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UPO6000HD Series High-Resolution Oscilloscopes

Quick Start Guide

This manual applies to model:

UPO6000HD Series

V1.0

June 2026

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1. UPO6000HD Series Oscilloscopes

UPO6000HD series high-resolution oscilloscopes include 6 models.

Model	Analog channel number	Analog bandwidth
UPO6108HD	8	1 GHz
UPO6058HD	8	500 MHz
UPO6038HD	8	350 MHz
UPO6106HD	6	1 GHz
UPO6056HD	6	500 MHz
UPO6036HD	6	350 MHz

2. Getting Started Guide

This chapter introduces the initial use of the UPO6000HD series oscilloscope, including the front and rear panels, user interface, and touch screen functions.

2.1. General Inspection

It is recommended to inspect the instrument follow the steps below before using the UPO6000HD 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

Please check appendix for the list of accessories. If any of the accessories are missing or damaged, please contact UNI-T or local distributors of this product.

(3) Machine Inspection

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

If the equipment is damaged due to shipping, please keep the packaging and notify both the transportation department and UNI-T distributors, UNI-T will arrange maintenance or replacement.

2.2.Before Use

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

(1) Power Supply

The specification of the AC power supply is as shown in the following table.

Voltage Range	Frequency
100 V-240 VAC (Fluctuations ±10%)	50 Hz /60 Hz
100 V-120 VAC (Fluctuations ±10%)	400 Hz

Please use the attached power cord to connect to the power port.

Connecting to the service cable:

This instrument is a Class I safety product. The supplied power cable provides reliable protective earthing of the instrument enclosure. The oscilloscope is equipped with a three-conductor power cord that complies with international safety standards and meets the

protective grounding requirements of your country or region.

Please install the AC power cable as follows:

- Ensure the power cable is in good condition.
- Leave enough space to connect the power cord.
- Plug the attached three-prong power cable into a well-grounded power socket.

(2) Connecting the Power Supply

Refer to *Power Supply*, and use the assembled power line or other power line that meets the local country standards to connect the oscilloscope.

If the rear-panel power switch is OFF, the front-panel soft power button (lower left) will not light up, even when the instrument is connected to a power source, indicating that the soft power button is disabled.

When the rear-panel power switch is ON, the front-panel soft power button (lower left) lights red. Press the button to power on the oscilloscope.

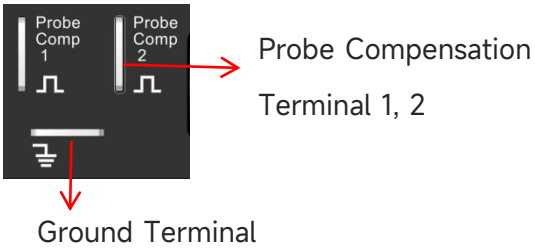
(3) Boot Check

Press the soft power 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 the Probe

This oscilloscope is supplied with two probes for compensation. Connect the probe BNC connector to the CH1 input BNC connector on the oscilloscope. Connect the probe tip to the probe compensation terminal 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 Compensation Terminal and Ground Terminal

(5) Function Check

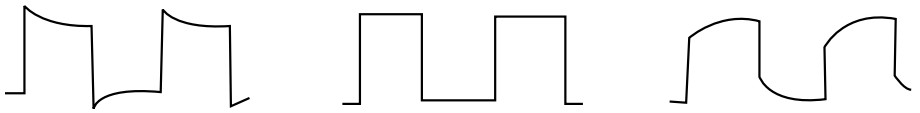
Press the Auto button to display a square wave (amplitude 3 Vpp, frequency 1 kHz). Repeat Step 3 to check all channels. If the displayed square waveform does not match the reference shown above, perform the *Probe Compensation* procedure described in the next section.

(6) 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 CH1. 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 CH1 on the oscilloscope and press the AUTO button.
- 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.

