



User Manual

Smart Digital Multimeter **KM601**
True RMS 10000 Counts

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Specifications are subject to change without notice.

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Contents

Safety Information	1
Warnings	1
Symbols	3
Product Familiarization	4
Overview	4
Features	5
Display	7
Terminals	8
Making Measurements	9
Warnings	9
SMART (AUTO) Measurement Mode	9
MANUAL Measurement Mode	12

AC/DC voltage measurement	12
Resistance measurement	13
Continuity test	14
Diode test	15
Capacitance measurement	15
AC/DC mV voltage measurement	17
Frequency/Duty measurement	18
Temperature measurement	19
Non-contact AC voltage detection	20
Live wire detecting	21
Ampere (A) current measurement	22
mA current measurement	25
Maintenance	27
Cleaning	27

Install Batteries	27
Replace Fuses	29
Specifications	31
Accuracy Specifications	32
DC voltage	32
AC/DC current	33
Diode/ Continuity	34
Resistance	34
Frequency/Duty	35
3 years Warranty	36

Safety Information

A Warning identifies conditions and procedures that are dangerous to the user.

Warnings

- To prevent possible electrical shock, fire, or personal injury:
- Read all safety information before you use the Product.
- Do not alter the Product and use only as specified, or the protection supplied by the Product can be compromised.
- Carefully read all instructions.
- Comply with local and national safety codes. Use personal protective equipment (approved rubber gloves, face protection, and flame-resistant clothes) to prevent shock and arc blast injury where hazardous live conductors are exposed.
- Limit operation to the specified measurement category, voltage, or amperage ratings.
- Use Product-approved measurement category (CAT), voltage, and amperage-rated accessories (probes, test leads, and adapters) for all measurements.
- Do not touch voltages >30 V ac RMS, 42 V ac peak, or 60 V dc.

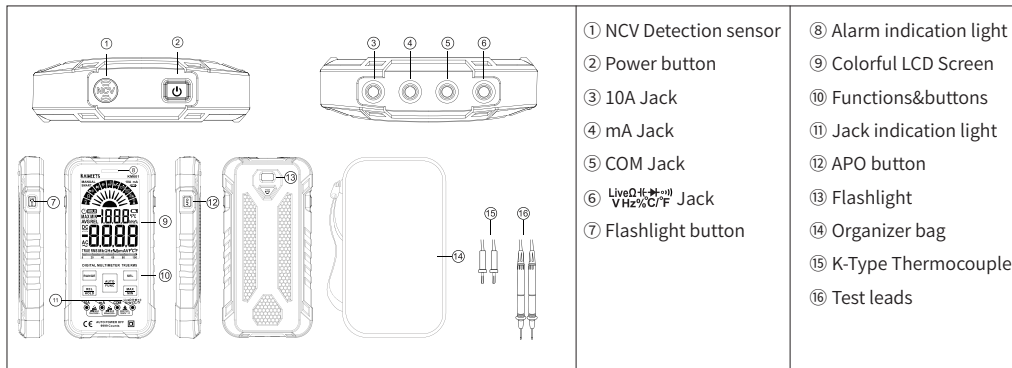
- Use the correct terminals, function, and range for measurements.
- Do not use the Product around explosive gas, vapor, or in damp or wet environments.
- Do not operate the Product with covers removed or the case open. Hazardous voltage exposure is possible.
- Examine the case before you use the Product. Look for cracks or missing plastic. Carefully look at the insulation around the terminals.
- Disconnect power and discharge all high-voltage capacitors before you measure resistance, continuity, capacitance, or a diode junction.
- Do not apply more than the rated voltage, between the terminals or between each terminal and earth ground.
- Remove circuit power before you connect the Product in the circuit when you measure current. Connect the Product in series with the circuit.
- Measure a known voltage first to make sure that the Product operates correctly.
- Do not use test leads if they are damaged. Examine the test leads for damaged insulation, exposed metal, or if the wear indicator shows. Check test lead continuity.
- Remove the input signals before you clean the Product.

