

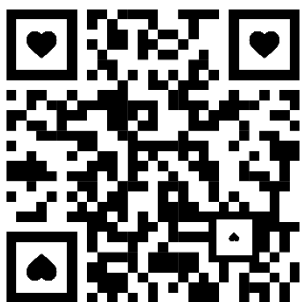


Quick Start Guide

UT5400 Series Electrical Safety Analyzers

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Chapter 1 Panel Overview

1.1 Front Panel

The product features a simple and intuitive front-panel layout, as shown in the following figure.

UT5430/UT5451 Front Panel

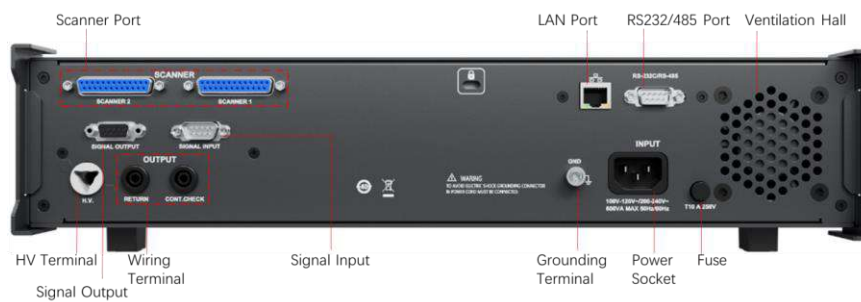


UT5440/UT5452 Front Panel



1.2 Rear Panel

UT5430/UT5451 Rear Panel



UT5440/UT5452 Rear Panel



For more details of both the front panel and rear panel, please refer to *UT5400 Series Electrical Safety Analyzer-User Manual*.

Chapter 2 Inspection and Preparation

The UT5400 Series Electrical Safety Analyzers integrate five key test functions: AC Withstand Voltage (ACW), DC Withstand Voltage (DCW), Insulation Resistance (IR), AC Ground Bond (AC GB), and Continuity Check (GC). The series provides a high test capacity of 500 VA, supporting a maximum AC output of 5 kV / 100 mA with 1% voltage accuracy, meeting the requirements of high-power withstand voltage testing.

- DC withstand voltage test: Rated output 6 kV / 10 mA, with a minimum leakage current resolution of 0.1 nA.
- Insulation resistance test: Rated output 6 kV / 50 GΩ.
- AC ground bond test: Rated output 40 A / 600 mΩ.
- Continuity impedance test: Measurement range 0.001 Ω to 10 kΩ.

To enhance ease of use, the instrument is equipped with a 5-inch multi-touch display and supports barcode scanner input, enabling more efficient and streamlined operation. It also offers a comprehensive set of interface options, making it suitable for integration into automated test systems that require high safety and high reliability across a wide range of applications.

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 Environmental Requirements

This instrument is suitable for the following environment:

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

There are ventilation opening on the rear panel and side panel of the instrument. Ensure that airflow through these vents remains unobstructed. To prevent excessive dust from blocking the vents, please 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.

2.3 Connect Power Supply

The AC power supply specifications are shown in the following table.

Model	Voltage Range	Frequency
UT5430/40/51/52	200-240 VAC or 100-120 VAC	50/60 Hz

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 power supply 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.

To install the AC power cable:

- Ensure the power cable is in good condition.
- Leave enough space for connecting the power cord.
- Plug the attached three-prong power cable into a well-grounded power socket.

2.4 Electrostatic Protection

Electrostatic discharge may cause damage to components. 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.

2.5 Preparation

1. Connect the power supply wire.



2. Press the switch on the front panel to turn on the instrument.

2.6 Remote Control

UT5400 Series Electrical Safety Analyzer supports communication with the computer via RS232/485/LAN interface. Users can remotely control the instrument using SCPI or Modbus commands over any of these interfaces.

For detailed information about programming, please refer to UT5400 Series Programming Manual at the official website [http:// www.uni-trend.com](http://www.uni-trend.com)

Chapter 3 Quick Start Guide

3.1 Power-On

1. Connect the female end of the power cord to the rear panel of the instrument, and plug the male end into a properly grounded AC power outlet.



2. Plug the Interlock Disable Key into the signal/input connector on the rear panel of the instrument.



3. Boot-Up

Turn on the POWER switch located at the lower-left corner of the front panel. After the instrument is powered on, it automatically starts up and performs a self-test.

