multicomp PRO

Digital Multimeter
Model MP730026

Table of Contents

1. Safety Information

Safety Considerations

Before any operations, please read the following safety precautions to avoid any possible bodily injury and prevent damage to this product or any other products connected. To avoid any contingent danger, use this product only as specified.

EC Declaration of Conformity:
Meets intent of Directive 2004/108/EC for Electromagnetic Compatibility.

- Limit operation to the specified measurement category, voltage, or amperage ratings.
- **Do not use the multimeter if it is damaged.** Before you use the multimeter, inspect the case. Look for cracks or missing plastic. Pay particular attention to the insulation surrounding the connectors.
- **Do not use the test leads provided for other products.** Use only the certified test leads specified for this product.
- Inspect the test leads for damaged insulation or exposed metal.
- Before use, verify the multimeter's operation by measuring a known voltage.
- Only the qualified technicians can implement the maintenance.
- **Always use the specified battery type.** The power for the multimeter is supplied with a battery. Observe the correct polarity markings before you insert the batteries to ensure proper insertion of the batteries in the multimeter.
- **Check all Terminal Ratings.** To avoid fire or shock hazard, check all ratings and markers of this product. Refer to the user's manual for more information about ratings before connecting to the multimeter.
- Do not operate the multimeter with the cover or portions of the cover removed or loosened.
- **Use Proper Fuse.** Use only the specified type and rating fuse for the multimeter.
- **Do not operate if in any doubt.** If you suspect damage occurs to the multimeter, have it inspected by qualified service personnel before further operations.
- **To avoid electric shock, do not operate this product in wet or damp conditions.**
- **Do not operate in an explosive atmosphere.**
- **Keep product surfaces clean and dry.**
- Do not apply more than the rated voltage (as marked on the multimeter) between terminals, or between terminal and earth ground.
- When measuring current, turn off the circuit power before connecting the multimeter in the circuit. Remember to place the multimeter in series with the circuit.

- When servicing the multimeter, use only the specified replacement parts.
- Use caution when working above 60 VDC, 30 VAC RMS, or 42.4 V peak. Such voltages pose a shock hazard.
- When using the test leads, keep your fingers behind the finger guards on the test leads.
- Remove the test leads from the multimeter before you open the battery cover.
- To avoid false readings, which may lead to possible electric shock or personal injury, replace the battery as soon as the low battery indicator appears and flashes.
- Disconnect circuit power and discharge all high-voltage capacitors before testing resistance, continuity, diodes, or capacitance.
- **Use the proper terminals, function, and range for your measurements.** When the range of the value to be measured is unknown, set the rotary switch position as the highest range, or choose the auto ranging mode. To avoid damages to the multimeter, do not exceed the maximum limits of the input values shown in the technical specification tables.
- Connect the common test lead before you connect the live test lead. When you disconnect the leads, disconnect the live test lead first.
- Before changing functions, disconnect the test leads from the circuit under test.

Measurement Category

The multimeter has a safety rating of 1000 V, CAT III and 600 V, CAT IV.

Measurement category definition

Measurement CAT I applies to measurements performed on circuits not directly connected to the AC mains. Examples are measurements on circuits not derived from the AC mains and specially protected (internal) mains- derived circuits.

Measurement CAT II applies to protect against transients from energy-consuming equipment supplied from the fixed installation, such as TVs, PCs, portable tools, and other household circuits.

Measurement CAT III applies to protect against transients in equipment in fixed equipment installations, such as distribution panels, feeders and short branch circuits, and lighting systems in large buildings.

Measurement CAT IV applies to measurements performed at the source of the low-voltage installation. Examples are electricity meters and measurements on primary over current protection devices and ripple control units.

Safety Terms and Symbols

Safety Terms

Terms in this Manual. The following terms may appear in this manual:

Warning: Warning indicates the conditions or practices that could result in personal injury or death.

Caution: Caution indicates the conditions or practices that could result in damage to this product or other property.

Terms on the Product. The following terms may appear on this product:

Danger: It indicates an injury or hazard may immediately happen.

