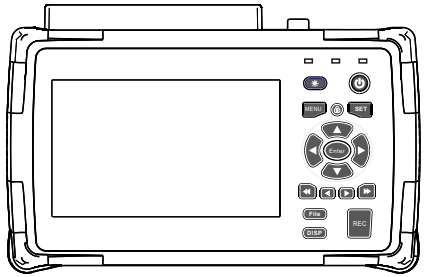
华知科
WASITES®

Multi-channel Data Logger

WS32

User's manual

V1.9



Foshan HZK Electronic Technology Co. , Ltd

Thank you for purchasing our products, in order to ensure that the user can use this product correctly, please read this product manual carefully before use, and check the packing list against this manual to confirm the product and accessories. If there is any inconsistency, please contact our company or agent.

— Representations

The warranty period of the instrument is 2 year from the date of purchase. During the warranty period, the instrument will not be repaired free of charge due to malfunctions caused by abnormal use. After the instrument exceeds the warranty period, our company can provide paid maintenance.

Instrument repair should be carried out by our authorized professional technicians.

If you want to know the news about the appearance or function improvement of our instruments, you can follow our official public number or our authorized platform to get it without prior notice.

For sales service, please contact your local dealer.

— Caveat

1. Please use a suitable power supply and connect the wires correctly;

2. Please make sure the instrument is connected to the power supply when the power is switched off;

3. Do not open the shell of the instrument by yourself;

4. Do not use the instrument in explosive, corrosive environment;

5. Please keep the instrument away from interference sources.

Packing List

Main unit x1; Adapter & power cord x1; User's manual x1; Certificate of Conformity/Warranty card x1; Type K TC wire x10（Pt100 x10）.

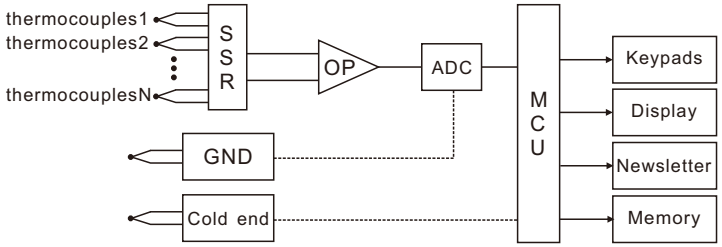
Instrument Description

The multi-channel temperature recorder adopts 32-bit high-speed MCU for data processing, adopts 5-inch industrial display, supports K, J, E, T, N, S, R, B type thermocouple input, there are three kinds of display modes: list, curve and bar graph, so that the user can read each parameter more intuitively, and the instrument has a perfect function to satisfy the needs of production, laboratory and R&D measurement.

This instrument is widely used in lighting appliances, electric tools, household appliances, motors, electric heating appliances medicine, petroleum, chemical, metallurgy, electric power and other industries, scientific research units and other fields, as well as production lines, laboratories and quality inspection departments of production enterprises.

It can be ordered with various measurement functions according to different needs to meet more complex application scenarios.

Basic Principle



The components of the instrument are shown in the figure.

Ws32 selects the corresponding channel signal by the photoelectric switch selector, the signal is amplified by the signal amplifier, and then the analogue signal is converted into data signal by the AD converter, and then transmitted to the MCU for data processing. The cold end compensation circuit carries out room temperature measurement to get the cold end temperature value. The measured signal and the cold end temperature value are processed by the single-chip microcomputer for data processing, and the correct measured temperature value is shown on the display.

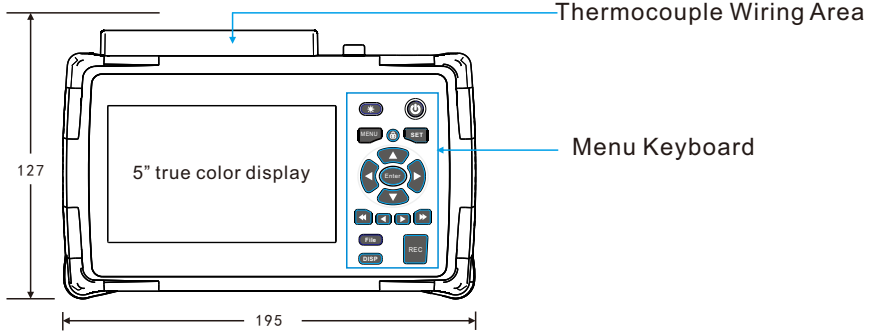
Keypads, communication, memory can be set on the display of data, storage to be analyse. Can also be connected to the computer through the communication interface directly from the computer for data analysis.