Symbols

Symbols	Description	Symbols	Description
	WARNING. RISK OF DANGER.		WARNING. HAZARDOUS VOLTAGE. Risk of electric shock.
	Hazardous Voltage		Conforms to European Union directives.
	Measurement Category II is applicable to test and measuring circuits connected directly to utilization points (socket outlets and similar points) of the low-voltage MAINS installation.		
	Measurement Category III is applicable to test and measuring circuits connected to the distribution part of the building's low-voltage MAINS installation.		
	Measurement Category IV is applicable to test and measuring circuits connected at the source of the building's low-voltage MAINS installation.		
	This product complies with the WEEE Directive marking requirements. The affixed label indicates that you must not discard this electrical/electronic product in domestic household waste. Product Category: With reference to the equipment types in the WEEE Directive Annex I, this product is classed as category 9 'Monitoring and Control Instrumentation' product. Do not dispose of this product as unsorted municipal waste.		

Product Familiarization

Overview



Features

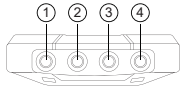
Button	Function	Button	Function
	Press and hold the '  ' button for about 2 seconds to turn on/off the meter.		Press '  ' button to turn on/off flashlight.
	Press the ' APO ' button to turn on/off Auto Power Off function. Without any operation in about 15 minutes, the meter will automatically turn off. 1 minute before turn off, there will be 5 beeps.		It will be on by default and '  ' symbol will be displayed.
	Power on is in SMART mode by default. Press the ' AUTO / FUNC ' button to manual mode. Then press again to switch measurement modes; Press and hold the ' AUTO / FUNC ' key for about 2 seconds to return to the SMART (auto) mode.		In SMART Mode, the ' AUTO ' signal will be displayed on the screen, and the top left corner will display ' SMART '. 

	Press 'SEL' button to select functions.	*Only valid for voltage test , current test and live test.
	Press 'RANGE' button to manual range mode. Then press to select range. Press and hold 'RANGE' button for about 2 seconds to return to autoranging.	*This function is invalid in SMART mode. *Only valid for voltage, resistance and mA test.
	Press the 'MAX/MIN' button to capture	*This function is invalid in capacitance, frequency/duty ratio, temperature, NCV/Live test.
	maximum/minimum values. Press and hold the 'MAX/MIN' key for about 2 seconds to return to normal measurement.	*In Maximum / minimum measurement, the meter will automatically enter the manual range mode.
	Press 'REL/HOLD' to turn on/ off data holding. Press 'REL/HOLD' for about 2 seconds to turn on/off Relative Value measurement.	*Data hold function is invalid in NCV / Live test. *Relative Value measurement is invalid in resistance, continuity, diode test, frequency/duty ratio, temperature, NCV / live. *In Relative value measurement, the meter will automatically enter the manual range mode.

Display

Symbol	Description	Symbol	Description	Symbol	Description
V	Voltage	A	Current		Low Battery
~	AC (Alternating Current)		DC (Direct Current)		Double insulated
	Diode Test		Earth	Ω	Resistance Test
	Capacitance Test	Live	Live Wire Detection	NCV	Non-contact Voltage Detection
	Fuse		Damaged Fuse	SMART	Smart Mode
Hz%	Frequency / Duty Ratio		Audible Continuity Test	MANUAL	Manual Mode

Terminals



Jack indication light

When switching to other functions the light above the corresponding jack will lash for users to insert the right test leads to the right jack.

①

Input terminal for measuring ac and dc current to 10 A.

②

Input terminal for measuring ac and dc current to 600 mA.

③

Common (return) terminal for all measurements.

④

Input terminal for measuring other functions, like voltage, continuity, resistance, capacitance, frequency and testing diodes.

Making Measurements

When connecting the test leads to the circuit or device, connect the common (COM) test lead before connecting the live lead; when removing the test leads, remove the live lead before removing the common test lead.

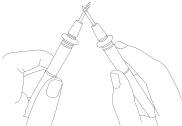
Warnings

- Do not measure the voltage higher than DC1000V or AC750V, otherwise, the meter may be damaged.
- Pay attention to safety when measuring high voltage to avoid electric shock or personal injury.
- Before use, test the known voltage or current with the meter to confirm that the meter is in good condition.

SMART (AUTO) Measurement Mode

The Meter defaults to SMART mode. In the SMART mode, the Meter can test DC voltage, AC voltage, resistance, continuity, it selects the range with the best resolution automatically.