Warning: It indicates an injury or hazard may be accessible potentially.

Caution: It indicates a potential damage to the instrument or other property might occur.

Safety Symbols

Symbols on the Product. The following symbol may appear on the product:

	Direct current (DC)		Fuse
	Alternating current (AC)		Caution, risk of danger (refer to this manual for specific Warning or Caution information)
	Both direct and alternating current	CAT II	Category II overvoltage protection
	Ground terminal	CAT III	Category III overvoltage protection
	Conforms to European Union directives	CAT IV	Category IV overvoltage protection
	Equipment protected throughout by double insulation or reinforced insulation		

2. Quick Start

General Inspection

After you get a new multimeter, make a check on the instrument according to the following steps:

1. **Check whether there is any damage caused by transportation.**

   If the packing boxes or foam cushions are found to have serious damage, keep them in a safe place until the complete instrument and accessories have passed the electrical and mechanical tests.

2. **Check the Accessories**

   Check that all the parts and accessories are included and in serviceable condition.

3. **Check the Complete Instrument**

   If the instrument is damaged in its appearance or it fails in normal operation or performance test, do not use it and contact the supplier directly.

Install the Batteries

The multimeter is powered by a 9V (6F22) battery.

Warning: To avoid false readings, which could lead to possible electric shock or personal injury, replace the battery as soon as the low battery indicator appears.

Before replacing the battery, turn off the meter, disconnect test leads and any connectors from any circuit under test, remove test leads from the input terminals. Use only the specified battery type.

Use the following procedure to install the batteries.

(1) Ensure that the rotary switch is at the OFF position. Remove test leads and any connectors from the input terminals.

(2) Lift the tilt stand and loosen the screws with a suitable Phillips screwdriver and remove the battery cover.

(3) Observe the battery polarity indicated inside the battery compartment, Insert the batteries.

(4) Place the battery cover back in its original position and tighten the screws.

Caution: To avoid instruments being damage from battery leakage, always remove the batteries and store them separately if the multimeter is not going to be used for a long period.

Adjusting the Tilt Stand

Pull the tilt stand outward to its maximum reach (about 85° to the meter body).

Power On

(1) To power ON the multimeter, turn the rotary switch to any other position except OFF.

(2) To power OFF the multimeter, turn the rotary switch to the OFF position.

Sleep Mode

The multimeter automatically enters the sleep mode if the rotary switch is not moved or a key is not pressed for 30 minutes. (When the Bluetooth is activated, this function is disabled.)

Pressing Select or turn the rotary switch will turn the multimeter back to operation mode from the sleep mode.

One minute before Auto Power-off, the buzzer will beep five times to warn. Before shutoff, the buzzer will emit a long beep, and then the multimeter will shut off.

Note: In sleep mode, the multimeter will still consume a little power. If the multimeter is not going to be used for a long period, the power should be turned off.

LCD Backlight and Flashlight

To implement the test among darkness, you can activate the LCD backlight and flashlight by pressing /H for more than 2 seconds. The backlight and flashlight will last for one minute. To turn off manually, pressing /H for more than 2 seconds.

Selecting the Range

- Auto ranging is set as default when the meter is powered on, AUTO is displayed.
- When auto ranging is enabled, press Range to enter the manual range mode.
- In manual range, each additional press of Range sets the multimeter to the next higher range, unless it is already in the highest range, at which point the range

switches to the lowest range.

- When manual range is enabled, press Range for more than 2 seconds to enter the auto ranging mode.

Note: Manual range is not available when measuring capacitance.

