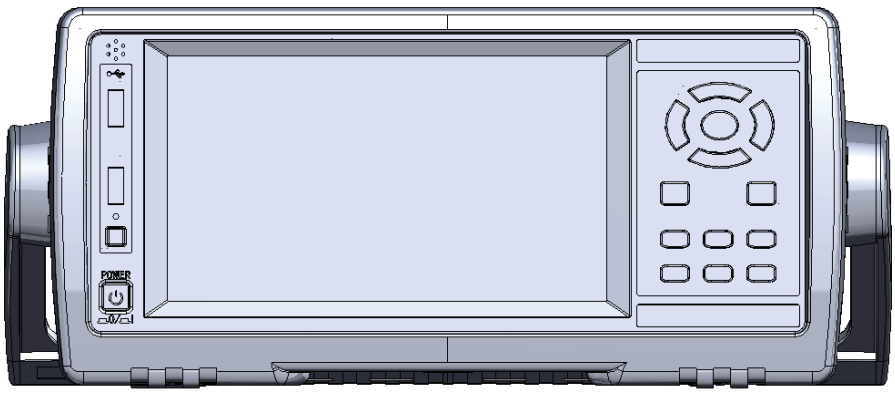
华知科
WASITES®

Multi-channel data recorder

WT210

User Manual V1.4



Contents

0 Preface

Under normal use of the instrument, it can be warranted free of charge within 2 year from the date of purchase, and we can provide paid maintenance for abnormal use and beyond the warranty period. Instrument maintenance should be carried out by our authorized technicians.

You can learn about our latest improvement news through our official public number or our authorized platform.

Sales service is available by contacting your local dealer.

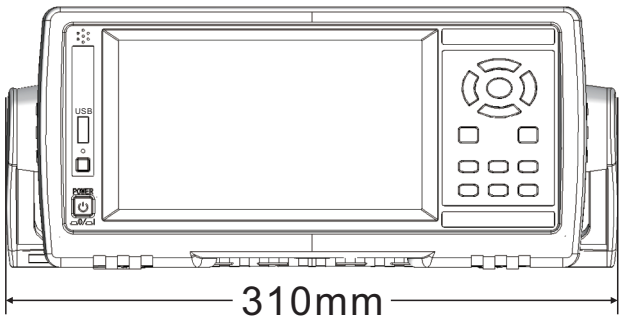
Technical Indicators

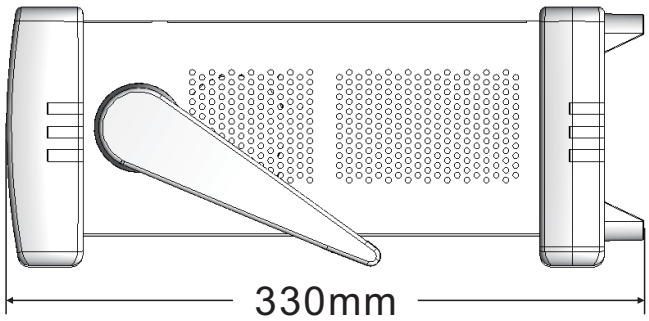
Screen	7' HD IPS touch screen, 800*480 resolution	
Modules	Each mainframe supports 4 measurement boards (10 channels),20 measurement modules (10 channels)	
Display	File, Value List (Statistical List), Real-time Curve (Recorded Curve), Real-time Bar Graph, Real-time Alarm (Historical Alarm), System Settings.	
Statisticians	Real-time value, maximum value, minimum value, average value, peak-to-peak value	
TC Measurement	K,J,E,T,N,S,R,B	Resolution:0.01℃
RTD Measurement	PT100，Cu50	Resolution:0.01℃
VOL Measurement	0～100mV/0～100V	Resolution:0.001mV；0.01V
CUR Measurement	0～20mA	Resolution:0.001mA
Measurement Accuracy	TC	0.2℃+2digits(Without TC)，Cold End Compensation Accuracy：0.5℃
	RTD	0.1℃+2digits(Without RTD)
	VOL	±0.1% reading + 0.1% range + 2 digits
	CUR	±0.1% reading + 0.1% range + 2 digits
Measurement range	The temperature is based on the sensor measurement range and the electrical parameters are based on the gear position.	
Isolation voltage	350V AC/DC	
Sampling rate	Minimum 0.1S recording interval, minimum interval varies with the number of channels switched on / ≥50mS per channel (H:M:S:mS)	
Recording interval	Minimum 0.1S recording interval	
Calibrate	Independent calibration per channel or cold-end calibration.	
Document analysis	Files can be viewed for historical curves and analysed for any time period.	

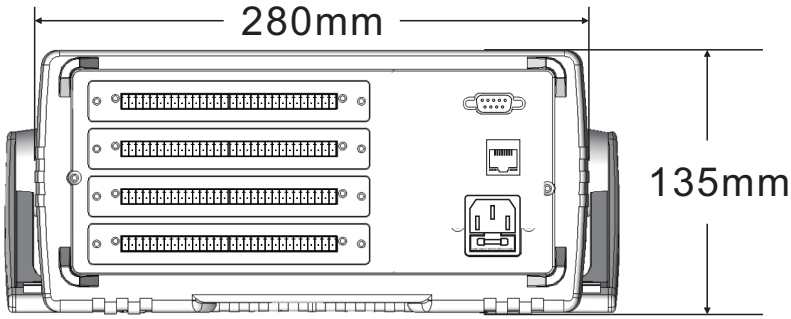
File Export	Export any file to USB flash drive or transfer to internal drive
Alarm	Upper limit, lower limit alarm settings, and alarm history (buzzer sounds, can be set to mute)
Interface	USB/RS485/RS232/LAN as standard, PC software as standard
Pre-installed sensors	1 x 2m type K thermocouple per channel as standard
Custom names	Customisable names for each channel, with the ability to export to EXCEL
Power supply	AC86V～265V±10%, 50Hz/60Hz,<10W

1 Instrument Structure

□1-1 Shape and size

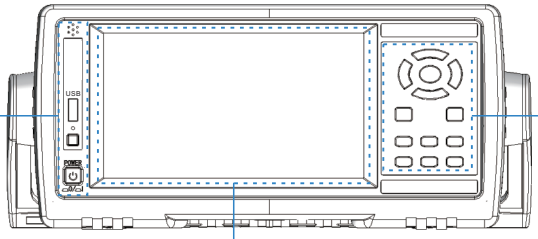




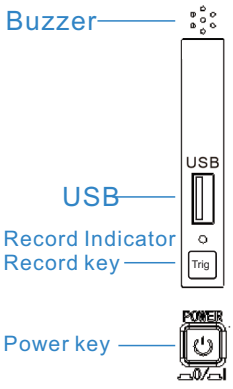


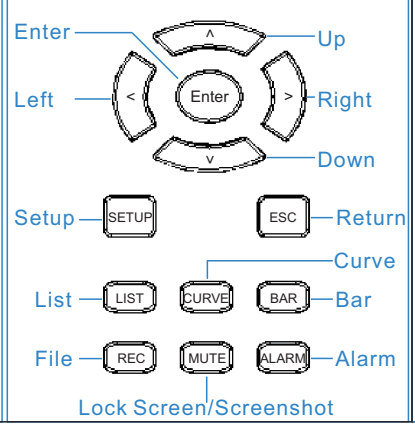
□1-2 Hardware Functions

■ Ahead

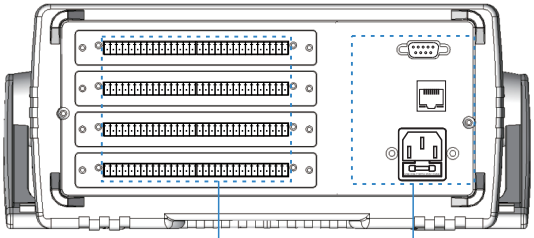


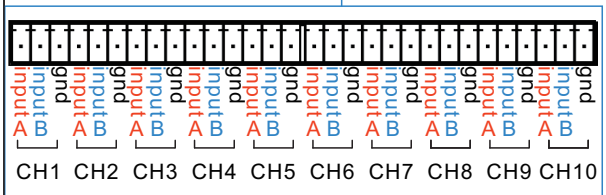
Note: MUTE key short press for screenshot.
Long press is for lock screen.
Touch function is off after lock screen.

