RC Series Ultrasonic Heat Meter

General Description

RC Series ultrasonic heating (cooling, heating-cooling) meters are used for energy measurement of heating or chilled water in residential and small commercial heating and air conditioning systems. They are available in DN15…40 and have an electronic energy calculator with separate register for heating and cooling energy. They are fitted with an M-Bus interface for integration into M-Bus networks.

Important Notice

Please read this manual carefully before undertaking the installation!

RC Series ultrasonic heat meters must be installed by qualified personnel in accordance with the instructions given in this manual.

RC takes no responsibility for difficulties arising from failure to observe these instructions.

Seals on the heat-meter must not be damaged. Breaking or damaging meter seals is seen as violation of the equipment.

It is not allowed to shorten and/or replace the data or temperature sensor cables attached to the product.

These instructions should be handed over to the user upon completion of the installation. They should be kept for future reference.

Installation

Before Installation

- It is recommended to install a valve before and after heat meter for maintenance and filter cleaning.
- It is recommended to install a filter on inlet of heat meter.

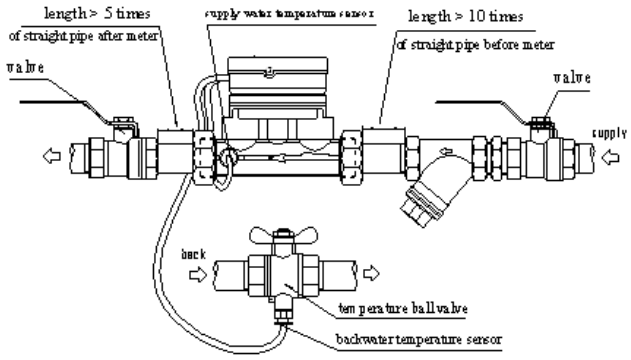


Figure 2. Recommended installation

Installation Precautions:

- alve installation before and after heat meter and filter, easy for heat meter maintenance and filter cleaning.
- **Please notice valve opening sequence: open slowly valve before heat meter in inlet water side firstly, then open valve after heat meter outlet water side.** Finally open valve in back water pipeline, to protect heat meter due to sand, stone etc. impurity which inside of pipeline of lower of heat meter flowing back to meter body.

Notice: opening valve action should be slowly, to prevent water hammer effect during opening valve quickly, then damage heat meter and components.

- During heat meter running, try to avoid valve closing completely in pipeline, to prevent heat meter freezing without heat water flowing in pipeline for long time.
- If heat meter installation outdoor, should have protection measurement, to prevent damage incidentally and human destruction.
- Before heat meter installation, should clean pipeline and keep enough straight pipe in inlet and outlet. Inlet straight pipe length before heat meter is not less than 10 times of pipe diameter length, outlet straight pipe length after heat meter is not less than 5 times of pipe diameter length. Installation at the confluence between two back water pipeline, should have 10 times pipe diameter of straight pipe between heat meter and joint(like T joint), to ensure water temperature mixture averagely in two pipes.
- Water in heat system should be cleaning, demineralization and no dirt to ensure the running of heat meter smoothly, no block and damage. If flowing rate reduction significantly in the moment in heat exchanger system working normally, it means more dirt inside of filter and narrows pipeline, so flowing rate reduction. Should clean filter timely and change filter net in necessary.
- Heat meter is belonging to measuring instrument, must calibrate regularly according to national standards and change battery in necessary during calibration.
- Heat meter is belonging to accurate instrument, put up and down gently and carefully, forbidden to press and hit calculator and temperature sensor etc. key components. Forbidden to lift calculator and temperature sensor's connection wire and other vulnerable parts.
- Forbidden to close high temperature heat source, like electric welding, to avoid instrument damage and influence use.
- Flow sensor had flow direction request, water flowing direction should be same with flowing sensor arrow direction.

Temperature sensor installation

➢Distinguish supply and back water

Temperature sensor of heat meter had each one supply water temperature sensor and back water temperature sensor, temperature sensor with red label should be installed supply water pipeline, and sensor with blue label should be installed back water pipeline. Installation method in details reference installation diagram.

➢ Paired using

Paired supply and back water temperature sensors are matched strictly and ensure measuring accuracy of heat meter. So it is forbidden to disassembly and mix temperature sensor from manufacturers in pairs during installation.

➢ Wire Length Standards

Domestic heat meter uses DS temperature sensor, and standard wire length is 1.5m, can be lengthened based on facts,(usually it is not more than 20m), should inform manufacturer for technical treatment in order, will influence measuring accuracy with technical treatment for lengthened wire.

➢ Installation Position

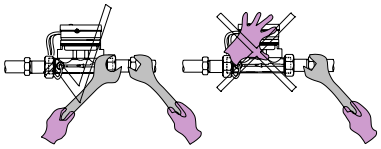
Temperature sensor should be installed the position which water temperature averagely in pipeline. And ensure the same installation condition for supply and back water temperature sensor.

➢ Installation Method

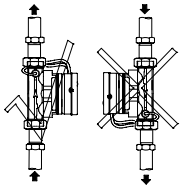
According to sensitive components type, length of temperature sensor and pipeline diameter size to determine temperature sensor installation method and insert depth. Suggest to use protection sleeve and installation components from manufacturers originally, it is easy for installation simplicity and ensure heat transmission quality and helpful for heat meter accurate running.

