Autoranging Digital Multimeter User Manual

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

Contents **Page**

1-Safety

1-1.International Safety Symbols


This symbol, adjacent to another symbol or terminal, indicates the user must refer to the manual for further information.


This symbol, adjacent to a terminal, indicates that, under normal use, hazardous voltages may be present


Double insulation

1-2.SAFETY NOTES

- Do not exceed the maximum allowable input range of any function.
- Do not apply voltage to meter when resistance function is selected.
- Set the function switch OFF when the meter is not in use.

1-3.WARNINGS

- Set function switch to the appropriate position before measuring.
- When measuring volts do not switch to current/resistance modes.
- When changing ranges using the selector switch always disconnect the test leads from the circuit under test.
- Do not exceed the maximum rated input limits.

1-4.CAUTIONS

Improper use of this meter can cause damage, shock, injury or death. Read and understand this user manual before operating the meter.

Always remove the test leads before replacing the battery.

Inspect the condition of the test leads and the meter itself for any damage before operating the meter. Repair or replace any damage before use.

Use great care when making measurements if the voltages are greater than 25V AC rms or 35V DC. These voltages are considered a shock hazard.

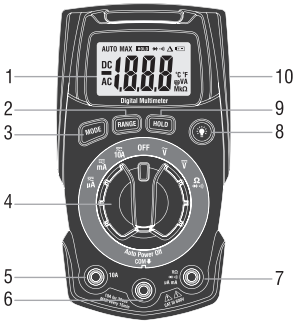
Remove the battery if the meter is to be stored for long periods.

Always discharge capacitors and remove power from the device under test before performing Diode, Resistance or Continuity tests.

- Voltage checks on electrical outlets can be difficult and misleading because of the uncertainty of connection to the recessed electrical contacts. Other means should be used to ensure that the terminals are not “live”.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

2-Meter Description

1-LCD display
2-**RANGE** button
3-**MODE** select button
4-Rotary Function swith
5-**10A** Current input jack
6-**COM** input jack
7-**V Ω CAP** ⇥•))
μA mA jack
8-Back light button
9-Data Hold button
10-Battery Cover



3-Display icons Description

HOLD	Data Hold
−	Negative reading display
0 to 1999	Measurement display digits
AUTO	Auto Range mode
DC/AC	Direct Current/Alternating Current
[+ -]	Low battery
mV or V	Milli-volts or Volts(Voltage)
Ω	Ohms(Resistance)
A	Amperes(Current)
F	Farad(Capacitance)
Hz	Hertz(Frequency)
n, m, Ω, M, k	Unit of measure prefixes: nano, milli, micro, mega, and kilo
•))	Continuity test
⇥	Diode test

4-Specifications

Function	Range	Accuracy
DC Voltage	200.0mVDC	±(0.8% + 2digits)
	2.000VDC	±(1.5% + 2digits)
	20.00VDC	
	200.0VDC	
	600.0VDC	±(2% + 2digits)
AC Voltage	200.0mVAC	±(1.5% + 35digits)
	2.000VAC	±(1.8% + 8digits)
	20.00VAC	
	200.0VAC	
	600.0VAC	±(2.5% + 8digits)
DC Current	200.0uA DC	±(1.0% + 3digits)
	2000uA DC	±(1.5% + 3digits)
	20.00mA DC	
	200.0mA DC	
	10A DC	±(2.5% + 5digits)
AC Current	200.0uA AC	±(1.5% + 5digits)
	2000uA AC	±(2.0% + 5digits)
	20.00mA AC	
	200.0mA AC	
	10A AC	±(3.0% + 7digits)
Resistance	200.0Ω	±(1.0% + 4digits)
	2.000KΩ	±(1.5% + 2digits)
	20.00KΩ	
	200.0KΩ	
	2.000MΩ	±(2.5% + 3digits)
	20.00MΩ	±(3.5% + 5digits)

Note: Accuracy is given as ±(% of reading + counts of least significant digit)at 23°C ±5°C, with relative humidity less than 80%RH. AC wave shape with a sine wave as the standard

Diode Test	Test current of 0.3mA typical; Open circuit voltage 1.5V DC typical.
Continuity Check	Threshold <150Ω; Test current <0.5mA
Low Battery Indication	" " is displayed
Overrange Indication	"OL" is displayed
Measurements Rate	2 per second, nominal
Input Impedance	10MΩ(VDC and VAC)
Display	2000 counts LCD
AC Current	50～400Hz(AAC)
AC Voltage bandwidth	50～400Hz(VAC)
Operating Temperature	41 to 104°F(5 to 40°C)
Storage Temperature	-4 to 140°F(-20 to 60°C)
Operating Humidity	Max 80% up to 87°F(31°C)decreasing linearly to 50% at 104°F(40°C)
Storage Humidity	<80%
Operating Altitude	7000ft.(2000meters)maximum.
Over voltage	Category III 600V
Battery	"AAA" x 2 Battery
Auto OFF	approx. 15 minutes
Safety	For indoor use and in accordance with Overvoltage Category II, Pollution Degree 2. Category II includes local level, appliance, portable equipment, etc., with transient overvoltages less than Overvoltage Cat. III

5-Operation

NOTICES: Read and understand all warning and precaution statements listed in the safety section of this operation manual prior to using this meter. Set the function select switch to the OFF position when the meter is not in use.

5-1.DC/AC Voltage Measurements

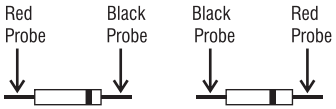
- Insert the black test lead into the negative COM terminal and the red test lead into the positive V terminal.
- Set the function switch to the V position.
- Select AC or DC with the MODE button.
- Connect the test leads in parallel to the circuit under test.
- Read the voltage measurement on the LCD display.

5-2.Resistance Measurements

- Insert the black test lead into the negative COM terminal and the red test lead into the positive terminal.
- Set the function switch to the Ω →+ •)) position.
- Touch the test probe tips across the circuit or component under test. It is best to disconnect one side of the device under test so the rest of the circuit will not interfere with the resistance reading.
- For Resistance tests, read the resistance on the LCD display.

5-3.Diode and Continuity Measurements

- Insert the black test lead banana plug into the negative COM jack and the red test lead banana plug into the positive diode jack.
- Turn the rotary switch to the Ω →+ •)) position.
- Press the MODE button until "→+" appears in the display.
- Touch the test probes to the diode under test. Forward voltage will indicate 0.4V to 0.7V. Reverse voltage will indicate "OL". Shorted devices will indicate near 0mV and an open device will indicate "OL" in both polarities.



For Continuity tests, if the resistance is <150Ω, a tone will sound.

5-4.MODE BUTTON

To select DC/ACV, OHM/Diode/Continuity, DC/ACA

5-5.Data Hold Button

To freeze the LCD meter reading, press the data hold button. The data hold button is located on the left side of the meter(top button). While data hold is active, the HOLD display icon appears on the LCD. Press the data hold button again to return to normal operation.

5-6.RANGE BUTTON

When the meter is first turned on, it automatically goes into AutoRanging. 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 ManualRanging mode and return to AutoRanging.

5-7.Back light button

Instrument boot, that is automatically turned on the backlight, if you need to close the backlight, press the back button that is closed. Press the back light key to turn on the backlight.

5-8.Battery Replacement

- Remove the one rear Phillips head screw
- Open the battery compartment
- Replace the Requires “AAA” x 2 Battery.
- Re-assemble the meter

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