

UT116A/C

SMD Tester User Manual

Preface

Thank you for purchasing the new SMD tester. In order to use this product safely and correctly, please read this manual thoroughly, especially the Safety Guideline part. After reading this manual, it is recommended to keep the manual at an easily accessible place, preferably close to the device, for future reference.

Limited Warranty and Liability

Uni-Trend guarantees that the product is free from any defect in material and workmanship within one year from the purchase date. This warranty does not apply to damages caused by accident, negligence, misuse, modification, contamination or improper handling. The dealer shall not be entitled to give any other warranty on behalf of Uni-Trend. If you need warranty service within the warranty period, please contact your seller directly.

Uni-Trend will not be responsible for any special, indirect, incidental or subsequent damage or loss caused by using this device.

1. Overview

This product is a miniaturized, integrative, brand new instrument for measurements of SMD resistance, capacitance and diode (RCD) parameters. In addition, it can also be used for LED, zener diode, on/off and maximum 36V DC voltage measurement. This tester is a great maintenance tool for electronic factories.

This tester has passed 2nd grade of the environmental pollution safety standard and conforms to the European Union standard: CE certification (EMC electromagnetic compatible). The case of tester is plastic and the test end is gold-plated to prevent rust. Please read the manual carefully before using the tester, especially for the safety guidelines.

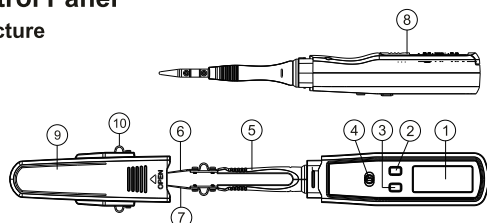
Safety Guideline:

- Before use, please check if the tester case is broken, and do not use the tester if any damage is found.
- Check if the metal clamp arm is damaged.
- Do not input DC voltage over 36V to the measuring port.
- Do not use the tester in the explosive gas, steam or dust.

Warning: Do not measure any live circuit except for DC 36V scale.

3. Control Panel

3.1 Structure



1	LCD display	6	Test input port (+)
2	Function button (SELECT)	7	Test public port (-)
3	Data hold button	8	Battery cover
4	Function button (HOLD)	9	Test lead case
5	Handle part of the test arm	10	Spare test clamps

3.2 Function Button

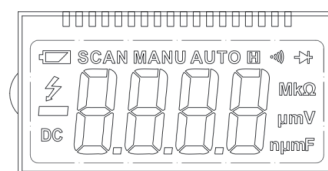
1.SELECT button: This button is for selecting functions when the R/D/C gear is on. The tester has no power switch, will turn on automatically after batteries installation. Press SELECT button over 2s to turn off UT116A only when it is in R/D/C scale. Long press it to restart. The tester will power off automatically if there is no operation for 10 minutes.

UT116C will power off automatically if there is no operation for 15 minutes. Press the SELECT button to restart it.

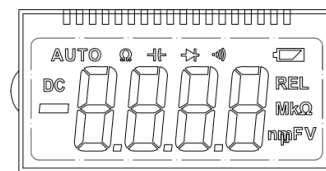
2.HOLD button: press HOLD button under any kind of measuring state to switch the tester to data hold state and keep current measuring data. Press this button again to cancel data hold.

Notice: After turning off UT116A, press HOLD button or SELECT button can restart the tester under R/D/C gear. If the tester is automatically turned off in non-SCAN mode and turned on by buttons, the tester will be switched to HOLD state and displays the measuring value before turn off, press HOLD button to cancel the data hold state.

3.3 LCD Display



UT116A



UT116C

NO	Symbol	Meaning
1	SCAN	Auto identification
2	AUTO	Auto range
3	H	Data hold
4	Diode symbol	Diode
5	On/off test symbol	On/off test
6	nμmF	Capacity (nF, μF, mF)
7	MKΩ	Unit of resistance (Ω, KΩ, MΩ)
8	mV	Unit of voltage
9	Battery icon	Low battery

