multicomp PRO

SMART ELECTRONIC COMPONENTS TESTER

MP781004

Introduction

Congratulations on your purchase of the MP781004 auto ranging digital multi meter. This meter, using the component test clip, measures SMD resistance, diodes, capacitance and continuity test. With the voltage test probe, it measures AC/DC Voltage. Proper use and care of this meter will provide many years of reliable service.

Safety

INTERNATIONAL ELECTRICAL SYMBOLS


Caution ! Refer to the explanation in this Manual


Caution ! Risk of electric shock


Earth (Ground)


Double Insulation or Reinforced insulation

This meter has been designed for safe use but must be operated with caution. The instructions listed as follows must be carefully followed for safe operation.

Safety Instructions

WARNING: Risk of electrocution. High-voltage circuits, both AC and DC, are very dangerous and should be measured with great care.

1. **NEVER** measure voltage with the adaptor installed.
2. **NEVER** apply voltage or current to the meter that exceeds the specified maximum:

Input Protection Limits	
Function	Maximum Input
V DC or V AC	600V DC/AC

3. **USE EXTREME CAUTION** when working with voltages greater than 25VAC or 35VDC. These voltages are considered a shock hazard.
4. **DO NOT** measure voltage if the voltage on the "COM" input jack exceeds 600V above earth ground.
5. **NEVER** connect the meter leads across a voltage source while the function switch is in the capacitance, resistance, or diode mode. Doing so can damage the meter.
6. **ALWAYS** discharge filter capacitors in power supplies and disconnect the power when making capacitance, resistance, continuity or diode tests.
7. **ALWAYS** turn off the power and disconnect the test leads from the circuit before opening the cover to replace the batteries.
8. **NEVER** operate the meter unless the battery cover is in place and fastened securely.
9. **NEVER** operate the meter if any part is damaged.
10. **ALWAYS** turn the meter off when not in use.

Description

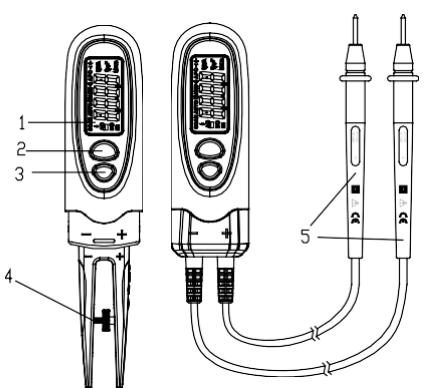
1. 6,000 count LCD display
2. RANGE button
3. FUNC button
4. The component test clip

(only for testing resistance, diode, capacitance & continuity)

WARNING: probe cannot be used to measure over 35V

5. The voltage test probe (only used for testing voltage)

Note: The battery compartment is on the rear of unit.



Symbols and Annunciators

•)))	Continuity
	Diode test
	Battery status
n	nano (10^{-9}) (capacitance)
µ	micro (10^{-6}) (amps, cap)
m	milli (10^{-3}) (volts, amps)
k	kilo (10^{3}) (ohms)
F	Farads (capacitance)
M	mega (10^{6}) (ohms)
Ω	Ohms
V	Volts
AC	Alternating current
DC	Direct current
AUTO	Auto Range
SCAN	SCAN mode
APO	Auto power off enabled

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 rang.

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 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:

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

4. If **"OL"** appears in the display during a measurement, the value exceeds the range you have selected. Change to a higher range.
5. The meter will automatically recognize if the voltage test leads or adaptor is inserted.
6. The meter will turn on with autoranging "AUTO" selected. In this mode, the unit will automatically select the proper range to measure the device under test. Press the "RANGE" button to go to manual ("MANU") ranging. Continue pressing the button until the range desired is selected. Press and hold the RANGE button for two seconds to return to autoranging.
7. On some low AC and DC voltage ranges, with the test leads not connected to a device, the display may show a random, changing reading. This is normal and is caused by the high-input sensitivity. The reading will stabilize and give a proper measurement when connected to a load.

Test Lead AC/DC Voltage Measurements

1. Insert the voltage adaptor into the meter observing the polarity indicators.
2. Press the MODE button for 2 seconds until the meter beeps. "V" will be displayed on the LCD
3. Press the MODE button to select either AC or DC voltage.
4. Touch the black test probe tip to the negative side of the circuit.
5. Touch the red test probe tip to the positive side of the circuit.
6. Read the voltage in the display.