After boot-up, the instrument enters the Home interface by default. It can be configured in the system settings.



3.2 Touch Screen Operations

3.2.1 Tap Gestures

The UT5400 series displays icons and parameters across different interfaces. Tap the corresponding icons or parameters to configure settings, as shown in the figure below.



3.2.2 Scroll and Swipe Gestures

1. Screens with a scroll bar on the right side indicate that additional parameters are available. Users can view these parameters by scrolling up or down.
2. The <TESTS>, <SETUP>, and <FILE> interfaces support left-right swiping, allowing users to switch quickly between these three interfaces.
3. On the [Test] interface, users can scroll up or down to quickly switch between and select test steps, enabling efficient configuration of step parameters and test execution.

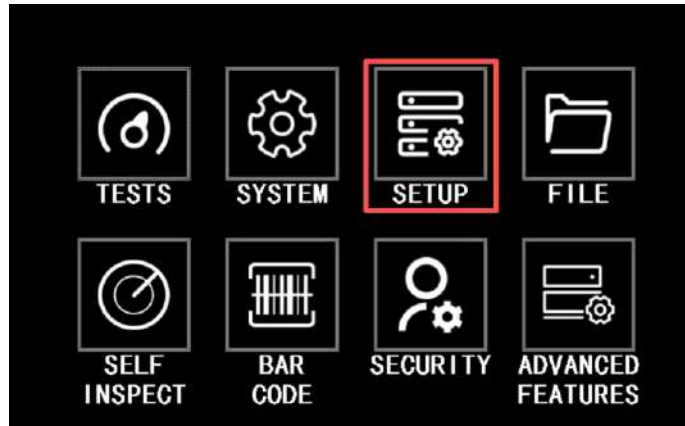
Test Type	Voltage Test	Frequency
ACW	1.240 kV	50Hz
UP Limit Total	LOW Limit Total	ARC Detect
10.000 mA	0.000 mA	OFF
UP Limit Real	LOW Limit Real	ARC Level
10.000 mA	0.000 mA	Level 5
Rise Time	Dwell Time	Fall Time
0.1 s	1.0 s	0.0 s



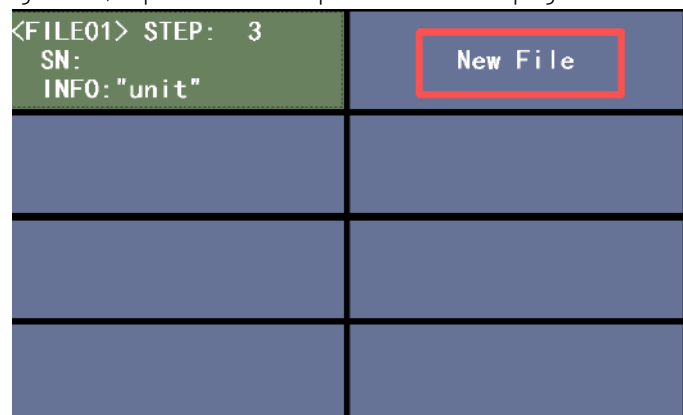
3.3 Test Set Up

3.3.1 New Test File

1. In the Home menu, tap SETUP icon to access the parameter setting menu.



2. In the system setting menu, tap New File to open the new file page.



3. On the new file page, use the numeric keyboard to enter the filename, and tap Enter key to complete the setting.



- The new file is added, as shown in the following figure. In this example, the file number is 02 and the file name is test.

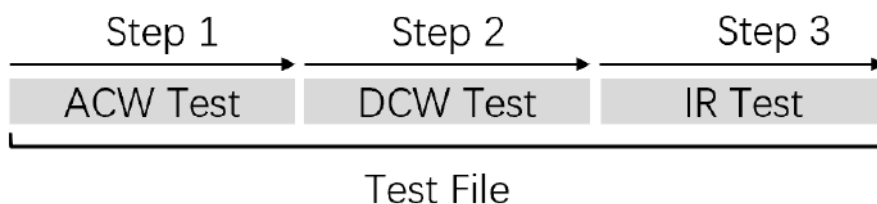
<FILE01> STEP: 3 SN: INFO: "unit"	<FILE02> STEP: 0 SN: INFO: "test"
New File	

3.3.2 Test File and Test Step

An auto test consists of test files and test steps. A test file is a collection of test steps.