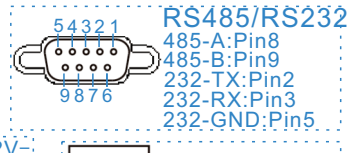


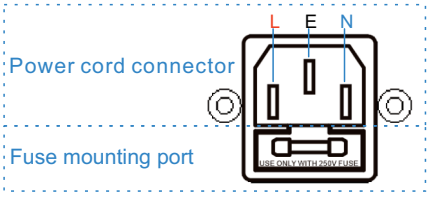


■ Backside

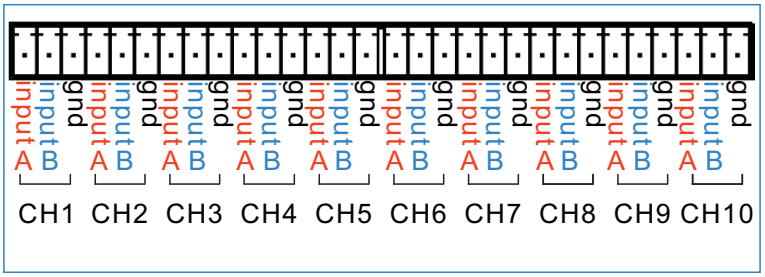


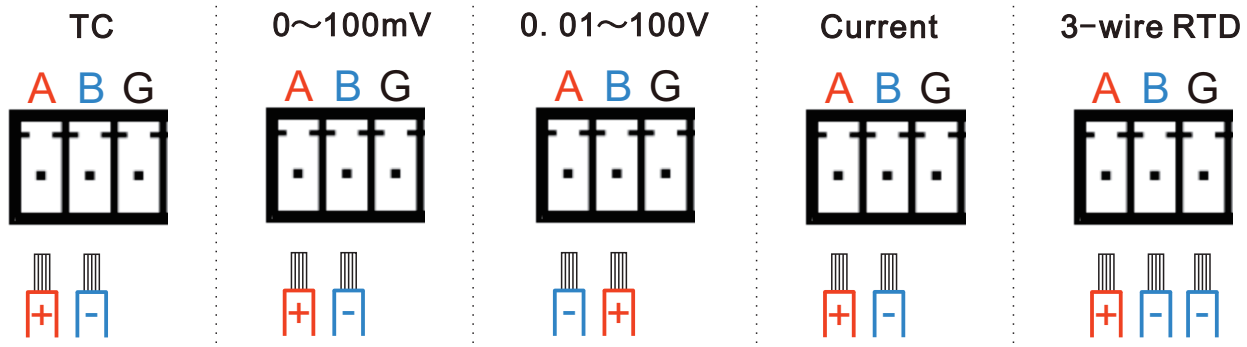






□1-3 Wiring Instructions



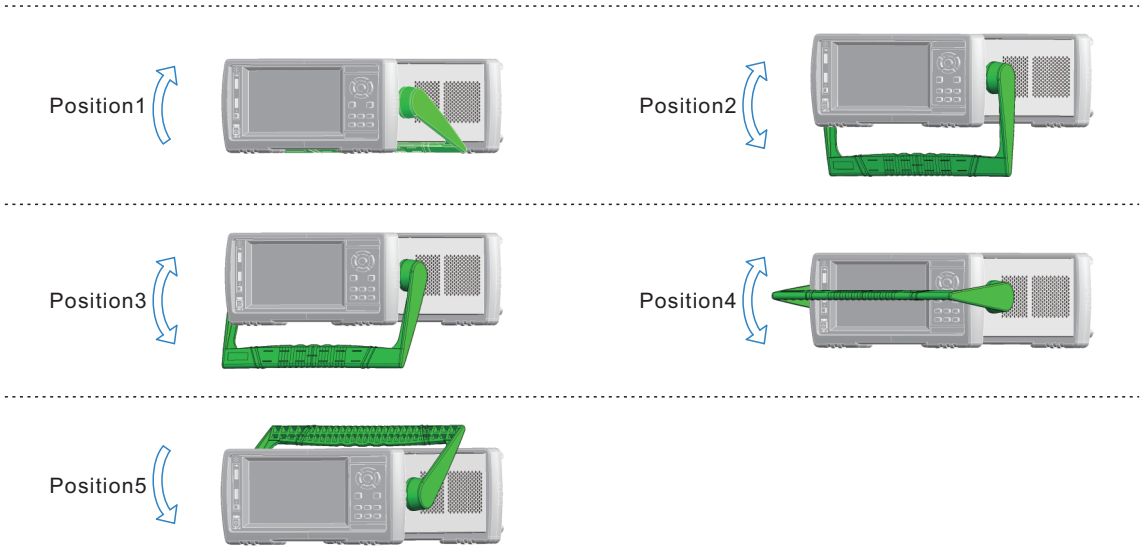


□1-4 Handle

The handle can be rotated by pulling both ends of the handle outward until the locating pin leaves the limit hole.

After the handle positioning pin is rotated to the limit hole, the handle can be fixed by pressing the handle ends inwards.

The handle has a total of 5 fixing positions.



2 Function

□2-1 Synopsis

There are 5 function lists in the instrument, they are:

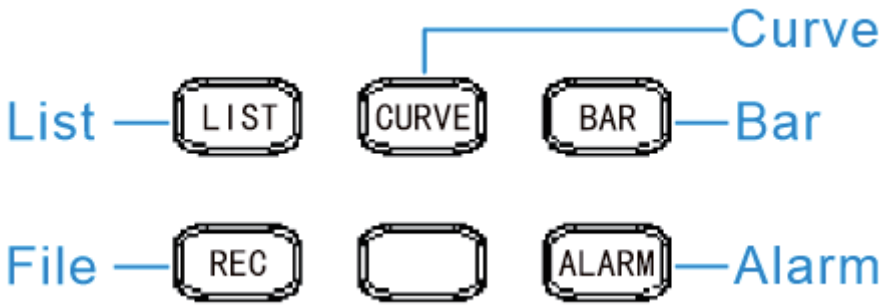
1. File list. The file list displays recorded file information - file name, record start time and number of recorded data groups, and contains a total of five functions: file name modification, data analysis, file export, file deletion and U-disk mode;

2. Digital list. There are three kinds of lists: single measurement board list, four measurement board list and data statistics list. The single-board list displays the real-time measurement data of the current board. The four-measurement board list displays the real-time measurement data of four measurement boards at the same time. Data statistics list displays the instantaneous value, maximum value, minimum value, average value, peak value and unit of the current measurement board, and the list has a zero function to reset the initial data;

3. Curve list. Curve list displays real-time curves, can manually/automatically modify the upper and lower limits of the vertical axis, zoom in/out to display the curves by a certain magnification, as well as move up/down to display the curves;

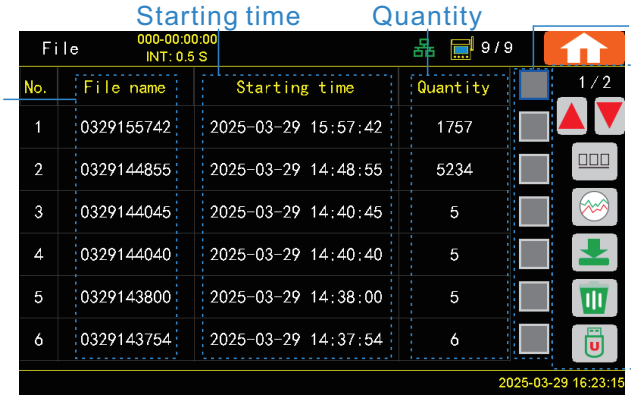
4. Column list. Column list displays the real-time data histogram, can manually modify the upper and lower limits of the vertical axis, equipped with temperature rise function;

5. Alarm list. Alarm list has two lists: current alarm list and history alarm list. The current alarm list displays four information: alarm source, type, threshold and start time. The history alarm list displays five information: alarm source, type, threshold, start time and cancellation time; The following figure shows the corresponding shortcut keys of each list.



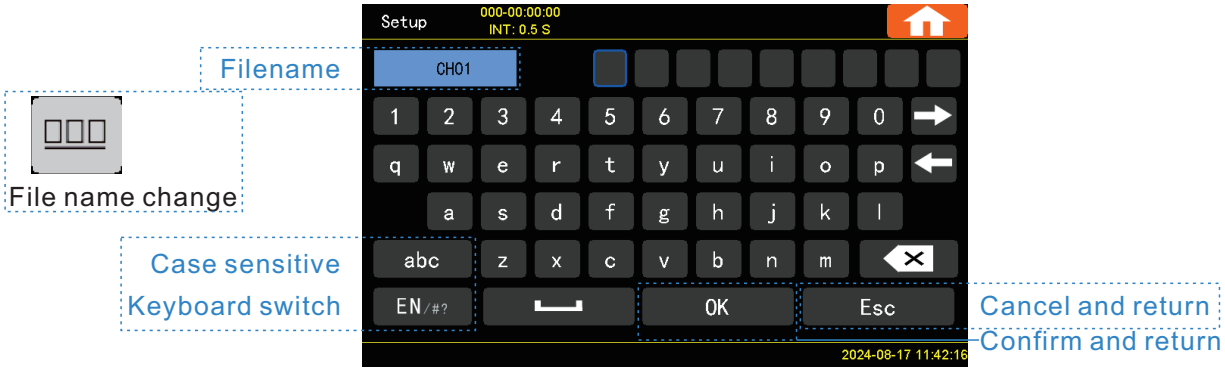
□2-2 File

■ Interfaces



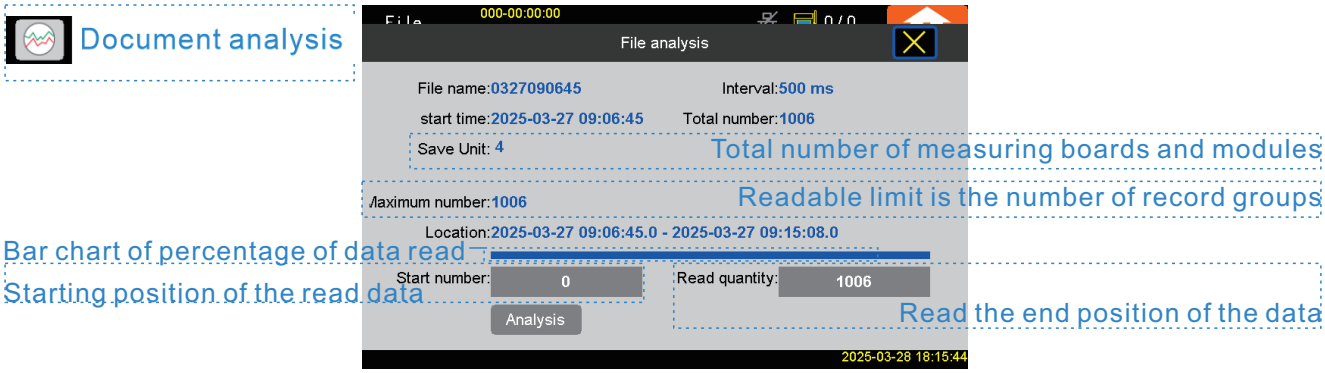
■ File name change

Select the file and click on the button to enter the modification page.

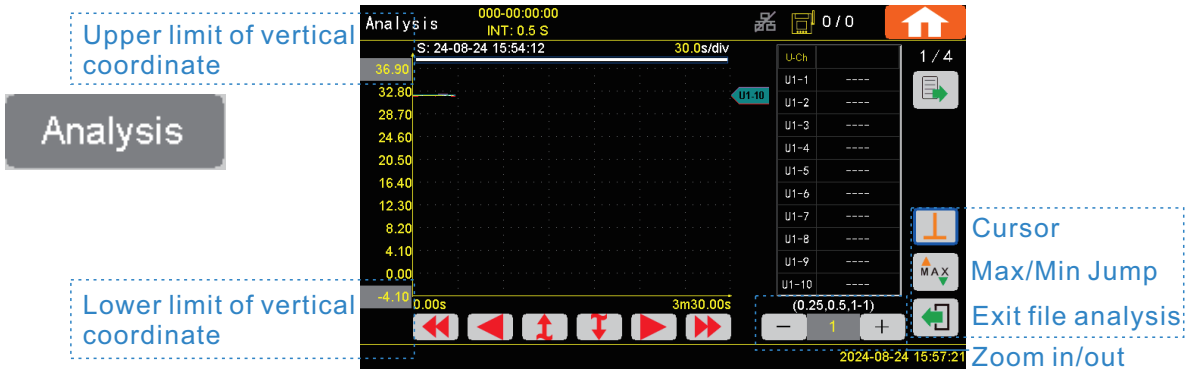


■ Document analysis

Select the file and click the button to open the File Analysis checkbox.

