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UNI-T UT526 Multifunction Electrical Meter User Manual

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UNI-T UT526 Multifunction Electrical
Meter User Manual

UNI-T®

UT525 / 526

Operating Manual



Multifunction Electric Testers

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Overview

UT525/UT526 is a multifunction digital instrument adopting brand-new design using large-scale integrated analogue and digital circuits and micro-processor chip. It mainly measures RCD parameters, low-resistance continuity, insulation resistance, DC&AC Voltage, etc. The versatile functionality, high accuracy and ease of use features make it widely used to measure insulation and continuity of various kinds of electrical equipment's, and an ideal tool for maintenance, inspection and tests badly needed for RCD in those equipments.

Safety Information


This instrument was designed, manufactured and tested according to IEC61010 safety standard (Safety Requirements for Electrical Equipment). The manual includes safety information related to the safe operation of the instrument. Please read the following instructions before use and strictly follow them during the operation.



Warning

- Please read and understood the manual before using the instrument.
- Use the instrument as specified in the manual and keep the manual well for future reference.
- Misuse may cause personal injury or damage to the instrument during tests.



Sign  on the instrument indicates users to refer to the manual for details in order to ensure safe operation of the instrument.

	Danger	Specifies conditions and actions that may pose severe or fatal hazards to the user.
	Warning	Alerts users to avoid electric shock.
	Caution	Specifies conditions and actions that damages the instrument or affect the measurement accuracy.



Danger

- Do not measure any circuit with voltage above 440Vac or 440Vdc.
- Do not take measurements on sites exposed to flammables, for spark may cause the explosion.
- Do not use the Tester if it is wet or the operator's hands are wet.
- Do not touch conductive parts of test leads during measurement.
- Do not measure with the battery cover opened.
- Do not touch any circuit under test when you are measuring insulation or RCD.




Warning






- Do not use the instrument if it works abnormally. Eg: the instrument is damaged or the metal is exposed.
- Please take caution when working voltage exceeds 33Vrms, 46.7Vacrms or 70Vdc, for it may cause electric shock.
- The electric storage in tested circuits must be released after finishing high resistance measurements.
- Do not replace the battery if the instrument is under wet conditions.
- Please ensure the test leads are firmly secured to input terminals of the instrument.
- Ensure the instrument is turned off before opening the battery cover.



Caution

- The tested circuit should be discharged completely and totally separated from the power before making resistance measurements.
- If it is necessary to replace the test leads or power adaptor, please use only the same model with identical electric specifications.
- If low battery indicator() shows, stop using the instrument. Take out the battery if not used for a long time.
- Do not store or use the instrument in the places exposed to high temperature, high humidity, explosives, flammables or strong electromagnetic field.
- Clean the instrument casing with dampened cloth and mild detergent. No abrasives or solvents are allowed.
- When the instrument is wet, dry it first before storing it.

Electrical Symbols

	Risk of electric shock
	Double or reinforced insulation
	DC
	AC
	Grounding

Specifications

Accuracy: $\pm(a\% \text{ of reading} + b \text{ digits})$, calibration per year Ambient Temperature & Humidity: $23\pm 5^{\circ}\text{C}$, 45~75%RH.

RCD Test

Test current	10mA	30mA	100mA	300mA
Applied voltage	Voltage: $220\text{V}\pm 10\%$, frequency: 45Hz-65Hz			
Test current accuracy	At 220Vac ± 2 : 0 +10%			
Trip time	(10mA) range: 0-2,000mS (30mA) range: 0-500mS (100mA) range: 0-300mS (300mA) range: 0-300mS			
Accuracy	$\pm(5\%+2)$			

Low-Resistance Continuity(UT525)

Rated voltage	About 5.0V
Test range	0.01 Ω -200 Ω
Test current	> 200mA for 0.00 Ω -2.00 Ω
Accuracy	0.01 Ω -200 Ω : $\pm(2\%+5)$

Low-Resistance Continuity(UT526)

Rated voltage	About 5.0V
Test range	0.01 Ω -2,000 Ω
Test current	> 200mA within 0.00 Ω -2.00 Ω
Accuracy	0.01 Ω ~200 Ω : $\pm(2\%+5)$ 201 Ω ~2000 Ω : $\pm(5\%+5)$