4. Feature

4.1 General Features

- UT116A 3000 (UT116C 6000) LCD counting
- Auto measuring range
- Auto identification of resistance, capacity and diode (only UT116A)
- Select functions by SELECT button
- Data hold
- On/off test
- Semi-conductor test
- LED test
- UT116A: DC MAX 36V test, UT116C: battery voltage measurement
- Over-load (OL)
- Low battery indicator
- Power source: batteries of 1.5V (AAA) ×2
- Auto power off: the tester will be shut down automatically if there is no any operation for over 10 minutes (UT116A), or 15 minute (UT116C)
- Operating temperature and humidity: 0-40°C (32-104°F) and <80%RH
- Storage temperature and humidity: -10-50°C (14-122°F) and <70%RH
- EC: MAX DC36V, EN61326-1:2013, EN61326-2-2:2013
- Size (L×W×H) and weight: 204×33×25mm, about 80 g
- Operating condition:
 - (1) For indoor use only
 - (2) Altitude < 2000m

4.2 Electrical Characteristics

Operating environment: temperature 18°C~28°C (64°F~82°F), relative humidity ≤75%; If the temperature is less than 18°C or over 28°C, append temperature coefficient error will be 0.1 x (specify accuracy)/°C.

UT116A			
Function	Range	Resolution	Accuracy
Resistance	300Ω	0.1Ω	±(1.5% of reading+5)
	3kΩ	1Ω	
	30k	10Ω	
	300k	100Ω	
	3MΩ	1kΩ	
	30MΩ	10kΩ	±(2.5% of reading+5)
Capacity	3nF	1pF	±(3% of reading+50)
	30nF	10pF	±(2.5% of reading+5)
	300nF	100pF	
	3μF	1nF	
	30μF	10nF	
	300μF	100nF	±(5% of reading+5)
	3mF	1μF	For reference only
	30mF	10μF	

	Open-circuit voltage: 3.0V, forward current: 2mA		
	If the resistance of measured components or circuit is less than about 30Ω, the buzzer beeps (no beeps over 100Ω, uncertain between 30Ω~100Ω)		
Semi-conductor/LED	Open-circuit voltage: about 21V, if the displayed voltage exceeds 21V, the measuring semi-conductor or LED would not be damaged.		
	Current: about 1mA		
Voltage	DC 36V	0.1V	± (1.5% of reading+5)

UT116C			
Function	Range	Resolution	Accuracy
Resistance	600Ω	0.1Ω	±(1.0% of reading+5)
	6kΩ	1Ω	
	60k	10Ω	
	600k	100Ω	
	6MΩ	1kΩ	±(1.5% of reading+10)
	60MΩ	10kΩ	±(2.5% of reading+10)
Capacity	10nF	1pF	±(3% of reading+50)
	100nF	10pF	±(2.5% of reading+10)
	1000nF	100pF	
	10μF	1nF	
	100μF	10nF	
	1000μF	100nF	±(3.5% of reading+25)
	10mF	1μF	±(5% of reading+50)
	100mF	10μF	For reference only
	Open-circuit voltage: 3.2V, forward current: 2mA		
	If the resistance of measured components or circuit is less than about 50Ω, the buzzer beeps (no beeps over 100Ω, uncertain between 50Ω~100Ω)		
Semi-conductor/LED	Open-circuit voltage: about 21V. The measuring semi-conductor or LED would not be damaged if the displayed voltage exceeds 21V.		
	Current: about 1mA		
Battery test	DC 36V	Load current about 10mA	± (1.5% of reading+5)

5. Operating Instruction

5-1 Automatic Identification (UT116A only)

The tester will be turned on after the battery installation, under “ ” scale, the LCD displays the symbol of SCAN and ---, which means the tester is in automatic identification mode, will identify and measure resistance, capacity, diode and on/off automatically.

Under automatic identification mode, the measuring value will be displayed on LCD when the two test leads come into contact with the object.

Warning

All the high voltage resistance should be discharged and the power should be disconnected when measuring the components on PCB board.

5.2 Resistance Measurement

- 1) Adjust the function button to scale
- 2) Automatic identification mode and auto range: 300.0-3Ω-3.000MΩ (UT116A only)
- 3) Press SELECT button to select resistance auto range mode
- 4) The LCD will display OL when the value has exceeded the acceptable range.

5.3 Capacity Measurement

- 1) Automatic identification and auto range: 3.000nF-300.0uF. (UT116A only)
- 2) Press SELECT button to select automatic capacity range mode

Warning

To prevent the damage of tester or measuring objects, the power should be disconnected and discharge all the high voltage resistance completely before capacity measurement.

5.4 Diode measurement

- 1) Switch the function key to scale
- 2) Press the SELECT button to select auto identify mode or diode mode
- 3) Connect the anode test lead and the cathode test lead to the according pole of diode.
- 4) The LCD will display the forward voltage drop value 0.5V-0.8V of measure silicon diode.