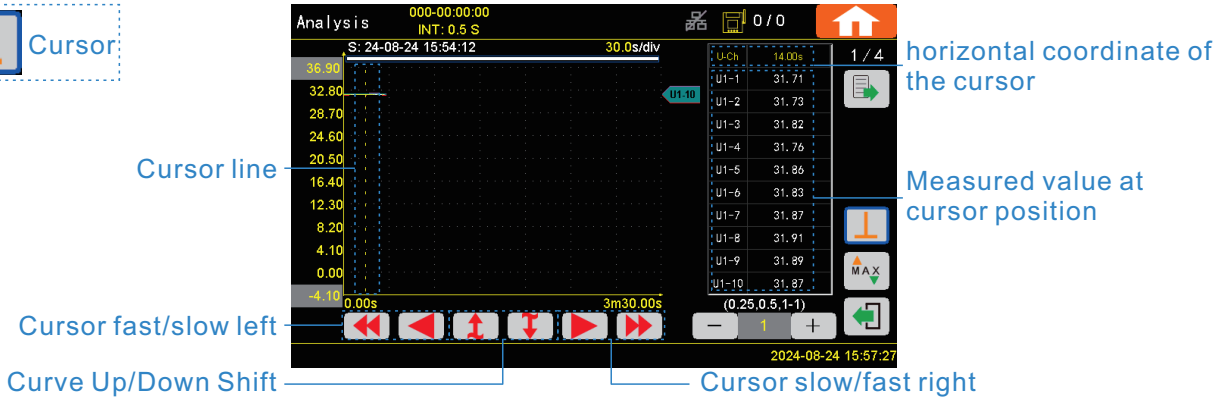


After setting the data interval for analysis, enter the analysis page. In the page, you can click the vertical coordinate upper/lower limit to modify, zoom in/out the curve horizontally, call out the cursor to read the curve value, and quickly jump to the maximum/minimum value.



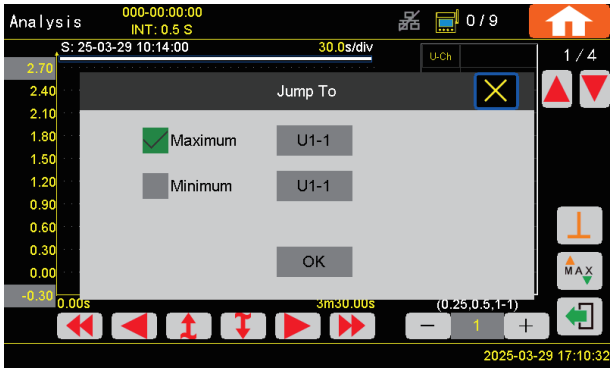
Click on the button to bring up the cursor, and use the move button below to move the cursor position and thus read the value.

Cursor



Click the Max/Min button to bring up the selection interface, select the jump value and channel, then press OK to jump.

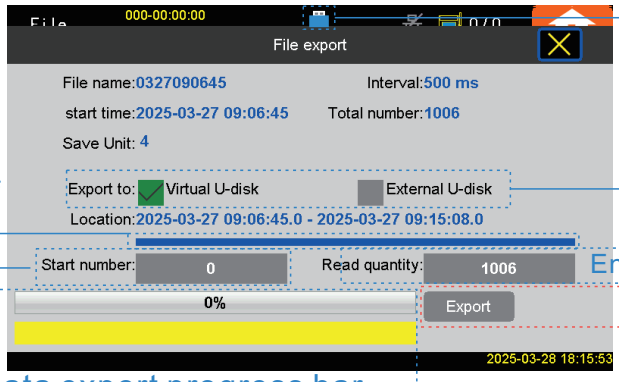
Max/Min



File Export

Click the File Export button to enter the File Export checkbox. Select the data interval and the location of the exported file (internal storage or external USB stick), click the Start Copy button to start copying the file, and when the progress reaches 100%, the file export will be completed.

File export



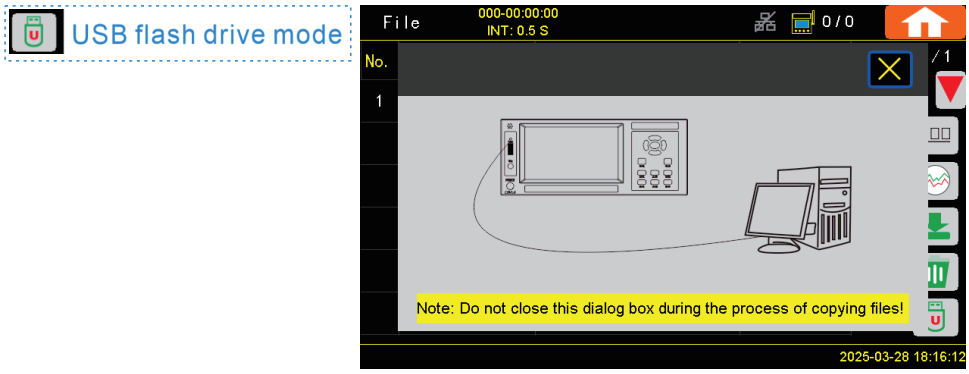
File deletion

After selecting the file, click the Delete button to bring up a confirmation box, confirm and complete the deletion.

File deletion

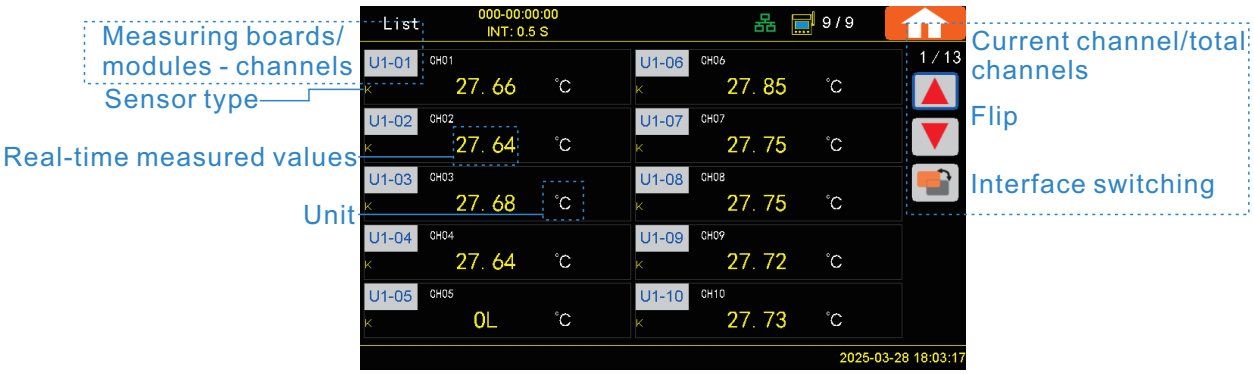
■ USB flash drive mode

Click the USB flash drive mode button to enter the USB flash drive mode and pop up a prompt box. After entering this mode, you can use the USB cable to connect to the computer to read the internal storage files of the instrument. After closing the prompt box, the instrument exits the USB flash drive mode.



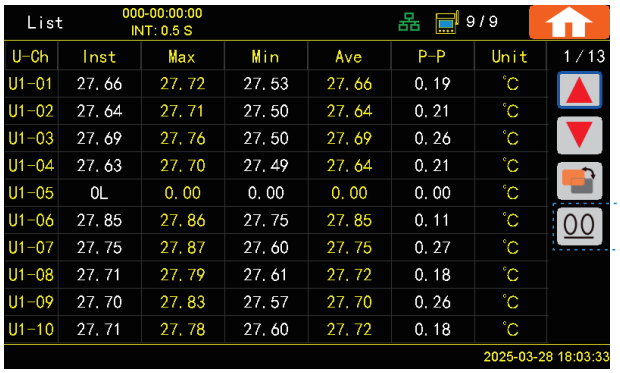
□2-3 List

The Single Measurement Board list displays real-time measurement data, sensor type and units for the 10 sensors of the current measurement board/module.



The Quad Measurement Board List displays measurement data and units for a total of 40 sensors from 4 measurement boards/modules.

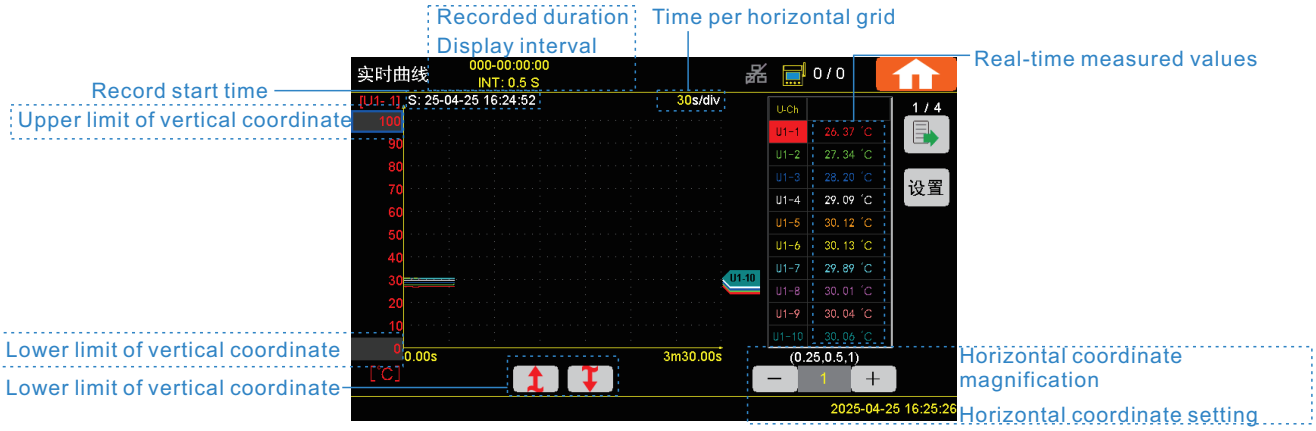
The statistics list displays the statistical values of the measured data from data zero to real time for individual measurement boards or modules. Data zeroing is performed when the instrument is switched on, when data logging is started and when the Zero key is pressed.