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

Table 1 Front Panel Description

No.	Description	No.	Description
1	Display area	6	Vertical Control
2	Autoset & Run/Stop	7	Probe Compensation Signal Terminal & Ground Terminal ①
3	Trigger Control	8	Analog Channel Input Terminal ②
4	Function Module	9	Microphone
5	Horizontal Control	10	Soft Power Switch

①: Probe Compensation Signal Terminal & Ground Terminal: Connect the probe BNC connector to the C1 input BNC connector on the oscilloscope. Connect the probe tip to the probe compensation terminal and connect the probe ground alligator clip to the corresponding ground terminal to output the instrument signal.

②: Analog Channel Input Terminal: Connect the oscilloscope probe or BNC cable to these BNC connectors to input a signal into the oscilloscope.

2.4. Rear Panel



Rear Panel

Table 2 Rear Panel Description

No.	Description	No.	Description
1	EXT Trig	6	USB Device
2	AUX Out	7	LAN port
3	10MHz REF	8	AC power input socket
4	USB HOST port	9	Power switch
5	HDMI port	10	Safety lock

2.5.Operation Panel

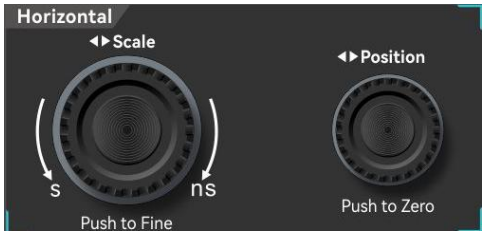
(1) Vertical Control

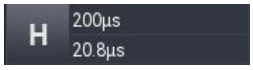


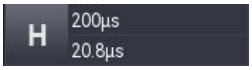
- Math: Press this button open the mathematical operation menu to perform math operation (add, subtract, multiply, divide), digital filter, and advanced operation.
- Ref: Load a reference waveform from Local or USB for comparison with the measured waveform.
- FFT: Press this button open the FFT menu.
- Bus: Press this button to access Bus menu for configuring these protocols: RS232, I^2C, SPI, CAN, CAN-FD, LIN, FlexRay, Audio, 1553B, Manchester, SENT, and ARINC429.
- 1, 2, 3, 4, 5, 6, 7, 8: Analog channel setting buttons correspond to C1, C2, C3, C4, C5, C6, C7, and C8. The eight channel tabs are color-coded to match the waveform colors on the display and the channel input connectors. Press any buttons to enter the corresponding channel menu (activate or disable the channel).
- Scale: Vertical scale rotary knob adjusts the vertical scale of the selected channel. Turn the knob clockwise to decrease the scale and counterclockwise to increase the scale. As the vertical scale is adjusted, the waveform amplitude changes accordingly. The scale value 

at the bottom left of the display updates in real time. The vertical scale is step with 1-2-5, press this rotary knob to switch between coarse and fine adjustment of the vertical scale.

(2) Horizontal Control



- Scale: Horizontal time base rotary knob adjusts the time base for all channels. As the time base is adjusted, the waveform is compressed or expanded in the horizontal direction. The time base value 

of the display updates in real time. The time base is step with 1-2-5, press this rotary knob to switch between coarse and fine adjustment of the time base.
- Position: Horizontal position rotary knob adjusts the trigger point to the left or right. As the position is adjusted, the waveforms of all channels move left or right. The horizontal position value 

of the display updates in real time. Press this rotary knob

to reset the channel position to the horizontal center.

■

(3) Trigger Control



- Single: Press the Single button to activate the single trigger mode. The button lights up.
- Normal: Press the Normal button to activate the normal mode. The button lights up.
- Auto: Press the Auto button to activate the automatic mode. The button lights up.
- Slope: Press the Slope button to switch the trigger edge to rising, falling, or either edge. The corresponding button lights up.
- Position: Press the trigger Position rotary knob to adjust the trigger level. Turn clockwise to increase the level and counterclockwise to decrease it. As the trigger level is adjusted, the trigger level value in the top-right corner 

of the display updates in real-time.

