RC12 Ultrasonic Heat Meter Manual

Please read this user manual before using the meter, in order to help you understand the products basic functions, operation and maintenance.

Note: We reserve the right to alter the product specifications, appearance and design without prior notice.

⚠ **Important**

Environmental Requirements

- **This product should NOT be used if the humidity exceeds 85%**
- **No user serviceable parts are inside the meter.**

Cabling Requirements

- **Do not shorten or replace the cables**
- **The external cabling must use multi-strand shielded twisted pair of not less than 0.75 mm^2.**
- **Do not install the cabling in trunking that contains power lines to avoid electrical interference on the signal lines.**
- **The RS485 network must have the correct topology and be correctly terminated.**

Other Requirements

- **Do not damage the product calibration seal. If it is destroyed any warranty or calibration will be invalidated.**

Product Features

- **Internal 3.6V lithium battery power supply.**
- **Due to the unique case design the display can be rotated for ease of viewing.**
- **Supports flow and return installation side (Default installation: return).**
- **Supports horizontal and vertical installation.**
- **Supports optical interface, RS485 interface and M-Bus interface.**

Profile

Application	Heating/cooling/heating-cooling energy metering
Approval	MID, CE
Mounting position	Vertical or horizontal
Enclosure protection class	IP 65
Battery supply	3.6V lithium battery life up to 8 years
Temperature sensor type	PT1000
Cable length of temperature sensor	1.5 meter

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Calculator basic features

Environmental class	EN1434/MID E1+M1
Ambient operating temperature	A Class (5～55) ℃ or B Class(-25 ～ +55) ℃ optional
Ambient storage temperature	-20 to +70 ℃
Protection class	IP 65
Standard interface	Optical interface
Interfaces optional	1 Slot for modules with M-Bus, RS485, Pulse Output
Temperature range heating	4 to 95℃
Temperature range cooling	4 to 95℃
Extensive data memory	720 days flow data and heat data

Display

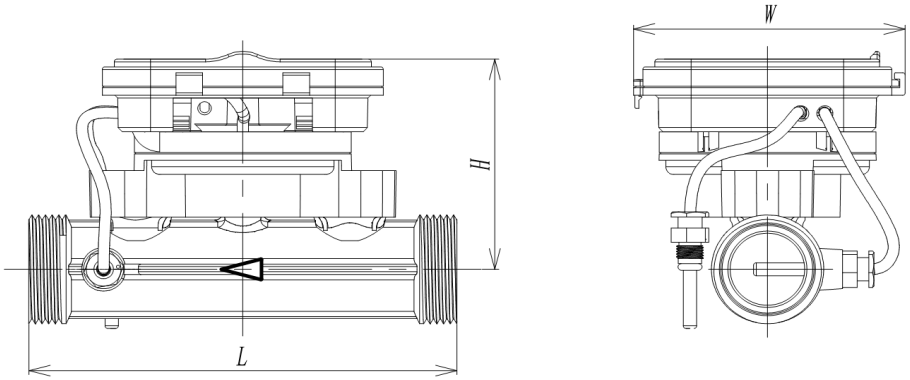
Display indication	LCD, 8 digits
Units	MWh - kWh - GJ - Gcal - ℃ –K - m^3 - m^3/h
Total values	99,999,999 - 9,999,999.9 - 999,999.99 - 99,999.999
Values displayed	Energy - Power - Volume - Flow Rate - Temperature

Interfaces

Optical	Baud rate 2400
M-Bus	Baud rate 300-9600
RS485	Baud rate 300-9600
Pulse output	One pulse output/kWh

Temperature input

Min. temperature difference	ΔΘmin K	3 （2K can be customized）
Max. temperature difference	ΔΘmax K	60 (105 can be customized)
Absolute Temperature measuring range	Θ ℃	4 to 95 (4-130 can be customized)



Screw thread connection

Nominal flow rate	q_p	m^3/h	0.6	1.5	1.5	1.5	2.5	2.5
Nominal diameter	DN	mm	15	15	20	20	20	20
Body Length	L	mm	110	110	130	190	130	190
Height	H	mm	100	75	78	78	78	78
Width	W	mm	101	101	101	101	101	101
Screw thread on meter		inch	G3/4B	G3/4B	G1B	G1B	G1B	G1B
Screw thread of coupling		inch	R1/2	R1/2	R3/4	R3/4	R3/4	R3/4
Working pressure		MPa	1.6/2.5					
Qp :Qi			50:1, 100:1, 250:1					

Nominal flow rate	q_p	m^3/h	3.5	6	10
Nominal diameter	DN	mm	25	32	40
Body Length	L	mm	160/260	180/260	200/300
Height	H	mm	81	84	88
Width	W	mm	101	101	101
Screw thread on meter		inch	G1 1/4B	G1 1/2B	G2B
Screw thread of coupling		inch	R1	R1 1/4	R1 1/2
Max working pressure		MPa	1.6/2.5		
Qp :Qi			50:1, 100:1, 250:1		

