multicomp PRO

Digital Multimeter

Model: MP730007 and MP730008

IMPORTANT SAFETY INFORMATION

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

This instrument is designed and manufactured in compliance with: G84793, IEC61010-1, CAT III 600V, 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.
- 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 or current measurements.
- Do not apply a voltage over 600V between COM 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 current, resistance, diode or continuity range.
- When measuring current, each single measurement should be shorter than 10 seconds. For current values over 5A, the wait period between each measurement must be longer than 15 minutes.
- 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.
- CAT III: Measurement category III is for measurements performed in the building installation. Examples are measurements on distribution boards, circuit-breakers, and wiring, such as cables, bus-bars, junction boxes, switches and socket-outlets in the fixed installation, and equipment for industrial application and some other equipment such as stationary motors with permanent connection to the fixed installation.
- Only use test leads and probes that are in compliance with IEC 61010-031, and rated CAT III 600V.

SYMBOL GUIDE

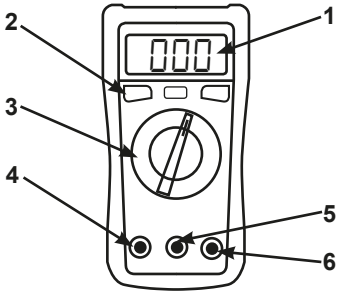
	Low battery		Grounding		Warning
	Continuity Buzzer		AC		DC
	Fuse		Double insulated		Diode

WHAT'S INCLUDED

- Digital multimeter
- User manual
- Set of test leads
- K-type temperature probe (72-10390 only)

FUNCTIONS

1. LCD Display
2. FUNCTION button
3. RANGE selector
4. 10A input terminal
5. COM Input terminals
6. VΩmA input terminal



OPERATION

Measuring AC or DC Voltage

- Insert the test leads into the input terminals (red to VΩmA and black to COM).
- Turn the range selector to ACV range.
- Connect the test probes with the power or load being measured in parallel, and the polarity of the point touched by the red test probe displays.

Notes:

- If the voltage to be measured is unknown, choose the maximum measuring range (600V) and reduce it step by step until a satisfactory reading is obtained.
- If the input voltage >600V (AC/DC), the buzzer will continuously beep indicating measure range is at it's limit.
- If the input current >10A (AC/DC), buzzer will continuously beep indicating measure range is at it's limit.
- Disconnect the probes from the circuit under test when changing the range.
- If the Display shows "OL", it indicates the measured voltage is out of range. In this case, turn the range selector to a higher range.
- At mV position, press SELECT to enter frequency measurement (10Hz - 1MHz).

Measuring DC Current

- Insert the black test lead into COM terminal. If the current under test is ≤ 200mA, insert the red test lead into the VΩmA terminal. If the current is higher, insert the red test lead into the 10A terminal.
- Turn the range selector to AC/DC range, and connect the test probes in series with the circuit to be measured. The polarity of the point touched by the red test probe together with the measured value is displayed.

Measuring AC Current (MP730007 only)

Insert the black test lead into COM terminal. If the current under test ≤ 200mA, insert the red test lead into VΩmA terminal. If the current is higher, insert the red test lead into the 10A terminal.

- Turn the range selector to AC/DC range, and connect the test probes with the circuit being measured in series.

Notes:

- If the current to be measured is unknown, choose the maximum measuring range (10A) and reduce it step by step until a satisfactory reading is obtained.
- Disconnect from the circuit under test when changing the range.
- If the display only shows “OL”, it indicates the measured current is out of range. In this case, turn the range selector to a higher range.

Measuring Resistance

- Insert the test leads into the input terminals (red to VΩmA and black to COM).
- Turn the range selector to Ω range, and connect the test probes to the resistor being measured.

Notes:

- If the measured resistance is out of the range selected, “OL” will be displayed and you should select a higher range. It normally takes several seconds to display a stable reading in a high-resistance (>1MΩ) measurement.
- When there is no input, such as in open-circuit condition, the instrument will display “OL”.
- When making an in circuit measurement, disconnect all power supplies and discharge all the capacitors.
- When measuring low resistance, the test leads will produce 0.1Ω-0.2Ω measurement error. To obtain accurate measurement, short the test leads and use REL function.
- If the resistance when shorted is more than 0.5Ω, please check if test leads are loosened or damaged.
- Do not input over 60V DC or 30V AC or it will pose shock hazard.

