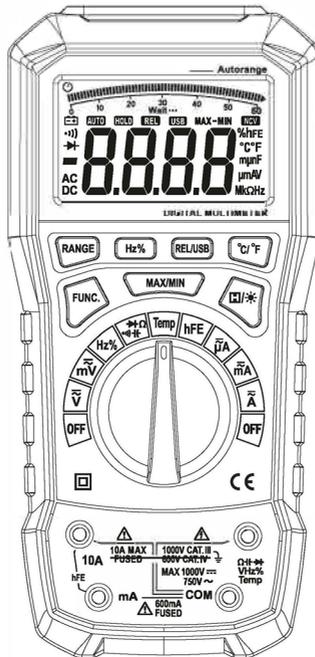


DURATOOL



MODEL: D03122

**DIGITAL MULTIMETER
WITH T-RMS/USB**

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IMPORTANT SAFETY INFORMATION

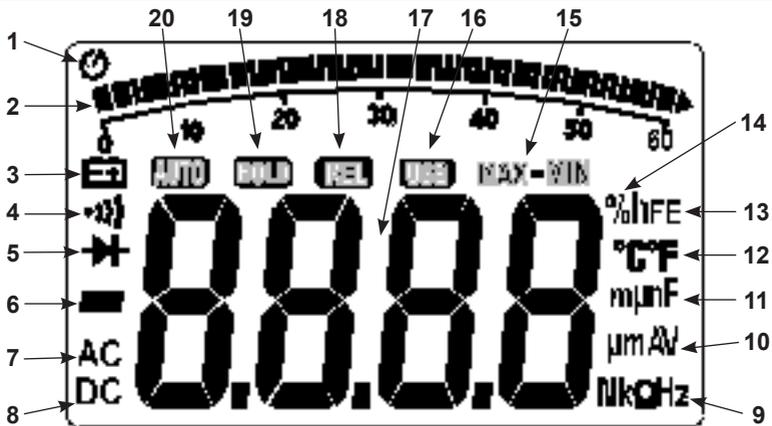
Please read these instructions carefully before use and retain for future reference.

- When using electrical appliances basic safety precautions should always be followed.
- Use the meter only as specified in this manual, or the protection provided may be impaired.
- Before using the meter, check the insulation around the input terminals of the instrument. Do not use if any damage is present.
- Do not operate the meter, or use the probes, if they appear damaged, or if the meter is not operating properly.
- There are no user-serviceable parts in this product. Refer servicing to qualified personnel.
- Verify the meter's operation by measuring a known voltage.
- Do not apply more than the rated voltage as marked on the meter, between the terminals or between any terminal and earth ground.
- Use caution with voltages above 30V AC true RMS, 42V AC or 60V DC. These voltages pose a shock hazard.
- Do not use the meter around explosive gas or vapour.
- When using the test leads, keep your fingers behind the finger guards of the probe.
- Comply with local and national safety code. Wear personal protection equipment (such as rubber gloves, masks and flame retardant clothes etc.) to prevent being injured by electric shock due to exposed hazardous live conductors.
- When measuring, connect the zero line or the ground line first, then connect the live wire. When disconnecting, ensure that you disconnect the live wire first and then disconnect the zero line and ground line.
- Remove any probes from the meter before opening the meter case or battery door.
- Never operate the meter with the cover removed or the battery door open.
- Use only the test leads supplied or the protection may be impaired.
- Do not connect the meter to any voltage source while the rotary selector is in the current, resistance, capacitance, diode or continuity range.
- If the probe is damaged, replace it with the same model number and same electrical specifications.
- Only use the batteries recommended for this product.
- Ensure that the batteries are inserted correctly, observing the plus and minus marks on both the batteries and the compartment.
- Replace the batteries as soon as the low battery indicator appears on the display.
- Fit a full set of batteries at one time.
- Remove dead batteries from the appliance 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.

