Rek® 美瑞克仪器

MEIRUIKE INSTRUMENT

Manual

使用说明书

RK2518-32

（定制版）

精密电阻测试仪

使用说明书

深圳市美瑞克电子科技有限公司

foreword

Thank you for purchasing the products of Shenzhen Merrick Electronic Technology Co., Ltd.! Please read this manual carefully before use.

In this chapter, you will learn the following:

- Company description
- safety instruction
- safety/security information
- Limited warranty and scope of liability

Company description

pay attention to

This manual may not describe all the contents of the instrument, and the information contained in it has been corrected before printing. However, because Merrick Electronic Technology Co., Ltd. continuously improves its products, it reserves the right to modify the product specifications, characteristics, internal structure, appearance, accessories, packaging and maintenance procedures in the future, so the contents may change without prior

safety instruction

This manual records the information and precautions needed to operate this instrument safely and keep the instrument in a safe state. In operation

Please read the following safety-related matters carefully before use to ensure safe and optimal use.

Disclaimer: users should read the following safety information carefully before using the instrument. Merrick Electronic Technology will not be responsible for personal safety and property losses caused by users' failure to comply with the following terms.

warn

This instrument has been designed and tested for safety before leaving the factory, and it has been delivered in a safe state. If the measurement method is wrong, it may lead to personal accidents and instrument failure. Please read the instructions carefully and operate after fully understanding the contents. In case

Warn of

When you find the following abnormal situations, please immediately stop the operation and disconnect the power cord. Immediately contact the sales department of Merrick Electronic Technology Co., Ltd. for maintenance. Other units

- Abnormal operation of the instrument.
- Abnormal noise, peculiar smell, smoke or flash are generated by the instrument during operation.
- During operation, the instrument generates high temperature or electric shock.
- The power cord, power switch or power socket is damaged.
- Impurities or liquids flow into the instrument.

Warning: **This instrument is strictly forbidden to**

safety/security information

Symbols on instruments

	Indicates attention and danger. When there is this symbol or display on the instrument.
	Represents alternating current (AC)
	Represents a ground (grounding) terminal.
	Represents a fuse

Safety symbols: The precautions in this manual are marked as follows according to their importance.

 **warn**	Indicates attention and danger.
 **danger**	Indicates that there is a high risk of death or serious injury to the user if there is an operation error or use error.
 **pay attention to**	The product may cause damage to the product itself or other products in a specific situation or in practical application.
	Indicate prohibited behavior

Symbols related to standards:

	Marking of laws and regulations on the abandonment of electrical and electronic equipment

Other symbols:

	Details: indicating tips and details.
	Convention: indicates a Convention
	Reference: indicates the reference content or the reference destination.
	Represents a ground (grounding) terminal.
	Represents direct current (DC)
	Represents alternating current (AC)
	Indicates that the power supply is "on"
	Indicates that the power supply is "off"

Limited warranty and scope of liability

Shenzhen Merrick Electronic Technology Co., Ltd. guarantees that every RK2518 series instrument you buy is completely qualified in quality and measurement. This warranty does not include fuses.

Merrick Electronic Technology promises that the instrument mainframes and accessories produced by it will be free from any product quality problems such as material and process defects during the warranty period. During the warranty period, if the products are proved to be defective, Merrick Electronic Technology Co., Ltd. will repair or replace them for users free of charge.

From the date of delivery, Merrick Electronic Technology promises that the mainframes of its products will be guaranteed for two years, and other accessories will be guaranteed for one year. In case of hardware and software failure caused by the quality of the product itself during the warranty period, please show the product warranty card and maintenance registration card, and the product will be repaired free of charge by the maintenance department of Merrick or the maintenance point authorized by Merrick. For products beyond the warranty period, Merrick Electronic Technology will provide paid maintenance for users.

For products with free maintenance (no special problems), Merrick Electronic Technology promises to repair the instrument and return it to the user within five working days after receiving it, and bear the transportation expenses for the return trip.

In case of any of the following circumstances, Merrick Electronic Technology will not carry out free maintenance:

1、 Accidental damage caused during transportation.

2、 Instrument failure or damage caused by incorrect installation or use in a working environment other than that specified by the product.

3、 Man-made appearance damage of the product (such as surface scratch, deformation, etc.).

4、 Disassemble the machine to repair, modify and replace the device without permission, and the product warranty seal is torn.

5、 Failure or damage caused by irresistible factors (such as lightning strike).

6、 Direct or indirect damage caused by improper operation of users.

If the measurement of the instrument is not accurate or can't be measured due to improper operation of the user, and there is no problem with the instrument itself, the return expenses shall be borne by the user.

Guangdong province, China

Shenzhen meiruike electronic technology co., ltd

January 2022

Chapter 1 Matters needing attention in use

In this chapter, you will learn the following:

- Confirming packing contents
- Precautions for use
- Instrument firmware upgrade instructions

Confirming packing contents

Please confirm before use: When this instrument is delivered to you, please first check and confirm:

1、Please check whether the appearance of the product is damaged or scratched.

2、According to the following table, check whether there are any omissions in the instrument accessories:

Table 1-1 Instrument Accessories

seria	name	specifications	quantit	unit	remarks
one	instrument	RK2518-32	one	platfor	standard
2	Resistance test cable	RK25011D	one	assista	standard
three	Power cord (220V50Hz)	RK30010	one	root	standard
four	Fuse (0.5A slow melting)	\	2	only	standard
five	RS232 communication	RK31201	one	assista	standard
six	USB communication cable	RK31U01	one	root	standard
seve	HANDLER junction box	RK31H02	one	only	standard
eight	Temperature probe	RK30W1000A	one	individ	standard
nine	Terminal	RK25018-32	four	set	standard
10	Terminal start	\	one	hold	standard
11	operation instruction		one	share	standard
twel	test report		one	share	standard
13	work certificate		one	Zhang	standard
14	Warranty certificate		one	share	standard

If there is any damage or insufficient accessories, please contact the sales department or seller of Merrick Electronic Technology Co., Ltd. immediately. When transporting this instrument, please use the packaging materials when delivering it.

Table 1-2 Optional Accessories

serial	name	specifications	quantit	unit	remarks
one	Data acquisition software	RK2518-32	one	share	select to
2	Multimeter pen test clip	RK25011B	one	assista	select to
three	SMD kelvin test cable	RK25011A	one	assista	select to

Customers can make another selection according to their own requirements. If it is damaged or does not match their own selection, please contact the sales department or seller of Merrick Electronic Technology Co., Ltd. immediately.

Precautions for use

For you to use this instrument safely and make full use of its functions, please observe the following precautions.

	To prevent electric shock, please don't remove the main casing; There are high voltage and high temperature parts inside.
warn	Please do not modify, disassemble or repair. Otherwise, it will lead to accidents or personal injuries.
pay	In order to prevent the instrument from being damaged, please avoid vibration and collision during handling and use. Pay special attention to the failure caused by

1. About the placement and environmental conditions of this instrument

- **environmental conditions**

RK2518-32 series must be used under the following environmental conditions:

1) Temperature and humidity range: 0 ~ 40℃. Humidity: below 80%RH (no condensation).
2) Temperature and humidity range to ensure accuracy: 23 5℃. Humidity: below 80%RH (no condensation).
3) In order to ensure good ventilation, this test instrument must not block the ventilation hole.
4) The instrument, especially the test wire connecting the tested part, should be far away from the strong electromagnetic field to avoid interference with the measurement.

warn

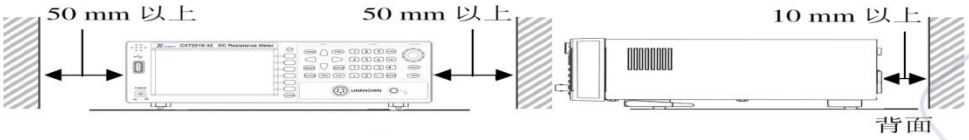
Please do not place this instrument in the following places, otherwise it will cause the failure or accident of this instrument.

- Places with direct sunlight or high temperature.
- Places where corrosive gas and explosive gas are produced.
- Places where strong electromagnetic waves are generated or near charged objects.
- Places with frequent mechanical vibration
- Wet and dewy places
- A dusty place
- Near induction heating devices (high-frequency induction heating devices, IH induction cookers, etc.)
- Places affected by water, oil, chemicals and solvents, etc.

pay	Please don't use it near devices that produce noise. If the noise affects the test object, it may cause the measured value to be unstable.

- **Placement method:**

1) In order to prevent the temperature of this instrument from rising, please keep a specified distance from the surroundings when placing it.



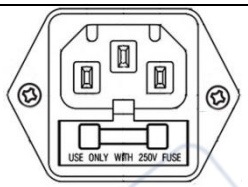
2) As kto put the bottom face down. This instrument can be used when the support is erected.

pay

- Please do not place it on an unstable pedestal or an inclined place. Otherwise, it may fall or turn over.

  Resulting in personal injury or host failure.

- **power requirement**



RK2518-32 series can only be used under the following power supply conditions:

1) Power supply voltage range: AC 220v 10% Power supply frequency: 50Hz/60Hz Power: ≤30VA.

2) The power input phase line L, neutral line N and ground line E should be the same as the power plug of this instrument.

3) This instrument has been carefully designed to reduce the clutter caused by the input of AC power supply.

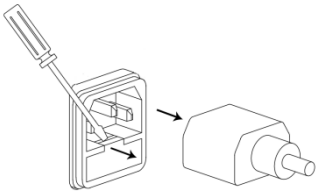
   However, it should be used in a low noise environment as far as possible. If it is unavoidable, Please install the power filter.

- To prevent the danger of electric shock, please connect the power ground wire to the earth reliably.

warn

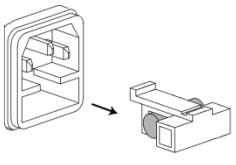
- Please confirm whether the sheath of power cord, test line, etc. is damaged or exposed before use. Because these injuries will cause electric shock accidents, please change to the model designated by our company.
- Before turning on the power supply, please confirm whether the power supply voltage recorded on the power supply connection part of this instrument is consistent with the power supply voltage you use. If the power supply voltage outside the specified range is used, it will cause instrument damage or electrical accident.

2. fuse



1) The instrument has been equipped with fuses in the factory, and users should use the fuses equipped by our company.

2) Replacement of instrument fuse. Open the fuse box on the power socket of the rear panel for replacement.



- Unplug the power cord and take out the fuse holder with a screwdriver. As shown on the right:

- Replace the fuse, as shown on the right:

warn	To avoid personal injury, please cut off the power supply before replacing the fuse.

3. Matters needing attention in measurement

dange	● Please don't get wet with this instrument or measure with wet hands.

- **On the use of power cord, test cable and conductor class**

Please use the power cord, test fixture or test cable provided by our company, user-made test fixture or test made by other companies.

Cables may cause incorrect measurement results. The instrument test fixture or test cable shall be kept clean, and the pins of the tested device shall be kept clean.

Keep it clean to ensure good contact between the tested part and the fixture.

dang er	● To avoid electric shock or short circuit accident, please cut off the power supply of the tested object before connecting the test cable. ● To avoid electric shock or short circuit accident, do not short circuit the top of
warn	● The top of the test clip is pointed, which is very dangerous. Please pay full attention when using it to avoid injury.
pay attention to	● In order not to damage the wires and test cables, please do not step on or clamp the wires or test cables. ● To prevent the failure caused by disconnection, please do not bend or pull the connection part of the wire or cable. ● To prevent disconnection, please pull out the power cord by holding the plug (except the power cord) when pulling it out from the socket or this instrument.

- **Before measurement**

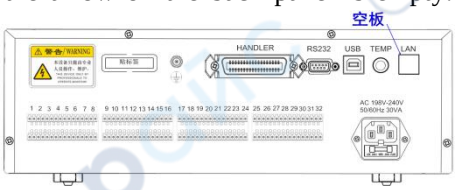
To achieve the test accuracy, please preheat the instrument for more than 30 minutes.

- **Matters needing attention in measurement**

pay attention to	● To avoid damaging the instrument, please do not input voltage or current to the measuring terminal. ● Do not measure the part where voltage is applied. Especially after the temperature rise test or withstand voltage test of transformer or motor, if it is measured immediately, it will induce voltage or residual charge and cause damage to this instrument. ● The internal resistance of the battery cannot be measured, otherwise the instrument will be damaged. When measuring the battery internal resistance, please use the battery internal resistance testing instrument. ● Please use the packaging materials when transporting this instrument.

warn

- Please don't make any alterations. Do not let non-repair technicians decompose or repair it.
- RK2518-32 The part indicated by the arrow on the back panel is empty. To avoid electric shock, please do not remove the blank board.
- The figure shows the blank board behind RK2518-32 resistance



Instrument firmware upgrade instructions

Upgrading this instrument is completed according to the following steps:

1、Copy the related upgrade files to the root directory of a U disk (no more than 4G) and insert them into the USB interface of the instrument.

2、Press and hold the SET key to start the machine, and "U DISK READ SUCCESS" will appear on the screen.

3、Press the < OK > key to upgrade, and the upgrade will be completed when the instrument is blank or jumps to the boot interface. Reboot to complete the upgrade.

warn

Please use the corresponding upgrade software of our company and do it under the guidance of our technicians, otherwise it will cause the failure or accident of this instrument.

Chapter 2 Product Overview

In this chapter, you will learn the following:

- Product summary and model description
- Technical specifications, features and main functions

2.1 Product Summary and Model Description

Product summary

RK2518 series multi-channel resistance tester is a high-precision and wide-range automatic DC resistance tester specially designed for multiple resistance tests. The instrument can simultaneously measure the resistance of 32 channels and display it on the screen. 24-bit color 7-inch color LCD screen with refreshing interface and convenient operation; The instrument has high anti-interference; Each channel has a range of 10Ω ~ 200Ω; The number of display digits is four and a half; The single-channel test speed can reach up to 40 times/second; The highest test accuracy is 0.05%; The temperature

compensation of the instrument can avoid the influence of environmental temperature on the test work; The instrument provides a variety of interface functions, which can facilitate data communication and remote control with PC. It has professional sorting function, directly matches the Handler interface without expansion, and is applied to the automatic sorting system to complete the automatic assembly line test. It can be equipped with RS232/USB/RS485 interface for remote control and data acquisition and analysis.

The instrument has 1-32 scanning test functions, and the specific scanning number can be specified by the user and displayed on the same page at the same time. The instrument can simultaneously perform mixed tests on 32 channels with different resistance values, and each channel has an independent comparator setting, and the results of the 32 channels are directly and independently output through the Handler interface. The display is intuitive. The instrument adopts high-precision constant current, which effectively eliminates the lead error through the measured part and five-terminal measurement. At the same time, the instrument adds the function of independent sorting and setting for each file, and the user can set the function directly. Users can directly set the upper and lower resistance limits or percentage errors for sorting, which improves the testing speed. The instrument has two trigger modes: single and continuous. There is no need for trigger signal when it is continuous, and only trigger signal or trigger key on the panel can be used for trigger measurement in the second single test, and the sorting result can be output through the photoelectric isolated Handler interface only in the single test.

This instrument can measure all kinds of high, medium and low value resistors at high speed and high precision by four-terminal test method. Contact resistance of various switches; Relay package and contact resistance; Winding resistance of transformer, inductor, motor and deflection coil; Coil resistance, shunt resistance, series membrane resistance, wire resistance; Metal riveting resistance of cars, ships and planes; Low DC resistance such as fuse, resistor, DC resistance of conductive rubber, printed board lines and perforated resistance. The instrument is widely used in research and development, production line, incoming material detection and other places.

Model description

RK2518-32 series has one model to choose from.

Model	measuring range	Basic accuracy
RK2518-32	10uΩ-200kΩ	0.05%

See appendix b for the complete version of resistance tester selection.

appo The complete works of all versions are introduced in this specification.

2.2 Product introduction (names and functions of each part)

2.2.1 positive description

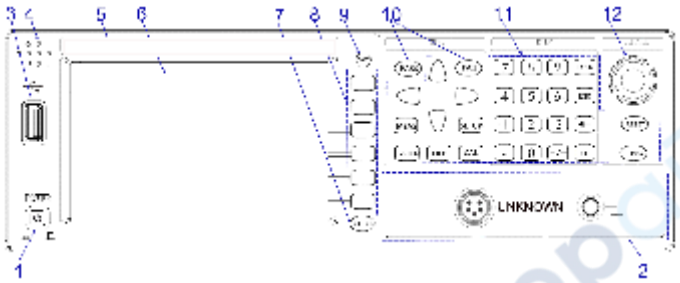


Figure 2-1 Front Panel

1、Power switch-The power switch is used to turn on or off the power supply.