Insulation Resistance(UT525)

Rated voltage	100V	250V	500V
Test range	0.05MΩ-200MΩ		
Open circuit voltage	DC 100V±10%	DC 250V±10%	DC 500V±10%
Rated test current	100KΩ load 0.9mA-1.1mA	250KΩ load 0.9mA-1.1mA	500KΩ load 0.9mA-1.1mA
Short-circuit current	< 1.8mA		
Accuracy	0.05MΩ-200MΩ: ±(5%+5)		

Insulation Resistance(UT526)


Rated voltage	250V	500V	1,000V
Test range	0.05MΩ-200MΩ	0.05MΩ-300MΩ	0.05MΩ-500MΩ
Open circuit voltage	DC 250V±10%	DC 500V±10%	DC 1,000V±10%
Rated test current	500KΩ load 0.9mA-1.1mA	1MΩ load 0.9mA-1.1mA	250KΩ load 0.9mA-1.1mA
Short-circuit current	< 1.8mA		
Accuracy	0.05MΩ-500MΩ: ±(5%+5)		

Voltage

	DCV	ACV
Test range	±0-±440V	0-440V (50/60Hz), for < 10V, it is for reference only.
Resolution	1V	
Accuracy	±(2%+3)	

Frequency

Test range	20Hz-100Hz
Resolution	1Hz
Accuracy	Just for reference

- Display: LCD display, max reading: 9999
- Low battery indication: 
- Over limit indication: "OL"
- Auto range function
- Auto voltage release
- Red warning light
- Unit display: Display function and unit symbols simultaneously.
- Work conditions: 0°C-40°C/ ≤85%RH
- Storage condition: -20°C-60°C/≤90%RH
- Dimensions: 150mm(L)×100mm(W)×71mm(D)
- Current consumption: about 50mA (1,000V output) (about 10mA in general condition)
- Accessories: test lead, alkaline battery (1.5V, AA)×6, manual, carrying bag
- Weight: 0.7kg (including batteries)
- Power: alkaline battery (1.5V, AA)×6
- Compliances: CATIII 600V, Pollution Degree II as per IEC61010

Tester Description (Front View, See Figure 1)

1. **L**: Live terminal for RCD measurement and positive terminal for voltage measurement
2. **E**: earth terminal for RCD measurement

3. **N**: Neutral terminal for RCD measurement and input negative terminal for voltage measurement
4. **LINE**: High voltage output terminal for insulation resistance measurement
5. LCD
6. RCD current setup/voltage switchover button
7. RCD phase angle switchover/zeroing button
8. Test button
9. Rotary switch

