AUTO RANGE、SCAN FUNCTION DIGITAL DISPLAY MULTIMETER OPERATION MANUAL

This LCD Auto Range、scan function & Auto Power off Digital multimeter is a portable multimeter. It is ideally suited for field, laboratory, shop and home applications.

1. SAFETY INFORMATION

The following safety information must be observed to insure maximum personal safety during the operation at this meter.

1) When measuring voltage ensure that instrument is not switched to the current range, resistance range, diode and continuity range, capacitance range.

2) Use extreme care when measuring voltage above 50V. Especially, from sources where high energy is existed.

3) Avoid making connections to "live" circuits whenever possible.

4) Before making resistance measurements, diode or continuity test, capacitance test, ensure that the circuit under test side-energized.

5) Always ensure that the correct function and range is selected.

6) Extreme care should be taken when using the instrument to conjunction with a current transformer connected to the terminals if an open circuit occurs.

7) Ensure that the test leads and probes are in good condition with no damage to the insulation.

8) Take care not to exceed the over-load limits as given in the specifications.

9) Before opening the cover of the battery cabinet to replace batteries. Disconnect the test leads from any external circuit, set the selector switch to “OFF" position.

10) Keep the fingers after the protection ring when measuring through the instrument lead.

11) Change the battery when the symbol appears to avoid incorrect data.

2. Panel Layout

1）LCD Display：LCD Display, facilitates reads the data.

2）SELECT key：：Push the key to select SACN→AUTO ACV →AUTO DCV→MANU EF on voltage test range, and to select AUTO AC or AUTO DC mode on ACmA test range. Push the key to select SACN→AUTO Ω→MANU))→MANU ⊣→AUTO Cap on ”ΩCAP⊣·))” test range.,

3）Rotary Switch: use this switch to select functions and ranges

4）Test line

5) “EF” test prompt

2. SPECIFICATIONS

2.1 GENERAL SPECIFICATIONS

Display: reading of 2999.

Range control: Auto range and scan function.

Polarity: Automatic negative polarity indication.

Zero adjustment: Automatic.

Over range indication: "OL" display. (Except 30mA)

Low battery: The "▭" is display when the battery voltage is below 2.4V.

Auto Power Off: 10 minutes after stopping the switch or no push button, the meter automatically enter to power off mode. Push button or run switch, auto power off disable.

Safety Standards: The meter is up to the standards of IEC1010 Double Insulation, Pollution Degree 2, Over voltage Category Ⅲ.

Operating Environment: Temperature 32～104° F(0～40℃), humidity＜80%RH.

Storage Environment: Temperature -4～140° F(-20～60℃),humidity＜90%RH.

Power supply: LR-44 1.5V

Dimension: 108(H)×54(W)×12(D)mm

Weight: Approx. 110g (including batteries).

2.2 ELECTRICAL SPECIFICATIONS

Accuracies are ± (% of reading + number in last digit) at 23±5℃,≤75%RH.

2.2.1 DC Voltage

Range	Accuracy	Resolution
3V	1.0% of rdg+7digits	1mV
30V		10mV
300V		100mV
500V	1.5% of rdg+7 digits	1V

Overload protection: 500V DC/500Vrms AC

Impedance: 10MΩ.

2.2.2 AC Voltage

Range	Accuracy	Resolution	Frequency
3V	1.0% of rdg+10digits	1mV	50～400Hz
30V		10mV	
300V		100mV	
500V	2.5% of rdg+15digits	1V	

Average sensing, calibrated to rms of sine wave

Overload protection: 500V DC/500Vrms AC

Impedance: 10MΩ.

2.2.3 Resistance

Range	Accuracy	Resolution
300Ω	1.8% of rdg+18 digits	0.1Ω
3kΩ	1.2% of rdg+20 digits	1Ω
30kΩ		10Ω
300kΩ		100Ω
3MΩ		1kΩ
30MΩ	2.5% of rdg+20 digits	10kΩ

Overload protection: 250V DC/250Vrms AC

2.2.4 Diode and Audible continuity test

Range	Description	Test condition
⊣	Display read approx. forward voltage of diode	Forward DC current approx. 1.5mA Reversed DC voltage approx. 2.8V
·))	Built-in buzzer sounds if resistance is less than 30Ω approx	Open circuit voltage About. -1.2V

Overload protection: 250V DC/250Vrms AC

2.2.5 Capacitance

Range	Accuracy	Resolution
3nF	5.0% of rdg+30 digits	1PF
30nF	3.5% of rdg+25 digits	10PF
300nF	2.5% of rdg+25 digits	100PF
3μF		1nF
30μF		10nF
300μF	3.5% of rdg+25 digits	100nF
3mF	5.5% of rdg+30digits	1μF
30mF		10μF

Overload protection: 250V DC/250Vrms AC

2.2.6 DC/AC 30mA/300mA

Range	Accuracy	Resolution	Frequency
DC30mA	1.5% of rdg+10 digits	10 μA	-
DC300mA	2.0% of rdg+10 digits	100 μA	
AC30mA	2.0% of rdg+10 digits	10 μA	50～400Hz
AC300mA	2.5% of rdg+10 digits	100 μA	

Overload protection: 36V DC/36V AC peak

3. MEASURING INSTRUCTION

3.1 DC Voltage measurement

1) Connect the black test lead to "-" polarity and red test lead to the "+" polarity.

