

# multicomp **PRO**



## Pen Type Multimeter Model: MP730001

### IMPORTANT SAFETY INFORMATION

Please read these instructions carefully before use and retain for future reference.

- This instrument is designed and manufactured in compliance with: IEC61010-1, CAT III 300V Pollution Degree 2 and Double Insulation standards.
- Check the test leads, probes and case insulation before using. If you find any breakage or abnormality, or you consider the device is broken, stop using the device immediately.
- When using the test probes, keep your fingers behind the finger protection ring.
- Replace damaged test leads with identical type and electrical specifications before using the Meter.
- Do not use or store the Meter in an environment of high temperature, humidity, explosives, flammable materials and strong magnetic fields.
- Do not use the meter with the back cover open.
- Select appropriate test range for measurements.
- Ensure all inputs are less than the range selected otherwise it may cause electrical shock or meter damage.
- Do not change the range selector position during voltage measurements.
- Disconnect circuit power and discharge all high voltage capacitors before testing resistance, diodes or continuity.
- Do not apply a voltage over 300V between input terminal and ground.
- Take caution when working voltages are above 60V DC or 30V AC rms.
- Do not connect the meter to voltage signals when the range selector is on resistance, diode or continuity range.
- When a measurement has been completed, disconnect the testing probes from the circuit under test.
- Replace the batteries as soon as the low battery indicator appears on the display.
- Remove dead batteries from the meter or if it is not going to be used for a long time.
- Never mix old and new batteries together, or different types of batteries.
- Never dispose of batteries in a fire, or attempt to recharge ordinary batteries.
- Before replacing the battery, turn off the meter and disconnect all the test probes.
- To prolong battery life turn off the meter after use.

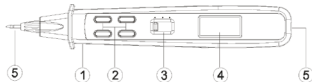
### SYMBOL GUIDE

	Low Battery		Ground
	AC Current		DC Current
	Double Insulated		Continuity
	AC or DC		Diode

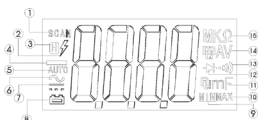
### WHAT'S INCLUDED

- Digital pen meter with battery
- 1 pair of test leads
- Operating instructions

### FUNCTIONS





1. Front Housing
2. Functional buttons
3. Switch
4. LCD Display
5. Input Terminals



1. Auto scan mode
2. High voltage indicator
3. Data hold
4. Negative reading
5. Autorange mode
6. AC voltage
7. DC voltage
8. Low battery
9. Minimum reading
10. Maximum reading
11. Capacitance
12. Diode test
13. Continuity buzzer
14. mv/V: Volts
15. Ohm.(resistance) k:kilohm; M:Megaohm.

## OPERATION

- Press SELECT to switch between resistance, AC/DC voltage, continuity buzzer and diode measurement modes. Press and hold to exit "sleep" mode.
- Press HOLD to enter and exit hold mode (except under auto scan mode).
- Press and hold the HOLD button, the meter displays  automatically holds the value currently displayed for approximately 6 secs. If the Meter enters "sleep" while in hold mode, the meter will still be in the hold mode when it is powered back on.
- The MAX/MIN mode stores minimum (MIN) and maximum (MAX) input values (except under auto scan mode). Manual ranging is default when you select this function.
- Press MAX/MIN button to switch between MAX, MIN, and MAX/MIN options.
- If under both HOLD mode and MAX/MIN mode, exit HOLD mode first then press and hold MAX/MIN for more than 1 second to exit MAX/MIN mode.
- Press  BACKLIGHT to turn the display backlight and test lead LED on. Press again to turn the display backlight and test lead light off. It will automatically turn off after 1 minute.
- Auto power off is set to approximately 10 minutes to preserve battery life if no button is pressed. The meter can be activated again by pressing any button, following which it returns to the previously active function.
- Before making any measurement the meter test input terminal has to be exposed by pressing down and twisting the red cover counter clockwise.
- Connect the supplied COM test lead to the connector on the end of the meter.
- When measurement is complete restore the cover by twisting it clockwise to protect the terminal.



