General Warranty

We warrant that the product will be free from defects in materials and workmanship for a period of 2 years from the date of purchase of the product by the original purchaser from our company. The warranty period for accessories such as probes, battery is 12 months. This warranty only applies to the original purchaser and is not transferable to a third party.

If the product proves defective during the warranty period, we will either repair the defective product without charge for parts and labour, or will provide a replacement in exchange for the defective product. Parts, modules and replacement products used by our company for warranty work may be new or reconditioned like new. All replaced parts, modules and products become the property of our company.

In order to obtain service under this warranty, the customer must notify our company of the defect before the expiration of the warranty period. Customer shall be responsible for packaging and shipping the defective product to the designated service centre, a copy of the customers proof of purchase is also required.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care.

We shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than our company representatives to install, repair or service the product; b) to repair damage resulting from improper use or connection to incompatible equipment; c) to repair any damage or malfunction caused by the use of not our supplies; or d) to service a product that has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty of servicing the product.

Please contact the nearest Sales and Service Offices for services.

Excepting the after-sales services provided in this summary or the applicable warranty statements, we will not offer any guarantee for maintenance definitely declared or hinted, including but not limited to the implied guarantee for marketability and special-purpose acceptability. We should not take any responsibilities for any indirect, special or consequent damages.

※：The illustrations, interface, icons and characters in the user manual may be slightly different from the actual product. Please refer to the actual product.

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1. General Safety Requirement

Before any operations, please read the following safety precautions to avoid any possible bodily injury and prevent this product or any other products connected from damage. In order to avoid any contingent danger, this product is only used within the range specified.

Check the input power supply Settings according to the power supply voltage standards in your country.

Only the qualified technicians can implement the maintenance.

To avoid Fire or Personal Injury:

Use Proper Power Cord. Use only the power cord supplied with the product and certified to use in your country.

Product Grounded. This instrument is grounded through the power cord grounding conductor. To avoid electric shock, the grounding conductor must be grounded. The product must be grounded properly before any connection with its input or output terminal.

Check all Terminal Ratings. To avoid fire or shock hazard, check all ratings and markers on the instrument. Refer to the user's manual for more information about ratings before connecting the instrument. Do not exceed any of ratings defined in the following section.

Do not operate without covers. Do not operate the instrument with covers or panels removed.

Use Proper Fuse. Use only the specified type and rating fuse for this instrument.

Avoid exposed circuit. Do not touch exposed junctions and components when the instrument is powered.

Do not operate if in any doubt. If you suspect damage occurs to the instrument, have it inspected by qualified service personnel before further operations.

Use your instrument in a well-ventilated area. Inadequate ventilation may cause an increasing of temperature or damages to the instrument. Please keep the instrument well ventilated, and inspect the air outlet and the fan regularly.

Do not operate in wet conditions.

Do not operate in an explosive atmosphere.

Keep instrument surfaces clean and dry.

BNC output ports not allowed to input any signal such as voltage, current and other electrical signal, otherwise, it will be burned.

2. Safety Terms and Symbols

Safety Terms

Terms in this Manual. The following terms may appear in this manual:

Warning: Warning indicates the conditions or practices that could result in injury or loss of life.

Caution: Caution indicates the conditions or practices that could result in damage to this product or other property.

Terms on the Product. The following terms may appear on this product:

Danger: It indicates an injury or hazard may immediately happen.

Warning: It indicates an injury or hazard may be accessible potentially.

Caution: It indicates a potential damage to the instrument or other property might occur.

Safety Symbols

Symbols on the Product. The following symbol may appear on the product:


Hazardous Voltage


Refer to Manual


Protective Earth Terminal


Chassis Ground


Test Ground

3. General Inspection

After you get a new generator, it is recommended that you should make a check on the instrument according to the following steps

1. Check whether there is any damage caused by transportation.

If it is found that the packaging carton or the foamed plastic protection cushion has suffered serious damage, do not throw it away first till the complete device and its accessories succeed in the electrical and mechanical property tests.

2. Check the Accessories

The supplied accessories have been already described in Appendix A: Accessories of this manual. You can check whether there is any loss of accessories with reference to this description. If it is found that there is any accessory lost or damaged, please get in touch with our distributor responsible for this service or our local offices.

