Pen R/C/D AUTO SCAN

Meter for SMD

USER'S MANUAL

1. GENERAL INSTRUCTIONS

This auto scan pen R/C/D meter for SMD could fast precise measure small chip components.

To get the best service from this meter, please read this user's manual carefully and observe the detailed safety precautions strictly.

1.1 Precautions safety measures

*** When using this meter, the user must observe all normal safety rules concerning**

1.1.1 During use

* Use the meter before must warm-up 30 seconds.
* If the meter is used near noise generating equipment, be aware that display may become unstable or indicate large errors.
* Do not use the meter if it looks damaged.
* Use the meter only as specified in this manual; otherwise, the protection provided by the meter may be impaired.
* Do not operate the meter around explosive gas, vapor, or dust.
* To avoid damages to the instrument, do not exceed the maximum limits of the input values.
* **Caution : Avoid working with voltages above 50VDC or 36VAC rms. Such voltages pose a shock hazard and damage the meter**
* When using this meter, keep your fingers away from the metal of the meter.
* Before changing functions, disconnect the test clip from the circuit under test.
* Replace the battery when the symbol appears. With a low battery, the meter might produce false display .

1.1.2 Symbols:

Symbols used in this manual and on the meter:

***Caution*: refer to the instruction manual. Incorrect use may result in damage to the device or its components**.

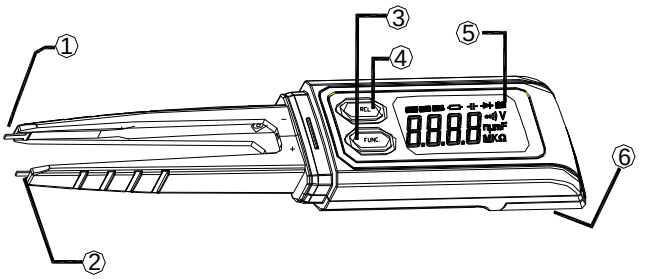
Conforms to IEC61010

1.1.3 Instructions

* Before operating the meter, always disconnect from all sources of electric current and make sure you are not charged with static electricity, which may destroy internal components.
* Any adjustment, maintenance or repair work carried out on the meter while it is live should be carried out only by appropriately qualified personnel, after having taken into account the instructions in this present manual.
* If any faults or abnormalities are observed, take the instrument out of service and ensure that it can not be used until it has been checked out.
* If the meter is not going to be used for a long time, take out the battery and do not store the meter in high temperature or high humidity environment.
* Never use the meter unless the back cover and battery cover are in place and fastened fully.

2. DESCRIPTION

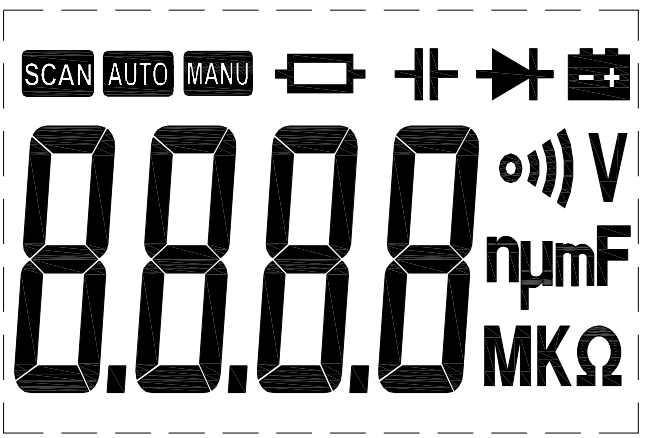
2.1 Instrument Familiarization



1. cathode **2. anode** **3.”RANGE” key**

4.”FUNC.” key **5.LCD display** **6.Battery cover**

2.2 LCD Display



2.3 FUNC. key----Function key

Press this key longer than 1 second, the meter will turn on and enter auto scan mode.

Press this key less than 1 second could select the target measurement function.

Press this key longer than 2 seconds, the meter will enter sleep mode.

2.4 RANGE key ----Changes range

When automatic mode pressing this key less than 1 second, the meter will enter manual mode.

When manual mode pressing this key longer than 1 second, the meter will enter automatic mode.

While in manual mode, pressing this key less than 1 second to change the full-scale range.

