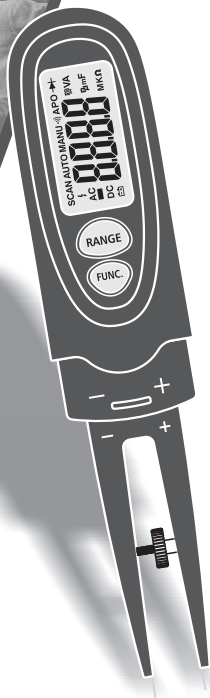
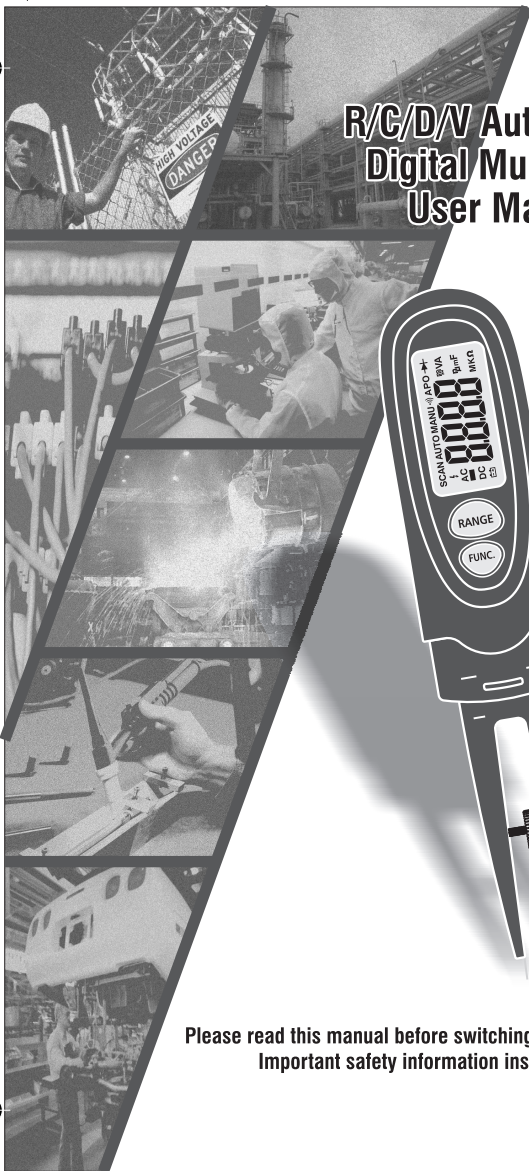


R/C/D/V Autoranging Digital Multimeter User Manual



Please read this manual before switching the unit on.
Important safety information inside.

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1. ⚠ Safety Warnings

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

- Measurements beyond the maximum selected range **must not** be attempted.
- Extreme care **must** be taken when measuring above 50V, especially on live bus-bars.
- Circuits **must** be de-energised and isolated before carrying out resistance tests.
- All external voltages **must** be disconnected from the instrument before removing the battery.
- Test leads and prods **must** be in good order, clean, and with no broken or cracked insulation.
- UK Safety Authorities recommend the use of fused test leads when measuring voltage on high energy systems.
- The instrument **must not** be used if any part of it is damaged.
- Warnings and precautions must be **read and understood** before an instrument is used. They must be observed during the operation of this instrument.

Symbols used on this instrument are:

⚠ CAUTION: Refer to accompanying notes.

This symbol indicates that the operator must refer to an explanation in the Operating Instructions to avoid personal injury or damage to the meter.

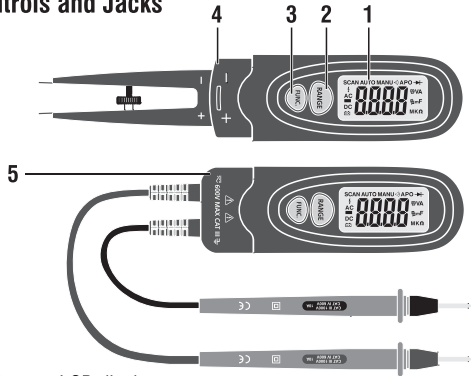
⚠ CAUTION: Risk of electric shock

This WARNING symbol indicates a potentially hazardous situation, which if not avoided, could result in death or serious injury.