3. Check the Complete Instrument

If it is found that there is damage to the appearance of the instrument, or the instrument can not work normally, or fails in the performance test, please get in touch with our distributor responsible for this business or our local offices. If there is damage to the instrument caused by the transportation, please keep the package. With the transportation department or our distributor responsible for this business informed about it, a repairing or replacement of the instrument will be arranged by us.

4. Quick Start

Front Panel Overview

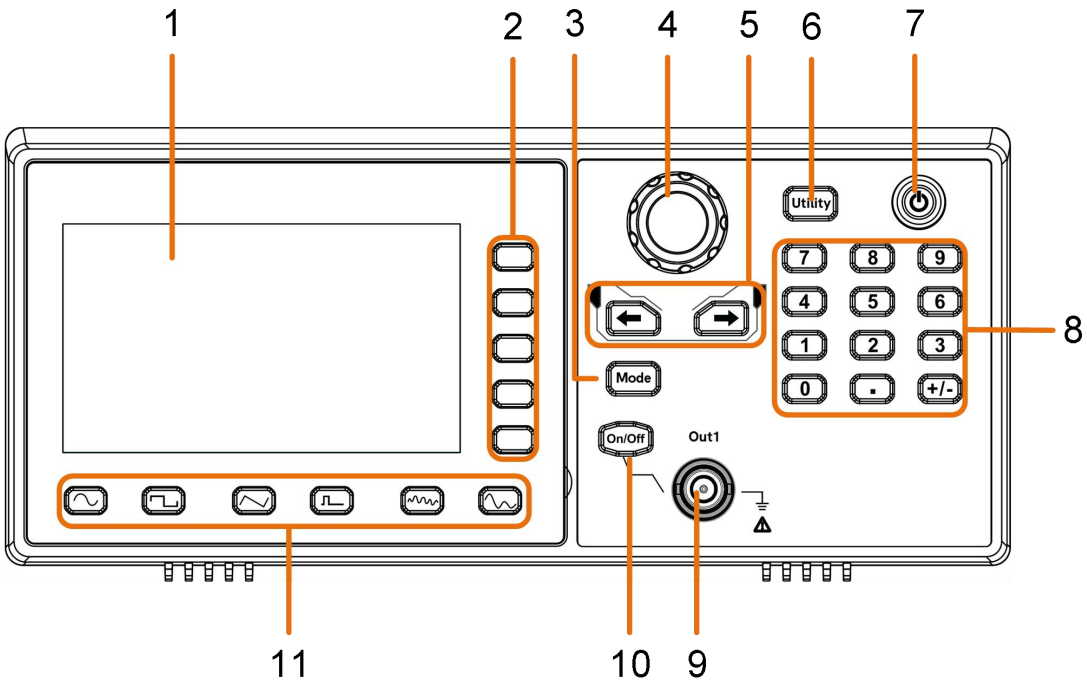


Figure 4- 1 Front Panel Overview

1	**LCD**	Display the user interface.
2	**Menu selection keys**	Includes 5 keys to activate the corresponding menu.
3	**Operation keys**	**Mode**：output the modulated waveform.
4	**Knob**	Change the currently selected value, also used to select the arbitrary waveform types and arb data file name.
5	**Direction key**	Move the cursor of the selected parameter.
6	**Utility**	set the utility function.
7	**Power button**	Turn on/off the waveform generator.
8	**Number keypad**	Input the parameter.
9	**Output terminal**	Output channel signal.

10	**On/Off button**	Turns the output of the channel on or off. When the output is turned on, the backlight of the button lights up.
11	**Waveform Selection area**	Includes: Sine, Square, Ramp, Pulse, Noise, Arb Wave.