When in single mode, press the knob to quickly reset the trigger level to 50%.

When the trigger mode is READY or TRIGED, the corresponding READY or Trig'd indicator lights up.

(4) Run/Stop, Auto Control



Run/Stop: Press the Run/Stop button to switch between Run or Stop modes.

Run: In Run mode, the button lights up green.

Stop: In Stop mode, the button lights up red.



Autoset: Press the Autoset button, the oscilloscope automatically adjusts the vertical scale, time base, and trigger mode based on the input signal to display the optimal waveform.

(5) Function Module



- Cursors: Press the Cursors button to access the cursor measurement menu for configuring time, voltage, or screen measurements for each source.
- Meas: Press the Meas button to access the measurement menu for configuring counter, voltmeter, parameter snapshot, measurement statistics, add measurement, clear measurement, and global settings.
- Quick Meas: Press the Quick Meas button to quickly open the parameter measurement. The

parameter measurement information bar will be displayed.

- Analyze: Press the Analyze button to open the analysis menu and access functions such as voltmeter, counter, power analysis, waveform recording, and pass/fail testing.
- : Press the Home button to open the home menu directly.
- : Press the User button to activate the user-defined function.
- : Press the Shortcut button to quickly save picture, waveform file, and setup file. For the format and storage path.
- : Press the Clear button to clear all recalled waveforms, and measurement statistics.
-  Arrow keys (left/right): Use the arrow keys to select digits when adjusting values with multifunction knobs, allowing digit-by-digit navigation.
- DVM: Press the DVM button to open the digital multimeter menu directly.
- Counter: Press the Counter button to open the counter menu directly.
- Touch/Lock: Press the Touch/Lock button to enable/disable the touch screen function. Press the Touch/Lock button once to disable the touch screen function, and the indicator lights up. Press the button again to enable the function, and the indicator lights off.
- Default: Press the Default button to reset all oscilloscope settings to their factory default values.
- Multipurpose: The multipurpose rotary knob becomes active when the Math menu is selected. The knob lights up, indicating that it can be used to adjust numeric values.

(6) Home Menu

Press the Home icon in the top-right of the screen to open the Home quick menu, including: measurement, cursors, voltmeter, counter, math, reference, regional histogram, search, decoding, navigation, recording, marker, FFT, power analysis, pass/fail test, storage, display, utility, help, area draw, auto, default, and single. The quick menu provides direct access to the corresponding function menus.