SAFETY SYMBOLS

Symbol	Description
	High Voltage Warning
	AC (Alternating Current)
	DC (Direct Current)
	AC or DC
	Warning - Important Safety Information
	Ground
	Fuse
	Double Insulation
	Low Battery
CAT. III 1000V	CAT. III 1000V over-voltage protection
CAT. IV 600V	CAT. IV 600V over-voltage protection

DISPLAY

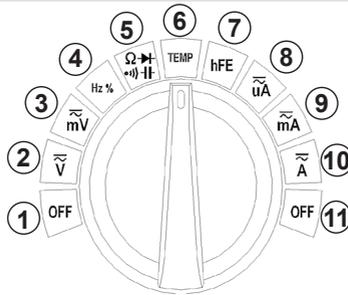


1	Auto-power off	8	DC indicator	15	Max/Min Value Measurement
2	Simulation bar, indicating rapid change trend	9	Resistance/ Frequency Unit	16	USB Interface Open
3	Battery undervoltage indicator	10	Voltage/Current Unit	17	Data Display Area
4	Connectivity Measurement Indicator	11	Capacitance Unit	18	Relative Value Measurement
5	Diode Measurement	12	Temperature Unit	19	Data Hold
6	Minus	13	Transistor Indicator	20	Automatic Range
7	AC indicator	14	Duty Ratio Unit		

BUTTONS

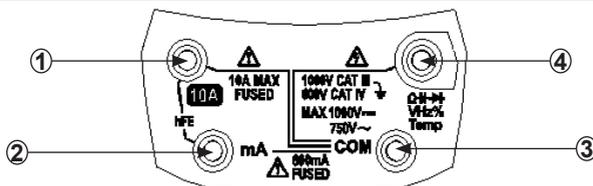
Button	Details
RANGE	Switch between automatic range and manual range
Hz%	Switch between frequency and duty ratio
REL/USB	Turn on relative measurement and USB
°C/°F	Switch between celsius and fahrenheit
*/H	Turn on the backlight and data hold
MAX/MIN	Turn on maximum value, minimum value, maximum-minimum measurement
FUNC.	Switch among function selections.

ROTARY SWITCH



1	OFF
2	AC or DC Voltage. Press “Func.” to switch
3	AC or DC Voltage mV. Press “Func.” to switch
4	Frequency, duty ratio. Press “Hz%” to switch
5	Resistance, diode, connectivity, capacitance. Press “Func.” to switch
6	Temperature measurement. Press “°C/°F” to switch
7	Transistor amplification test
8	AC and DC current microampere measurement. Press “Func.” to switch
9	AC and DC current milliampere measurement. Press “Func.” to switch
10	AC and DC current ampere measurement. Press Func. to switch
11	Off

INPUT SOCKET



1	Used for AC and DC current measurement (maximum 10A), input socket for frequency/duty ratio measurement (frequency measurement in current mode); when testing transistor, multi function test socken “IN” input socket.
2	Used for AC and DC microampere (μA) and milliampere (mA) measurement (maximum 600mA) and input socket for frequency/duty ratio (frequency measurement in current mode); when testing transistor, multi-function test socket “COM” input socket.
3	Used as common terminal for all measurement; negative input socket of K-type thermocouple temperature measurement.
4	Input socket for voltage, resistance, connectivity, diode, capacitance, frequency, duty ratio measurement; positive input socket of K-type thermocouple temperature measurement.

MEASUREMENT OPERATION

Manual and Automatic Range

- In auto ranging mode, the instrument will select the best range for the input signal to be detected. The user does not need to select a range when changing the measured signal.
- The instrument can also be set to manual ranging.
- The default mode, when the instrument is turned on or after the function is changed, is automatic range. The instrument displays the “AUTO” symbol.

To enter or exit manual ranging, perform the following steps:

- In automatic ranging mode, press the RANGE button, the “AUTO” symbol will disappear from the display.
- Press the RANGE button to increase the range. When the maximum range is reached, the instrument will return to the minimum range.
- Press and hold the RANGE button for two seconds to exit manual ranging mode. The instrument will display the “AUTO” symbol.

Note: Duty ratio, connectivity, diode, temperature and transistor measurement functions only have a single range.

Relative Value Measurement

The instrument is equipped with relative value measurement function. In this mode, the instrument display value = actual value - set reference value. Operations of entering or quitting relative measurement are as follows:

- Set the instrument to the measurement function you need, connect the probes with a source of value which you wish to set as reference value, the instrument will display the measured value.
- Press REL/USB button and store the measured value as reference value, enter the relative measurement mode and the instrument will display the “REL” symbol.
- Measure, and the instrument will display “actual value-set reference value”.
- Then press REL/USB button and exit relative value measurement mode, the “REL” symbol will disappear from the display.

Note: frequency, duty ratio, diode, connectivity, temperature and transistor measurement has no relative value measurement mode.

