Instruments.uni-trend.com


# Quick Start Guide

## UT3510+ Series and UT3515-Sx Series Bench Top Micro Ohm Meter

V1.1

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## Limited Warranty and Liability

Uni-T guarantees that the Instrument product is free from any defect in material and workmanship within three years from the purchase date. This warranty does not apply to damages caused by accident, negligence, misuse, modification, contamination, or improper handling. If you need a warranty service within the warranty period, please contact your seller directly. Uni-T will not be responsible for any special, indirect, incidental, or subsequent damage or loss caused by using this device. For the probes and accessories, the warranty period is one year. Visit instrument.uni-trend.com for full warranty information.

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**Headquarter**

UNI-TREND TECHNOLOGY (CHINA) CO., Ltd.

Address: No.6, Industrial North 1st Road, Songshan Lake Park, Dongguan City, Guangdong Province, China

Tel: (86-769) 8572 3888

**Europe**

UNI-TREND TECHNOLOGY EU GmbH

Address: Affinger Str. 12

86167 Augsburg Germany

Tel: +49 (0)821 8879980

**North America**

UNI-TREND TECHNOLOGY US INC.

Address: 3171 Mercer Ave STE 104, Bellingham, WA 98225

Tel: +1-888-668-8648

# Foreword

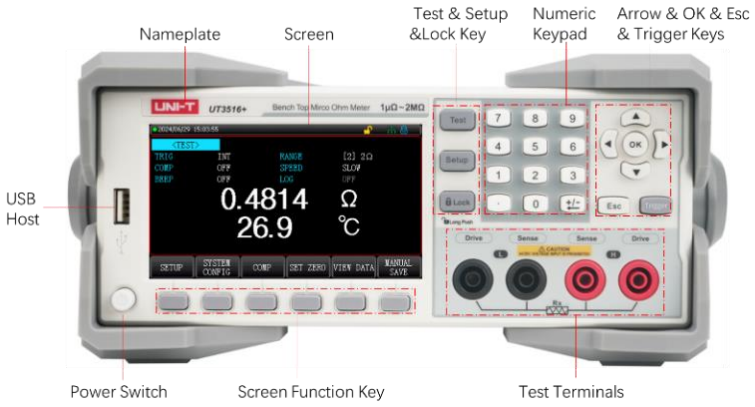
Thank you for choosing this UNI-T instrument. For safe and proper use this instrument, please read this manual carefully, especially the safety instructions session.

After reading this manual, it is recommended to keep the manual in a convenient location, preferably near the device, for future reference.

# Chapter 1 Panel

## 1.1 Front Panel

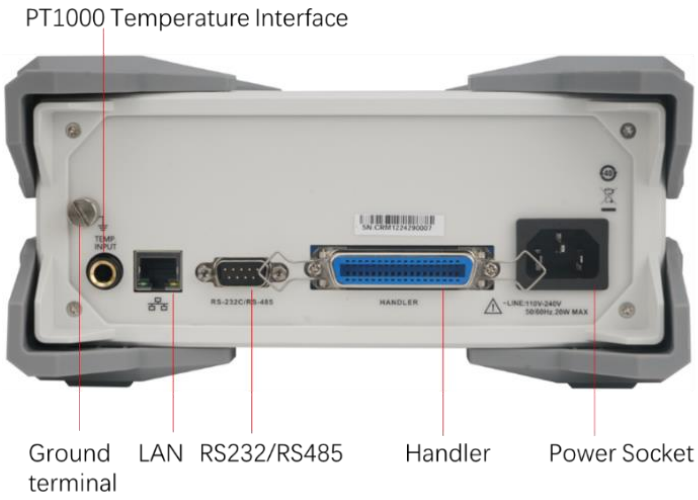
The product has a simple, intuitive and easy to use front panel, as shown in the following figure.