Switch in "⏏" position is power on, and "⏻" position is power off.

2. Test terminal (input terminal)-Four-terminal test terminal, which is used to connect the test cable and measure the tested part.

3, U disk-USB device interface. Used to save test data on USB flash drive and upgrade firmware.

4. Horn mouth (buzzer hole)-the buzzer sound outlet.

5. Trademark and model-instrument trademark and model.

6. LCD screen-used to set test conditions and display measurement results.

7. CLEAR key-empty

8. Function soft key area-used to select the corresponding function under the LCD screen.

For details, see 2.3.2 "Keypad".

9. SAVE key-empty

10, sorting indicator (PASS/FAIL indicator-sorting qualified indicator.

The green light indicates that the test data is qualified, and the red light indicates that the test data is unqualified.

11. Keypad 2-a set of multifunctional keys, including numeric keys, direction keys, ESC keys, etc.

See For details, see 2.3.2 "Keypad".

12、Encoder (Shuttle)-used to move the cursor and select setting parameters.

2.2.2 keypad

1. Keypad 1: Main function soft key

Located at the lower end of the LCD screen, it is used to select the functions below the L screen. See the picture on the upper right.

appoint

The six wordless "dark gray" keys on the keys are keypad one, that is, the main function keys.

The functions of one or six keys in the keypad are "soft", that is, their functions are not fixed, and they have different functions on different display

2. Keypad 2: number keys, direction (up, down, left and right) keys, OK, ESC key, backspace (←) key,

Key LOCK key, trigger key, SET key and DISP main interface key.

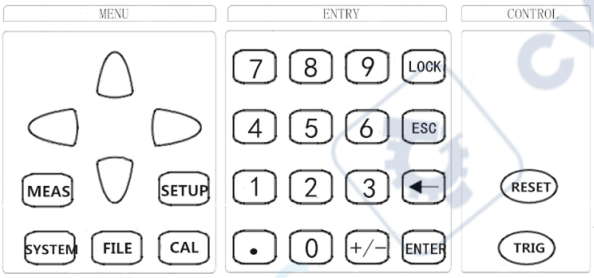


Figure 2-2
Keypad II

1）, keypad menu logo, see the right figure.

Menu options for each function of the keypad.

MENU: menu area; ENTRY: enter the area; CONTROL: operation area.

2）, menu-menu area key

- Universal arrow keys, as shown in the diagram on the right.

Up, down, left and right direction keys are used to move the cursor and select setting parameters.

- Measure (MEAS) key, as shown on the right.

Measurement main menu key. Press the [MEAS] key to enter the "Measurement Display" page of the main page.

On this page, you can display instrument measurement items.

On the measurement display page, select the function page menu corresponding to the function soft key area >.

- SETUP key, as shown in the figure on the right.

Measurement setting key. Press the [SETUP] key to enter the "Measurement Settings" page.

On this page, you can change the setting items of instrument measurement.

In the measurement setting, the corresponding function soft key area can be different with the setting parameters, and the function soft key has different definitions.

- SYSTEM key, as shown in the figure on the right.

The system sets the main menu button. Press the [SYSTEM] key to enter the system

setting page.

On this page, you can change the settings of the system.

In the system setting interface, the corresponding function soft key area can be different with the setting parameters, and the function soft keys have different definitions.

- FILE key, as shown in the figure on the right.

File system menu button. Press the file key to enter the file system page.

On this page, internal/external files can be accessed.

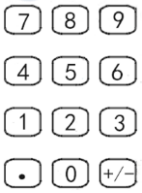
On the file system page, the corresponding function soft key area can be different with the setting parameters, and the function soft keys have different definitions.

- Sort (CAL) key, as shown on the right.

Sorting Settings menu button. Press the FILE] key to enter the sorting settings page.

On this page, you can change the upper and lower limits of sorting items.

On the sorting settings page, there is no corresponding function soft key area.



3）, entry-Enter the area key.

- Number keys, as shown on the right.

"0 ~ 9", decimal point "."and "+/-"are used to enter numerical values.

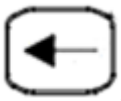
See See 4.1 for the input method of specific values.

- ENTER key, as shown in the figure on the right.

Used for confirmation after setting parameters such as numerical values.

- [ESC] key, as shown on the right.

No



- Backspace [←] key, as shown in the diagram on the right.

Backspace key in numerical input. Return to the next higher level; Only valid in the setting interface.

- Key lock [LOCK] key, as shown in the figure on the right.

Key lock key. Press for about 2 seconds, the key will be locked and the key lock light will be on; Press it for 2 seconds again, the key will be unlocked, and the key lock light will go out.

4), control-operation area key

- Reset [RESET] key, as shown in the figure on the right.

No

- Trigger the [TRIG] key, as shown in the figure on the right.

When the trigger source of the instrument is set to manual, press the TRIG key to perform a

trigger test on the instrument.

2.2.3 Measurement display interface-main interface (definition of display area)

This instrument has the following interfaces: < back-end measurement display interface >, < front-end measurement display interface >, < measurement setting interface >, < channel.

Select the interface >, < Measurement Display Reset Interface >, < Sorting Settings Interface >, < File System Interface >,

< system setting interface >, etc.

This section mainly introduces the main interface < front and back measurement display interface >.

- **Back-end measurement display interface**

The contents displayed in the < Back-end Measurement Display > interface are divided into the following display areas. As shown in Figure 2-3, the back-end measurement display interface.

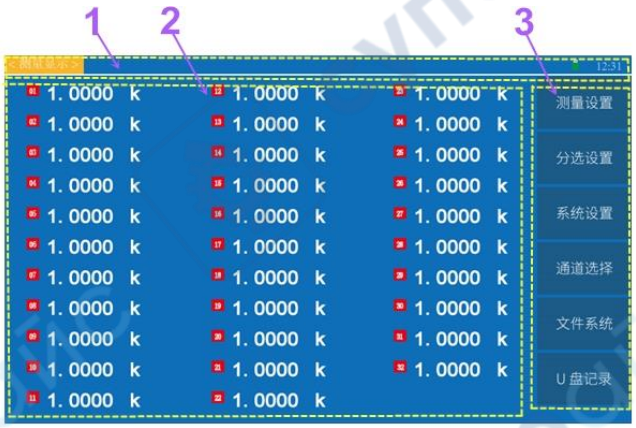


Figure 2-3 Rear-end Measurement Display Interface

1、Status bar display area 2, measurement result display area

3, function soft key display area

See: For details, see "4.3.1 Measurement Display Page".

- **Front-end measurement display interface**

The contents displayed in the front-end measurement display interface are divided into the following display areas. See figure 2-4:

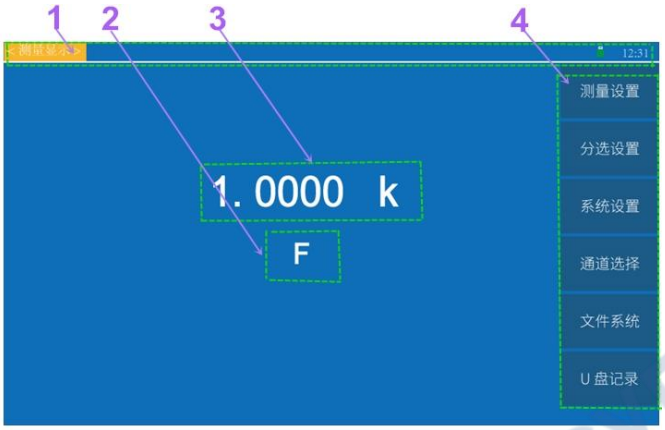


Figure 2-4 Front-end Measurement Display Interface

1. Status bar display area 2. Sorting result display area

3. Measurement result display area 4. Function soft key display area

See: For details, see "4.3.1 Measurement Display Page".

pay Never use sharp objects or nail tips to touch the screen, which may cause damage to the touch screen, and our company will not be responsible for the

2.2.4 Overview of rear panel

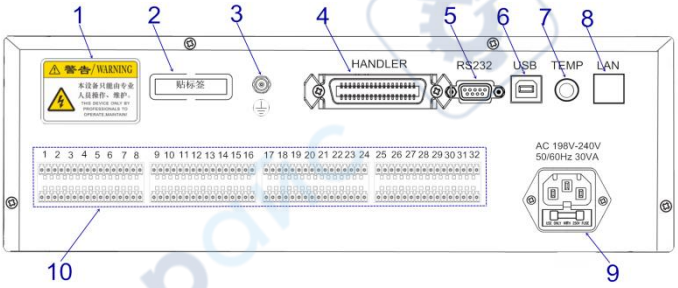


Figure 2-4 RK2518-32 Rear Panel

1、Caution (Warning) Label-Precautions for Instruments

2、Nameplate-used to indicate the specific model and number of the instrument.

3、Grounding column-this terminal is connected with the metal outer casing of the instrument. Used to protect or shield the ground connection.

4、HANDLER interface-can output sorting comparison result signal and end signal, and obtain "start" signal through this interface.

5、RS232 (or RS485) interface-connect with DB-9 cable. Realize 232/485 serial communication with upper computer (computer).

6、USB HOST interface-USB host interface is connected with a square USB cable.

7、Temperature probe interface-used to connect high-precision temperature sensor and test the external environment temperature.

8、Blank board-standby. It should be noted that in order to avoid electric shock, please do not remove the blank board.

9、Test end-1-32 test ends of the instrument, which are respectively used to connect test cables to measure 1-16 resistance values.

10、Power socket, fuse and power switch-the power socket is used for inputting AC power, and there is a fuse holder beside it (for inserting the fuse)

Dangerous wire protection instrument).

2.2.5 Instrument base bracket

The bracket of the instrument base can be adjusted, and the metal bracket near the base in front of the instrument can be propped up.

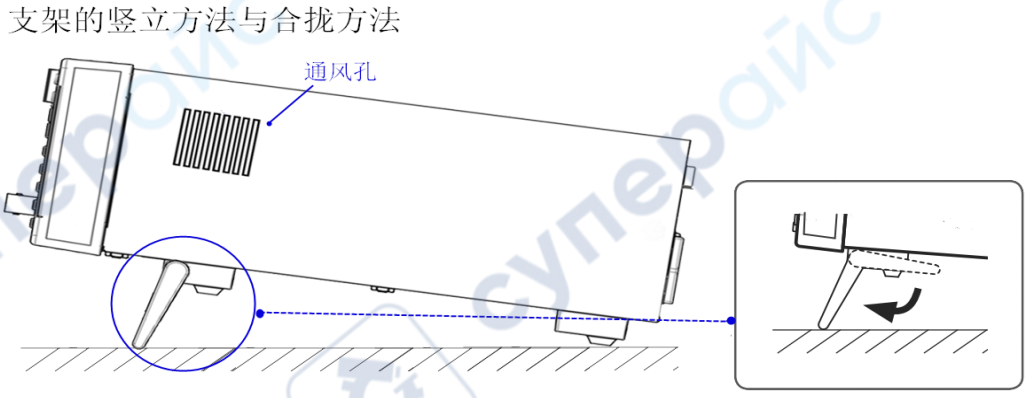
When closing the bracket, put away the metal supporting parts on both sides of the bottom of the instrument, as shown below.

When erecting the bracket, erect the metal supporting part of the front bracket at the bottom of the instrument. As shown below:

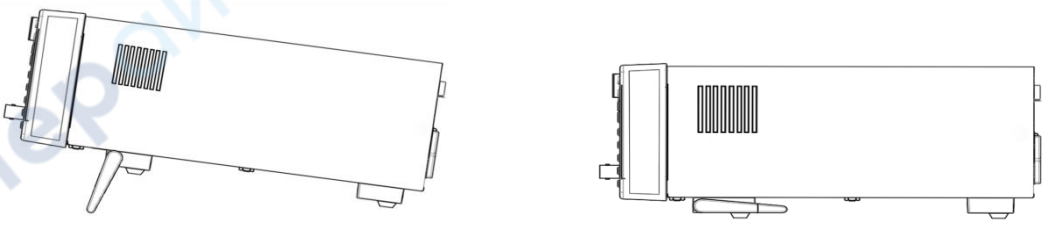
The instrument can also be installed on the equipment rack, on the instrument support frame, and the plastic parts of the supporting feet are provided with bottom plate fixing screws, which can be disassembled.

So as to be installed on the equipment rack. Please take good care of the parts removed from the instrument for reuse.

pay Please don't apply force from above when placing the bracket upright.



Visible position



Visual position 1 Visual position 2

Chapter 3 Preparation before Measurement

In this chapter, you will learn the following:

- Test flow
- Connect the power cord and connect the test cable.
- Connect the test cable
- Connection of external interface cables
- Turn on/off the power supply
- Parameter setting of the instrument
- Clear (not required)
- Connecting the tested part
- Start testing

3.1 Test flow

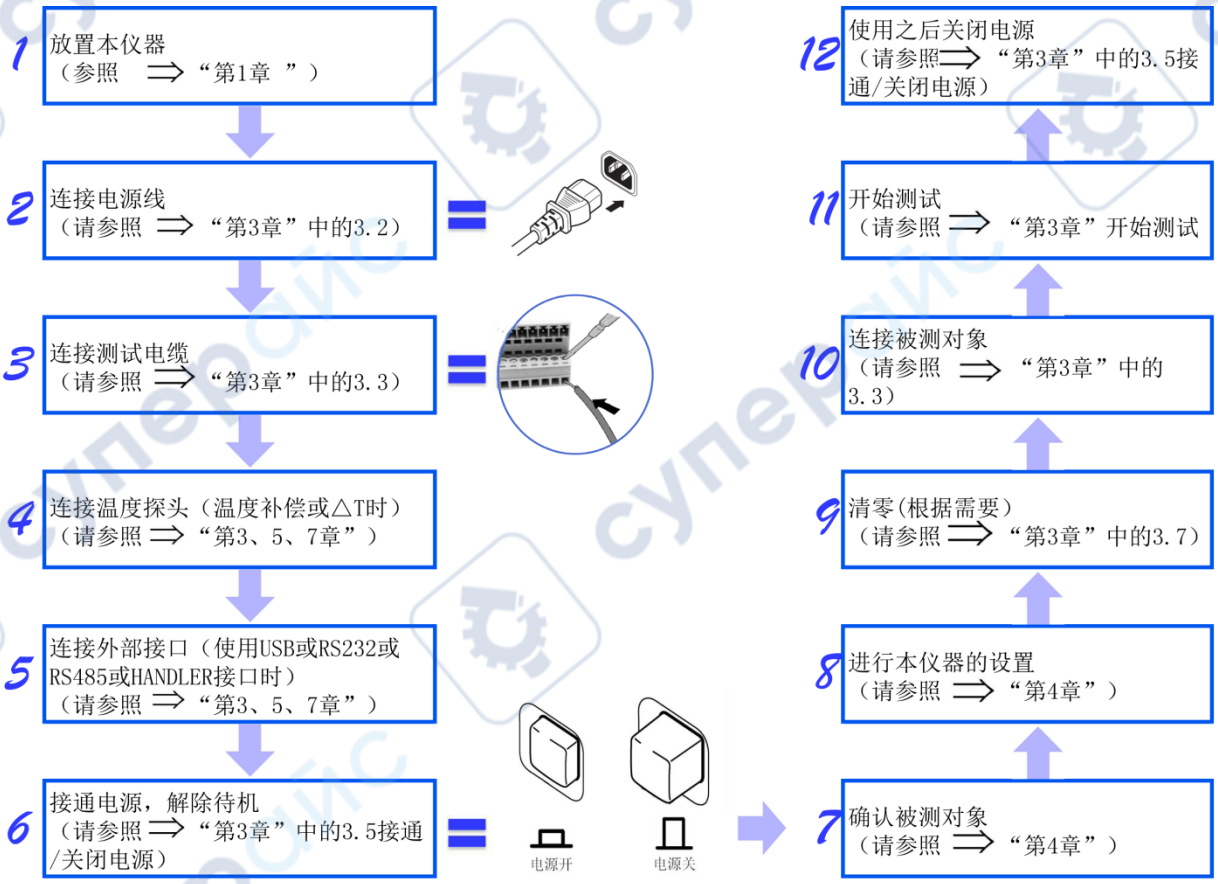
1. Inspection before measurement.

Before use, please confirm that there is no failure caused by storage and transportation, and use it after checking and confirming the operation. Confirmed as

When there is a problem, please contact the sales store or Merrick Company.

