UNI-T

MSO7000X Series Mixed Signal Oscilloscope

10GSa/s | 2GHz | 1Gpts | 2,000,000wfms/s

Quick Guide REV.2.0

2024.06

Copyright Information

If the original purchaser sells or transfers the product to a third party within three year from the date of purchase of the product, the warranty period of three year shall be from the date of the original purchase from UNI-T or an authorized UNl-T distributor. Power cords, accessories and fuses, etc. are not included in this warranty.

If the product is proved to be defective within the warranty period, UNI-T reserves the rights to either repair the defective product without charging of parts and labor, or exchange the defected product to a working equivalent product (determined by UNI-T). Replacement parts, modules and products may be brand new, or perform at the same specifications as brand new products. All original parts, modules, or products which were defective become the property of UNI-T.

The "customer" refers to the individual or entity that is declared in the guarantee. In order to obtain the warranty service, “customer “must inform the defects within the applicable warranty period to UNI-T, and perform appropriate arrangements for the warranty service.

The customer shall be responsible for packing and shipping the defective products to the individual or entity that is declared in the guarantee. In order obtain the warranty service, customer must inform the defects within the applicable warranty period to UNl-T, and perform appropriate arrangements for the warranty service. The customer shall be responsible for packing and shipping the defective products to the designated maintenance center of UNI-T, pay the shipping cost, and provide a copy of the purchase receipt of the original purchaser. If the products is shipped domestically to the purchase receipt of the original purchaser. If the product is shipped to the location of the UNI-T service center, UNI-T shall pay the return shipping fee. If the product is sent to any other location, the customer shall be responsible for all shipping, duties, taxes, and any other expenses.

The warranty is inapplicable to any defects, failures or damages caused by accident, normal wear of components, use beyond specified scope or improper use of product, or improper or insufficient maintenance. UNI-T is not obliged to provide the services below as prescribed by the warranty:

- Repair damage caused by installation, repair or maintenance of personnel other than service representatives of UNI-T;
- Repair damage caused by improper use or connection to incompatible equipment;
- Repair any damages or failures caused by using power source not provided by UNI-T;
- Repair products that have been changed or integrated with other products (if such change

or integration increases time or difficulty of repair).

The warranty is formulated by UNI-T for this product, replacing any other express or implied warranties. UNI-T and its distributors refuse to give any implied warranty for marketability or applicability for special purpose. For violation of the warranty, repair or replacement of defective products is the only and all remedial measure UNI-T provides for customers. No matter whether UNI-T and its distributors are informed of any possible indirect, special, occasional or inevitable damage in advance, they assume no responsibility for such damage.

Trademark

UNI-T is the registered trademark of Uni-Trend Technology (China) Co., Ltd.

File Version

MSO7000X-V2.0

Statement

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- UNI-T reserves the rights to any product specification and pricing changes.
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- Technical data are subject to change without prior notice.

Safety Requirement

This section contains information and warnings that must be followed to keep the instrument operating under safety conditions. In addition, user should also follow the common safety procedures.

Safety Precautions	
Warning	Please follow the following guidelines to avoid possible electric shock and risk to personal safety.
	Users must follow the following conventional safety precautions in operation, service and maintenance of this device. UNI-T will not be liable for any personal safety and property loss caused by the user's failure to follow the following safety precautions. This device is designed for professional users and responsible organizations for measurement purposes. Do not use this device in any way not specified by the manufacturer. This device is only for indoor use unless otherwise specified in the product manual.
Safety Statement	
Warning	"Warning" indicates the presence of a hazard. It reminds users to pay attention to a certain operation process, operation method or similar. Personal injury or death may occur if the rules in the "Warning" statement are not properly executed or observed. Do not proceed to the next step until you fully understand and meet the conditions stated in the "Warning" statement.
Caution	"Caution" indicates the presence of a hazard. It reminds users to pay attention to a certain operation process, operation method or similar. Product damage or loss of important data may occur if the rules in the "Caution" statement are not properly executed or observed. Do not proceed to the next step until you fully understand and meet the conditions stated in the "Caution" statement.

Note	"Note" indicates important information. It reminds users to pay attention to procedures, methods and conditions, etc. The contents of the "Note" should be highlighted if necessary.

Safety Sign

	**Danger**	It indicates possible danger of electric shock, which may cause personal injury or death.
	**Warning**	It indicates that you should be careful to avoid personal injury or product damage.
	**Caution**	It indicates possible danger, which may cause damage to this device or other equipment if you fail to follow a certain procedure or condition. If the "Caution" sign is present, all conditions must be met before you proceed to operation.
	**Note**	It indicates potential problems, which may cause failure of this device if you fail to follow a certain procedure or condition. If the "Note" sign is present, all conditions must be met before this device will function properly.
	**AC**	Alternating current of device. Please check the region's voltage range.
	**DC**	Direct current device. Please check the region's voltage range.
	**Grounding**	Frame and chassis grounding terminal
	**Grounding**	Protective grounding terminal
	**Grounding**	Measurement grounding terminal
	**OFF**	Main power off
	ON	Main power on
	**Power Supply**	Standby power supply: when the power switch is turned off, this device is not completely disconnected from the AC power supply.

