

**Inspect before use:**

- ◆ Please read through the manual carefully, damages caused by failing to read the manual are beyond the responsibility of manufacturers and agents.
- ◆ Power supply must accord with the output voltage marked in PVC.
- ◆ Be aware of the stability of power supply.
- ◆ The product cannot be used in water or over-moist circumstances.
- ◆ No contact and closeness between sensor wire and electrical wire are allowed. Moderate distance is required.
- ◆ Please distinguish the points of sensor tip, current connection and relay output.
- ◆ Make sure that electric current in the relay is not over-relayed.

**Specifications:**

- ◆ Entire size: 97.5mm(length)x84.5mm(deep)x50mm(height) ±1mm
- ◆ Recommended installing size: 92.5mm(length)x46.5mm(height) ±1mm
- ◆ Operation circumstances:
  - ☆ Operating temperature: -5℃ ~ +55℃
  - ☆ Stored temperature: -10℃ ~ +65℃
  - ☆ Relative humidity: 20% ~ 95% (no frost)
- ◆ Parameters:
  - ☆ Power supply: 220VAC ± 10% (or 380VAC ± 10%)
  - ☆ Outputs: <4W
  - ☆ Measuring range: -40℃ ~ +50℃
  - ☆ Alarming adjustable range (temperature is above normal value): 0℃ ~ 20℃
  - ☆ Sensors: NTC probes, capped line
  - ☆ Compressor delayed protection time: adjustable in 0-9 minutes
  - ☆ Compressor output point volume: 5A 240VAC
  - ☆ Alarming output: Buzzer

**Indicator light**

|   |                             |                   |                              |
|---|-----------------------------|-------------------|------------------------------|
| ⊙ | Refrigerant indicator light | red(shine)        | normal refrigerant state     |
|   |                             | Red(flashes)      | compulsory refrigerant state |
|   |                             | Red(slow flashes) | compressor-delayed switch    |
| ⊙ | Setting indicator light     | red(shine)        | setting parameters           |

**Function of Switch**

- ◆ Parameters setting mode
  - ☆ Press "set" button for three seconds to set preferences and indicator light shine.
  - ☆ Press "adjust(upper)" or "adjust(below)" button to choose parameter. Then press "set" button to set corresponding value.
  - ☆ Press "set" button and "adjust(upper)" or "adjust(below)" button at the same time to alter parameters. Press buttons continuously to increase or decrease automatically.
  - ☆ Press "adjust(upper)" or "adjust(below)" to set another parameter according to the above-mentioned steps.
  - ☆ Press "restoration" switch to confirm and restore after all parameters are set. Indicator light is extinguished. Confirmation, storation and restoration of parameters will occur due to the lack of operations in 30 seconds.
- ◆ Inspect parameter setting mode:
  - ☆ Press "adjust(upper)" button to display the upper value in the non-setting state, and current temperature resumes in two seconds.

- ☆ Press "adjust(below)" button to display the bottom value in the non-setting state, and current temperature resumes in two seconds.
- ☆ Press "set" button to display delayed time and excessive temperature alarming value non-setting state, and current temperature resumes in four seconds.

**Refrigeration and temperature rectification**

- ◆ Auto-refrigeration:
  - When measuring value of temperature controller's sensor tip is above the upper value, auto-refrigeration begins, refrigerant relay connects and indicator light shines.
- ◆ Compulsory refrigeration:
  - Press "adjust(upper)" button continuously for three seconds compulsory refrigerant mode begins.
- ◆ Temperature rectification:
  - Press "set" button for three seconds until digital tube shows code from F01-F05, then press "adjust(upper)" or "adjust(below)" button to show "F03". press "set" and "adjust(upper)" or "adjust(below)" button to adjust to an actual temperature. After rectification, integral number is displayed, that is the distinguishing rate is always 1℃

**Alarms**

- ◆ Sensor tip failure alarming
  - When open circuit and short circuit occurs to sensor tip (non-connection with framework included), temperature controller will alarm- buzzer works, digital tube displays 444 and blinks. Press any key will cancel alarming. Alarming will continue until failure disappears if no pressing of keys.
- ◆ Excessive temperature alarming and cancellation:
  - When temperature of sensor tip is above the set maximum temperature (upper value+excessive set value) or the set minimum temperature (bottom value-excessive set value), alarming mode begins: buzzer buzzes and digital tube shows the excessive value and blinks. Press any button to cancel buzzer and exit from alarming state. If no-pressing alarms will continue until normal state is restored.

**Delayed switch protection**

The controller is programmed to set interval adjustable from 0-9 minutes between two switches. When the value is zero such function is cancelled. In the delayed state, indicator light shows red and blinks.

**parameter list to be set**

| Code                        | function                       | setting range | set point | unit   | description  |
|-----------------------------|--------------------------------|---------------|-----------|--------|--|
| F01                         | upper value                    | -39--+50      | -10       | ℃      | range in control   |
| F02                         | bottom value                   | -40--+49      | -20       | ℃      |  |
| F03                         | temperature rectification      | ±5            | 0         | ℃      |  |
| F04                         | delayed protection             | 0-9           | 3         | minute |  |
| F05                         | excessive temperature alarming | 0-20          | 15        | ℃      |  |
| Sensor tip failure alarming |                                |               |           |        | when open circuit and short circuit occurs buzzer buzzes and digital tube shows 444 and blinks |
|                             | compressor delayed protection  |               |           |        | buzzer buzzes and digital tube blinks in excessive temperature alarming                        |

**Resolutions to regular failure:**

- ◆ When "444" is displayed
  - When "444" is displayed and buzzer buzzes, please inspect whether the sensor tip is short circuit or open circuit.
- ◆ Change of parameters
  - The set value will be auto-stored if no pressing of "restoration" button. Please press "set" button continuously for three seconds to enter parameter setting mode if you have pressed "restoration" Button, so it is advisable to press "restoration" button only after all parameters have been set to save your time.
  - ◆ The parameter value is wrong out of interference. If such case arises, it is advisable to cut the power supply for one minutes to readjust the value.
  - ◆ Instable in temperature display
    - Such problem is caused by various interference, but it can be put under control according to following suggestions:
      - ☆ the ground point of controller must touch the ground in a stable way.
      - ☆ make sure that sensor tip wire and electrical wire are separated, for electrical wire is a strong interferent.
      - ☆ Please employ the shielded twisted pair to replace the sensor tip wire.
  - ◆ If you fail to decrease the upper value, it is advisable to decline the bottom value first, and vice versa.
  - ◆ If indicator light blinks and buzzer buzzes in case of the arrival of upper value and bottom value, you must reset the excessive temperature alarming, for the current value is "0".

**Graph:**

