Instruments.uni-trend.com

UPO6000LP Series High-Resolution Oscilloscopes

Quick Start Guide

The manual applies to:

UPO6004LP，UPO6008LP Series

V1.0

March 2026

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1. UPO6000LP Series

UPO6000LP series high-resolution oscilloscopes includes six models.

Model	Analog channel number	Analog bandwidth	Gen
UPO6**104LP**	4	1 GHz	○
UPO6**054LP**	4	500 MHz	○
UPO6**034LP**	4	350 MHz	○
UPO6**108LP**	8	1 GHz	×
UPO6**058LP**	8	500 MHz	×
UPO6**038LP**	8	350 MHz	×

●: Standard ○: Option ×: Not support

2. Getting Started Manual

This chapter introduces the initial use of oscilloscope, the front and rear panels, operation panel, the user interface, parameter setting, and remote control.

2.1. General Inspection

It is recommended to inspect the instrument by following the steps below before using the UPO6000LP series oscilloscopes for the first time.

(1) Check for Damages caused by Transport

If the packaging carton or the foam plastic cushions are severely damaged, please contact the UNI-T distributor of this product immediately.

(2) Check Accessories

The details of the supplied accessories are described in the UPO6000LP Series High-Resolution Oscilloscopes accessories section in this manual. Please refer to this section for the list of accessories. If any accessories are missing or damaged, contact UNI-T or the local distributors.

(3) Machine Inspection

If the instrument appears to be damaged, not working properly, or has failed the functionality test, please contact UNI-T or the local distributors.

If the equipment is damaged during shipping, retain the packaging and notify both the carrier and UNI-T, UNI-T will arrange maintenance or replacement.

2.2.Before Use

To perform a quick verification of the instrument's normal operation, please follow the steps below.

(1) Connecting Power Supply

Connect the power supply according to the following table, use the assembled power line or other power line that meets the local country standards to connect the oscilloscope. When the oscilloscope is connected to the power supply, the soft power switch at the lower left turns red. Press the switch to power on the oscilloscope.

Voltage Range	Frequency
100 V-240 VAC (fluctuant: ±10%)	50 Hz/60 Hz

(2) Connect the monitor and the mouse

Connect the HDMI port on the rear panel of the device to an external display using an HDMI cable, and connect a mouse to the USB Host port on either the front or rear panel of the device.

Then, the device can be used as an independent oscilloscope. The HDMI port supports a resolution signal output of 1920*1080.

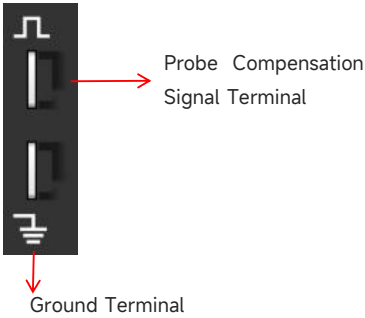
(3) Boot Check

Press the soft power switch button and the indicator should change from red to green. The oscilloscope will show a boot animation and then enter the normal interface.

(4) Connecting Probe

This oscilloscope is supplied with one probe for compensation. Connect the probe BNC connector to the C1 input BNC connector on the oscilloscope. Connect the probe tip to the probe compensation signal output and connect the probe ground alligator clip to the corresponding ground terminal.

The probe compensation signal output provides a waveform with an amplitude of approximately 3 Vpp and a default frequency of 1 kHz.



Probe Compensating Signal Terminal and Ground Terminal.

(4) Function Check

Click AUTO icon on the toolbar. A square wave (amplitude 3 Vpp, frequency 1 kHz) should appear on the screen. Repeat Step 3 to check all channels.

(5) Probe Compensation

When the probe is connected to any input channel for the first time, probe compensation should be adjusted to match the probe and the input channel. An uncompensated probe may

lead to measurement errors or mistakes. Please follow the following steps to adjust the probe compensation.