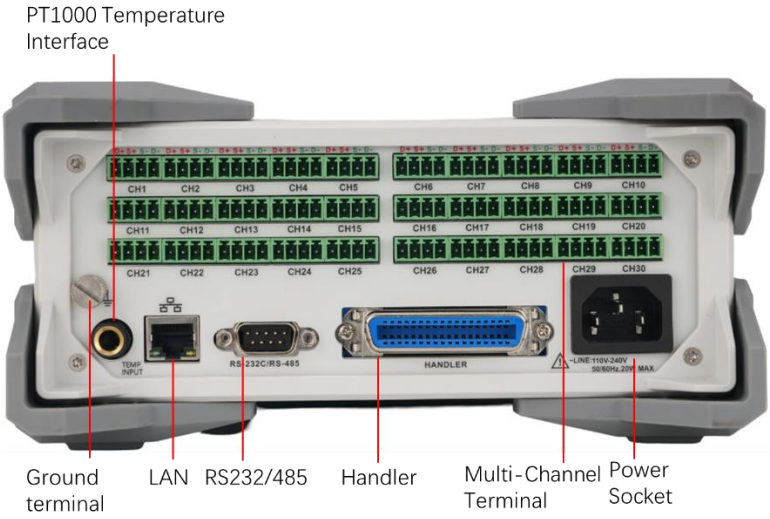

For more details, please refer to UT3510+ and UT3510-Sx Series Bench Top Ohm Meter User Manual.

## 1.2 Rear Panel

UT3510+ Series




UT3515-Sx Series




For more details, please refer to UT3510+ and UT3510-Sx Series Bench Top Ohm Meter User Manual.

# Chapter 2 User's Guide

This manual includes safety requirements and the operation of UT3510+ series and UT3515-Sx series Benchtop Ohm Meter, including UT3513+, UT3516+, UT3515-S10, UT3515-S20 and UT3515-S30.

## 2.1 Inspecting Packaging and List

When you receive the instrument, please make sure to check the packaging and list by the following steps:

- Check whether the packing box and padding material are extruded or teased caused by external forces, and the appearance of the instrument. If you have any questions about the product or need consulting services, please contact the distributor or local office.
- Carefully take out the article and check it with the packing list.

## 2.2 Safety Requirements

This section contains information and warnings that must be followed to keep the instrument operating under safety conditions. In addition, user should also follow the common safety procedures.

## Safety Precautions

| | |
|---|---|
| Warning | **Please follow the following guidelines to avoid possible electric shock and risk to personal safety.** |
| | Users must follow the following conventional safety precautions in operation, service and maintenance of this device. UNI-T will not be liable for any personal safety and property loss caused by the user's failure to follow the following safety precautions. This device is designed for professional users and responsible organizations for measurement purposes. |
| | Do not use this device in any way not specified by the manufacturer. This device is only for indoor use unless otherwise specified in the product manual. |

## Safety Statements

| | |
|---|---|
| Warning | "Warning" indicates the presence of a hazard. It reminds users to pay attention to a certain operation process, operation method or similar. Personal injury or death may occur if the rules in the "Warning" statement are not properly executed or observed. Do not proceed to the next step until you fully understand and meet the conditions stated in the "Warning" statement. |
| Caution | "Caution" indicates the presence of a hazard. It reminds users to pay attention to a certain operation process, operation method or similar. Product damage or loss of important data may occur if the rules in the "Caution" statement are not properly executed or observed. Do not proceed to the next step until you fully understand and meet the conditions stated in the "Caution" statement. |
| Note | "Note" indicates important information. It reminds users to pay attention to procedures, methods and conditions, etc. The contents of the "Note" should be highlighted if necessary. |

