

ULTRASONIC HEAT METER

QALCOSONIC HEAT 2



APPLICATION

Ultrasonic heat meter QALCOSONIC HEAT2 is designed for metering of consumed heating or cooling energy in closed or open heating/cooling systems, installed in dwelling houses, office buildings or energy plants.

Heat meter QALCOSONIC HEAT2 consists of the primary flow sensor and the calculator with type approved pair of temperature sensors with Pt500 elements.

- High accuracy
- Heating/cooling
- AMR

SPECIAL FEATURES

- Heat meter can be used for heat and flow measurements in closed or open loop heat supply systems.
- Two flow measurement channels.
- Two pressure measurement channels.
- Two pulse inputs for additional flow sensors.
- Pre-programmed or measured pressure values may be used for energy calculation.
- Cold water temperature for open loop application can be measured, or pre-programmed temperature value can be used.
- Optional integrated regulation or alarm function.
- Flexible menu setup – list of parameter values displayed on the LCD may be configured according to the customer's needs.
- Power supply – from internal battery or 230 V AC power source.
- Battery lifetime not less than 10 years.
- Optical data interface according to EN 61107.
- Optional communication modules.

APPROVALS

MID
EN 14154

NOMINAL FLOW PARAMETERS

Permanent flow rate q_p , m ³ /h	Upper flow rate q_s , m ³ /h	Lower flow rate q_i , m ³ /h	Threshold value of flow rate, m ³ /h	Overall length L, mm	Pressure losses at q_p , kPa	Joining to the pipeline (Thread – G, flange–DN)
0,6	1,2	0,006(0,024)	0,003	110	7	G3/4"
0,6	1,2	0,006(0,024)	0,003	190	0,9	G1" or DN20
1,0	2,0	0,01 (0,04)	0,005	110	11,3	G3/4"
1,0	2,0	0,01 (0,04)	0,005	190	2,5	G1" or DN20
1,5	3,0	0,015 (0,06)	0,003	110; 165	17,1	G3/4"
1,5	3,0	0,015 (0,06)	0,003	190	5,8	G1" or DN20
1,5	3,0	0,015 (0,06)	0,005	130	7,2	G1"
2,5	5,0	0,025 (0,1)	0,005	130	19,8	G1"
2,5	5,0	0,025 (0,1)	0,005	190	9,4	G1" or DN20
3,5	7,0	0,035 (0,14)	0,017	260	4	G1 1/4" or DN25
6,0	12,0	0,06 (0,24)	0,012	260	10	G1 1/4" or DN25
10,0	20,0	0,10 (0,4)	0,02	300	18	G2" or DN40
15,0	30,0	0,15 (0,6)	0,03	270	12	DN50
25	50	0,25 (1)	0,12	300	20	DN65
40	80	0,4 (1,6)	0,2	350	18	DN80
60	120	0,6 (2,4)	0,3	350	18	DN100

Remark:

*Values of the minimum flow rates for measurement schemes U1L and U2L (accounting of heating-cooling energy) are presented in brackets.

TECHNICAL DATA

TEMPERATURE MEASUREMENT	
Number of measurement channels	1, 2 or 3
Temperature measurement limits	0 °C ... 180 °C
Temperature difference measurement limits	2 K ... 150 K or 3...150 K
Type of temperature sensors	Pt500 or Pt1000
Connection scheme	four-wire or two-wire
Cable length between the calculator and each of the sensors: four-wire connection scheme two-wire connection scheme	10 m; 15 m.; 20m.; 40 m.; 60 m; 80 m; 100 m. 3 m; 5 m.
Display resolutions for temperature and temperature difference	0,1 °C
PRESSURE MEASUREMENT	
Number of pressure measurement channels	up to 2
Input current limits (programmable)	0 ... 5 mA, 0...20 mA, 4 ... 20 mA
Lower pressure measurement limits (programmable)	0 ... 2500 kPa
Upper pressure measurement limits (programmable)	100 ... 2500 kPa
Relative normalized pressure measurement error	not more than $\pm 0,25\%$ from the upper pressure measurement limit
Flow measurement	
Flow liquid temperature	0 °C ... 130 °C
Number of flow channels	2
Number of pulse inputs	2
Cable length between the calculator and each of the sensors	3 m.; 5 m.; 10 m.; 15m.; 20m.; 40m.; 60m.; 80m.; 100m.
Nominal pressure	PN16 or PN25
COMMUNICATION INTERFACES	
Optical communication interface	integrated, according to EN 61107 (IEC 1107)
Number of plug-in (optional) interface modules	1
Available types of plug-in interface modules	M-bus M-bus/CL/RS232 and 2 pulse outputs (230V power supply) M-bus/CL/RS232 and 2 current outputs (230V power supply) RS232 RS485 Wireless 868 MHz MODBUS MiniBus RF868MHz
POWER SUPPLY OPTIONS	
Internal battery	3,6 V, battery lifetime - not less than 10 years
AC source supply	230 V, AC 50 Hz
ENVIRONMENT CONDITIONS	
Ambient temperature for the calculator	5 °C ... 55 °C
Ambient temperature for the flow sensors	-30 °C ... 55 °C
Environment class	C according to LST EN1434, M1; E2
Protection class for the calculator	IP65
Protection class for the flow sensors	IP65 (IP67/IP68 – on request)
Installation place	indoor, outdoor in a pit or inst. box
Mounting of calculator	Mounting on standard DIN-rail

DATA RECORDING AND STORAGE

Following daily, weekly and monthly parameter values are re-recorded in heat meter memory:

- absolute integral instantaneous parameter values
- hourly, weekly and monthly alterations of integral parameters
- hourly, weekly and monthly average values for all measured temperature and pressure values
- error (fault) and information codes (see paragraph. 8.2.2) that occurred during the last hour, day and month

