



Qalcosonic E3

V 2.0

Smart ultrasonic
heat and cooling meter

Application

QALCOSONIC E3 is a cost-effective smart ultrasonic heating and cooling meter designed for commercial metering of consumed energy where water is the heat carrier, such as residential buildings, enterprises, commercial premises, or heat supply facilities.

- Static flow metering using ultrasonic technology
- High accuracy
- For residential and commercial use
- Heating and cooling
- Modular design with replaceable battery
- MID DN15 – DN80
- Brass flow measuring part

Amr interfaces, optional



Special features

- Flexible meter configuration. Meter is delivered in user configuration mode with possibility to configure meter parameters and features as: units, mounting position, pulse inputs/outputs, communication ON / OFF and other meter parameters
- Dual communication module options (Integrated: M-Bus (standard), M-Bus/wM-Bus. Optional: Modbus RTU, BACnet MS/TP, LoRaWAN)
- Measuring accuracy class 2
- Nominal flow 0.6 / 1.0 / 1.5 / 2.5 / 3.5 / 6.0 / 10.0 / 15.0 / 25.0 / 40.0 / 60.0 m³/h
- Dynamic range up to qp/qi = R 100/250
- No straight sections required U0D0 for DN15 – DN50, U5D3 DN65–DN80
- No measurement of air
- Ambient class C
- Protection class IP 65/68*
- Nominal pressure PN25 bar
- Pressure loss class P25/63
- Calculator unit measurement range: 0 °C ... 180 °C
- Temperature of conveying liquid: 0,1 °C ... 130 °C
- Metering archive
- Battery lifetime > 15+1 years
- Power supply options: battery/external
- Optional communication modules
- Mounting in any installation position
- Tariff functions

* - Non modular design only

Approvals

- MID approval certificate
- EN1434
- 2014/32/EU

Optical interface

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

Radio interface

The internal radio provides data reading via wM-Bus telegram T1 OMS mode or LoRaWAN.

Hourly, daily and monthly parameter values

- Integrated heat energy
- Integrated cooling energy
- Integrated energy of tariff
- Integrated volume of liquid
- Integrated pulse value in pulse input 1/2
- Maximum thermal power value for heating / cooling and date
- Maximum and maximum value of flow / return temperature of heat conveying liquid and date
- Average value of flow/return temperature of the heat conveying liquid
- Minimum value of temperature difference and date
- Operating time without an error
- Total error code
- Time when the flow rate exceeded 1.2 q_s
- Time when the flow rate was less than q_i

Power supply:

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

- AA battery 3,6 V 2,4 Ah (Li-SOCI2) battery, operation time at least 15+1 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-SOCI2)
- 230 V (+ 10% - 30%) 50 / 60Hz AC power supply, current consumption is not more than 10 mA and back up battery AA 3,6 V (Li-SOCI2)

Technical data:

Flow rate sensor	q _p [m ³ /h]	0.6 / 1.0 / 1.5 / 2.5 / 3.5 / 6.0 / 10 / 15 / 25 / 40 / 60	
	Rq _p / q _i [m ³ /h]	100/250*	
	Resolution of flow-rate indicators:	00000,001 m ³	
Technical data	LCD Display	8-digit	
	Protection class [IP]	IP65/68*	
	Ambient temperature	+5°C ...+65°C	
	Units (selectable by the user when installing):	kWh; MWh; GJ; Gcal; m ³	
	Resolution of energy indicators (selectable by the user when installing):	000000,01 kWh, 0000000,1 kWh, 00000001 kWh,	00000,001 MWh (Gcal or GJ) 000000,01 MWh (Gcal or GJ)
	Installation position	all installation positions (vertical, horizontal, rising pipe, down pipe)	
	Nominal pressure [bar]	PN25 bar	
	Ambient class	Class C / EN 1434	
	Flow sensor cable length	1,2 m (2,5 m / 5 m – <i>special order</i>)	
	Temperature sensor Pt500, two-wire connection, cable length	1,5 m / 3 m / 5 m / 10 m	
	Temperature measurement range	+0°C ...+180°C	
	Mounting of calculator	Mounting on standard DIN-rail or on the wall	
	Number of configurable pulse inputs/ outputs	2 or no (to be specified when ordering), OB –in the operating mode; OD – in the test mode	
Pressure loss	0,63 / (0,25) bar		

* – Non modular design only.

Data logger – history values

Every hour, day, and month value of the measured parameters are stored in internal memory.