- Set the probe attenuation ratio to 10x in the probe menu, and set the probe switch to 10x. Connect the oscilloscope probe to C1. If a probe hook tip is used, ensure that it makes stable contact. Connect the probe tip to the "Probe Compensation Signal Terminal" on the oscilloscope, and connect the ground alligator clip to the corresponding ground terminal. Open C1 on the oscilloscope and Click AUTO icon on the toolbar.
- View the displayed waveform, as shown in the following figure.

Excessive Compensation Correct Compensation Insufficient Compensation

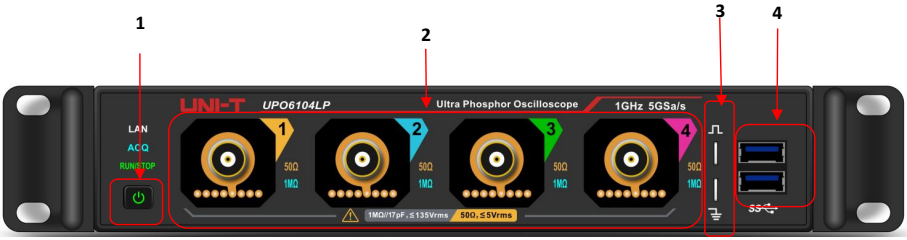
Probe Compensation Calibration

- If the displayed waveform resembles the above Insufficient Compensation or Excessive Compensation, use a non-metallic screwdriver to adjust the probe's variable capacitance until the display matches the Correct Compensation waveform.

Note: The probe type is UT-P07A and UT-P08A. When connected to the oscilloscope, the probe ratio will be automatically identified as X10.

Warning: To avoid electric shock when using the probe to measure high voltage, please ensure that the probe insulation is in good condition and avoid physical contact with any metallic part of the probe.

2.3.Front Panel



Front Panel

No.	Description
1	Soft Power Switch
2	Analog Channel Input ①
3	Probe Compensation Signal Terminal and Ground Terminal ②
4	USB HOST

① Analog channel input terminal: Connect the oscilloscope probe or BNC cable to these BNC connectors to input a signal into the oscilloscope.

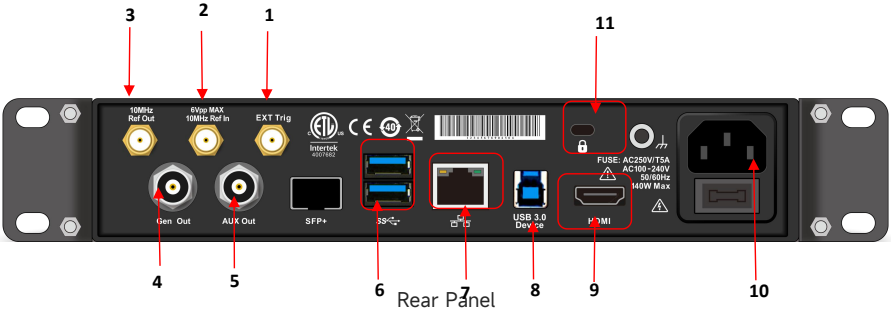
② Probe compensation signal terminal and ground terminal: Connect the probe BNC connector to the C1 input BNC connector on the oscilloscope. Connect the probe tip to the probe compensation signal output, and connect the probe ground alligator clip to the corresponding ground terminal. This setup outputs the oscilloscope's internal compensation signal

③ Indicator

Indicator	Red	Green	White	Blue	Yellow	None
Power	Powered on but not enabled	Enabled				
RunStop	Stop	Run				
Lan			Internet connected normally			Internet connection error
Acq				Solid: Acquiring Blinking: Waiting for acquisition		
Impedance				1MΩ	50Ω	Channel disabled

① **Note**: The output of the signal generator is equipped with overvoltage protection. If the input voltage exceeds ±9 V, the overvoltage protection will be activated.