A specific test can be assigned to each step, starting from step 1 and executed sequentially. When the last step is completed, the test file is finished.

Test File



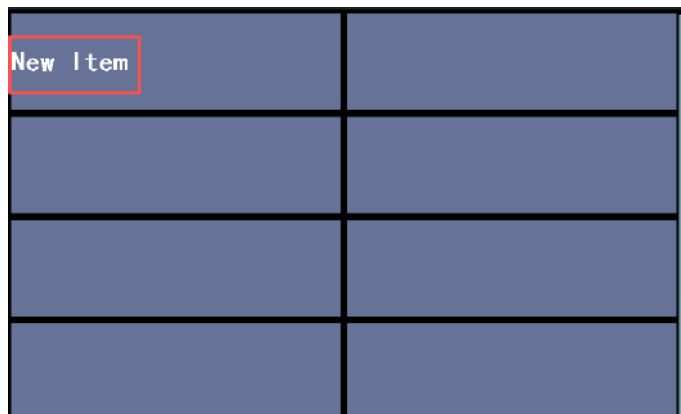
3.3.3 Add Step

- In the system setting menu, tap the test file <FILE02>.

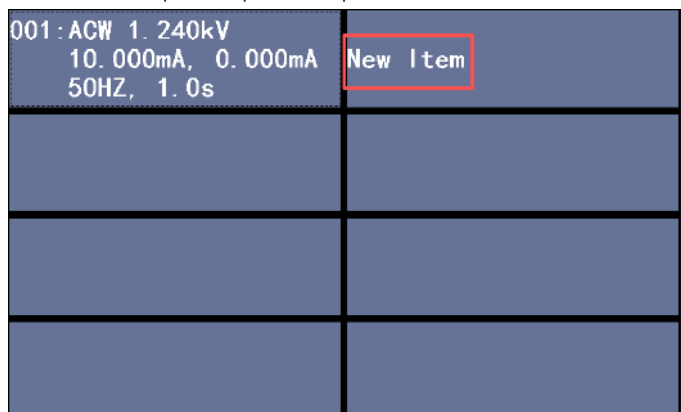
<FILE01> STEP: 3 SN: INFO: "unit"	<FILE02> STEP: 0 SN: INFO: "test"
New File	



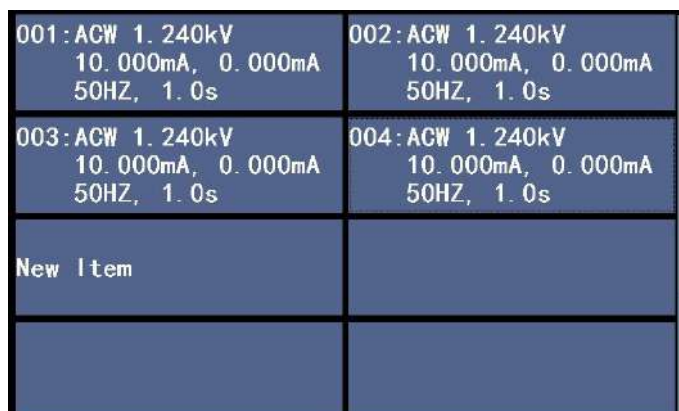
2. In the system setting menu, tap New Item to add a step.



3. Tap New Item again to add multiple steps in sequence.



4. Add four steps, as shown in the following figure.



Note: To modify the test parameters of each step, tap each step or press Meas to return to the measurement setting menu, then scroll up or down to adjust the parameters.

3.4 Test Wiring (UT5430, UT5451)

Test leads can be connected to the test ports on either the front panel or rear panel. These test ports are connected in parallel, and either type can be used according to the application requirements.

The figure below shows the wiring diagram between the instrument and the device under test (DUT). Refer to the diagram and ensure that all connections on the DUT or its test fixture are securely fastened.

Wiring with DUT (UT5430, UT5451)



Wiring Steps

1. Connect the red high-voltage test clip to the L (live) and N (neutral) terminals of the DUT.
2. Connect the test return wire to the ground wire or housing of the DUT. As shown in the figure above, it is connected to the DUT's ground wire.
3. If continuity detection between the housing and ground wire is required, connect the CONT. CHECK terminal to the DUT's housing, and connect the test return (RETURN) wire to the DUT's ground wire.