Rear Panel Overview

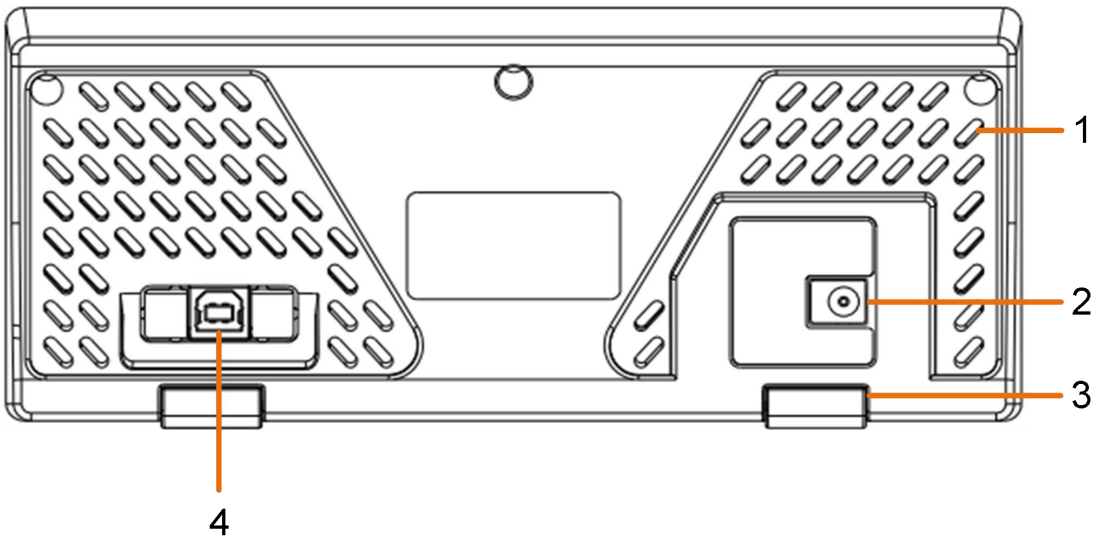


Figure 4-2 Rear Panel Overview

1	**Air vents**		
2	**Power input connector**		DC power input connector.
3	**Foot Stool**		Tilt the signal generator for easy operation.
4	**USB interface**	**Device**	Used to connect a USB type B controller. Can be connected with PC, the signal generator can be controlled by the host computer software.

Power On

(1) Connect the instrument to the AC power using the DC power adapter provided in the attachment.

> **Warning**: To prevent electric shock, make sure the instrument is properly grounded.

(2) Press the **power** button on the front panel. The back of the power channel switch will light up, and the buzzer will sound.

User Interface

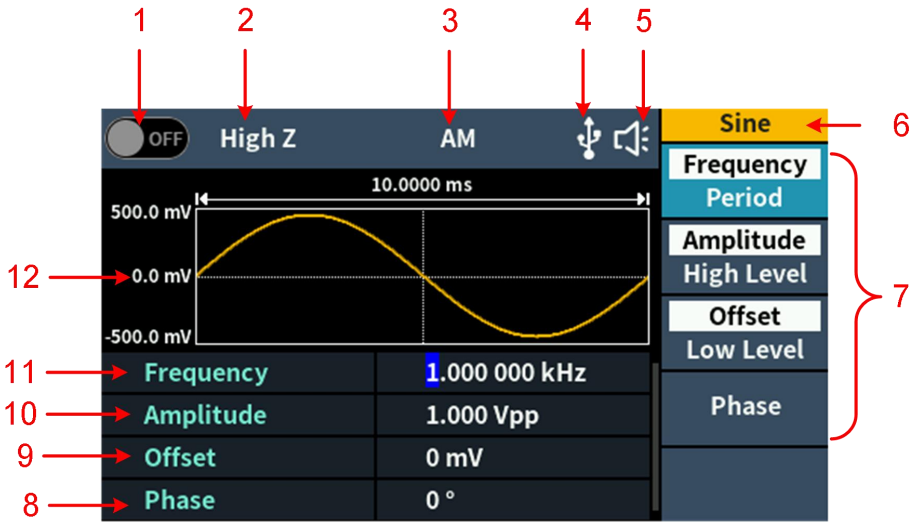


Figure 4- 3 User Interface

1	Display channel name.
2	Display load.
3	Current modulation mode.
4	Lights up the indicator when connected to the USB Host via the USB DEVICE interface.
5	Buzzer.
6	Menu title.
7	Current waveform or mode setting menu.
8	Start phase.
9	Offset/Low level,depending on the right highlighted menu item.
10	Amplitude / High level, depending on the right highlighted menu item.
11	Frequency/Period, depending on the highlighted menu item on the right.
12	Display current waveform.

Channel Setting

- **Open/Close the channel input**

Press **On/Off** on the front panel to turn on/off the corresponding channel output. The backlight of the button will light up when it is set to output.

Waveform Setting

Sine, square, ramp, pulse, noise or arbitrary waves can be set and output. Press the waveform selection button on the front panel: sine, square, ramp, pulse, noise, arbitrary wave, and enter the corresponding waveform setting interface. The waveform is different and the parameters that can be set are different.

For example： Press **Frequency/Period** softkey, the selected menu item is highlighted in white, and a cursor will display on the corresponding parameter item and then press **Frequency/Period** softkey to switch the frequency and period.

