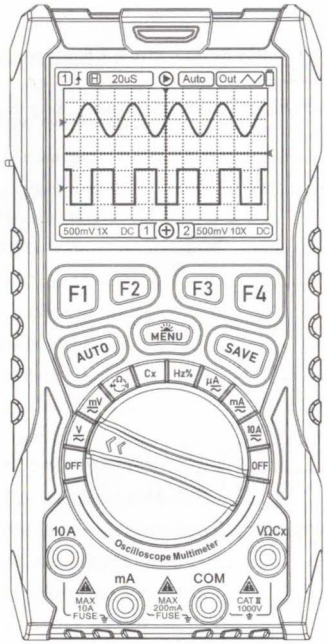


2-Channel Handhel

OSCILLOSCOPE MULTIMETER

User's Manual

)ear User,

'hank you for choosing our Digital Storage Oscilloscope Multimeter. We believe its innovative combination of functions nd user-friendly design will greatly enhance your efficiency in field testing.

lefore use, please read this manual carefully, especially the "Safety Instructions" section. After reading, keep this manual ı a safe place for future reference when needed.

Table of Contents

Safety Instructions

This Digital Storage Oscilloscope Multimeter is designed in compliance with IEC1010-1 safety standards. It supports overvoltage measurement category CAT II – 1000V, with a pollution protection rating of Level 1.

- Inspect the device before use. Do not operate the instrument if the casing is damaged. Check for cracks or missing plastic components. Pay special attention to the insulation of the test leads and probes. When using test probes, do not touch the metal part of the probe tip with your fingers—always stay behind the protective finger guard.
- Do not operate the device in high-temperature, humid, rainy, flammable, or explosive environments, or when the instrument is wet.
- Never apply voltage or current that exceeds the instrument's maximum rated limits.

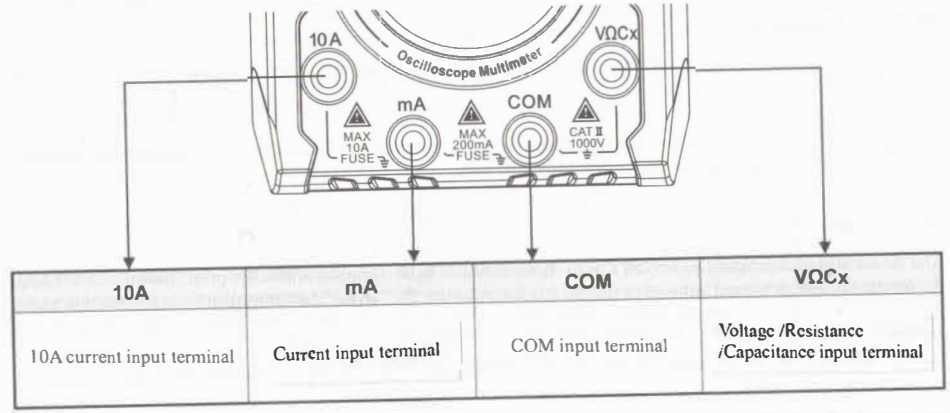
Measurement Function	Input Terminal Used	Maximum Limit
mV (AC/DC)	V/Ω/Cap,COM	250V DC + AC peak, within 10 seconds
V DC	V/Ω/Cap,COM	1000V DC + AC peak, within 10 seconds
V AC	V/Ω/Cap,COM	750V DC + AC RMS, within 10 seconds
Hz%	V/Ω/Cap,COM	250V DC/AC RMS, within 10 seconds
uA,mA (AC/DC)	uA/mA,COM	200mA DC/AC RMS, protected by 250V/200mA resettable fuse
A (AC/DC)	10A,COM	10A DC/AC RMS, max 30 seconds operation, followed by a 15-minute cooling interval; protected by 125V/10A fuse
Ω ⊳| ·)) ⊣⊢	V/Ω/Cap,COM	250V DC/AC RMS, within 10 seconds

4. Before changing measurement modes, plugging/unplugging test leads, or powering the device on/off, always disconnect the test probes from the test points.
5. Observe the safety buzzer and visual warnings: When the measured voltage exceeds the "safe voltage" (24V DC/AC), the device will display a warning symbol " ϟ ", emit three beeps, and flash a red light to alert the user to potential danger.
6. Do not perform voltage measurements when the voltage between the "COM" terminal and ground exceeds 500V.
7. Do not measure current on circuits with voltages exceeding 250V.
8. When the measurement function is set to current, resistance, continuity, diode, or capacitance modes, never connect the test leads across a voltage source.
9. Before performing resistance, diode, or continuity tests, ensure the power to the tested equipment is turned off and that any capacitors in the circuit are fully discharged.
10. Before opening the instrument's back cover to replace fuses or batteries, turn off the device and disconnect the test leads from the circuit. Only fuses of the same type and rating must be used as replacements.
11. Do not modify, disassemble, or use the product or its accessories for purposes other than those intended. Do not substitute any accessories or attachments unless they are specifically designed for this product.
12. Do not allow minors to use this device or treat it as a toy.

Button Functions

Button	Name	Function
	F1 ~ F4	The actual function of each button may vary depending on the selected range and operating mode. The LCD-displayed menu serves as a guide for operation.
	AUTO	One-Touch Auto Capture Manual/Auto Range Switching
	SAVE	Data Hold and Storage
	MENU	Open Main Function Menu (short press), Flashlight (long press)
	OFF	Power Off
	V≂	DC/AC Voltage Range (switchable to Frequency Measurement)
	mV≂	DC/AC Millivolt Range (switchable to Frequency Measurement)
	Ω	Resistance/Diode/Continuity Test
	Cx	Capacitance Range
	Hz%	Frequency/Duty Cycle Range
	μA≂	DC/AC μA Range (switchable to Frequency Measurement)
	mA≂	DC/AC mA Range (switchable to Frequency Measurement)
	10A≂	DC/AC 10A Range (switchable to Frequency Measurement)

Port Introduction



10A	mA	COM	VΩCx
10A current input terminal	Current input terminal	COM input terminal	Voltage /Resistance /Capacitance input terminal

Basic Operation

Power On and Off

Turning the rotary switch to any measurement position will power on the instrument. Rotating the switch to the OFF position will turn off the power.

Note!	Always disconnect the test probes from the test points before turning off the instrument.Be sure to power off the device promptly after use.

Auto Power-Off

The device will automatically power off if there is no button or knob operation within the preset auto power-off time. To change the auto power-off duration or disable this feature, press the " MENU " button to open the main function menu, then press the F1 key to enter the system settings menu. In the "Sleep" section, you can select an auto power-off time from 5 to 60 minutes, or choose "Never" to disable the function.

