



# G. GIOANOLA

METERING EFFICIENCY

## KALOR2 SONIC ultrasonic compact thermal energy meter for heating and cooling systems

- MID approval to MI004 Directive 2014/32/UE
- Accuracy class: EN1434 class 2
- Mechanical class M1 / Electromagnetic class E1
- Temperature range 15 °C ... 90 °C
- Compact ultrasonic energy meter suitable for direct metering of thermal energy in heating/cooling systems where water is used as heat carrier with a maximum temperature of 90 °C
- Nominal flow rate qp from 0,6 m3/h to 6,0 m3/h
- Threaded connections for pipes from 1/2" to 1"
- The meter consists of three main units: ultrasonic volume meter, detachable calculator, temperature sensors
- Ultrasonic volume meter with bi-directional flow detection and air presence, return flow sensor connection (standard version) in the housing, max. fluid temperature 90°C
- Detachable calculator (85 cm) with LCD - 8 digits and special characters display, Power supply with replaceable 3 V lithium battery with 10 years service life according to operating and environmental conditions, optical communication/configuration interface, key-operated query menu on 3 levels (main/technical/statistical) Selectable yearly reading date; 15 monthly and semi-monthly values via display (24 monthly and semi-monthly values via optical interface or M-Bus)
- PT1000 model temperature sensors 5 mm diam. with 1,5 mt. cable lenght, 2-wire connection (1 sensor inserted in housing/1 sensor free)
- Configuration by software installation on flow circuit and use (not certified) of glycol by type and diluted percentage with energy value ≤ 10kWh

### Options:

- Wired M-Bus communication interface protocol EN13757-2 EN13757-3 + 3 pulse inputs
- Wired M-Bus communication interface protocol EN13757-2 EN13757-3
- Two potential-free pulse outputs Class OA energy/volume or energy/energy pulse duration 125ms – Max. current 120mA - Contact resistance max.25 Ohm – (battery life 6 years + 1 version with pulse output)
- Dual registers heat/cooling metering
- Radio interface wireless M-Bus EN 13757-3,-4 Frequency 868 MHz – Selectable modes T1, S1 –3 pulse inputs to connect hot and cold sanitary water meters
- 230V or 24V mains power supply

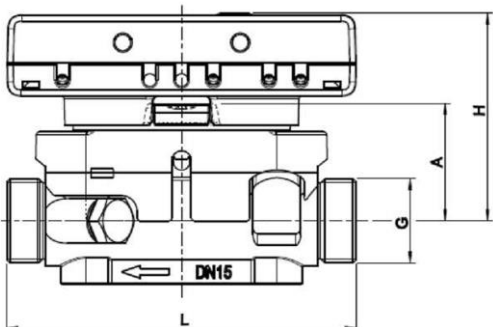
### Accessories:

- TEE couplings 1/2" 3/4" 1" wet mounting
- Sensor holder ball valve 5mm F/F 1/2" 3/4" 1" wet mounting
- Kit of brass fittings (2 nuts/2 tailpieces/2 gaskets) 1/2" x 3/4" / 3/4" x 1" / 1" x 1.1/4"
- Y strainer 1/2" 3/4" 1"



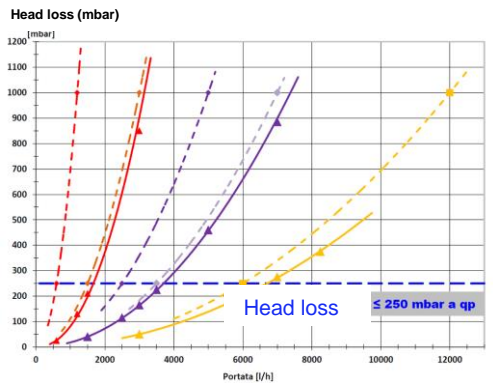
Wireless M-Bus EN 13757	
4 Selectable modes (configurable)	S1/T1*: unidirezionale S2/T2: bidirezionale
Compliance to OMS standard	short telegram in conformity to AMR (OMS-Spec_Vol2_Primary_v301 and v402)
Transmission power	-5 dBm, 0 dBm, +9 dBm
AES-128-Encryption	AES: Advanced Encryption Standard Key length: 128 bit (set and configured for each instrument)*
Type of telegram (to be chosen from)	Short telegram* Energy (heat/cooling, pulse input 1, pulse input 2), total volume, flow, power, hint flag, return flow temperature, temperature difference** Long telegram Energy (heat/cooling, pulse input 1, pulse input 2), hint flag, 15 monthly values
Transmission interval (configurable)	From 2 minutes* to 240 minutes
Transmission period (configurable)	00:00 - 24:00 / 7:00 - 19:00*
Weekdays (configurable)	Monday – Sunday / Monday – Friday*
Weeks in a month	1 – 4*
Months	1 – 12*
Activation of the radio interface	The radio interface leaves the factory deactivated* (it can be activated by pressing the push-button key or by configuration optical kit)
Minimum battery lifetime	7 years (+3 in relation to radio data transmission interval)