Turn on & Ready to use

1	Long press for about 2 seconds the '  ' button to turn on the meter, ' Auto ' will be displayed on the screen, and the pointer will swing by itself, indicating the SMART mode.	
2		Insert the red probe into ' Live ' jack and the black probe into the ' COM ' jack.
3	Touch the red test lead and the black test lead to check whether they are normal. The buzzer will beep and the indicator light will be on if normal. Use the continuity function as a fast, convenient method to check for opens and shorts.	

Smart mode	Connect the test leads with both ends of the circuit or resistance(in parallel), the Meter automatically selects measurement based on the input.
 Volts AC	 Volts DC
 Resistance	 Continuity
NOTE:	• When measuring AC voltage, the frequency will be displayed, and when measuring other settings, the ambient temperature will be displayed on the screen. • When measuring resistance, if the resistance value is less than 50Ω, the meter will beep and the indicator will light up. • The minimum measurable voltage in SMART mode is AC: 0.5V DC: 0.8V

MANUAL Measurement Mode

The Meter defaults to SMART mode. In the SMART mode, press the ' $\frac{\text{AUTO}}{\text{FUNC}}$ ' button to switch to manual mode and select function from left to right.

AC/DC voltage measurement

1	Turn on & Ready to use (look at page 10)		
2	Press the ' $\frac{\text{AUTO}}{\text{FUNC}}$ ' button to ' ∇ ' setting, ' $\underline{\text{DC}}$ ' signal and ' V ' signal will be displayed on the screen, indicating DC voltage measurement.		 Volts DC
3	Press the ' SEL ' button, ' $\sim$ ' signal and ' V ' signal will be displayed on the screen, indicating AC voltage measurement.		 Volts AC
NOTE:	• When measuring AC voltage, the frequency will be displayed. • When measuring DC voltage, the ambient temperature will be displayed on the screen. • Do not use the AC voltage test function to test DC voltage and vice versa. • Do not measure voltage exceeding 1000V DC or 750V AC to avoid damage to the meter.		

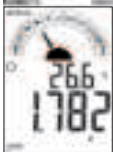
Resistance measurement

1	Turn on & Ready to use (look at page 10)	
2	Press ' $\frac{\text{AUTO}}{\text{FUNC}}$ ' button to select ' Ω ' gear. ' Ω ' signal will be displayed on the screen, indicating the resistance measurement.	
NOTE:	• Do not change the resistance while taking measurements. • Do not test parallel circuits. The accuracy of the measurement will be affected, and the results may not be accurate. • Do not directly measure the internal resistance of micrometers, galvanometers, batteries, and other instruments.	

Continuity test

1	Turn on & Ready to use (look at page 10)	
2	Press ' $\frac{\text{AUTO}}{\text{FUNC}}$ ' button to setting, indicating the continuity measurement.	
3	Use the continuity function as a fast, convenient method to check for opens and shorts. Connect the test leads to both ends of the circuit under test (in parallel). If the resistance of the circuit or resistor under test is less than 50Ω and the circuit is on position, the buzzer will beep and an indicator light will light up, and the screen will display the measured resistance value.	

Diode test

1	Turn on & Ready to use (look at page 10)							
2	Press ' $\frac{\text{AUTO}}{\text{FUNC}}$ ' button to ' $\rightarrow $ ' setting, indicating the diode testing.							
3	Connect red test lead with the positive polarity of the diode, black test lead with the negative polarity of the diode. If the test leads are connected reversely with the diode polarity, ' OL ' will be displayed on the screen.							
Forward Bias 			Reverse Bias 		Open 		Shorted 	
Good Diode					Bad Diode			

Capacitance measurement

1	Turn on & Ready to use (look at page 10)	
2	Press ' $\frac{AUTO}{FUNC}$ ' button to ' $\text{--}\text{ }\text{--}$ ' setting, ' nF ' signal will be displayed on the screen, indicating capacitance testing.	
NOTE:	• If the measured value is significantly different from the value marked on the capacitor, the capacitor is damaged. • Before measuring the capacitor, discharge the capacitor to avoid damage to the Meter. Do so by connecting the capacitor to a high-powered resistor. • Discharge the capacitor after measurement to avoid any potential safety hazards. • If the capacitance is large, it may take a long time for the reading to stabilize.	