2) Set the selector switch to desired "VEF" position, LCD display scan and connect the probes across the source or load under measurement or push SELECT key to AUTO DC test

3) Read the result from the LCD panel.

3.2 AC Voltage measurement

1) Connect the black test lead to "-" polarity and red test lead to the "+" polarity.

2) Set the selector switch to desired "VEF" position, LCD display scan and connect the probes across the source or load under measurement or push SELECT key to AUTO AC test

3) Read the result from the LCD panel.

3.3Resistance measurement

1) Connect the black test lead to "-" polarity and red test lead to the "+" polarity.

2) Set the selector switch to desired "ΩCAP" position, the present function is SCAN mode; also push the SELECT to select AUTO resistance measurement.

3) Connect the probes across circuit to be tested.

4) Read the result from the LCD panel.

Caution: Ensure that the circuit to be tested is "dead". Max. input over-load: 250V rms＜10sec

3.4 Capacitance measurement

1) Connect the black test lead to "-" polarity and red test lead to the "+" polarity.

2) Set the selector switch to desired "ΩCAP" position, the present function is SCAN mode; also push the SELECT to select AUTO capacitance measurement.

3) Connect the probes to the capacitance to be tested.

4) Read the result from the LCD panel.

Caution:

a) Capacitors should be discharged before being tested.

b) Max input over-load: 250V rms＜10sec

3.5 Diode test

1) Connect the black test lead to "-" polarity and red test lead to the "+" polarity.

2) Set the selector switch to "ΩCAP" position. The present function is SCAN mode; also push the SELECT to select MANU diode measurement.

3) Connect the black and red test probe to the cathode (-) and anode (+) ends of diode to be tested respectively, read the forward voltage drop (junction) value from the display. If reverse connected the probes to diode, display shows over-load.

Caution: Ensure that the circuit to be tested is "dead". Max input over-load: 250V rms＜10sec

3.6 Audible continuity test

1) Connect the black test lead to "-" polarity and red test lead to the "+" polarity.

2) Set the selector switch to "ΩCAP" position. The present function is SCAN mode; also push the SELECT to select MANU continuity measurement.

3) Connect the probes across circuit to be tested; the beeper sounds continuously if the resistance is less than approx. 30Ω.

Caution: Ensure that the circuit to be tested is "dead". Max input over-load: 250V rms＜10sec

3.7 DC/AC 30mA/300mA

1) Connect the black test lead to "-" polarity and red test lead to the "+" polarity.

2) Set the selector switch to desired "mA" position, LCD display scan and connect test leads in series with the load under measurement or push SELECT key to AUTO AC test.

3) Read the result from the LCD panel.

3.8 Electric Field Detector (EF mode)

1) Set selector switch to desired "VEF" position. Push SELECT key to MAMU EF test.

2) Take the top of clamp to approach tested electric field (The distance is Less than 1cm), When no or less electric field is detected, the LCD shows “EF”. If the detector senses electric field, the strength will be showed on LCD by “-“not digits type. Level 1(weak) is “-“and the level 4(strong) is “----“. Additional buzzer will be sounds. The buzzer frequency depends on the strength of electric field also. The Faster beeper means the stronger electric field (ac voltage) is sensed.

3.9 SCAN Mode Function

1) In voltage or current mode, the AC or DC signals auto scanning.

2) In ΩCAP (passive component) mode, resistance (including Continuity), capacitance or diode measurements are allowed by fully automatic detection;

Note:

a) At measurement ACV or ACA, Don’t identify ac signal when the ac signal less than 1~5% of range, lese push the SELECT key to AUTO AC range test.

b) At measurement resistance, don’t test when the resistance value more than 3MΩ, Please push the SELECT key to AUTO Ω range test.

c) At measurement capacitance, Don’t test when the capacitance value more than 600μF, Please push the SELECT key to AUTO capacitance range test.

4.1 CARING FOR YOUR MULTIMETER

Your Digital Multimeter is an example of superior design and craftsmanship. The following suggestions will help you care for the multimeter so you can enjoy it for years.

1) Keep the multimeter dry. If it gets wet, wipe it dry immediately. Liquids can contain minerals that can corrode electronic circuits.

2) Use and store the multimeter only in normal temperature environments. Temperature extremes can shorten the life of electronic devices, damage batteries and distort or melt plastic parts.

3) Handle the multimeter gently and carefully. Dropping it can damage the circuit boards and cause and can accuse the multimeter to work improperly.

4) When take current measurement, keep the cable at the center of the clamp will get more accurate test result.

5) Keep the multimeter away from dust and dirt, which can cause premature wear of parts.

6) Wipe the multimeter with a damp cloth occasionally to keep it looking new. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the multimeter.

7) Use only fresh batteries of the required size and type. Always remove old or weak batteries. They can leak chemicals that destroy electronic circuits.

8) Please take out the battery when not using for a long time.

4.2 battery replacement

1) Ensure the instrument is not connected to any external circuit. Set the selector switch to "OFF" position and remove the test leads from the terminals.

2) Open the cover of the battery cabinet by a screwdriver.

3) Replace the old batteries with the same type batteries.

4) Close the battery cabinet covers and fasten the screw.

Above picture and content just for your reference. Please be subject to the actual products if anything different or updated. Please pardon for not informing in advance.