Note: The " symbol will appear in the display whenever the measured voltage exceeds 30V

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

Resistance, Capacitance, Continuity and Diode Measurements.

1. Insert the adaptor into the meter observing the polarity indicators.
2. Press the MODE button for 2 seconds until the meter beeps. The meter turns on in the SCAN mode and "------ " on the display.
3. Insert a component into the tweezers contacts. In the SCAN mode, the meter automatically selects the correct range and units (Capacitance or Resistance).
4. Read the measurement results in the display.
5. Press the MODE button to exit the SCAN mode and begin resistance measurements. The "Ω" icon will appear on the display.
6. Press the MODE button for continuity measurements. The icon will appear on the display. The meter will beep if the resistance is less than the continuity threshold.
7. Press the MODE button for diode measurements. The icon will appear on the display. A good diode will read "OL" in one direction and a low voltage in the opposite direction.
8. Press the MODE button for capacitance measurements. The "F" icon will appear on the display. It can take several minutes for the reading to stabilize at the final value for large value capacitors.
9. Press the MODE button again to return to the SCAN mode.

Power OFF and Auto Power OFF

Press and hold the MODE button for 4 seconds to manually turn power off. The auto off feature will automatically turn the meter off after approximately 10 minutes of inactivity.

Maintenance

The  icon will appear in the display when the battery voltage becomes low. Replace the battery when this appears.

1. KEEP THE METER DRY. If it gets wet, wipe it off.
2. USE AND STORE THE METER IN NORMAL TEMPERATURES. Temperature extremes can shorten the life of the electronic parts and distort or melt plastic parts.
3. HANDLE THE METER GENTLY AND CAREFULLY. Dropping it can damage the electronic parts or the case.
4. KEEP THE METER CLEAN. Wipe the case occasionally with a damp cloth. DO NOT use chemicals, cleaning solvents, or detergents.
5. USE ONLY FRESH BATTERIES OF THE RECOMMENDED SIZE AND TYPE. Remove old or weak batteries so they do not leak and damage the unit.
6. IF THE METER IS TO BE STORED FOR A LONG PERIOD OF TIME, the batteries should be removed to prevent damage to the unit.

Battery Installation

1. Turn power off.
2. Open the rear battery cover by removing the two screws located on the rear of the meter.
3. Insert the batteries into battery holder, observing the correct polarity.
4. Put the battery cover back in place. Secure with the screws.

Specifications

Technical:

Insulation:	Class2, Double insulation.
Maximum 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 low battery symbol  displays when the battery voltage drops below 2.4V
Operating 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 oC to 50 oC (14 oF to 122 oF) at < 70 % relative humidity.
Storage temperature:	-30 oC to 60 oC (-4 oF to 140 oF) at < 80 % relative humidity.to
Relative humidity:	90% (0oC to 30oC); 75%(30oC to 40oC); 45%(40oC to 50oC);
Max altitude:	Operating: 3000m Storage: 10,000m
Power:	2 x 1.5V batteries AG13/LR44

Accuracy
18ºC to 28ºC (65ºF to 83ºF), 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: 10MΩ.
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: 10MΩ.

AC Response: 50 Hz 60Hz

Maximum Input: 50V dc or 50Vac rms.

Resistance [Ω] (Auto-ranging)

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

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

Capacitance (Auto-ranging)

Range	Resolution	Accuracy
6.000nF	1pF	+5.0% of rdg + 20 digits
60.00nF	10pF	+5.0% of rdg + 7 digits
600.0nF	0.1nF	±3.0% of rdg ± 5 digits
6.000uF	1nF	
60.00uF	10nF	
600.0uF	0.1uF	
6.000mF	0.001mF	±10% of rdg ± 10 digits
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	1 mV	±10% of rdg ± 5 digits

Open circuit voltage: Max 3V DC

Audible continuity
Audible threshold: Less than30Ω Test current MAX 1.5mA
Overload protection: 1000Vdc or AC rms.

INFORMATION ON WASTE DISPOSAL FOR CONSUMERS OF ELECTRICAL & ELECTRONIC EQUIPMENT.
When this product has reached the end of its life it must be treated as Waste Electrical & Electronic Equipment (WEEE). Any WEEE marked products must not be mixed with general household waste, but kept separate for the treatment, recovery and recycling of the materials used. Contact your local authority for details of recycling schemes in your area.

Made in China
LS122QQ
PO Box 13362 Dublin 2