CAT I		Secondary electrical circuit connected to wall sockets through transformers or similar equipment, such as electronic instruments and electronic equipment; electronic equipment with protective measures, and any high-voltage and low-voltage circuits, such as the copier in the office.
CAT II		Primary electrical circuit of the electrical equipment connected to the indoor socket via the power cord, such as mobile tools, home appliances, etc. Household appliances, portable tools (e.g. electric drill), household sockets, sockets more than 10 meters away from CAT III circuit or sockets more than 20 meters away from CAT IV circuit.
CAT III		Primary circuit of large equipment directly connected to the distribution board and circuit between the distribution board and the socket (three-phase distributor circuit includes a single commercial lighting circuit). Fixed equipment, such as multi-phase motor and multi-phase fuse box; lighting equipment and lines inside large buildings; machine tools and power distribution boards at industrial sites (workshops).
CAT IV		Three-phase public power unit and outdoor power supply line equipment. Equipment designed to “initial connection”, such as power distribution system of power station, power instrument, front-end overload protection, and any outdoor transmission line.
CE	**Certification**	CE indicates a registered trademark of EU.
UKCA	**Certification**	UKCA indicates a registered trademark of British.
ETL Intertek 4007682	**Certification**	Complies with UL STD 61010-1, 61010-2-030 and CSA STD C22.2 No.61010-1 and 61010-2-030.
	Waste	Do not leave the device and its accessories in the trash. Items must be properly disposed of in accordance with local regulations.
40	**EFUP**	This environment-friendly use period (EFUP) mark indicates that dangerous or toxic substances will not leak or cause damage within this indicated time period. The environment-friendly use period of this product is 40 years, during which it can be used safely. Upon expiration of this period, it should enter the recycling system.

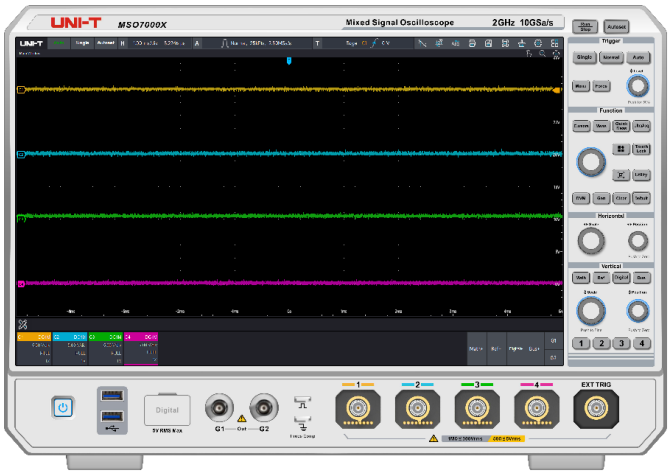
Safety Requirement	
Warning	
Preparation before use	Please connect this device to AC power supply with the power cable provided. The AC input voltage of the line reaches the rated value of this device. See the product manual for specific rated value. The line voltage switch of this device matches the line voltage; The line voltage of the line fuse of this device is correct.
Check all terminal rated values	Please check all rated values and marking instructions on the product to avoid fire and impact of excessive current. Please consult the product manual for detailed rated values before connection.
Use the power cord properly	You can only use the special power cord for the instrument approved by the local and state standards. Please check whether the insulation layer of the cord is damaged or the cord is exposed, and test whether the cord is conductive. If the cord is damaged, please replace it before using the instrument.
Instrument Grounding	To avoid electric shock, the grounding conductor must be connected to the ground. This product is grounded through the grounding conductor of the power supply. Please be sure to ground this product before it is powered on.
AC power supply	Please use the AC power supply specified for this device. Please use the power cord approved by your country and confirm that the insulation layer is not damaged.
Electrostatic prevention	This device may be damaged by static electricity, so it should be tested in the anti-static area if possible. Before the power cable is connected to this device, the internal and external conductors should be grounded briefly to release static electricity. The protection grade of this device is 4 kV for contact discharge and 8 kV for air discharge.
Measurement accessories	Measurement accessories are of lower class, which are definitely not applicable to main power supply measurement, CAT II, CAT III or CAT IV circuit measurement.

Use the input / output port of this device properly	Please use the input / output ports provided by this device in a properly manner. Do not load any input signal at the output port of this device. Do not load any signal that does not reach the rated value at the input port of this device. The probe or other connection accessories should be effectively grounded to avoid product damage or abnormal function. Please refer to the product manual for the rated value of the input / output port of this device.
Power fuse	Please use power fuse of specified specification. If the fuse needs to be replaced, it must be replaced with another one that meets the specified specifications by the maintenance personnel authorized by UNI-T.
Disassembly and cleaning	There are no components available to operators inside. Do not remove the protective cover. Maintenance must be carried out by qualified personnel.
Service environment	This device should be used indoors in a clean and dry environment with ambient temperature from 0°C to 40°C. Do not use this device in explosive, dusty or humid air.
Do not operate in humid environment	Do not use this device in a humid environment to avoid the risk of internal short circuit or electric shock.
Do not operate in flammable and explosive environment	Do not use this device in a flammable and explosive environment to avoid product damage or personal injury.
Caution	
Abnormality	If this device may be faulty, please contact the authorized maintenance personnel of UNI-T for testing. Any maintenance, adjustment or parts replacement must be done by the relevant personnel of UNI-T.
Cooling	Do not block the ventilation holes at the side and back of this device; Do not allow any external objects to enter this device via ventilation holes; Please ensure adequate ventilation, and leave a gap of at least 15 cm on both sides, front and back of this device.
Safe transportation	Please transport this device safely to prevent it from sliding, which may damage the buttons, knobs or interfaces on the instrument panel.