Please read the precautions before use.

2. The basic measurement flow is as follows.



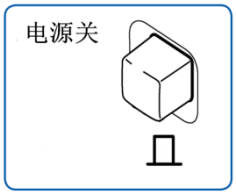
3.2 Connect the power cord

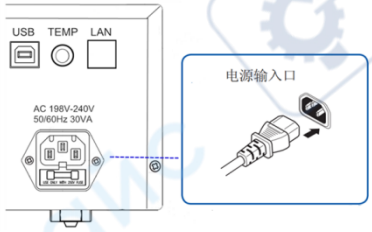
1. Please confirm that the power switch of this instrument is off.

2, confirm the power supply voltage and the instrument

Consistent, and connect the power cord to

Power input port on the back.





3. Plug the power cord into the socket.

For details, see "Chapter 1 Precautions for Use".

3.3 Connect the test cable with the tested part.

1. Connect the measuring probe or test fixture to the measuring terminal.

Please use the test cable or test cable (option) produced by Merrick Company.

pay attention to

- Do not apply voltage to the measuring terminal. Otherwise, this instrument may be damaged.
- When pulling out the probe BNC connector, be sure to pull it out after unlocking it.

- Front-end test connection

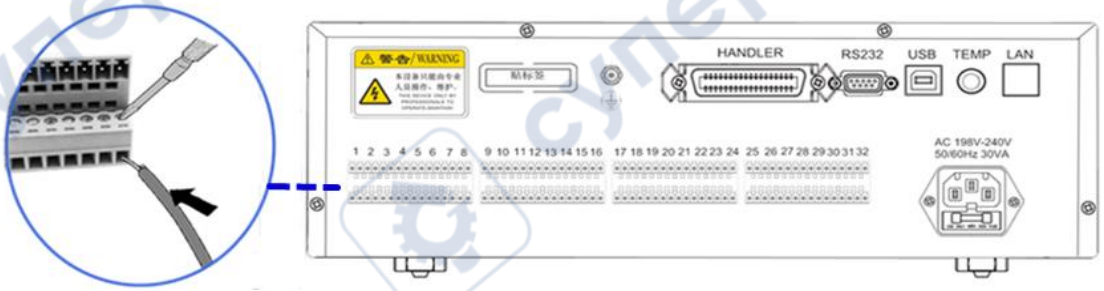
1) Align the groove of the aviation plug connector with the positioning head of the aviation connector at the test end in front of this instrument and insert it, and rotate it to the right to lock it.

2) When disassembling, unlock the left-turn connector and pull it out.

- See the diagram below for the connection of the test end at the back end of the instrument.

1）Please insert the terminal plug into the terminal socket correctly according to the notch direction.

2）Connect the test line as shown in the figure below.



For details, please refer to "Connection Method of Back-end Tester".

2. Our company can choose test cable.

For details, please refer to "Optional Accessories" in "Notes for Use in Chapter 1".

3. Connecting the DUT (connection of the DUT (Rx))

- Connection method of front-end test terminal: see the example on the right.

  Please use the enclosed Kelvin test clip for testing:

  Before entering the test, connect the tested parts according to the picture on the right.

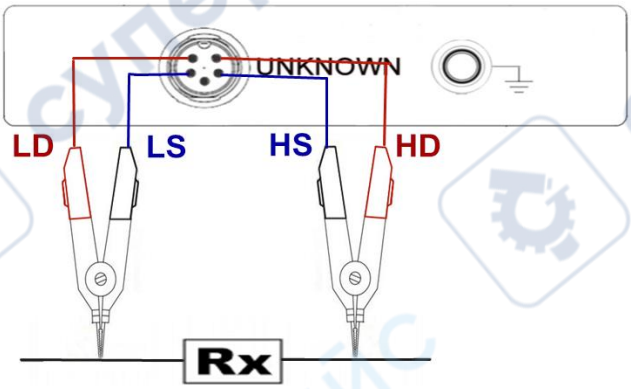
  The test ends are:

  LD: Current excites the low end;

  LS: voltage sampling low end;

  HS: Voltage sampling high end.

  HD: high-end current excitation;



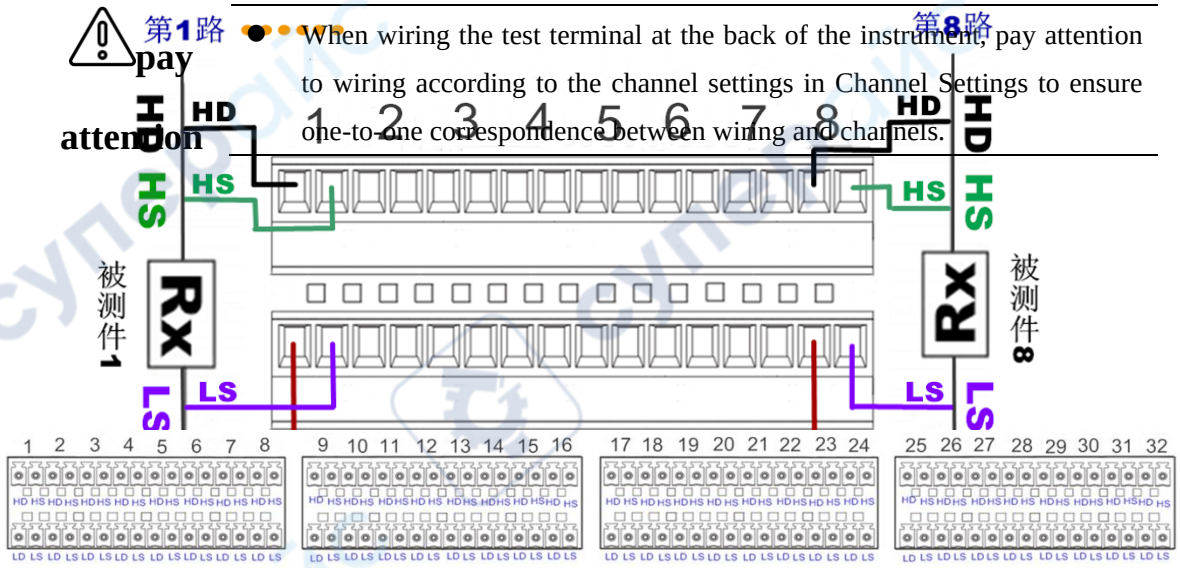
- Connection method of instrument back-end test end

pay attention

- Please use the terminal provided by us to connect the wires according to the drawing.

pay attention

- When wiring the test terminal at the back of the instrument, pay attention to wiring according to the channel settings in Channel Settings to ensure one-to-one correspondence between wiring and channels.



detail

Please use GND terminal for shielding when measuring high resistance (resistance above 1M).

warn

- Do not apply voltage to the measuring terminal, otherwise it may cause damage to the instrument.
- Please do not connect the current source and voltage source directly to the test terminal, otherwise the instrument may be damaged.

3.4 Connection of Temperature Probe

1. Connection of temperature interface (when TC is used; As needed)

There is a PT1000 platinum resistance temperature sensor for temperature input.

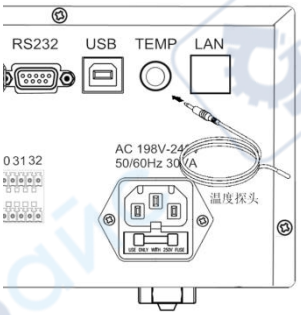
- **Before connecting the temperature probe**

pay attention to

- In order to prevent equipment or temperature sensor failure, please cut off the power supply of the instrument before connecting it.
- When the socket of the temperature probe is dirty, please wipe it.
- The temperature probe is not waterproof. Do not let liquids such as water flow in.
- If you hold the temperature probe in your hand, you will pick up the induced noise, which may cause the measured value to be unstable.

- **Connecting temperature sensor**

1. Confirm that the instrument is in the power-off state.
2. Connect the temperature sensor to the back of the instrument. "Temperature TEMP" terminal. Please be firm Fix it. Please stick it firmly in the end.
3. Please place the top of the temperature probe on the measured object. Near.



warn

The temperature probe is precisely machined, and it may be damaged if excessive voltage pulse or static electricity is applied.

- **When using a temperature probe**

pay attention to

- Before measurement, the instrument should have enough time to warm up. It usually takes about 30 minutes.
- Please measure after the object to be temperature compensated and the temperature probe are fully adapted to the environment. If the measurement is not fully adapted, there will be a big error.
- If you hold the temperature probe with bare hands, it will induce noise,

For details, see "Use of Temperature" in "Chapter 7 Remote Control".

3.5 Connection of External Interface Lines

1. Connection of RS232 communication cable (as required)

For details, see Chapter 7 Remote Control.

2. Connection of RS485 communication cable (optional)

For details, see Chapter 7 Remote Control.

3. Connection of USB communication cable (as required)

For details, see Chapter 7 Remote Control.

4. Connection of HANDLER (as required)

For details, see Chapter 7 Remote Control.

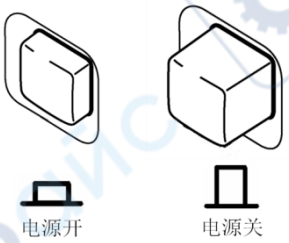
5. U disk storage (as required)

If users need to store test data with a U disk, they can insert the U disk into the USB DEVICE interface on the front panel of the instrument. Currently,

This interface only supports USB2.0.

See "5.2 File System Description" for details.

3.6 Turn on/off the power supply



1、Power on: logo on the lower left of the rear panel (see the right)

The key of is the power switch.

2、Start sequence: start the power switch and the instrument will be completed automatically.

Self-inspection process.

- The screen brightens
- Display boot screen, display company name,

  Model and version number;
- Instrument self-inspection.

3、Boot default value: After the instrument successfully completes the self-test process,

The last setting before shutdown will be displayed.

When it is used for the first time, the initial settings will be displayed, and refer to "Instrument Parameter Settings" as needed.

4、Preheating time: In order to achieve the specified accuracy, please preheat the instrument for at least 30 minutes after turning on the power.

5、Turn off the power supply: press the power switch on the back panel of the instrument, and the

switch is in the "O" state, "see the above figure".

If the power cord is unplugged from the power input port, it will automatically shut down.

When the power supply is turned on again, start it according to the settings before turning off the power supply.

warn	Please don't switch the instrument on and off quickly and continuously (or frequently). Instant impact may shorten the service life of the instrument and
pay attention	● When the power supply is cut off when the power supply is on, it can be started even if the power switch button is not pressed. ● During normal measurement, do not flip the fixture at will. ● Before starting the machine, you need to warm up for 30 minutes, then connect the test fixture, and clear the short circuit of the test fixture before

3.7 Parameter setting of the instrument

For details, please refer to "Chapter 4 Parameter Settings".

3.8 reset

1、This instrument has the function of auto-zero stabilization, and zero clearing calibration is generally not necessary. The base number of RK2518 series is basically 0, so it is used

Households generally do not need to be cleared; However, we still reserve the zero clearing function for users.

2、After turning on the power supply and preheating, it can be reset. When the ambient temperature changes or the probe is changed, reset it.

When the residual display content appears due to the influence of electromotive force, etc., it is cleared. 4-terminal wiring (Kelvin connection) is difficult.

, eliminate the residual resistance of 2-terminal wiring. Clear it.

3、If the user needs it, the instrument can be short-circuited and cleared.

User clearing steps:

1）When the test wire clamp is short-circuited, the belt end of the test fixture should be clamped with the wire end, and the clamp without the wire end should be clamped without the wire end; this

When the LCD screen display base should be close to 0. If the test line clamp is connected backwards, the test line data will change greatly, or

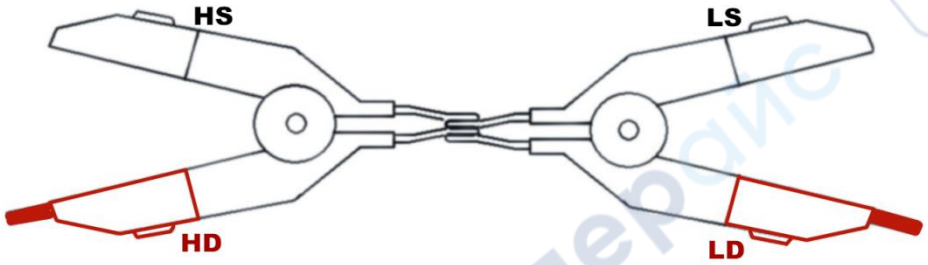
Display a large negative resistance value; At this time, the correct base can be obtained by reversely connecting the test clip. At this time, set the reset function.

When "ON" is turned on, the instrument will start full-range automatic zero clearing. (Note: It takes about 3 seconds to clear, waiting for the full range.

After clearing, it will be cleared before ending); Take the following figure as an example

to test the short circuit method of fixture for correct zero clearing.

earing.



Operation: in the < measurement settings > interface: use the < direction > key (or rotate the encoder) to move the cursor to the.

< short circuit clearing >, the soft key area of the screen will show off and on. Press the right side of the screen

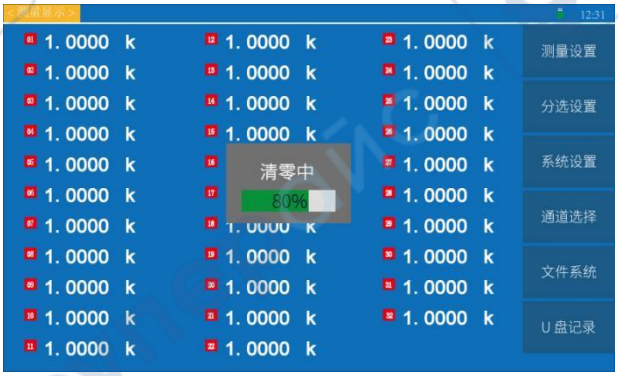
The corresponding < function soft key >, select whether or not to reset.

There are two clearing functions: open and close. When open, the resistance base in the test circuit can be cleared.

Open: open < short circuit clearing >. Open the circuit and clear the instrument. At this point, the instrument will automatically pop up the < measurement zero bound.

Face, see the diagram at the bottom right; At the end of the progress bar, zero clearing is completed. After clearing, the instrument automatically returns to the test <

Quantity display > interface, and return to the test state at the same time.



Under automatic range, the instrument clears all ranges.

When the fixed measuring range is selected manually, the instrument is only used for the current quantity

The process is cleared.

If the reset is successful, the reset data will be stored in nonvolatile memory.

In memory.

Turn off: turn off the short circuit of the instrument to clear, and the instrument test value will be

Do not clear the base.

pay Make sure that the test input is correctly short-circuited before turning on zero clearing

3.9 Start the test

Range selection

RK2518 series has 9 measuring ranges: 20mΩ ω, 200mΩ, 2ω, 20ω, 200ω, 2kω, 20KΩ, 200KΩ and 2m ω.

When the range setting of the instrument is set to automatic, the instrument will choose the best input resistance for different measured resistances to

Achieve the ideal test results.

point Using locked range can effectively improve the test speed.

pay The front and rear test wires cannot be connected at the same time, that is, the front test wire must be unplugged during the back-end test and the back-end test wire must be unplugged during the front-end test.

Chapter 4 Measurement Parameter Setting and

Operation

In this chapter, you will learn the following:

- Confirm the measured object
- Parameter setting and digital input method
- Introduction and parameter setting of measurement setting page
- Introduction and parameter setting of channel selection page

4.1 Confirm the tested object

Please use temperature compensation when the temperature dependence of the measured object is large.

warn not wire the front end when measuring the back end, which will affect the asurement accuracy.

pay The measured value may be unstable in the case of transformer or open screw tube coil with large measuring inductance. In this case, please connect a thin film

point out When measuring a single measured object, wait for the instrument to automatically jump gear, and then read the data after being selected to the appropriate gear. Measure the same measured object, measure the first qualified product, lock the range after the data is stable, and fix the instrument at this range for measurement in the next measurement, which can improve the measurement

pay When measuring industrial frequency power transformer and other similar products through external trigger, please extend the time sufficiently or measure through

4.2 Parameter setting and numerical input method

pay Parameters and data set by users will be automatically saved.

1. Parameter setting method

Step 1: use the < direction > key or < encoder > to move the cursor to the menu bar where parameters need to be set, and select the required parameters.

Then press < ENTER > key " ENTER " or press < encoder >. Will change from green to red.

Step 2: select the parameters displayed at the bottom of the screen through the corresponding < function soft key > on the right side of the screen, and the setting is complete.