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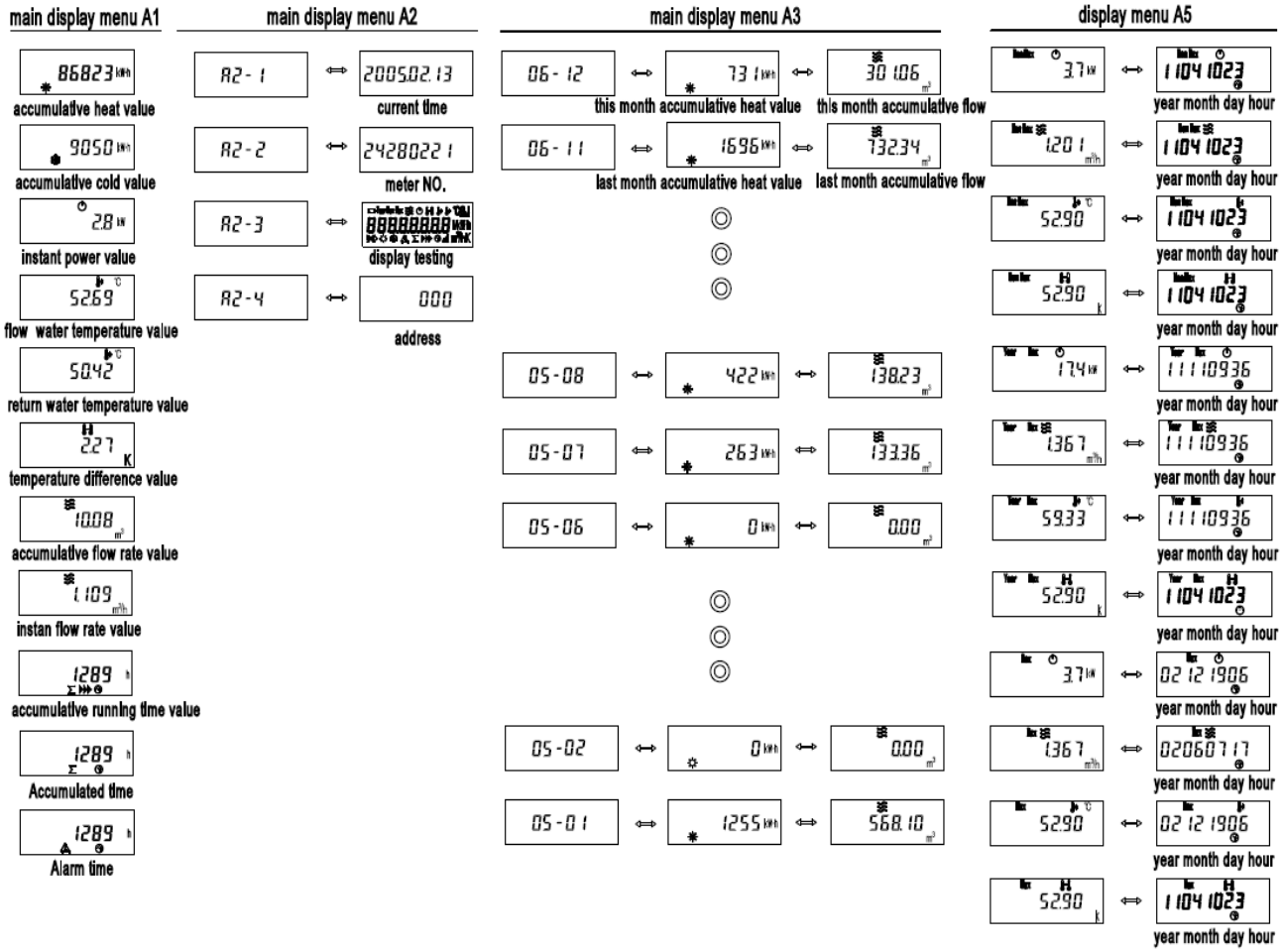
LCD



Error codes

Err 0	**Incorrect ion flow direction or wrong installation**	**Checking the flow or mounting direction, correction if necessary**
Err 1	**Negative temperature difference**	**Check the installation position of the sensor, replace it if necessary**
Err 2	**Open circuit in flow temperature sensor**	**Repair or replacement by professionals**
Err 3	**Short circuit in flow temperature sensor**	**Repair or replacement by professionals**
Err 4	**Open circuit in return temperature sensor**	**Repair or replacement by professionals**
Err 5	**Short circuit in return temperature sensor**	**Repair or replacement by professionals**
Err 6	**Air tube**	**Remove air from the system**