There are two ways to change the selected parameter value:

- Turn the **knob** to increase or decrease the value at the cursor.Press the direction key to move the cursor left or right.
- Press a number key on the **numeric keypad** directly, the screen will pop out the data input box, input the desired value.Press **Back** softkey to cancel the current input parameter value.

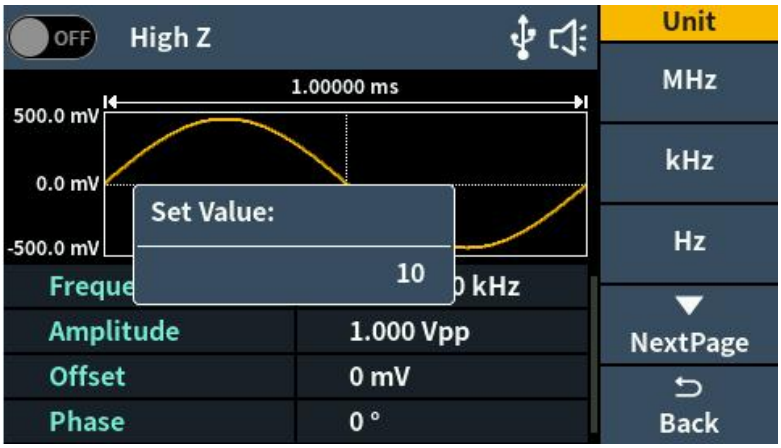


Figure 4-4：Use the numeric keypad to set the frequency

Parameters can be set for each waveform：

Waveform	Waveform menu item
Sine	Frequency/Period、Amplitude/High Level、Offset/Low Level、Phase
Square	Frequency/Period、Amplitude/High Level、Offset/Low Level、

	Phase
Ramp	Frequency/Period、Amplitude/High Level、Offset/Low Level、Phase、Symmetry
Pulse	Frequency/Period、Amplitude/High Level、Offset/Low Level、Phase、Width/Duty、Rise、Fall
Noise	Amplitude/High Level、Offset/Low Level
Arbitrary	Frequency/Period、Amplitude/High Level、Offset/Low Level、Build-in、Store

Output built-in wave (including DC)

(1) Press softkey then press **NextPage** softkey to enter the nextpage menu.

(2) Press **Built-in** softkey to enter the built-in wave menu.

(3) Press **Common**, **Medical Treatment**, **Standard** softkeys to select the built-in wave type.

Press **NextPage** softkey to enter the next page, select the built-in wave type: **Maths**, **Trigonometric**, **Window Function**.

Press **NextPage** softkey to enter the next page, select the built-in wave type： **Engineering**, **Seg Mod** (Segmentation Modulation) and **Fan test**.

Note: DC is a type of built-in waveform, located in the "Common" category, named "DC".

Store

Users can Load customized waveform to the device by PC software. Install PC software first. (You may follow P13 "Communication with PC"). Press  , press **NextPage** then press **Store** button to enter File system.

Reading waveform

(1) Please visit our official website to obtain the installation package and decompress it.

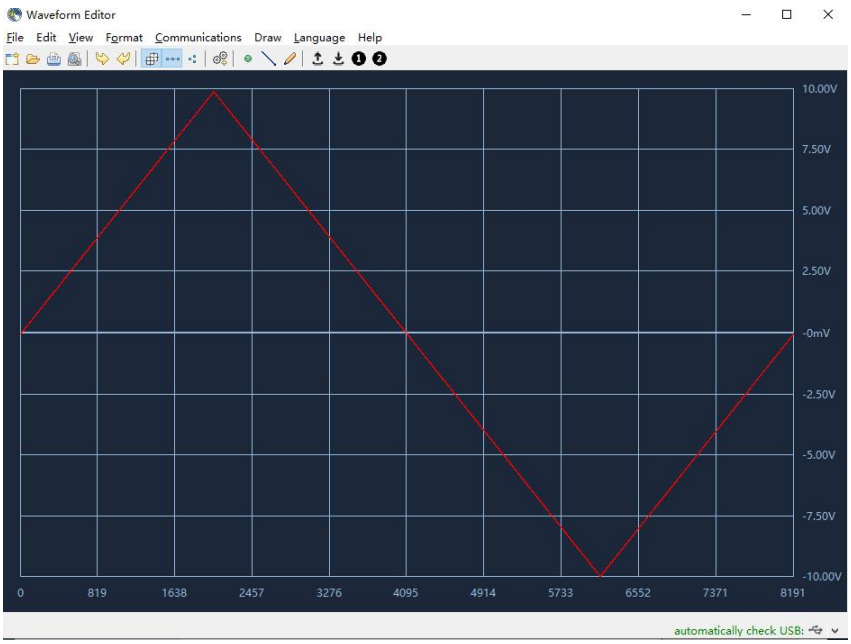
(2) Double click " Waveform Editor " icon to run the software.