To protect the internal battery from over-discharge, the device will also power off automatically when the battery is nearly depleted.

Backlight Brightness

The backlight improves screen visibility in low-light environments; however, excessive use may shorten battery life. To adjust the backlight brightness, press the " MENU " button to open the main function menu, then press the F1 key to enter the system settings menu. In the "Brightness" section, you can select from 8 levels, ranging from level 1 to level

Sound Prompt

The device supports a mute mode. To enable mute, press the " MENU " button to open the main function menu, then press the F1 key to enter the system settings menu. In the "Beep" section, select "Off" to disable sound prompt.

Note!	In mute mode, the continuity function and overrange alerts for voltage and current will still trigger beeping sounds as normal.

Battery Charging

The battery status is displayed in the upper-right corner of the screen, allowing users to estimate remaining usage time and determine when to charge. When the battery icon turns red, it indicates low power and charging is needed. If turning the rotary switch produces no response, the battery is depleted and must be recharged.

To charge the device, connect it to a 5V power source or adapter using a USB cable. During charging, the indicator light above the screen will show magenta to indicate charging in progress, and blue when charging is complete.

Warning!	The multimeter section uses an isolated power supply, allowing it to be used while charging. However, do not measure voltages above 250V during charging.
Warning!	When measuring voltage with the multimeter, do not touch the metal parts inside the current input terminal.
Warning!	The oscilloscope section is directly powered; when measuring voltages above 24V, do not touch the probe tip, USB port, signal output, or any metal parts.
Note!	When a 5V power source is connected, auto power-off will be delayed until the power source is disconnected. It is recommended to charge the device while the rotary switch is set to the OFF position.

Flashlight Illumination

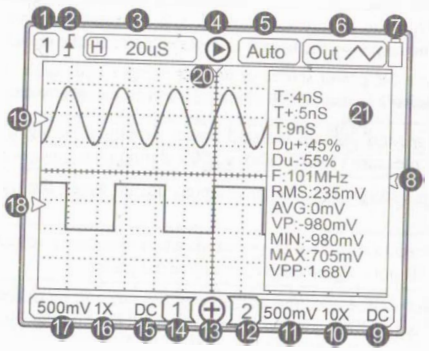
In low-light environments, you can turn on the flashlight function by pressing and holding the " MENU " button.

Oscilloscope Operation

Entering Oscilloscope Mode

While in Multimeter mode (DMM) or Signal Generator mode (AWG), press the "MENU" button to open the main function menu, then press the F3 key to switch to Oscilloscope mode (OSC).

Oscilloscope Meter Mode Interface Description



① Trigger channel
② Trigger edge
③ Horizontal time base
④ Run/Pause indicator icon
⑤ Trigger mode, Auto trigger/Normal trigger/Single trigger
⑥ Signal source output prompt
⑦ Remaining battery level
⑧ Trigger voltage indication
⑨ Input coupling mode for channel CH2 (AC/DC)
⑩ 1X/10X mode indication for channel CH2, should match the setting on the probe handle, 1X measures voltage from 0 to 80Vpp; 10X measures voltage from 0 to 800Vpp.
⑪ Vertical sensitivity of channel CH2
⑫ Channel CH2
⑬ Directional keypad mode (⊕ : waveform zoom mode, ✣ : waveform move mode)
⑭ Channel CH1
⑮ Input coupling mode for channel CH1 (AC/DC)
⑯ 1X/10X mode indication for channel CH1, should match the setting on the probe handle, 1X measures voltage from 0 to 80Vpp; 10X measures voltage from 0 to 800Vpp.
⑰ Vertical sensitivity of channel CH1
⑱ Baseline indication for channel CH2
⑲ Baseline indication for channel CH1
⑳ Waveform horizontal position
㉑ Measurement Function Parameters

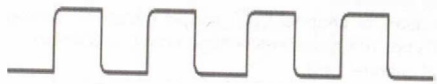
Probe Compensation

Before using the probe with the oscilloscope, perform compensation adjustment to match the probe with the input channel. An uncompensated or incorrectly compensated probe may cause measurement errors.
Follow the steps below to adjust the probe compensation (using Channel 1 as an example):

1. Press F1–F4 to open the main menu. Then press and hold the F2 key (CH1) for 2 seconds to open the Channel 1 basic settings submenu. Press F3 to set the probe attenuation to CH1: 10X.
2. Set the probe's switch to 10X and connect the MCX end of the probe to CH1 on the oscilloscope.
3. Set the signal generator to output a 1kHz / 3Vpp square wave signal.
4. 4Connect the probe tip to the signal generator's "Out" terminal, then press the AUTO key.
5. Observe the waveform on the screen. If necessary, use a non-metallic screwdriver to adjust the probe's variable capacitor until the waveform appears as shown in the figure labeled "Proper Compensation."

* Properly Compensated

* Undercompensated



* Overcompensated

Function Keys and Main Menu

The function keys F1 to F4 are located below the LCD screen. These keys work in conjunction with on-screen menu prompts to perform various operations. Some functions will open submenus for further configuration.
Pressing any of the F1 to F4 keys will bring up a floating menu window, allowing you to configure oscilloscope channels. For detailed usage of these menus and submenus, please refer to the relevant sections later in this manual.

The main menu provides basic operation controls for the oscilloscope. The key functions include:

Time Base Adjustment	Channel 1 Settings	Channel 2 Settings	Trigger Settings
TIME	CH1	CH2	TRIG
F1	F2	F3	F4

1. Press the F1 key (TIME) to enter the Time Base submenu, where you can adjust the time/div (scan time base) and trigger position.
2. Press the F2 key (CH1) to enter the Channel 1 Amplitude submenu, allowing you to adjust the vertical scale and waveform position.
   Press and hold F2 to access the Channel 1 Coupling, Probe Attenuation, and Invert settings submenu.
3. Press the F3 key (CH2) to enter the Channel 2 Amplitude submenu, allowing you to adjust the vertical scale and waveform position.
   Press and hold F3 to access the Channel 2 Coupling, Probe Attenuation, Invert, and Enable/Disable settings submenu.
4. Press the F4 key (TRIG) to enter the Trigger Control submenu, where you can configure trigger edge, trigger mode, and trigger level.

Basic Channel Settings

Each oscilloscope channel (CH1 and CH2) has configurable basic settings, including coupling mode, probe attenuation, and invert. Channel 1 and Channel 2 can be configured independently.