Multimeter in Brief

Front panel

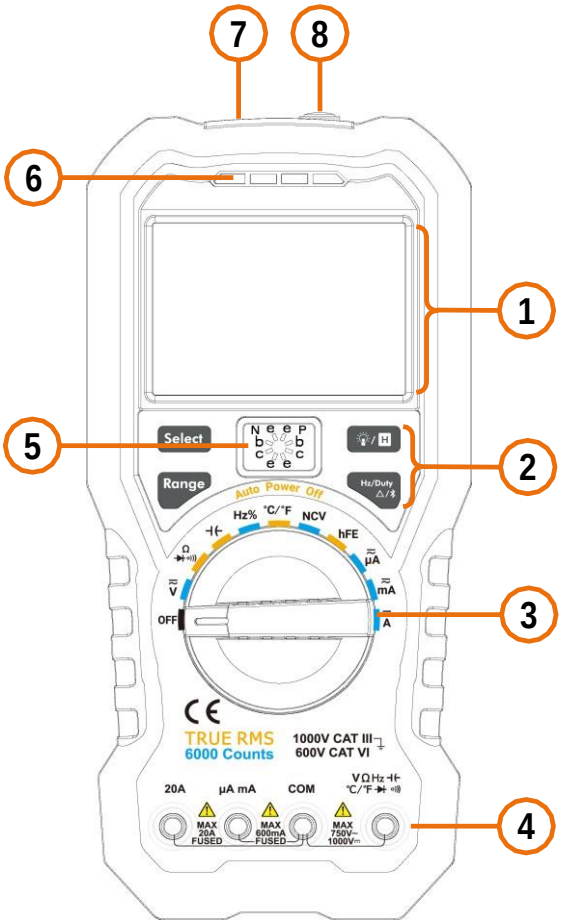


Figure 2-1 Front panel overview
(MP730026 with hFE is shown for example)

No.	Description	Details
①	Display screen	Page 9
②	Keypad	Page 8
③	Rotary switch	Page 8

④	Input terminals	Page 10
⑤	Transistor test holes (only for specific models)	Page 15
⑥	LED indicator	
⑦	Non-contact voltage detector (NCV)	Page 14
⑧	Flashlight	Page 6

Rotary switch

Position	Description	Details
OFF	Power off	Page 6
≂ V	DC or AC voltage measurement	Page 12
≂ mV *	DC or AC voltage measurement (up to 600 millivolts)	
Ω ⊣◦)))	Resistance measurement	Page 12
	Continuity test	Page 13
	Diode test	Page 13
⊣⊢	Capacitance measurement	Page 13
Hz%	Frequency measurement	Page 14
℃/℉	Temperature measurement	Page 14
NCV	Non-contact voltage detect	Page 14
hFE *	Transistor measurement	Page 15
≂ μA	DC or AC current measurement (up to 600 microamperes)	Page 15
≂ mA	DC or AC current measurement (up to 600 milliamperes)	
≂ A	DC or AC current measurement	

* The model with hFE function does not have the ≂ mV position.

Keypad

Key	Description	Details
Select	Select DC or AC	
	Select Resistance/Continuity /Diode	

Range	Auto/Manual range	Page 6
/ H	Backlight & Flashlight	Page 6
	Data Hold	Page 16
Hz/Duty △/	Select frequency/duty cycle	Page 14
	Measuring frequency in AC voltage/current mode	
	Relative Measurements	Page 16
	Bluetooth (only for MP730026)	Page **Error! Bookmark not defined.**

