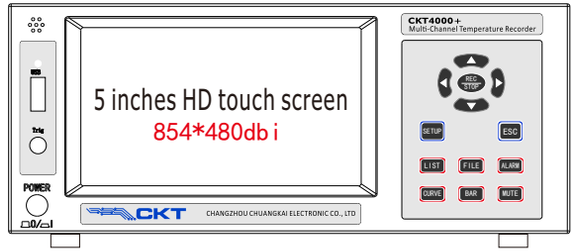
Instruction Manual

Multi-channel Temperature Recorder

CKT4000+



CHANGZHOU CHUANGKAI ELECTRONIC CO., LTD

Preface

Thank you for purchasing our products. In order that you can use it correctly,please read the instruction first and make sure the accessories are complete. Any questions please contact us or your local agentcy.

Attention

1. Use the instrument with the instruction. When we upgrade our product change the instruction, sorry about not telling.
2. The user's understanding of the manual has been expressed in the simplest way possible. Please contact our company or agent if you find any inaccuracy or unclear explanation.

Version: V1.0

Warning

For your personal safety and proper use of the instrument, please follow the instructions. And strictly observe the following safety regulations.

1. Power Supply and earthing protection, this product work power supply for AC86-265V power supply, before turning on the power supply should ensure that the power supply is matched with the rated voltage, and ensure that the power supply has been connected to the protective ground to prevent electric shock, this instrument shell has been connected to the ground terminal of the power socket.
2. Do not operate in explosive environment to avoid personal injury caused by explosion.
3. Please do not open the instrument shell by yourself. There is high voltage in some parts of the instrument to prevent electric shock.
4. It is not allowed to plug and unplug the terminal in case of electric shock.
5. The company shall not be liable for instrument damage due to violation of safety regulations.

1.Description

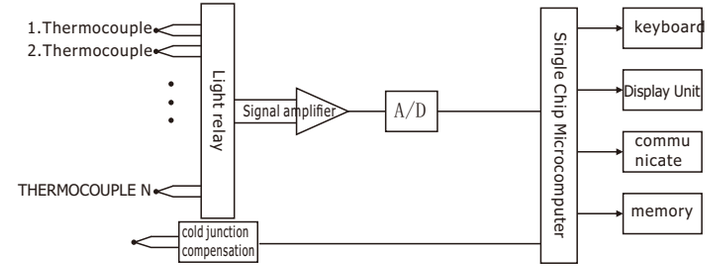
The machine use 32-bit cpu to collect data, 5 inch screen to display. Support K-type J-type E –type T-type N-type S-type R-type and B-type thermocouple.Multiple display modes, perfect functions, and simple operation suitable for production and R&D needs.

Widely used in lighting appliances, power tools, household appliances, motors, electric heating appliances, medical, petroleum, chemical, metallurgical and electric.

CKT4000+ Multiplex temperature recorder has the following characteristics:

- ▲ HD 5 inch IPS touch screen, 854X480 resolution.
- ▲ Contains the file list, real-time list, bar graph, real-time recording, curve , alarm function,etc.
- ▲ Support 4/8/16/32 multi-interface real-time value display.
- ▲ Support a variety of thermocouples : K-type J-type E –type T-type N-type S-type R-type and B-type
- ▲ Each channel can be set with different types of thermocouples
- ▲ The name of each channel can be changed. Can be exported to EXCEL sheet.
- ▲ The voltage between each channel can be as high as AC/DC 350V, Strong anti-interference ability.
- ▲ Each channel can set high and low alarm value with sound and light alarm function.
- ▲ Each channel can modify the error value according to the formula" Y=KX+B".
- ▲ 8G memory, file list display, up to 64 temperature data can be recorded at one time, each file can store 130,000 sets of data, record every 1 second can record up to 97 days.
- ▲ Record files can be single-or multi-select delete and export, U Disk and PC directly export EXCEL files.
- ▲ With USB, 485 interface, relay output, alarm function.
- ▲ With communication address code setting, machines can be connected to each other, we can provide communication protocol.
- ▲ Standard configuration is USB, you can choose RS232 or RS485.
- ▲ 8 channels per module, maximum support 64, identified by connecting.
- ▲ Multi-level alarm instruction, HH, H, L, LL alarm setting and alarm instruction (with relay output) , and can view historical alarm record function.