Maximum Value/Minimum Value/Maximum-Minimum Value Hold

The instrument is equipped with maximum value, minimum value and maximum-minimum value hold function. The steps of entering or exiting this function are as follows:

- Set the instrument to the measurement function you require.
- Press the MAX/MIN button to enter maximum value hold mode, the instrument will display the “MAX” symbol.
- Press the MAX/MIN button again to enter minimum value hold mode, the instrument will display the “MIN” symbol.
- Press the MAX/MIN button again to enter maximum-minimum value hold mode, the instrument will display the “MAX-MIN” symbol.
- Press and hold the MAX/MIN button longer than 2 seconds to return the instrument to the normal measurement mode.

Note: Frequency, duty ratio, diode, connectivity and transistor measurement do not have this function.

USB Interface Function

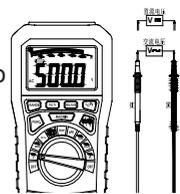
The instrument is equipped with a USB interface function, measured data can be uploaded to a computer for display, record and analysis via the USB port. The steps of entering or exiting this function are as follows:

- Turn the rotary switch of the instrument to any position except “OFF”.
- Press and hold the REL/USB button for more than 2 seconds and the instrument will display the “USB” symbol to show that the data transmission function is enabled.
- Press and hold the REL/USB button again for more than 2 seconds, the “USB” symbol will disappear to show that the data transmission function has been disabled.

Note: please refer to the interface software operation instructions for detailed operations.

MEASURE AC & DC VOLTAGE

- Turn the rotary knob to “ \bar{V} ”, and press FUNC button and switch between AC or DC voltage function.
- Insert the red probe into the “ \bar{V} ” socket, and the black probe into the “COM” socket.
- Contact the probe to the measured circuit (connect to the circuit under test in parallel) and measure the voltage.
- Read the measurement result on the screen.



- **Note:** In the AC voltage function, press the Hz% button to measure the frequency and duty ratio of the AC voltage source, please refer to ‘Measure Frequency’ for details.
- The AC voltage value measured by using this instrument is true RMS (root mean square). For sine wave and other wave (no DC offset), such as square wave, triangle wave and step wave, these measurements are accurate.

WARNING

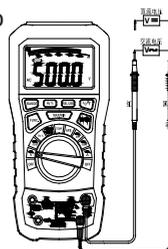
- Do not allow measurement of any voltage higher than DC 1000V or AC 750V RMS, otherwise it may cause damage to the instrument, electric shock or personal injuries.

WARNING

- Do not apply voltage exceeding DC 1000V or AC 750V RMS between the common terminal and the earth, otherwise it may cause damage to the instrument, electric shocks or personal injuries.

MEASURE DC or AC mV VOLTAGE

- Turn the rotary knob to “mV”, press the FUNC button and switch to DC or AC voltage function.
- Insert the red probe into the “” socket and the black probe into the “COM” socket.
- Connect the probe to the measured circuit (connect to the circuit under test in parallel).
- Read the measurement result on the screen.



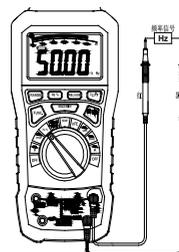
- **Note:** In AC voltage function, press the Hz% button to measure the frequency and duty ratio of the AC voltage source. Please refer to ‘Measure Frequency’ for details.
- The AC voltage value measured by using this instrument is true RMS (root mean square). For sine wave and other waves (no DC offset), such as square wave, triangle wave and step wave, these measurements are accurate.
- The maximum range for AC/DC mV (60/600mV) voltage measurement is 600mV, the input impedance is up to $10^{11}\Omega$ and any measurement of weak signals should not be attenuated.

WARNING

- Do not allow measurement of any voltage higher than DC 1000V or AC 750V RMS, otherwise it may cause damage to the instrument, electric shock or personal injuries.
- Do not apply voltage exceeding DC 1000V or AC 750V RMS between the common terminal and the earth, otherwise it may cause damage to the instrument, electric shock or personal injuries.

MEASURE FREQUENCY & DUTY RATIO

- Turn the rotary knob to “Hz%”, press the Hz% button and switch between frequency and duty ratio (in AC voltage or AC current shift frequency and duty ratio can also be measured)
- Insert the red probe in “” socket and the black probe in “COM” socket.
- Connect the probe to the measured circuit (connect to the circuit under test in parallel), measure the frequency or duty ratio.
- Read the measurement result on the screen.