Data logger capacity:

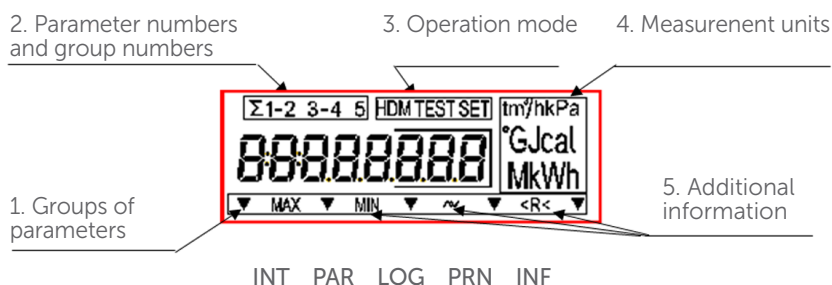
up to 110 days (3,5 months) – for hourly records.
up to 1461 days (36 last months) - . for daily and monthly records,

Archive data retention time:

Retention time of measured integrated parameters not more than 36 months
even if device is disconnected from power supply not more than 12 years

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;
- Device configuration information;
- Report printing control information;

Display resolution (directly corresponding with pulse output value), depending on programmed maximum flow rate value

Maximum programmed flow rate, m ³ /h	Displayed fluid volume (mass) lowest digit value (flow pulse output value), m ³	Displayed energy lowest digit value (energy pulse output value), MWh, Gcal, GJ	Maximum value of thermal power, MW
≤ 5	0,001	0,0001	3
≤ 50	0,01	0,001	30
≤ 500	0,1	0,01	300
> 500	1	0,1	3000

SUPPLY VOLTAGE

Mains supply AC (50±2) Hz, 230 V $\pm \begin{matrix} 10 \\ -15 \end{matrix} \%$,

Battery 3,6 VDC, D-cell lithium:

- Replacement interval: only for calculator not less than 12 years;
- For calculator and 2 extra ultrasonic flow sensors not less than 6 years.

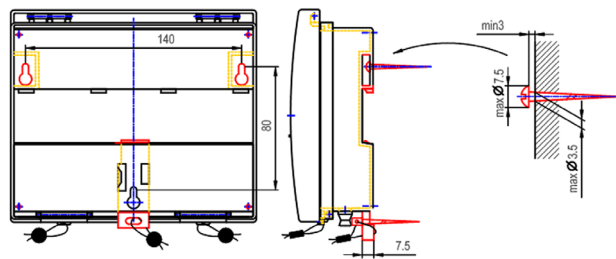
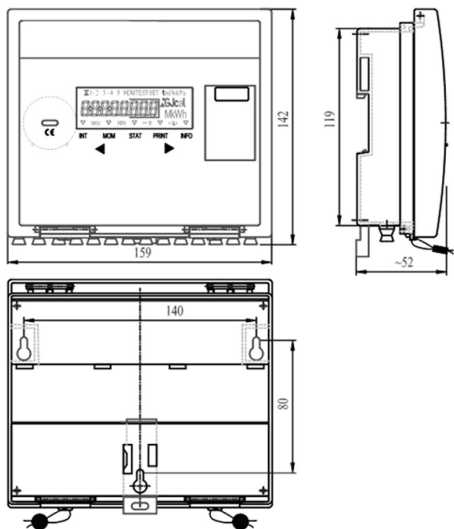
Power supply for sensors:

- Voltage for powering pressure or flow sensors +18 V ± 10 % (only for calculator with mains supply module);
- Voltage for powering flow sensors +3,6 V ± 10 %.

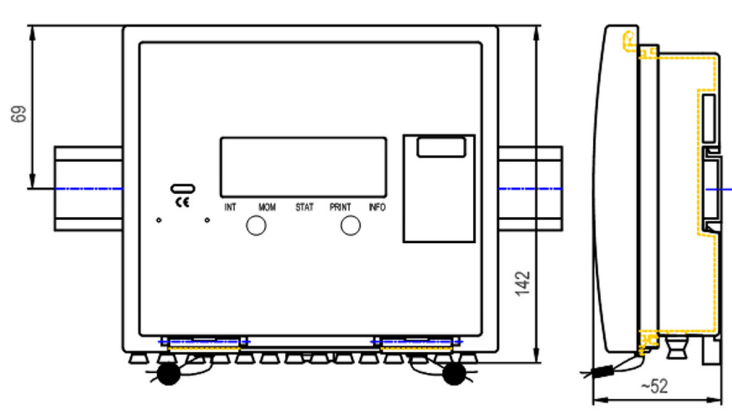


OUTLINE DIMENSIONS: 159 x 142 x 52 mm

MECHANICAL MOUNTING:



OUTLINE DIMENSIONS: 159 x 142 x 52 mm

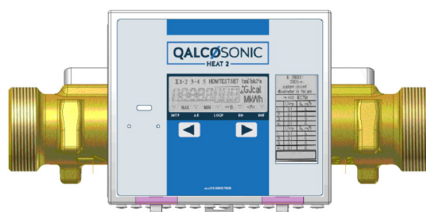


MOUNTING ON ULTRASONIC FLOW SENSOR

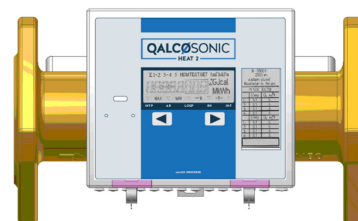
Flow temperature max. 90 °C.



a) G 1 1/4 (qp = 3,5 m3/h;
qp = 6,0 m3/h)



b) G 2 (qp = 10,0 m3/h)



c) DN 50 (qp = 15,0 m3/h)