



# ULTRASONIC HEAT/ COOLING ENERGY METER QALCOSONIC

# E4

 **INSTRUMENT TEAM AS**

**AXIOMA**  
METERING

Tlf: 67 150 250 www.instrumentteam.no post@instrumentteam.no

## APPLICATION

**QALCOSONIC E4** is designed for commercial accounting of heating and cooling energy when heating media is water and is used in centrally heated objects: residential houses or heat supply objects.

- Static liquid metering using ultrasonic technology
  - High accuracy
  - For residential and commercial use
  - Heating and Cooling
  - Changable communication modules, temp. sensors and battery
  - MID DN15 – DN40 with composite body flow part
  - Available dimensions DN15, DN20, DN32, DN40\*
- \*planned in 2021 Q3.

## 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 (RF/MBUS, MBUS/MBUS, LoRa/MBUS...)
- Accuracy class 2
- Nominal flow Nominal flow 0,6 / 1,0 / 1,5 / 2,5 / 3,5 / 6/ 10 m<sup>3</sup>/h
- Dynamic range up to qp/qi = R 100/250
- No straight sections required
- No measurement of air
- Protection class IP 65/67/68
- Nominal pressure PN16 bar
- Temperature measurement sensor type Pt500, 0 °C ... 90 °C
- Temperature of conveying liquid: 0,1 °C ... up to 90 °C composite flow part
- Metering archive
- Battery lifetime > 15+1 years
- Power supply options: Battery/External
- Optional communication modules
- Mounting in any installation position
- RF and Mbus on-board (by request)
- Tariff functions

## APPROVALS

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

## 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.

## RADIO INTERFACE

The internal radio provides data reading via WMBUS telegram: S1, T1 OMS mode, LoRa.

WMBUS telegram configurable via a optical interface with service tools:

- Current total Energy
- Current flow
- Current date and time
- Accounting date information
- Error date
- Other configurable parameters

## HOURLY, DAILY AND MONTHLY PARAMETER VALUES

- Integrated 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 value of flow/return temperature of heat conveying liquid and date
- Minimum value of flow/return temperature of heat conveying liquid and date
- Minimum value of temperature difference and date
- Average value of flow/return temperature of heat conveying liquid
- Operating time without an error
- Total error code
- Time when the flow rate exceeded 1.2 qs
- Time when the flow rate was less than qi

## DATA LOGGER – HISTORY VALUES

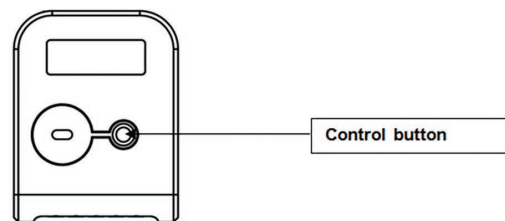
Every hour, day and month values of the measured parameters are stored in internal memory.

- 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
- 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 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-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 <sup>3</sup> /h]	0.6 / 1.0 / 1.5 / 2.5 / 3.5 / 6.0 / 10.0
	$R q_p / q_i$ [m <sup>3</sup> /h]	100/250
	Resolution of flow-rate indicators:	00000,001 m <sup>3</sup>
Technical data	LCD Display	8-digit
	Protection class [IP]	IP65/67/68
	Ambient temperature	+5°C ...+55°C <sup>0</sup>
	Units (selectable by the user when installing):	kWh; MWh; GJ; Gcal; m <sup>3</sup>
	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]	PN16 bar
	Battery lifetime	15+1 years
	Flow sensor cable length	1,2 m
	Temperature sensor Pt500, two-wire connection, cable length	Up to 10 m
Temperature measurement range	+0°C ...+90°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

## 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  $q_p$ ):

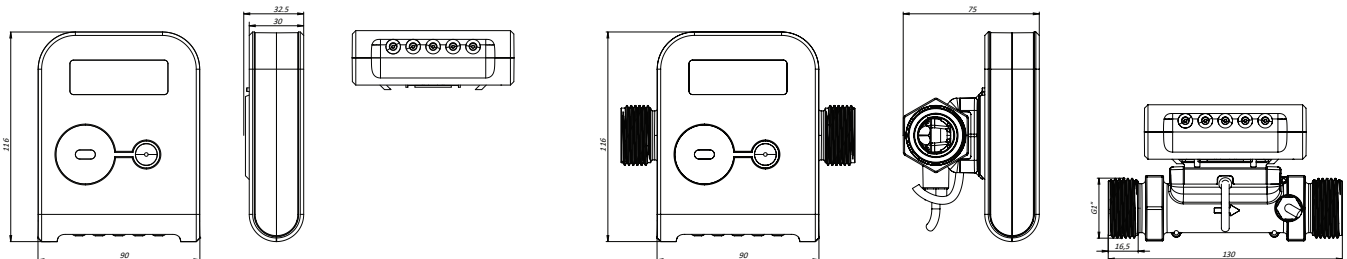
Water volume pulse value, m <sup>3</sup> /pulse	0,001 - 10 m <sup>3</sup> /pulse
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- If the meter is ordered with the pulse input-output device, then a permanently connected 1.5 m length cable is fitted in the meter for connecting the inputs-outputs

Permanent flow rate $q_{p'}$ $m^3/h$	Upper flow-rate $q_{s'}$ $m^3/h$	Lower flow-rate $q_{i'}$ $m^3/h$	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	0.004	0.003	110	11.3	G3/4"
1	2	0.01	0.003	110	11,3	G3/4"
1.5	3	0.006	0.003	110	15	G3/4"
1.5	3	0.015	0.003	110	15	G3/4"
1.5	3	0.006	0.005	130	7,2	G1"
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	0.014	0.007	260	8	G1 1/4"
3.5	7	0.035	0.007	260	8	G1 1/4"
6	12	0.024	0.012	260	23	G1 1/4"
3.5	7	0.035	0.012	260	5	G1 1/2"
6	12	0.024	0.012	260	14	G1 1/2"
6	12	0.06	0.012	260	14	G1 1/2"
10	20	0.04	0.02	300	*planned in 2021 Q3	G2
10	20	0.1	0.02	300	*planned in 2021 Q3	G2

## SIZE AND DIMENSIONS

- Electronic unit: 116 mm x 32.5 mm x 90 mm



- Example - flow sensor 1,5  $m^3/h$ , Threaded end connections G1", mounting length L=130 mm

DN [mm]	15	20	25	32	40
L [mm]	110	130	260	260	300
H [mm]	70	75	98	106	118
G	G3/4"	G1	G1 1/4"	G1 1/2"	G2"



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