WARNING

- Do not allow measurement of any voltage higher than DC 1000V or AC 750V RMS, otherwise it may cause damage to the instrument, electric shock or personal injuries.
- Do not apply voltage exceeding DC 1000V or AC 750V RMS between the common terminal and the earth, otherwise it may cause damage to the instrument, electric shock or personal injuries.

WARNING

- To avoid any damage to the instrument or equipment, do not input frequency or duty ratio signal higher than 10V RMS.

MEASURE AC OR DC CURRENT

- According to the current of measurement turn the rotary knob to any position among “ $\overline{\mu}A$ ”, “ \overline{mA} ” and “ \overline{A} ”, press the “FUNC.” button and switch between the AC or DC functions.
- According to the position of measurement insert the red probe into the “mA” socket or “10A” socket, and the black probe in the “COM” socket.
- Disconnect the power supply of the measured circuit, connect the probe to the circuit under test in series, and turn on the power supply of the circuit.
- Read the measurement result on the screen.

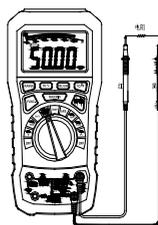


WARNING

- Do not allow measurement of any voltage higher than DC 1000V or AC 750V RMS, otherwise it may cause damage to the instrument, electric shock or personal injuries. The power supply of the measured circuit must be switched off first, otherwise it may cause an electric shock or personal injuries.
- To avoid any damage to the instrument or equipment, please check the fuse before measurement and use the correct input socket.

MEASURE RESISTANCE

- Scroll the rotary knob to “ Ω ”, press the “FUNC.” button and switch to resistance measurement function and ensure the power supply of the measured circuit has been cut off.
- Insert the red probe in “ Ω ” socket, and the black probe in “COM” socket.
- Contact the probe to the measured circuit or both ends of the resistor.
- Read the measurement result on the screen.

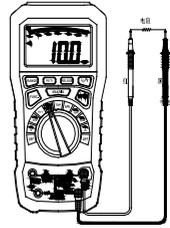


WARNING

- Before measuring resistance, connectivity, capacitance or diode, please turn off the power supply and discharge all the high voltage capacitors, otherwise it may cause damage to the instrument, electric shock or personal injuries.
- Note: Because the test current of the instrument will pass through all the routes between the probe, the measured value of the resistors in the circuit is usually different from the rating of the resistor.

MEASURE CONNECTIVITY

- Scroll the rotary knob to “”, press the “FUNC.” button and switch to connectivity measurement function, and ensure that the power supply of the measured circuit has been cut off.
- Insert the red probe into the “” socket, and the black probe into the “COM” socket.
- Contact the probe to the measured circuit or both ends of the resistance.
- If the resistance of the measured resistance or circuit is lower than 50Ω, the buzzer will sound.
- At the same time the resistance of the measured circuit is displayed on the screen.

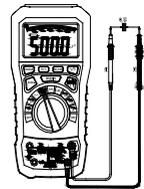


WARNING

- Before measuring resistance, connectivity, capacitance or diode, please turn off the power supply and discharge all the high voltage capacitors, otherwise it may cause damage to the instrument, electric shock or personal injuries.

MEASURE CAPACITANCE

- Scroll the rotary knob to the “” position, press “FUNC.” button and switch to capacitance measurement function.
- Insert the red probe into the “” socket, and the black probe into the “COM” socket.
- Contact the probe to both ends of the capacitor.
- After the reading is stable, read the measurement result on the screen.

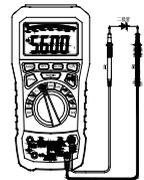


WARNING

- Before measuring resistance, connectivity, capacitance or diode, please turn off the power supply and discharge all the high voltage capacitors, otherwise it may cause damage to the instrument, electric shock or personal injuries.

MEASURE DIODE

- Turn the rotary knob to the “” function, press “FUNC.” button and switch to diode measurement function.
- Insert the red probe into “” socket, and the black probe into the “COM” socket.
- Contact the red probe to the anode of the measured diode, and the black probe to the cathode of the measured diode.
- Read the measurement results on the screen.
- If the polarity of the probe and the diode are opposite, the instrument will display “OL”, which can be used to differentiate the anode and cathode of the diode.