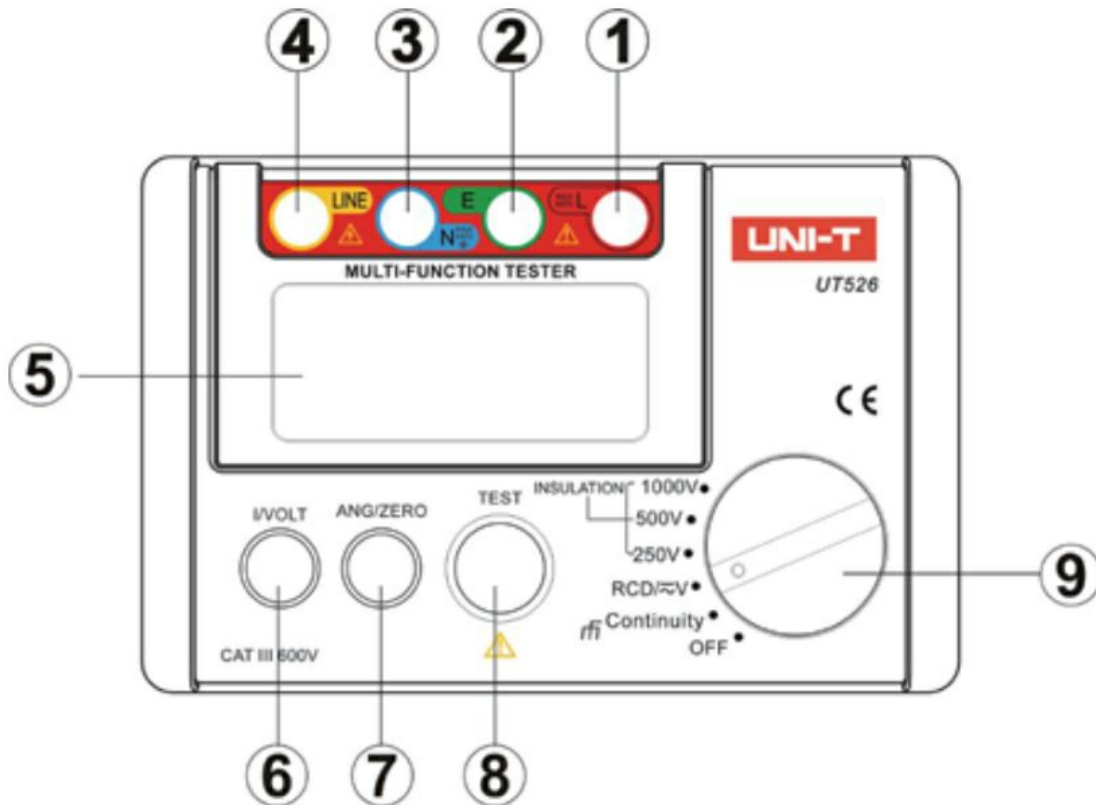



Figure 1

Buttons and Rotary Switch Functions

1. I/VOLT: Select RCD test currents/switch between AC and DC voltage;
2. ANG/ZERO: Switch phase angle for RCD measurements/ reset to zero before continuity test;
3. TEST: Begin a test;
4. Set rotary switch to Continuity: Test for grounding continuity;
5. Set rotary switch to RCD/V: Measure RCD/AC&DC voltage;
6. Set rotary switch to 100V/250V/500V (UT525) or 250V/500V/1000V (UT526): select a output voltage under insulation resistance measurement.

Preparations before Measurement

When the instrument turns on, if low battery indicator shows on left side of LCD, it indicates the battery is running out and please replace the battery timely.

Low Battery Indicator	Battery Voltage
	7V or less

Testing for Continuity(See Figure 2)

To test continuity:

1. Connect the tested object and the Tester as shown in Figure 2;
2. Set the rotary switch to Continuity;
3. Press TEST button to begin the test;

 Caution:

- To ensure the test accuracy, please short-circuit the test leads and zero the display(Zeroing Steps: set the tester under continuity

status, short-circuit the test leads, press TEST button and then press ANG/ZERO button to reset the resistance of test leads to "0", ZERO shows on LCD.)

- Do not test any live objects.