2. Fundamental



Basic Block Diagram

As the picture shows, the instrument consists of thermocouple, Light relay, Signal amplifier, A/D, Single Chip Microcomputer, keyboard, screen, communication port, data storage, cold junction compensation.

The corresponding channel signal is selected by the photoelectric switch selector, amplified by the signal amplifier, and then converted into data signal by the analog signal through the AD converter to the single chip microcomputer for data processing, the temperature of the cold end is measured by the compensation circuit of the Cold End, and the measured signal and the temperature of the cold end are processed by the single chip microcomputer.

The keyboard, communication and data storage can set and store the data on the display screen. Data analysis can also be performed directly from the computer through a communication interface to the computer.

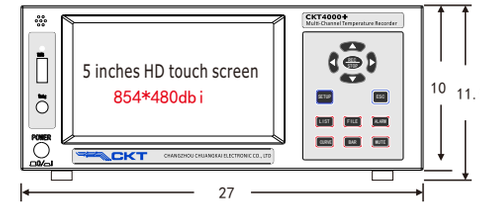
3. Technical indicators

3.1 technical indicators

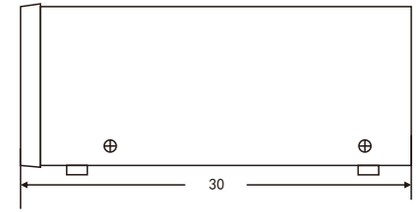
Display mode	5 inch TFT true color LCD industrial touch screen 854 x 480 pixels
Display form	Real-time list, curve (history curve) , Bar Chart, current alarm (history alarm) , file record, record list.
Record Query	Local view record curve, history alarm record, computer software analysis query.
Number of channels	Each module has 8 channels and supports up to 64 channels.
Thermocouple	K J E T N S R B
Basic accuracy	2 words at 0.2℃ (excluding thermocouple error)
Measuring range	－ 200 ~ 1820 ℃ (depending on the scale of thermocouple)
Cold End compensation	ACCURACY: 0.5 ℃
Resolution	0. 1℃
Calibration	Independent error correction for each channel Y= Kx B (x= measured value)
Number of files	64(circular record)
File capacity	A file can record 130,000 sets of numbers (channel numbers are not distinguished)
USB Port	Export Record file, second change U Disk Function (instrument is U Disk) , directly view files and software.
Record time	1-second recording interval can record 97 consecutive days, total time = record interval x 97 days.
Sampling speed	Speed per channel: 0.1 S, SLOW: 1s
Interchannel isolation	AC / DC up to 350V, high voltage live measurement, super anti-interference ability
Control output	Two sets of independent relay outputs are (h/l) and (HH/LL) relays
Alarm sounds	All the way buzzer sound (any alarm when sounded, can be set to mute)
Record interval	1-9999 seconds, any setting
Communication interface	Standard USB, Rs485
Power supply	AC85-265V ± 10% , frequency 50Hz/60Hz & LT; 10w
Thermocouple	Each channel is equipped with a standard 2M K type thermocouple
Dimensions	Width 220X depth 293X high foot 106mm
Weight	About 3 kg (configuration is different)
Environmental conditions	5 ~ 40 ℃, 20% ~ 80% rh (no condensation)

4. Outline dimensions (in CM)

Heads

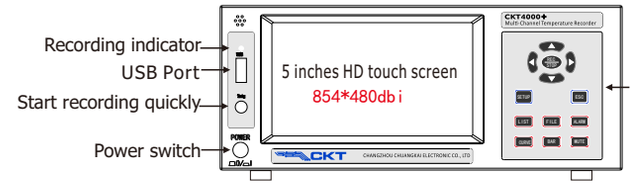


Side face



5. Panel description

Front panel

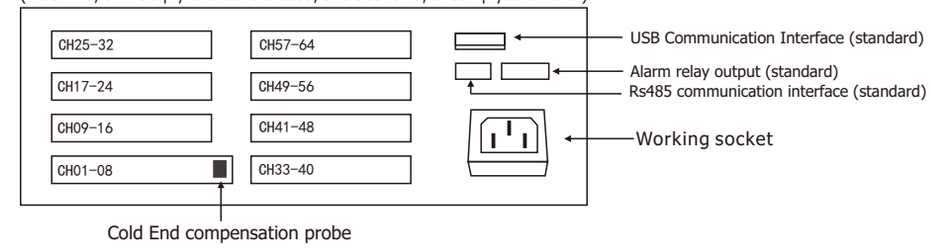


Direction Operation Keyboard, record, stop key, around the next key, used to switch the page, in each interface are prompted.