2. Numerical input mode

Step 1: use the < direction > key or < encoder > to move the cursor to the menu bar where the value needs to be set; Press any < number > key,

The cursor changes from green to red, and the numerical setting state is entered at this

time.

Step 2: Enter the numerical value through the number keys < 0 ~ 9 >, decimal point <./,> and sign <+/->, and the screen will be right.

The < function soft key > of the edge can select the unit for setting the value; Press the < Backspace > key " " to change the previous

The input characters are deleted.

Step 3: select the parameters (such as units, etc.) displayed on the right side of the screen through the corresponding < function soft key > on the right side of the screen or press " ENTER ".

< confirm ENTER > key, and the setting is complete.

Parameter setting and numerical input shall be operated according to the above

4.3 Introduction and parameter setting of measurement display and setting page

4.3.1 Measurement display page

The instrument adopts 800*480 LCD screen, which will automatically enter the measurement display interface after being turned on; Or press MEAS

[MEAS] menu key, and the < Measurement Display > page will also be displayed on the screen.

Measurement display pages include: front-end measurement display interface and back-end measurement display interface.

- **Back-end measurement display interface**

The contents displayed in the < Back-end Measurement Display > interface are divided into the following display areas. As shown in Figure 4-1, the back-end measurement display interface.

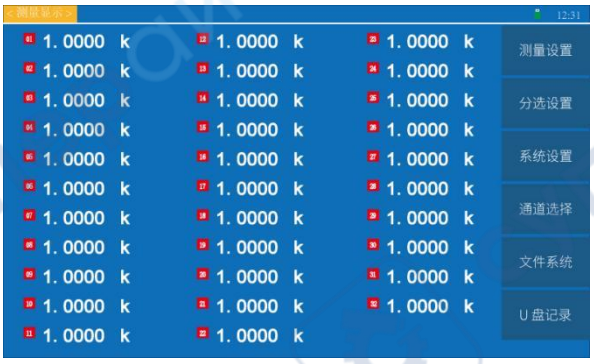


Figure 4-1 Rear-end Measurement Display Interface

Operation: After the instrument is turned on, it will automatically enter the < Measurement Display > interface; Or press the [MEAS] menu key in any interface, and the < measurement display

The > page will also be displayed on the screen. As shown in Figure 4-1.

1), the status bar display area

This area indicates the name of the currently displayed page, the current ambient temperature (temperature sensor should be inserted and temperature compensation should be turned on),

U disk prompt and time.

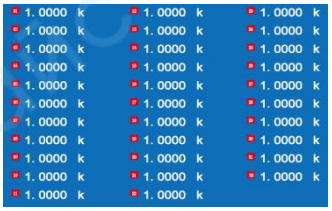
As shown on the right

2) Measurement result display area

This area displays the direct reading resistance of each channel of the instrument.

Test result (direct reading value is displayed at the same time)

As shown on the right:



pay attention to

If it is near 0Ω, the measured value may become negative. When the measured value becomes negative under other circumstances, please confirm the following:

- The test line is connected reversely.
- Clear

3) Function soft key display area-This area is used to display the function menu corresponding to the cursor area.

This page can be realized by the buttons corresponding to the corresponding function soft key area on the right side of the screen.

"Measurement settings, sorting settings, system settings, channel selection, file system, and USB flash drive.

Switch of the "Record" function. As shown on the right:

- Measurement Settings (enter the measurement settings page)

Operation: press the corresponding function soft key on the right of < Measurement Settings >, or press [MEAS] in any interface.

Menu key, < measurement display > page will also be displayed on the screen.

See "4.3.3 Measurement Setting Interface" for details.

- Sorting Settings (enter the sorting settings page)

Operation: press the corresponding soft key to the right of < sorting setting >, or press the [CAL] menu key in any interface, < sorting setting >.

The page will also be displayed on the screen.

See "6.1 Sorting Settings Interface" for details.

- System Settings (enter the System Settings page)

Operation: press the corresponding function soft key on the right of < System Settings >, or press the [SYSTEM] menu key in any interface, <

The system settings > page will also be displayed on the screen.

See For details, please refer to "5.1 System Settings Page".

- Channel selection (enter the channel selection page)

Operation: press the corresponding function soft key on the right side of < channel selection > to enter the routing setting interface.

See "4.3.2 Channel Setting Interface" for details.

- File system (enter the internal file settings page)

Operation: press the corresponding function soft key on the right of < file system >, or press the [FILE] menu key in any interface, < file

The system > page will also be displayed on the screen.

See "5.2 File System Interface" for details.

- **U disk record**

Press the corresponding soft key under "U disk record" to save the current measurement result to the U disk.

If the user has not inserted the U disk before, it will not be saved; If the U disk is inserted and the instrument is recognized (that is, there is a U in the instrument status bar)

Disk letter display), then start saving.

When a U disk is inserted, when the U disk symbol is red, it means that the "U disk switch" is in the closed state;

When a U disk is inserted, when the U disk symbol is green, it means that the "U disk switch" is in the open state;

When there is no USB flash drive inserted, there is no USB flash drive symbol at this time, which means there is no USB flash drive inserted at present.

For details, see 5.2 "File System Interface".

- **Front-end measurement display interface**

The contents displayed in the front-end measurement display interface are divided into the following display areas.

See Figure 4-2 for the interface of < Front-end Measurement Display >.

Figure 4-2 Front-end Measurement Display Interface

Operation: if the option of < front end > is selected as < front end > in < measurement setting interface >, it will automatically enter the front end after being turned on.

< measurement display > interface. As shown in Figure 4-2:

The front-end < Measurement Display > interface includes: status bar display area, measurement result display area and function soft key display area.

1）, status bar display area

This area indicates the name of the currently displayed page, the current ambient temperature (temperature sensor should be inserted and temperature compensation should be turned on),

U disk prompt and time.

As shown on the right

2) Measurement result display area

This area displays the first channel direct reading resistance of the instrument.

Test result (direct reading value is displayed at the same time)

3) Measure the display area of sorting status.

This area is the sorting (file) display result area; Used to display files during system testing.

Sorting result (when sorting function is turned on). As shown on the right:

In which: pass-stands for qualified.

Fall-stands for sorting failure.

pay The first channel of front-end test and back-end test is the same.

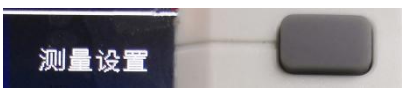
3) Function soft key display area-This area is used to display the function menu corresponding to the cursor area.

For details, see "Back-end Measurement Display Interface in 4.3.1".

4.3.2 Introduction and parameters of measurement setting interface

Operation: There are the following two types.

Method 1: On the measurement display page, press < Measurement Settings > screen right.



Edge corresponding function soft key, the instrument into the < measurement set.

Home > page.

Method 2: Press the [SETUP] menu key and the < Measurement Settings > page

on the right side of the screen in any interface, will also be displayed.

On the screen.

As shown in figure 4-3, measurement settings page:

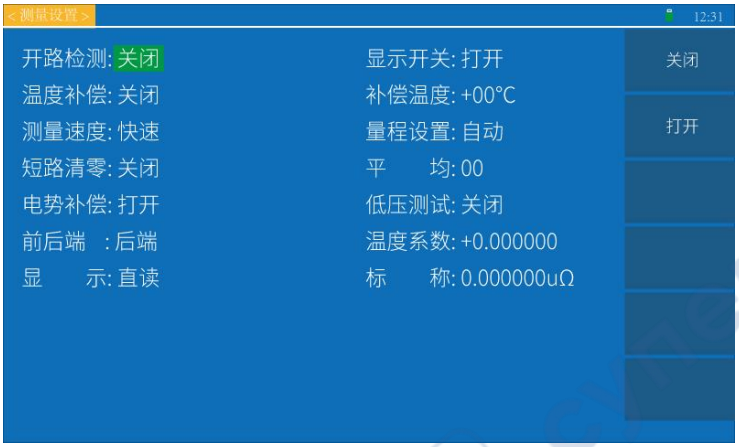


Figure 4-3 Measurement Settings Interface

In the < Measurement Settings > interface, there are status bar display area, measurement settings parameters and function soft key area. As shown in Figure 4-3:

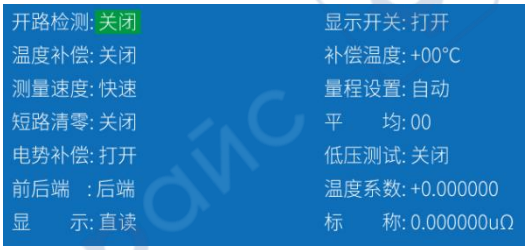
Description of measurement setting interface

1, the status bar display area

This area indicates the name, U disk prompt and time of the currently displayed page.

As shown on the right:

1、The application of each parameter setting and function soft key in the measurement setting interface is described as follows:



In the < measurement settings > interface, you can set the instrument's

Test parameters are: < open circuit detection > and < temperature system.

Number >, < temperature compensation >, < compensation temperature >, < measurement

Quantity speed >, < range setting >, < short circuit clearing >,

< average >, < potential compensation >, < low voltage test >, etc.

1) Open circuit detection-used to select the open circuit detection function of the instrument (only 2519 has this function).

Operation: press the < direction > key (or rotate the encoder) to move the cursor to the < open circuit detection >.

The soft key area of the screen will show off and on. Press the corresponding function on the right side of the screen

Can soft key, choose whether to turn this function on or off.

When open: If one end of the four-terminal test terminal fails to test, the test result of the measurement display interface will turn yellow to prevent it.

Misjudgment of test results.

When closed: no poor contact detection is made.

2) Display switch-used to select whether the instrument displays the resistance value.

Operation: press the < direction > key (or rotate the encoder) to move the cursor to the < open circuit detection >.

The soft key area of the screen will display on and off. Press the corresponding function on the right side of the screen

Can soft key, choose whether to turn this function on or off.

When on: Displays the resistance value.

When closed: resistance value is not displayed.

detail

- Turning off the display can improve the test speed of the instrument.

3) Temperature compensation-used to set the temperature compensation function (TC) of the instrument.

Operation: press the < direction > key (or rotate the encoder) to move the cursor to < temperature compensation >.

The soft key area of the screen will show off and on; Press the corresponding function on the right side of the screen

Can soft key, choose whether to turn this function off or on.

When turned on: the resistance value is converted into the resistance value at the reference temperature for display.

When closed: the resistance value is displayed normally without conversion.

pay

When the temperature compensation is turned off, the instrument status bar no longer displays the temperature test value.

When the user needs temperature compensation, the temperature sensor should be connected to the temperature interface on the back panel of the instrument. Temperature display

The temperature value measured by the temperature sensor.

The component resistance value obtained by testing at the current ambient temperature is converted to the ambient temperature value set by the user:

Calculation formula: $Rt = Rt0/\{1 +\alpha*(t-t0)\}$

Rt resistance measured at current ambient temperature; Rt0 corrected resistance value

The compensation temperature set at t0 (usually set at 20℃ or 25℃); T the temperature of the environment.

Temperature coefficient of α material

When the user needs temperature compensation, the temperature sensor should be connected to the temperature interface on the back panel of the instrument.

For example, the resistance measured at 20℃ is 100Ω (assuming the material coefficient is 0.03930ppm),

Then the value of the resistance at 10℃ is: 96.22, that is:

R10 = Rt0 / { 1 +α*(t-t0)} =100/1+ 0.03930 *（20-10）= 96.22Ω

4) Compensation temperature-Set the temperature to be compensated when the instrument uses the temperature compensation function. I. e. in "temperature compensation" above

T0 in the formula of

Operation: There are two input methods.

Method 1: press the < direction > key (or rotate the encoder) to move the cursor to the < compensation temperature >, and press any < number > key and.

<+/-> key; After entering the required value, press the [ENTER] key (or press the encoder), and the cursor will change from red.

Turn green. At this point, the setting is complete.

Method 2: press the < direction > key (or rotate the encoder) to move the cursor to < compensation temperature >, and press the corresponding ↑ (++),

Function soft keys of ↑ (+), ↓ (-) and ↓ (-), which can add or subtract numbers and input the required values;

Press the [ENTER] key (or press the encoder), and the cursor will change from red to green. At this point, the setting is complete.

appoint

- ↑↑ (++)

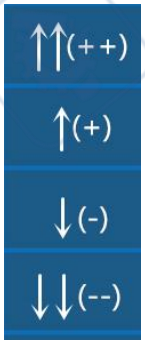
Press the function soft key, and the instrument will quickly increase the set value upwards, with steps of 10.

- ↑ (+)

Press the soft key of this function, and the instrument will increase the set value upwards, with a step of 1.

- ↓ (-)

Press the function soft key, and the instrument will decrease the



5) Measuring speed-Set the measuring speed of the instrument.

Operation: press the < direction > key (or rotate the encoder) to move the cursor to the < measuring speed >.

The soft key area of the screen will display fast, medium and slow. Press the right side of the screen to correspond.

Function soft key, select the required measuring speed.

A test is completed from test generation-analog-to-digital conversion-operation to display and sort the measurement results as follows

Stop. Test speed refers to the number of tests that can be completed per second.

The test speed of RK2518 series is mainly determined by the following factors:

a) Integral sampling period

b) Measurement delay (time from startup to measurement)

c) Channel switching stabilization time

d) Measurement result display time

Single channel measurement speed: fast: 35 times/sec, medium speed: 20 times/sec, slow speed: 12 times/sec.

Time required for scanning all channels: (potential compensation, temperature compensation, open circuit detection and U disk recording are all closed):

model	**fast**	**intermediate speed**	**low speed**
RK2518-32	840ms	1350ms	2000ms

The lower the measuring speed, the higher the measuring accuracy, and the higher the measuring speed, the more susceptible to the external environment.

detail

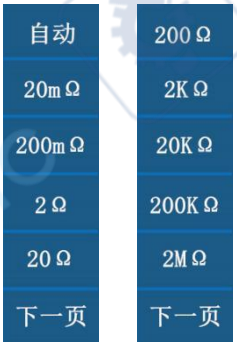
The above parameters are the speed of single-channel test when the potential compensation and open circuit detection are off, and the U disk recording and temperature compensation are not carried out. When the potential compensation

point out

Setting the average number of times can improve the sampling stability, but it will slow down the testing speed.

When measuring the resistance above 20K, it is not suitable to use quick test.

6) Range setting-select the instrument to automatically or lock the range.



Operation: press the < direction > key (or rotate the encoder) to move the cursor to the < range setting.

Set >, the soft key area of the screen will be displayed.

Automatic, 20mΩ, 200mΩ, 2Ω, 20Ω, Next Page;

200Ω, 2 Ω, 20KΩ, 200 Ω Next page;

Press the corresponding function soft key at the bottom of the screen to select the required range setting.

When automatic mode is selected, the measuring range of the instrument is in automatic mode, and the instrument will automatically select the appropriate measuring range for measurement.

When selecting other ranges, the instrument will jump to this range for measurement.

detail

- When changing the range, if the resistance value of the measured object is obviously less than the range, the error will increase.

The current of each range is shown in the following table.

Resistance range	Normal test	Low voltage test
20mΩ	500mA	---
200mΩ	500mA	---
2Ω	100mA	---
20Ω	10mA	---
200Ω	1mA	---
2KΩ	1mA	---
20KΩ	100uA	---
200KΩ	10uA	---
2MΩ	---	---

point out

When measuring automatically, the instrument will automatically select the appropriate range for measurement, but it takes a long time to complete the range selection, so it is not suitable for batch testing, and it is not easy to select the appropriate range when testing a large capacitive load. When testing similar

7) Short-circuit clearing-used for short-circuit clearing of instruments.

See For details, see 3.7 "Clearing"

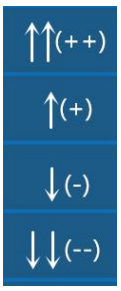
8) Average-used to set the average number of tests of the instrument. Setting range: 1-999.

Operation: There are two input methods.

Method 1: press the < direction > key (or rotate the encoder) to move the cursor to < average >, and press any < number > key and <+/->.

Key; After entering the required average number of times, press the [ENTER] key (or press the encoder), and the cursor will change from red.

Turn green. At this point, the setting is complete.



Method 2: press the < direction > key (or rotate the encoder) to move the cursor to the < average > position.

According to the corresponding functions of ↑ (++), ↑ (+), ↓ (-) and ↓ (-)

Soft key, which can add or subtract numbers and input the required average times; press

[ENTER] key (or press the encoder), and the cursor changes from red to green.

At this point, the setting is complete.