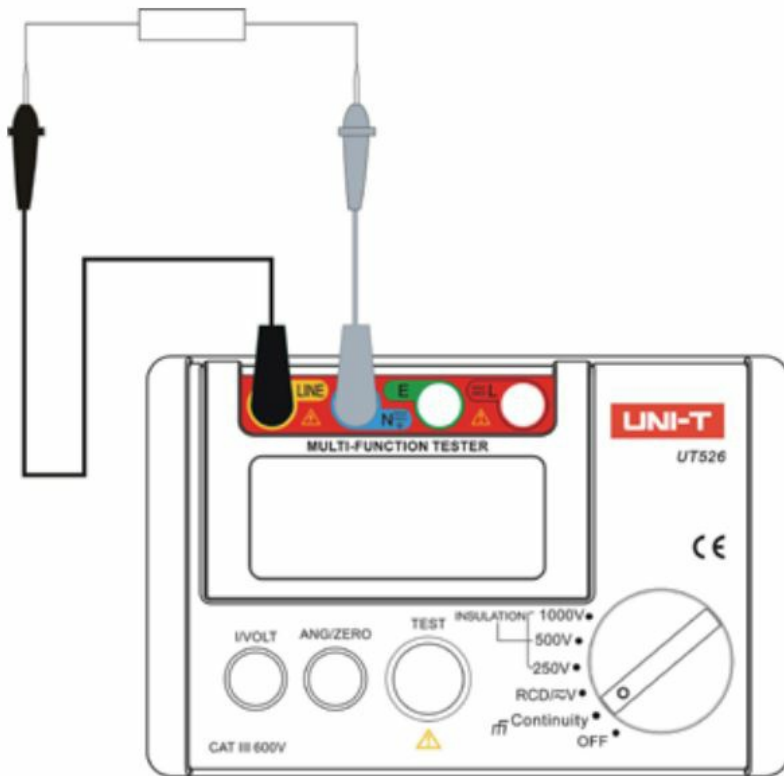


Figure 2

Measuring RCD(See Figure 3)

To measure RCD,

1. Set the rotary switch to RCD/V;
2. Press I/VOLT button to set up test current (available: 10mA/30mA/100mA/ 300mA);
3. Insert supplied test leads (with power plug) to the Tester (Red-L; Green-E; Blue-N) and plug the plug into 220V civil socket;
4. Press TEST button to start.

 Caution:

- Ensure the power socket is reliably grounded when measuring RCD.
- Ensure the power socket Live, Neutral and Earth lines are properly connected when measuring RCD.
- Please take caution when taking RCD measurements, for they are all done under high voltage status.

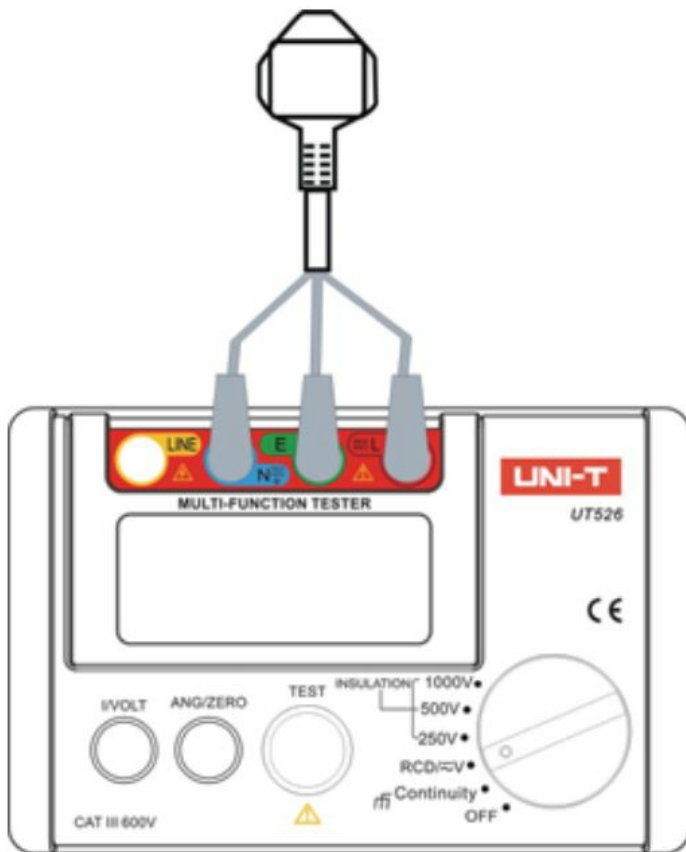


Figure 3

Measuring Voltage (See Figure 4)

To measure voltage:

1. Set the rotary switch to RCD/V;
2. Long press I/VOLT to switch between AC and DC mode;
3. a. Insert test leads into input terminals (Red to L, Black to N) and connect Red & Black clips or probes to tested circuit.
b. Or Insert the special test leads (with plug) to the input terminals (Red to L, Green to E, Blue-N) and plug the plug into the tested socket.
4. Press TEST button, the Tester will automatically detect out AC/DC mode and display the voltage and frequency readings on LCD.



Caution:

- Do not input any voltage higher than 440V or 440Vrms, although it may be possible to display a higher voltage, it may damage the instrument.
- To avoid electric shock, please take caution when measuring high voltage.
- After completing the measurements, remove test leads away from tested circuits and disconnect them from the input terminals of the instrument.
- Do not measure with the battery cover opened.