AC/DC mV voltage measurement

1	Turn on & Ready to use (look at page 10)		
2	Press the ' $\frac{\text{AUTO}}{\text{FUNC}}$ ' button to ' $\overline{\text{mV}}$ ' setting, ' <u>DC</u> ' signal and ' V ' signal will be displayed on the screen, indicating DC mV voltage measurement.		 Volts DC mV
3	Press the ' SEL ' button, ' <u>AC</u> ' signal and ' V ' signal will be displayed on the screen, indicating AC voltage measurement.		 Volts AC mV
NOTE:	• When measuring AC voltage, the frequency will be displayed. • When measuring DC voltage, the ambient temperature will be displayed on the screen. • Do not use the AC voltage test function to test DC voltage and vice versa. • Do not measure voltage exceeding 1000V DC or 750V AC to avoid damage to the meter.		

Frequency/Duty measurement

1	Turn on & Ready to use (look at page 10)	
2	Press the ' $\frac{\text{AUTO}}{\text{FUNC}}$ ' button to ' Hz% ' setting, ' Hz ' signal and ' % ' signal will be displayed on the screen, indicating Frequency/Duty Ratio testing.	

Temperature measurement

1	Turn on & Ready to use (look at page 10)	
2	Insert the positive pole of the K-type thermocouple into the ' Live ' jack and the negative pole into the ' COM ' jack.	
3	Press the ' AUTO FUNC ' button to ' °C/°F ', ' °C ' signal and ' °F ' signal will be displayed on the screen, indicating temperature testing.	
4	Touch the end of the K-Type thermocouple to the object being measured. The reading may take few seconds to be stable.	
NOTE:	When the K-Type thermocouple does not in contact with the object under test, it will read the ambient temperature.	

Non-contact AC voltage detection

1	Turn on & Ready to use (look at page 10)	
2	Press the ' AUTO FUNC ' button to ' NCV Live ' setting, ' NCV ' signal will be displayed on the screen, indicating the NCV testing.	
3	Place the NCV probe closer to the point to be tested gradually. When the indicator glows and the unit beeps, you know there's voltage present.	
	When the Meter detects a weak signal, the green indicator will light up, the buzzer will beep in a slow tone, and '--L' will be displayed on the screen. 	When the meter detects a strong signal, the red indicator will light up, the buzzer will beep in a fast tone, and '--H' will be displayed on the screen. 



Live wire detecting

1	Turn on & Ready to use (look at page 10)	
2	Press the ' AUTO FUNC ' button to ' NCV Live ' setting, ' NCV ' signal will be displayed oon the screen.	
3	Press the ' SEL ' button to display the 'LIVE' symbol.	
4	Insert the red probe into ' Live Q (+) ' jack and remove the black probe.	

5	Touch the object under test with the red test lead point. When the indicator light lights up that means the measured position for the fire line, please be careful!	
	When the Meter detects a weak signal, the green indicator will light up, the buzzer will beep in a slow tone, and '--L' will be displayed on the screen. This means the test leads may not be fully connected to the socket, please test again after full connection.	When the meter detects a strong signal, the red indicator will light up, the buzzer will beep in a fast tone, and '--H' will be displayed on the screen.



Ampere (A) current measurement

1	Turn on & Ready to use (look at page 10)	
2	Insert the red probe into the ' 10A ' jack and the black probe into the COM jack. The Meter will automatically adjust to the ' $\tilde{A}$ ' gear.	
3	'DC' signal and 'A' signal will be displayed on the screen, indicating DC current measurement.	
4	Press the ' SEL ' button, 'A' signal and 'AC' signal will be displayed on the screen, indicating of AC current measurement.	