WARNING

- Before measuring resistance, connectivity, capacitance or diode, please turn off the power supply and discharge all the high voltage capacitors, otherwise it may cause damage to the instrument, electric shock or personal injuries.

Note: The instrument can display values as high as 1.5V forward bias. A typical diode forward bias is in the range from 0.3V to 0.8V. However, readings may be different due to the different resistances of other circuits between the probes.

MEASURE TEMPERATURE

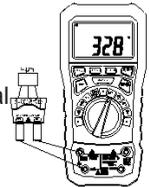
- Turn the rotary knob to “TEMP”.
- Insert the K-type thermocouple into the input socket of the instrument, with the positive end of the thermocouple (red) in the “” socket, and the negative end (black) in the “COM” socket.
- Contact the probe of the thermocouple to the measured object and read the result from the main display area on the screen.
- Press the “°C/°F” button to switch between celsius and fahrenheit unit.
- **Note:** When the thermocouple is not inserted it will display the temperature of the environment.
- The instrument is not suitable for measuring the temperature of a rapidly changing environment.
- The cold junction compensation of the thermocouple is set in the instrument, and it takes a longer time to reach thermal balance with the environmental measurements. When measuring without the thermocouple, the instrument requires an adjustment period in the environment to obtain accurate readings.
- The instrument uses K-type thermocouple probe.

WARNING

- When measuring temperature by thermocouple, the probe of the thermocouple cannot contact the charged object, otherwise it may cause the instrument damage, electric shock or personal injuries.
- Caution: Do not fold the thermocouple wire into an acute angle. Repeatedly bending the wire over a period of time may cause the wire to break.

MEASURE TRANSISTOR

- Turn the rotary knob to “hFE”.
- Insert the multi-functional test socket in “10A” and “mA” sockets as shown in the figure on the right.
- Insert the transistor in the corresponding socket of the multi-functional test socket.
- Read the measurement results on the screen.
- Use caution when using the multi-functional, pay attention to the direction of the insertion; if it is reversed the test result will be wrong.



WARNING

- Do not use the multi-functional test socket in voltage and current measurement, otherwise it may cause damage to the instrument, electric shock or personal injuries.

AUTO POWER-OFF FUNCTION

- If there's no operation for 15 minutes while the unit is turned on, the instrument will enter 'Sleep' mode, meaning it will power off automatically to save battery power.
- After entering sleep mode, the instrument will turn on if the rotary switch or any buttons are pressed.
- If the “FUNC.” button is pressed to turn on the unit, it will cancel the auto power-off function.
- **Note:** When USB function is enabled, the instrument will not enter the sleep state.

BACKLIGHT FUNCTION

- The instrument is equipped with a backlight function to enable accurate reading of measurement results in places with bad light. Operations of turning on or off the backlight are as follows:
- Press and hold the "" button for more than 2 seconds to turn on the backlight.
- Press and hold the "" button for more than 2 seconds again to turn off the backlight; or after about 15 seconds the backlight will turn off automatically.
- **Note:** Frequent use of the backlight will shorten battery life.
- When the battery voltage is less than 4.8V, the display will show "" (low battery) symbol. When using the backlight because of the increased current draw, the battery voltage may drop below 4.8V and cause the "" symbol to be displayed (when "" symbol displays, the accuracy of the measurement cannot be guaranteed). At this time simply discontinue using the backlight. When the "" symbol is displayed without the use of the backlight, then replace the battery immediately.

DATA HOLD

- In the process of measurement, if a held reading is required, press the "" button, the displayed value on the screen will be held.
- Press the "" button again to clear hold mode.

GENERAL TECHNICAL SPECIFICATIONS

Environmental Conditions	600V CATIV and 1000V CATIII
Pollution Level	2
Altitude	<2000m
Working Environment Temperature and Humidity	0 to 40°C (<80% RH, <10°C non-condensing)
Storage Environment Temperature and Humidity	-10 to 60°C (<70% RH, remove the battery)
Temperature Coefficient	0.1 x accuracy/°C (<18°C or >28°C)
Max. Voltage Between Terminals Earth and Ground	1000V DC or 750V AC RMS
Fuse Protection	mA: fuse F600mA/1000V fast speed fuse; 10A shift: F10A/1000V fast speed fuse
Sampling Rate	About 3 times/second
Display	6000 counter readout. Automatically display the unit symbols according to the shift of the measurement function
Over Range Indication	The screen displays "OL"
Low Battery Indication	When battery voltage is lower than the normal working voltage, "  " will be displayed
Input Polarity Indication	Automatically displays "—"

Power Requirement	4 x 1.5V AA batteries
Dimensions	204x94x57mm (LxWxH)
Weight	About 410g (including batteries)

ACCURACY SPECIFICATION

The accuracy applies within one year after the calibration.