Display screen

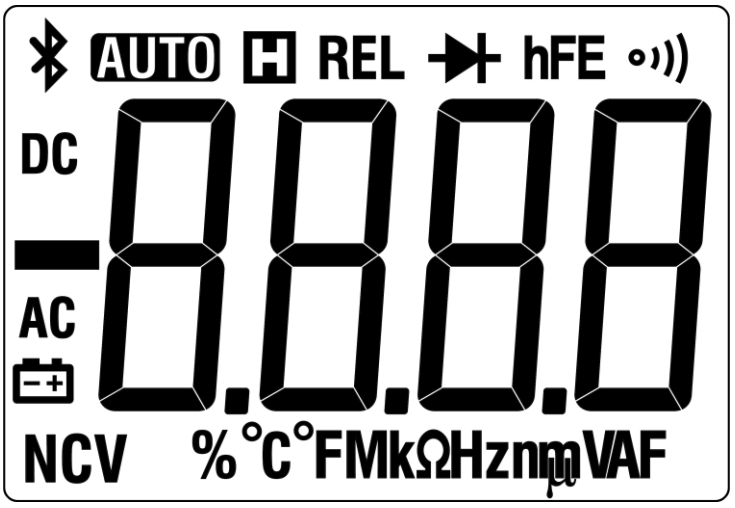


Figure 2-2 Display screen

Symbol	Description	Details
	Bluetooth enabled	Page **Error! Bookmark not defined.**
AUTO	Auto range	Page 6
H	Data hold enabled	Page 16
REL	Relative enabled	Page 16
	Diode test selected	Page 13
hFE	Transistor measurement	Page 15
	Continuity test selected	Page 13

DC	DC	Page 12 and Page 14
AC	AC	
	Battery is low	Page 5
	Measurement display ("OL" is short for overload, indicates the reading exceeds the display range)	
NCV	Non-contact Voltage Detect	Page 14
%°C°FMkΩHznmμVAF	Measuring units	Page 10

Measurement units

Sign	Description	
M	Mega	1E+06 (1000000)
k	kilo	1E+03 (1000)
m	milli	1E–03 (0.001)
μ	micro	1E–06 (0.000001)
n	nano	1E–09 (0.000000001)

Sign	Description	Measurement type
℃	Degree Celsius	Temperature
℉	Degree Fahrenheit	
V	Voltage	Voltage
A	Ampere	Current
Ω	Ohm	Resistance
Hz	Hertz	Frequency
%	Percent,	Duty cycle
F	Farad	Capacitance

Input terminals

The terminal connections for the different measurement functions of the multimeter are described in the table below.

Warning: Before starting any measurement, observe the rotary switch position of the multimeter, and then connect the test leads to the correct terminals.

Caution: To avoid damaging the multimeter, do not exceed the rated input limit.

Rotary switch position	Input terminals		Overload protection
≂ V ≂ (mV)	V Ω Hz ⊣⊢ ℃/℉ ⊣◀ ◦)))	COM	750 VAC/1000 VDC
Ω ⊣◀ ◦)))	V Ω Hz ⊣⊢ ℃/℉ ⊣◀ ◦)))	COM	250 VAC/300 VDC
⊣⊢			
Hz%			
℃/℉			
≂ μA ≂ mA	μA mA	COM	400 mA/250 V, resettable fuse
≂ A	20A	COM	20 A/250 V, fast-acting fuse

3. Making Measurements

Measuring AC or DC Voltage

Warning: Do not measure any voltage of over 1000 Vdc or 750 Vac rms to avoid instrument damage or electric shock.
Do not apply more than 1000 Vdc or 750 Vac rms between the common terminal and the earth ground to avoid instrument damage or electric shock.

This multimeter displays DC voltage values as well as their polarity. Negative DC voltages will display a negative sign on the left of the display.

(1) Rotate the rotary switch to V or mV (mV is only for specific models). Default is DC measurement mode, DC will be displayed. Press Select to switch into AC measurement mode, AC will be displayed.

(2) Connect the black test lead to the COM terminal and the red test lead to the VΩHz terminal.

(3) Probe the test points and read the display. Press Range to enable and cycle through the manual ranges.

Note: When measuring AC voltage, press Hz/Duty to cycle through frequency measuring, duty cycle measuring, and original measuring.

Measuring Resistance

Caution: To avoid possible damage to your multimeter or to the equipment under test, disconnect the circuit power and discharge all high-voltage capacitors before measuring resistance.

(1) Rotate the rotary switch to Ω.

(2) Connect the black test lead to the COM terminal and the red test lead to the VΩHz terminal.

(3) Probe the test points and read the display. Press Range to enable and cycle through the manual ranges.

Testing for Continuity

Caution: To avoid possible damage to your multimeter or to the equipment under test, disconnect the circuit power and discharge all high-voltage capacitors before testing for continuity.

(1) Rotate the rotary switch to Ω. Press Select once to enter continuity testing mode,))) will be displayed.