Function shortcut key: Set Key, Exit Key; real-time list, File List, alarm list; curve display, Column Chart Display, mute key.

Back Panel

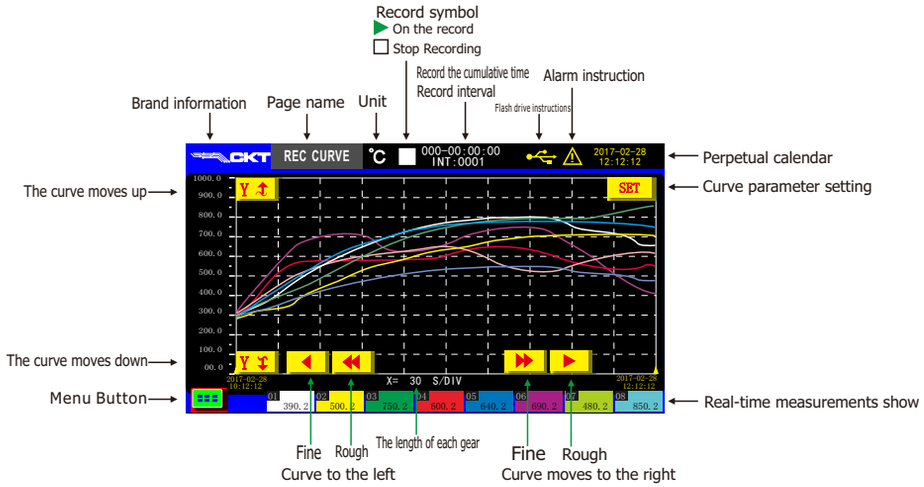
(Below 48, a three-ply structure is used, and above 48, a four-ply structure.)



6.Display and instructions

6.1 display the interface description

6.1.1 interface icon description



6.1.2 BOOT interface



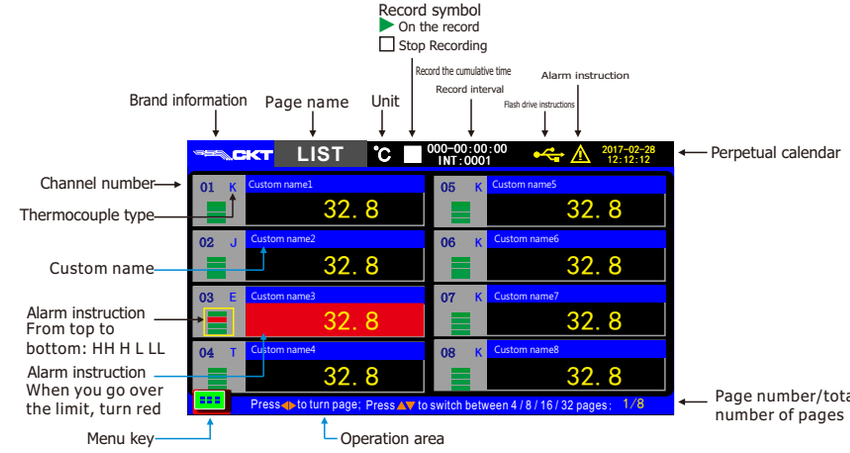
When the power-on display boot interface, display the company LOGO, company name, product model information.

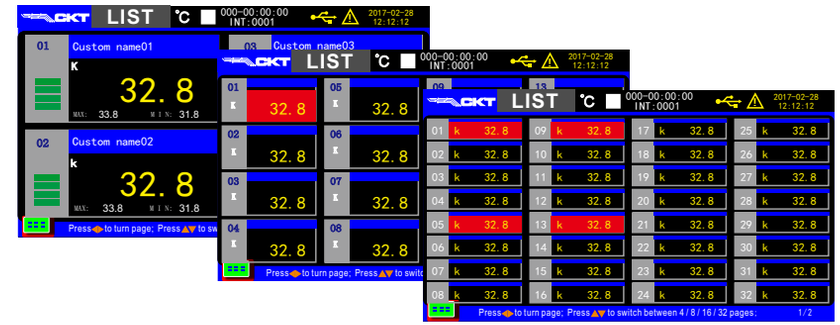
6.1.3 real time parameter list display

Real-time parameter list, can display multiple measurement parameters at the same time, the display interface is divided into 4 channels data display, 8 channels data display, 16 channels data display, 32 channels data display, can turn pages to show the data of each channel.