Proper ventilation	Poor ventilation will cause the device temperature to rise, thus causing damage to this device. Please keep proper ventilation during use, and regularly check the vents and fans.
Keep clean and dry	Please take actions to avoid dust or moisture in the air affecting the performance of this device. Please keep the product surface clean and dry.
Note	
Calibration	The recommended calibration period is one year. Calibration should only be carried out by qualified personnel.

MSO7000X Series Mixed Signal Oscilloscope

MSO7000X series is the brand new mixed signal oscilloscope launched by UNI-T. The bandwidth up to 2GHz and sampling rate up to 10GSa/s, which has obvious advantages in high-speed signal analysis.MSO7000X has unique UltraAcq® technology, it raises the wave capture rate to 800,000wfms/s, 2,000,000wfms/s(Sequence mode),combined with an ultra-long storage depth of 1Gpts, dramatically improves the ability to capture anomalous signals, as well as the ability to measure and analyze waveform details.MSO7000X supports multiple trigger decoding and has advanced measurement analysis, such as sequential mode, histogram, power analysis, jitter analysis, eye diagram analysis and template measurement. There are 48 kinds of parameters for automatic measurement, which greatly meets the measurement needs of engineers. This oscilloscope is equipped with Win10 64-bit operating system, providing users with a stable and expandable system platform. Adopting 15.6-inch high-definition capacitive touch screen, supporting multi-window split-screen display and multiple gesture touch control, it can be widely used in communication, aerospace, education and many other industries and fields.



MSO7000X series includes the following model

Model	Analog channel number	Analog bandwidth	Logic analyzer	AWG	Power analysis	Jitter analysis	Eye diagram
MSO7204X	4	2GHz	○	○	○	○	○
MSO7104X	4	1GHz	○	○	○	○	○

○: indicates option

Quick Guide

This chapter is to introduce on using the MSO7000X series oscilloscope for the first time, the front and rear panels, the user interface, as well as WebServer.

General Inspection

It is recommended to inspect the instrument follow the steps below before using the MSO7000X series oscilloscope 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 Attachment

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.

Before Use

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

1. Connecting to the Power Supply

The power supply voltage range is from 100 VAC to 240 VAC, the frequency range is 50 Hz to 60 Hz. Use the assembled power line or other power line that meets the local country standards to connect the oscilloscope. When the power switch on the rear panel is not opened, the power soft indicator in the left bottom on the rear panel is extinguished, which indicates this soft switch key is no-effect. When the power switch on the rear panel is opened, the power soft indicator in the left bottom on the rear panel is illuminated with orange, and then press the soft switch key to enable the oscilloscope.

2. Boot Check

Press the soft power key and the indicator should change from orange to blue. The oscilloscope will show a boot animation, and then enter the normal interface.

3. Connecting Probe

Use BNC of the port to connect to BNC of CH1 of the oscilloscope. Connecting the probe to the "probe compensation signal connection clip" (as shown in **Figure 1**) and connecting the ground alligator clip to the "ground terminal" under the "probe compensation signal connection clip". The output of probe compensation signal connection clip is the amplitude about 3 Vpp and the frequency defaults to 1 kHz.

Figure1 Probe Compensation Signal Connection Clip and Ground Terminal

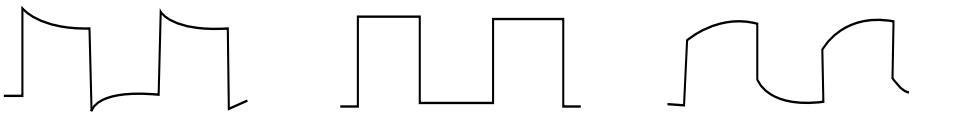
4. Function Check

Press the AUTO key, a 3 Vpp, 1 kHz square wave should appear on the screen. Repeat step 3 to check all channels. If the actual displayed square wave shape does not match the above figure, please perform the next step "Probe Compensation".

5. Probe Compensation

When the probe is connected to any input channel for the first time, this step might be adjusted to match the probe and the input channel. Probes that are not compensated may lead to measurement errors or mistake. Please follow the following steps.

- Set the attenuation coefficient in the probe menu to 10x and the switch of the probe at 10x, and connecting the probe of the oscilloscope to CH1. If use the probe's hook head, make sure it stably touch to the probe. Connecting the probe to the "probe compensation signal connection clip" and connecting the ground alligator clip to the "ground terminal" under the "probe compensation signal connection clip". Open CH1 and press the Autoset key.
- View the displayed waveform, as shown in **Figure 2.**



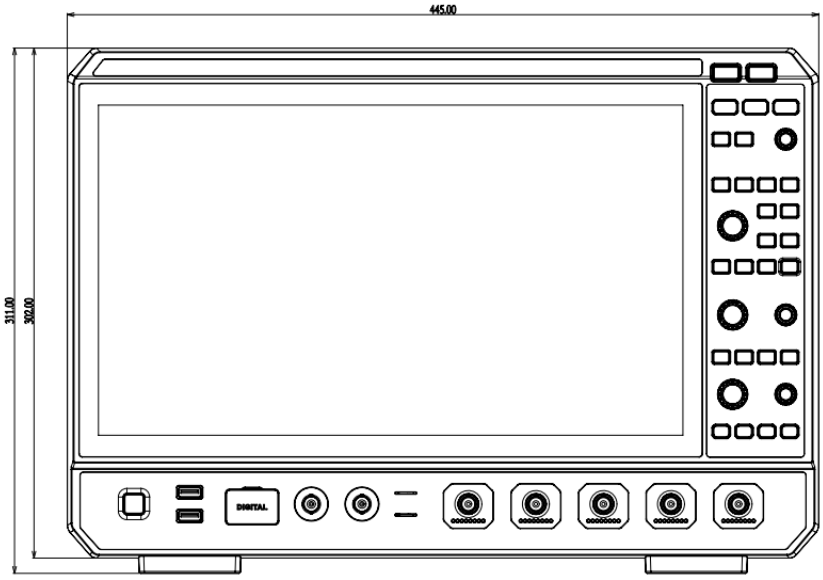
Excessive Compensation Correct Compensation Insufficient Compensation