2.4. Rear Panel



Rear Panel

1. EXT Trig: External trigger input terminal.
2. 10MHz Ref In : Inputs an external 10 MHz reference clock signal.
3. 10MHz Ref Out : Outputs a 10 MHz reference clock signal generated by internal crystal oscillator of the instrument.
4. Gen Out: Outputs signals such as continuous wave (CW), amplitude modulation (AM), frequency modulation (FM), amplitude shift keying (ASK), frequency shift keying (FSK), and frequency sweep via a BNC connector.

a. Note: This function is not available on 8-channel models.

5. AUX OUT: Output terminal for trigger output, Pass/Fail output, and DVM output
6. USB HOST: Supports USB flash drive.
7. LAN: Connects to the local area network for remote control.
8. USB Device: Provides communication between the oscilloscope and a PC.
9. HDMI: Supports to connect an external displayer with HDMI port.
10. AC power input: Use the assembled power cable to connect the oscilloscope to AC power. For more details, refer to the Connecting Power Supply.
11. Safety lock: Lock the oscilloscope at fixed position (sold separately).

Warning

During measurement, the ground terminal of instrument must be properly grounded.

2.5.Operation Panel

(1) Home Menu

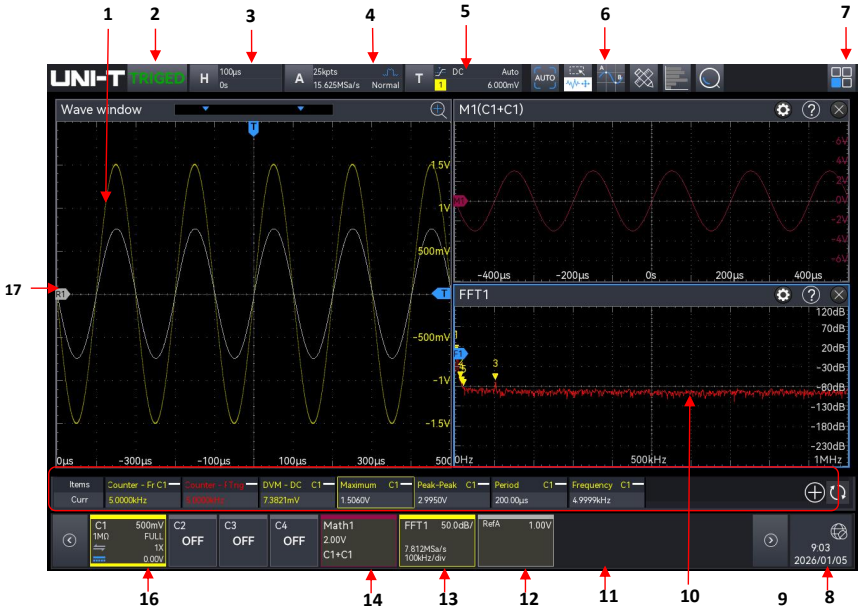
Press the Home icon in the upper-right corner to open the Home quick menu, including: Measure, Cursor, DVM (digital voltmeter), Counter (frequency counter), Math, Ref (reference), Gen (signal generator), Bode (Bode plot), Search, Decode, Navigation, Record, Mark, FFT, Pwr Analy (power

analysis), Pass/Fail, Display, Utility, Help, Area Draw, Auto, Default, Single, and Power off.

The Home quick menu provides quick access to the corresponding function menus.