(3) Enter the “Waveform Editor” interface.

(4) Select the required waveform on the instrument.

(5) Under Waveform Editor software interface, click "Read Waveform Icon  " button, and the waveform will be read and displayed on the screen.



Write and Recall waveform

We can use the Line Draw, Hand Draw and Point Edit mode in the Waveform Editor to edit the required waveform, and save and display it on the instrument by writing.

(1) Under Waveform Editor software interface, Click "Write waveform Icon " button.

(2) After the writing is successful, the "File transfer completed" prompt box will be displayed in the waveform editor. Click "OK".

(3) On the instrument, the screen shows "Any wave has been updated to USERX(X is 0-15)".

(4) Press the button ,then press the **NextPage** button to enter the nextpage menu.

(5) Press the **Store** softkey to enter the file system, and then press the **Enter** softkey to enter the file system. Select the file name “USERX” that has just written the waveform.

(6) Press the **Call out** softkey, the screen displays "File read successfully", then press the button, the written waveform can be viewed on the instrument.

Note: The file size is displayed on the right of the file. If 0B is displayed, the file is empty.

Generate the Modulated Waveform

Supported modulation types include: AM (Amplitude Modulation), FM (Frequency Modulation), PM (Phase Modulation), FSK (Frequency Shift Keying).

Press the **Mode** function key, to select the modulation type enter the setup menu. To turn off the modulation, press the **Mode** function button again.

Parameters of modulated waveforms:

Type	Parameters
AM	Shape, Frequency, Depth
FM	Shape, Frequency, Deviation
PM	Shape, Frequency, Deviation
FSK	Rate, HopFreq

Generate Sweep

In the frequency sweep mode, the generator "steps" from the start frequency to the stop frequency at the sweep rate you specify. Sweep can be generated by Sine, Square, Ramp or Arbitrary waveforms.

When the output signal is Sine, Square, Ramp or Arbitrary waveform, press the front panel **Mode** key ,then press the **Sweep** to enter the sweep mode. The parameters allowed to be set are: Sweep Time, Linear/Log, Start Frequency/Center Frequency, Stop Frequency/Frequency Span, Source.

Generate Burst

Press the **Mode** function key, then press the **Burst** enter burst mode, to generate versatile waveforms in burst.Burst can last for certain times of waveform cycle (N-Cycle Burst). Bust can apply to Sine, Square, Ramp, Pulse and Arbitrary waveforms.The parameters allowed to be set are: Burst Period, Cycles/Infinite and Trigger source.

Utility Setting

Press the front panel **Utility** function key to enter the system options menu. The user can set the display parameters of the signal generator, CH1/2 parameters, interface parameters and system parameters. Press **Utility** again to exit the system options menu.

Utility system menu

Menu	Description
Display Setting	
Backlight	Set the parameter value of the screen brightness.
Screen saver	Set the On/Off screen saver；If set to ON, the screen saver time range can be 1 to 999 minutes.
Separator	Set the separator for the screen display data.
Channel Set	
Load	It is convenient for the user to match the display voltage with the desired load. The range is from 1 Ω to 10 kΩ.
System Setting	
Language	Select instrument interface language.

Beeper	If On, it makes sounds when prompted.
USB Dev	Set the communication protocol type of the USB Device interface on the rear panel. **PC:** This is the internal communication protocol. Select this option when connecting to the Waveform Editor software running on computer via the USB Device interface. **USBTMC:** Select this when you need to use the USBTMC communication protocol standard.
Factory Set	Factory restoration.
Upgrade	The instrument firmware can be updated using a USB storage device through the rear panel USB interface.

5. Communication with PC

Supports communication with a computer via a USB port. Using the Waveform Editor software installed on the computer, the signal generator can be operated on the computer to control the output and write the file to the signal generator.