Reference condition: the environment temperature 18°C to 28°C, the relative humidity is no more than 80%, accuracy: \pm (% reading + word).

DC VOLTAGE

Range	Resolution	Accuracy	
60mV	0.01mV	$\pm(0.7\% \text{ reading} + 2)$	Input impedance: 10M Ω (60/600mV range is 10 ¹¹ Ω) Overload protection: 1000V DC or 750V AC (RMS) Maximum input voltage: 1000V DC
600mV	0.1mV		
6V	1mV		
60V	10mV		
600V	100mV		
1000V	1V		

Note: Measure in mV (60/600mV) voltage, input impedance is as high as 10¹¹ Ω , and a weak signal of measurement does not weaken, so the measurement precision is high. But in the circumstance that the probe is open circuit, it will display numbers, which is normal, as long as in short circuit the probe will return to zero or if the probe is inserted to the measured point, the reading will stabilize.

AC VOLTAGE

Range	Resolution	Accuracy	
60mV	0.01mV	$\pm(0.8\% \text{ reading} + 3)$	Input impedance: 10M Ω (60/600mV range is 10 ¹¹ Ω) Overload protection: 1000V DC or 750V AC (RMS) Maximum input voltage: 750V AC (RMS) Frequency range: 10Hz ~ 1kHz; response: true RMS
600mV	0.1mV		
6V	1mV		
60V	10mV		
600V	100mV		
750V	1V	$\pm(1.0\% \text{ reading} + 3)$	

Note: Measure in mV (60/600mV) voltage, input impedance is as high as 10¹¹ Ω , and a weak signal of measurement does not weaken, so the measurement precision is high. But in the circumstance that the probe is open circuit, it will display numbers, which is normal, as long as in short circuit the probe will return to zero or if the probe is inserted to the measured point, the reading will stabilize.

DC CURRENT

Range	Resolution	Accuracy	
600 μ A	0.1 μ A	$\pm(1.2\% \text{ reading} + 3)$	Overload protection: μ A/mA range: 600mA/1000V fuse (fast speed fuse) 10A range: 10A/1000V fuse (fast speed)
6000 μ A	1 μ A		

Range	Resolution	Accuracy	fuse) Maximum input current: - mA socket: 600mA - 10A socket: 10A
60mA	10 μ A	$\pm(1.2\% \text{ reading} + 3)$	
600mA	100 μ A		
6A	1mA	$\pm(2.0\% \text{ reading} + 10)$	
10A	10mA		

- When measuring large current, continuous measurement should not be longer than 15 seconds.
- After measurement, the instrument should be cooled down after twice of the measurement time and then enter the small current measurement.

AC CURRENT

Range	Resolution	Accuracy	Overload protection: μ A/mA range: 600mA/1000V fuse (fast speed fuse) 10A range: 10A/1000V fuse (fast speed fuse) Maximum input current: - mA socket: 600mA - 10A socket: 10A Frequency range: 10Hz ~ 1kHz Response: true RMS
600 μ A	0.1 μ A	$\pm(1.5\% \text{ reading} + 3)$	
6000 μ A	1 μ A		
60mA	10 μ A		
600mA	100 μ A		
6A	1mA	$\pm(3.0\% \text{ reading} + 10)$	
10A	10mA		

- When measuring large current, continuous measurement should be no longer than 15 seconds, after measurement the instrument should be cooled down after twice of the measurement time, then enter small current measurement.