## Safety Sign

| | | |
|---|---|---|
|  | Danger | It indicates possible danger of electric shock, which may cause personal injury or death. |
|  | Warning | It indicates that you should be careful to avoid personal injury or product damage. |
|  | Caution | It indicates possible danger, which may cause damage to this device or other equipment if you fail to follow a certain procedure or condition. If the "Caution" sign is present, all conditions must be met before you proceed to operation. |
|  | Note | It indicates potential problems, which may cause failure of this device if you fail to follow a certain procedure or condition. If the "Note" sign is present, all conditions must be met before this device will function properly. |
|  | AC | Alternating current of device. Please check the region's voltage range. |
|  | DC | Direct current device. Please check the region's voltage range. |
|  | Grounding | Frame and chassis grounding terminal |
|  | Grounding | Protective grounding terminal |
|  | Grounding | Measurement grounding terminal |
|  | OFF | Main power off |
|  | ON | Main power on |
|  | Power Supply | Standby power supply: when the power switch is turned off, this device is not completely disconnected from the AC power supply. |
| CAT I | | Secondary electrical circuit connected to wall sockets through transformers or similar equipment, such as electronic instruments and electronic equipment; electronic equipment with protective measures, and any high-voltage and low-voltage circuits, such as the copier in the office. |
| CAT II | | CATII: Primary electrical circuit of the electrical equipment connected to the indoor socket via the power cord, such as mobile tools, home appliances, etc. Household appliances, portable tools (e.g. electric drill), household sockets, sockets more than 10 meters away from CAT III circuit or sockets more than 20 meters away from CAT IV circuit. |
| CAT III | | Primary circuit of large equipment directly connected to the distribution board and circuit between the distribution board and the socket (three-phase distributor circuit includes a single commercial |

| | | |
|---|---|---|
| | | lighting circuit). Fixed equipment, such as multi-phase motor and multi-phase fuse box; lighting equipment and lines inside large buildings; machine tools and power distribution boards at industrial sites (workshops). |
| CAT IV | | Three-phase public power unit and outdoor power supply line equipment. Equipment designed to "initial connection", such as power distribution system of power station, power instrument, front-end overload protection, and any outdoor transmission line. |
| CE | Certification | CE indicates a registered trademark of EU |
| UKCA | Certification | UKCA indicates a registered trademark of UK |
| ETL Intertek 4007682 | Certification | ETL indicates a registered trademark of Intertek. It conform to UL STD 61010-1 and 61010-2-030, CSA STD C22.2 No.61010-1 and 61010-2-030. |
| | Waste | This product complies with the marking requirements of WEEE Directive (2002/96/EC). This additional label indicates that this electrical / electronic product must not be discarded in household waste. |
| 40 | EFUP | This environment-friendly use period (EFUP) mark indicates that dangerous or toxic substances will not leak or cause damage within this indicated time period. The environment-friendly use period of this product is 40 years, during which it can be used safely. Upon expiration of this period, it should enter the recycling system. |

## Safety Requirements

| Warning | |
|---|---|
| Preparation before use | Please connect this device to AC power supply with the power cable provided;<br>The AC input voltage of the line reaches the rated value of this device. See the product manual for specific rated value.<br>The line voltage switch of this device matches the line voltage;<br>The line voltage of the line fuse of this device is correct.<br>It not used for measuring the main circuit, |
| Check all terminal rated values | Please check all rated values and marking instructions on the product to avoid fire and impact of excessive current. Please consult the product manual for detailed rated values before connection. |
| Use the power cord properly | You can only use the special power cord for the instrument approved by the local and state standards. Please check whether the insulation layer of the cord is damaged or the cord is exposed, and test whether the cord is conductive. If the cord is damaged, please replace it before using the instrument. |

| | |
|---|---|
| Instrument Grounding | To avoid electric shock, the grounding conductor must be connected to the ground. This product is grounded through the grounding conductor of the power supply. Please be sure to ground this product before it is powered on. |
| AC power supply | Please use the AC power supply specified for this device. Please use the power cord approved by your country and confirm that the insulation layer is not damaged. |
| Electrostatic prevention | This device may be damaged by static electricity, so it should be tested in the anti-static area if possible. Before the power cable is connected to this device, the internal and external conductors should be grounded briefly to release static electricity. The protection grade of this device is 4 kV for contact discharge and 8 kV for air discharge. |
| Measurement accessories | Measurement accessories are of lower class, which are definitely not applicable to main power supply measurement, CAT II, CAT III or CAT IV circuit measurement. Probe subassemblies and accessories within the range of IEC 61010-031 and current sensor within the range of IEC 61010-2-032 can meet its requirements. |
| Use the input / output port of this device properly | Please use the input / output ports provided by this device in a properly manner. Do not load any input signal at the output port of this device. Do not load any signal that does not reach the rated value at the input port of this device. The probe or other connection accessories should be effectively grounded to avoid product damage or abnormal function. Please refer to the product manual for the rated value of the input / output port of this device. |
| Power fuse | Please use power fuse of specified specification. If the fuse needs to be replaced, it must be replaced with another one that meets the specified specifications (Class T, rated current 5A, rated voltage 250V) by the maintenance personnel authorized by UNI-T. |
| Disassembly and cleaning | There are no components available to operators inside. Do not remove the protective cover.<br>Maintenance must be carried out by qualified personnel. |
| Service environment | This device should be used indoors in a clean and dry environment with ambient temperature from 10 ℃ ～+40 ℃。<br>Do not use this device in explosive, dusty or humid air. |
| Do not operate in humid environment | Do not use this device in a humid environment to avoid the risk of internal short circuit or electric shock. |
| Do not operate in flammable and | Do not use this device in a flammable and explosive environment to avoid product damage or personal injury. |