NOTE:

- When measuring AC current, the frequency will be displayed, and when measuring DC current, the ambient temperature will be displayed on the screen.
- 'LEAD' signal will be displayed on the screen and the indicator light will turn red when the test leads are connected incorrectly, please insert the red test lead into '10A' Jack.
- The meter will turn on the current testing function when you insert the red test lead into '10A' Jack and the black test lead into 'COM' Jack in any mode. For safety, users cannot press the " button to switch the functions.
- The meter will beep regularly to remind users to use the current testing function correctly.
- Do not measure current > 10 A in this gear, in case of the 10A fuse burnt.



mA current measurement

1	Turn on & Ready to use (look at page 10)	
2	Insert the red probe into ' MA ' jack and the black probe into the ' COM ' jack.The Meter will automatically adjust to the ' $\tilde{\text{mA}}$ ' gear.	
3	'DC' signal and 'mA' signal will be displayed on the screen, indicating DC current measurement.	
4	Press the ' SEL ' button, 'mA' signal and 'AC' signal will be displayed on the screen, indicating of AC current measurement.	

NOTE:

- When measuring AC current, the frequency will be displayed, and when measuring DC current, the ambient temperature will be displayed on the screen.
- ' **LEAD** ' signal will be displayed on the screen and the indicator light will turn red when the test leads are connected incorrectly, please insert the red test lead into 'mA' Jack.
- The meter will turn on the current testing function when you insert the red test lead into ' **mA** ' Jack and the black test lead into ' **COM** ' Jack in any mode. For safety, users cannot press the ' $\frac{\text{AUTO}}{\text{FUNC}}$ ' button to switch the functions.
- The meter will beep regularly to remind users to use the current testing function correctly.
- Do not measure current > 600mA in this gear, in case of the mA fuse burnt.



Maintenance

Cleaning

Turn off the power to the Meter and remove the test leads.

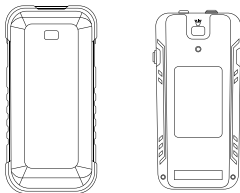
Wipe the case with a damp cloth and mild detergent. Dirt or moisture in the terminals can affect readings.

Install Batteries

Remove test leads from the Meter before opening the case or battery door.

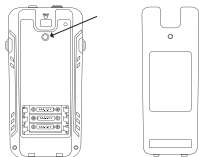
1

Remove the rubber case on the outside of the multimeter.



2

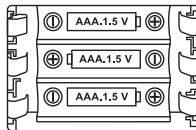
Remove the screw under the flashlight and remove the battery door .



3

Install 3 x 1.5V AAA batteries.

*Please pay attention to the battery polarity.



4

Then inserted into the battery door. Install and tighten the battery door screw.

5

Put on the insulating rubber case.

6

Cleaning

'  ' signal will be displayed on the screen when the fuses are blown, current testing function is not working, then please change the fuses.

To avoid shock, injury, or damage to the Meter:

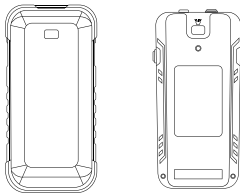
Use ONLY a fuse with the amperage, interrupt voltage, and speed ratings specified.

- mA: F600mA/250V fuse; Size: $\phi 6 \times 32\text{mm}$
- A: F10A/250V fuse; Size: $\phi 6 \times 32\text{mm}$

Remove test leads from the Meter before opening the case or battery door.

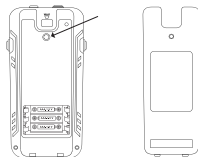
1

Remove the rubber case on the outside of the multimeter.



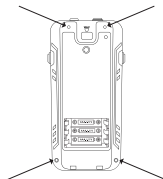
2

Remove the screw under the flashlight and remove the battery door .



3

Remove the screws on 4 corners with a screwdriver, and remove the cover.



4

Remove the blown fuses and replace them with new fuses of the same specification, make sure that the fuses are loaded into the fuse clip and clamped tightly.

5

To re-assemble the Meter, first attach the case bottom to the case top, then install the screws. Put the battery and battery cover back and lock the cover with screws. Finally, insert the Meter into its holster.

6

Specifications

Display Counts	9999 counts	Power	3×1.5V AAA batteries
Sampling Speed	3 Times / Second	Weight	Approximately 265g
LCD Dimensions	54 x 73mm	Dimensions	165x83 x25 mm
Range Selection	Auto range	Environmental conditions	CAT. IV 600V ; CAT. III 1000V
Range Selection	Automatically Displayed	MAX. Voltage between terminals and earth ground	DC1000V / AC750V
Range Selection	'OL' Displayed	Fuse protection	mA : F600mA / 250V fuse 10A: F10A / 250V fuse
Low Battery Indication		Work Environment	32~104 °F; 0~40 °C, at < 80%RH
Damaged Fuse Indication		Storage Temperature	14~122 °F; -10~60 °C, at <70%RH
Jack Indication	flash 5 times		

Accuracy Specifications

Accuracy is specified for 1 year after calibration, at operating temperatures of 18 °C to 28 °C, with relative humidity at 0 % to 80 %.