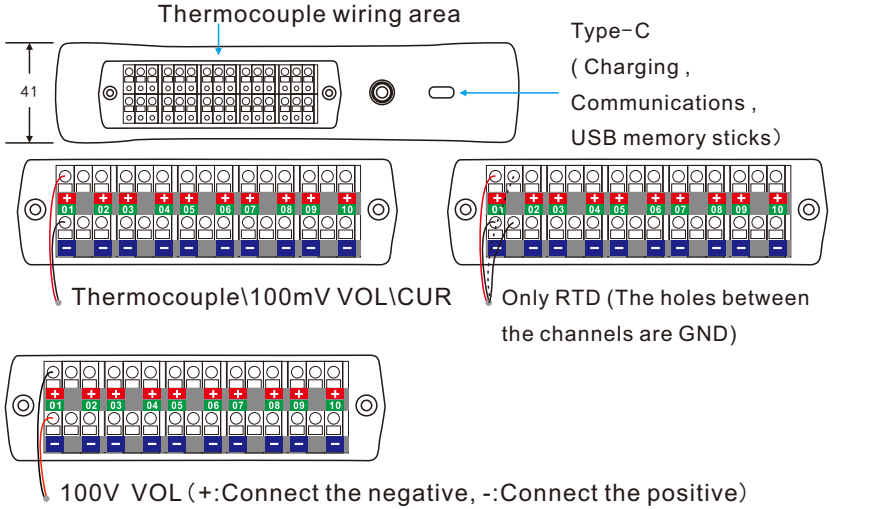
Technical Indicators

Display Mode	5’ IPS industrial grade LCD touch screen
Display Forms	Real-time list values, real-time bar charts, real-time graphs
Records search	Queries can only be analysed in computer software.
Number of channels	10 channels
TC	K,J,E,T,N,S,R,B;Resolution:0.01℃
RTD	PT100，PT1000 , Cu50;Resolution:0.01℃
Voltage	0～100mV/0～100V ; Resolution:0.01mV；0.01V
Current	0～20mA;Resolution:0.001mA
Accuracy	±0.1%rdg+0.1%fs+3digits

Measurement range	Temperature is based on the sensor, electrical parameters are based on the gear position
Number of files	20
File size	One file can record 200K groups (regardless of the number of channels)
Recording time	Total length of recording = recording interval x 46.29 days.
Sampling rate	0.1S per channel
Channel-to-Channel Isolation	AC/DC 350V High Voltage Banding Measurement
Control Outputs	None
Alarm tone	Buzzer sound (sound at any alarm, can be set to mute)
Recording interval	Any setting from 1-300 seconds
Communication interface	USB
Power	Built in 5000mA lithium battery, TPYE-C charger； DC5V <2W
Thermocouple	2m type K thermocouple per channel is standard.
Size	195.0mm x 127.0mm x 41.0mm
Weight	About 1.5Kg
Usage environment	5～40℃,20%～80%RH（no condensation）

Appearance and Function





Keyboard Instructions

Switch off button: switching off the screen increases the battery life.

Power switch, need to long press for 3 seconds to switch on.

MENU Menu button

1. short press to take a screenshot
2. long press for 2 seconds to lock the screen (turn off the touch screen)

SET Quick access to the settings page

File Quick access to the documents page

DISP Quickly switch between displaying lists, curves and bar charts

Cursor left, right, up and down shift keys;
Middle key for confirmation

Curve page: curve left/right movement, fast and slow stepping;
Setup screen: menu tab switching