According to the average number of times set by the user, the test data is smoothed. Averaging and displaying a plurality of measured values.

By using this function, the deviation of measured values can be reduced.

Users can smooth the measured data (that is, digital filtering) by setting the average sub-instrument, so that the data can be

More stable.

detail When the trigger mode is external, the average function does not work regardless of the switch

point Setting the average number of times can improve the sampling stability, but it will slow down the testing speed.

9) Potential compensation-used to select the thermoelectric potential compensation function of the instrument (only 2519 has this function).

Operation: press the < direction > key (or rotate the encoder) to move the cursor to < potential compensation >.

The soft key area of the screen will display on and off. Press the corresponding function on the right side of the screen

Can soft key, choose whether to turn this function on or off.

When turned on, the instrument automatically performs pulse (forward and backward) test on the test current, eliminating the thermoelectric potential pair test in the test loop.

The impact of the results. This function is recommended to be turned on when high-precision measurement of low-value resistance is required.

When closed: the instrument test current is unidirectional, and at this time, the measurement of low-value resistance will be affected by the thermoelectromotive force in the loop. by

It is recommended to close the test piece when it has a large inductance or the user has extremely high requirements for test speed.

10) Low voltage test-used to select the low voltage test mode of the instrument (only 2519 has this function).

Operation: press the < direction > key (or rotate the encoder) to move the cursor to the < low voltage test >.

The soft key area of the screen will show off and on. Press the corresponding function on the right side of the screen

Can soft key, choose whether to turn this function on or off.

When turned on: the maximum test voltage (i.e. open circuit voltage) of the instrument is ≤60mV. effective

The measuring range is 0-2Ω,2Ω-20Ω.

It is generally used to test some tested parts which are sensitive to test voltage.

When closed: the instrument is tested according to the normal range file.

11) Front and rear ends-used to select whether to display the test value of the front end of the instrument or the test value of the rear end.

Operation: press the < direction > key (or rotate the encoder) to move the cursor to the < front and rear ends >.

The soft key area of the screen will display the back end and the front end. Press the corresponding on the right side of the screen

< function soft key >, select the required front and back display modes.

12) Temperature coefficient-Set the temperature coefficient of the instrument.

Operation: there is a 2-clock operation mode.

Method 1: press the < direction > key (or rotate the encoder) to move the cursor to < temperature coefficient >, and press any < number > key and.

<+/-> key; After entering the required value, press the [ENTER] key (or press the encoder), and the cursor will change from red.

Turn green. At this point, the setting is complete.

Method 2: press the < direction > key (or rotate the encoder) to move the cursor to < temperature coefficient >.

According to the corresponding function of ↑ (++), ↑ (+), ↓ (-) and ↓ (-)

Key, you can add or subtract numbers, and enter the required values; Press the [ENTER] key.

(or press the encoder), the cursor changes from red to green. At this point, set Done.

The temperature coefficients of common metals are shown in the table below:

metal	Temperature
silver	0.0038
copper	0.00393
aluminium	0.0039
iron	0.005
ncu28 2.5	0.0007

13) Display-used to select the display mode of the instrument.

Operation: press the < direction > key (or rotate the encoder) to move the cursor to < display >.

The screen soft key area will display direct reading,%. Press the corresponding < work on the right side of the screen.

Can soft key >, select the required display mode.

Select direct reading: the instrument will sort and display the upper and lower limits of direct reading; Setting the upper and lower limit values, measuring

The value will be compared with the set value to determine whether it is higher than the upper limit (H), lower than the lower limit (L), or above.

Between the lower limits (p).

Select%: the instrument will sort and display the upper and lower limits of percentage. Instruments can be used for nominal values and percentages.

Setting, if the set nominal value is 100(% percentage) and the upper and lower limits are 10, then this value is 100.

+/-10%, comparing the measured value with this set value to judge whether it is the upper limit (H) or lower than the lower limit (L),

Or qualified products within the set value range.

14) Nominal-Set the nominal limit of the instrument.

Operation: there is a 2-clock operation mode.

Method 1: press the < direction > key (or rotate the encoder) to move the cursor to the < nominal > position, and press any < number > key and <+/->.

Key; After entering the required value, press the [ENTER] key (or press the encoder), and the cursor will change from red to.

Green. At this point, the setting is complete.

Method 2: press the < direction > key (or rotate the encoder) to move the cursor to the < nominal > position.

According to the corresponding functions of ↑ (++), ↑ (+), ↓ (-) and ↓ (-)

Soft key, which can add or subtract numbers and input the required values; Press [ENTER]

Key (or press the encoder), the cursor changes from red to green. At this point,

Setup is complete.

Nominalization is carried out in the case of percentage nominal value. Used to calculate the tolerance percentage of the resistance value compared with the nominal value.

The calculation formula is: ((resistance value-nominal value)/nominal value) × 100%.

pay Nominal is only used when sorting is set to "%".

4.3.3 Introduction and parameter setting of channel selection page

Operation: On the measurement display page, press < Channel Selection > on the right side of the screen.

The corresponding function soft key, enter the < channel selection > page.

As shown in figure 4-4:

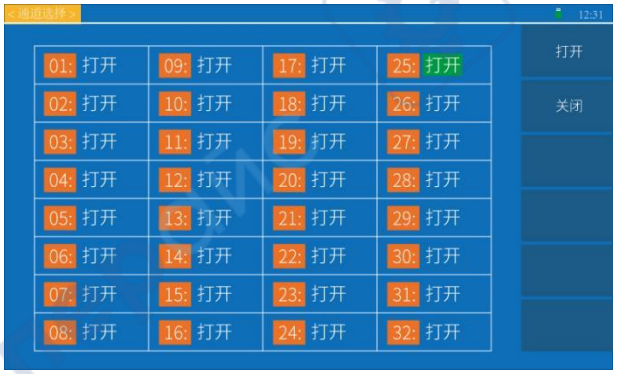


Figure 4-4 Channel Selection Interface

In the < channel selection > interface, there are status bar display area, selectable channels and

function soft key area. As shown in figure 4-4:

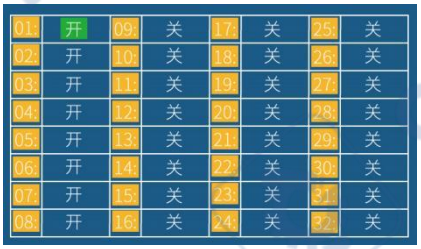
Description of channel selection interface

1, the status bar display area

This area indicates the name, U disk prompt and time of the currently displayed page.

As shown on the right:

2、The parameter settings of the channel selection interface and the application instructions of the function soft keys are as follows:



Operation: press the < direction > key (or rotate the encoder) to move the cursor to.

< 01-32 > according to the number of channels required, the soft key area of the screen

The field will display open, closed. Press the function soft corresponding to the screen.

Key, select the required measuring channel. As shown on the right:

In the channel selection interface, you can select each channel of the instrument < 1-32 >.

Chapter 5 System Settings and File Management

In this chapter, you will learn the following:

- System setting interface
- File system interface
- File System Description (Store/Call Function)

5.1 System Settings Interface

Operation: There are the following two types.

Method 1: On the < Measurement Display > page, press the right side of the screen.

Corresponding < system settings > function soft key, instrument

Enter the < system settings > page.

Method 2: Press the [SYSTEM] menu key on the right side of the screen in any interface, and the < System Settings > page will also be displayed.

On the screen.

As shown in figure 5-1, the system settings page:

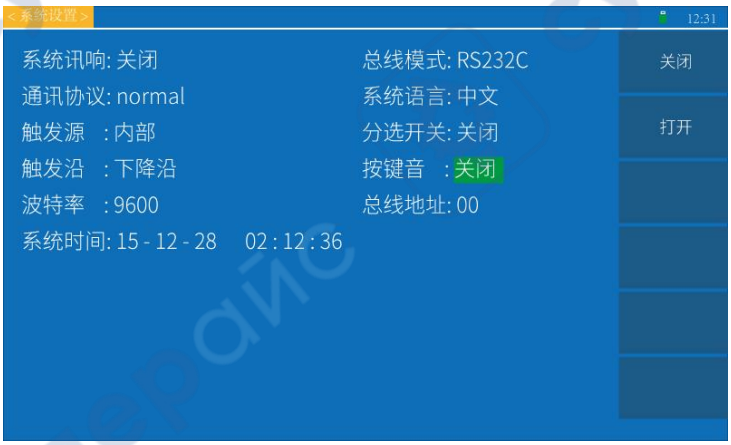


Figure 5-1 System Settings Interface

Description of system setting interface:

1, the status bar display area

This area indicates the name, U disk prompt and time of the currently displayed page.

As shown on the right:

2. The parameters in the system setting interface are described as follows:

In the < system settings > interface, you can set the instrument's

< system response >, < bus mode >, < communication protocol.

Discussion >, < system language >, < trigger source >, < before and after

Terminal >, < trigger edge >, < key tone >, < baud rate >

, < bus address >, < system time >, etc.

1) System response-used to select the response mode of the instrument.

Operation: press the < direction > key (or rotate the encoder) to move the cursor to the < system sound >.

The soft key area of the screen will display qualified, unqualified and closed, and press the right side of the screen to check.

Press the < function soft key > to select the required system response.

Off: No matter what the test result is, the buzzer will not sound.

Qualified: When the test result is qualified, the buzzer will sound.

Unqualified: When the test result is unqualified, the buzzer will sound.

2) Bus mode-select RS232/485/USB port for remote control.

Operation: press the < direction > key (or rotate the encoder) to move the cursor to the < bus mode >.

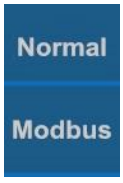
RS232C, USB and RS485 will be displayed in the soft key area of the screen, and press the screen.

The corresponding < function soft key > on the right, and select the required bus mode.

The instrument can be operated and controlled remotely through these three interfaces.

See Chapter 7 "Remote Control" for details.

3) communication protocol-select the communication protocol mode of the bus.



Operation: press the < direction > key (or rotate the encoder) to move the cursor to the < communication protocol >.

Normal and Modbus will be displayed in the soft key area of the screen, and press the right side of the screen to correspond.

< function soft key >, select the required communication protocol mode.

See 7.2 "Communication Protocol" for details.

4) System language-Select the language mode of the instrument interface.

Operation: press the < direction > key (or rotate the encoder) to move the cursor to < system language >.

The soft key area of the screen will display Chinese and English. Press the corresponding < work on the right.

Can soft key >, select the required system language.

When Chinese is selected, all interfaces of the instrument will be displayed in Chinese.

When English is selected, all interfaces of the instrument will be displayed in English.

5) trigger source-select the trigger source to start the instrument measurement.

Operation: press the < direction > key (or rotate the encoder) to move the cursor to the < trigger source >.

The soft key area of the screen will display internal, external and manual. Press the right side of the screen.

Should be < function soft key >, select the required trigger source.

The user can select the trigger mode; Trigger is divided into internal, manual and external.

Internal: continuously measure the measured part and output the results.

Manual: press the "[TRIG]" key on the panel, and the instrument will make a measurement and output the result, which is usually in a waiting state.

External: after receiving the "start" signal from the outside through the HANDLER port on the back panel or the 232/USB/485 interface, proceed.

Measure and output the measurement results once, and then enter the waiting state again.

6) Sorting switch-Select to turn on/off the sorting function.

Operation: press the < direction > key (or rotate the encoder) to move the cursor to the < sorting switch >.

The soft key area of the screen will display on and off; Press the corresponding < work on the right side of the screen.

Can soft key >, choose whether to open or close the sorting function.

When on is selected: the instrument sorting function will be turned on.

When Off is selected: the sorting function of the instrument will be turned off.

7) Trigger Edge —— When triggered externally, it is selected to be triggered by the rising edge or falling edge of the trigger signal.

Operation: press the < direction > key (or rotate the encoder) to move the cursor to the <

trigger edge >.

The soft key area of the screen will display falling edge and rising edge. Press the screen

The corresponding < function soft key > on the right, and select the required trigger edge.

When the rising edge is selected, the instrument starts the test when the rising edge of the inverted trigger signal is detected;

or vice versa, Dallas to the auditorium

8) key tone-select the prompt tone when the operation key is pressed.

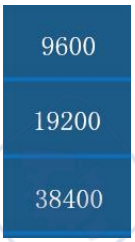
Operation: press the < direction > key (or rotate the encoder) to move the cursor to the < key tone >.

The soft key area of the screen will display on and off. Press the corresponding on the right side of the screen

< function soft key >, select the required key tone.

When on is selected: the buzzer sounds when the key is pressed, indicating that the key has been pressed.

When off is selected: the buzzer will not sound when the key is pressed.



9) Baud rate —— Select the communication rate of the instrument. There are three groups of baud rates to choose from.

Operation: press the < direction > key (or rotate the encoder) to move the cursor to < baud rate >.

The screen soft key area will display 9600, 19200 and 38400. Press the screen right

Edge corresponding to the < function soft key >, select the desired baud rate.

10) Bus Address-Select the address of the instrument in the bus. Bus address range: 00-99.

Operation: there is a 2-clock operation mode.

Method 1: press the < direction > key (or rotate the encoder) to move the cursor to the < bus address >, and press any < number > key and.

<+/-> key; After entering the required value, press the [ENTER] key (or press the encoder), and the cursor will change from red.

Turn green. At this point, the setting is complete.

Method 2: press the < direction > key (or rotate the encoder) to move the cursor to the < bus address >.

According to the corresponding function of ↑ (++), ↑ (+), ↓ (-) and ↓ (-)

Key, you can add or subtract numbers, and enter the required values; Press the [ENTER] key.

(or press the encoder), the cursor changes from red to green. At this point, set

Done.

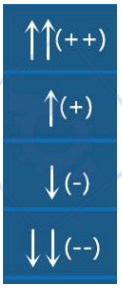
When the instrument uses RS485 interface or MODBUS protocol to connect the bus with multiple instruments at the same time, it can pass the bus address.

Only when the bus address and the local address in the sent command are the same can the instrument accept the command.

11) System time-the correct time to set the local time zone of the system; After setting, the instrument is automatically saved.

For example, at 8: 15: 25 am on May 13th, 2020, the display format is: 20-05-13 08: 15: 25.

Operation: press the < direction > key (or rotate the encoder) to move the cursor to < system time >.



Then move the cursor to the time to be entered, and select in sequence:-Year-

Month-day-hour-minute-second; Press the corresponding ↑ (++) and ↑ (+) on the right side of the screen.

, ↓ (-), ↓↓ (-) function soft keys, you can add or subtract numbers, and the input is required

The required system time is enough.

5.2 file system interface

Operation: There are the following two types.

Method 1: On the measurement display page, press the corresponding on the right side of the screen.

< file system > function soft key, enter the < file system

System > page.

Method 2: press the [FILE] menu key and the < file system > page will also be

on the right side of the screen in any interface, displayed in.

On the screen.

As shown in figure 5-2, the file system page:

Figure 5-2 File System

Interface

In the < file system > interface, there is a status bar display area, an area where internal files (1-5 files) can be saved, and a function soft key area.

Description of file system interface:

1, the status bar display area

This area indicates the name, U disk prompt and time of the currently displayed page.

As shown on the right:

2. The parameters of the internal file system interface are described as follows:

RK2518 series instruments can put users

The set parameters are stored in the form of files.

序号	内部文件	-------	状态
01	DATA1		
02	DATA2		
03	DATA3		
04	DATA4		
05	DATA5		

Non-volatile memory inside the instrument.

When the same setting is used next time,

The user does not need to reset these parameters,

Just load the corresponding file, and you can get the last set parameters.

See the upper right picture.

The internal file page displays information of five files, including file names and file states.

1）internal file

Operation: press the < direction > key in the < file system > interface (or rotate the encoder) to turn the light

Move the cursor to < internal file >, and the soft key area of the screen will display internal and back.

Out. Press the corresponding < function soft key > on the right side of the screen to select the required function.

When < internal > is selected, the instrument will operate on internal files.

When < exit > is selected, the instrument will return to the main page of measurement display.

2) Internal file data

Operation: press the < direction > key in the < file system > interface (or rotate the encoder) to turn the light

Move the cursor to the required file name, and the soft key area of the screen will display loading and saving.

Save and exit. Press the corresponding < function soft key > on the right side of the screen, and select the required.

The function of,

In the < file system > interface, the user can save the setting parameters of the instrument (speed, measuring range, upper and lower limits, etc.) as 1-5.

Group data, convenient for users to quickly read the setting parameters.

a[illegible]t

The file system shows whether the information of five files on this page has been read or saved.