Figure 2 Compensating Calibration of Probe

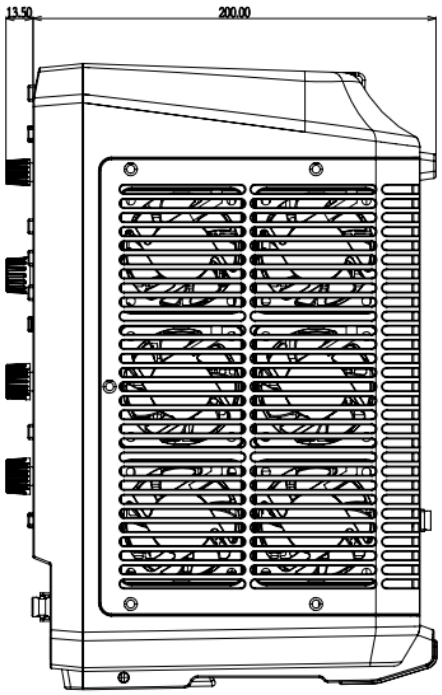
- If the displayed waveform is look like the above "Insufficient Compensation" or "Excessive Compensation", use a non-metallic screwdriver to adjust the probe's variable capacitance until the display matches the "Correct compensation" waveform.

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.

External Dimension



Front View



Side View

Front Panel

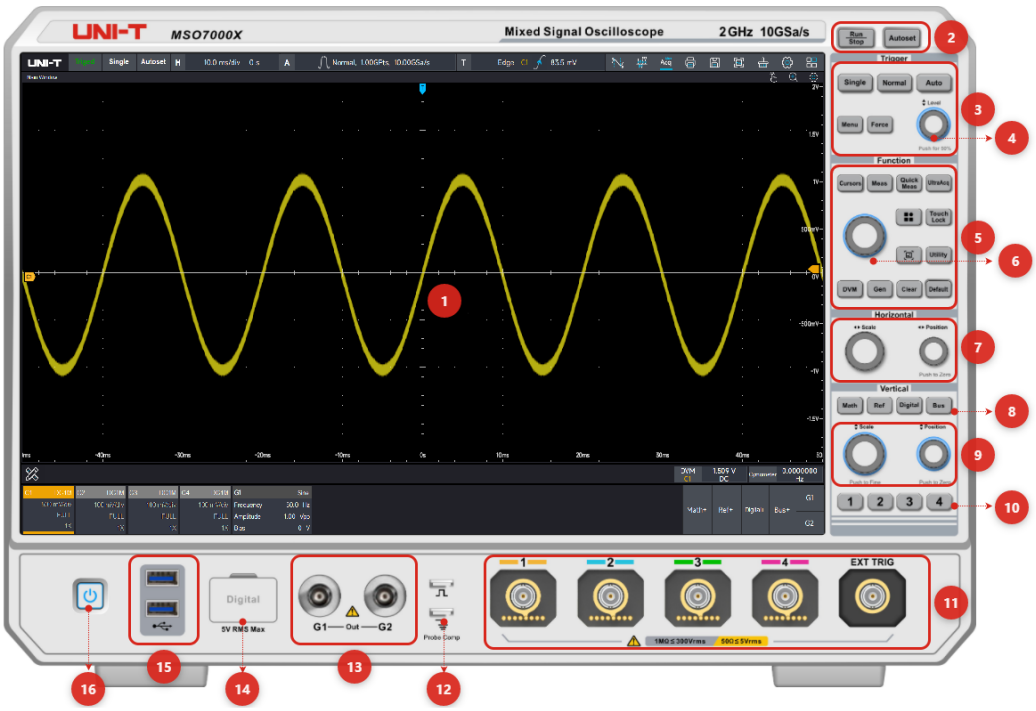


Figure 3 Front Panel

Table 1 Function key on Front Panel

No.	Description	No.	Description
1	Display area	9	Vertical control knob
2	Run/Stop key, Autoset key	10	Analog channel key
3	Trigger control area (Trigger)	11	Analog channel input port and external trigger input port
4	Trigger level rotary knob	12	Probe compensation connection clip and ground terminal
5	Function control area (Function)	13	Function/Arbitrary waveform generator output port
6	Multi-function rotary knob	14	Digital channel input port
7	Horizontal control knob	15	USB Host port
8	Math, Ref, Digital, Bus key	16	Power soft key

Rear Panel

Figure 4 Rear Panel

Table 2 Interface on Rear Panel

No.	Description	No.	Description
1	USB Host port	7	AUX In port
2	HDMI port	8	AUX Out port
3	LAN port	9	Ground terminal
4	USB Device port	10	Power input and switch
5	10MHz Ref In port	11	Safety lock
6	10MHz Ref Out port		

1. USB Host: used to connect a USB-compatible storage device to the oscilloscope. By connecting the storage device, you can save or recall waveform files and setup files of the oscilloscope, as well as save data and screenshots. The system software of the oscilloscope can be upgrade locally through the USB Host port when there is an available update.
2. HDMI: high definition multimedia port
3. LAN: use this port to connect the oscilloscope to local area network for remote control
4. USB Device: USB Device 3.0 port, use this port to connect the oscilloscope to computer for

communication.