This CAUTION symbol indicates a potentially hazardous situation, which if not avoided, may result damage to the product.

CE Equipment complies with current EU

2.Controls and Jacks



- 1-6000 count LCD display
- 2-RANGE button
- 3-FUNC button
- 4-The component test clip(Only used for testing resistance,diode, capacitance,continuity)
- 5-The voltage test clip(Only used for testing voltage)

Note: Tilt battery compartment are on rear of unit.

Symbols and Annunciators



- | | |
|-----------------------------------|------------------------|
| ⎓) Continuity | F Farads(capacitance) |
| ➔ Diode test | M mega(10^6)(ohms) |
| 🔋 Battery status | Ω Ohms |
| n nano(10^{-9})(capacitance) | V Volts |
| μ micro(10^{-6})(amps, cap) | AC Alternating current |
| m milli(10^{-3})(volts, amps) | DC Direct current |
| A Amps | AUTO Auto Range |
| K kilo(10^3)(ohms) | SCAN SCAN mode |

FUNC button

When power on or FUNC button is pressed longer than one second, the meter will be power-on reset to auto scan mode. In auto scan mode, the meter automatically selects the appropriate mode and range.

Pushing the FUNC button less than one second could select the target measurement function. Pushing the button larger than two seconds, the meter will enter power down mode. If power down mode is entered, only press FUNC button to last for one second could re-power on the meter. For best battery life always turn off instrument when the meter is not in use. This meter has Auto OFF that automatically shuts the meter OFF if 10 minutes elapse between uses.

RANGE button

When the meter is first turned on, it automatically goes into Auto Ranging. This automatically selects the best range for the measurements being made and is generally the best mode for most measurements. For measurement situations requiring that a range be manually selected, perform the following:

- Press the **"RANGE"** button. The **"Auto Range"** display indicator will turn off, The **"Manual Range"** display indicator will turn on
- Press the **"RANGE"** button to step through the available ranges until you select the range you want.
- Press and hold the **"RANGE"** button for 2 seconds to exit the **"Manual Ranging"** mode and return to **"AutoRanging"**.

3.AC/DC Voltage Measurement

- Insert the voltage test clip into the instrument terminal .
- Use the FUNC button to select AC or DC Voltage
- Connect the test leads in parallel to the circuit under test.
- Read the voltage measurement on the LCD display

4.Resistance [Ω] Measurement

WARNING: To avoid electric shock, disconnect power to the unit under test and discharge all capacitors before taking any resistance measurements. Remove the batteries and unplug the line cords.

- Insert the component test clip into the instrument terminal.
- Touch the test probe tips across the part under test. It is best to disconnect one side of the part under test so the rest of the circuit will not interfere with the resistance reading.
- Read the resistance in the display. The display will indicate the proper decimal point, value and symbol.

5.Continuity Check

WARNING: To avoid electric shock, never measure continuity on circuits or wires that have voltage on them.

- Insert the component test clip into the instrument terminal.
- Touch the test probe tips across the circuit or part under test. It is best to disconnect one side of the part under test so the rest of the circuit will not interfere with the resistance reading.
- If the resistance is less than 30Ω , the audible signal will sound. The display will also show the actual resistance in ohms.

6.Diode Test

WARNING: To avoid electric shock, do not test any diode that has voltage on it.

- Insert the component test clip into the instrument terminal.
- Touch the test probe tips to the diode or semiconductor junction you wish to test. Note the meter reading.

- The diode or junction can be evaluated as follows:
 - A.If one reading shows a value and the other reading shows OL, the diode is good.
 - B.If both readings show OL, the device is open.
 - C.If both readings are very small or zero, the device is shorted.
- Note:** The value indicated in the display during the diode check is the forward voltage.

7.Capacitance Measurement


WARNING: To avoid electric shock, discharge the capacitor under test before measuring.

- Insert the component test clip into the instrument terminal.
- Touch the test probe tips across the part under test.
- Read the capacitance value in the display.
- The display will indicate the proper decimal point and value.