Home Menu

2.6. User Interface



User Interface

1. Display: C1-C4 waveform measurement window, Ref waveform, and Math waveform.
2. Trigger state icon: TRIGED, AUTO, READY, STOP, ROLL, and SCAN.
3. Horizontal base label: Displays the current horizontal time base, click to enter the horizontal setting menu.
4. Sampling rate and memory depth label: Displays the current sampling rate and memory depth, click to enter the horizontal setting menu.
5. Trigger info label: Displays the trigger information, including the trigger type, source, level, and mode. Click label to open the Trigger Setting window and adjust the trigger parameters.
6. Function toolbar: Displays the currently added functions in toolbar. Touch an icon to enter the corresponding function menu.
7. Home menu: Open the function guide menu, click each function key to enter the corresponding menu.
8. Notification: Displays the USB, LAN connection icon, and time. Click this area to open the setting menu. For more details, refer to the Notification Setting.
   - USB: Displays a USB icon when the instrument detects that a USB device is connected.
   - LAN: Displays a LAN icon when the LAN connection is successfully established.
   - Time: Displays the current time and allows you to set the system time.
9. Volts/div signal bar: When the volts/div has multiple info window at the bottom of the screen, press the arrow keys , to move to left or right and reveal the hidden box.
10. Multi-window display area: If multiple functions are enabled simultaneously, such as XY, Math, and FFT, multiple function windows can be displayed at the same time.
11. Ref label: Displays the status of Ref1-Ref4 and the vertical scale setting. Up to four Ref labels can be displayed.
12. FFT label: Displays the status of FFT1-FFT4 switch, vertical scale, sampling rate, and the frequency of each div. Up to 4 FFT labels can be displayed.
13. Math label: Displays the status of M1-M4 switch, vertical scale, and operation type. Up to 4 Math labels can be displayed.
14. Measured result display window: Displays counter results, DVM measurements, parameter measurements, and statistical results. This window can be enabled or disabled.
15. Channel label: Displays the status of C1-C4, vertical scale, impedance, bandwidth limitation, inverse phase, channel coupling, probe attenuation ratio, and vertical bias.
    Analog channel label: Displays the C1-C4 icons. Each channel icon matches the color of its corresponding waveform

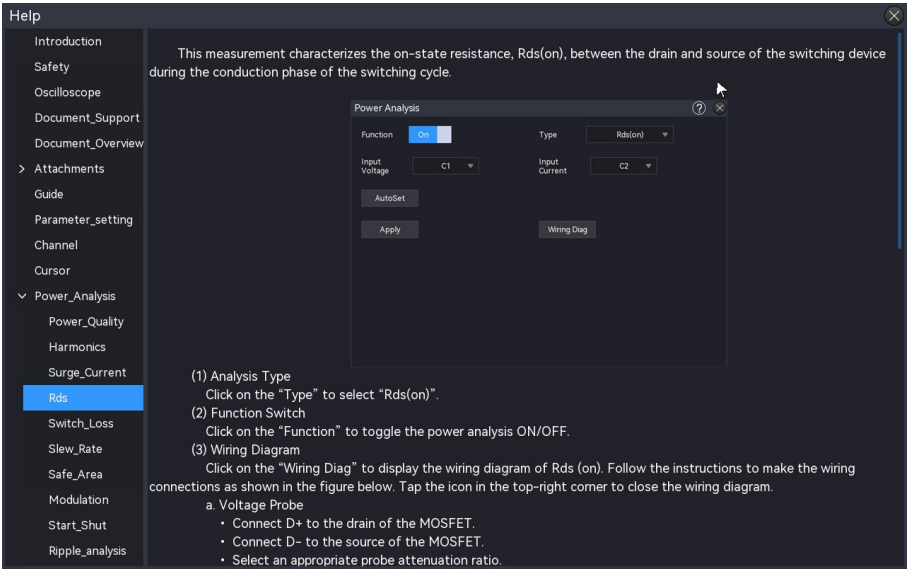
2.7.Help System

The help system provides information about the function keys (including menu keys) on the front panel.

The user can access the help system by following these steps.

- In Home menu, click Help icon to open the help menu.
- In each function men, click Help icon in the top right to open the relevant help menu.

The help screen is divided into two parts, the help options on the left and the help display area on the right. Selecting a help option displays the corresponding content in the help display area.