Testing Continuity

- Insert the test leads into the input terminals (red to VΩmA and black to COM, the polarity of the red test lead is “+”).
- Turn the range selector to continuity range.
- Connect the test probes with the load in parallel. The reading is displayed.
- If the measured resistance >51Ω indicates an open-circuit.
- If the measured resistance <100Ω the circuit is in good conduction and buzzer will sound.

Diode Testing

- Switch the range selector to diode position
- Insert the red test lead to VΩmA terminal, black to COM terminal.
- Red test lead to positive pole, black to negative pole. Reading is displayed.
- “OL” symbol appears when the diode is open or polarity is reversed. For silicon PN junction, normal value: 500 - 800mV (0.5 - 0.8V).

Notes:

- The voltage for testing diode is about 4.0V/1.5mA.

Capacitance Measurement

- Switch the range selector to capacitance measurement
- Insert the red test lead to VΩmA terminal, black to COM terminal.
- Connect the test probes to the capacitor being measured.
- Reading is displayed.

Notes:

- Switch off the power supply to the circuit, and fully discharge all capacitors (especially for high voltage capacitors).
- If the tested capacitor is shorted or its capacity is over the specified range “OL” symbol will be displayed on the screen.
- When measuring large capacitors, it may take a few seconds to obtain steady readings.
- When there is no input, the device displays a fixed value (intrinsic capacitance).
- For small capacitance measurement, to ensure measurement accuracy, the measured value must be subtracted from intrinsic capacitance. Or users can measure small capacity capacitors with relative measurement function (REL) {the device will automatically subtract the intrinsic capacitance)

Battery Measurement (MP730008 only)

- Switch the range selector to battery measurement position.
- Insert the red test lead to VΩmA terminal, black to COM terminal.
- Connect the red test probes to + and black to - poles.
- The LCD displays the battery status.

Notes:

- Do not input over 60V DC or 30V AC.

Measuring Temperature (MP730007 only)

- Switch the range selector to temperature position.
- After “OL” is displayed insert the K-type thermocouple to the device terminals VΩmA and COM and and place the test probes on the object under measurement.
- The reading is displayed.

Notes:

- Only the K-type thermocouple supplied with this instrument should be used.
- The measured temperature should be less than 250°C/482°F.

NCV Measurement

- Switch the range selector to NCV position.
- Place the device near the object to be measured and the display shows the intensity of the field in a series of “-” and the buzzer sounds more rapidly as the field strength increases. eg:

  “EF” : 0-50mV
  “-” : 50-100mV
  “--” : 100-150mV
  “---” :150-200mV
  “----” : >200mV

Auto Power Off

- The meter features an Auto Power Off function. It will power off automatically after 15 minutes inactivity and enter the sleep mode which reduces battery power consumption. Power on the meter again by pressing any button.

OPERATING PARAMETERS

- Ambient temperature 23º ± 5º
- Relative Humidity: <75%

DC VOLTAGE

Range	Resolution	Accuracy
600.0mV	0.1mV	±(0.7%+3)
6.000V/6000mV	0.001V/1mV	±(0.5%+2)
60.00V	0.01V	±(0.7%+3)
600.0V	0.1V	±(0.7%+3)

Note:
Input Impedance: 10MΩ for all ranges

AC VOLTAGE

Range	Resolution	Accuracy
600.0mV	0.1mV	+(1.0%+2)
6.000V	0.001V	+(0.7%+3)
60.00V	0.01V	+(0.7%+3)
600.0V	0.1V	±(1.2%+3)
60Hz-1MHz	0.01 Hz/0.001 MHz	±(0.1%+5)

Notes:

- Overload protection: 600Vrms (AC/DC). Input impedance: about 10MΩ
- Display sine wave true RMS. Frequency response: 40Hz -400Hz
- Max input voltage: 600Vrms. when the voltage >610V, “OL” symbol appears and the buzzer goes off.
- Frequency Sensitivity about 300mV

RESISTANCE

Range	Resolution	Accuracy
600.0Ω	0.1Ω	+(1.0%+2)
6.000kΩ/6000Ω	0.1kΩ/1Ω	+(0.8%+2)
60.00kΩ	0.01kΩ	±(0.8%+2)
600.0kΩ	0.1kΩ	+(0.8%+2)
60.00MΩ	0.01MΩ	+(2.0%+5)

Note:

- Measurement result = reading of resistor - reading of shorted test leads
- Overload protection: 600Vrms

DIODE TEST

Range	Resolution	Remarks
	0.001V	**MP730007** Open circuit voltage: 4V, test current: about 1.5mA. **MP730008** Open circuit voltage: 2.1V, test current: about 1mA. Silicon PN junction voltage: 0.5 - 0.8V.