2.6. User Interface

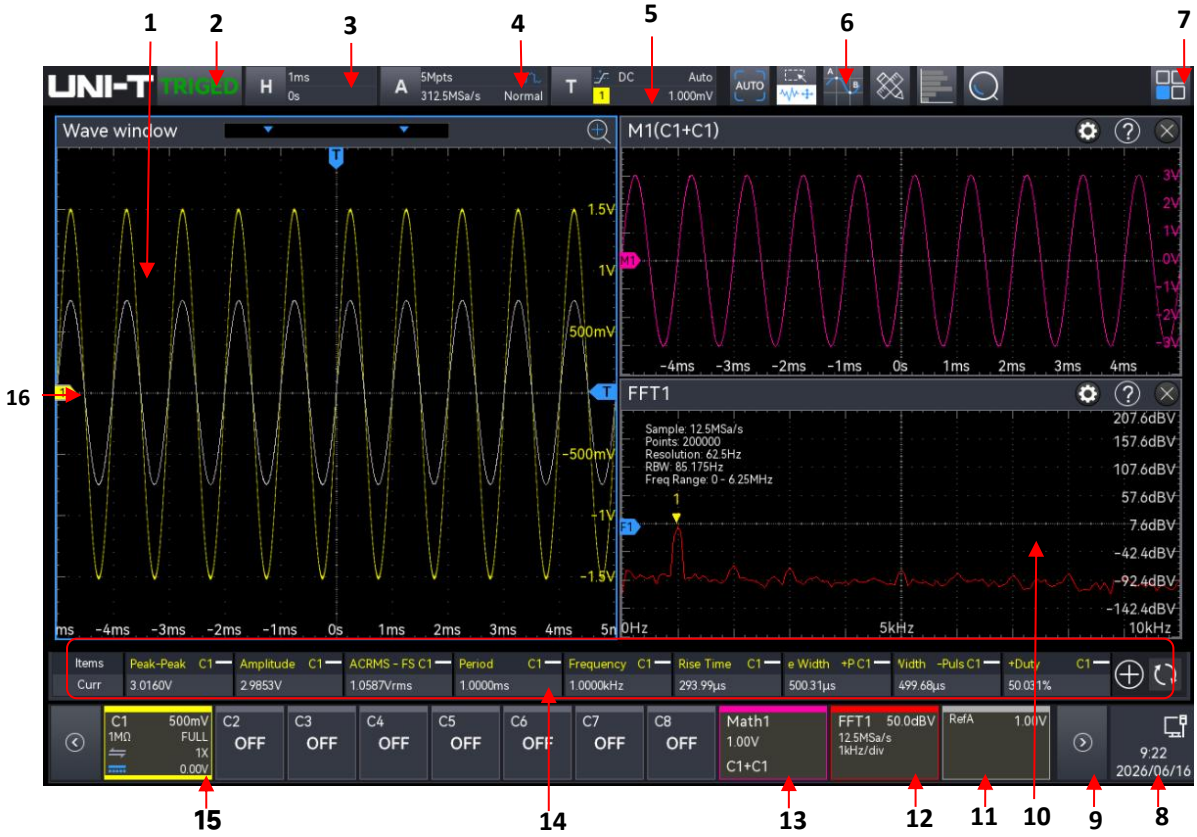


Table 3 User Interface Description

No.	Description	No.	Description
1	Waveform display window	9	Volts/div signal bar

2	Trigger state	10	Multi-window display area
3	Horizontal base label	11	Ref label
4	Sampling rate and memory depth label	12	FFT label
5	Trigger info label	13	Math label
6	Function toolbar	14	Measured result display window
7	Home menu	15	Channel label
8	Notification	16	Analog channel icon