(2) Connect the black test lead to the COM terminal and the red test lead to the VΩHz °C/°F terminal.

(3) Probe the test points to measure the resistance in the circuit. If the reading is below 30 Ω, the multimeter will beep continuously.

Testing Diodes

Caution: To avoid possible damage to your multimeter or to the equipment under test, disconnect the circuit power and discharge all high-voltage capacitors before testing diodes.

(1) Rotate the rotary switch to Ω. Press Select twice to enter diode testing mode, ▶| will be displayed.

(2) Connect the black test lead to the COM terminal and the red test lead to the VΩHz °C/°F terminal.

(3) Connect the red test lead to the positive terminal (anode) of the diode and the black test lead to the negative terminal (cathode). The cathode of a diode is indicated with a band.

(4) Read the diode forward bias. If the test lead connection is reversed, the multimeter will display "OL".

Measuring Capacitance

Caution: To avoid possible damage to the multimeter 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 fully discharged.

(1) Rotate the rotary switch to ⊣⊢.

(2) Connect the black test lead to the COM terminal and the red test lead to the VΩHz °C/°F terminal.

(3) Probe the test points and read the display.

Measuring Frequency

(1) Rotate the rotary switch to **Hz%**.

(2) Connect the black test lead to the **COM** terminal and the red test lead to the VΩHz ⊣⊢ ℃/℉ ⇥ •))) terminal.

(3) Probe the test points and read the display.

(4) Press **Hz/Duty △/ᛒ** to switch between the frequency and duty cycle measurements.

Note: When measuring AC voltage or AC current, press **Hz/Duty △/ᛒ** to cycle through frequency measuring, duty cycle measuring, and original measuring.

To measure the frequency of signal with large amplitude, it is recommended to press **Hz/Duty △/ᛒ** to measure the frequency in AC voltage measurement mode.

Measuring Temperature

(1) Rotate the rotary switch to **℃/℉**.

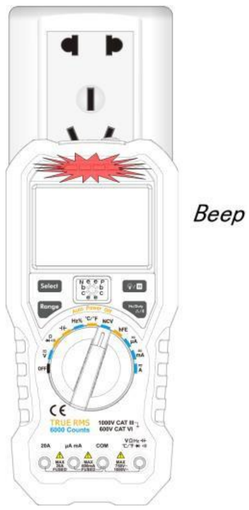
(2) Connect the **red connection** of the K-type thermocouple to the VΩHz ⊣⊢ ℃/℉ ⇥ •))) terminal and the **black connection** to the **COM** terminal.

(3) Probe the test points and read the display.

Non-Contact Voltage Detect (NCV)

To detect the presence of AC voltage, place the top of the meter close to a voltage source. When voltage is detected, the LED above the display will glow, and the meter will beep.

⚠ **Warning**:



- Always test the NCV function on a known live circuit before use.
- Do not attempt to use the meter as an AC Voltage Detector if the battery is weak or bad.
- Even without indication, voltage may still be present. Do not rely on NCV detection to check the shielded wire. Detection could be impaired by socket design, insulation thickness, or other factors.
- External interference such as static electricity sources could mistakenly trigger NCV indication.

(1) Rotate the rotary switch to **NCV**.

(2) Test the NCV function on a known live circuit before use.

(3) Place the top of the meter very close to the voltage source as shown in the figure.

(4) If voltage is detected, the LED above the display will flash, and the meter will beep.

Measuring Transistor — Only for specific models

(1) Rotate the rotary switch to **hFE**.

(2) Verify the type of the transistor is NPN or PNP, and locate the Emitter, Base and Collector leads. Insert leads of the transistor into the corresponding test holes on the panel.

(3) Read the hFE value.

Measuring DC or AC Current

Warning: Never attempt an in-circuit current measurement where the open-circuit potential to earth is greater than 250 V. Doing so will cause damage to the multimeter and possible electric shock or personal injury.

Caution: To avoid possible damage to the multimeter or to the equipment under test, check the multimeter's fuse before measuring current. Use the proper terminals, function, and range for your measurement. Never place the test leads in parallel with any circuit or component when the leads are plugged into the current terminals.