Internal files: data1～data5

Data1-data5 refer to five addresses that can be saved and read inside the instrument. Users use these five addresses.

The address can store 5 sets of measurement parameter data. Users can choose the file address. Move the cursor to the corresponding address, right

The address is read and saved.

pay attention to

If a file already exists at the corresponding file serial number position when saving the file, the original file will be overwritten by saving.

(1) loading

Select a file, and then press the corresponding < Function Soft Key > under < Load > to import the setting parameters stored in the U disk into the instrument.

(2) Save

Select a file, and then press the corresponding < function soft key > below < Save > to save the measurement results to the U disk.

Select a file, and then press the corresponding < function soft key > under < refresh >.

(3) Quit

Press the corresponding < function soft key > below < exit >: the page will exit the file system and return to the < measurement display > interface.

ee

For details, please refer to "5.3 File System Description".

5.3 Description of file system (file type stored or called/function of saving test data)

1. Brief Introduction of Storage/Call File Types

The instrument can save/call the current measurement conditions. Up to 5 sets of measurement conditions can be saved. Through the storage/call function,

Users can save the instrument configuration information to the internal Flash or external U disk of RK2518 series, and can also save the instrument's

Internal Flash or data stored in external USB flash drive. The following table describes the available saving methods and their uses:

The following table shows the available storage methods and their uses:

Preservation method		Is it callable?	use
type	file layout		
Configuration saving (internal FLASH)	Internal FLASH16 hexadecimal code	be	Save the configuration status of the instrument to the internal Flash.
Data saving (external USB flash drive)	2518SAVE.XLS	no	Save the measurement results to a USB flash drive.

pay attention to

The following points should be paid attention to when using U disk on RK2518 series:

1. Use USB2.0 USB drive.

2. The U disk file system used should be FAT16 or FAT32 and formatted with FAT16 or FAT32 standard.

3. Before connecting U disk with RK2518 series, users are advised to back up the data saved on U disk. Our company is not responsible for the data loss in the USB storage device when it is used with the instrument.

2. Operation steps of saving instrument test data to USB flash drive

1) Insert the USB flash drive and wait for the instrument to recognize the USB flash drive (about 5-10S). If the USB flash drive is recognized, the status bar at the top of the instrument screen will be displayed.

Show a USB drive letter.

As shown on the right

2) In the main interface < Measurement Display >, press the screen.

The corresponding "U disk record" in the following soft keys can

Control the on and off of the u disk record.

If the recording function of the U disk is turned off, the letter of the U disk will be displayed in red.

If the recording function of U disk is turned on, the letter of U disk will change from red to green.

3), U disk status prompt

When the U disk symbol is green, it means that the instrument is writing data to the U disk;

When the U disk symbol is red, it means that the U disk is connected but the instrument has not written data to the U disk;

When there is no USB flash drive symbol, it means that there is no USB flash drive inserted at present.

4) Upgrade the software with a USB flash drive.

warn Please use the corresponding upgrade software of our company and do it under the guidance of our technicians, otherwise it will cause the failure or accident of this instrument.

Chapter 6 Sorting Comparator

In this chapter, you will learn the following:

- Sorting setting interface
- Xunxiang
- Sorting process

6.1 Sorting Settings Interface

Operation: There are the following two types.

Method 1: On the < Measurement Display > page, press the corresponding on the right side of the screen.

< Sorting Settings > function soft key to enter the < Sorting Settings > page.

Method 2: Press the [CAL] menu key on the < Sorting Settings > page will also be On the screen.

CAL

the right side of the screen in any interface, and displayed on the screen.

As shown in figure 5-2, the file system page:

Figure 6-1 Sorting Settings Interface

In the < Sorting Settings > interface, there are status bar display area, settable sorting parameters and function soft key area. As shown in Figure 6-1:

Description of sorting setting interface:

1, the status bar display area

This area indicates the name, U disk prompt and time of the currently displayed page.

As shown on the right:

2. The parameter settings in the sorting setting interface are described as follows:

The interface of < Sorting Settings > can set the function of instrument comparator.

Description of setting parameters of sorting setting:

1. Previous page and next page.

Press the corresponding < Previous > and < Next > function soft keys on the right side of the screen to select settings.

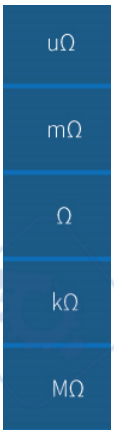
The upper and lower limits are 1-8, 9-16, 17-24, or 25-32.

2. Synchronization

Press the corresponding < synchronization > function soft key on the right side of the screen to synchronize the upper and lower limits of the 1-32 channels into the upper and lower limits of the 1 channel.

This process will take 2-3 seconds.

3、Upper and lower limits



The upper and lower limits are used to judge the sorting result output of the instrument.

When direct reading is displayed, the upper and lower limits of direct reading are set in the table in Figure 6-1.

When displayed as a percentage, the upper and lower limits of percentage are set in the table in Figure 6-1.

Operation: the upper and lower limits of direct reading can be set by pressing the < direction > key (or rotating the encoder).

Move the cursor to the upper and lower limit positions to be set, and press any < number > key.

Then enter the required number through the < number > key (the percentage can be set through the <+/-> key

The sign of the upper and lower limits), press the corresponding function soft key on the right side of the screen to input.

Unit, setup is complete.

When entering the numerical setting of the upper and lower limits, the function soft key area on the right side of the screen will be converted to unit selection, and press the right side of the screen to check.

Press < function soft key > to enter the unit.

Operation: the upper and lower limits of percentage can be set by pressing the < direction > key (or rotating the encoder) to move the cursor to the required setting.

, press any < number > key, and then enter the number through the < number > key (you can use the <+/-> key.

Symbols for setting the upper and lower limits). Press the corresponding function soft key

on the right side of the screen to enter the unit, and the setting is complete. .

6.2 sound

< system response > in the < system settings > interface, refer to "section 5.1" to enter the < system settings > interface and select the system response.

When < beep > is set to off, the buzzer will not beep regardless of the test result.

When < message response > is set to ON, it is qualified: when the test results of all channels are qualified, the comparator output is qualified and the buzzer sounds.

Unqualified: When one test result is unqualified, the comparator output is unqualified and the buzzer sounds.

oint A buzzer can be used to inform the judgment result.

See "5.1" for details.

6.3 PASS/FAIL indicator light

PASS and FAIL indicators: namely, sorting qualified indicators

According to the output of the sorting comparator, it shows that it is superior/inferior or qualified.

See the right picture.

1. The 

green light (PASS) means that the test data of all test channels (routing has been turned on) are qualified.

2. When 

the red light is on (FAIL), it means that the test data of the test channel whose routing has been opened is unqualified all the way.

6.4 sorting process

RK2518 series has three sorting outputs, namely: Grade 1 qualified P; Super H in 1st gear; Over l in 1st gear.

pay attention to

- Before sorting, we need to set the upper and lower limits in the "Sorting Settings Interface". The upper limit set by the user must be greater than the lower limit, otherwise the comparator will not work normally.
- It should be noted that if the measured resistance is negative, the

There are 32 sorting outputs in RK2518 series, corresponding to 1-32 PASS/FAIL respectively. According to the upper limit set by the user.

And judging the sorting output of the measurement results.

At the end of each test cycle of RK2518 series, the resistance values of 1-32 channels will be compared and judged, and through the measurement of instrument screen.

Try the color /USB or 232 or 485/HANDLER interface output to inform the user of the PASS/FAIL result of 1-32 channels.

When the front-end test is carried out, the test results of the front-end test are compared and judged according to the lower limit of the first road.

Chapter 7 Remote Control

In this chapter, you will learn the following:

- RS232/485 communication mode
- Instrument communication protocol
- HANDLER interface communication mode
- USB HOST communication mode

7.1 RS232/485 communication mode

1. Before connecting to RS232C/485 connector

pay attention to

- In order to avoid accidents, please do not plug and unplug communication cables during operation.
- When connecting or disconnecting the communication cable, be sure to cut off the power supply of this instrument and equipment. Otherwise, it may lead to misoperation or failure.

2. Interface description

At present, the widely used serial communication standard is RS-232 standard, which can also be called asynchronous serial communication standard. RS is:

The abbreviation of the English name of "Recommended Standrad", 232 is the standard number, and the standard is USA Electric.

A standard officially published by the Sub-Industry Association (IEA) in 1969, which stipulates that one bit at a time is transmitted through a data line.

pay

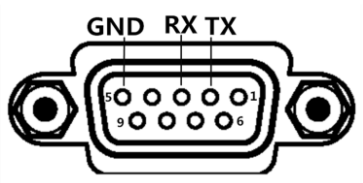
Like most serial ports in the world, the serial interface of this instrument is not strictly based on RS-232 standard, but only provides a minimal subset.

3. Connection mode

Instrument RS232 signal and pin comparison table

Signal name	abbreviate	Connector pin number
receive data	TX	2
TXD	RX	three
Signal grounding or common return line	GND	five

- RS232 connection mode:



When connecting with RS232, please prepare a direct connection type that meets the specifications of this instrument.

RS232 cable. This instrument uses No.2, No.3 and No.5 needles, and no other needles are used.

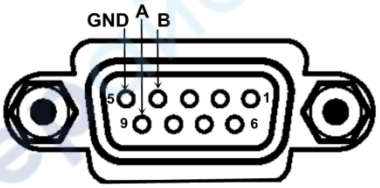
- 485 connection mode (optional):

RS485 is a standard that defines the electrical characteristics of the driver and receiver in a balanced digital multipoint system. This standard is defined by the telecommunications company.

Definition of trade association and electronic industry alliance. The digital communication network using this standard can be used under the condition of long distance and high electronic noise

Effectively transmit signals in the environment of.

485 interface is optional, and it is a standard 3-wire (A, B, GND).



Communication mode, long-distance high-speed communication.

The specific connection mode of RS485 is as shown on the right:

7.2 Instrument communication protocol

Instrument communication protocols are divided into Normal and Modbus. They can be switched in instrument system settings.

1, instrument communication protocol (normal)

This instrument uses RS-232c standard asynchronous serial communication bus interface to communicate with external control equipment. The transmission baud rate can be set in the instrument.

Preset (9600,19200,38400 optional). 8 data bits, 1 stop bit, no check bit. The logic level of the signal is ±12V.

The maximum transmission distance is 15 meters. The serial interface adopts direct communication, and only uses TXD (transmit), RXD (receive) and GND (ground).

Three signal wires, using a nine-core standard interface socket.

Data sent by the instrument (RK2518-32) to the upper computer (173 bits in total)

explain	data bit	ASCii	Hexadecimal	remarks
START	0	:	3AH	Starting position
ADR	one		00H-63H	Mailing address. The range is decimal 0-99. If the bus address in the instrument system settings is 99, this bit is 63H.
Spare bit	2		03H	
1st resistance data+resistance unit	3-7	The hexadecimal resistance value returned is 4 hexadecimal bytes converted from floating point resistance value. A total of 5 bytes		Resistance value data: for example, the decimal number is 25.16, and the hexadecimal number is 0x41 0xC9 0x47 0xAE, so data byte 1 is 0xAE, data byte 2 is 0x47, data byte 3 is 0xC9 and data byte 4 is 0x41. If stored in a 4-byte array, a[0]=0xAE, a[1]=0x47, a[2]=0xC9, and a[3]=0x41. If the resistance value is open or out of range, a[0]=0x2d, a[1]=0x2d, a[2]=0x2d, and a[3]=0x2d. + Resistance unit: divided into u,m,O,k,M,U,%, which respectively represent micro-ohm, milliohm, ohm, kiloohm, megaohm, open resistance and percentage resistance. (The corresponding hexadecimal codes are

				75H,6DH,4FH,6BH,4DH,55H,25H respectively.)
Second resistance data	8-12	be the same as the above		be the same as the above
The third resistance data	13-17	be the same as the above		be the same as the above
The 4th resistance data	18-22	be the same as the above		be the same as the above
The data of resistance values from 5th channel to 32nd bit are the same as above.				
32nd bit resistance data	158-162	be the same as the above		be the same as the above
Temperature test value	163-166	The hexadecimal resistance value returned is 4 hexadecimal bytes converted from floating point resistance value. A total of 4 bytes.		Temperature value data: for example, the decimal number is 25.16, and the hexadecimal number is 0x41 0xC9 0x47 0xAE, so that data byte 1 is 0xAE, data byte 2 is 0x47, data byte 3 is 0xC9 and data byte 4 is 0x41. If stored in a 4-byte array, a[0]=0xAE, a[1]=0x47, a[2]=0xC9, and a[3]=0x41. If the temperature is-,then a[0]=0x2d, a[1]=0x2d, a[2]=0x2d, and a[3]=0x2d.
1-8 way sorting	167	Sorting results of route 1-8.		The sorting result is an 8-bit data. The sorting results of 1-8 channels correspond to the low-order data from the high-order data, with 0 representing qualified data and 1 representing unqualified data. For example, we received 0xae. We split this number into 10101110. Judging from the low position to the high position, the first path is qualified; 2-4 roads are unqualified; The fifth road is qualified; The sixth road is unqualified; Road 7 is qualified; Road 8 is unqualified.
9-16 road sizing	168	be the same as the above		be the same as the above
17-24 road sizing	169	be the same as the above		be the same as the above
25-32 road sizing	170	be the same as the above		be the same as the above
END1	171	CR	0DH	End bit 1
END2	172	LF	0AH	End bit 2

Write data to the instrument

The format of writing data from the upper computer to the instrument is ABH+ machine number+high storage address+low storage address+00h+00h+data.

+AFH; Fixed 18-bit data.

See the table below for the data content.

serial number	function	store address	data
01	Set the upper resistance limit	10A1H	Which way (01h-20h)+ 3 digits before decimal point+5 digits after decimal point (30h-39h, namely 0-9 of ASCII)+unit (uω, mω, ω, kω, mω; The corresponding hexadecimal codes are 75h,6dh,4f,6b,4dh, that is, u,m,O,k,M in ASCII).
02	Set the lower resistance limit	10A2H	be the same as the above
03	Set the maximum percentage	10A3H	Which number (01h-20h)+ plus or minus (+/-,corresponding hexadecimal codes are 2BH and 2DH)+ two digits before decimal point+three digits after decimal point (30h-39h, namely 0-9 of ASCII) 00h00h00h.
04	Set the lower percentage limit	10A4H	be the same as the above
05	Set the nominal value	10A5H	3 digits before decimal point+5 digits after decimal point (30h-39h, namely 0-9 of ASCII)+unit (uω, mω, ω, kω, mω; The corresponding hexadecimal codes are 75h,6dh,4f,6b,4dh, that is, u,m,O,k,M) 00H in ASCII.
06	Set clear	10A6H	On (01H) or off (00h) 00h00h00h00h00h00h00h00h.
07	Set display	10A7H	Display (00H: direct reading 01H: percentage) 00h00h00h00h00h00h00h00h.
08	Set speed	10A8H	Speed (00H: fast 01H: medium 02H: slow) 00h 00h 00h 00h 00h 00h.
09	Set range	10A9H	Measuring range (00H: automatic 01h: 20m ω 02h: 200mω 03h: 2ω 04h: 20ω 05h: 200ω 06h: 2kω 07h: 20kω 08h: 200kω 09h: 2m ω) 00h 00h 00h 00h 00h 00h 00h.
010	Set trigger	10AAH	Trigger (00H: internal 01H: external 02H: manual) 00h00h00h00h00h00h00h00h00h00h.
011	Warm tonic	10ABH	Warm-up (00H: off 01H: on) 00h00h00h00h00h00h00h00h.
012	temperature coefficient	10ACH	Symbol (+(2bh)/-(2dh))+ 6 digits after the decimal point (numbers 30h-39h) 00H00H 00H.
013	trigger signal	10ADH	Trigger (00H: no trigger 01H: trigger) 00h00h00h00h00h00h00h00h00h00h.
014	average	10AEH	Ten bits+bits (30h-39h, that is, 0-9 of ASCII). If the average value is set to 98, the data bits are 39h+38h+00h00h00h00h00h00h00h00h00h00h.
015	Trigger edge	10B1H	Trigger edge (0: falling edge 1: rising edge) 00h00h00h00h00h00h00h00h.
016	Open circuit detection	10B2H	Open circuit detection (00H: off 01H: on) 00h 00h 00h 00h 00h 00h 00h.
017	Compensating temperature	10B3H	Symbol (+(2bh)/-(2dh))+ ten bits+one bit (30h-39h, that is, 0-9 of ASCII) 00h00h00h00h00h00h00h00h00h00h00h.
018	Xunxiang	10B4H	Message sound (0: qualified 1: unqualified 2: off) 00h00h00h00h00h00h00h00h00h00h.