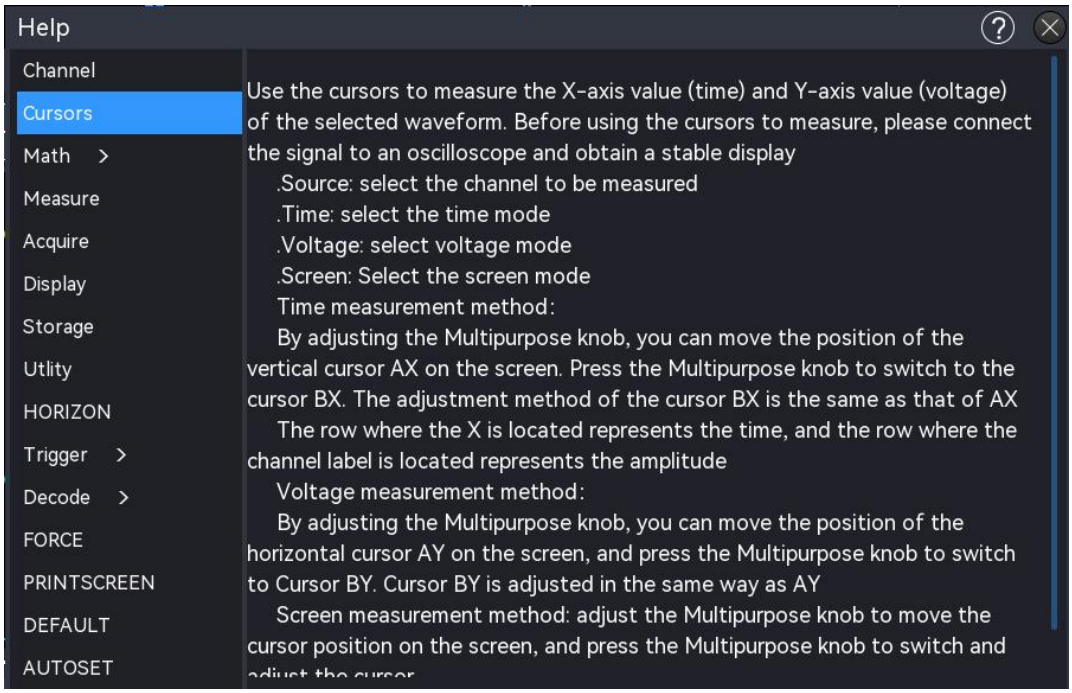
2.7.Help System

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 on the help icon "" to open the help menu.
- In each function menu popup, click on the help icon "" on the top right to open the relevant help menu.

The help screen is divided into two parts, the left side is "Help Options", and the right side is "Help Display Area". By selecting a help option, the user can view all related help content on the right.



3. Parameter Setting

UPO6000HD series supports the Multipurpose rotary knob and touch screen to set the parameter, the setting steps as follows.

(1) Multipurpose rotary knob

For the parameter of time and voltage, once the parameter is selected, rotate the Multipurpose rotary knob on the front panel to enter the parameter value.

(2) Touch screen

Once the parameter or text field has been selected, double-click to pop up the virtual keyboard to enter the parameter value, label name, or file name.

a. Enter character string

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

b. Text field

Enter text: input letters, numbers, and special characters, with a maximum length of 16 characters.

c. Clear key

Press the "Clear" key to delete all contents in the text field.

d. Caps key

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

e. Tab key

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

f. Shift key

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

g. 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.

h. Space key

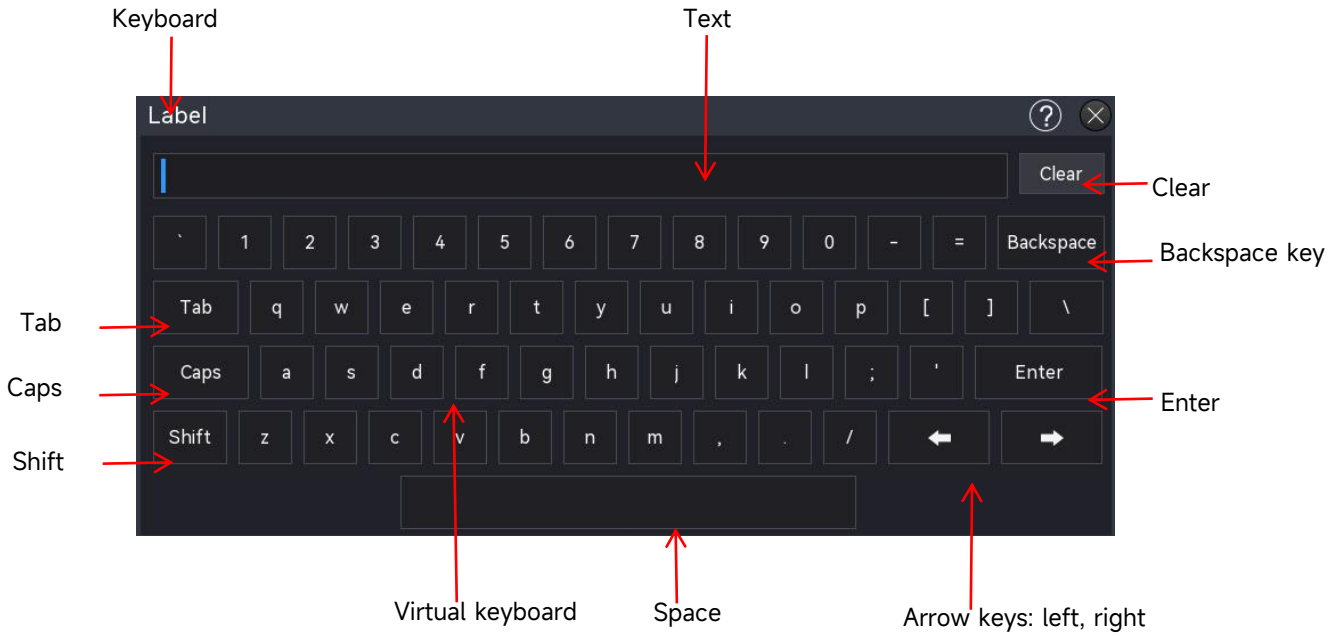
Press the "Space" key to enter one space in the text field.