Note: For very large values of capacitance measurement time can be several minutes before the final reading stabilizes. The bar graph is disabled in capacitance measurement mode. The LCD displays DIS. C .Discharging through the chip is quite slow. We recommend the user to discharge the capacitor with some other apparatus.

8. Specifications

Technical:

Insulation	Class2, Double insulation.
Maximun voltage between any terminal and earth ground	50V DC/AC RMS
Display	6000 counts LCD display
Polarity	Automatic, (-) negative polarity indication.
Over-range	"OL" mark indication.
Low battery indication	A battery  symbol is displayed when the battery voltage drops below 2.4V.
Operating supply current	Normal operation --- 2.5mA In sleep mode ---- 0.6uA
Battery life	Normal operation --- about 60hour
Measurement rate	2 times per second nominal.
Auto power off	Meter automatically shuts down after approx. 10 minutes of inactivity.
Operating environment	-10 to 50°C (14 to 122°F); at <70% relative humidity.
Storage temperature	-30 to 60°C (-4 to 140°F); at <80% relative humidity.
Relative humidity	90%(0 to 30°C);75%(30 to 40°C); 45%(40 to 50°C)
For inside use, max height	Operating:3000m, Storage:10,000m
Power	Two 1.5V battery, AG13/LR44
Accuracy	Accuracy is given at 18 to 28°C (65 to 83°F), less than 70%RH

DC Voltage (Auto-ranging)

Range	Resolution	Accuracy
600.0mV	0.1mV	±0.5% of rdg ±2 digits
6.000V	1mV	
50.00V	10mV	

Input Impedance: 10M Ω .

Maximum Input: 50VDC or 50VAC rms.

AC Voltage (Auto-ranging)

Range	Resolution	Accuracy
600.0mV	0.1mV	±0.8% of rdg ±5 digits
6.000V	1mV	±0.8% of rdg ±3 digits
50.00V	10mV	

Input Impedance: 10M Ω .

AC Response: 50Hz 60Hz

Maximum Input: 50VDC or 50VAC rms.

Resistance [Ω] (Auto-ranging)

Range	Resolution	Accuracy
600.0 Ω	0.1 Ω	±1.5% of rdg ±8 digits
6.000k Ω	1 Ω	
60.00k Ω	10 Ω	
600.0k Ω	100 Ω	
6.000M Ω	1k Ω	±2.5% of rdg ±8 digits
60.00M Ω	10k Ω	

Note: When auto scan mode is set, the 60.00M Ω range is omitted.

Capacitance (Auto-ranging)

Range	Resolution	Accuracy
6.000nF	1pF	±5.0% of rdg ±20 dgts
60.00nF	10pF	±5.0% of rdg ±7 dgts
600.0nF	0.1nF	±3.0% of rdg ±5 dgts
6.000μF	1nF	
60.00μF	10nF	
600.0μF	0.1μF	
6.000mF	0.001mF	±10% of rdg ±10 dgts
60.00mF	10.00mF	

Note: The 6.000mF and 60.00mF both range is not available for auto scan mode.

Diode Test

Test current	Resolution	Accuracy
1Ma typical/Open MAX 3V	1mV	±10% of rdg ±5 digits

Open circuit voltage: MAX 3VDC

Audible continuity

Audible threshold: Less than 30Ω Test current MAX 1.5mA

Overload protection: 1000VDC or AC rms.

9. Battery Replacement

WARNING: To avoid electric shock, disconnect the test leads from any source of voltage before removing the battery door.

- When the batteries become exhausted or drop below the operating voltage, the battery warning symbol will appear in the LCD display. The battery should be replaced.
- Follow instructions for installing battery. See the Battery Installation section of this manual.
- Dispose of the old battery properly.

10. Battery Installation

WARNING: To avoid electric shock, disconnect the test leads from any source of voltage before removing the battery cover.

Do not operate the instrument with the battery cover removed.

- Disconnect the test leads from the meter.
- Open the battery cover by loosening the screw using a Phillips head screwdriver.
- Insert the battery into battery holder, observing the correct polarity.
- Put the battery cover back in place. Secure with the two screws.



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