(1) Turn off the power of the measured circuit. Discharge all high- voltage capacitors.

(2) Connect the black test lead to the **COM** terminal. For currents below 600 mA, connect the red test lead to the **μA mA** terminal; for currents within 600 mA – 10 A, connect the red test lead to the **20A** terminal.

(3) Rotate the rotary switch to the appropriate position according to the measurement range, **μA**, **mA**, or **A**.

(4) Disconnect the circuit path to be tested. Connect the black test lead to one side of the circuit (with a lower voltage); connect the red test lead to the other side (with a higher voltage). Reversing the leads will produce a negative reading, but will not damage the multimeter.

(5) Select DC or AC measurement mode. Default is DC measurement mode, **DC** will be displayed. Press **Select** to switch into AC measurement mode, **AC** will be displayed.

(6) Turn on the power of the measured circuit, and read the display. Press **Range** to enable and cycle through the manual ranges. If "OL" is displayed, it indicates the input exceeds the selected range and the rotary switch should be set to the position with higher range.

(7) Turn off the power of the measured circuit and discharge all high-voltage capacitors. Remove the test leads and restore the circuit to the original condition.

Note: When measuring AC current, press **Hz/Duty △/✱** to cycle through frequency measuring, duty cycle measuring, and original measuring.

4. Multimeter Features

Data Hold Mode

(1) Press  to freeze the display during measurement, H will be shown on the display.
(2) Press  again to exit this mode.

Making Relative Measurements

When making relative measurements, reading is the difference between a stored reference value and the input signal.

(1) Press  to enter the relative mode, REL will be shown on the display. The measurement value when pressing  is stored as the reference value.
In this mode, REL△ (current reading) = input value - reference value.

(2) Press it again to exit the mode.

In relative measurement, the manual range mode will be activated automatically. (The relative measurement should be carried out under a certain range, that is, this function is only available under the manual range mode.)

Note: This function is not available when measuring AC voltage/current, transistor (only for specific models), and frequency.

Buzzer Feature

- Press the function key, the buzzer emits a short beep.
- One minute before Auto Power-off, the buzzer will beep five times to warn. Before shutoff, the buzzer will emit a long beep, and then the multimeter will shut off.
- The buzzer beeps continuously to warn once the measured DC voltage exceeds 1000 V, or the measured AC voltage exceeds 750 V.
- The buzzer emits a long beep when the short circuit resistance is less than about 50Ω during the continuity test.
- When the Bluetooth function is idle for 10 minutes, the Bluetooth will be turned off automatically. Before turning off, the buzzer will beep twice.

5. Technical Specifications

All these specifications apply to the multimeter unless otherwise explanation.

Standard conditions: The environment temperature is 18℃ to 28℃, the relative humidity is less than 80%.

Note: When measuring AC voltage/current or capacitance, accuracy guarantee range is 5% to 100% of the range.