To access Channel 1's basic settings submenu, press and hold the F2 key (CH1) for 2 seconds while in the main oscilloscope menu. The submenu includes the following options:

Back	Coupling Mode	Probe Attenuation	Channel Status
EXIT	CH1: DC	CH1: 1X	ON
F1	F2	F3	F4

1. Press the F1 key (EXIT) to exit the Channel 1 basic settings submenu and return to the main menu.
2. Press the F2 key to toggle Channel 1 coupling mode between DC and AC.
3. Press the F3 key to switch Channel 1 probe attenuation between 1X and 10X.
4. Press the F4 key to enable or disable Channel 1 waveform inversion (INVERT).

While in the main oscilloscope menu, press and hold the F3 key (CH2) for 2 seconds to enter the Channel 2 basic settings submenu. The available options are:

Back	Coupling Mode	Probe Attenuation	Channel Status
EXIT	CH2: DC	CH2: 1X	ON
F1	F2	F3	F4

1. Press the F1 key (EXIT) to exit the Channel 2 basic settings submenu and return to the main menu.
2. Press the F2 key to toggle Channel 2 coupling mode between DC and AC.

3. Press the F3 key to switch Channel 2 probe attenuation between 1X and 10X.
4. Press the F4 key to set Channel 2 status to ON, INVERT, or OFF.

Time Base Adjustment

While in the main oscilloscope menu, press the F1 key (TIME) to enter the Time Base Adjustment submenu. The available options are:

Back	Time Base Setting		Time Base Mode
EXIT	◀	▶	TIME
F1	F2	F3	F4

1. Press the F1 key (EXIT) to exit the Time Base Adjustment submenu and return to the main menu.
2. Press the F2 key (◀) or F3 key (▶) to adjust the time base (time/div).
3. Press the F4 key (TIME) to switch to the trigger position (horizontal position) adjustment menu.

Note!	When measuring a signal with an unknown frequency, start by using the fastest time base (refer to the relevant section of this manual), and then gradually switch to slower time bases until the waveform is properly displayed. Otherwise, the waveform may not accurately represent the actual signal due to aliasing effects. To avoid aliasing, you can either adjust the time base manually or press the AUTO key.

Horizontal Position Adjustment

While in the Time Base submenu, press the F4 key (TIME) to switch to the Trigger Position Adjustment menu. Since changing the trigger position shifts the waveform horizontally, this adjustment is also referred to as horizontal position adjustment.

Back	Horizontal Position Adjustment		Horizontal Position Adjustment
EXIT	◄	►	TPOS
F1	F2	F3	F4

Press the F1 key (EXIT) to exit the Horizontal Position Adjustment submenu and return to the main menu.

Press the F2 key (◄) or F3 key (►) to adjust the trigger point position, which shifts the waveform horizontally on the screen. The current trigger point is indicated on the display.

Press the F4 key (TPOS) to switch back to the Time Base Adjustment menu.

mplitude Adjustment

hile in the main oscilloscope menu, press the F2 key (CH1) to enter the Channel 1 Amplitude Adjustment submenu. e available options are:

Back	Amplitude Adjustment		Amplitude Mode
EXIT	▲	▼	VOLT：1
F1	F2	F3	F4

Press the F1 key (EXIT) to exit the Amplitude Adjustment submenu and return to the main menu.

Press the F2 key (▲) or F3 key (▼) to adjust the vertical amplitude (V/div).

Press the F4 key (VOLT: 1) to switch to the Vertical Position Adjustment menu.

ile in the main oscilloscope menu, press the F3 key (CH2) to enter the Channel 2 Amplitude Adjustment submenu. e available options are:

Back	Amplitude Adjustment		Amplitude Mode
EXIT	▲	▼	VOLT：2
F1	F2	F3	F4

1. Press the F1 key (EXIT) to exit the Amplitude Adjustment submenu and return to the main menu.
2. Press the F2 key (▲) or F3 key (▼) to adjust the vertical amplitude (V/div).
3. Press the F4 key (VOLT: 2) to switch to the Vertical Position Adjustment menu.

Vertical Position Adjustment

While in the Channel 1 Amplitude Adjustment submenu, press the F4 key (VOLT: 1) to switch to the Trigger Position Adjustment menu. Since changing the trigger position also shifts the waveform vertically, this adjustment is referred to as vertical position adjustment in this context.

Back	Vertical Position Adjustment		Movement Mode
EXIT	▲	▼	VPOS：1
F1	F2	F3	F4

1. Press the F1 key (EXIT) to exit the Vertical Position Adjustment submenu and return to the main menu.
2. Press the F2 key (▲) or F3 key (▼) to adjust the trigger point position, which changes the vertical position of the waveform on the screen. The current trigger point is indicated on the display.
3. Press the F4 key (VPOS: 1) to switch back to the Amplitude Adjustment menu.

While in the Channel 2 Amplitude Adjustment submenu, press the F4 key (VOLT: 2) to switch to the Trigger Position Adjustment menu.

Back	Vertical Position Adjustment		Movement Mode
EXIT	▲	▼	VPOS: 2
F1	F2	F3	F4

1. Press the F1 key (EXIT) to exit the Vertical Position Adjustment submenu and return to the main menu.
2. Press the F2 key (▲) or F3 key (▼) to adjust the trigger point position, which changes the vertical position of the waveform on the screen. The current trigger point is indicated on the display.
3. Press the F4 key (VPOS: 2) to switch back to the Amplitude Adjustment menu.

Trigger Control

While in the main oscilloscope menu, press the F4 key (TRIG) to enter the Trigger Control submenu.

Back	Trigger Edge	Trigger Mode	Trigger Level
EXIT	⎍ ⎏	MODE	LEVEL
F1	F2	F3	F4

1. Press the F1 key (EXIT) to exit the Trigger Control submenu and return to the main menu.
2. Press the F2 key (⎍ or ⎏) to select either rising edge or falling edge trigger.Press and hold F2 for 2 seconds to switch the trigger source between CH1 and CH2.
3. Press the F3 key (MODE) to select the trigger mode.
4. Press the F4 key (LEVEL) to enter the Trigger Level Adjustment submenu.

Trigger Level Adjustment

While in the Trigger Settings submenu, press the F4 key (LEVEL) to enter the Trigger Level Adjustment submenu.

Back	Trigger Level Adjustment		Reset Trigger Level
EXIT	▲	▼	RESET
F1	F2	F3	F4

1. Press the F1 key (EXIT) to exit the Trigger Level Adjustment submenu and return to the main menu.
2. Press the F2 key (▲) or F3 key (▼) to increase or decrease the trigger level. The current trigger level position is indicated on the display.
3. Press the F4 key (RESET) to automatically set the trigger level to 50% of the waveform's vertical position.

About Trigger Modes

Auto: In Auto mode, the oscilloscope continues to acquire waveforms even if no valid trigger condition is detected. If no trigger event occurs within a certain period, the oscilloscope will automatically trigger and begin data acquisition. Because the waveform is not properly synchronized, it may appear to scroll across the screen. Once a valid trigger signal is detected, the waveform display will stabilize. This mode is useful for observing low-frequency, irregular signals or monitoring signal amplitude, such as DC power waveforms.