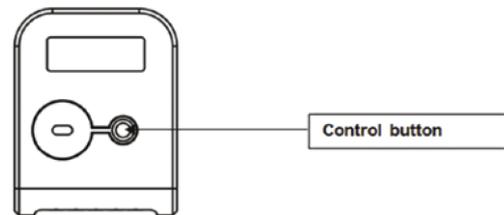
- All data from the archive can be read using the remote reading
- In addition, data logger records of monthly parameters can be seen on the display
- Hours for archive records: 1480 h
- Days for archive records: 1130 days
- Months for archive records: 36 months
- Archive data storage time: at least 36 months

Time of storage of all measured integral data, also without power supply to the electronic unit: at least 15 years.

LCD indicator:

The device is equipped with an 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 instantaneously measured parameters
 - archive data and set day data
 - device configuration information
- Programmable LCD displaying parameters



Pulse value in the operating mode:

- When the output is configured for energy, the value of its pulses can be selected from the list (depending on the rated flow q_p and energy measurement units):

Energy pulse value, when units are "kWh" or "MWh"	0,00001 - 10 000 MWh/pulse
Energy pulse value, when units are "GJ"	0,0001 - 10 000 GJ/pulse
Energy pulse value, when units are "Gcal"	0,0001 - 1 000 Gcal/pulse

- When the output is configured for water quantity, the value of its pulses can be selected from the list (depending on the permanent flow q_p):

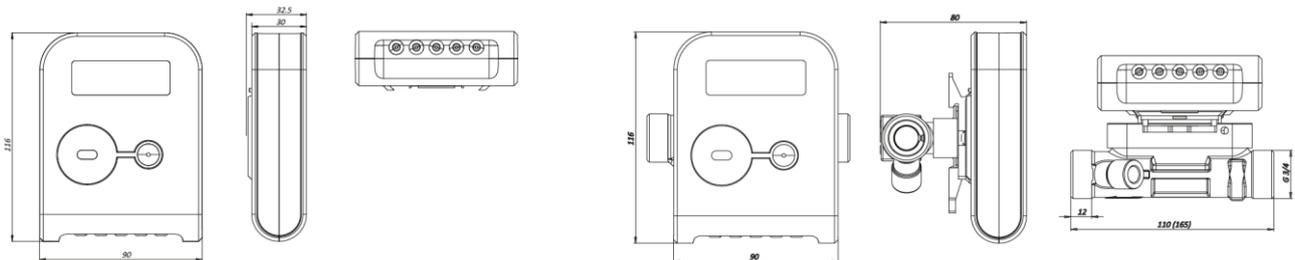
Water volume pulse value, m^3 /pulse	0,001 - 10 m^3 /pulse
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- If the meter is ordered with the pulse input-output device, then a permanently connected 1,5 m length cable is fitted in the meter for connecting the inputs-outputs

Permanent flow- rate q_p , m^3/h	Upper flow- rate q_s , m^3/h	Lower flow- rate q_l , m^3/h	Threshold value of flow rate, m^3/h	Length of the flow sensor L, mm	Pressure losses at q_p , kPa	Joining to the pipeline (thread - G, flange - DN)
0.6	1.2	0.006	0.003	110	7	G3/4"
1	2	0.01	0.005	110	11.3	G3/4"
1.5	3	0.006*	0.003	110	17.1	G3/4"
1.5	3	0.015	0.003	110	17.1	G3/4"
1.5	3	0.015	0.005	130	7.2	G1"
2.5	5	0.01*	0.005	130	19.8	G1"
2.5	5	0.025	0.005	130	19.8	G1"
3.5	7	0.035	0.017	260	4	G1/4" or DN25*
3.5	7	0.014*	0.007	260	9	G1/4" or DN25*
6	12	0.024*	0.012	260	10	G1/4" or DN25*
6	12	0.06	0.012	260	10	G1/4" or DN25*
10	20	0.04*	0.02	300	18	G2"
10	20	0.1	0.02	300	18	G2"
15	30	0.06*	0.03	270	12	DN50
15	30	0.15	0.03	270	12	DN50
25	50	0.1*	0.05	300	20	DN65
25	50	0.25	0.05	300	20	DN65
40	80	0.16*	0.08	300	18	DN80
40	80	0.4	0.08	300	18	DN80
60	120	0.24*	0.12	360	18	DN100
60	120	0.6	0.12	360	18	DN100

* - Under special request

Electronic unit: 116 mm x 32.5 mm x 90 mm



- Example – flow sensor 1,6/2,5 m^3/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	260	300	270	300	300	360
H [mm]	80	84 / 112	131 / 137	118 / 150	159	185	200	225
G	G3/4"	G1" or DN20	G1 1/4" or DN25	G2"	DN50	DN65	DN80	DN100

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