5.5 On/off test

- 1) Adjust the function button to scale
- 2) Press SELECT button to select automatic identification or on/off test mode, the buzzer beeps when the resistance is less than 30Ω (UT116A) or 50Ω (UT116C).

5.6 Semi-conductor or LED test

- 1) Adjust the function button to the scale
- 2) Connect the input port and the public test port to the according anode and cathode of measured zener diode or LED to measure. The directions of anode and cathode can be adjusted by rotating test leads.
- 3) The LCD will display the zener diode breakdown voltage or the LED operating voltage.

5.7 UT116A DC voltage measurement, UT116C battery voltage measurement

- 1) Adjust the function button to the DCV scale.
- 2) Connect the test leads correctly.
- 3) The LCD will display the measured voltage value (UT116C: about 10mA load battery voltage).

Notice: Do not measure other live circuits than battery with UT116C battery voltage measure mode.

Remark: The forward load is about 10mA and no load for reverse. There are offsets of the measurement of forward and reverse battery voltage. Reverse battery voltage is virtual high.

6. Maintenance and Clean

6.1 Low Battery

When the following situations happen, the battery must be replaced in case that the tester works abnormally.

The “ ” symbol is found on the display during using the tester.

The buzzer beeps when the tester starting up and then shut down again.

The tester restarts or shuts down under LED test scale.

The method of replacing battery is:

1. Switch off the power.
2. Open battery cover on the bottom to take out the battery.
3. Load the two new batteries with model of 1.5V (AAA) and make the battery cover fixed.

6.2 Cleaning

- Clean the tester casing with a damp cloth and mild detergent.
- Do not use abrasives or solvents!

7. Accessories

Two spare test clamps
Two 1.5V (AAA) batteries
A user manual
A pair of special test leads

The product picture and the contents are for reference only. Specification is based solely on actual products. We reserve right to change specifications without prior notice.

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Warnings and safety information

For all information on handling and use, please refer to the instruction manual or product label. Before using the products, read its contents and follow the instructions contained therein.

Also read the following information before use:

Safety of use

1. Use measuring tools for their intended purpose. Do not use measuring tools for tasks for which they were not designed to avoid damage or erroneous measurement results.
2. Always make sure a tool is in good working condition before using it. Damaged tools, such as cracked cases or damaged displays, can lead to incorrect measurements or risk of accidents.
3. Calibrate measuring tools regularly to ensure accuracy and reliability of measurements. Incorrectly calibrated devices can lead to erroneous results.

Precautions

1. Use appropriate eye protection, especially when working with measuring tools that may emit radiation.
2. Keep measuring tools away from children and untrained people to prevent accidental damage or misuse.
3. Avoid using measuring tools in extreme conditions of temperature, humidity or in an atmosphere with a high concentration of dust, which can affect their accuracy and functionality.
4. Be careful not to damage delicate measuring components (e.g., sensors, probes) when working with measuring tools.

Safe use

1. Always make sure that the measuring tool is properly aligned and fixed to avoid measurement errors or damage.
2. Use measuring tools only in designated areas that provide adequate stability and minimize the risk of accidents, such as slippery or uneven surfaces.
3. Never take measurements on live components or in conditions that may pose a safety hazard.

Rules for use in appropriate conditions

1. Store measuring tools in a dry, cool place, away from moisture and direct sunlight, which can damage the devices or affect their accuracy.
2. When using measuring tools, make sure they are well seated and will not be subjected to shocks or impacts that can damage them.
3. Avoid using measuring tools in areas with extreme conditions, such as high vibration, hot surfaces, dust, or moisture, unless the tool is rated for this by the manufacturer.

Maintenance instructions

1. Regularly check the condition of measuring tools, especially measuring components (e.g., sensors, probes, displays) and batteries.
2. Follow the cleaning instructions provided by the manufacturer. Use appropriate cleaning materials (e.g., soft cloths) to avoid damaging delicate components.
3. Calibrate measuring tools regularly, according to the manufacturer's recommendations, to maintain measurement accuracy.

Safe disposal

1. Dispose of used or damaged measuring tools in accordance with current environmental and electronics recycling regulations.
2. Do not dispose of measuring tools in regular waste containers, as they may contain elements harmful to the environment.
3. Contact local authorities or recycling companies for information on proper disposal of used measuring tools.

Statement of compliance

The products have been designed in accordance with the safety requirements of **Regulation (EU) 2023/988** on general product safety, ensuring their compliance with applicable standards for the safety and health protection of users.

EU REP

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