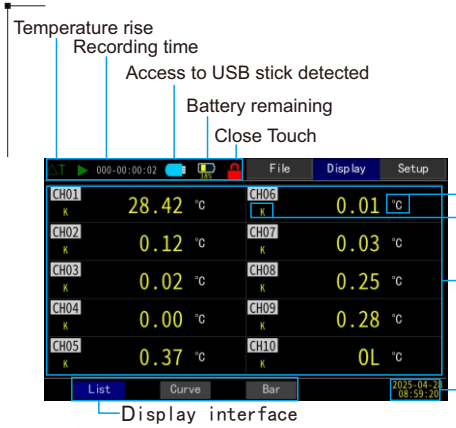
REC Start and stop recording button

Operation Guide

Power on + Switch

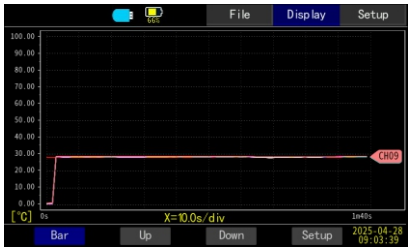
Turn on the power supply as well as turn on the switch, the instrument turns on , checks the LOGO and hardware function. The function of normal work shows white, otherwise the function shows red.

Instrument Hardware Testing



The instrument automatically enters the list interface after the detection is completed.

List interface + DISP Display



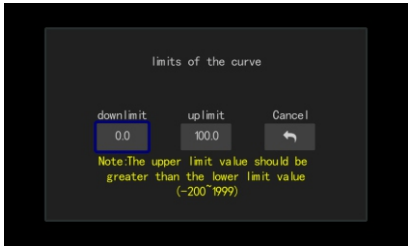
Press Display key in the list screen to switch to the curve screen.

The curve interface shows the real-time display curve graph without record saving.

Press Up key or Down key to move the curve.

Press Setup key to enter Y-axis setting interface.

Setup + Enter



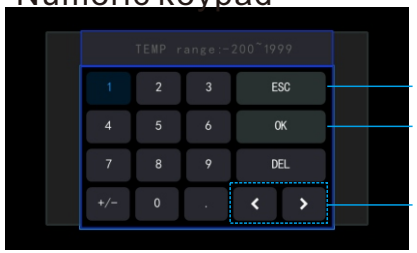
Press Setup in the curve interface to enter the Y-axis setting interface.

Click the lower limit checkbox to enter the numeric keyboard to set the lower limit value.

Click the lower limit checkbox to enter the upper limit setting by numeric keyboard.

Press Return to return to the curve interface.

Numeric keypad



Cancel modification and return

Confirm changes and return

Cursor left and right

Curve Interface + DISP Dispaly

Press Display key in the Curve screen to switch to the Column screen.

The Bar Graph screen displays a bar graph of real-time data.

Press Up key or Down key to move the bar graph.

Press Setup key to enter Y-axis setting interface.

MENU Menu Key

File → Display → Set up

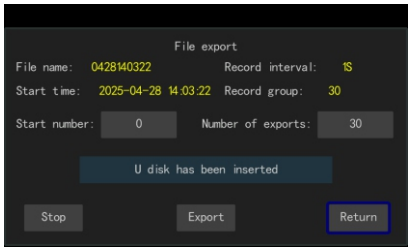
Press Menu key to cycle through the three screens of File, Display and Setup.

File / MENU Menu

Switch with the Menu key or press File key to enter the file interface. The file interface displays the recorded files and real-time recording file size respectively. It can record 20 files, each file can record up to 200000 data.

Press the Record button to start recording data, the recording time appears and starts timing, and the Record button turns into Stop button.

Flie Export

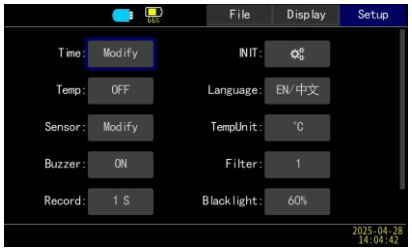


Press Export key to enter the file export interface.

Recorded files can be exported with start point and end point set according to requirements.

Press Page turn key to turn the file list down one page, in which every 5 recorded files are one page.

Set / Menu



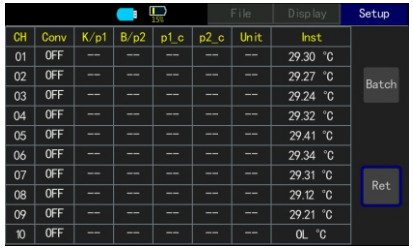
Use menu key to switch or press setup key to enter system setting.

