/h, Threaded end connections G3/4", mounting length L=110 mm.



| | | | | | | | | |
|-----------------|---------|----------------|--------------------|----------------|------|------|---------|---------|
| DN [mm] | 15 | 20 | 25 | 40 | 50 | 65 | 80 | 100 |
| L [mm] | 110/165 | 130/ 190 | 260 | 300 | 270 | 300 | 350/300 | 350/360 |
| H [mm] | 81 | 85 | 123/134 | 141/163 | 167 | 167 | 180 | 196 |
| G/ Flange DN | G3/4" | G1" or DN20 | G1 1/4" or DN25 | G2" or DN40 | DN50 | DN65 | DN80 | DN100 |