5. 10MHz Ref In: provide the reference clock of sampling for the oscilloscope
6. 10MHz Ref Out: BNC connector on the rear panel, it can output its own 10MHz reference clock and provide it to other external instruments for inter-instrument clock synchronization.
7. Aux In: 1. Trigger synchronous input; 2. AWG external trigger input
8. Aux Out: 1. Trigger synchronous output; 2. Pass the measured results; 3.AWG trigger output
9. Ground terminal: used to connect to ground to export static electricity of device
10. Power switch: after the AC outlet is correctly connected to the power supply, turn on the power switch, the oscilloscope can be normally powered on, at this time, just press the "power soft switch" on the front panel to turn on the power (the oscilloscope's power supply requirements is 100~240 V, 50~60Hz) .
11. Safety Lock: this port (sold separately) is used to lock the oscilloscope at fixed position.

User's Interface

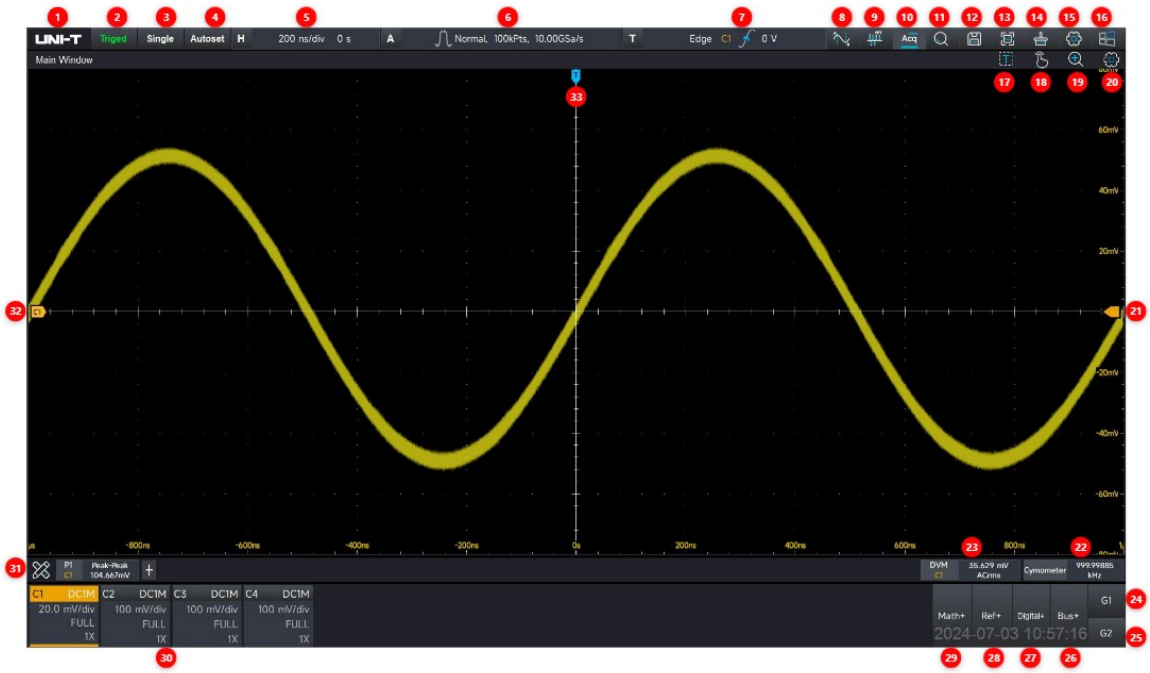


Figure 5 User's Interface

Table 3 Icon in User's Interface

No.	Description	No.	Description
1	UNI-T logo	17	Zone draw
2	Trigger state icon	19	Windows Extension

3	Single trigger	20	Window display and setting
4	Autoset	21	Trigger level cursor
5	Horizontal scale and delay	22	Frequency counter
6	Acquisition mode, storage depth and sampling rate	23	Digital voltmeter
7	Trigger information	24/25	Function/Arbitrary waveform generator
8	Cursor measurement	26	Protocol analyzer
9	FFT	27	Logic analyzer
10	UltraAcq® mode	28	Reference waveform
11	Search and Navigation	29	Mathematical operation
12	Save	30	Channel state icon
13	Screenshot	31	Measurement menu
14	Clean	32	Analog channel cursor and waveform
15	System setting	33	Trigger position cursor
16	Start menu		

Touch Screen

- **Tap**
- **Squeeze**
- **Drag**

MSO7000X series provides 15.6 inch super capacitive touch screen, multiple point touch control and gesture control. MSO7000X has easily operating system with flexible and high sensitive touch screen features for great waveform display and excellent user experience.

Touch control function includes tap, squeeze and drag.

Hint: The menu displayed on the screen of the oscilloscope can all use the touch control function.

Hint: The menu displayed on the screen of the oscilloscope can all use the touch control function.

Tap

Use one finger to slightly tap icon or word on the screen as shown in **Figure 6**.

Tap gesture can use for:

- Tap the menu displayed on the screen and then to setup
- Tap the function guide icon on the right corner of the screen to enable it
- Tap to pop out numeric keypad to set parameter
- Tap virtual keyboard to set label and file name
- Tap message to pop out close button on the right corner to close it
- Tap other window displayed on the screen to setup

Figure 6 Touch Gesture

Squeeze

Squeeze two fingers together or separate. Squeeze gesture can zoom out or zoom in the waveform. If the waveform need to zoom out, squeeze two finger together and then slide away; If the waveform need to zoom out, separate two fingers and then squeeze two fingers together as shown in **Figure 7**.