3.5 Test Wiring (UT5440, UT5452)

Wiring with DUT (UT5430/UT5452)



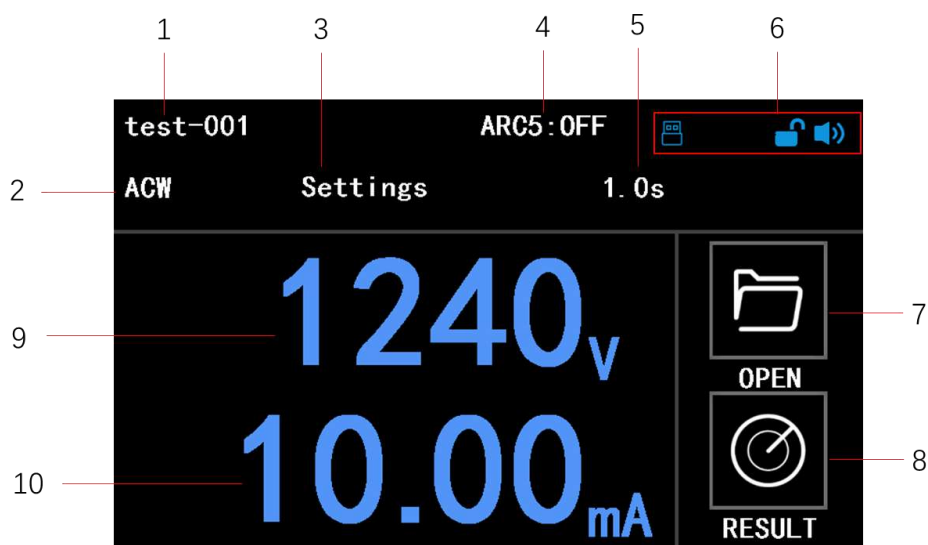
Wiring Steps

1. Connect the red high-voltage test clip to the L (live) and N (neutral) terminals of the DUT.
2. Connect the current loop terminal and instrument measurement loop terminal for grounding resistance testing to the DUT's ground wire.
3. Connect the current output terminal and positive voltage sampling terminal for grounding resistance testing to the DUT's housing.

3.6 Test Execution

Tap the tests icon in the Hom menu to open the test interface.

From any other interface, press the [Meas] button or [RESET] button to access the Test menu.



Test Execution Setting

No.	Item	Description
1	test-001	test: File name 001: Test step (tap to change)
2	AC Withstand	Currently selected test mode (Scroll up or down to change)
3	Settings	Status bar: Displays configurable parameters for the current mode
4	ARC5: OFF	Arc detection level and activation status (tap to change) Indicates the resistive leakage current during the AC Withstand Voltage Test.
5	1.0 s	Test time (tap to change)
6	Status Icon	Indicates the status of connected devices and functions: USB flash drive ready, Barcode scanner ready, LAN connected, Keypad lock status, Buzzer status
7	OPEN	Load test files
8	RESULT	View test results and historical data
9	1240 V	Test voltage (tap to change)
10	10.00 mA	Total leakage current (tap to change)

Press the green [START] button on the front panel to initiate the test.

Press the red [RESET] button to abort an ongoing test.

Chapter 4 Troubleshooting

Possible faults in use of UT5400 Series Electrical Safety Analyzer and troubleshooting methods are listed below. Please follow the steps provided. If the issue cannot be resolved, contact your distributor or local office and provide the instrument model information.

To obtain the device information, press [Home] on the front panel, tap [SYSTEM], scroll to the bottom, and select [INFORMATION]].

Model	Serial Number
UT5430	CES3025510001
Software Version	Hardware Version
V1. 23	V1. 00

The Electrical Safety Analyzer fails to start properly, follow the procedure below to check and resolve the issue.

1. Check whether the power cable is connected correctly and make sure the power supply is powered on.
2. Check whether the UT5400 power switch is turned on.
3. Check whether the fuse has blown.