Function		Measurement Range	Resolu-tion	Function
DC Voltage (V)	mV [1]	60.00mV/600.0mV	0.01mV	±(0.5%+2dig)
	V	600.0mV/6.000V/60.00V/600.0 V	0.1mV	
	V	1000V	1V	±(0.8%+2dig)
AC Voltage (V)	mV [1]	60.00mV/600.0mV	0.01mV	±(0.8%+3dig)
	V	600.0mV	0.1 mV	±(2%+5dig)
	V	6.000V/60.00V/600.0V	1mV	±(0.8%+3dig)
	V	750V	1V	±(1%+3dig)
DC Current (A)	μA	600.0μA/6000μA	0.1μA	±(0.8%+2dig)
	mA	60.00mA/600.0mA	0.01mA	±(0.8%+2dig)
	A	20.00A [2]	0.01A	±(1.2%+3dig)
AC Current (A)	μA	600.0μA/6000μA	0.1μA	±(1%+3dig)
	mA	60.00mA/600.0mA	0.01mA	±(1%+3dig)
	A	20.00A [2]	0.01A	±(1.5%+3dig)
Resistance (Ω)		600.0Ω/6.000kΩ/60.00kΩ/ 600.0kΩ/6.000MΩ	0.1Ω	±(0.8%+2dig)
		60.00MΩ	0.01 MΩ	±(2%+3dig)
Capacitance (F)		60.00nF/600.0nF/6.000μF/ 60.00μF	0.01nF	±(3%+3dig)
		600.0μF/6.000mF/60.00mF [3]	0.1μF	±(3%+5dig)
Frequency [4] (Hz)		9.999Hz/99.99Hz/999.9Hz/ 9.999kHz/99.99kHz/999.9kHz/ 9.999MHz	0.001Hz	±(0.8%+2dig)
Duty Cycle [5] (%)		0.1% - 99.9% (Typical: Vrms=1 V, f=1 kHz)	0.1%	±(1.2%+3dig)
		0.1% - 99.9%(≥1 kHz)		±(2.5%+3dig)
Temperature (°C/°F)		－50 ℃ to 400 ℃	1 ℃	±(2.5%+3dig)
		－58 ℉ to 752 ℉	1 ℉	±(4.5%+5dig)

[1] The rotary switch position $\widetilde{\mathbf{mV}}$ is only for specific models.

[2] When measuring current, for 10 A to 15 A, the measuring duration should not be over 2 minutes within 10 minutes, and in this 10 minutes, no other current should flow through except within the measuring duration; for 15 A to 20 A, the measuring duration should not be over 10 seconds within 15 minutes, and in this 15 minutes, no other current should flow through except within the measuring duration.

[3] When measuring capacitance, for the 60.00mF range, the measuring duration should be over 30 seconds.

[4] When measuring frequency, the typical waveform is Square or Sine. The signal meets the following conditions.

Frequency	Amplitude (rms)
1 Hz – 5 MHz	≥ 700 mV

[5] When measuring duty cycle, the typical waveform is Square.

Characteristics	**Instruction**	
Display	5999	
Frequency Response (Hz)	(40 - 1000) Hz	
Sample rate for digital data	3 times/second	
Bluetooth	MO730026	Without
	MP730026	√
Auto ranging	√	
True RMS	√	
Diodes Test	√	
Sleep Mode	√	
Continuity Test	√	
Low battery indication	√ (The "−+" is displayed when the battery is under the proper operation range.)	
Data Hold	√	
Relative Measurement	√	
LCD Backlight	√	
Input Protection	√	
Input Impedance	≥ 10 MΩ	
Battery	9V battery (6F22)	
LCD Size	58.5 mm * 41 mm	
Weight (without package)	0.32 kg	
Dimension	190 mm * 90 mm * 56 mm	
Working temperature	0℃ to 40℃	
Storage temperature	−10℃ to 60℃	
Relative Humidity	≤ 80%	
Altitude	Operating: 3,000 m Non-operating: 15,000 m	

Interval Period of Adjustment: One year is recommended for the calibration interval period

6. Appendix

Appendix A: Enclosure

Standard Accessories:

Test lead

K-type thermocouple

Quick guide

9V battery (6F22)

Bolt driver

Crocodile clip (only for MP730026)

Appendix B: General Care and Cleaning

Warning: To avoid electrical shock or damage to the multimeter, ensure that the insides of the casing stay dry at all times.

Cleaning

To clean the instrument exterior, perform the following steps:

Wipe the dust from the instrument surface with a soft cloth. Avoid scratching the LCD screen. Clean the instrument with a lightly damp soft cloth. It is recommended to wipe with mild detergent or fresh water. To avoid damage to the instrument, do not use any corrosive chemical cleaning agent.

Dirt or moisture in the terminals can distort readings. Follow the steps below to clean your multimeter.

1. Turn the multimeter off and remove the test leads.
2. Turn the multimeter over and shake out the dirt in the terminals.
3. Wipe the contacts in each terminal with a clean swab dipped in alcohol.

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 & Electronics 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

LS12 2EN