□2-4 Curve

■ on-line curve

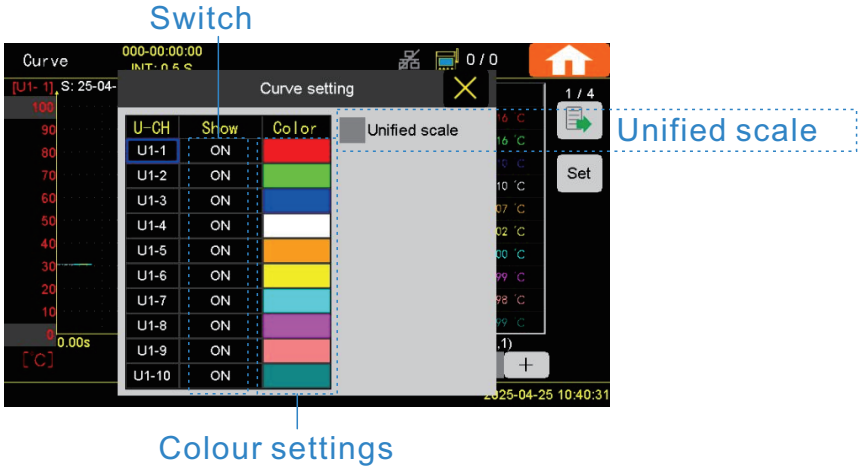
The data recorded during the period from data zero to real time is displayed in the form of a curve. The curve is continuously updated with real-time data.



The curves can be zoomed in and out horizontally with the +/- keys, or you can click on the multiplier to modify it quickly.

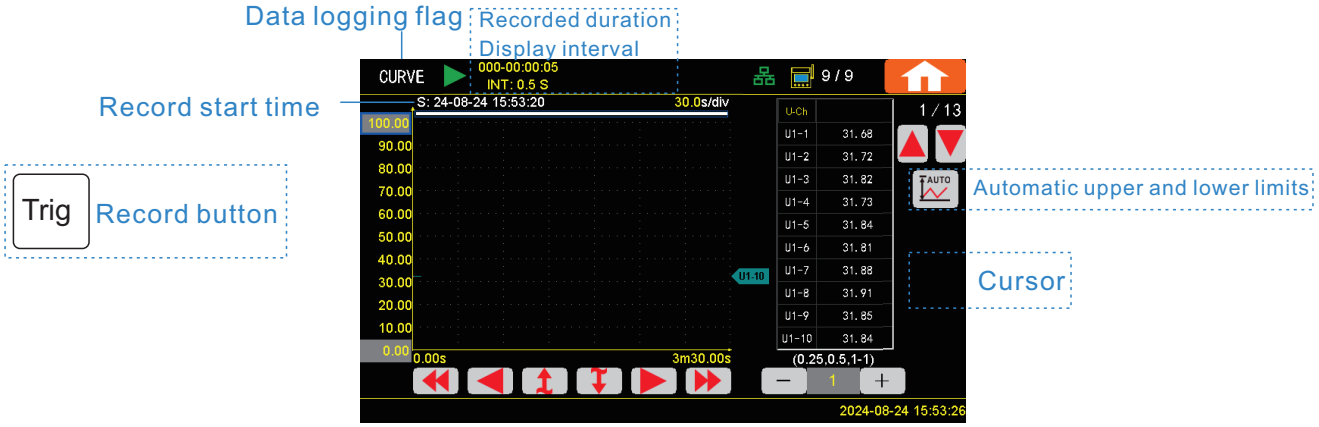
Click Curve Settings to enter the settings, set the curve display status and modify the curve colour.

Unit Scale Uniformity allows ten channels of a unit to share a single scale.

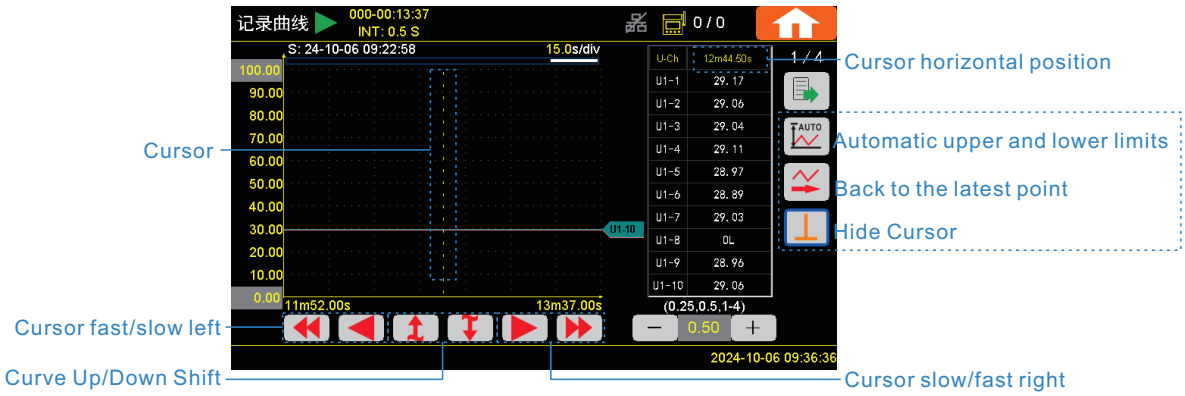


■ Recording curve

When the instrument enters the recording mode, the curve page enters the recording curve interface from the real-time curve interface.

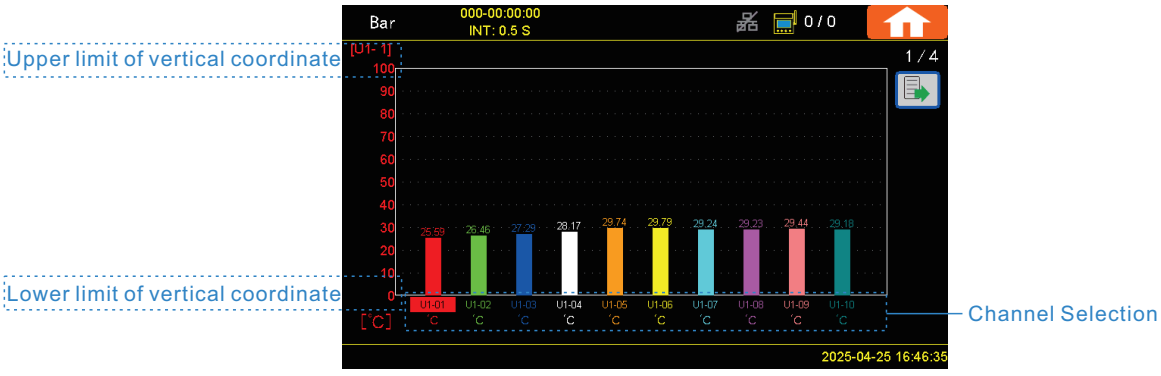


Click on the cursor button to show the cursor in the axes and click again to hide the cursor. Move the cursor with the left/right shift keys. Click on Auto Coordinate to automatically set the upper and lower limits.



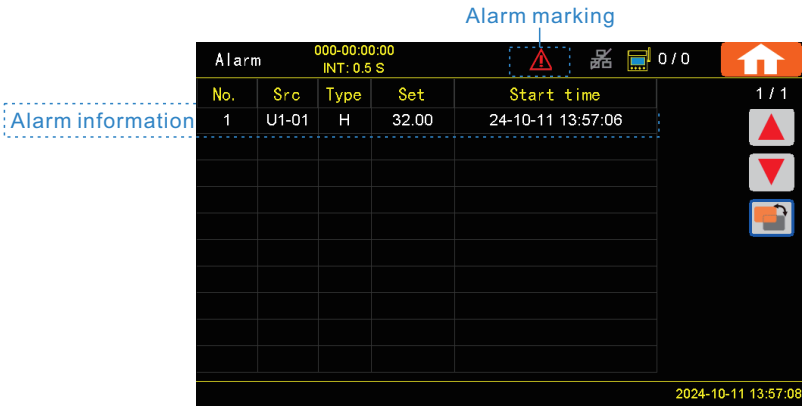
□2-5 Bar

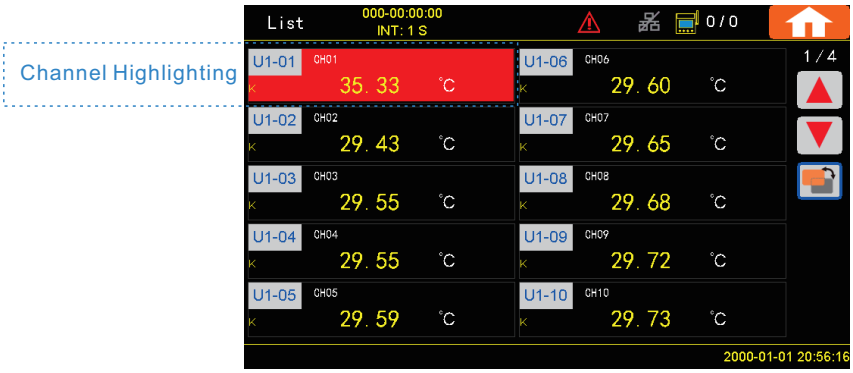
The data corresponding to the bar graph is real-time data. You can turn on the temperature rise function on this screen.



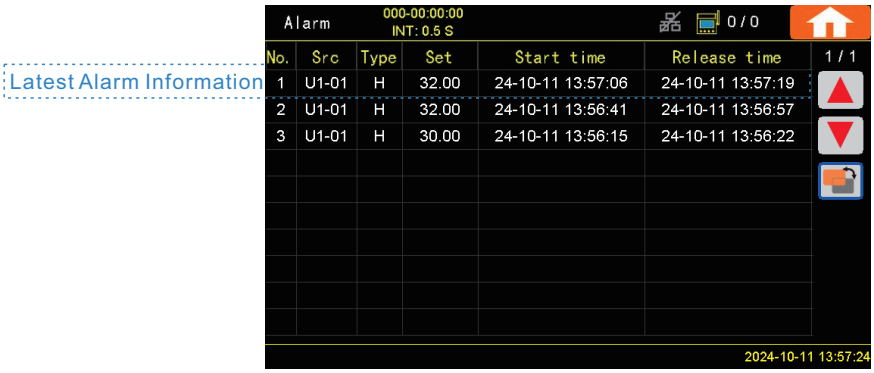
□2-6 Alarm

The alarm function requires the switch to be turned on in the alarm setting first (see page 13 Alarm Setting for operation details). Current Alarm When the measured data exceeds the upper limit or lower limit, the alarm logo is always lit, and the alarm information is displayed in the current alarm list and the over-limit channel is highlighted in the numeric list.





When the alarm is cancelled, the current alarm list clears the alarm information of the related channel, and you can switch to the historical alarm to view the alarm.



3 Setup

□3-1 Setup Introduction

System settings have unit settings, conversion settings, display settings, record settings, alarm settings, communication settings and system settings a total of seven settings page.

1. Unit Setting. The unit setting can browse the connection status of the measurement board and module, and manage the registration/de-registration of the module (Note: the measurement module needs to be successfully registered in the instrument before it can be connected to the instrument). The Unit Setup page also allows you to set the on/off, sub type (thermocouple type) and filter coefficients for individual channels.