Use the left and right keys to select the object to be changed, press the up and down keys to open the drop-down menu or confirm the key to enter the modification, use the arrow keys to select the target option or call up the numeric keypad to modify it, and when the modification is completed, press the confirm key to save and exit the modification.

(The following table shows the modification method and selection content of each check box)

Date and time: separate page; enter and select the checkbox to bring up the numeric keypad for modification, press the save button to save and exit after modification is completed.	
Temperature rise: menu; on/off.	Language: menu;中文/EN.
Type: menu ; K / J / E / T / N / S / R / B / Pt100 / Cu50 .	
Unit: Menu ;℃ / ℉ / K .	Buzzer: Menu; On/Off.
Filter coefficients: numeric keypad; 1 to 64.	
Backlight : numeric keypad; 1 to 100.	
Record: numeric keypad; 1 to 300.	

Conversion Setting



In the menu you can enter the conversion settings. There are two types of conversions in the conversion settings: ratio conversion and 2-point conversion.

Ratio conversion:

Instantaneous value = K*measured value + B.

2-point conversion:

m=(p2_c-p1_c)/(p2-p1)

b=p1_c-m*p1

Instantaneous value = m*measured value + B

Conversion values for multiple channels can be quickly modified by batch setting.

Batch setup

Type Setting

In the menu you can access the type settings . In the type setting you can set the primary type, secondary type and number of decimal places for individual channels. There are four primary types that can be set: thermocouple, RTD, voltage and current.

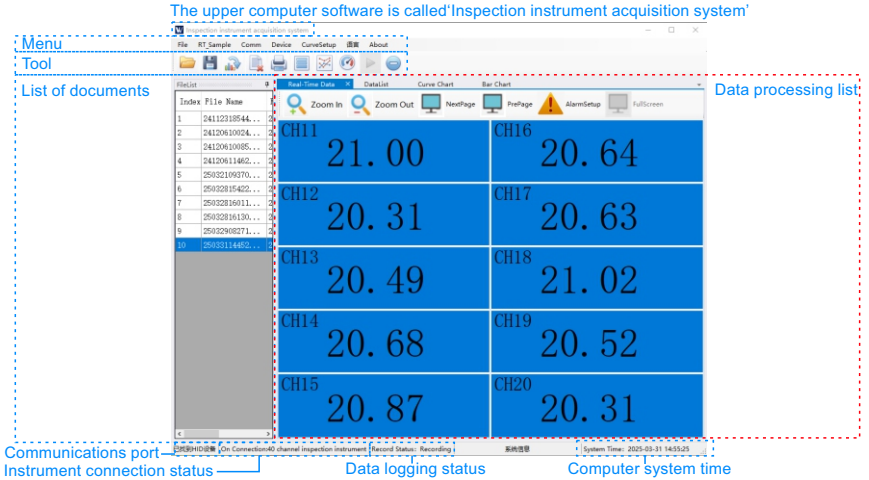
The secondary type will change according to the primary type : There are 9 types of thermocouples K , J , E , T , N , S , R , B , C total 9 types; RTD has PT100, PT1000 and Cu50 total 3 types; voltage has 0-100V and 0-100mV total 2 types; and one type of current: 0-20mA.

Multiple channel types can be quickly set by batch setting.

Batch setup

—Upper computer program

The instrument can be used in conjunction with the supplied host computer, which is called ‘Inspection instrument acquisition system’.



The menu bar has seven menus: File, Real-time acquisition, Communication, Device, Curve, Language and About.

1.File menu has open (open the specified data file), save (save the data file to the specified location), import (the specified data file into the host computer), print preview (preview list of printed drawings) and exit (exit the host computer) a total of five functions.

2.Real-time acquisition menu can start and stop real-time acquisition.

3.Communication menu can specify the host computer and the instrument communication interface type, there are serial port (optional COM port), network port and USB.

4.the device menu has time synchronisation (host computer synchronization computer time), alarm settings (set data alarm upper and lower limits) and read files from the instrument (host computer to read the instrument's internal files).

5.Language menu can set the upper computer display language.