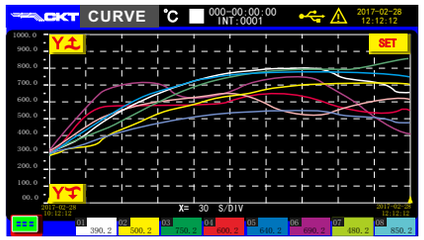
Use ▲ ▼ Key can switch 4/8/16/32 channel display page.Use ◀ ▶ Key to turn the page can be displayed. Where the 4-channel page can display the maximum and minimum values.

Key can enter the menu selection, press the keyboard shortcut key can quickly enter the corresponding interface.





6.1.4 the curve shows

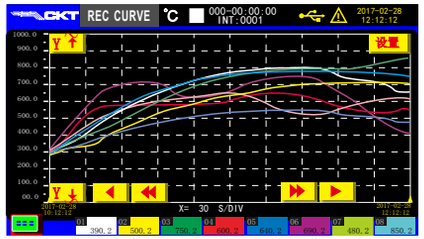


Real-time curve

Real-time curve only for real-time view display.
Only 8-channel curves can be displayed per page.
And can display real-time measurement value.

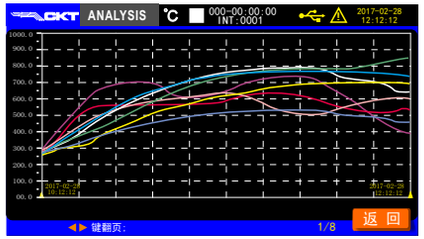
Touch control Y+ Y- The key may cause the curve to move up or down.

Touch control SET Key into the curve settings page.



Recording curve

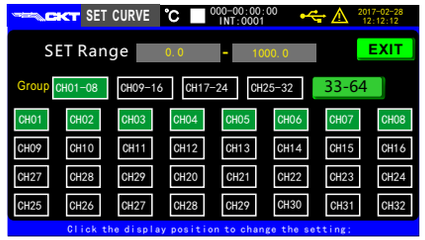
Record curve is a real-time curve that is displayed when record is started, or you can use left and right moving keys in touch screen to move to see the curve change.
On multiple pages,Use ◀ ▶ The key can turn the page display.



Historical curve

The history curve is can turn the page, but can not be set, can only show the overall curve of the entire file screen.

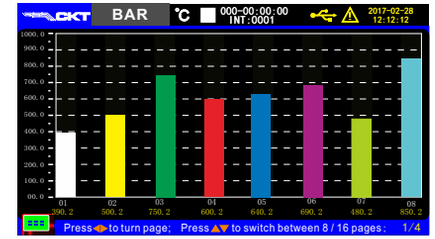
Curve setting



Curve setting

The curve setting bounds include the range in which the y-axis curve is displayed, and whether the curve for each channel is displayed or masked.

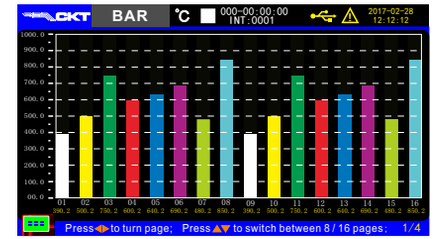
6.1.5 real time bar charts



Real-time bar graph

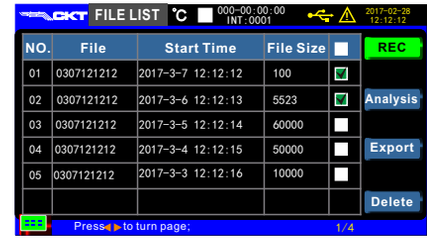
The ratio of each channel can be compared by column graph.

Note: The Y axis shows the same temperature range as the curve setting, set only in the curve setting.



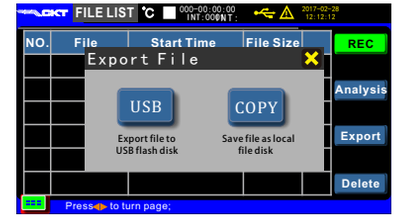
Use ▲ ▼ Button can switch 8/16 channels to display the page, Use ◀ ▶ The key can turn the page display.

