

Temperature and Humidity Controller Manual

1. Product Description

The temperature and humidity controller series products are mainly used in applications where the working environment is humid and there is water and gas generation. The key points are used for power equipment, such as high and low voltage control cabinets, outdoor terminal boxes, ring network switch cabinets, van substations, instrument boxes, etc. The occasion of temperature and humidity levels. It can effectively prevent the occurrence of accidents such as creepage, breakdown, flashover and other causes caused by low temperature, high temperature, damp or condensation, and ensure the normal and safe operation of the operation.

The series products as follows:

Model	Measurable unit	Model	Measurable unit	Detailed description
NK-M[TH]	One channel humidity	S ₂ K-M[TH]	Two channels humidity	(a)The action value of the "M" type product is fixed, and the action value of the "P" type product can be adjusted.(b) Products with temperature measurement function, the action type is divided into "heating-up" and "cooling-down" type.
N ₂ K-M[TH]	Two channels humidity	WSK-M[TH]	One channel temperature One channel humidity	
WK-M[TH]	One channel temperature	WK-P[TH]	One channel temperature	
W ₂ K-M[TH]	Two channels temperature	W ₂ K-P[TH]	Two channels temperature	
NWK-M[TH]	One channel temperature One channel humidity	NWK-P[TH]	One channel temperature One channel humidity	
SK-M[TH]	One channel humidity	WSK-P[TH]	One channel temperature One channel humidity	

Note: All products, each measuring unit corresponds to one relay switching output.

2. Product Features

High sensitivity, sensitive and humidity sensor, fast response, high measurement accuracy, high performance, corrosion resistance and long life. The high-reliability thermal and humidity sensor is combined with the internationally advanced high-efficiency MCU to form an analog measurement unit, which can accurately measure environmental parameters in real time. When the parameter changes beyond the safety interval, the product will control the external heating through the switch output in time. The exhaust air system controls the temperature and humidity within a safe range.

3. Technical indicators

(1) Working power supply: rated AC220V/50Hz; power consumption≤2W;

(2) Temperature control:

- (a) In the "M" type product, the temperature rising type defaults to 5°C, and the cooling type defaults to 40°C (the temperature action value can be specified by the user before leaving the factory, and cannot be modified after leaving the factory).
- (b) In the "P" type, both the temperature rise type and the temperature decrease type can be set by the product temperature dial (the user can freely set the temperature action value through the dial).
- (c) Temperature control hysteresis: 5°C (can be specified by the user before leaving the factory, can not be modified after leaving the factory).

(3) Humidity control:

- (a) In all products, the condensation control defaults to 88%RH±5% (at 20°C, it can be specified by the user before leaving the factory, and cannot be modified after leaving the factory)
- (b) Humidity hysteresis: 7%RH ± 3%

- (4) Relay output contact capacity: resistive load rated AC220V/3A, default contact is passive normally open
- (5) Relay output response time: ≤ 5 seconds
- (6) Insulation resistance: >100MΩ; withstand voltage: AC2KV@3min without breakdown
- (7) Working environment: temperature range -10°C~50°C, relative humidity less than 85%
- (8) Housing size: 48mm × 48mm × 79mm; panel / rail mounting;

4. Working style and Self-calibration

(1) Humidity: When the humidity sensor detects that the ambient humidity is greater than the condensation control condition (such as 88%RH), the output of the condensation load switch is normally closed, the heating plate is turned on and the heating starts, and the panel condensation indicator Always on (green). After the humidity returns to the normal hysteresis range, the output of the condensation load switch is normally open, the heating plate is turned off, the heating is stopped, and the panel condensation indicator is extinguished. When the humidity exceeds the limit again, it will start again and cycle.

(2) Heating-up: When the temperature sensor detects that the ambient temperature is lower than the temperature control condition (such as 5°C), the temperature load switch output is normally closed, the heating plate is turned on and the heating starts, and the panel temperature indicator is always on (green). After the temperature returns to the normal hysteresis range, the temperature load switch output is normally open, the heating plate is turned off, the heating is stopped, and the panel temperature indicator is off. When the temperature is lower than the lower limit again, it will start again and cycle.

(3) Cooling-down: When the temperature sensor is measured by the thermal sensor to be greater than the temperature control condition (such as 40°C), the temperature load switch output is normally closed, the exhaust fan is powered on and the blast is started, and the panel temperature indicator is always on (green). After the temperature returns to the normal hysteresis range, the temperature load switch output is normally open, the exhaust fan is powered off, the blast is stopped, and the panel temperature indicator is off. When the temperature exceeds the limit again, it will start again and cycle.

(4) Product self-calibration:

(a) Temperature sensor self-calibration

- ① Heating-up type: Put the temperature sensor into a low temperature environment (such as a refrigerator), and the panel "temperature" indicator lights.
- ② Cooling-down type: Place the temperature sensor in a high temperature environment (such as an oven or near high temperature), and the panel "temperature" light is on.

(b) Humidity sensor self-calibration

Put the humidity sensor in a high-humidity environment (such as a humidity chamber), or suffocate against the humidity sensor (not directly immerse or drip the sensor), or unscrew the wiring at both ends of the humidity sensor, and the controller panel "humidity" the indicator. Light.

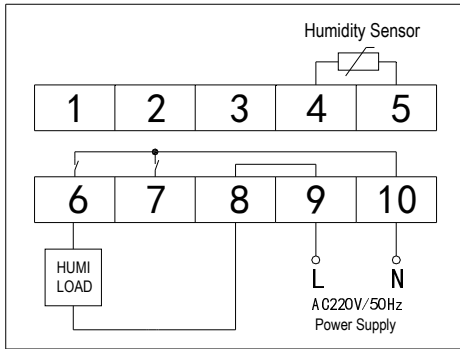
5. Installation method

- (1) Embedded installation: opening 45mm × 45mm on the panel
- (2) Rail mounting: The controller is inserted into the 8-pin standard relay base and placed on the rail or directly attached to the mounting panel.

