



RC-316M

USER MANUAL

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Product Information:

This controller is mainly used for equipments and occasions which need automatic switch between cooling and heating, such as thermostatic pond, seafood pool, industrial air-conditioner, Electric cabinet air conditioner, oil cooler etc.



Function Features:

Digital display made by self-owned special mould.
Load indicators adopt icons easy to understand, making the interfaces more full, visual and humanized.

Technical Parameters:

Product Model: RC-316M

Temperature controlling range: -50°C~99°C

Resolution: 0.1°C

Accuracy: $\pm 1^{\circ}\text{C}$ (-50°C~70°C)

Power supply: 12/24/110/220VAC $\pm 10\%$

Power consumption: < 3W

Sensor: NTC sensor (1pc)

Relay contact capacity: cool(10A/250VAC);
Heat(10A/250VAC). Optional: 16A/250VAC

Ambient temperature: 0°C~60°C

Storage temperature: -30°C~75°C

Relative humidity: 20-85%(no condense)

Key Operation Instruction:

1.The way to check parameters:

Under normal working status, press and release "▲" key once instantly, the screen displays temperature setting value; press and release "▼" key once instantly, the screen displays the difference value. It returns to temperature display status after 2s.

2.The way to set parameters:

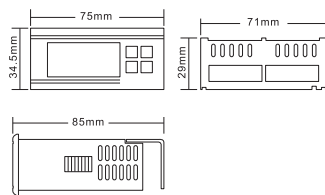
Under normal working status, press "S" key for 3s to enter parameter modifying mode, at this time the "Set" indicator lamp on, the screen displays the first menu code "F1", press "▲" or "▼" key to adjust up and down and the screen displays the previous or next menu item and the code of this menu item. Press "S" key and the screen displays parameter value of the current menu item. Press and hold "▲" or "▼" key can adjust the parameter's value rapidly. After finishing the setting, press and hold "S" key for 3s to save modified parameter value and return to temperature display status. If no key operation for 10s, system won't save modified parameter value and the screen returns to temperature display status.

The screen displays "Er" if error appears during parameter setting.

Key Sound:

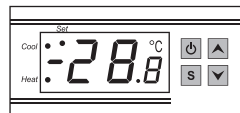
When any key pressed, the buzzer makes a sound, it gives experiences of tactile sensation and feelings of auditory sense, which makes the operation more relaxed and convenient.

Product Size:



Sensor Wire Length: 2m(including the probe).

Panel Instruction:



Display instruction:

Three digits LED + minus digit + status indicator lamp

(status indicator lamp (cool, heat) + set indicator lamp (set))

Key instruction: "S" key: the key to set; "▲" key: up key; "▼" key: down key; "⏻" key: the key to turn on and off the power

Indicator Status Instruction:

Indicator	Function	Note
Cool indicator lamp	On: refrigeration starts; Off: refrigeration stops; Flash: compressor delay	Cool, Heat indicator can not be "on" status simultaneously
Heat indicator lamp	On: heating starts; Off: heating stops	
Set indicator lamp	On: parameter setting status	

Operation Instruction:

Under normal working status, press and hold "⏻" key for 3s can turn off the controller; under controller "off" status, press and hold "⏻" key for 3s can turn on the controller.

Under normal working status, screen displays current measuring temperature value, the controller can also automatically switch working mode between heating and cooling.

Controller starts refrigerating with cool indicator lamp on when the measuring temperature value \geq temperature set value + difference value, and the refrigerating relay connects; If the "cool" indicator lamp flashes, it means the refrigerating equipment is under compressor delay protection status; when the measuring temperature value \leq temperature set value, the "cool" indicator lamp off and the refrigerating relay disconnects.

Controller starts heating when the measuring temperature value \leq temperature set value - difference value, the "heat" indicator lamp on and heat relay connects; when the measuring temperature \geq temperature set value, the "heat" indicator lamp is off and the heat relay disconnects.

Thank you for choosing our products!

Please read this instruction
carefully before use.

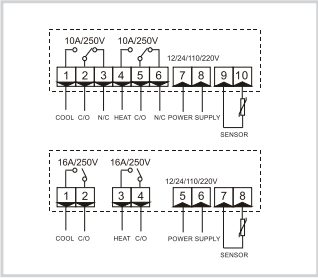
Menu Instruction:

Code	Function	Set range	Default
F1	Temperature set value	-50~99.9℃	10.0℃
F2	Difference set value	0.1~10.0℃	0.5℃
F3	Compressor delay time	1~10 minutes	3 minutes
F4	Temperature calibration value	-10.0℃~10.0℃	0℃

Error Description:

- Alarm when sensor error: controller activates sensor error alarm mode when sensor open circuit or short circuit, all the running status is closed off with buzzer alarms, all the nixie tubes display "EE", press any key can cancel alarm sound, system returns to temperature display status when the error and default cleared.
- Alarm when the measuring temperature exceeds temperature measuring range: Controller activates error alarm function when the measuring temperature exceeds temperature measuring range, all the running status is closed off with the buzzer alarms and the nixie tube displays "HH", press any key can cancel alarm sound, system returns to normal working status when temperature restore to normal measuring range.

Wiring Diagram:



Connect the wires strictly according to the diagram, the voltage must within rated voltage $\pm 10\%$. The current of the load must: inductive load or filament lamps $\leq 10\%$ of the current on the wiring diagram; resistive load $\leq 60\%$ of the current on the wiring diagram.

Assembly and Installation:

Assembly

Warning: The controller must be connected by trained electricians according to the user manual strictly, and avoid installing in the below environments:

- Relative humidity $> 90\%$, have condensation;
- The places that temperature $< -10^\circ\text{C}$ or $> 60^\circ\text{C}$;
- The places that have inflammables and explosives;
- Strong vibration or struck;
- Exposed to the continuous water mist spraying;
- Exposed to the dust;
- Exposure to corrosive and pollution gas (for example: the gas, smoke or salt fog that contain sulfur or ammonia);
- Wireless electromagnetic interference or strong magnetic fields (near to transmitting antenna or switch board room);

How to disassemble the controller from the hole?

Firstly disassemble the tailgate, then press the position (Figure.d) sliding backwards to disassemble the controller;

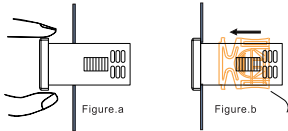


Notice:

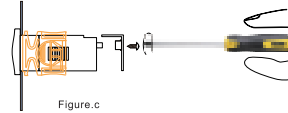
- The power supply should conform to the voltage indicated in the instruction.
- To avoid interference, the sensor down-lead and power wire should be kept a proper distance.
- After sale service doesn't cover damages caused by over voltage or over load.

Please install the controller according to the following steps:

- Cut out a hole at the installing position: $71 \times 29\text{mm}$
- Detach the slide fasteners, and put the controller into the hole. (1st step, Figure.a);
- Install the fasteners; (2nd step, Figure.b);



After connecting the wire, install the waterproof tailgate (3rd step, Figure.c)



Accessory:

- Sensor wire $\times 1\text{pc}$
- Slide fastener $\times 2\text{pcs}$
- User manual $\times 1$

The above is our product written information, If there are omissions, Please kindly understanding!