i. 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.

j. Enter key

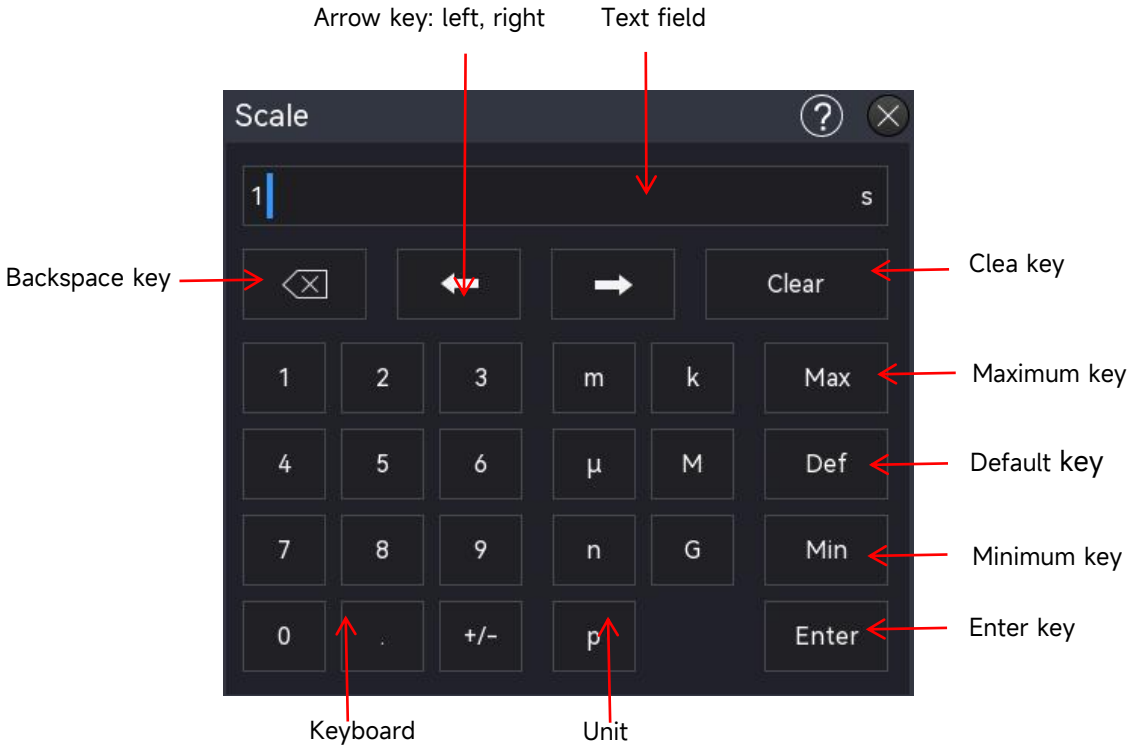
Once the content has been entered, press the "Enter" key to confirm the setting and close the virtual keyboard.



(3) Enter numeric value

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

1. Click the 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 which case the unit will default to the preset unit. On the numeric keypad, the user can also perform the following operations:

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.