019	Potential compensation	10B5H	Potential compensation (00H on 01H: off) 00h 00h 00h 00h 00h 00h 00h.
020	keypad tone	10B6H	Touch tone (00H: ON 01H: OFF) 00h 00h 00h 00h 00h 00h.
022	U disk switch	10B8H	U-disk switch (00H: OFF 01H: ON) 00H 00H 00H 00H 00H 00H 00H 00H 00H.
023	Routing setting	10B9H	Route selection switch 1(00:8-way fully open FF:8-way fully closed 01: the first way off, the others fully open; That is, the low to high bits (8 bits in total) of the hexadecimal code of this bit represent 1-8 channels respectively, and the corresponding bit is 1 for off and 0 for on). +Route selection switch 2(00:9-16 fully open FF:9-16 fully closed 01: 9 fully closed, others fully open; That is, the low-order to high-order hexadecimal code of this bit (8 bits in total) respectively represent 9-16 channels, and the corresponding bit is 1 for off and 0 for on)+routing switch 3(17-24 channels)+routing switch 4(25-32 channels)+00h+00h+00h+00h.
024	Low voltage test setup	10BAH	Low voltage test (00H off 01H: on) 00h 00h 00h 00h 00h 00h 00h.

For example, send ABH 01H 10H A1H 00H 00H 00H 31H 30H 32H 35H 00H 00H 6DH AFH.

The upper limit of representative resistance is 100.25 mΩ. The local address is 1.

Send abh 01h 10h b4h 00h 00h 00h 00h. Generation.

The response of table setting is unqualified. The address of this machine is 1.

2, instrument communication protocol (modbus)

This instrument uses RS-232c standard asynchronous serial communication bus interface to communicate with external control equipment, and the transmission baud rate can be in the instrument.

Device preset (9600,19200,38400 optional). 8 data bits, 2 stop bits, no check bit. Logic level of signal

It is ±12V, and the maximum transmission distance is 15m. The serial interface adopts direct communication, and only TXD (send) and RXD (receive) are used.

GND (ground) three signal lines, using a nine-core standard interface socket.

1) Read instruction (function code is 03H)

Send format (7 bits of data in total):

Local address	function code	Address high position	Low address	High data length	Low data length	CRC low	CRC high

Local address: the local address set by the instrument, ranging from 0-99, that is, 00H-63H.

Function code: 03H

Address address high+low: 0x0001: Obtain 1-8 resistance values.

0x0002: Obtain 9-16 resistance values

0x0003: Obtain 17-24 resistance values

0x0004: Obtain 25-32 resistance values

0x0005: Obtain the resistance values of all test paths.

0x0006: When the trigger of the instrument is set to external, trigger the instrument once and scan all test channels. After the test is completed, the instrument returns the test data to the host.

0x0007: Get the temperature test value.

High+low data length: the data length is always half of the number of data bytes returned by the instrument.

The high position is fixed at 00H.

The low order is as follows:

When the address is 0001-0004, the instrument returns 42 bytes of data, and this bit is 21. That is, 15H.

When the address is 0005-0006, the instrument returns 164 bytes of data, and this bit is 82, that is, 52H.

When the addressing address is 0007, the instrument returns 4 bytes of data, and this bit is 2, that is, 02H.

CRC check: CRC-16 MODBUS check.

Example 1:

Send 01030010015d5c5 to the slave machine: inquire about the test values of resistors 1-8 from No.01 instrument.

Return:

explain	Hexadecimal	data bit	remarks
START	Static period exceeding 10ms		
ADR	00H-63H	0	Local address of instrument
CMD	03H	one	Command code
Number of data bytes	29H	2	Returns the number of bytes of resistance value. After 42 bytes of data are returned, it is 30H here.
1st resistance data+resistance unit	The hexadecimal resistance value returned is 4 hexadecimal bytes converted from floating-point	3-7	Resistance value data: for example, the decimal number is 25.16, and the hexadecimal number is 0x41 0xC9 0x47 0xAE, so data byte 1 is 0xAE, data byte 2 is 0x47, data byte 3 is 0xC9 and data byte 4 is 0x41. If stored in a 4-byte array, a[0]=0xAE, a[1]=0x47, a[2]=0xC9, and a[3]=0x41. + Resistance unit: divided into u,m,O,k,M,U,%, which respectively represent micro-ohm, milliohm, ohm, kiloohm, megaohm, open resistance and percentage resistance. (The corresponding hexadecimal codes are 75H,6DH,4FH,6BH,4DH,55H,25H respectively.)

	resistance value, with a total of 5 bytes.		
And so on ...			
8th resistance data+resistance unit	And so on ...	38-42	And so on. ...
Sorting result	1-8 road sorting results	43	The sorting result is an 8-bit data. From low to high, the sorting results of 1-8 paths correspond to each other, where 0 means qualified and 1 means unqualified. For example, when 0xae is received, we disassemble this number into 10101110. Judging from low to high, the first path is qualified. 2-4 roads are unqualified; The fifth road is qualified; The sixth road is unqualified; Road 7 is qualified; Road 8 is unqualified.
Spare bit			Fixed at 00H.
CRC low		forty-four	CRC check low bit
CRC high		45	CRC check high bit
END	Static period exceeding 10ms		

Example 2:

The model of the instrument is 2518-32. Send 01030060052436 to the slave machine: send the trigger test signal to the No.01 machine, and inquire the No.01 instrument for the test values of the resistors 1-32.

Return:

explain	Hexadecimal	data bit	remarks
START	Static period exceeding 10ms		
ADR	00H-63H	0	Local address of instrument
CMD	03H	one	Command code
Number of data bytes	1CH	2	Returns the number of bytes of resistance value. After that, 164 bytes of data are returned, so this is A4H.

1st resistance data+resistance unit	The hexadecimal resistance value returned is 4 hexadecimal bytes converted from floating-point resistance value, with a total of 5 bytes.	3-7	Resistance value data: for example, the decimal number is 25.16, and the hexadecimal number is 0x41 0xC9 0x47 0xAE, so data byte 1 is 0xAE, data byte 2 is 0x47, data byte 3 is 0xC9 and data byte 4 is 0x41. If stored in a 4-byte array, a[0]=0xAE, a[1]=0x47, a[2]=0xC9, and a[3]=0x41. + Resistance unit: divided into u,m,O,k,M,U,%, which respectively represent micro-ohm, milliohm, ohm, kiloohm, megaohm, open resistance and percentage resistance. (The corresponding hexadecimal codes are 75H,6DH,4FH,6BH,4DH,55H,25H respectively.)
And so on ...			
32nd resistance data+resistance unit	And so on ...	158-162	And so on ...
Sorting result	1-8 road sorting results	163	The sorting result is an 8-bit data. From low to high, the sorting results of 1-8 paths correspond to each other, where 0 means qualified and 1 means unqualified. For example, when 0xae is received, we disassemble this number into 10101110. Judging from low to high, the first path is qualified. 2-4 roads are unqualified; The fifth road is qualified; The sixth road is unqualified; Road 7 is qualified; Road 8 is unqualified.
	9-16 road sorting results	164	be the same as the above
	17-24 road sorting results	165	be the same as the above
	25-32 road sorting results	166	be the same as the above
CRC low	CRC check low bit		
CRC high	CRC check high bit		
END	Static period exceeding 10ms		

2) Write instruction (function code is 10H)

The sending format is:

address	function code	Address high position	Low address	High data volume (word)	Low data volume (word)	Data volume (Byte)	Data bytes 1-n	CRC low	CRC high

The return format is:

address	function code	Address high position	Low address	High data volume (word)	Low data volume (word)	CRC low	CRC high

The following explains the meaning of each parameter in detail for you:

2.1 address

Mailing address. The range is decimal 0-99. If the local address in the instrument system settings is 99, this bit is 63H.

2.2 function code

Write one or more bytes of data to the instrument. The function code is 10H.

2.3 high address+low address

Storage addresses of various parameters of the instrument. See Table 6-1 for details.

2.4. Data volume (word)

How many groups of data are written to the storage address of instrument parameters. It is fixed at 0001H.

2.5 data volume (Byte)

How many bytes of data are written to the storage address of instrument parameters. It is fixed at 0AH.

2.6 data bytes 1-n.

See Table 6-1 below for details.

serial number	function	store address	data
01	Set the upper resistance limit	10A1H	Which way (01h-20h)+ 3 digits before decimal point+5 digits after decimal point (30h-39h, namely 0-9 of ASCII)+unit (uω, mω, ω, kω, mω; The corresponding hexadecimal codes are 75h,6dh,4f,6b,4dh, that is, u,m,O,k,M in ASCII).
02	Set the lower resistance limit	10A2H	be the same as the above
03	Set the maximum	10A3H	Which number (01h-20h)+ plus or minus (+/-,corresponding hexadecimal codes are 2BH and 2DH)+ two digits before decimal point+three digits after decimal point (30h-39h,

	percentage		namely 0-9 of ASCII) 00h00h00h.
04	Set the lower percentage limit	10A4H	be the same as the above
05	Set the nominal value	10A5H	3 digits before decimal point+5 digits after decimal point (30h-39h, namely 0-9 of ASCII)+unit (uω, mω, ω, kω, mω; The corresponding hexadecimal codes are 75h,6dh,4f,6b,4dh, that is, u,m,O,k,M) 00H in ASCII.
06	Set clear	10A6H	On (01H) or off (00h) 00h00h00h00h00h00h00h00h.
07	Set display	10A7H	Display (00H: direct reading 01H: percentage) 00h00h00h00h00h00h00h00h.
08	Set speed	10A8H	Speed (00H: fast 01H: medium 02H: slow) 00h 00h 00h 00h 00h 00h.
09	Set range	10A9H	Measuring range (00H: automatic 01h: 20m ω 02h: 200mω 03h: 2ω 04h: 20ω 05h: 200ω 06h: 2kω 07h: 20kω 08h: 200kω 09h: 2m ω) 00h 00h 00h 00h 00h 00h 00h.
010	Set trigger	10AAH	Trigger (00H: internal 01H: external 02H: manual) 00h00h00h00h00h00h00h00h00h00h.
011	Warm tonic	10ABH	Warm-up (00H: off 01H: on) 00h00h00h00h00h00h00h00h.
012	temperature coefficient	10ACH	Symbol (+(2bh)/-(2dh))+ 6 digits after the decimal point (numbers 30h-39h) 00H00H 00H.
013	trigger signal	10ADH	Trigger (00H: no trigger 01H: trigger) 00h00h00h00h00h00h00h00h00h00h.
014	average	10AEH	Ten bits+bits (30h-39h, that is, 0-9 of ASCII). If the average value is set to 98, the data bits are 39h+38h+00h00h00h00h00h00h00h00h00h00h.
015	Trigger edge	10B1H	Trigger edge (0: falling edge 1: rising edge) 00h00h00h00h00h00h00h00h.
016	Open circuit detection	10B2H	Open circuit detection (00H: off 01H: on) 00h 00h 00h 00h 00h 00h 00h.
017	Compensating temperature	10B3H	Symbol (+(2bh)/-(2dh))+ ten bits+one bit (30h-39h, that is, 0-9 of ASCII) 00h00h00h00h00h00h00h00h00h00h.
018	Xunxiang	10B4H	Message sound (0: qualified 1: unqualified 2: off) 00h00h00h00h00h00h00h00h00h00h.
019	Potential compensation	10B5H	Potential compensation (00H on 01H: off) 00h 00h 00h 00h 00h 00h 00h.
020	keypad tone	10B6H	Touch tone (00H: ON 01H: OFF) 00h 00h 00h 00h 00h 00h.
022	U disk switch	10B8H	U-disk switch (00H: OFF 01H: ON) 00H 00H 00H 00H 00H 00H 00H 00H 00H.
023	Routing setting	10B9H	Route selection switch 1(00:8-way fully open FF:8-way fully closed 01: the first way off, the others fully open; That is, the low to high bits (8 bits in total) of the hexadecimal code of this bit represent 1-8 channels respectively, and the corresponding bit is 1 for off and 0 for on). +Route selection switch 2(00:9-16 fully open FF:9-16 fully closed 01: 9 fully closed, others fully open; That is, the low-order to high-order hexadecimal code of this bit (8 bits in total)

			respectively represent 9-16 channels, and the corresponding bit is 1 for off and 0 for on)+routing switch 3(17-24 channels)+routing switch 4(25-32 channels)+00h+00h+00h+00h.
024	Low voltage test setup	10BAH	Low voltage test (00H off 01H: on) 00h 00h 00h 00h 00h 00h 00h.

For example, send 01H 10H 10H 01H 01AH 31H 31H 30H 32H 330H 30H 30H 30H 30H 30H 30H 30H 6DH 29H 12h.

On behalf of setting the upper limit of resistance value of unit 01 to 100.25 mΩ.

Send 01H 10H 10H B4H 00H 01H 01H 01H B3H 1CH. It means that the response of No.01 machine is set as unqualified.

2.716 bit CRC check

1. First, define two 256-byte check tables.

Const BYTE chCRCHTalbe[] = // CRC high byte value table

{

0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x00, 0xC1, 0x81, 0x40,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40, 0x01, 0xC0, 0x80, 0x41, 0x01, 0xC0, 0x80, 0x41,
0x00, 0xC1, 0x81, 0x40

};

//CRC low byte value table

const BYTE chCRCLTalbe[] =

{

0x00, 0xC0, 0xC1, 0x01, 0xC3, 0x03, 0x02, 0xC2, 0xC6, 0x06, 0x07, 0xC7,
0x05, 0xC5, 0xC4, 0x04, 0xCC, 0x0C, 0x0D, 0xCD, 0x0F, 0xCF, 0xCE, 0x0E,
0x0A, 0xCA, 0xCB, 0x0B, 0xC9, 0x09, 0x08, 0xC8, 0xD8, 0x18, 0x19, 0xD9,

0x1B, 0xDB, 0xDA, 0x1A, 0x1E, 0xDE, 0xDF, 0x1F, 0xDD, 0x1D, 0x1C, 0xDC,
0x14, 0xD4, 0xD5, 0x15, 0xD7, 0x17, 0x16, 0xD6, 0xD2, 0x12, 0x13, 0xD3,
0x11, 0xD1, 0xD0, 0x10, 0xF0, 0x30, 0x31, 0xF1, 0x33, 0xF3, 0xF2, 0x32,
0x36, 0xF6, 0xF7, 0x37, 0xF5, 0x35, 0x34, 0xF4, 0x3C, 0xFC, 0xFD, 0x3D,
0xFF, 0x3F, 0x3E, 0xFE, 0xFA, 0x3A, 0x3B, 0xFB, 0x39, 0xF9, 0xF8, 0x38,
0x28, 0xE8, 0xE9, 0x29, 0xEB, 0x2B, 0x2A, 0xEA, 0xEE, 0x2E, 0x2F, 0xEF,
0x2D, 0xED, 0xEC, 0x2C, 0xE4, 0x24, 0x25, 0xE5, 0x27, 0xE7, 0xE6, 0x26,
0x22, 0xE2, 0xE3, 0x23, 0xE1, 0x21, 0x20, 0xE0, 0xA0, 0x60, 0x61, 0xA1,
0x63, 0xA3, 0xA2, 0x62, 0x66, 0xA6, 0xA7, 0x67, 0xA5, 0x65, 0x64, 0xA4,
0x6C, 0xAC, 0xAD, 0x6D, 0xAF, 0x6F, 0x6E, 0xAE, 0xAA, 0x6A, 0x6B, 0xAB,
0x69, 0xA9, 0xA8, 0x68, 0x78, 0xB8, 0xB9, 0x79, 0xBB, 0x7B, 0x7A, 0xBA,
0xBE, 0x7E, 0x7F, 0xBF, 0x7D, 0xBD, 0xBC, 0x7C, 0xB4, 0x74, 0x75, 0xB5,
0x77, 0xB7, 0xB6, 0x76, 0x72, 0xB2, 0xB3, 0x73, 0xB1, 0x71, 0x70, 0xB0,
0x50, 0x90, 0x91, 0x51, 0x93, 0x53, 0x52, 0x92, 0x96, 0x56, 0x57, 0x97,
0x55, 0x95, 0x94, 0x54, 0x9C, 0x5C, 0x5D, 0x9D, 0x5F, 0x9F, 0x9E, 0x5E,
0x5A, 0x9A, 0x9B, 0x5B, 0x99, 0x59, 0x58, 0x98, 0x88, 0x48, 0x49, 0x89,
0x4B, 0x8B, 0x8A, 0x4A, 0x4E, 0x8E, 0x8F, 0x4F, 0x8D, 0x4D, 0x4C, 0x8C,
0x44, 0x84, 0x85, 0x45, 0x87, 0x47, 0x46, 0x86, 0x82, 0x42, 0x43, 0x83,
0x41, 0x81, 0x80, 0x40

};

11、And then calculate.

```
WORD CRC16(BYTE* pchMsg, WORD wDataLen)
{
BYTE chCRCHi = 0xFF; //high CRC byte initialization
 BYTE chCRCLo = 0xFF; //low CRC byte initialization
WORD wIndex; //Index in CRC loop
while (wDataLen--)
 {
//Calculate CRC
wIndex = chCRCLo ^ *pchMsg++ ;
chCRCLo = chCRCHi ^ chCRCHTalbe[wIndex];
 chCRCHi = chCRCLTalbe[wIndex] ;
}
 return ((chCRCHi << 8) | chCRCLo) ;
}
```

7.3 HANDLER communication mode

1. Before connecting to the HANDLER connector

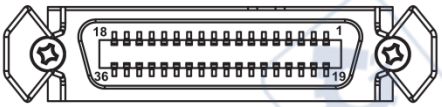
pay attention to

- In order to avoid accidents, please do not plug and unplug communication cables during operation.
- When connecting or disconnecting the communication cable, be sure to cut off the power supply of this instrument and equipment. Otherwise, it may lead to misoperation or failure.
- After connecting the communication cable, please fix the screw

pay attention to

- In order to avoid damaging the interface, the power supply voltage should not exceed the power supply requirements.
- To avoid damaging the interface, please connect the wires after the

2, pin description:



1), START trigger start signal, optional rising or falling edge touch.