2. Conversion Settings. Conversion settings can set the conversion switch, conversion slope and conversion offset of a single channel. The conversion formula is:

Display value = conversion slope × measured value + conversion offset

3.Display settings. Display settings can customize the name and colour of each channel.

4.Record settings. Record settings can set the data recording interval and recording stop mode, can browse the remaining recording time. There are two types of record stopping methods: manual stopping requires manually pressing the record button to stop recording, and automatic stopping is to stop recording when the recording time reaches the set time.

5.Alarm settings. Alarm settings can set the alarm switch, alarm sound, single-channel alarm switch, alarm upper and lower limits and alarm delay.

6.Communication settings. Communication settings can set the LAN connection and 232/485 address.

7.System settings. There are four sub-pages for system setting: basic setting, time setting, initialisation selection and instrument information. Basic settings can set the unit of display data, device language, screen saver switch and activation time, backlight brightness, screen saver brightness and key sound switch. The initialisation function allows you to choose to clear all record files, alarm records and screenshot files, and also restores the system default settings.

The Setup page can be switched to the main page by pressing the Setup button, and to the sub-page by pressing the Exit button (ESC key).

Sub-page 

—Return

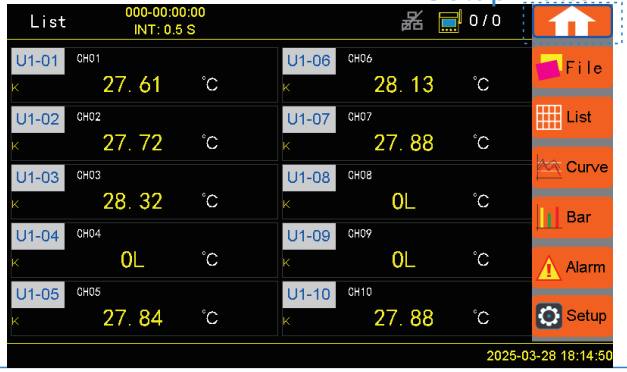
Main page Setup— 

Unit-> Conversion-> Display->

Record-> Alarm-> Communication->

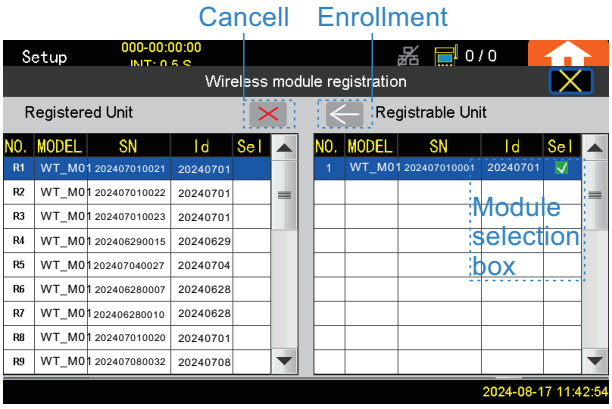
System-> Unit

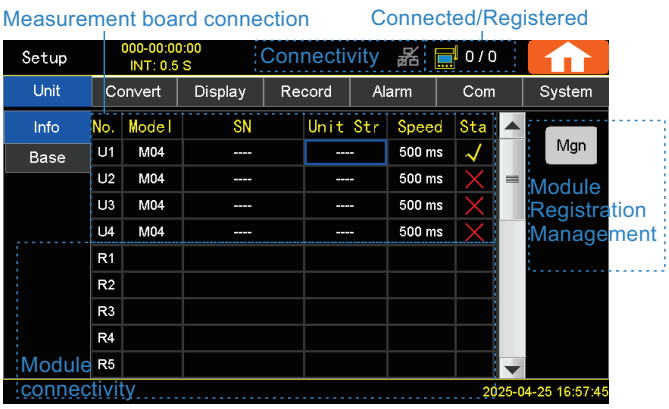
Setup Button



□3-2 Unit Settings

Module Setup manages module registration status and modifies module measurement settings (module connections can be found on page 22 - Appendix B Instrument Connection Schematic).





The main interface of the main unit can control the channel switch, switch between primary and secondary types, and set the measurement filter coefficients of the measurement board.

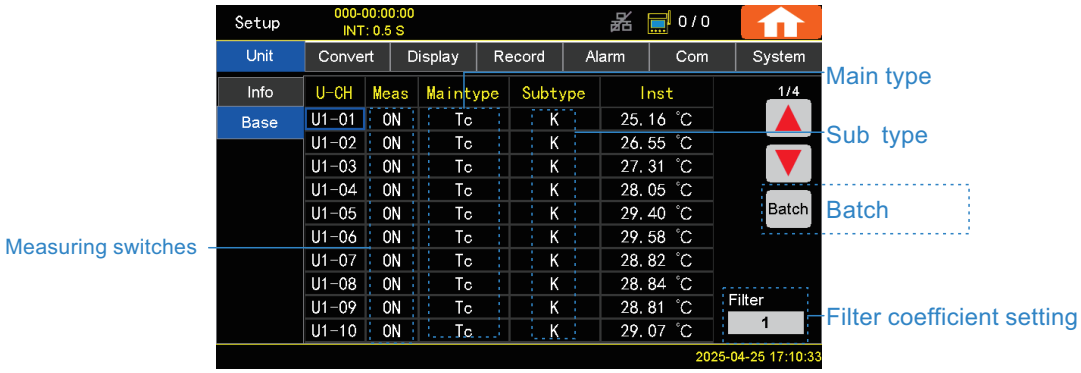
There are four main types: TC, RTD, Voltage and Current.

The TC sub-types are K, J, E, T, N, S, R, and B, for a total of eight types.

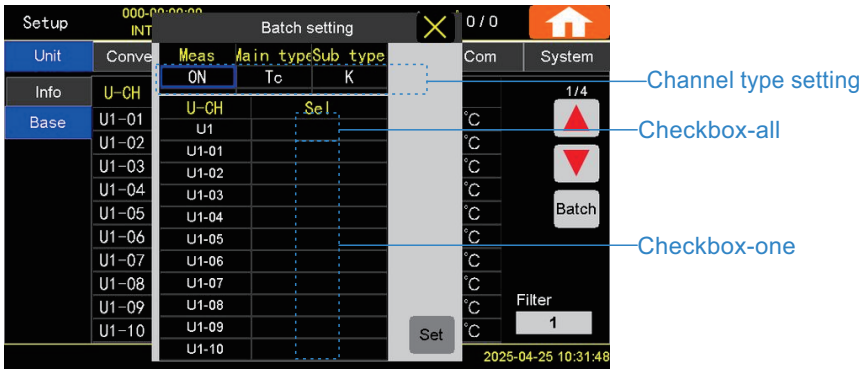
Thermal resistance sub-types are Pt100, Pt1000 and Cu50 a total of three types.

Voltage sub-types are 0.01-100V and 0-100mV total two types.

Current sub-type only 0-20mA a type.



Module channel type settings can be set in batch.



□3-3 Convert Settings

The conversion settings are variable ratio conversion and two-point conversion settings.

Variable ratio: Displayed value = Slope × Measured value + Offset.

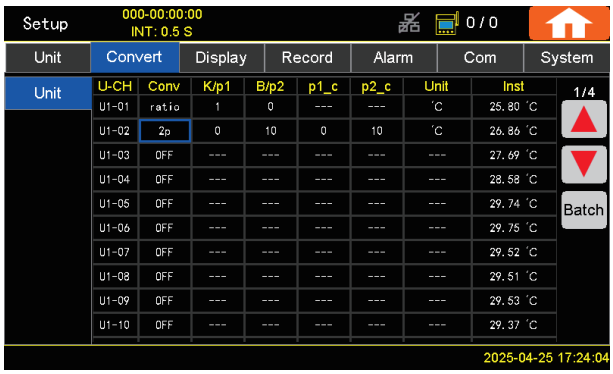
Two-point: Multiplier = (p2_c - p1_c)/(p2 - p1);

Offset = p2_c - Multiplier × p2;

Displayed value = Multiplier × Measured value + Offset.

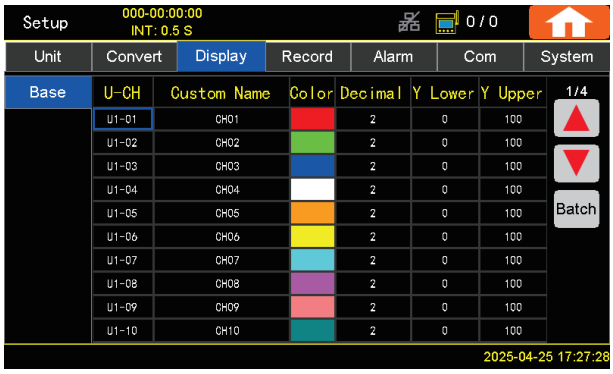
Click the Convert button to switch OFF, Ratio and 2-point conversion.

Click the Batch Setting button to cut out the batch setting page.

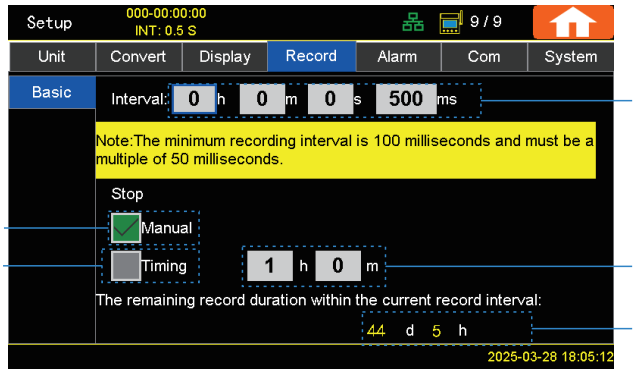


□3-4 Display Settings

Modify the channel name , colour , number of decimal places , lower limit and upper limit by clicking the corresponding positions.