## AC/DC VOLTAGE MEASUREMENT

- Set the mode to  $V\approx$ . Auto measurement mode is the default.
- This mode can measure AC voltage and DC voltage.
- Connect the test leads with the object being measured. The measured value shows on the display.
- When voltage measurement has been completed, disconnect the connection from the test leads and the circuit under test, and remove the testing leads from the input terminal of the meter.

**Note:** The threshold voltage of AC voltage is around 400mV.

## DC VOLTAGE MEASUREMENT

- Set the mode to  $V\approx$
- Press SELECT to set DC voltage measurement mode.
- Connect the test leads with the object being measured.
- The measured value shows on the display.
- When voltage measurement has been completed, disconnect the connection between the testing leads and the circuit under test, and remove the testing leads from the input terminal of the meter.

**Note:** Do not input greater than 300V voltage although it is possible to measure higher voltage, accuracy and safety are reduced.

## AC VOLTAGE MEASUREMENT

- Set the mode to  $V\approx$
- Press SELECT to set AC voltage measurement mode.
- Connect the test leads with the object being measured.
- The measured value shows on the display.
- When voltage measurement has been completed, disconnect the connection between the testing leads and the circuit under test, and remove the testing leads from the input terminal of the meter.

**Note:** Do not input greater than 300V voltage to avoid damage to the meter. The threshold voltage of AC voltage is around 400mV.

## EF MEASUREMENT

- Set the mode to  $V\approx EF$  and remove the test lead from the input terminal.
- Press SELECT to set EF measurement mode.
- Place the red tip probe toward the object being measured.
- The measured value shows on the display.

## AUTO FUNCTION MEASUREMENT

- Set the mode to  $\Omega \rightarrow \rightarrow \rightarrow$
- Auto measurement mode is the default, in which the meter can measure Resistance, Diode, Continuity and Capacitance automatically.
- For best accuracy, remove the component being measured from the circuit before measurement.
- Connect the test leads with the object being measured.
- The measured value shows on the display.
- When measurement has been completed, disconnect the connection between the testing leads and the item under test, and remove the testing leads from the input terminal of the meter.

**Note:** To avoid damages to the Meter or to the devices under test, disconnect circuit power and discharge all the high-voltage capacitors before measurement.

**Note:** Under auto measurement mode, when measuring Resistance of  $<15\Omega$  or  $>10M\Omega$  or Capacitance of  $<400pF$  or  $>1mF$  the Meter may display an inaccurate value. Use the dedicated mode to avoid this for these values.

## RESISTANCE MEASUREMENT

- Press SELECT to select  $\Omega$  measurement mode.
- Connect the test leads with the object being measured.
- The measured value shows on the display.
- When resistance measurement has been completed, disconnect the testing leads from the circuit under test, and remove the testing leads from the input terminals of the Meter.

## CONTINUITY MEASUREMENT

- Press SELECT to select  $\rightarrow$ ) measurement mode.
- Connect the test leads with the object being measured.
- The measured value shows on the display.
- The buzzer sounds continuously if the resistance of a circuit under test is  $<30\Omega$ , indicating the circuit has a good connection.
- When continuity measurement has been completed, disconnect the testing leads from the circuit under test, and remove the testing leads from the input terminals of the Meter.

## DIODE TEST

- Press SELECT to select  $\rightarrow$  measurement mode.
- Connect the test leads with the object being measured.
- The measured value shows on the display.
- For best accuracy, remove the component being measured from the circuit before measurement.
- When diode measurement has been completed, disconnect the testing leads from the item under test, and remove the testing leads from the input terminals of the Meter.

**Note:** Open Circuit Voltage is around 3V, the display shows approximate forward voltage drop.

A good diode should produce a forward voltage drop of 0.5V to 0.8V.

## CAPACITANCE MEASUREMENT

- Press SELECT to select  $\leftarrow$  measurement mode.
- Connect the test leads with the object being measured.
- The measured value shows on the display.
- For best accuracy, remove the component being measured from the circuit before measurement.
- When capacitance measurement has been completed, disconnect the testing leads from the item under test, and remove the testing leads from the input terminals of the Meter.