RESISTANCE

Range	Resolution	Accuracy	Open circuit voltage: about 0.25V Overload protection: 1000V DC or 750V AC (RMS)
600 Ω	0.1 Ω	$\pm(1.2\% \text{ reading} + 5)$	
6k Ω	1 Ω		
60k Ω	10 Ω		
600k Ω	100 Ω		
6M Ω	1k Ω		
60M Ω	10k Ω	$\pm(2.0\% \text{ reading} + 5)$	

CAPACITANCE

Range	Resolution	Accuracy	Overload protection: 1000V DC or 750V AC (RMS) Note: Parameter does not include errors cause by the capacitor and capacitor substrate of the probe (in 100nF range may be to a few nF). The user can use the relative value measurement function to reduce the error.
10nF	0.001nF	$\pm(3.0\% \text{ reading} + 3)$	
100nF	0.01nF		
1000nF	0.1nF		
10 μ F	0.001 μ F		
100 μ F	0.01 μ F		
1000 μ F	0.1 μ F		
10mF	0.001mF		

FREQUENCY & DUTY RATIO

Range	Resolution	Accuracy	<ul style="list-style-type: none"> • Through shift of Hz: • Measurement range: 0 ~ 10MHz. • Input voltage range: 0.2~10V AC (the input voltage should be increased with the increase of the measured frequency) . • Overload protection: 1000V DC or 750V AC (RMS). • Through shift V: • Measurement range:0 ~ 100kHz. • Input voltage range: 0.5~750V AC (the input voltage should be increased with the increase of the measured frequency). • Maximum input voltage: 1000V DC or 750V AC (RMS).
10Hz	0.001nF	±(1.0% reading + 5)	
100Hz	0.01nF		
1000Hz	0.1nF		
10kHz	0.001μF		
100kHz	0.01μF		
1MHz	0.1μF		
10MHz	0.001mF	±3.0%	
1~99%	0.1%		

- Through shifts of μA, mA, A:
- Measurement range:0 ~ 100kHz.
- Input signal range: ≥ ¼ range (the input current should be increased with the increase of the measured frequency).
- Input protection: μA, mA range: F600mA/1000V ultra-speed fuse; 10A range: F10A/1000V ultra-speed fuse.
- Note: Compared with the range of measurement by using the “Hz” function of voltage and current shifts, using shift “Hz” to measure the frequency has a larger range and higher sensitivity.

TEMPERATURE

Range	Resolution	Accuracy		<ul style="list-style-type: none"> • Overload protection: 1000V DC or 750V AC (RMS)
°C	1°C	-20 to 0°C	± 5.0% reading or ± 3°C	
		0 to 400°C	± 1.0% reading or ± 2°C	
		400 to 1000°C	± 2.0% reading	
°F	1°F	-4 to 32°F	± 5.0% reading or ± 6°F	
		32 to 752°F	± 1.0% reading or ± 4°F	
		752 to 1832°F	± 2.0% reading	

DIODE TEST

Range	Resolution	Accuracy	<ul style="list-style-type: none"> • Forward DC current is about 1mA • Reverse DC voltage is about 1.5V • Overload protection: 1000V DC or 750AC (RMS).
	1mV	Displays the approx. forward voltage value of the diode.	

CONNECTIVITY TEST

Range	Function	
	Resistance of the measured circuit is less than 50Ω, the buzzer contained in the instrument will sound.	<ul style="list-style-type: none">• Open circuit voltage is about 0.5V• Overload protection: 1000V DC or 750V AC (RMS)

- The above accuracy specifications are specified in the same operating environment after keeping the instrument in a fixed state for at least one hour.
- If the instrument is exposed to an environment of high humidity during a period of storage, ensure that the instrument be kept in the same operating environment for at least two hours.
- Accuracy does not contain the tolerance of the thermocouple probe.

CLEANING & MAINTENANCE

- If there is dust on the terminal or the terminal is wet, it may cause measurement error.
- Switch off the power supply of the instrument and remove the test probes.
- Turn over the instrument and shake out the dust accumulated in the input socket.
- Wipe the outer cabinet with a damp cloth and a mild detergent.
- Do not use any chemicals, abrasives or solvents that may damage the instrument.
- Wipe the contacts in each input socket with a clean cotton swab soaked in alcohol.

REPLACING THE BATTERY AND FUSE

Battery

- Turn off the power supply of the instrument, and remove the probe on the instrument.
- Unscrew the two screws fixing the battery cover and remove the cover.
- Remove the old batteries and replace with new batteries of the same specification.
- Ensure that the batteries are inserted correctly, observing the plus and minus marks on both the batteries and compartment.
- Reinstall the battery and screws to their original position.

Fuse

- Turn off the power supply and remove the probes from the instrument.
- Unscrew the four screws holding the back cover from the four corners of the instrument and remove the cover.
- Remove the used fuse and replace it with a new fuse of the same specification.
- Ensure it is fitted securely into the safety clip.
- Reinstall the back cover and screws.



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.