If the fuse has blown, replace it as follows:

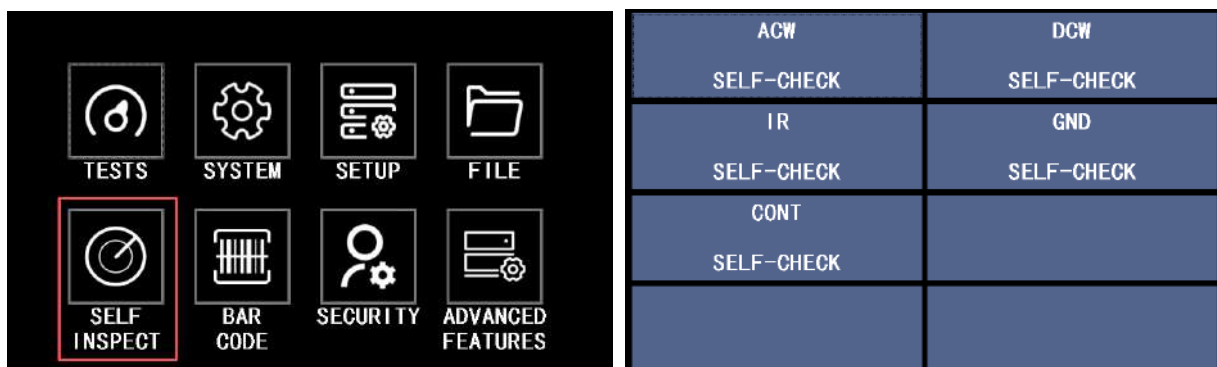
1. Turn off the power switch, unplug the power cable, and use tweezers or a screwdriver to remove the fuse holder.

Note: Fuse location can be found in the *Rear Panel*/illustration.

2. Inspect the fuse to confirm whether it is damaged. If it is, replace it with a fuse of the same model.
Fuse specification: 250 V / T6.3A for UT5430/UT5451, 250V/T10A for UT5440/UT5452.
3. Install the replacement fuse into the holder, reinsert the fuse holder, and power the instrument back on.

Before using the tester, users may perform a Self-Check to verify basic functionality.

- 1 Press [Home] button on the front panel and tap [SELF-TEST].



- 2 After selecting the self-check item, follow the on-screen instructions to connect or disconnect the test leads.

Press START to begin the self-check, and press RESET to stop it. If the Self-TEST indicates an error, there may be an internal circuit issue with the tester. Please contact the distributor or local office for inspection.

Take ACW SELF-CHECK as example as below.

Test Result: Pass	Test Result: Failed
 ACW Self-test passed Press RESET to exit	 ACW Self-test failed Press RESET to exit

Simple Fault Handling

Warning: The tester must be repaired and maintained by experienced professionals. Repair or maintenance by unqualified personnel may cause personal injury or death.

No.	Fault Phenomenon	Troubleshooting Methods
1	The LCD screen remains blank at power-on.	Check and confirm that the instrument's power cable is securely connected.
2	Abnormal protection occurs during withstand voltage or insulation testing.	Check for any short circuits in the withstand voltage and insulation test connections and correct them accordingly.
3	Abnormal protection occurs during the grounding test.	Check for open circuits in the grounding test connections and rectify them.
4	The instrument has entered a frozen/crashed state.	Power off, wait for 30 seconds, and then power on again.
5	The instrument fails to communicate with the computer.	- Each time the communication system is enabled, start the computer first and wait for it to boot up before powering on the tester. - Check and confirm that the communication cable is correctly and securely connected. - Check and confirm that the communication software is properly installed. - Check and confirm that the correct communication interface is selected. - Check and confirm that the instrument's address settings meet the computer communication requirements. - Check and confirm that the baud rate settings of the computer and the instrument are consistent.

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

Inspect the instrument regularly according to its operating conditions. Follow these steps to clean the external surfaces:

- a) Use a soft cloth to remove dust from the exterior of the instrument.
- b) When cleaning the LCD screen, handle it carefully to protect the transparent display.
- c) When cleaning the dust screen, remove the screws of the dust cover with a screwdriver, then take out the dust screen. After cleaning, reinstall the dust screen in the correct sequence.
- d) Disconnect the power supply before cleaning. Wipe the instrument with a damp, but not dripping, soft cloth. Do not use abrasive chemical cleaners 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.

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		0		
修改页码				
DWH 设计	宣浩	MODEL 机型:	Ut5400	Part NO. 物料编号: 110401114115X
CHK 审核		 优利德科技(中国)股份有限公司 UNI-TREND TECHNOLOGY (CHINA) CO., LTD.		
APPRO. 批准				