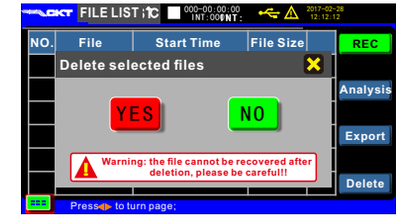
6.1.7 file list page



File list

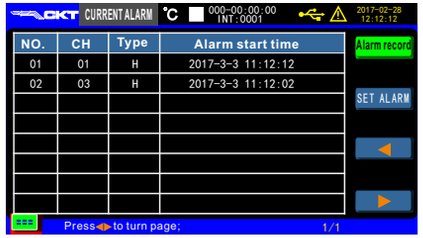
Provides Record Start and stop buttons, File History View, file export and delete functions. Click on the corresponding location can be single-or multi-select, also can be the current page quickly select all for export and delete.





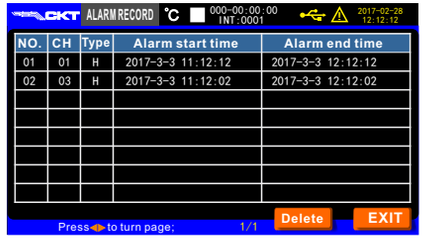
The machine can cycle through 64 CSV files (which can be opened directly using EXCEL) , and each file can record up to 130000 pieces of data (regardless of the number of channels) . Files can be directly exported to the U Disk (support only under 32 g/FAT32) , or transferred to the internal U Disk space, using the "second variable U Disk" function (set page) , PC connected to the front panel u disk interface, directly read the recorded files.

6.1.6 alarm



Call the police now

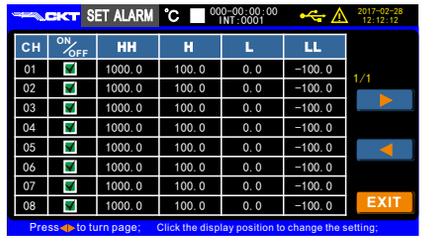
In the alarm interface can view all the current alarm status information, including channel number, type, occurrence time, in multi-record can turn the page to see.



History alert

Can view all the alarm has been restored status information, including channel number, type, occurrence time, recovery time, in more than one record can turn the page to see.

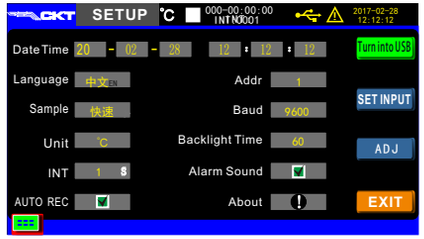
The delete key can be used for batch deletion.



Alarm value setting

In some interface can be set directly ultra-high value (HH) too high value (H) too low value (l) too low value (LL) . Directly Click on the corresponding location, pop-up number keyboard to change the value.

6.1.7 system settings

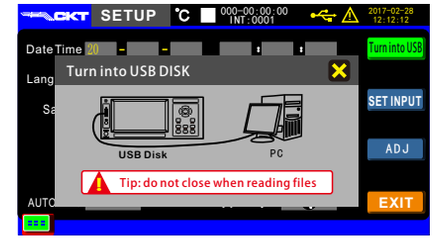


System settings provide a rich menu of settings, clear and easy to use. Date and time, measurement speed, display language, measurement unit, Buzzer Sound, communication address, Communication Baud rate, backlight time (0 for long light, 1-999 seconds to turn off backlight) recording interval, on-off automatic recording, on.

Note: Time and date, measurement speed, unit of measurement, and sensor can not be changed when recording is started.

The configured software communication address is 1, the Baud rate is 9600, if changed will cause with the computer software connection failure.

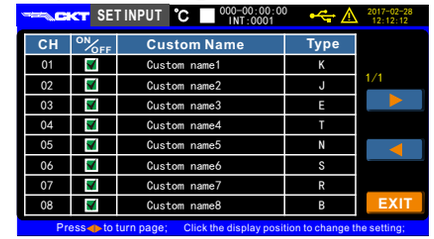
Flash drive in seconds



Flash drive in seconds

Enter the second variable U Disk Page, the instrument is equivalent to a u disk. Use USB cable to connect the front panel USB interface, wait 5 seconds, the PC detected u disk. Factory default to the specification and PC software stored in the instrument. Use this feature to copy to a PC for use. It is not recommended to open it directly.