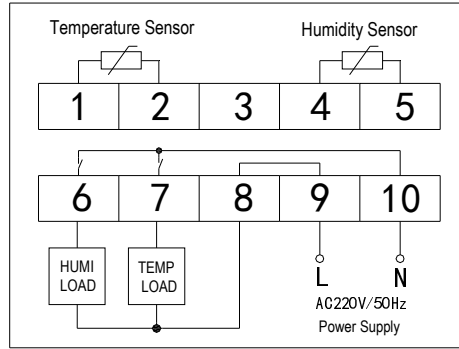
6. Terminal wiring

[Embedded Installation]

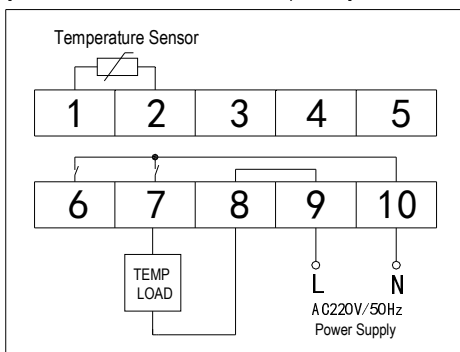
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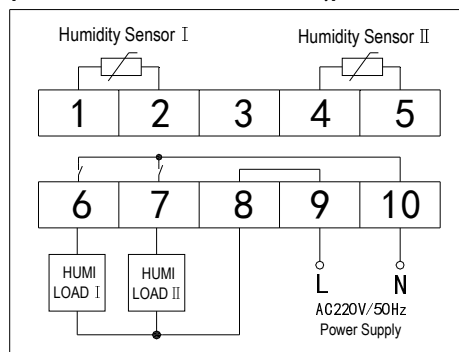
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[Embedded installation-one channel temperature]

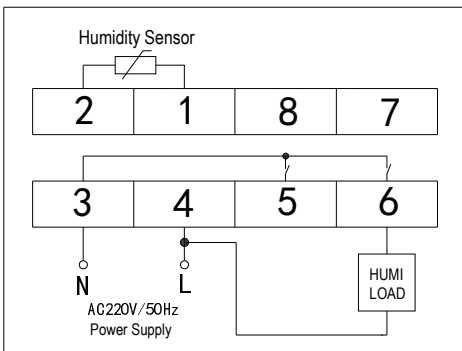


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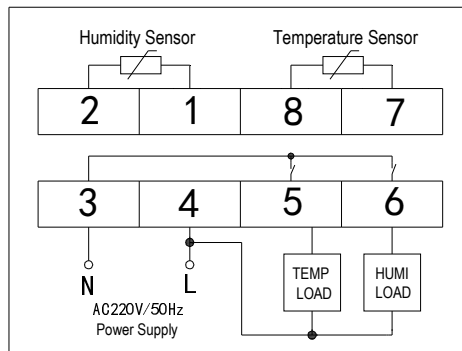


[Rail mounting]

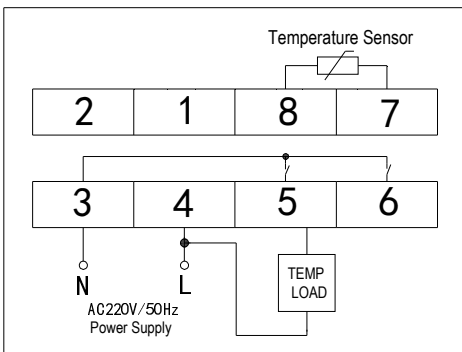
[Rail mounting-one channel humidity]



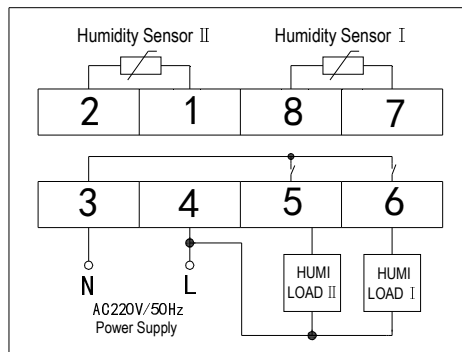
[Rail mounting-one channel temperature one channel humidity]



[Rail mounting-one channel temperature]



[Rail mounting-two channels humidity]



[External load connection]

Note: The relay output contact capacity is rated at AC220V/3A. When the user wants to drive a higher power load (such as AC380V power supply load or load current is much higher than 3A), the AC220V intermediate relay should be connected in the corresponding load position to achieve power expansion, do not overload, otherwise it will cause irreversible damage.

7. Precautions for use

- (1) The package should contain: one controller; one temperature sensor (product with temperature function); one humidity sensor (product with humidity function); Three meters per sensor cable (can be customized when extended)); a manual and a partial installation attachment (if needed).
- (2) Under the premise of carefully reading the "User Manual", the product can be energized only after correct wiring. The wiring sequence is recommended to be in the order of sensors, loads, and AC power cables. Check that all wiring is secure and then power on the AC220V power supply to the controller.
- (3) The humidity sensor cannot be directly immersed in water or dripped, and the sensor should not be placed under water vapor above 60°C for a long time.
- (4) The temperature sensor cannot be used for a long time or placed in an environment above 150°C, which may cause damage to the sensor.
- (5) Do not use solvents or corrosive liquids to clean the sensor. Use a cotton rod to pick up a small amount of water and wipe gently.