3. Parameter Setting

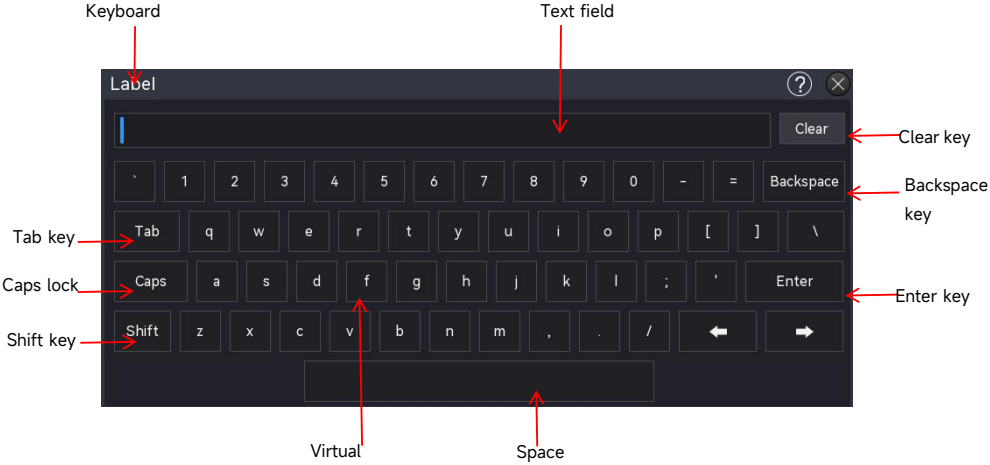
The UPO6000LP series supports parameter configuration using the Virtual Keyboard. The setup procedure is as follows.

(1) Virtual Keyboard

Once the parameter or input field has been selected with the mouse, double-click to open the virtual keyboard and enter a parameter value, label name, or file name.

1. Enter character string

When naming a file or folder, use the character keyboard to enter a character string.



a. Input field

Enter text using letters, numbers, and special characters. The maximum length is 255 characters.

b. Clear key

Press the Clear key to delete all contents in the input field.

c. Caps key

Press the Caps key to switch between upper and lower case.

d. Tab key

Press the Tab key to enter 2 spaces at a time.

e. Shift key

Press the Shift key to switch among number, special character, upper and lower case.

f. Arrow keys (left, right)

If part of the content needs to be changed, press the ←, → key to move the cursor to left or right and then to edit the content.

g. Space key

Press the Space key to enter one space in the input field.

h. Backspace key

Press the Backspace key to delete a single character. This key is used to delete a character when the input field contains a large amount of content.

i. Enter key

Once the content has been entered, press the Enter key to confirm the setting and close the virtual keyboard.

(2) Numeric Keypad

When setting or editing a parameter, use the numeric keypad to enter the numeric value.

1. Click number or unit to enter

After entering all the values and selecting the desired units, the numeric keypad will automatically close, completing the parameter setting. Additionally, the user can manually close the numeric keypad by clicking the confirm key. In this case, the unit defaults to the currently set unit. On the numeric keypad, the following operations are also available:

a. Delete the entered parameter value.

b. Set the parameter to the maximum or minimum value (sometimes specifically the maximum or minimum value for the current state).

c. Set the parameter to the default value.

d. Clear the parameter input field.

e. Move the cursor to modify the parameter value.

2. Enter binary, hexadecimal system value

During the decoding triggering, use the numeric keypad to enter binary or hexadecimal

values for data and address settings.

Enter Method: Tap to select the number or input field to be edited, and then use the numeric keypad to enter the desired numeric or letter values.

3. After entering all the values and pressing the Ok button, the numeric keypad will automatically close, completing the parameter setting. Additionally, on the numeric keypad, the following operations are also available:
   a. Move the cursor to modify the parameter value.
   b. Set the parameter to the maximum or minimum value (sometimes specifically for the current state).
   c. Set the parameter to the default value.
   d. Clear the parameter input field.

4. Remote Control

UPO6000LP series high-resolution oscilloscopes can communicate with a PC via USB and LAN ports for remote control. Remote control is implemented using SCPI (Standard Commands for Programmable Instruments).

UPO6000LP series has three methods for remote control.

(1) Custom Programming

The user can perform the programming control on the oscilloscope through SCPI (Standard Commands for Programmable Instruments). For detailed descriptions on command and programming, please refer to *UPO6000LP Series High-Resolution Oscilloscopes-Programming Manual*.