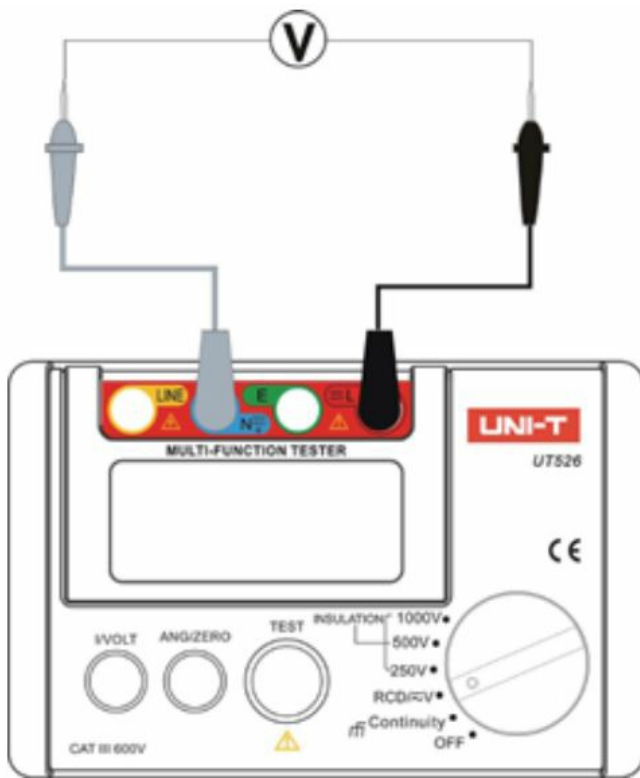


Figure 4

Measuring Insulation Resistance (See Figure 5)



Caution

- Make sure the tested circuit is dis-energized, completely discharged and totally separated from the power supply before measurement. Do not measure the insulation resistance of live equipment's or lines.
- Do not measure with the battery cover opened.
- Do not short-circuit the test leads under high-voltage output status or prepare to measure insulation resistance after the high voltage has already been output.
- After the measurement finishes, do not touch the tested circuit, for the stored capacitance in the circuit may cause electric shock.
- Do not touch the test leads even after they are removed away from the circuit, wait until the test voltage is totally released.

To measure insulation resistance:

1. Turn the rotary switch to one of 100V/250V/500V (UT525) or 250V/500V/ 1000V (UT526) test voltage.
2. Insert test leads into input terminals (Red to LINE, Black to N) and connect them to the tested circuit. High voltage is output from LINE terminal.
3. Continuous Measurement: Press TEST button, the Tester will self-lock, output the test voltage and emit warning light simultaneously. With the measurement finished, press TEST to unlock and stop the continuous measurement.

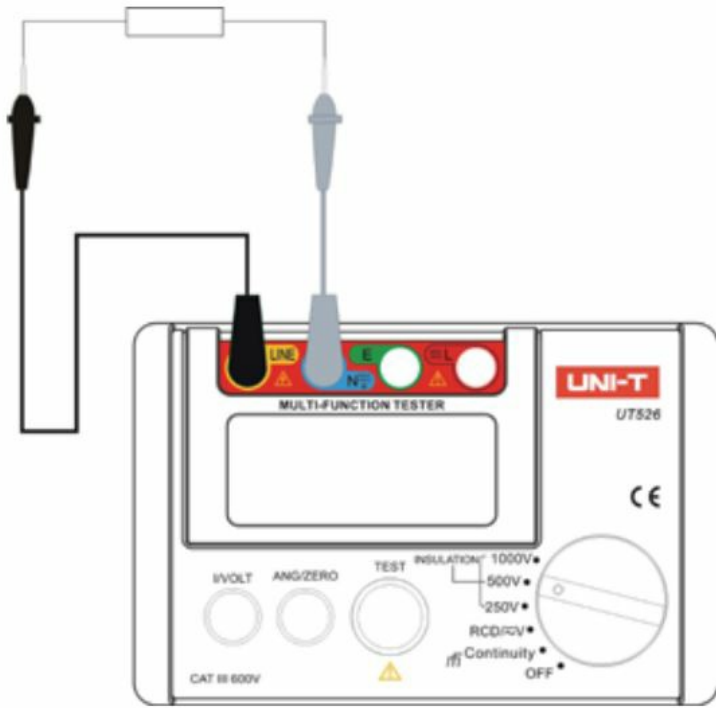


Figure 5

Replacing the Battery(See Figure 6)



Caution

- Do not use old and new batteries at the same time.
- Pay attention to the polarity during replacing battery.