Accuracy $\pm$ ([% of Reading] + [Counts])

DC voltage

Range	Resolution	Accuracy
99.99mV	0.01mV	$\pm(0.5\% + 3)$ Input Impedance: Approx. 10M Ω
999.9mV	0.1mV	
9.999V	0.001V	
99.99V	0.01V	
999.9V	0.1V	

AC voltage

Range	Resolution	Accuracy
99.99mV	0.01mV	$\pm(0.8\% + 3)$ Input Impedance: Approx. 10M Ω Frequency Response: 40Hz~1kHz; TRMS
999.9mV	0.1mV	
9.999V	0.001V	
99.99V	0.01V	
750V	0.1V	

AC/DC current

Range	Resolution	Accuracy
9.999mA	0.001mA	$\pm(0.8\%+3)$
99.99mA	0.01mA	
600.0mA	0.1mA	
9.999A	0.001A	$\pm(1.2\%+3)$
Overload protection: mA : F600mA/250V fuse 10A: F10A / 250V fuse Frequency Response: 40Hz~1kHz; T-RMS NOTE: The time to measure ampere current must be less than 15 seconds		

Capacitance

Range	Resolution	Accuracy
9.999nF	0.001nF	$\pm(4.0\%+3)$
99.99nF	0.01nF	
999.9nF	0.1nF	
9.999 μ F	0.001 μ F	
99.99 μ F	0.01 μ F	
999.9 μ F	0.1 μ F	$\pm(5.0\%+5)$
9.999mF	0.001mF	
99.99mF	0.01mF	
Overload protection: 250V		

Diode/ Continuity

	Display diode voltage drop
	<Approx. 50: Buzzer will sound and the indicator light will be on.

Resistance

Range	Resolution	Accuracy
999.9Ω	0.1Ω	±(1.0%+5)
9.999KΩ	0.001 KΩ	
99.99 KΩ	0.01 KΩ	
999.9 KΩ	0.1 KΩ	
9.999MΩ	0.001 MΩ	
99.99 MΩ	0.01 MΩ	±(2.0%+10)
Overload protection: 250V		

Frequency/Duty

Range	Resolution	Accuracy
9.999Hz	0.001Hz	$\pm(1.0\%+3)$
99.99Hz	0.01Hz	
999.9Hz	0.1Hz	
9.999KHz	0.001KHz	
99.99kHz	0.01kHz	
999.9kHz	0.1kHz	
9.999MHz	0.001MHz	$\pm(1.0\%+3)$
1.0~99.0%	0.1%	

Temperature

Range	Accuracy	
°C	-40°C ~ 0°C	$\pm 5.0\%$ or $\pm 3^\circ\text{C}$
	0°C ~ 400°C	$\pm 1.0\%$ or $\pm 2^\circ\text{C}$
	400°C ~ 1000°C	$\pm 2.0\%$
°F	-40 °F ~ 32 °F	$\pm 5.0\%$ or $\pm 6^\circ\text{F}$
	32 °F ~ 752°F	$\pm 1.0\%$ or $\pm 4^\circ\text{F}$
	752 °F ~ 1832 °F	$\pm 2.0\%$
Resolution: 1°C / 1 °F Note: Please use K-type thermocouple probe		

3 years Warranty

KAIWEETS will repair, without charge, any defects due to faulty materials or workmanship for three years from the date of purchase provided that:

- Proof of purchase is produced.
- Service/repairs have not been attempted by unauthorized persons;
- The product has been subject to fair wear and tear;
- The product has not been misused;

Defective products will be repaired or replaced, free of charge, or at our discretion, if sent together with proof of purchase to our authorized distributor(s). For further detail of warranty coverage and warranty repair information, send an email to support@kaiweets.com.