\* factory settings



M-Bus  
M-Bus wireless  
OMS

- ◆ EN1434 Limit qp0,6
- ◆ EN1434 Limit qp1,5
- ◆ EN1434 Limit qp2,5
- ◆ EN1434 Limit qp3,5
- ◆ EN1434 Limit qp6,0
- ▲ pressure drop qp 0,6 / 1,5
- ▲ pressure drop qp 2,5 / 3,5 / 1,5 (DN20)
- ▲ pressure drop qp 6,0
- EN 1434



# KALOR 2 sonic

<b>Technical data</b>						
<b>Mechanical volume meter</b>						
Measuring method		Bidirectional inductive scanning system				
Nominal flow rate $q_p$	m <sup>3</sup> /h	0,6	1,5	2,5	3,5	6,0
Low flow rate threshold	l/h	6	6	12	14	30
Minimum flow rate $q_i$	l/h	12	12	25	28	60
Maximum flow rate $q_s$	m <sup>3</sup> /h	1,2	3,0	5,0	7,0	12,0
Pressure drop $\Delta p$ at $q_p$	bar	0,03	0,21	0,115	0,210	0,20
Pressure drop $\Delta p$ at $q_s$	bar	0,13	0,85	0,46	0,885	0,80
Nominal diameter	mm	DN 15	DN 15	DN 20	DN 25	DN 25
Thread	inch	G3/4B	G3/4B	G1B	G1 1/4B	G1 1/4B
Length	mm	110	110	130	150	150/260
Dynamic range $q_i/q_p$	-	1:50	1:125	1:100	1:125	1:100
Accuracy class (MID)		2				
Nominal pressure PN	bar	16				
Temperature range of liquid – heat	°C	15-90 standard				
Temperature range of liquid – cooling ( $q_p$ 1.5 and $q_p$ 2.5)	°C	5-50				
Temperature range of liquid - heat/cooling	°C	15-90 standard calories / 5-50 frigories				
Installation point		Inlet or outlet Can be set if the energy value is $\leq$ 10 kWh				
Mounting position		Any				
Protection class		IP65				
<b>Calculator</b>						
Temperature range of liquid – heat	°C	0-150 heat / 0-50 cooling (from $q_p$ 1,5 to $q_p$ 6)				
Operating ambient temperature	°C	5-55 with 95% relative humidity				
Transport temperature	°C	-25-70 (max. 168 hours)				
Storage temperature	°C	-25-55				
Temperature difference range $\Delta\Theta$ heat	K	3-100				
Temperature difference range $\Delta\Theta$ cooling	K	-3- -50				
Minimum temperature difference $\Delta\Theta$ heat	K	$>$ 0,05				
Minimum temperature difference $\Delta\Theta$ cooling	K	$<$ -0,05				
Minimum temperature difference $\Delta\Theta$ HC heat/cooling	K	$>$ 0,5/ $<$ -0,5				
Temperature resolution	°C	0,01				
Dynamic temperature measuring cycle	s	2/60; with power pack: 2 s permanently				
Frequency of flow measurement	s	2				
Power supply		Replaceable 3 V lithium battery; all models are prepared for a 3 V power pack (input voltage 230 V/24 V)				
Data storage		Nonvolatile memory				
Reading dates		Selectable yearly reading date 15 monthly and semimonthly values via display or wireless M-Bus; 24 monthly and semimonthly values via optical interface or via M-Bus				
Storage of maximum values		Flow rate and power				
Protection class		IP65				
Electromagnetic interference		EN 1434				
Calculator housing (h x w x d)	mm	75 x 110 x 34,5				
<b>Temperature sensors (2-wire technique)</b>						
Platinum precision resistor		Pt 1000				
Diameter	mm	5; 5,2; 6; AGFW 27,5; 38; needle sensor 3,5 x 75				
Cable length	m	1,5; 3; 6				
Installation point		Asymmetrical, symmetrica				
<b>Dimensions</b>						
$q_p$ (m <sup>3</sup> /h)	Nominal diameter	G (")	L (mm)	H (mm)	A (mm)	Weight kg (basic version)
0,6	DN 15	G3/4B	110	65	37	0,720
1,5	DN 15	G3/4B	110	65	37	0,720
2,5	DN 20	G1B	130	65	37	0,770
3,5	DN 25	G1 1/4B	150	65	37	0,930
6,0	DN 25	G1 1/4B	150	67,5	39,5	0,930
6,0	DN 25	G1 1/4B	260	67,5	39,5	1,200

The company's policy is one of continuous product improvement and the right is reserved to modify the specifications contained herein without notice. Illustrations are not binding. 06-22