Squeeze gesture can use for:

- Adjusting horizontal time base of waveform on the horizontal direction
- Adjusting vertical scale of waveform on the vertical direction

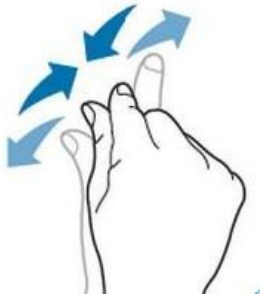


Figure 7 Squeeze Gesture

Drag

Use one finger to press and drag the selected item to the aimed position as shown in **Figure 8**.

Drag gesture can use for:

- Drag waveform to change waveform displacement or offset
- Drag window control to change window position
- Drag cursor to change cursor position

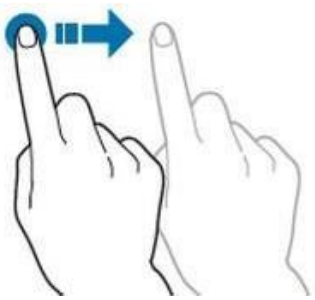


Figure 8 Drag Gesture

Icon of Start Menu

Start menu: tap the icon on the right top corner to turn on the start menu, as shown in **Figure 9**.

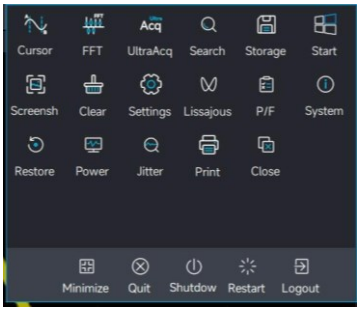


Figure 9 Start Menu

- Cursor measurement: turn on the cursor measurement function
- FFT: turn on the FFT function
- UltraAcq: turn on the quick acquisition mode
- Search and Navigation ： turn on the Search and Navigation
- Save: enter the save function, which including settings, waveform, picture. It can save to internal or external USB
- Screenshot: open the save function to screenshot the whole display interface and save to the specified file folder. “The screenshot is successfully saved to the file folder” will appear on the screen
- Delete: delete the historical waveform and data on the screen
- Settings: turn on the “settings” menu, which including display setting, automatic setting and calibration, communication, auxiliary input and output
- Lissajous: turn on X-Y measurement mode
- P/F test: turn on test function, which including limit test, standard template test and P/F state
- System information: turn on the instrument’s system information
- Reset: restore the instrument to the factory settings, click confirm key to reset it
- Power analysis: turn on the power analysis
- Jitter analysis: turn on the jitter analysis
- Print: turn on the print setup menu, to print saved picture
- Auxiliary window: turn off all auxiliary windows, only keep the main window

Measurement Menu

Measurement menu: tap the icon on the left corner to turn on the measurement menu, as shown in **Figure 10**.

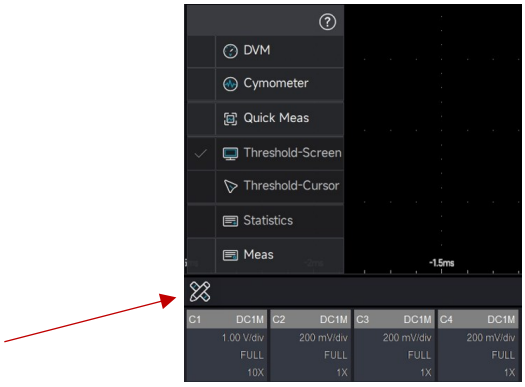


Figure 10 Measurement Menu

DVM	Digital Voltmeter: turn on the digital voltmeter measurement, it supports 4-digital voltage measurement of AC RMS, DC, DC+AC RMS
Cymometer	Frequency counter: turn on 8-digital high precision frequency counter
Quick Meas	Quick Meas: turn on the quick meas and view multiple parameter measurement at the same time
Threshold-Screen	Measurement threshold-screen: the parameter measurement range is selected to be the whole screen
Threshold-Cursor	Measurement threshold-cursor: the parameter measurement range is selected to be cursor
Statistics	Statistics: open measurement statistics function, which including current value, maximum, minimum, average, standard deviation and count
Meas	Meas: turn on/off the parameter measurement function

Communication

MSO7000X series supports communication with computer through USB and LAN port, so as to realize remote control. The remote control is based on SCPI (Standard Commands for Programmable Instruments).

MSO7000X series supports three communication modes

1. LAN: SCPI
2. USB: SCPI
3. WebServer: SCPI on browser, it supports remote desktop and data export

Tap the auxiliary icon  to pop out the auxiliary menu and select “communication”.

Network

Before using the LAN bus, please connect the oscilloscope to your LAN using a network cable. The oscilloscope's network port is located on the rear panel of the instrument. In the setup menu and network connection setup menu (as shown in **Figure 11**). You can view the current network settings and configure network parameters.