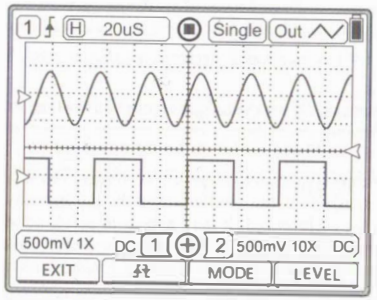
Normal: In Normal mode, waveform acquisition occurs only when a valid trigger event is detected. If no trigger is detected, the oscilloscope will not acquire new waveforms and the display will remain unchanged.

Single: In Single mode, the oscilloscope captures waveform data once a trigger condition is met. After acquisition, the waveform is automatically held on the screen.

Single Trigger Operation

To perform single-trigger waveform acquisition, follow these steps:

- Adjust the vertical scale (V/div) and horizontal time base (t/div) to match the expected signal.
- Select the appropriate trigger level, trigger edge, and set the trigger mode to Single.
- Once the trigger condition is met, the oscilloscope will capture and display the waveform.



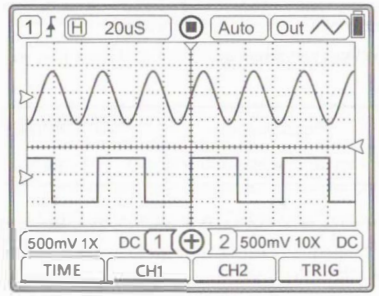
Note!	Once Single Trigger Mode is selected, all waveform adjustments will be disabled. To modify settings such as time base, vertical scale, or waveform position, press the F4 key (TRIG) to access the Trigger Control menu and switch the trigger mode to Auto or Normal.

Waveform Hold Function

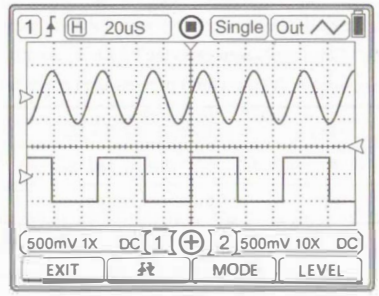
While data acquisition is active, signal waveforms continuously refresh on the screen. Stopping data acquisition will hold the current display. The waveform hold function is primarily used to freeze the current waveform for closer observation.

There are two ways to hold a waveform: ①Press the SAVE key; ②Use the Single Trigger mode.

Pressing the SAVE key toggles waveform data acquisition on and off. Once the SAVE key is pressed, the oscilloscope immediately holds the last captured waveform on the screen. When waveform acquisition stops, the current display is frozen.



Press the SAVE



Use the Single Trigger

aveform Storage and Recall

e oscilloscope's internal OSC memory can store up to 200 waveform records.
save a waveform, press and hold the SAVE key for 2 seconds.

view saved waveforms, follow these steps:

Main Menu	Multimeter	Oscilloscope	Signal Generator
MENU	DMM	`OSC	AWG
F1	F2	F3	F4

Press the MENU key to open the main function menu, then press F1 to enter the Main Menu.

Select "Waveform", then press the F4 key to enter the waveform preview area.

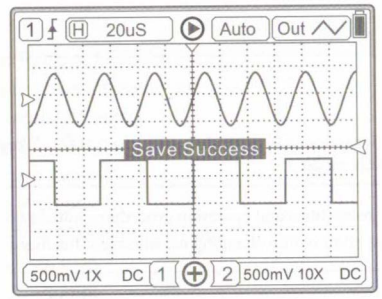
: menu options in the waveform preview area are as follows:

Next	Page Up	Page Down	Confirm
▼	◀	▶	OK
F1	F2	F3	F4

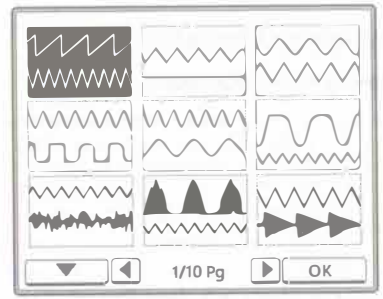
Press the F1 key (▼) to select the next waveform in the list.

Press the F2 key (◀) and F3 key (▶) to scroll up and down through the pages.

Press the F4 key (OK) to enter full-screen view of the selected waveform, where the waveform and its associated parameters are displayed.



press and hold the SAVE ey for 2 secondskey



Waveform

Waveform Deletion

The oscilloscope's OSC memory allows you to delete a single waveform or all waveforms. Deletion can be performed either in the waveform preview area or during full-screen viewing.

1.Press the AUTO key to bring up a "Delete One" prompt. Press F4 to confirm deletion. To cancel, press AUTO again.

2.Press the SAVE key to bring up a "Delete All" prompt. Press F4 to confirm deletion. To cancel, press AUTO again.

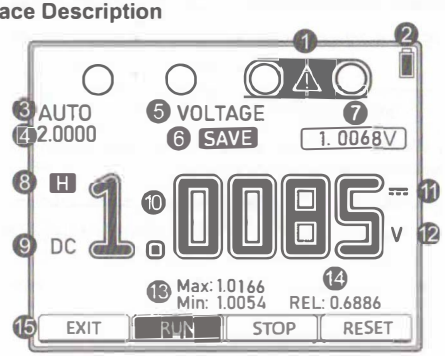
ıltimeter Operation

ering Multimeter Mode

device starts by default in Multimeter (DMM) mode.
witch to DMM mode from Oscilloscope (OSC) or Signal Generator (AWG) modes, press the " MENU " key to open nain function menu, then press the F2 key to enter Multimeter mode.

Warning!	Please read, understand, and follow all safety instructions and operating procedures outlined below. Always disconnect the test probes from the test point before changing measurement functions.