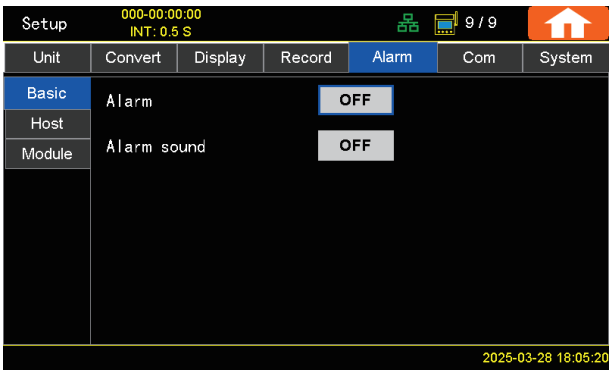


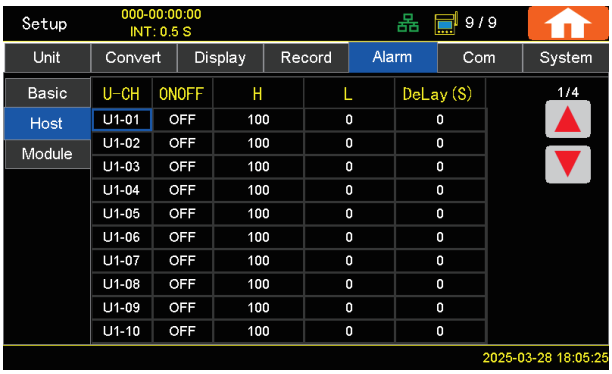
□3-5 Record Settings



□3-6 Alarm Settings

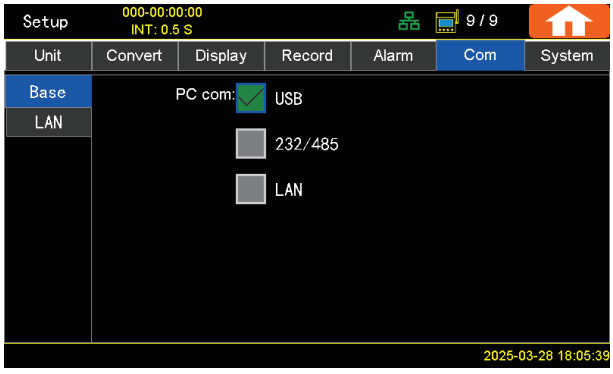
In the Basic sub-screen, you can switch on/off the alarm master switch and switch on/off the alarm sound. In the Host/Module sub-interface, you can switch on/off alarms for individual channels, set upper and lower limits and alarm delays.



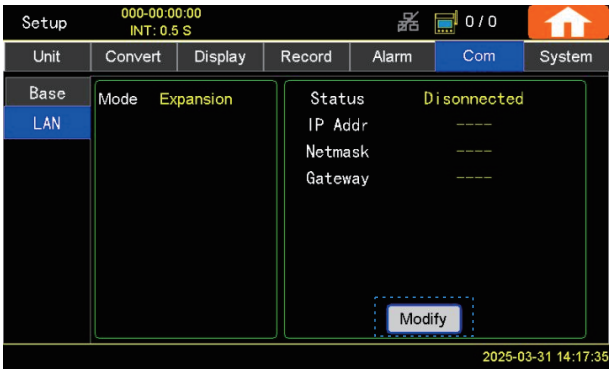


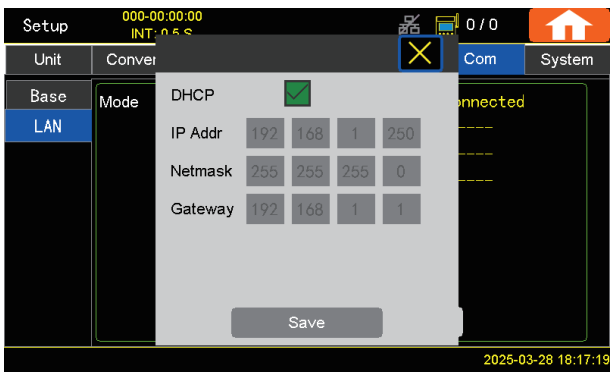
□3-7 Com Setting

Selectable ports for connection to PC as required.



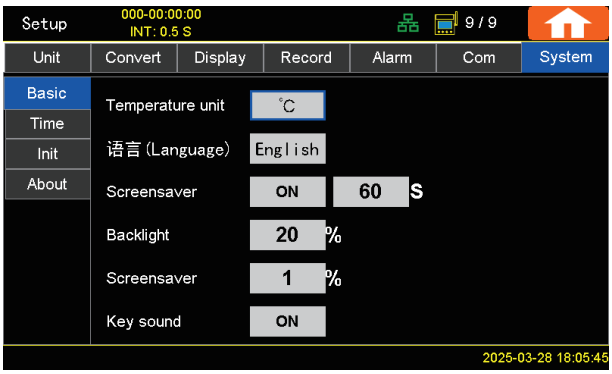
The LAN network can choose between automatic address recognition and manual address setting as required.

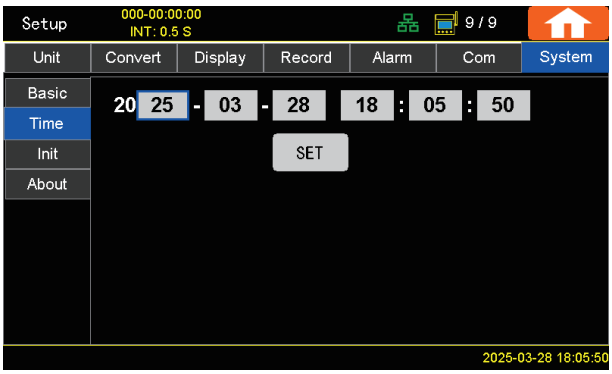


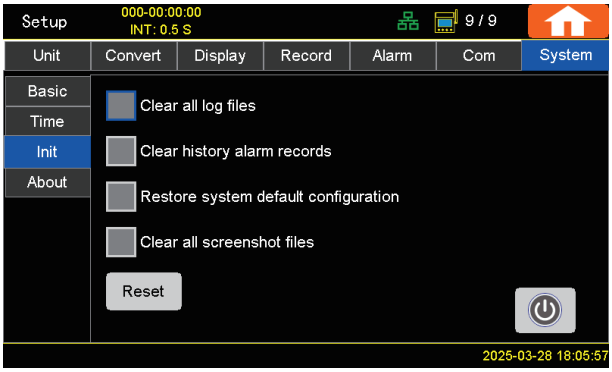


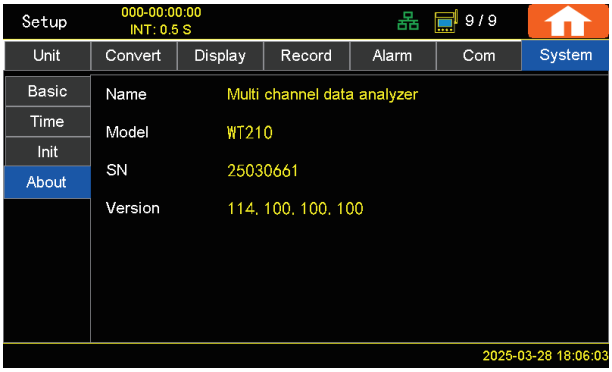
□3-8 System Setting

Click the corresponding checkbox to modify it.


Setup
000-00:00:00
INT: 0.5 S
9 / 9
Unit
Convert
Display
Record
Alarm
Com
System
Basic
Time
Init
About
Temperature unit
℃
语言 (Language)
English
Screensaver
ON
60
S
Backlight
20
%
Screensaver
1
%
Key sound
ON
2025-03-28 18:05:45


Setup
000-00:00:00
INT: 0.5 S
9 / 9
Unit
Convert
Display
Record
Alarm
Com
System
Basic
Time
Init
About
20 25 - 03 - 28 18 : 05 : 50
SET
2025-03-28 18:05:50

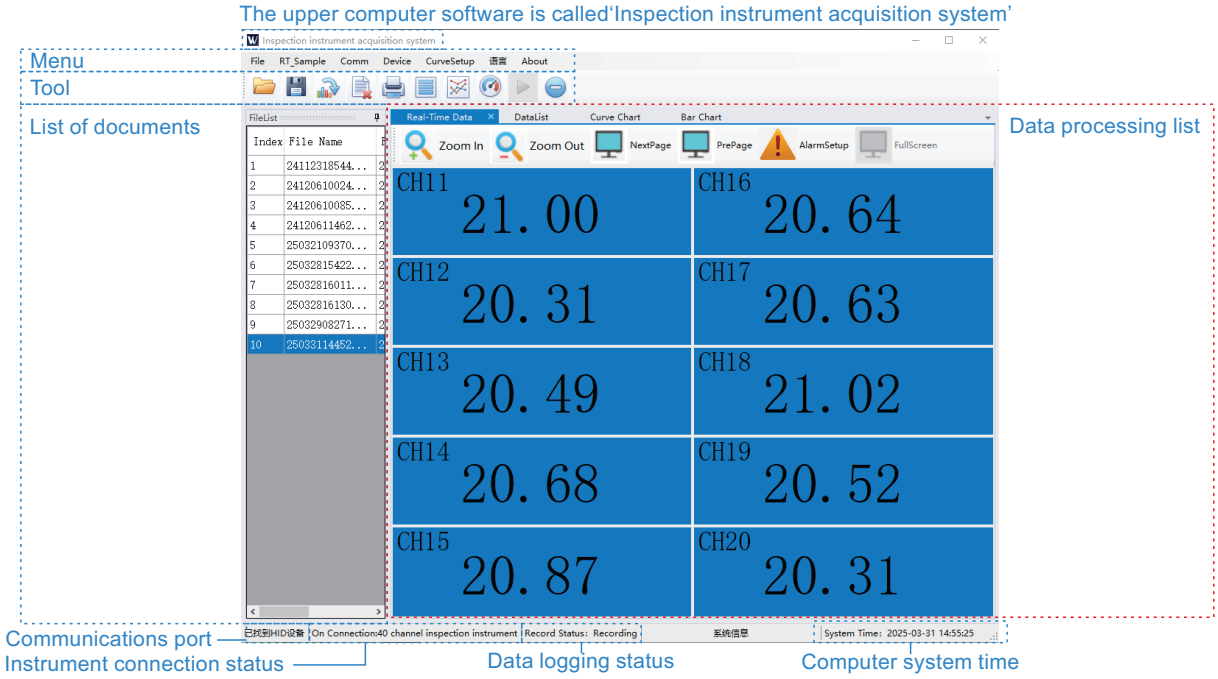

Setup
000-00:00:00
INT: 0.5 S
9 / 9
Unit
Convert
Display
Record
Alarm
Com
System
Basic
Time
Init
About
Clear all log files
Clear history alarm records
Restore system default configuration
Clear all screenshot files
Reset
2025-03-28 18:05:57


Setup
000-00:00:00
INT: 0.5 S
9 / 9
Unit
Convert
Display
Record
Alarm
Com
System
Basic
Time
Init
About
Name
Multi channel data analyzer
Model
WT210
SN
25030661
Version
114. 100. 100. 100
2025-03-28 18:06:03

4 Upper computer program

□4-1 Main Interface

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



□4-2 Menu

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.

□4-3 Tool

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.