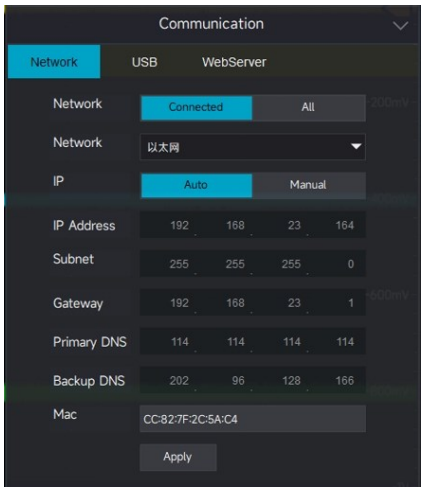


Figure 11 Network Configuration

USB

USB can display manufacture's ID, product ID, serial number and current VISA address (as shown in **Figure 12**). The oscilloscope can communicate with the host computer directly through the USB Device port on the rear panel and configuration parameters is not required.

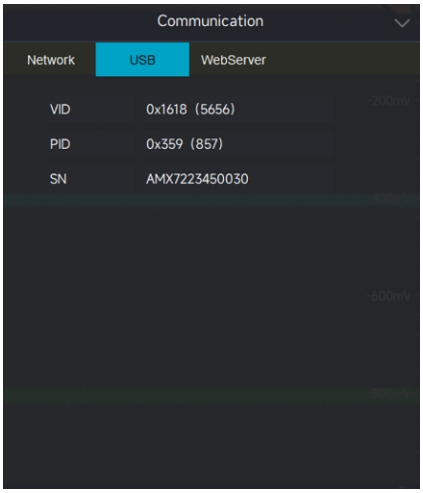


Figure 12 USB Communication

WebServer

WebServer displays the switch status of current network, default network port number: 80 (www service).

Access from PC

It is required that the computer and the oscilloscope are under the same LAN and can ping through each other. The oscilloscope can be accessed through the oscilloscope Utility or by clicking the setup icon  to view the oscilloscope's local IP, and then the browser can access the oscilloscope by accessing port IP: 80 (as shown in **Figure 13**).

Example

Computer IP: 192.168.23.101, oscilloscope IP: 192.168.23.164, gateway: 192.168.23.1

Use 192.168.23.164:80 to access the oscilloscope from the browser on the computer, and you can view the device information, perform remote control (as shown in Figure 14), SCPI control, export waveforms, export documents and other operations.

Figure 13 Home page of Web Server

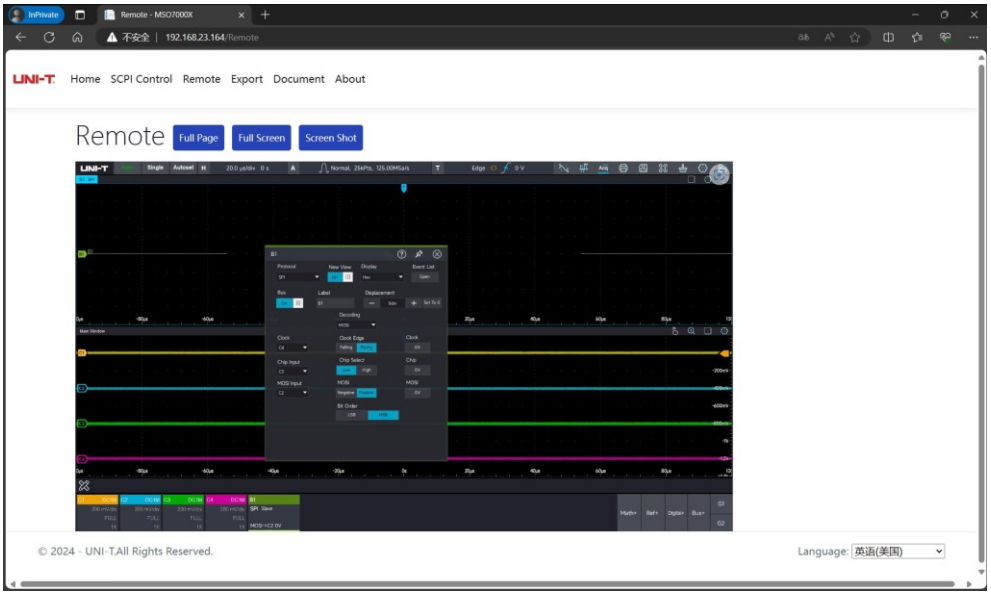


Figure 14 Remote Control

Access from Cellphone

It is required that the cellphone and the oscilloscope are under the same LAN (generally under the same WLAN band), and access the oscilloscope local IP through the oscilloscope setup menu, and then the browser accesses the IP: 80 port (as shown in **Figure 15, Figure 16**).

The functions of cellphone and computer are the same, only the layout is different.