Input Setting



Input Setting

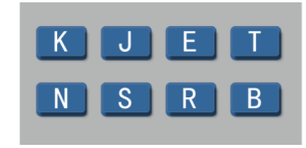
The input settings provide a display function for each channel, custom name input, and thermocouple type selection.

Click on the corresponding location, to change the settings of the items.

The custom name uses the full keyboard pinyin input method, may carry on the input to the Chinese, the English, the symbol.

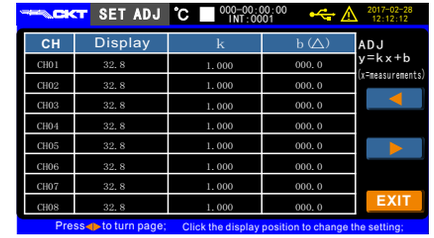


Full Keyboard



Type selection of thermocouple

Correction Setting



Correction Setting

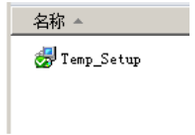
This interface provides calibration settings for each channel, and can display the current temperature measurement for each channel. When you change the calibration value, you can see the change of the current value in real time, which can be corrected to the actual measurement value.

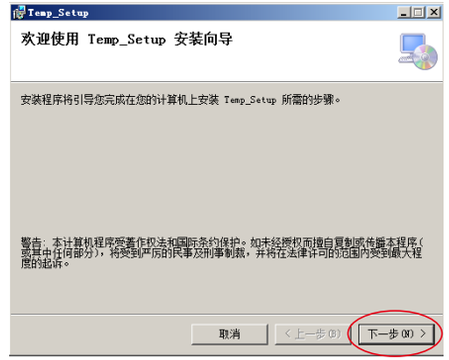
Correction formula Y=kx B (x= measured value)

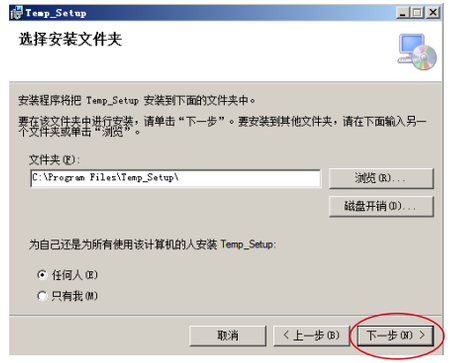
Click on the corresponding location, to change the settings of the items.

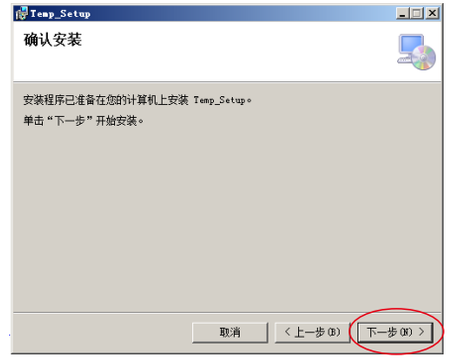
7. Software instructions

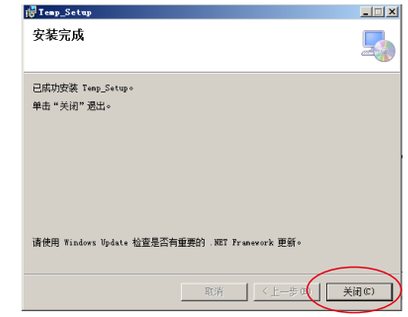
Find the file on the disc Temp_Setup Run the installation directly as follows.











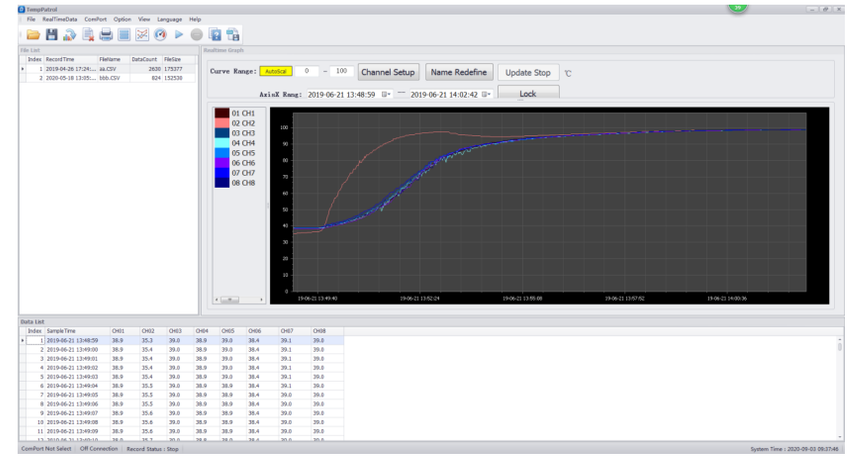
After the installation is complete, install the USB driver again