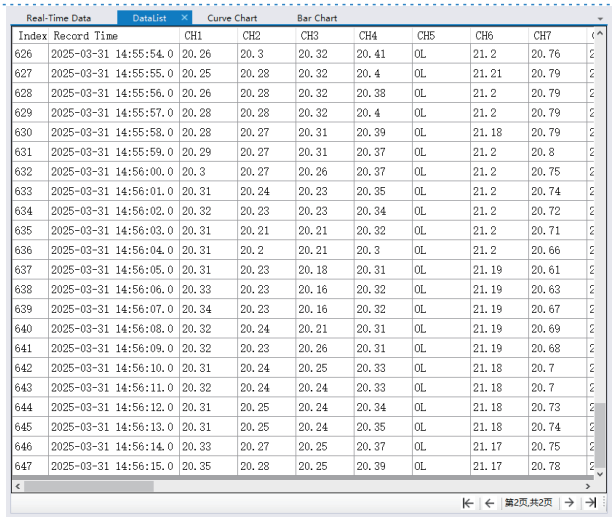
□4-4 File

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.

□4-5 Data handling

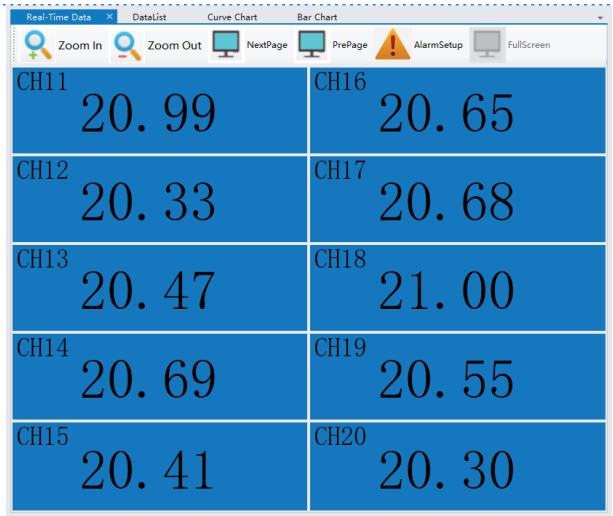
Data processing list can display data list, curve list, real-time data list and bar chart list at the same time.

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

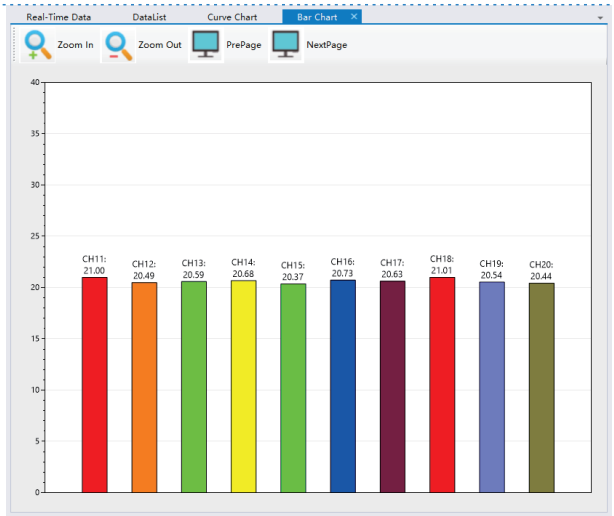


List

Curve



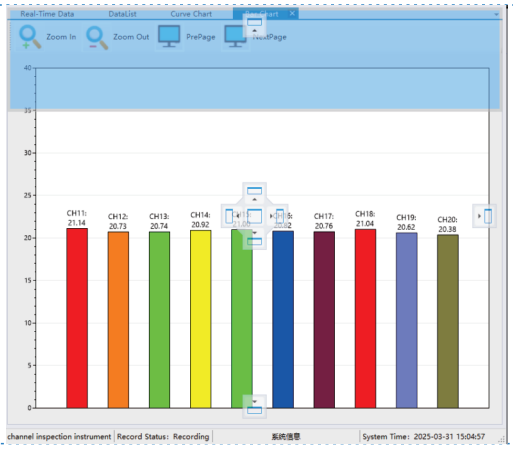
Real-Time data



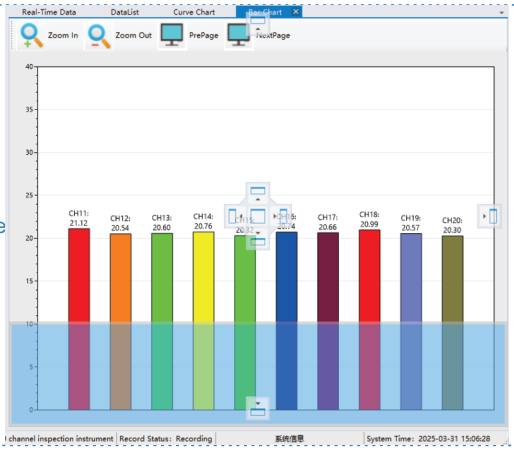
Bar

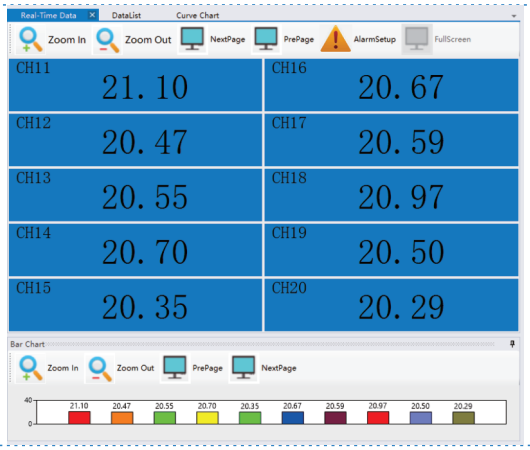
Each data list can move the list position and size as needed. Take the curve list and bar chart list for example, where the curve list is the moving list and the bar chart is the selected list.