| | |
|---|---|
| explosive environment | |
| **Caution** | |
| Abnormality | If this device may be faulty, please contact the authorized maintenance personnel of UNI-T for testing. Any maintenance, adjustment or parts replacement must be done by the relevant personnel of UNI-T. |
| Cooling | Do not block the ventilation holes at the side and back of this device;<br>Do not allow any external objects to enter this device via ventilation holes;<br>Please ensure adequate ventilation, and leave a gap of at least 15 cm on both sides, front and back of this device. |
| Safe transportation | Please transport this device safely to prevent it from sliding, which may damage the buttons, knobs or interfaces on the instrument panel. |
| Proper ventilation | Poor ventilation will cause the device temperature to rise, thus causing damage to this device. Please keep proper ventilation during use, and regularly check the vents and fans. |
| Keep clean and dry | Please take actions to avoid dust or moisture in the air affecting the performance of this device. Please keep the product surface clean and dry. |
| **Note** | |
| Calibration | The recommended calibration period is one year. Calibration should only be carried out by qualified personnel. |

## 2.3 Environmental Requirements

This instrument is suitable for the following environment:

| Operating Environment | Requirements |
|---|---|
| Operating temperature | 0℃~40℃ |
| Operating humidity | 20%~80%<br>(non-condensation) |
| Storage temperature | -20℃~60℃ |
| Altitude | ≤2000 meters |
| Pollution degree | 2 |

To prevent excessive dust, users could clean the instrument housing regularly. The housing is not waterproof, please disconnect the power supply first and then wipe the housing with a dry cloth or a slightly moistened soft cloth.

## 2.4 Connect Power Supply

The specification of input AC power:

| Voltage Range | Frequency |
|---|---|
| 100-240VAC | 50/60Hz |

Please use the attached power lead to connect to the power port.

Connecting to service cable

The supplied power lead has good performance in terms of case ground. This spectrum analyzer is equipped with a three-prong power cable that meets international safety standards. It provides good case grounding performance for the specification of your country or region.

Please install AC power cable as follow,

• Ensure the power cable is in a good condition.

• Leave enough space for connecting the power cord.

• Plug the attached three-prong power cable into a well-grounded power socket.

## 2.5 Electrostatic Protection

Electrostatic discharge may cause damage to component. Components can be damaged invisibly by electrostatic discharge during transportation, storage and use.

The following measure can reduce the damage of electrostatic discharge.

- Testing in anti-static area as far as possible
- Before connecting the power cable to the instrument, inner and outer conductors of the instrument should be briefly grounded to discharge static electricity;
- Ensure all the instruments are properly grounded to prevent the accumulation of static.

## 2.6 Preparation

1. Connect the power supply wire; plug the power socket into the protective grounding socket;
   According to your view to adjust the alignment jig.

2. Press the switch  on the front panel, the instrument is booting-up.

## 2.7 Remote Control

UT3510+ Series and UT3515-Sx Series Bench Top Ohm Meter supports communication with the computer via RS232/RS485/LAN interface. Users can use programming language SCPI or Modbus via RS232/RS485/LAN interface to remote control the instrument.