ıltimeter Mode Interface Description

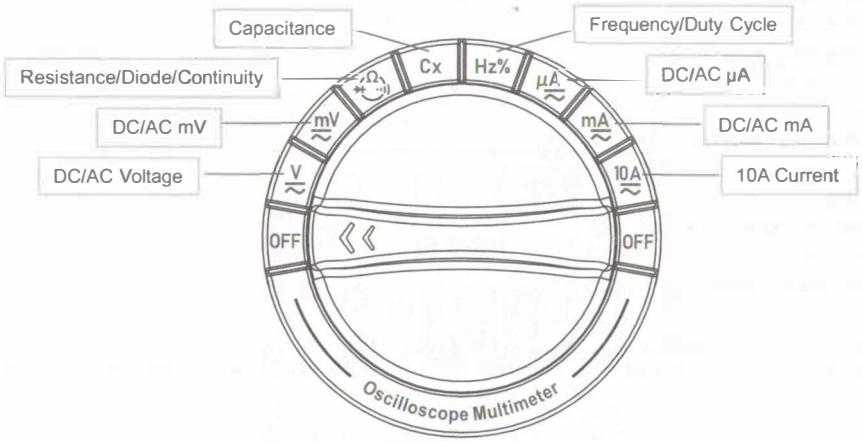


① Input Terminal Interface Prompt
② Battery Level Indicator Icon
③ Auto/Manual Prompt
④ Range
⑤ Function Type
⑥ Save Prompt
⑦ Real-time Measurement Data
⑧ Data Hold Icon
⑨ AC/DC Prompt
⑩ Real-time Data / Held Data
⑪ AC/DC Symbol
⑫ Data Unit
⑬ Maximum and Minimum Values
⑭ Relative Value
⑮ Function Menu Prompt

The illustration below shows the basic display layout in DMM mode.
Note: Not all icons and symbols used by the instrument are shown in this example, and symbols may not appear simultaneously

Measurement Function Selection

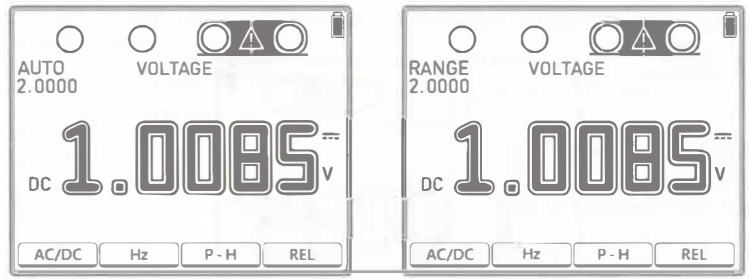
Use the rotary switch to select the desired measurement function. Available measurement types include: DC/AC Voltage, DC/AC mV, Resistance/Diode/Continuity, Capacitance, Frequency/Duty Cycle, DC/AC µA, DC/AC mA, and AC 10A Current.



Manual/Auto Range Selection

Upon startup or after switching measurement functions, the device defaults to Auto Range mode. This is the most convenient setting for general use.
To switch to Manual Range, follow these steps:

1. Press the AUTO key. The "AUTO" indicator will change to "RANGE," and the device enters manual range mode.
2. Each time you press the AUTO key, the meter switches to the next available range.
3. Press and hold the AUTO key for 2 seconds to return to Auto Range mode.



▶ Press and hold the AUTO key for 2 seconds

▶ Press the AUTO key

elative Measurement Mode

ıe Relative mode displays the difference between the current measurement and a stored reference value.
ost functions of this instrument support Relative mode.

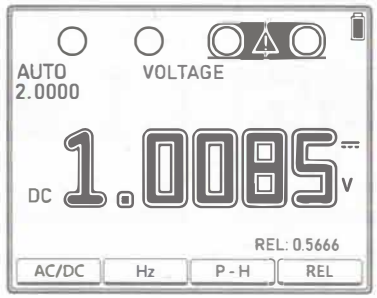
Press the F1 key (REL) to store the currently displayed value as the reference. This activates Relative mode.

The screen will now show the difference between the live measurement and the stored reference value.

Press F1 (REL) again to exit Relative mode.

Upon entering Relative mode, the device will automatically switch to Manual Range mode.

Changing the measurement function will automatically deactivate Relative mode.



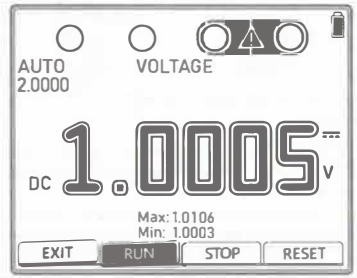
Peak Hold (P-H) Mode

The Peak Hold mode displays the maximum and minimum values detected during measurement. These values are continuously updated with each new reading.Most functions of this instrument support Peak Hold mode.Press the F2 key (P-H) to activate this function. The LCD will show the current maximum and minimum peak values.

The menu options in Peak Hold mode are as follows:

Exit	Run	Stop	Reset
EXIT	RUN	STOP	REST
F1	F2	F3	F4

1. 0Press the F1 key (EXIT) to exit Peak Hold mode.
2. Press the F2 key (RUN) to start peak hold measurement.
3. Press the F3 key (STOP) to pause peak updates; the current maximum and minimum values will remain unchanged.
4. Press the F4 key (RESET) to clear the stored peak values and begin a new measurement session.



Note!	When Peak Hold mode is activated, the meter automatically switches to Manual Range mode. If the measurement function, range, or mode is changed — or if Relative mode is selected — Peak Hold mode will be automatically deactivated.

DC and AC Voltage Measurement

Note!	When measuring voltage exceeding the safe voltage threshold (24V), a warning symbol " ⚡ " will appear on the screen, accompanied by three beeps and a flashing red light to alert the user of potential danger.
Warning!	To avoid damaging the instrument, do not apply more than 700V AC or 1000V DC to the test terminals for longer than 10 seconds.

Insert the black test lead into the "COM" terminal, and the red test lead into the "VΩCap" terminal.

Turn the rotary switch to select the V≂ or mV≂ voltage function. The top of the screen will display "VOLTAGE," indicating that the meter is in voltage measurement mode.

Press the F4 key (DC/AC) to switch between DC and AC measurement.Press the F3 key (Hz) to enable frequency measurement.

Touch the test probes to the measurement points.

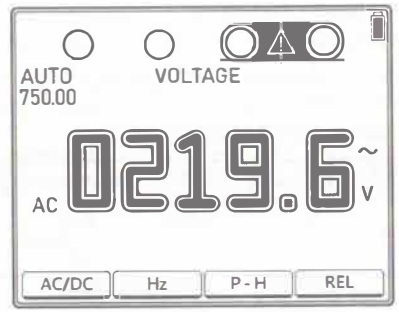
Read the voltage value displayed on the screen. The result includes the numeric value, decimal point, and polarity indicator.

Note!	Voltage measurements in the V range above 20 kHz are for reference only. Measurements in the mV range above 2 MHz are for reference only.

he voltage measurement menu includes the following options:

DC/AC	Frequency	Peak Hold	Relative Value
DC/AC	Hz	P-H	REL
F1	F2	F3	F4

1. Press the F1 key (DC/AC) to toggle between DC and AC voltage measurement.
2. Press the F2 key (Hz) to enable frequency measurement.
3. Press the F3 key (P-H) to enter Peak Hold mode.
4. Press the F4 key (REL) to activate Relative Value mode.