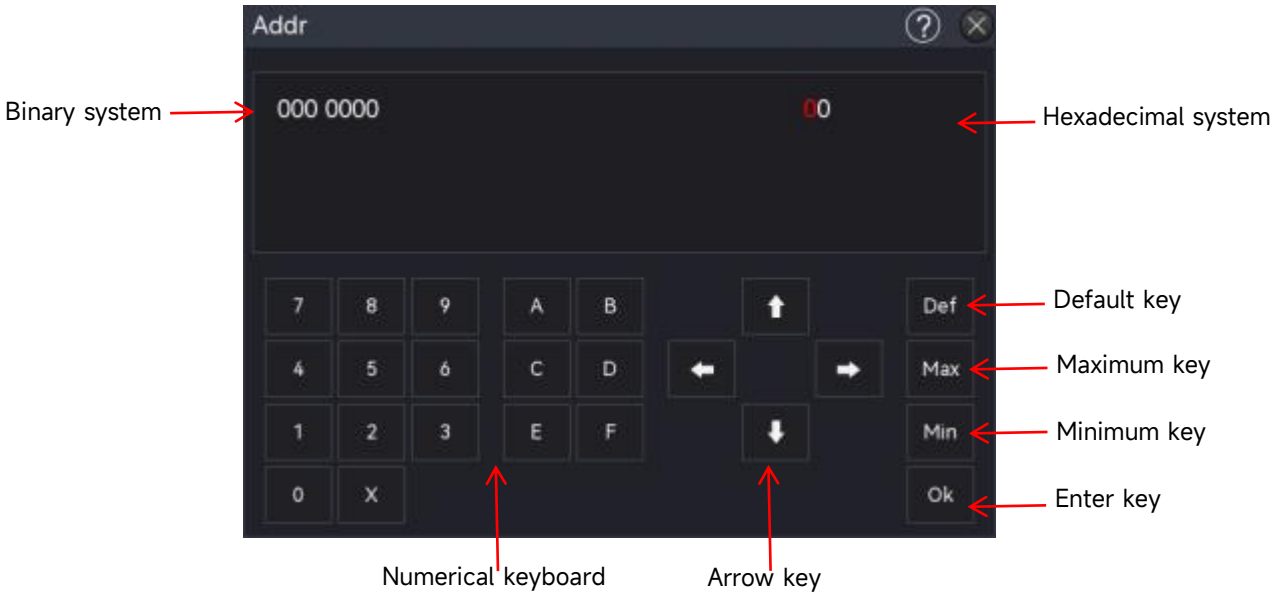
d. Clear the parameter input field.

e. Move the cursor to modify the parameter value.

2. Enter binary, hexadecimal system value

During the decoding trigger, use the numeric keypad to enter binary or hexadecimal values for data and address settings.

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



(4) 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 user can perform the following operations:

- Move the cursor to modify the parameter value.
- Set the parameter to the maximum or minimum value (sometimes specifically for the current state).
- Set the parameter to the default value.
- Clear the parameter input field.
- Delete the entered parameter value.

4. Touch Screen

UPO6000HD series features 10.1-inch high-sensitivity capacitive touch screen, multiple point touch control and gesture control. It is equipped with an intuitive operating system and a responsive touchscreen, delivering clear waveform display and a smooth user experience.
Touch control functions include tap, pinch, drag, and rectangle drawing.

Note: All on-screen menus support touch screen operation.

(1) Tap

Use one finger to slightly tap an icon or text on the screen to operate it, as shown in the figure below.

Tap gestures can be used to:

- Tap a menu on the screen to enter its settings.
- Tap the function icon in the top-right of the screen to open the corresponding function.
- Tap the pop-up numeric keypad to set the parameter.
- Tap the virtual keyboard to enter label names and file names.
- Tap a message window, then tap the close icon ⊗ in the top-right of the screen to close the pop-up window.
- Tap another window displayed on the screen, then proceed with the setup.
- Tap a message window, then tap the help icon ⍰ in the top-right of the screen to open the corresponding function help menu.