CAUTION

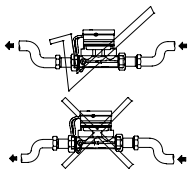
- Tighten connection fittings by using two wrenches. Do not use calculator for support.



- If heat meter is installed on a vertical pipe, it is strongly recommended to install it on a flow against gravity as accuracy may be reduced if not enough water is in the pipeline.



- In case of bends install heat meter at lower position to prevent air accumulation in flow sensor.

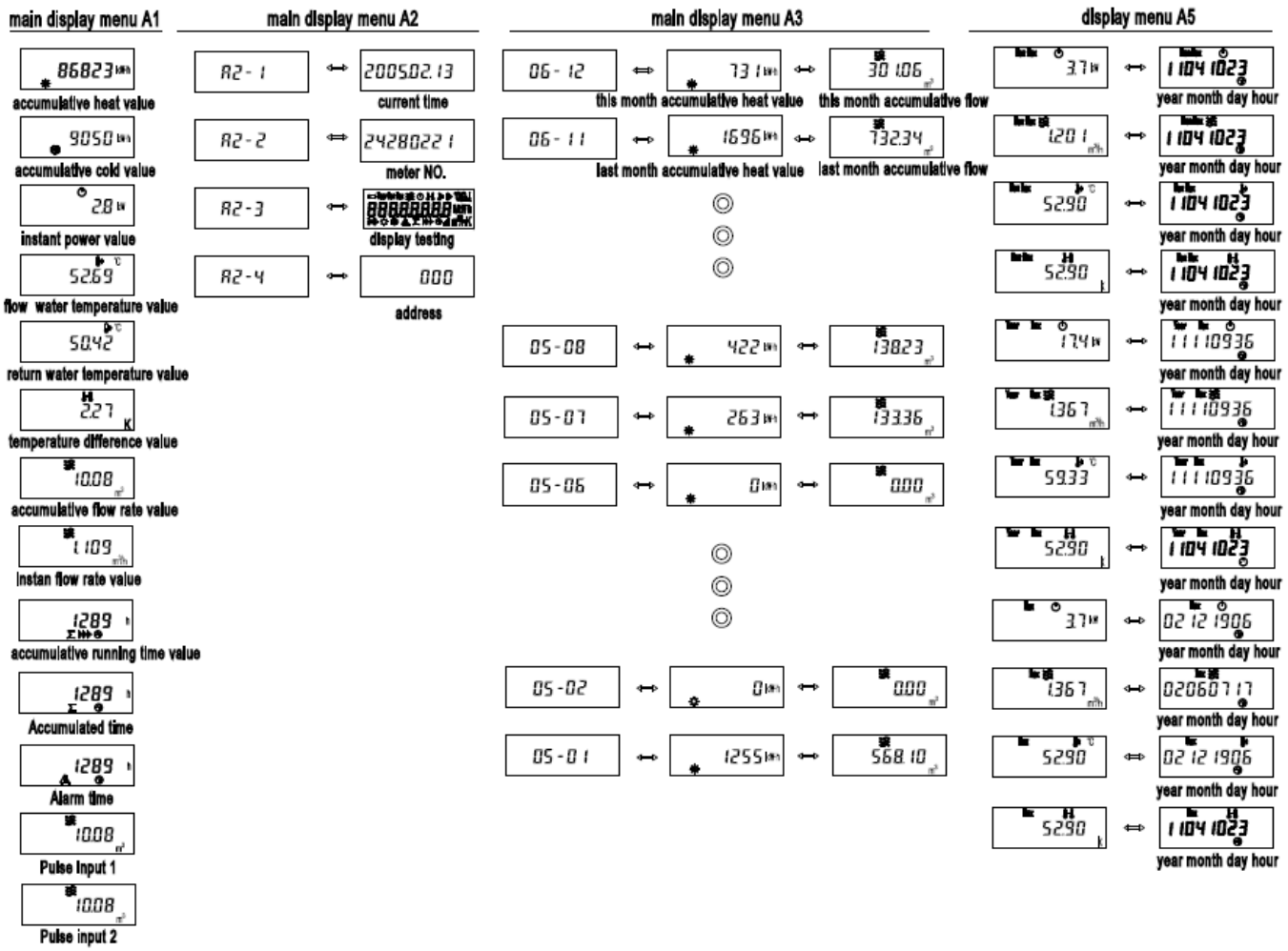


Display

This product uses button switch to switch LCD display interface, display content is following:

a) After long press button 3 seconds, display menu will be switched from three items A1-A2-A3.
b) Scrolling display content in the same menu by short press button.
c) Main display menu A1.
d) Main display menu A2: current date, meter No., display testing etc. display contents;
e) Main display menu A3: consumed heat and flow rate value of each month within the first 24 months;
f) Failure alarm: battery lack of electricity and failure automatic diagnosis.
g) Main display menu A5: Press the button3 seconds when instant power value item display, then A5 will be displayed.

Note: ①“accumulative cold”only display in cold and heat two way heat meter(heat and cold)



Error Codes

Error Codes	Fault information	Prompt service
err0_____	incorrection 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	
	Low battery	Replace the battery

Annex：