The detailed information about programming, please refer to UT3510+ Series Programming Manual at the official website http:// www.uni-trend.com

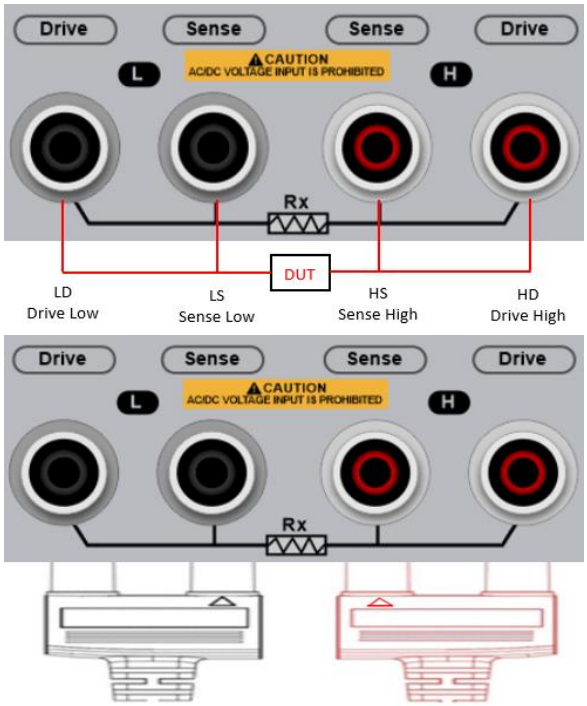
# Chapter 3 Quick Start

## 3.1 Zero Setting

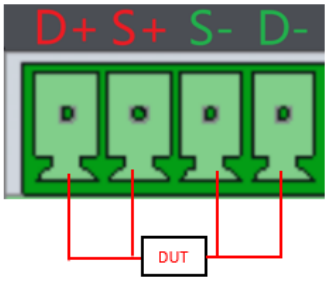
### 3.1.1 Connect the test line to the instrument.

Align test line head and insert into instrument test port. The connection mode is as follows:

When inserting the test line, be sure to match the black test line ▲ end with the black SENSE hole on the front panel of the instrument, and be sure to match the red test line ▲ end with the red SENSE hole on the front panel of the instrument.

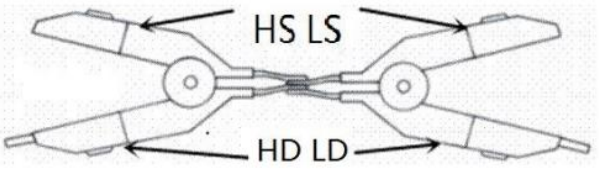



Multi-channel scanning test terminal shown as below. D+/D+ represents Drive High and Drive Low; S+/S- represents Sense High and Sense Low.




### 3.1.2 Short-circuit the test clip

Short-circuit the test clip as shown below:



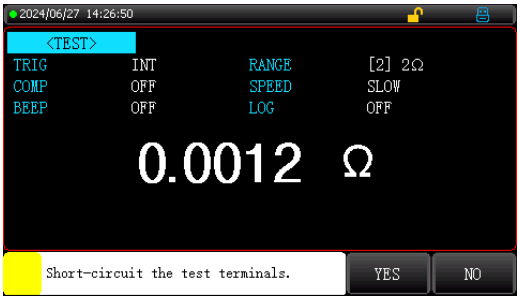

### 3.1.3 0 ADJ ON

Press Setup, use the arrow keys to move the cursor over [0 ADJ] and set 0 ADJ to ON


### 3.1.4 Zero Setting

UT3510+ Series：

Short-circuit the test clips. Return to <TEST> screen, press [SET ZERO], and press [Yes] to start zero setting.




When < Zero setting successfully!> pop up, the zero setting completed.

UT3510-Sx Series：

Short-circuit the multi-channel terminals. When the cursor is in <Test> page, press [Set Zero] at the bottom of the screen to start clearing. At the bottom of the screen pops up "channel <1> short circuit clear."; The users then need to short-circuit the terminals.