DC and AC Current (μA, mA, 10A) Measurement

Warning!	To avoid electric shock, do not measure current on circuits with voltages exceeding 250V. When measuring high current using the 10A range, limit each measurement to no more than 30 seconds within any 15-minute period, or the instrument and test leads may be damaged.

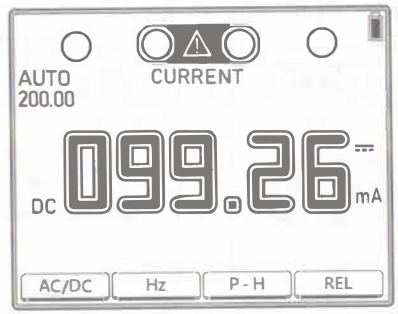
- Insert the black test lead into the "COM" terminal, and the red test lead into either the "mA" or "10A" terminal, depending on the expected current range.
- Turn the rotary switch to select the μA ≈ , mA ≈ , or 10A ≈ current measurement function. The top of the screen will display "CURRENT," indicating that the meter is in current measurement mode.
- Press the F4 key (DC/AC) to switch between DC and AC current measurement.
  Press the F3 key (Hz) to enable frequency measurement.
- Touch the test probes to the circuit under test.
- Connect the test leads in series with the circuit. Read the current value displayed on the screen, including the numeric value, decimal point, and polarity.

The current measurement menu includes the following options:

DC/AC	Frequency	Peak Hold	Relative Value
DC/AC	Hz	P-H	REL
F1	F2	F3	F4

- Press the F1 key (DC/AC) to toggle between DC and AC current measurement.
- Press the F2 key (Hz) to enable frequency measurement.
- Press the F3 key (P-H) to enter Peak Hold mode.
- Press the F4 key (REL) to activate Relative Value mode.

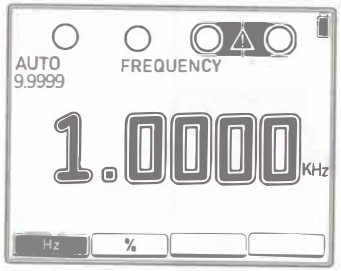
Note!	The mA input terminal uses a self-resetting fuse. If protection is triggered during μA or mA current measurement, disconnect the input and wait for the fuse to reset. Reset time is typically less than 10 minutes.
	The mA terminal has an internal resistance of approximately 10Ω. For continuous measurement of currents above 20mA, please use the 10A range instead.
	Readings above 10A are for reference only. Measuring currents over 10A may damage the one-time fuse in the 10A input terminal.
	For current frequency measurements above 2kHz, the data is for reference only. Signal strength should exceed 200μA / 20mA / 2A, respectively.



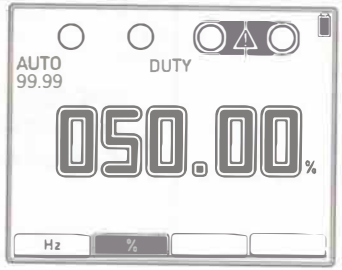
Frequency and Duty Cycle Measurement

1. Insert the black test lead into the "COM" terminal, and the red test lead into the "VΩCap" terminal.
2. Turn the rotary switch to select the frequency measurement **Hz%** function. The top of the screen will display "FREQUENCY," indicating the meter is in frequency measurement mode.
3. Touch the test probes to the test point.
4. Read the frequency value displayed on the screen, including the numeric value and decimal point.
5. Press the F2 key (%) to switch to duty cycle measurement.Press the F1 key (Hz) to return to frequency measurement.

Note!	For accurate frequency measurement, the input signal amplitude should be greater than 2Vpp. Measurements above 20 MHz are for reference only



Frequency



Duty

Resistance Measurement

Warning!	To avoid electric shock, always disconnect power from the device under test (remove batteries or unplug the power cord) and discharge any capacitors before measuring resistance.

1.Insert the black test lead into the "COM" terminal and the red test lead into the "VΩCap" terminal.

2.Turn the rotary switch to the resistance function. The top of the screen will display "RESISTANCE," indicating the meter is in resistance measurement mode.

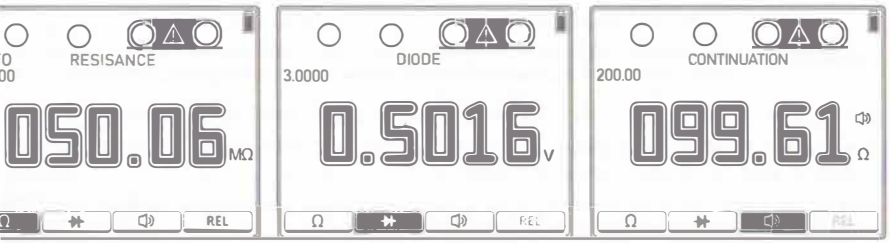
3.Place the test probes across the component or circuit to be measured. For best accuracy, disconnect one end of the component from the circuit to avoid interference from other components.

4.Read the resistance value displayed on the screen, including the numeric value, decimal point, and unit.

The resistance measurement menu includes the following options:

Resistance	Diode Test	Continuity Test	Relative Value
Ω	⊣◁	◁))	REL
F1	F2	F3	F4

1. Press the F1 key (Ω) to select the resistance measurement function.
2. Press the F2 key to select the diode test function.
3. Press the F3 key to select the continuity test function.
4. Press the F4 key (REL) to enter Relative Value mode.



Resistance Diode Continuity

de Test

Warning!	To avoid electric shock, do not test diodes in powered circuits.

Insert the black test lead into the "COM" terminal, and the red test lead into the "VΩCap" terminal.

Turn the rotary switch to the appropriate function, then press the F3 key to select the diode test function. The top of the screen will display "DIODE," indicating that the meter is in diode test mode.

Place the test probes across the diode or semiconductor PN junction and observe the reading.

Reverse the polarity by swapping the probe positions, then observe the second reading.

The condition of the diode or PN junction can be determined as follows:

a. If one reading shows a voltage drop (typically 0.2V to 0.7V) and the other shows "O.L", the diode is good.

b. If both readings show "O.L", the diode is open (broken).

c. If both readings show very low or 0, the diode is shorted.

d. Note: If the measured voltage is less than 0.1V, the buzzer will sound.

Continuity Test

Warning!	To avoid electric shock, do not perform continuity testing on live circuits.

1. Insert the black test lead into the "COM" terminal, and the red test lead into the "VΩCap" terminal.
2. Turn the rotary switch to the appropriate function, then press the F4 key to select the continuity test mode. The top of the screen will display "CONTINUATION," indicating the meter is in continuity test mode.
3. Touch the test probes to the circuit under test. If the resistance is less than 50Ω, the buzzer will sound.