2.5 Terminals

- **+** ： Terminal receiving the anode
- **-** ： Terminal receiving the cathode

Only for measuring the diode and the polar capacitance

3. TECHNICAL SPECIFICATIONS

3.1 General specifications

- Environment conditions

  Pollution degree: 2

  Altitude < 2000 m

  Operating temperature:

  0~40 ^{O}C, (<80% RH, non-condensing)

  Storage temperature:

  -10~60 ^{O}C, (<80% RH, battery removed)

- Temperature Coefficient:

  0.1×(specified accuracy) / ^{O}C (<18 ^{O}C or >28 ^{O}C)

- MAX. Voltage between terminals and earth ground:

  50V DC or 36V AC rms 。

- Sample Rate: 3 times/sec for digital data

- Display:

  VA505A: 2 2/3 digits LCD display with max. reading 2999

  VA505B: 5 5/6 digits LCD display with max. reading 5999

- Over Range indication: LCD will display "OL"
- Low battery indication:

  The " " is displayed when the battery is under the proper operation range
- Auto power off

  If there is no key been operated for 10 minutes, the meter will auto power off to save battery energy.
- Power source: 3.0V battery
- Dimensions: 181(L)×35(W)×20(H) mm
- Weight: 65g. Approx. (battery included)

3.2 Measurement specifications

* Accuracy: ±(% of reading + number of digits) at 18^{O}C to 28^{O}C (64^{O}F to 82^{O}F) with relative humidity to 80%.

Caution when working with voltages above 50Vdc or 36Vac rms.

3.2.1 Resistance

Range	Resolution	Accuracy
300Ω/600Ω	0.1Ω	±(1.2% of rdg +2digits)
3 kΩ/6kΩ	1Ω	
30kΩ/60kΩ	10Ω	
300kΩ/600kΩ	100Ω	
3MΩ/6MΩ	1kΩ	
30MΩ/60MΩ	10kΩ	±(2% of rdg +5digits)

3.2.2 Capacitance

Range	Resolution	Accuracy
3nF/6nF	1pF	±（5.0% of rdg +5 digits）
30nF/60nF	10pF	±（3.0% of rdg +3 digits）
300nF/600nF	100pF	
3μF/6μF	1nF	
30μF/60μF	10nF	±（5.0% of rdg +3 digits）
300μF/600μF	100nF	
3mF/6mF	1uF	
30mF/60mF	10uF	unspecified

Keep two pins of the capacitance in short before measuring

3.2.3 Diode Test

Range	description	Test Condition
2V	Display read approx. forward voltage of diode	Forward DC Current: approx. 1mA Reversed DC Voltage: approx. 2.8V

3.2.4 Continuity check

The buzzer generates 2KHz beep whenever the reading Is less than 30Ω

4. OPERATING INSTRUCTION

4.1 Auto scan measurement mode

• Pressing **FUNC.** key longer than 1 second, the meter will turn on and enter auto scan mode.now,you can measurement:

ohm,diode,capatitance,continuity check.

NOTE:

•The range when auto scan mode:

Ohm:300.0Ω~3.000MΩ/600.0Ω~6.000MΩ;

Cap: 3nF~300μF/6nF~600μF.

4.2 Resistance measurement

> ⚠ ***To avoid electrical shock or damages to the meter under test, disconnect circuit power and discharge all high-voltage capacitors before measuring resistance.***

Press FUNC. Key and select the function at mode.

• Connect the test clip to the object being measured and the measured value will show on the display.

NOTE:

• When this mode the RANGE key is available.

• When the input is not connected, i.e. at open circuit, the figure "OL" will be displayed for the overrange condition.

4.3 Capacitance measurement

> ⚠ ***To avoid electrical shock or damages to the meter under test, disconnect circuit power and***

discharge all high-voltage capacitors before measuring capacitance. Keep two pins of the capacitance in short before measuring.

- Press FUNC. Key and select the function at ⊣⊢ mode.
- Connect the test clip to the capacitor being measured and read the displayed value.

NOTE:

- When this mode the RANGE key is available.
- Discharge the capacitor before measuring.

4.4 Diode measurement

⚠ ***To avoid electrical shock or damages to the meter under test, disconnect circuit power and discharge all high-voltage capacitors before testing diodes.***

- Press FUNC. Key and select the function at ▶| mode.
- Connect the **+ pin** to the anode, the **- pin** to the cathode of the diode under testing.
- The meter will show the approx. forward voltage of the diode. If the lead connection is reversed, only figure "OL" displayed.

4.5 Continuity check

- Press FUNC. Key and select the function at mode
- Connect the test clip to the resistance. If continuity exists (i.e., resistance less than 30Ω) built – in buzzer will sound.

5 AUTO POWER OFF(APO)

- To extend the battery life, Auto Power Off function is provided. If no key operations of range changing happen about 10 minutes, the meter will be turned off automatically.
- When APO happens,the state of the meter is saved.

6. MAINTENANCE

6.1 General Maintenance

Periodically wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents.

6.2 Battery replacement

> ⚠ ***Before replacing the battery, disconnect test leads from any circuit under test, turn the meter off and remove test leads from the input terminals.***

Use the following procedure:

When the battery voltage drop below proper operation range the symbol will appear on the LCD display and the battery need to be replaced.

- Press the battery cover and towards arrowhead direction to open the battery cover.
- Replace the battery with two new 1.5V batteries(AG13).
- Replace the battery cover.

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