The instrument settings can be saved as files in internal memory. Up to 16 instrument settings can be saved in the instrument internal memory.

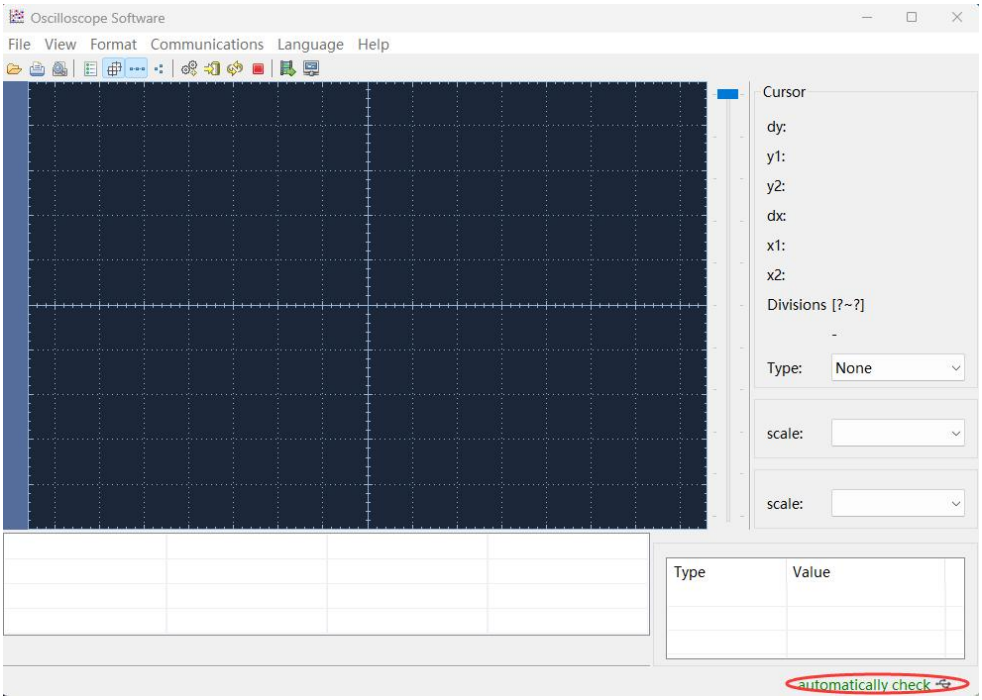
Note: Please go to our official website to obtain the Waveform Editor communication software and install it.

(1) **Set the USB device protocol type of the signal generator**: Press **Utility** →**System** → **USB Dev**, switch to PC.

(2) **Connection:** Connect the USB Device interface on the rear panel of the signal generator to the **USB interface** of the computer with a USB cable.

(3) **Install the driver:** Run Waveform Editor software on the computer. Follow the instructions to install the driver. The path of the driver is the USBDRV folder in the directory where the Waveform Editor communication software is located, such as "C:\Program Files (x86)\DS_Wave\Waveform Editor\USBDRV".

(4) **Host computer communication port setting:** Open the Waveform Editor software,click “**Communications**” in the menu bar,select “**Ports-Settings**”, in the setting dialog box, select the communication port as “**USB**”. After the connection is successful, the connection status prompt in the lower right corner of the software interface turns green,as shown in the below figure.



6. Appendix

Appendix A：Accessories

- 1 × BNC to alligator cable
- 1 × USB cable
- 1 × USB to DC cable
- 1 × Power adapter
- 1 × Quick Guide
- 1 × Packaging

Appendix B：General Care and Cleaning

General Maintenance

Do not store or leave the instrument where the liquid crystal display will be exposed to direct sunlight for long periods of time.
Caution: To avoid any damage to the instrument or probe, do not exposed it to any sprays, liquids, or solvents.
Cleaning
Inspect the instrument and probes as often as operating conditions require. To clean the instrument exterior, perform the following steps:
1. Wipe the dust from the instrument and probe surface with a soft cloth. Do not make any scuffing on the transparent LCD protection screen when clean the LCD screen.
2. Disconnect power before cleaning your instrument. Clean the instrument with a wet soft cloth not dripping water. It is recommended to scrub with soft detergent or fresh water. To avoid damage to the instrument or probe, do not use any corrosive chemical cleaning agent

⚠ **Warning:** Before power on again for operation, it is required to confirm that the instrument has already been dried completely, avoiding any electrical short circuit or bodily injury resulting form the moisture.

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