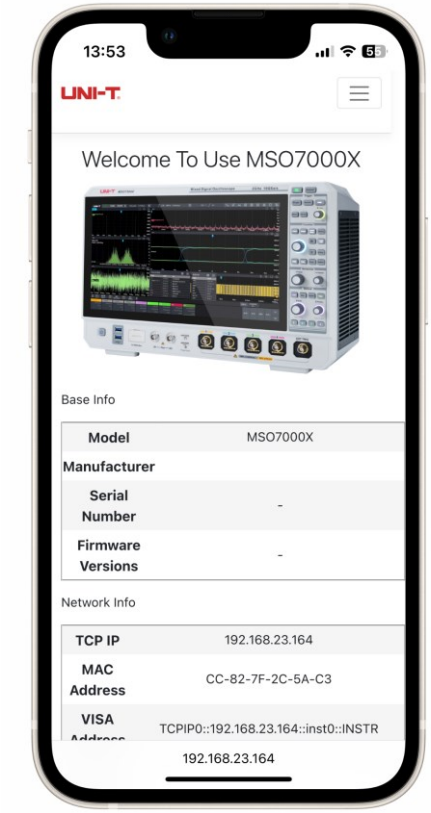


Figure 15 Home page of Web Server

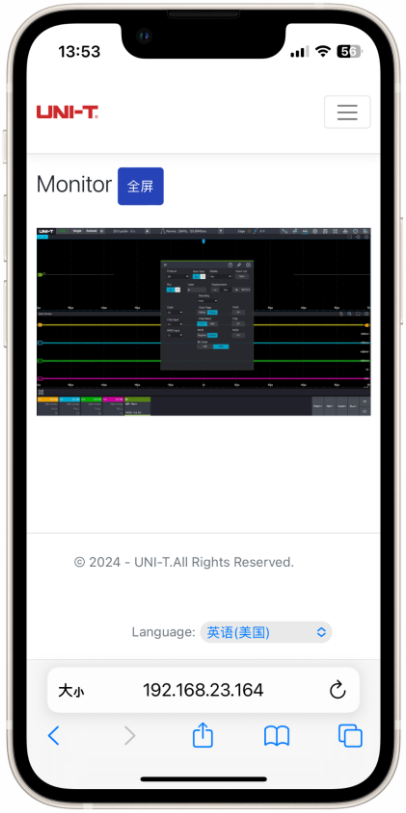


Figure 16 Remote Control

Troubleshooting

This section describes a list of faults and troubleshooting methods that may occur during the use of the oscilloscope. When you encounter these faults, please follow the corresponding steps to deal with them, if the problem cannot be fixed, please contact UNI-T, and provide the equipment information of your machine.

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

① Check if the power plug is properly connected.

② Check if the power switch is turned on. If the power switch is turned on, the power soft key on the front panel should be orange. When the power soft key is enabled, the power soft key should be blue and the oscilloscope will make active sound.

③ If there has sound and the screen is display, which indicates the oscilloscope is normal operating.

④ 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.

① Check whether probe and DUT are connected properly.

② Check whether the signal connecting line is connect to analog channel.

③ Check whether the analog input port of the input signal is the same as the open oscilloscope channel.

④ Connect the probe-end to the probe compensation signal clip on the front panel of the oscilloscope to check if the probe is normal.

⑤ Check whether DUT is generating a signal (the channel generating the signal can be connected to the problematic channel to determine the problem).

⑥ Press the Autoset key to run automatic setting, to enable the oscilloscope to restart signal Acquisition.

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

① 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.

① Check the trigger settings in trigger menu whether is consistent with the actual signal input channel.

② Check the trigger type: general signals should use "Edge" trigger.

③ Try to change trigger coupling to HF rejection or LF rejection, to filter out the high-frequency or low-frequency noise that interfere the trigger.

(5) Touch function cannot be used.

① Check if the touch function is active. If this function is not enabled, press the Touch Lock key on the front panel to turn on.

② Check whether the oscilloscope is close to a strong magnetic field. If it is, move away from the field, to eliminate the effects of the magnetic field.

③ Check whether the screen and your fingers with oil. If there is, clean your fingers and the screen.

④ If the product still does not work properly, contact the UNI-T Service Center for assistance.

(6) Waveform refresh is very slow.

① Check whether the acquisition method is average and the average times are large.

② If you want to speed up the refresh speed, you can reduce the average time or choose other acquisition methods.

Maintenance and Cleaning

(1) General Maintenance

Keep the instrument away from the direct sunlight.

Caution: Keep sprays, liquids and solvents away from the instrument or probe to avoid damaging the instrument or probe.

(2) Cleaning

Check the instrument frequently according to the operating condition. Follow these steps to clean the external surface of the instrument.

Please use a soft cloth to wipe the dust outside the instrument.

When cleaning the LCD screen, please pay attention and protect the transparent LCD screen.

When cleaning the dust screen, use a screwdriver to remove the screws of the dust cover and then remove the dust screen. After cleaning, install the dust screen in sequence.

Please disconnect the power supply, then wipe the instrument with a damp but not dripping soft cloth. Do not use any abrasive chemical cleaning agent on the instrument or probes.

Warning: Please confirm that the instrument is completely dry before use, to avoid electrical shorts or even personal injury caused by moisture.

Warranty Overview

UNI-T (UNI-TREND TECHNOLOGY (CHINA) CO., LTD.) ensures the production and sale of products, from authorized dealer's delivery date of three years, without any defects in materials and workmanship. If the product is proven to be defective within this period, UNI-T will repair or replace the product in accordance with the detailed provisions of the warranty.

To arrange for repair or acquire warranty form, please contact the nearest UNI-T sales and repair department.

In addition to permit provided by this summary or other applicable insurance guarantee, UNI-T does not provide any other explicit or implied guarantee, including but not limited to the product trading and special purpose for any implied warranties. In any case, UNI-T does not bear any responsibility for indirect, special, or consequential loss

Appendix Contact Us

If the use of this product has caused any inconvenience, if you in mainland China you can contact UNI-T company directly.

Service support: 8am to 5.30pm (UTC+8), Monday to Friday or via email. Our email address is infosh@uni-trend.com.cn

For product support outside mainland China, please contact your local UNI-T distributor or sales center.

Many UNI-T products have the option of extending the warranty and calibration period, please contact your local UNI-T dealer or sales center.

To obtain the address list of our service centers, please visit our website at URL: http://www.uni-trend.com

Scan to Download relevant document, software, firmware and more.

PN：110401112674X

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: MSO7000X 系列	Part NO. 110401112674X
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			