Danger

1. To avoid potential electric shock, remove the test leads away from the instrument before replacing battery.
2. Do not measure with the battery opened.
3. When sign “ ” is displayed on LCD, it means the battery needs to be replaced.

To replace the battery, follow the steps as below:

1. Turn off the instrument (turn the rotary switch to off), and remove away the test leads.
2. Unscrew the battery cover, take out the old batteries and replace with new 6 pcs batteries.
3. Screw up the battery cover again.

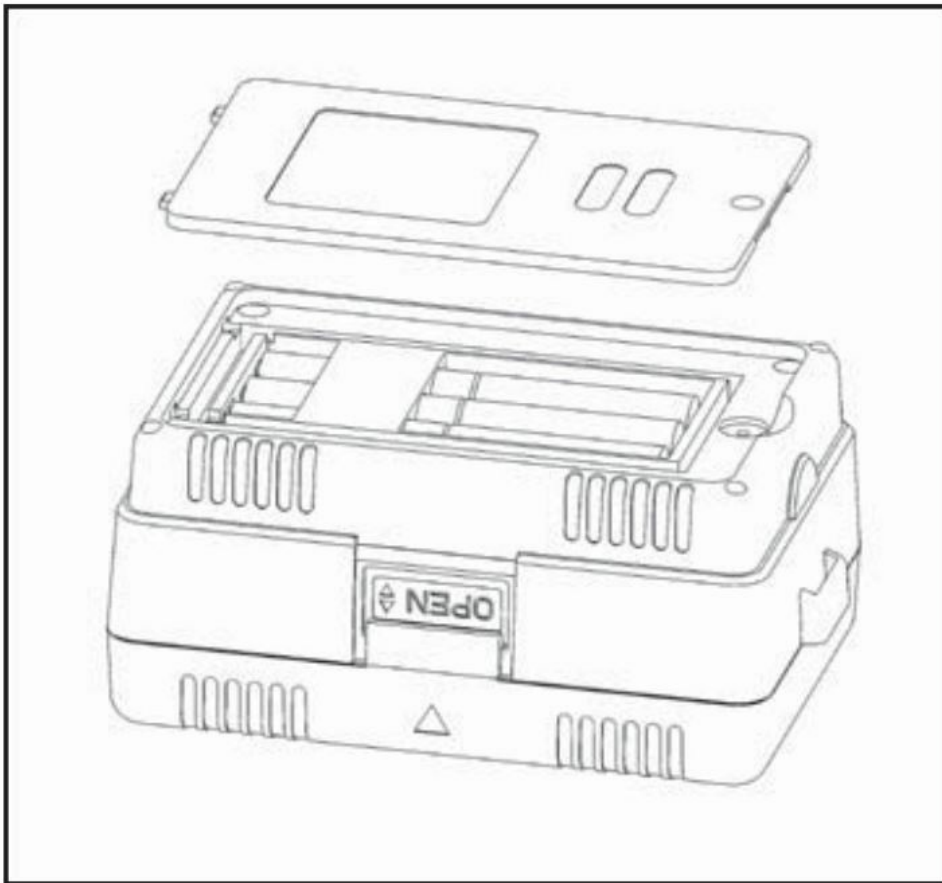


Figure 6

Maintenance

Cleaning the Housing:

- Wipe the surface with soft wet cloth or sponge.
- To avoid instrument damage, do not dip the instrument into water.
- When the instrument is wet, make it dry and then store.
- When the instrument needs to be checked or repaired, please have it serviced by qualified professional personnel or designated service center.

END

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Documents / Resources