(2) PC Software Control (Instrument Manager)

The user can use a PC software to remotely control the oscilloscope. The instrument manager can display the oscilloscope screen in real time and control the operation with the mouse. It is recommended to use the PC software provided by UNI-T. It can be downloaded from UNI-T official website (https://www.uni-trend.com).

Operating steps:

- Set up the communication between the instrument and a PC.
- Open the instrument manager software and search the instrument source.
- Right-click to open the oscilloscope, operate the instrument manager to remotely control the oscilloscope. For more details, refer to *Instrument Manager-User Manual*. This device supports remote control through communication with a computer via USB and LAN interfaces. Remote control is implemented using the SCPI command set, allowing users to operate and configure the device remotely.

(3) Web Control

Once the network is connected, users can access a web page via the IP address. After logging in with the username and password, users can control the device remotely. The Web Control feature displays the instrument screen interface in real-time. It supports web access from PCs, smartphones, and iPads, and allows both internal and external remote control of the device.

5. Troubleshooting

(1) If the oscilloscope remains on a black screen without any display when pressing the power soft key.

a. Check if the power plug is properly connected and the power supply is normal. If the power switch is turned on, the power soft key on the front panel should be red. There should be a normal relay sound when the soft switch key is pressed.

b. If a relay sound is heard, it indicates that the oscilloscope has booted normally. Press the Default key and then the OK key. If the display returns to normal, this indicates that the waveform brightness or grid brightness was set too low.

c. Restart the oscilloscope after completing the above steps.

d. If the product still does not work properly, contact the UNI-T Service Center for assistance.

(2) After signal acquisition, the waveform of the signal does not appear on the screen.

a. Check whether BNC connectors are connected properly.

b. Check whether the signal output channel is enabled.

c. Check whether the signal connecting line is connected to analog channel.

d. Check whether the signal source has DC offset.

e. Plug out the connected signal, to check whether the base line is within the screen range (If not, please perform self-calibration).

f. If the product still does not work properly, contact the UNI-T Service Center for assistance.

(3) The measured voltage amplitude value is 10 times larger or 10 times smaller than the actual value.

Check whether the channel probe attenuation coefficient settings are consistent with the used probe attenuation rate.

(4) There is a waveform display but not stable.

a. Check the trigger settings in trigger menu whether is consistent with the actual signal input channel.

b. Check the trigger type: The general signals should use Edge trigger. The waveform can only be displayed stably if the trigger mode is set correctly.

c. Try to change trigger coupling to HF rejection or LF rejection, to filter out the high-frequency or low-frequency noise that interfere with the trigger.

(5) No waveform is displayed after pressing the Run/Stop key.

a. Check whether the trigger mode is set to Normal or Single and verify if the trigger level exceeds the waveform range.

b. If the trigger mode is normal or single and the trigger level is in the center, set the trigger mode to Auto.

c. Press the AUTO key to automatically complete the above settings.

(6) Waveform refresh is very slow.

a. Check whether the acquisition method is set to Average and if the average times are large.

b. Check whether the memory depth is maximum

c. Check whether the trigger holdoff is large.

d. Check whether it is normal trigger and is slow time base.

e. All the above will lead to slow waveform refresh, it is recommended to restore the factory settings, then the waveform can be refreshed normally.

110401114285X

说明书菲林做货要求：

序号	项目	内容
1	尺寸	外尺寸:（148x210）±1mm.
2	材质	封面封底 128G 双铜 内页 60g 书纸
3	颜色	黑色，双面印刷
4	外观要求	印刷完整清晰,版面整洁.无分层.残损.毛边等缺陷
5	装订方式	骑马订装
6	表面处理	无
7	其它	
版本		REV.0

DWH 设 计		MODEL 机型:((CD)UPO6000LP	Part NO. 110401114285X
CHK 审 核		UNI-T®	优利德科技(中国)股份有限公司 UNI-TREND TECHNOLOGY (CHINA) CO.,LTD
APPRO 批 准			