

# KT4000 Temperature Controller Operating Manual

## 1. Overview

- KT4000 is easy-to-use and reliable dual relay output temperature controller. It can be used as automatic temperature control system for various electric appliances.

## 2. Main Features

- Acrylic panel, plastic-steel socket shell
- Control heater and cooler to adjust temperature.
- One setpoint and one differential .Very easy to set .
- Alarm when temp exceed temperature limit or sensor error
- Autosave the program setting when power down.

## 2. Specifications

- Power Supply: 110Vac±15% , 50/60hz
- Temperature control range:-19.9~199.9°F
- Return difference :1.0~30°F
- Temperature control accuracy: ±1°F
- Screen resolution : 0.1°F
- Temperature sensor : NTC Waterproof sensor 2m/6.56ft
- Output Relay Contact Capacity: 16A, 100-240Vac

## 3. Product picture



Left heating socket connect with heater.

Right cooling socket connect with refrigerator/cooler.

### Dimensions:

Control panel: 92x50x17mm (3.6x1.97x0.67inch)

Socket: 208x66x40mm (8.2x2.6x1.57inch)

## 4. Key Instruction



- : Cool output indicator. When this light on, cooling socket have power output. Cooler start to work ; When the light flash, cooling socket output delay .
- : Heat output indicator. When this light on, heating socket have power output. Heater start to work.
- : Temperature alarm. When the temperature exceed the limit range of AL~AH, this light flash and buzzer alarm.

### Operation

- In normal working status, the screen display **RT**(real time temperature detected from sensor). press once. it display temperature set value LS(see code table). press once. it display differential value Ld.
- The screen backlight will closed after 10minutes no-operation.
- In normal working status, press **SET** for 3s to enter setting parameter mode. The screen display LS. Press or to increase or decrease LS value. Then press **SET** to go into next code Ld. Press or to adjust value.
- Using the same way to set code value from LS~CA one by one (see code table). After finishing all setting, press **SET** for 3seconds to save the setting and return to normal display. If no key operation after finishing all settings within 30seconds, the system won't save modified parameter and back to normal display.
- Restore factory default setting:**
- In normal working status, press and together for 3s. The screen will display FF and restore all code to default factory setting.

### Code Table:

Code	Function	Set Range	Default
LS	Temperature Set Value	-19.9~199.9°F	68°F
Ld	Differential Value	1.0~30°F	4°F
PL	Set cooling delay output	0~10minutes	0
AH	Alarm high limit	-19.9~199.9°F	199.9°F
AL	Alarm low limit	-19.9~199.9°F	-19.9°F
CA	Temperature Calibration	-19.9~19.9°F	0

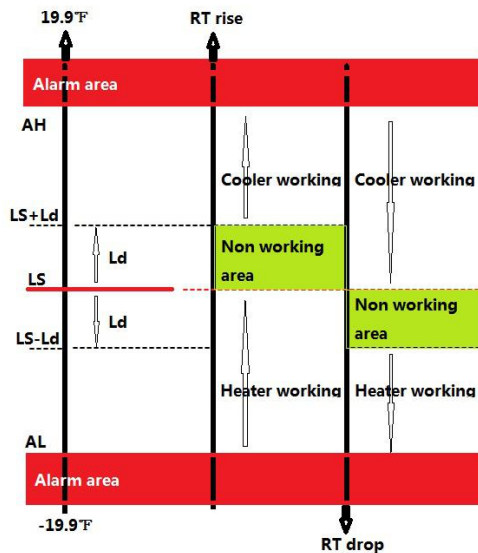
### Basic setting

- For example, we use this thermostat to control temperature of a reptile incubator. Heating socket connect with light. Cooling socket connect with fan.
- Only need to set LS=80 °F . No need to change other parameters.
- ▶ Fan works when temperature  $\geq 84^\circ\text{F}$  . Fan stop working when temperature  $< 80^\circ\text{F}$  .
- ▶ Light works when temperature  $< 76^\circ\text{F}$  . Light stop working When temperature  $\geq 80^\circ\text{F}$  .

### Advanced Setting.

- Set the required temperature **LS**. Then set **Ld PL AH AL CA**. (**AH**>**LS**+**Ld** , **AL**<**LS**-**Ld**). The controller will work in following status:

- ▶ Cooler start to work when  $RT \geq LS + Ld$ , ❄️ light on. Cooler stop working when  $RT \leq LS$ , ❄️ light off. If you set **PL**, ❄️ will flash. The cooler will delay to work after the time of **PL**.
- ▶ Heater start to work when  $RT \leq LS - Ld$ , 🔥 light on. Heater stop working When  $RT \geq LS$ , 🔥 light off.



- **For example**, we want to control the temperature in incubator 80 °F . Differential value 4 °F . heating socket connect with light, cooling socket connect with fan.
- Set **LS**=80 °F , **Ld**=4 °F , **PL**=0, **AH**=100 °F , **AL**=60 °F , **CA**=0.
- ▶ Fan works when  $RT \geq 84$  °F . Fan stop working when  $RT < 80$  °F .
- ▶ Light works when  $RT < 76$  °F . Light stop working when  $RT \geq 80$  °F .
- ▶ ❄️ will flash and buzzer alarm if  $RT > 100$  °F or  $RT < 60$  °F . Light and fan both stop working.

#### Cooling delay output (PL)

- If you set **PL**, in cooling mode, The cooler will not work immediately. ❄️ will flash. The cooler will delay to work after the time of **PL**.

#### Alarm High/Low Limit Setting (AH, AL)

- When measured temperature is higher or equal to AH, high temperature alarm will be triggered, buzzer will alarm with 🔊 flash until the temperature is lower than AH or any key is pressed.
- When measured temperature is lower or equal to AL, low temperature alarm will be triggered, buzzer will alarm with 🔊 flash until the temperature  $> AL$  or any key is pressed.

#### Temperature Calibration CA

- When there is deviation between measured temperature and actual temperature, we can set **CA** value to align measured temperature and actual temperature. The corrected temperature = measured temperature + **CA**

## 5. Error Description

- **Heater or cooler does not turn on when specified temperature is reached?**
- Check the Ld value you set. Recheck where you put the sensor. Also check if you set PL. It will make the cooler output delay
- **The screen display HHH or LLL?**
- HHH means the temperature sensor short circuit. LLL means the temperature sensor open circuit. Buzzer will alarm with 🔊 flash. Press any keys can't stop alarm. You need to check the sensor or replace it.



#### Warning:

- The sensor probe is waterproof, but the controller is not waterproof. Keep the controller away from water.
- In each output socket, we use high quality 16A relay instead of 10A relay in order to improve the performance in case of overloading.
- In order to let controller work under high performance condition for a long time. We recommend to use max power  $\leq 1100W$  when you use resistive load such as heating rod, heating pad, electric water heater etc. use max power  $\leq 275W$  when you use inductive load such as compressor , pump etc.



#### Warranty:

- The warranty period of our products is 12 months from purchase. If a defective is found due to qualified problems of the product, we will perform three commitments: repair , replace and refund.
- Please email [info@cnketotek.com](mailto:info@cnketotek.com) for technical support or customer service.