**Warning:** To avoid damage to the Meter or to the equipment under test, disconnect circuit power and discharge all high voltage capacitors before measuring capacitance. Use the DC Voltage function to confirm that the capacitor is discharged.

## SPECIFICATION

Function	Range/description
Operating Temperature	0°~40°C (32°F~104°F)
Storage Temperature	-10°C~50°C (14°F~122°F)
Battery Type	3V Li-MnO2 Button cell
Altitude	Operating: 2000m
Display/Update	Max 3000/4 times per second
AC/DC Voltage	0 to 300V rms
Dimensions (H x W x L)	20.2 x 26.5 x 181.5mm
Weight	90g incl battery

Range	Resolution	Accuracy	O/L Protection
3V AC	0.001V	$\pm (1\%+4)$	300Vrms
30V AC	0.01V		
300V AC	0.1V		
<b>Remarks:</b> Input Impedance: 10M $\Omega$ Frequency Response: 40Hz~400Hz			
3V DC	0.001V	$\pm (1\%+3)$	300Vrms
30V DC	0.01V		
300V DC	0.1V		
<b>Remarks:</b> Input Impedance: $\geq 10M\Omega$			
300 $\Omega$	0.1 $\Omega$	$\pm (1\%+3)$	300Vrms
3k $\Omega$	1 $\Omega$		
30k $\Omega$	10 $\Omega$		
300k $\Omega$	100 $\Omega$		
3M $\Omega$	1k $\Omega$		
30M $\Omega$	10k $\Omega$	$\pm (1.5\%+5)$	
<b>Remarks:</b> Under auto scan mode the maximum range is 3M $\Omega$			
3nF	0.001nF	$\pm (3\%+5)$	300Vrms
30nF	0.01nF		
300nF	0.1nF		
3 $\mu$ F	1nF		
30 $\mu$ F	10nF		
300 $\mu$ F	100nF	$\pm (5\%+5)$	
3mF		Reference	
<b>Remarks:</b> Under auto scan mode the maximum range is 300 $\mu$ F. There is a residual reading when the circuit is open. To measure a small value of capacitance, subtract it from the reading to ensure accuracy.			

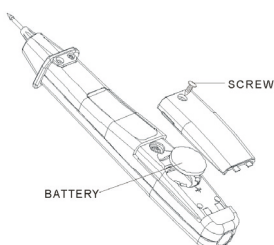
Range	Resolution	Remark
$\rightarrow$ )	0.1 $\Omega$	Open Circuit Voltage around -1.2V. Buzzer sounds at resistance $\leq 10\Omega$ . Buzzer does not sound when resistance $>70\Omega$ .
Range	Resolution	Overload Protection
$\rightarrow$	1mV	300V rms
Accuracy Specifications: $\pm(a\%$ reading+ $b$ digits) guaranteed for 1 year. Operating temperature: 18°C~ 28°C. Relative humidity: $<75\%$ .		

Range	Remark
EF Test	$<10$ up to 50mm: buzzer sounds
220V/50Hz	$>50$ mm: buzzer silent

## CLEANING

- Clean the meter with a clean, soft cloth.
- Do not use any chemicals, abrasives or solvents that could damage the meter.
- Clean the terminals using a cotton swab with mild detergent or contact cleaner, as dirt or moisture in the terminals can affect readings.

## BATTERY REPLACEMENT



- Turn the Meter off, disconnect the connection between the testing leads and the circuit under test and remove the test leads from the input terminals of the Meter.
- Remove the screw in the rear casing and remove the battery cover from the casing.
- Remove the battery from the battery compartment.
- Replace the battery with a new 3V battery.
- Refit the battery cover and reinstall the screw.



### INFORMATION ON WASTE DISPOSAL FOR CONSUMERS OF ELECTRICAL & ELECTRONIC EQUIPMENT

These symbols indicate that separate collection of Waste Electrical and Electronic Equipment (WEEE) or waste batteries is required. Do not dispose of these items with general household waste. Separate for the treatment, recovery and recycling of the materials used. Waste batteries can be returned to any waste battery recycling point which are provided by most battery retailers. Contact your local authority for details of the battery and WEEE recycling schemes available in your area.



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