Tap Gestures

(2) Pinch

Place two fingers on the screen and move them together or apart. Pinch gestures can zoom in or zoom out the waveform. To zoom out, pinch inward (move two fingers together), then spread them apart; to zoom in, spread two fingers apart, then pinch them together, as shown in the figure below.

Pinch gestures can be used to:

- Adjust the horizontal time base of the waveform by pinching in the horizontal direction.
- Adjust the vertical scale of the waveform by pinching in the vertical direction.



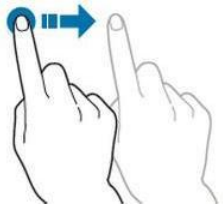
Pinch Gestures

(3) Drag

Use one finger to press and drag a selected item to the desired position, as shown in the figure below.

Drag gestures can be used to:

- Drag a waveform to adjust its position.
- Drag a window to change its position.
- Drag a cursor to change its position.

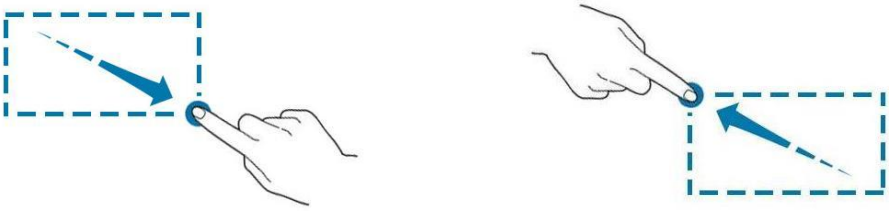


Drag Gestures

(4) Rectangle Drawing

Open the Home menu and tap the Rectangle Drawing icon to enable the function. Drag your finger on the screen to draw a rectangle, as shown in Figures (a) and (b). When the rectangle is drawn, a menu will appear. At this point, you can select Area A, Area B, Intersection, or Non-intersect.

To define a trigger area, drag your finger from the bottom right to the top left of the screen.



(a) (b)

Rectangle Drawing Gestures

Area A

- Draw Area A trigger zone
- Enable Area A
- Open the Area A menu

Area B

- Draw Area B trigger zone

- Enable Area B
- Open the Area B menu

Note: Tap Rectangle Drawing to switch between rectangle drawing mode and waveform operation mode. When the rectangle drawing icon  shows, rectangle drawing mode is enabled; when the waveform operation icon , waveform operation mode is enabled. The default mode is waveform operation.

5. Remote Control

UPO6000HD 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).

UPO6000HD 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 *UPO6000HD Series High-Resolution Oscilloscopes-Programming Manual*.

(2) PC Software Control (Instrument Manager)

The user can use 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, they can control the device. The Web Control feature displays the instrument's screen interface in real-time. It supports web access from PCs, smartphones, and iPads, and allows for both internal and external remote control of the device.

6. Troubleshooting

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

a. Check if the power plug is properly connected and the power supply is normal.

b. Check if the power switch is turned on. If the power switch is turned on, the soft power button on the front panel should be green. When the soft power button is enabled, the soft power button should be blue, and the oscilloscope will make an active sound. There should be a normal relay rattle when the soft power button is pressed.

c. If the relay has sound, it indicates that the oscilloscope is normal boot-up. Press the Default key and press the Yes key, if the oscilloscope returns to normal, indicating that the backlight brightness is set too low.

d. Restart the oscilloscope after completing the above steps.

e. 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 probe and DUT are connected properly.

b. Check whether the signal output channel is open.

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's probe attenuation coefficient setting matches the attenuation rate of the connected probe.

(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 be displayed stably only when the trigger mode is correctly set.

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 Autoset 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.

1104011142 81X

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: UPO6000HD	art NO. 110401114281X
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			