The fourth screen function key becomes [Skip] (click to skip the current channel); The fifth screen function key is [Start] (start the current channel short circuit clearing); The sixth screen function key is [OFF] (turn off short circuit clearing and return to test mode).

Press [Start] to start clearing the current channel, and then continue clearing the next channel.


Or users could press [MULT ZERO] key, and use the Numeric Keypad to enter channel number to do the zero clearing. (channels need to be short-circuited before zero clearing start.)

After zero clearing, the beeper will sound, and a prompt saying "Zero setting successfully!" will be displayed at the center of the screen. If the base number is too large during zero clearing, a prompt saying "Zero setting failed!" will be displayed.

Notes

1. During zero clearing, the test end of the test clips with the ▲ symbol should be on the same side. If zero clear fails, a prompt saying "Zero setting failed!" will be displayed at the top of the screen. Please check whether the test clips are correctly short-circuited. Follow the steps above to reconnect short-circuit for the test clips, and then start to zero clearing again.
2. For automated testing, correct measurement requires removing the clips while ensuring the correct wiring. The limit value should be very small.
3. If the range is fixed, the zero clearing applies only for the current range. If the range is set to Auto, the zero clearing is used for all ranges.

## 3.2 Resistance Test

Clamping both ends of the resistor with a Kelvin test clip, then we can test the resistance of the resistor.

UT3510+ Series and UT3515-Sx Series single mode:


UT3515-Sx Series scan mode:

# Chapter 4 Troubleshooting

Possible faults in use of UT3510+ series and troubleshooting methods are listed below. Please handle fault as the corresponding steps. If it cannot be handled, please contact with the distributor or local office and provide the model information (press Setup → System Config → System Info to check).

## 4.1 No Display on Screen

If the Ohm Meter is blank screen when press the power switch on the front panel.

1) Inspect whether power source is connected well.
2) Inspect whether power button is pressed.
3) Restart the instrument.
4) If the instrument still can't work, please contact with the distributor or local office for product maintenance service.

## 4.2 The resistance value displayed is negative

In correct setting but the resistance value is negative.

1) Inspect whether Kelvin test clip Sense terminal is connected correctly.
2) Do the short-circuit zero setting correctly, please refer to 3.1
3) If the resistance value is still abnormal, please contact with the distributor or local office for product maintenance service.

## 4.2 Screen display OL

That means the resistance value is out of range, please select the proper range and test again.

# Chapter 5 Appendix

## 5.1 Maintenance and Cleaning

(1) General Maintenance

Keep the instrument away from the direct sunlight.

Caution

Keep sprays, liquids and solvents away from the instrument or probe to avoid damaging the instrument or probe.

(2) Cleaning

Check the instrument frequently according to the operating condition. Follow these steps to clean the external surface of the instrument:

Please use a soft cloth to wipe the dust outside the instrument.

When cleaning the LCD screen, please pay attention and protect the transparent LCD screen.

Please disconnect the power supply, then wipe the instrument with a damp but not dripping soft cloth. Do not use any abrasive chemical cleaning agent on the instrument or probes.

Warning

**Please confirm that the instrument is completely dry before use, to avoid electrical shorts or even personal injury caused by moisture.**

P/N:110401113445X

# 说明书菲林做货要求：

| 序号 | 项目 | 内容 |
|---|---|---|
| 1 | 尺寸 | 285*210mm |
| 2 | 材质 | 60g书纸 |
| 3 | 颜色 | 单色印刷 |
| 4 | 外观要求 | 完整清晰、版面整洁，无斑墨、残损、毛边、刀线错位等缺陷。 |
| 5 | 装订方式 | 钉装 |
| 6 | 表面处理 | 无 |
| 7 | 其它 | 无 |
| 版本 | | 2 |
| 修改页码 | | |

| | | | |
|---|---|---|---|
| DWH<br>设 计 | 宣浩 | MODEL<br>机型: Ut3510+ | Part NO.<br>物料编号: 110401113445X |
| CHK<br>审核 | | UNI-T® 优利德科技(中国)股份有限公司<br>UNI-TREND TECHNOLOGY (CHINA) CO., LTD. | |
| APPRO.<br>批准 | | | |