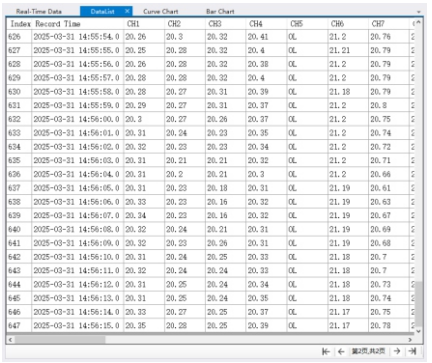
6.About menu can display the information of the upper computer.

The toolbar has ten shortcut tools: open file, save file, import file, delete file, print file, data list, curve, real-time data list, start real-time acquisition and stop real-time acquisition.

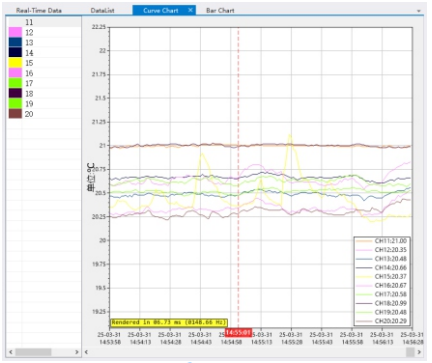
The file list shows the name and number of files recorded by the upper computer, which can be quickly opened or deleted by right-clicking after selecting the file in the list.

Data processing list can display data list, curve list, real-time data list and bar chart list at the same time.

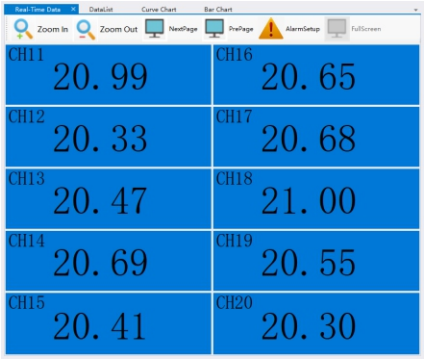
The curve list can be zoomed in or out by using the mouse wheel.



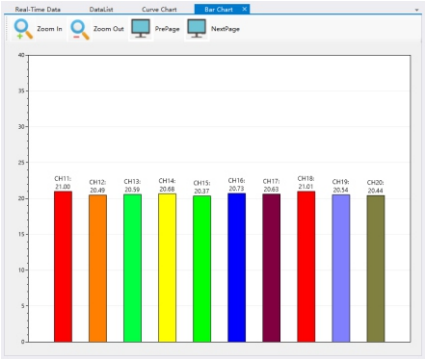
List



Curve

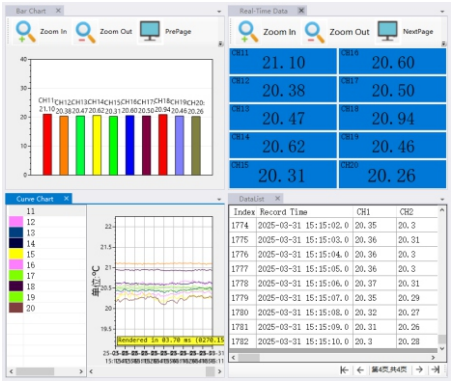


Real-Time data



Bar

Individual data lists can be moved in list position and size as needed.



Certificate of Conformity

Product Name: Multi-channel Date Logger

Product Model: WS32

Product Number: _____

Date: _____

Inspector: _____

Inspection Conclusion: _____

Product Warranty Card

- Warranty Description:
  1, The warranty period is within 24 months from the date of purchase;
  2, the warranty equipment in the warranty period, in the normal use and maintenance of the case, the instrument has a problem with the verification is true, the Division to provide free repair and replacement parts.
- The following cases will not be repaired free of charge:
  1.The product is repaired, altered, modified by a technician other than our company, or the user replaces any internal parts on his/her own;
  2.The number of the machine is altered or does not correspond to that listed in this certificate;
  3.Damage caused by water or other substances penetrating into the machine.
- Equipment exceeding the free warranty and not covered by the free warranty regulations can be repaired by the Division, subject to a charge for spare parts and repairs where appropriate.

Name		Models	
Telephones		Purchase date	
Address		Number	
Date of testing	Service record		Examiner

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Please contact your local dealer for sales and service