Move to the top of the selection list

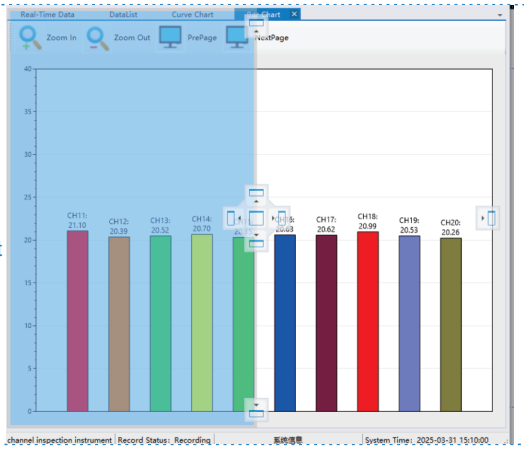


Move to the bottom of the selection list

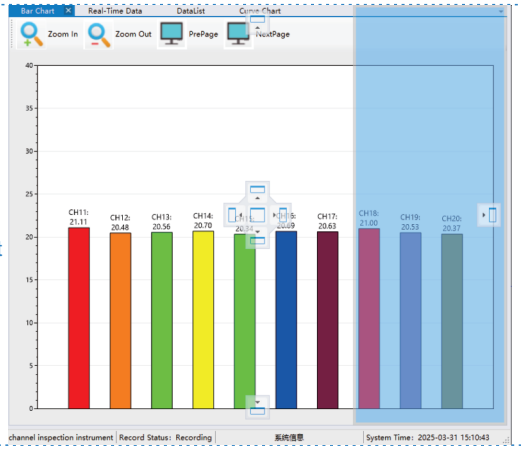


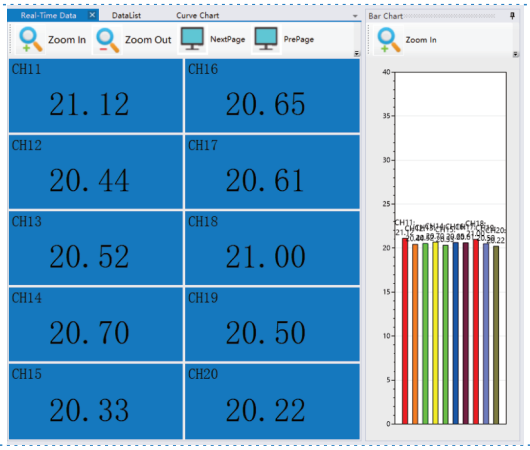


Move to the left of the selection list

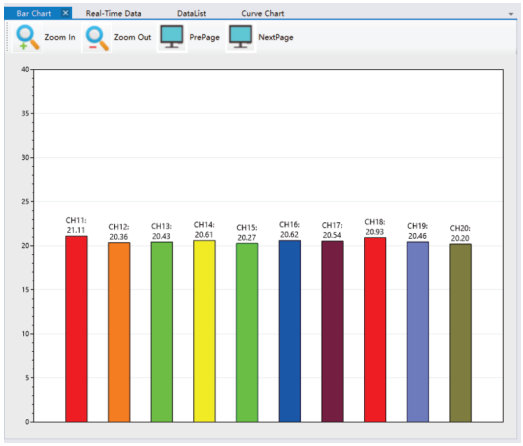


Move to the right of the selection list

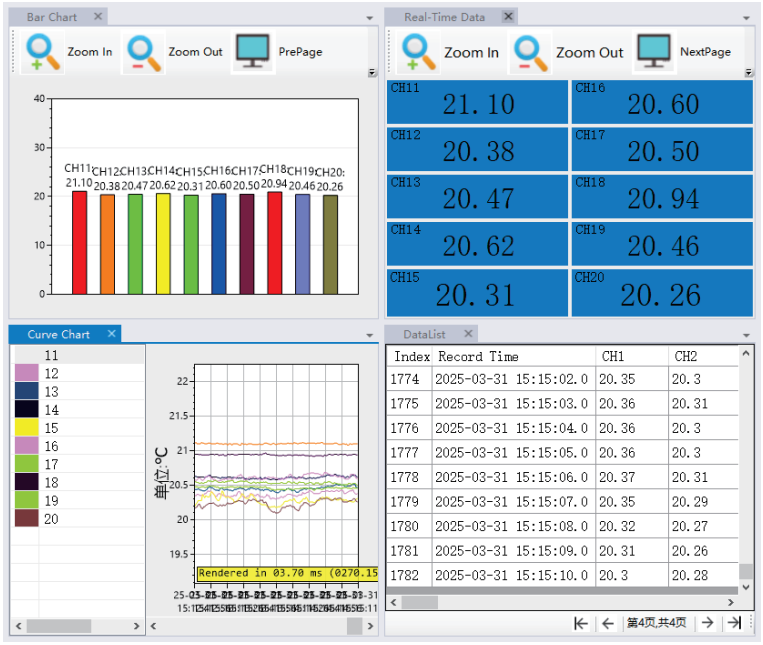




Stacked on top of the selection list



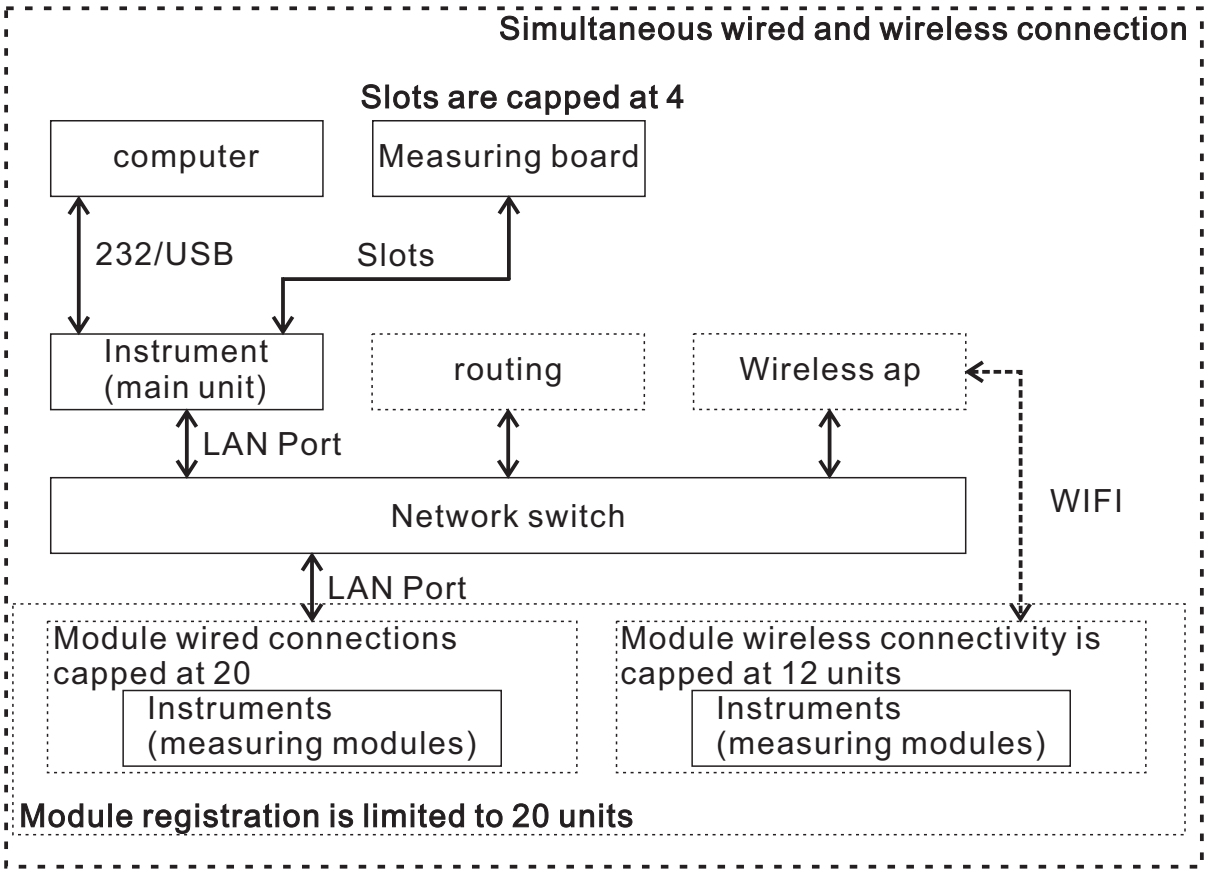
The final achievable positional placement is shown below.

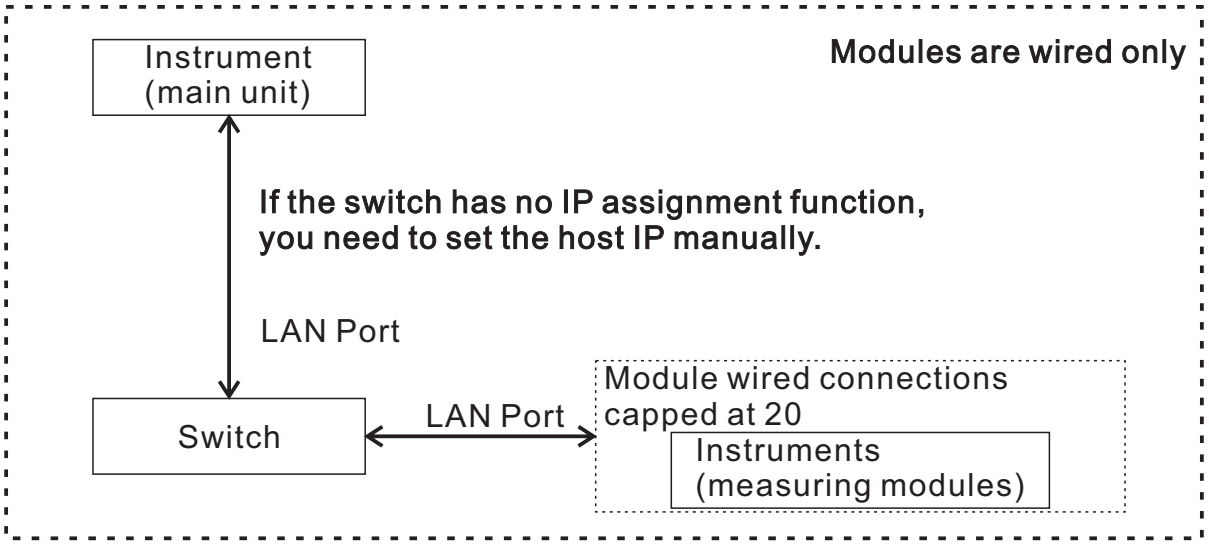


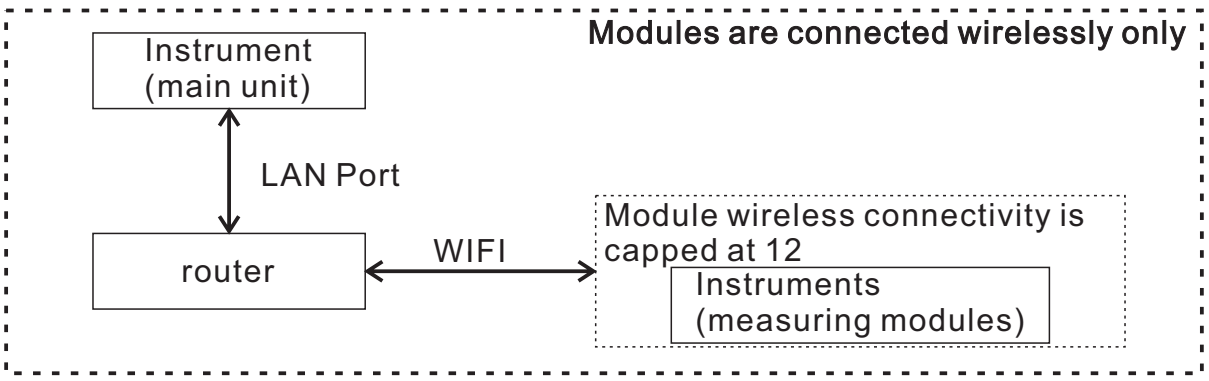
□Appendix A - Thermocouple Reference Tables (partial)

Typology	Materials	Measurement range	Inaccuracies	Operating environment	Caveat
S	PtRh10% | Pt	0～1450℃ 32～2642℉	1.5℃ or 0.25%	Oxidising or inert environments, high temperature environments	Do not insert into metal pipework and take care to prevent contamination
R	PtRh13% | Pt	0～1450℃ 32～2642℉	1.5℃ or 0.25%	Oxidising or inert environments, high temperature environments	Do not insert into metal pipework and take care to prevent contamination
B	PtRh30% | PtRh6%	0～1700℃ 32～3092℉	Above800℃,0.5%	Oxidising or inert environments, high temperature environments, commonly used in the glass industry	Do not insert into metal pipework and take care to prevent contamination
J	Cu | CuNi	0～750℃ 32～1382℉	2.2℃ or 0.75%	Reduction, vacuum, inert environment	Restricted use in oxidising environments at high temperatures, not recommended for use at low temperatures
T	Cu | CuNi	-200～350℃ -328～662℉	Above0℃, 1.0℃ or 0.75% Below0℃, 1.0℃ or 1.5%	Mild oxidation, reduction, vacuum or inert environments, good performance in humid environments, cryogenic and freezing applications	
E	NiCr | CuNi	-200～900℃ -328～1652℉	Above0℃, 0.7℃ or 0.5% Below0℃, 1.7℃ or 1.0%	Oxidising and inert environments	Restricted use in vacuum or reducing environments
N	NiCrSi | NiSi	-270～1300℃ -450～2372℉	Above0℃, 2.2℃ or 0.75% Below0℃, 2.2℃ or 2.0%	Alternative to Type K thermocouples for greater stability at high temperatures.	
K	NiCr | AlNi(Si)	-200～1250℃ -328～2282℉	Above0℃,2.2℃ or 0.75% Below0℃, 2.2℃ or 2.0%	Clean oxidised and inert environment	Restricted use in vacuum or reducing environments

□Appendix B - Instrument Connection Schematics







Conditions of use

Itum	Reference value or range
environmental temperature	20 ±5
Ambient humidity %RH	45～75
Atmospheric pressure Kpa	86～106
AC supply voltage V	86-265Vac ±2%
Voltage FrequencyHz	50/60 ±1%
AC Power Supply Waveforms	sine wave ß=0.05
electromagnetic interference	should be avoided
condition of ventilation	favourable
sunlight exposure	Avoid direct sunlight

Packing List

Name	Number
Main unit	x1
Power cable	x1
user manual	x1
Certificate of Conformity/Warranty Card	x1
QC report	x1
thermocouple wire	1 bar/per channel
KF2EDGK-3.5-15P Hole Seat	2 pcs/per channel
USB communications cable	x1
Rs232 communication cable	x1
Db9 male connector	x1

WASITES®

Foshan HZK Electronic Technology Co. , Ltd
Address: 701, Building 2, Tongde Intelligent Park, No.1 Dawei Road, Shangjia Shi Community, Ronggui Street, Shunde District, Foshan City, Guangdong Province, China.
Telephones:0757-22901187 Websites:http://www.hzk17.com

Please contact your local dealer for sales and service

Certificate of Conformity

Product Name: Multi-channel data recorder

Product Model: Wt210

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