Until after the installation, on the desktop to see A 

ICON, Click this icon to run the software program.

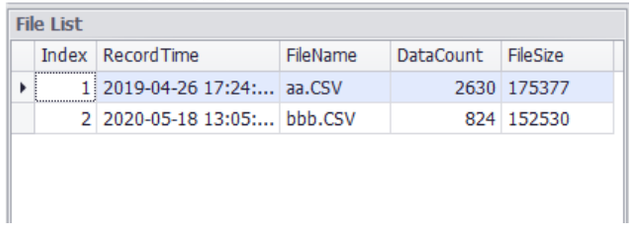


Go to the start screen

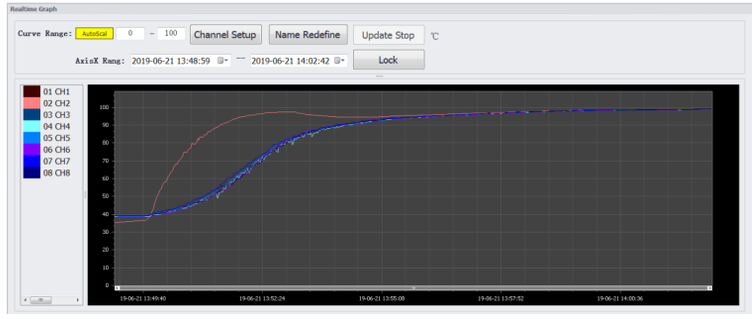


In this to first computer and instrument connection, in the file list after the installation of drivers, and then in the soft interface to select the correct COM port, in the lower left corner of the main interface display communication connection success.

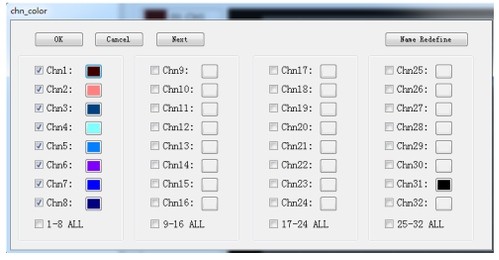
Computer interface provides a rich display and analysis functions, can display file list, curve analysis display, data list, real-time temperature list, instrument operation button function. It can also print graphs and curves.



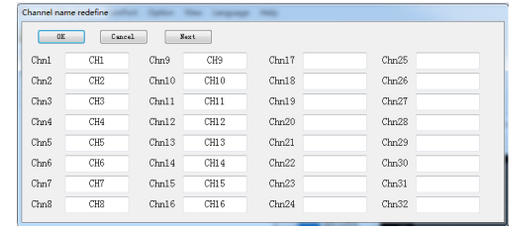
FILE LIST: serial number, record time, file name, data number, file size. Directly Click on the file can open the corresponding file data.



The curve label can analyze all the data in the file in detail, can directly use the mouse to zoom in and out of the curve and move left, right, up and down.



You can change the display color for each channel of the curve.

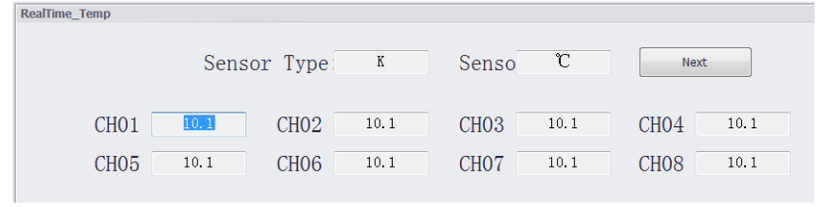


You can customize the name for each channel.