Capacitance Measurement

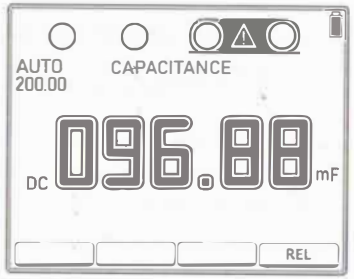
Warning!	To avoid electric shock, do not test capacitors that are charged or connected to a live circuit.

1. Insert the black test lead into the "COM" terminal, and the red test lead into the "VΩCap" terminal.
2. Turn the rotary switch to the "Cx" (capacitance) function.The top of the screen will display "CAPACITANCE," indicating that the meter is in capacitance measurement mode.
3. Touch the test probes to the capacitor terminals. Read the displayed capacitance value, including decimal point and unit.

he capacitance measurement menu includes the following options:

/	/	/	Relative Value
/	/	/	REL
/	/	/	F4

Press the F4 key (REL) to enter Relative Value mode.



ata Hold Function

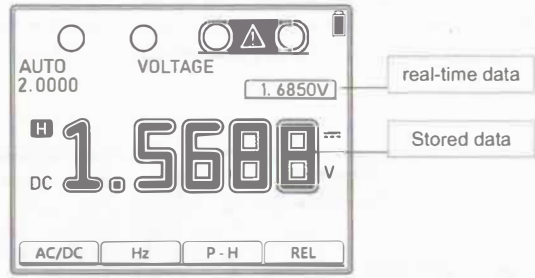
ess the SAVE key to hold the currently displayed reading. An "H" icon will appear on the LCD screen, indicating that ta hold is active.
ess the SAVE key again to return to normal operation.

While in data hold mode, a small dynamic data window appears in the upper-right corner of the screen. This window

continues to display live, refreshed data.

2.Once the meter enters data hold mode, the range setting is automatically switched to manual mode.

3.Changing the range or measurement function will automatically cancel the data hold mode.



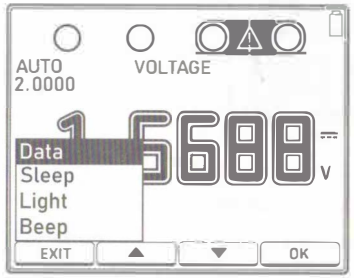
Storage and Recall of Measurement Data

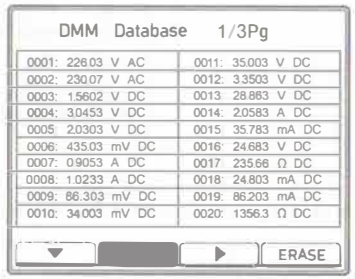
The meter's internal database can store up to 1000 DMM measurement records.
Press the SAVE key to hold the current reading.
Press and hold the SAVE key to save the current measurement data.

To view saved data, navigate through the menus as follows:

Main Menu	Multimeter	Oscilloscope	Signal Generator
MENU	DMM	OSC	AWG
F1	F2	F3	F4

- Press the MENU key to open the main function menu, then press the F1 key to enter the Main Menu.
- Select "Data", then press the F4 key to enter the DMM Database.

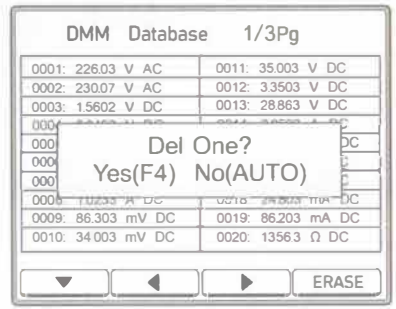




The database menu options and delete functions are as follows:

Record Location	Page Up	Page Down	Delete
▼	◄	►	DEL
F1	F2	F3	F4

1. Press the F1 key (▼) to select the next stored record.
2. Press the F2 key (◄) to scroll up one page.
3. Press the F3 key (►) to scroll down one page.
4. Press the F4 key (ERASE) to delete the data at the selected storage location.
5. Press and hold AUTO (Auto) data to delete all.

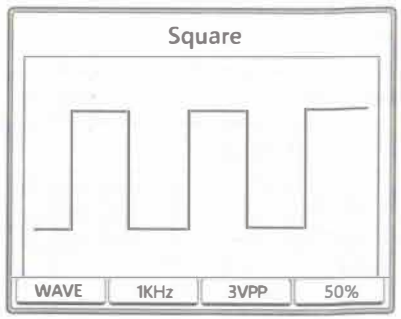


Signal Generator Operation

Entering Signal Generator Mode

While in Multimeter (DMM) or Oscilloscope (OSC) mode, press the MENU key to open the main function menu, then press the F4 key to enter Signal Generator Mode (AWG).

Basic Display in Signal Generator Mode



Signal Output Operation

In Signal Generator Mode, the function keys F1 to F4 work in combination with on-screen menu prompts to configure various signal outputs.

The signal generator menu options are as follows:

Waveform Type	Frequency	Amplitude	Duty Cycle
WAVE	1KHz	3Vpp	50%
F1	F2	F3	F4

1.Press the F1 key (WAVE) to select the waveform type: sine wave, triangle wave, or square wave.

2.Press the F2 key to open the frequency selection menu.

3.Press the F3 key to open the amplitude selection menu.

4.Press the F4 key to open the duty cycle selection menu (not applicable for sine or triangle waves).

Technical Specifications and Instrument Configuration

Instrument Features and Technical Parameters

General Characteristics

Display	320×240 TFT color screen	Viewing Area	49.0mm × 36.7mm
Backlight Brightness	Adjustable	Input Impedance	10MΩ
Battery	18650 lithium battery	Auto Sleep	5-60 minutes or disabled
Standby Current	< 0.3 A	Power-off Current	< 5 μA
Continuous Use Time	Approx. 4 hours	Storage Capacity	1000 DMM records, 200 OSC waveform records
Operating Environment	0°C~+40°C; <75%RH	Storage Conditions	-10°C ~ +60°C; <90%RH
Dimensions	83 mm × 160 mm × 32mm	Weight	About 220g
Charging Standard	5V	Charging Port	Type-C