Hair, the pulse width is about 4-30 ms. A level trigger signal only

It can be measured once. If it is always a low-level signal, it can only be measured.

Measure it once.

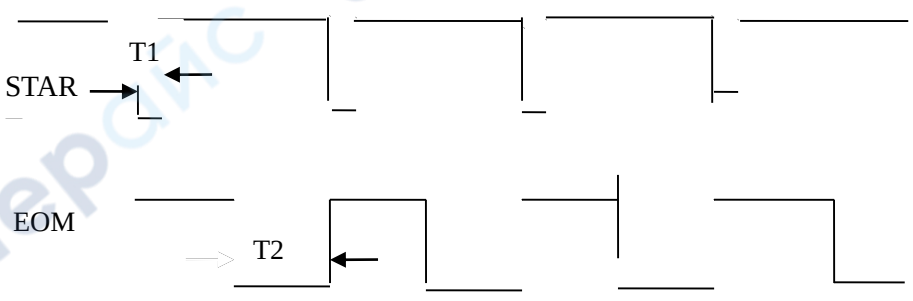
2), EOM measurement end signal, low level is effective, when it is low, it means that the sorting signal is effective, and only the result has not been displayed, it is high.

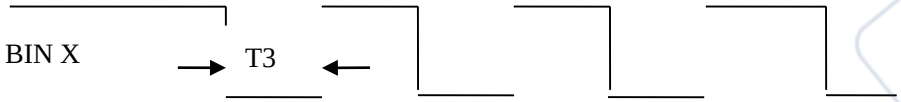
It means that the device is still being measured.

3), Bin X sorting output signal, low level is effective.

pin	Tube foot work energy
1-16	1-16 output signals of qualified (low level) or unqualified (high level) results.
17	START signal, the falling edge is valid. When the instrument is triggered externally and the signal is valid, the instrument is measured and sorted once.
18	EOM measurement end signal, active at low level.
19	Negative terminal of external power supply (external power supply 0V). When there is no external power supply input, this pin is an internal floating ground (non-ground).
twenty	External interface power input positive terminal (12-24V), when there is no external power input, this pin is internal +10V.
21-36	17-32 output signals of qualified (low level) or unqualified (high level) results.

3, time series table



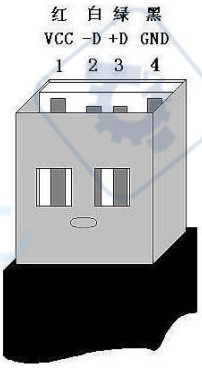


7.4USB HOST communication mode

1. Before connecting to USB connector

For details, please refer to "Before connecting to the RS232 connector" in "7.1 RS232

2. Interface description and connection mode



Connect the USB interface on the back panel of RK2518 with the USB on the host through USB cable.

Interface connection.通用串行总线(English: Universal Serial Bus, abbreviation:USB

It's connection计算机系统and外部设备A serial bus standard based on, is also an input and output.

Technical specification of the interface. Its connection mode is shown in the USB connection diagram on the right:

The USB interface adopts a standard four-wire communication interface, which has a short communication distance and is suitable for being connected with a computer.

The machine is connected. Its communication rate is selected through the instrument menu. When users use USBTMC interface,

The instrument can be accessed through labview software programming.

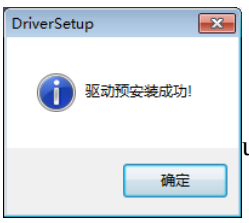
3. Install the driver

The following explains how RK2518 connects to the host computer through USB interface:

Step 1: When connecting this instrument with USB cable for the first time,

You need to install the corresponding driver to use it normally.

USB interface. The installation method is as shown on the right:



Step 2: Select CH341SER.INF, click Install, and install.

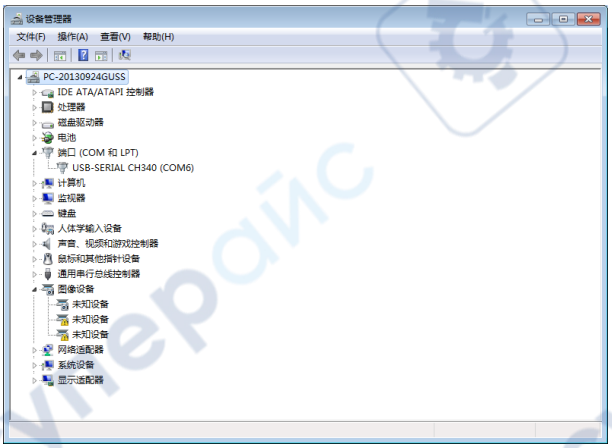
After successful installation, a prompt window will pop up, as shown on the right.

As shown.

Step 3: After the driver is installed, install it in the equipment tube of the computer.

You can find "USB-SERIAL" on the processor

CH340 ",as shown on the right. .



pay The communication protocol when using USB is the same as that when using RS232 and 485.

Chapter 8

Maintenance and Service

In this chapter, you will learn the following:

- About correction
- Packaging and transportation
- store
- guarantee to keep in good condition or repair
- clean
- About abandonment

8.1 About correction

pay Important: In order to ensure that the measuring instrument obtains the correct measurement results within the specified precision range, it is necessary to

The calibration period varies according to the customer's usage or environment. It is suggested to determine the calibration period according to the customer's usage or environment.

And entrust merrick company to make regular corrections.

8.2 Packaging and Transportation

When transporting this instrument, please use the packaging materials when delivering. The instrument should be handled with care, moistureproof and rainproof during transportation.

When repairing, please use packaging that will not be damaged during transportation, and indicate the cause of the failure. We will not accept the damage caused by transportation.

Warranty.

8.3 storage

The instrument should be stored in a ventilated room with an ambient temperature of 0℃ ~ 50℃ and a relative humidity of not more than 90%, and the air should not contain harmful impurities that corrode the measuring instrument.

8.4 Warranty

Warranty period: if the customer purchases the instrument from the company, it shall be calculated from the company's delivery date, from the business department and from the business department.

The warranty period is 2 years from the date of shipment. Warranty card shall be issued for warranty. During the warranty period, because the user does not operate

If the instrument is damaged, the maintenance cost shall be borne by the user. The instrument is maintained by our company for life.

The maintenance of this instrument must be carried out by professional technicians; Please do not replace the internal devices of the instrument without authorization during maintenance; Yeah, instrument maintenance

After that, it is necessary to re-measure and calibrate, so as not to affect the test accuracy. For the user's blind maintenance, replacing instrument parts will cause instrument damage.

It is not covered by the warranty, and the user should bear the maintenance cost.

8.5 cleaning

- To prevent the danger of electric shock, please unplug the power cord before cleaning.
- Please gently wipe the shell and panel with a clean and soft cloth dipped in a little water or neutral detergent.
- Do not clean the inside of the instrument.

pay Do not use solvents (alcohol, gasoline, acetone, ketone, thinner and oily detergent, etc.) to clean the instrument.

8.6 About Abandonment

When discarding this instrument and option, please handle it according to the regulations of each region.

Appendix a: specifications

In Appendix A, you will know the following:

- Technical indicators
- Main features and functions
- technical specifications

The following data were measured under the following conditions:

Temperature condition: 23℃ 5℃ Humidity condition: ≤ 65% R. H. Zero value adjustment: short-circuit clearing before test.

Preheating time: > 60 minutes Calibration time: 12 months Channel: 1

Test speed: slow

measuring range		Maximum display value	resolution ratio	fast	intermediate speed	low speed	Test current	open-circuit voltage
one	20mΩ	20.00mΩ	10uΩ	0.5% 5 words	0.2% 5 words	0.1% 3 words	500mA	≤3.3V
2	200mΩ	200.00mΩ	10uΩ	0.3% 5 words	0.05% 3 words	0.05% 2 words	500mA	≤3.3V
three	2Ω	2.0000Ω	100uΩ	0.3% 5 words	0.05% 3 words	0.03% 2 words	100mA	≤3.3V
four	20Ω	20.000Ω	1mΩ	0.3% 5 words	0.05% 3 words	0.02% 2 words	10mA	≤3.3V
five	200Ω	200.00Ω	10mΩ	0.3% 5 words	0.05% 3 words	0.02% 2 words	1mA	≤3.3V
six	2KΩ	2.0000kΩ	100mΩ	0.3% 5 words	0.05% 3 words	0.02% 2 words	1mA	≤3.3V
seven	20KΩ	20.000KΩ	1Ω	0.3% 5 words	0051% 3 words	0.03% 5 words	100uA	≤3.3V
eight	200KΩ	200.00KΩ	10Ω	without	0.05% 5 words	0.03% 5 words	10uA	≤3.3V

temperature measurement

Range range	**-10℃~99.9℃**
resolution ratio	**0.1℃**
degree of accuracy	**0.1℃+0.25%×Tx**

Main features and functions:

1、High brightness, ultra-clear 7-inch color LCD display, intuitive and easy to learn.

2、The basic setting operation is simple, and the direct reading test value or relative deviation (△%) is displayed; All measuring channels can be displayed and detected at the same time.

3. Various trigger modes: internal trigger, external trigger and manual trigger.

4. Temperature test function: Temperature can be tested by temperature sensor.

5. Calibration function: Full-range short-circuit clearing function.

6, reliable contact detection function, can automatically detect whether the test end is connected well, to avoid misjudgment.

7. The instrument can separate each channel independently.

- Absolute value tolerance sorting: the absolute deviation between the measured value and the nominal value is compared with each limit.
- Percentage tolerance sorting: the percentage deviation between the measured value and the nominal value is compared with each limit.

8. Comparator (sorting) function: 4/8/16 channels of sorting data are built in, which can make HI/LOW judgment on the tested part.

Comparator output: More detailed sorting results can be output by selecting Handler interface, RS232/485 interface and USB interface.

Alarm: qualified/unqualified alarm can be set, and the alarm function can also be turned off.

9、Keyboard locking function.

10、Thermoelectric potential compensation: in this test mode, the thermoelectric potential is compensated to minimize the influence of thermoelectric potential.

11、Provide low voltage test mode.

12, rich interface interface function:

- Handler interface: all-optical coupler isolation, input and output port with built-in pull-up resistor. Support internal 10V and 24V external power supply.

  Input: trigger signal; Output: all sorting comparison result signals; Measure the synchronization signal (EOC).

- RS232/485 interface: remote control, supporting baud rate up to 38400bps. Using three-wire simple serial interface,

  And communicate and connect with the upper computer. The protocol used is MODBUS protocol

- USB HOST: use USB communication cable to communicate and connect with the upper computer.

- USB DEVICE: using a USB flash drive to access the instrument, the measurement data can be automatically saved to the USB flash drive;

12、The allowable value of wiring resistance in low resistance range is 1.5 Ω; Even in the measuring current range of 500mA, the measurement can be easily extended.

Test the cable.

14. Data saving function: The measurement data is written into the memory according to the specified cycle. The data in the memory can be saved to the U disk automatically or manually.

Technical specifications:

1. Screen: high brightness and ultra-clear 7-inch color LCD display: the display pixel is 800*480.

2. Range: Eight-range automatic or manual test.

3. Measuring range: 10Ω ~ 200Ω; Display range: four and a half display digits

4. Basic accuracy: 0.05% ~ 0.1%. Minimum resolution: 10 μ ω.

5. Test speed: single-channel test speed: fast: 35 times/second; Medium speed: 20 times/second; Slow: 12 times per second.

Time required for scanning all channels: (potential compensation, temperature compensation, open circuit detection and U disk recording are all closed)

model	**fast**	**intermediate speed**	**low speed**
RK2518-32	840ms	1350ms	2000ms

6. Maximum reading: 20000.

7. Test signal: Constant current test.

8. Test terminal: 4-terminal shield (including 2 detection terminals and 2 driving terminals) and external shield ground terminal.

10. Environment:

1) Work: temperature 0℃ ~ 40℃ and humidity < 80% RH.
2) Indicator: temperature 18℃ ~ 28℃ and humidity < 80% RH.
3) Storage: temperature 0℃ ~ 50℃ and humidity 10~90% RH.

11. Power supply: AC input voltage: 198 ~ 242 V (220 10%) Frequency: 50/60Hz,

Power: 15VA maximum fuse: 0.5A slow melting

12. Weight: about 9.95kg (with package weight).

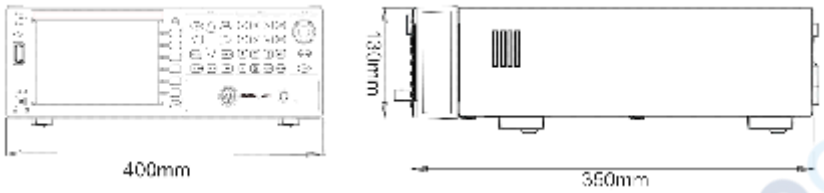
13. Attached accessories: instrument, instruction manual, test report, warranty certificate, warranty card, packing list,

National standard power cord, fuse, test wire, plug-in terminal, special screwdriver for terminal,

RS232 connecting cable, USB communication cable, HANDLER wiring, temperature probe,

13、Overall dimensions: length * width * height: 380mm * 410 mm * 155mm.

14、Outer box size: length * width * height: 503mm * 472 mm * 260mm.



Appendix B: Selection Table of DC Resistance Tester

In Appendix B, you will know the differences between RK2511, RK2512, RK2516, RK2516A, RK2516B, RK2515, RK2515A, RK2518, RK2510 and RK2560.

Characteristic model	measuring range	Basic accuracy	Maximum test current	USB	RS-232	Handler	U disk inter	temperature	Comparison
RK2511	10uΩ-20KΩ	0.1%	100mA		select to breed	select to breed			√
RK2512	1uΩ-2MΩ	0.05%	1A		select to breed	√			√
RK2516	1uΩ-2MΩ	0.05%	1A		√	√	√	√	√
RK2516A	1uΩ-200KΩ	0.05%	1A		√	√	√		√
RK2516B	10uΩ-20KΩ	0.05%	100mA		√	√	√		√
RK2515	0.1uΩ-110MΩ	0.01%	1A	√	√	√	√	√	√
RK2515A	1uΩ-20MΩ	0.01%	1A	√	√	√	√	√	√
RK2510	0.01uΩ-10MΩ	0.02%	10A	√	√	√	√	√	√
RK2518	2/4/8 Road /16 Road /32 Road 10uΩ-200KΩ	0.05%	500mA	√	√	√	√	√	√
RK2519	2/4/8 Road /16 Road /32 Road 1uΩ-2MΩ	0.02%	1A	√	√	√	√	√	√
RK2560	0.1uΩ-10MΩ	0.01%	1A	√	√	√	√	√	√