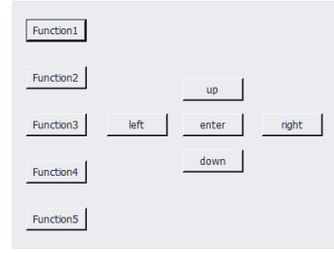
Data List

Index	SampleTime	CH01	CH02	CH03	CH04	CH05	CH06	CH07	CH08
1	2019-06-21 13:48:59	38.9	35.3	39.0	38.9	39.0	38.4	39.1	39.0
2	2019-06-21 13:49:00	38.9	35.4	39.0	38.9	39.0	38.4	39.1	39.0
3	2019-06-21 13:49:01	38.9	35.4	39.0	38.9	39.0	38.4	39.1	39.0
4	2019-06-21 13:49:02	38.9	35.4	39.0	38.9	39.0	38.4	39.1	39.0
5	2019-06-21 13:49:03	38.9	35.4	39.0	38.9	39.0	38.4	39.1	39.0
6	2019-06-21 13:49:04	38.9	35.5	39.0	38.9	38.9	38.4	39.1	39.0
7	2019-06-21 13:49:05	38.9	35.5	39.0	38.9	38.9	38.4	39.0	39.0
8	2019-06-21 13:49:06	38.9	35.5	39.0	38.9	38.9	38.4	39.0	39.0
9	2019-06-21 13:49:07	38.9	35.6	39.0	38.9	38.9	38.4	39.0	39.0
10	2019-06-21 13:49:08	38.9	35.6	39.0	38.9	38.9	38.4	39.0	39.0
11	2019-06-21 13:49:09	38.9	35.6	39.0	38.9	38.9	38.4	39.0	39.0

The data list can be displayed for each channel and each time interval. Users can directly in the installation file directly with EXCEL software open. The suffix is called * . CSV.



A real-time data list displays the current measurement in real time.



The instrument can be operated remotely directly by using the instrument key page.

Verification Conditions

Projects	Reference value or range	Reference value or range
Ambient temperature℃	20	±5
Ambient humidity% rh	45～75	
Atmospheric pressure KPA	86～106	
AC Supply Voltage V	220	±2%
AC Supply Voltage Hz	50	±1%
AC power supply waveform	Sine wave	ß=0. 05
External electromagnetic interference	Should be avoided	
Ventilate	Good	
Sunlight	Avoid direct fire	

Packing list

Temperature Recorder	1PCS
Power Cord	1PCS
User Manual	1PCS
Certificate of compliance / Warranty Card	1PCS
Thermocouple wire	1PCS/CH

Warranty

The instrument has a 2-year warranty from the date of purchase. If the instrument is damaged during the warranty period due to improper operation of the user, the user shall bear the maintenance fee and the expenses arising from the maintenance. The company shall be responsible for the lifetime paid maintenance of the instrument.

Without the written consent of the company, users are not allowed to open the instrument casing, which will affect the instrument warranty.

Instrument maintenance should be authorized by our professional and technical personnel; maintenance, please do not replace the instrument internal devices, instrument maintenance, the need to re-measurement calibration, so as not to affect the accuracy of testing. If the user
blindly maintenance, replacement of parts and equipment damage, not covered by the warranty, the user should bear the maintenance costs.

The company has the right to improve the appearance and function of the manual and theinstrument without notice.

Certificate of conformity

Product name: Multi-channel Temperature Recorder

Product model: CKT4000+

Product Code: _____

Date: _____

Inspector: _____

Verification Conclusion: _____

Product Warranty Card

●Warranty:

1.The warranty period is within 24 months from the date of purchase.

2. During the warranty period, in the normal use and maintenance of equipment, equipment problems, after verification, the company will provide free repair and replacement parts.

●Maintenance is not free of charge in the following cases.

1. Products by the company's non-technical personnel repair, modification, modification, users to replace any internal parts.

2.The airframe number has been altered or is not in accordance with this certificate.

3.Damage is caused by water or other substances seeping into the machine.

●The company may also provide maintenance services for equipment exceeding the free warranty and not covered by the Free Warranty Ordinance, subject to the charging of accessories and maintenance fees as appropriate.

Name		Model number	
Telephone		Date of purchase	
Address		Serial number	
Maintenance date	Maintenance record		Maintenance man

CKT

CHANGZHOU CHUANGKAI ELECTRONIC CO., LTD

For sales service, please contact us at sales@cz-ckt.com