Oscilloscope Specifications

Analog Bandwidth	70 MHz (single channel), 40 MHz (dual channel)	Maximum Equivalent Sampling Rate	200Msps
Number of Channels	2	Input Impedance	Approx. 1 MΩ
Vertical Sensitivity Range	50 mV/div to 10 V/div at MCX input	Time Base Range	6ns/div~50s/div
Vertical Amplitude Accuracy	±(5%+ 0.2div)	Time Base Accuracy	±(0.01% + 0.1div)
Scan Modes:	Auto/Normal/Single	Trigger Edge Selection	Rising / Falling
Auto Setup	Automatically sets time base and vertical amplitude	Coupling Modes	DC/AC
Voltage Measurement Parameters	Vpp、Vp、Vmax、Vmin、Vavg、Vrms	Time Measurement Parameters	Freq、Period、+Width、-Width、+Duty、-Duty

ignal Generator Specifications

Output Frequency	Sine Wave: 10 Hz to 100 kHz (stepped in 1–2–3–5 sequence)
	Triangle Wave: 10 Hz to 100 kHz (stepped in 1–2–3–5 sequence)
	Square Wave: 10 Hz to 3 MHz (stepped in 1–2–3–5 sequence)
Output Amplitude	3Vpp、2Vpp、1Vpp、0.5Vpp、0.2Vpp、0.1Vpp、0Vpp

Iultimeter Specifications

ll range accuracies are expressed as: ±(a% of reading + number of digits).Calibration validity: 1 year.
uaranteed accuracy is based on the following environmental conditions: 23°C ± 5°C, < 75% RH.

Function	Range	Resolution	Accuracy
DC Voltage	2V/20V/200V/1000V	0.1mV/1mV/10mV/100mV	± 0.5%rdg + 5dgt ± 1%rdg + 8dgt
	20.000mV/200.00mV	0.001mV/0.01mV	±0.5%rdg + 10dgt
AC Voltage (True RMS)	2V/20V/200V/750V	0.1mV/1mV/10mV/100mV	± 1%rdg + 10dgt (50Hz ~1kHz)
	20.000mV/200.00mV	0.001mV/0.01mV	± 1%rdg + 10dgt (50Hz ~1kHz)
DC Current	200.00uA/2000.0uA	0.01μA /0.1μA	±0.8%rdg + 8dgt
	20.000mA /200.00mA	1μA /10μA	±0.8%rdg + 8dgt
	2A/10A	0.1mA/1mA	±0.8%rdg + 8dgt

AC Current (True RMS)	200.00uA/2000.0uA	0.01μA /0.1μA	± 1%rdg + 10dgt(50Hz~1kHz)
	20.000mA /200.00mA	1μA /10μA	± 1%rdg + 10dgt(50Hz~1kHz)
	2A/10A	0.1mA/1mA	± 1%rdg + 10dgt(50Hz~1kHz)
Resistance	200Ω/2kΩ/20kΩ/200kΩ/ 2MΩ/20MΩ/200MΩ (Values above 50MΩ are for reference only)	0.01Ω/0.1Ω/1Ω/10Ω/100Ω/ 1kΩ/10kΩ	± (1.0%rdg + 5dgt) ± (3.0%rdg + 5dgt) / 200MΩ
Capacitance	9.999nF/99.99nF/999.9nF/9. 999μF/99.99μF/999.9μF	1pF/10pF/100pF/1nF /10nF/100nF	± (3.0%rdg + 10dgt)
	9.999mF/99.99mF	1μF/10uF	± (5.0%rdg + 20dgt)
Frequency	1.000Hz~20.000MHz(Abov e 20M for reference only)	0.001Hz~1kHz	(1.0% of reading + 5 digits), amplitude > 2 Vp-p
Diode Test	Open-circuit voltage approx. 3V; maximum test current approx. 2mA		
Continuity Test	Threshold resistance approx. 50Ω		
Fuse Ratings	200mA/250V，10A/,125V		

splay Symbols and Icons

DC	Direct Current	AC	Alternating Current
A	Ampere	uA	Microampere
mA	Milliampere	☼	LED Flashlight
V	Volt	mV	Millivolt
F	Farad	mF	Millifarad
nF	Nanofarad	μF	Microfarad
ms	Millisecond	μs	Microsecond
Hz	Hertz	Ω	Ohm
AWG	Signal Generator	WAVE	Waveform Type
AUTO	Auto Range / Scan / Setup	P-H	Peak Hold
REL	Relative Value	REST	Peak Reset
MAX	Maximum Value	MIN	Minimum Value
STOP	Hold Function / Pause	EXIT	Exit Current Menu or Mode
COM	Common Terminal (Input Reference)	AVG	Average Value
ERASE	Delete Record	LEVEL	Trigger Level

SAVE	Save Current Data	RESET	Reset Trigger Level
Normal	Normal Trigger Mode	Single	Single Trigger Mode
Auto	Auto Trigger Mode	Trig	Triggering
Wait	Waiting for Trigger	Stop	Waveform Hold
TIME	Time Base	RANGE	Range Selection
◄ ►	Option Adjustment	▲ ▼	Option Adjustment
▮	Battery Level	⊣⊢	Diode Test
⎍⎍	Trigger Edge	⚡	Safety Warning

Instrument Package

Standard Accessories:

1× Main Unit

1× Pair of dual-color test leads

1× MCX oscilloscope probe (in pouch)

1× Carrying pouch

1× User manual

Routine Maintenance and Troubleshooting

Keep Dry

If the device gets wet, dry it immediately. Do not use the instrument until it is completely dry.

Use and Store at Room Temperature

Extreme temperatures can shorten the lifespan of electronic components, deform plastic parts, or render the instrument unusable.

Handle with Care

Rough handling or dropping the device may damage the LCD, internal components, or housing.

Keep Clean

Wipe the instrument regularly with a damp cloth and a small amount of mild detergent.
Do not use abrasive materials, solvents, or alcohol.

Fuse Replacement

1. Disconnect the test probes and power off the instrument.
   Remove the back cover by loosening the screws — the fuse is located behind the test terminals.
2. Remove the blown fuse and replace it with one of the same specification:

   For the 200mA range: 200mA / 250V self-resetting fuse

   For the 10A range: 10A / 125V single-use fuse
   Reinstall and secure the back cover.

Instrument Servicing

1. This is a precision instrument. Do not attempt to modify circuits, replace components, calibrate, or repair the

   device without authorization from our service center.
2. Do not arbitrarily replace, repair, or substitute any test leads, accessories, or optional components included with the product.

Warning!	Always disconnect the probes from any voltage source before opening the battery cover. Do not operate the instrument unless the back cover is properly installed and secured.

Troubleshooting

If the instrument malfunctions, try the following checks before seeking repair service:

No Display / No Response to Buttons

1. Power issue — check whether the internal battery is depleted or not properly connected.
2. Rotate the dial to OFF for 5 seconds, then turn it back to a measurement position.

Unable to Measure

Check whether the test leads are in good condition (use the continuity function to short the leads for testing).

Unable to Measure Current

1. mA Terminal: Uses a self-resetting fuse. Disconnect the input and wait up to 10 minutes for automatic recovery.
2. 10A Terminal: Uses a single-use fuse. Replace the fuse with the correct type.