CONTINUITY TEST

Range	Resolution	Remarks
•))	0.1Ω	**Set Value** Open circuit: resistance >50Ω, no beep. Well-connected circuit: resistance <10Ω, continuous beeps.

Note: Overload protection, 600Vrms.

CAPACITANCE

Range	Resolution	Accuracy
9.999nF	0.001nF	REL mode: ±(4%+10)
99.99nF	0.01nF	±(4%+5)
999.9nF	0.1nF	±(4%+5)
9.999μF	0.001μF	±(4%+5)
99.99μF	0.01μF	±(4%+5)
999.9μF	0.1μF	±(4%+5)
9.999mF	0.001mF	±10%

Note: Overload protection, 600V-PTC.

- Test capacitance <200nF, adapt REL mode.

TEMPERATURE (MP730007 ONLY)

Range		Resolution	Accuracy
TEMP °C	-40°C~40°C	1°C	±4°C
	>40°C~500°C		±(1.0%+4)
	>500°C~1000°C		±(2.0%+4)
TEMP °F	40°F ~104°F	1°F	±5°F
	>104°F~932°F		±(1.5%+5)
	>932°F~1832°F		±(2.5%+5)

Note: Overload protection, 600V.

- K-type thermocouple is only applicable for temperature less than 250°C/482°F.

DC CURRENT

Range	Model	Resolution	Accuracy
600.0μA	MP730007 / MP730008	0.1μA	±(1.0%+3)
6000μA	MP730007	1μA	±(1.0%+3)
60.00mA	MP730007 / MP730008	0.01mA	±(1.0%+3)
600.0mA	MP730007 / MP730008	0.1mA	±(1.0%+3)
6A	MP730007	0.001A	±(1.2%+5)
10.00A	MP730007 / MP730008	0.01A	±(1.2%+5)

Note: Overload protection, 600Vrms.

- μA mA range: F1 Fuse Φ6x32mm F 600mA H 600V.
- 10A range: F2 Fuse Φ6x25mm (or Φ6x32mm) F 10A H 600V.
- Input current >10A buzzer goes off, input current >10.10A “OL” symbol appears.

AC CURRENT (MP730007 only)

Range	Resolution	Accuracy
600.0µA	0.1µA	±(1.2%+3)
6000µA	1µA	
60.00mA	0.01mA	
600.0mA	0.1mA	
6A	0.001A	±(1.5%+5)
10.00A	0.01A	

Note: Overload protection, 600Vrms.

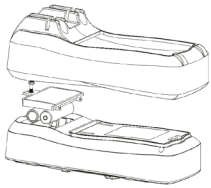
- Display: true RMS.
- Accuracy guarantee range: 5-100% of the range, shorted circuit allows least significant digit <2.
- Input current >10A buzzer goes off, input current >10.10A “OL” symbol appears.

BATTERY AND FUSE REPLACEMENT

Warning: Only replace the battery after the test leads are removed and the power is off.

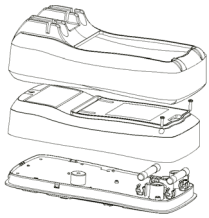
To replace the battery,

- Remove the protective case
- Unscrew and remove the battery cover.
- Replace the battery with new AAA 1.5V x 2 batteries of the same type.
- Refit the cover and protective case.



To replace the fuses,

- Remove the protective case
- Unscrew and remove the rear case.
- Replace the fuses of the same type:
  F1 Fuse Φ6x32mm F 600mA H 600V
  F2 Fuse: Φ6x25mm (or Φ6x32mm) F10A H 600V
- Refit the cover and protective case.



CLEANING

- Clean the meter with a clean, soft cloth.
- Do not use any chemicals, abrasives or solvents that could damage the meter.

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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