OWH80Q Series Four-Channel Programmable DC Power Supply

User Manual

■ OWH8080Q-2000

■ OWH8040Q-600F

■ OWH8020Q-1000F

(F stands for fanless model)

For product support, visit:www.owon.com.hk/download

※：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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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.

Table of Contents

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.

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.

Limit operation to the specified measurement category, voltage, or amperage ratings.

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. To avoid short circuit inside the instrument or electric shock, never operate the instrument in a humid environment.

Do not operate in an explosive atmosphere. In order to avoid damages to the device or personal injuries, it is important to operate the device away from an explosive atmosphere.

Keep instrument surfaces clean and dry. To avoid the influence of dust or moisture in air, please keep the surface of device clean and dry.

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

Public Ground

3. Quick Start

3.1 Front Panel and Interface

3.1.1 Front Panel

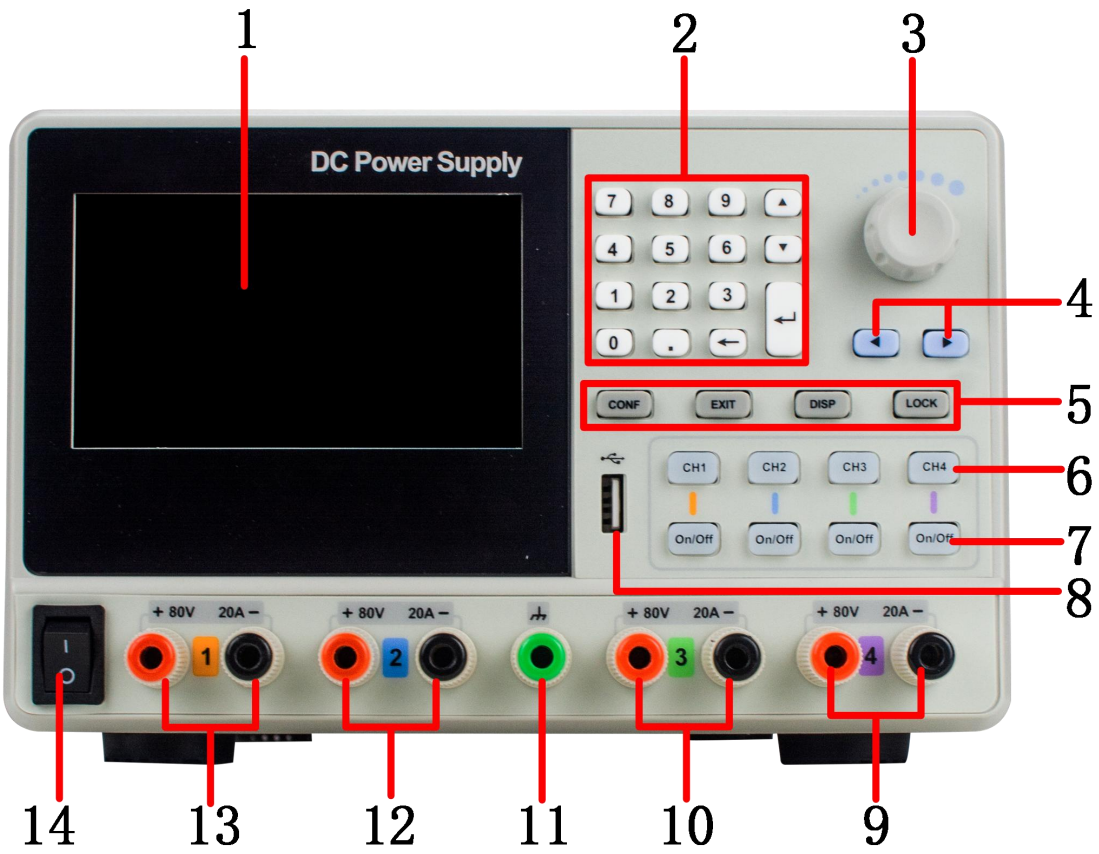


Figure 3- 1 Front panel overview

①	**Display Screen**	User interface display.
②	**Numeric keys area**	Parameter input, includes the numeric keys, decimal point and backspace key. **Up and down direction key:** Select sub menu. **Enter key:** Enter menu or confirm the parameter entered.
③	**Knob**	Select menu or change the value.
④	**Direction**	Set sub menu or move the cursor.

⑤	**Function keys**	**CONF** : Opens the configuration page for system function settings. **EXIT** : Exits to the previous screen. **DISP** : Switches between numerical output display and waveform display. **LOCK** : Short press this button to lock the panel keys. When locked, pressing any other key will have no effect. Hold this button for more than 5 seconds to unlock.
⑥	**Channel button**	CH1, CH2, CH3, CH4 channel button, press it to select this channel.
⑦	**On/Off button**	Press the On/Off button of the corresponding channel to turn the channel output on or off.
⑧	**USB Host port**	Connect as a "host device" with an external USB device, such as connect a USB disk to the instrument.
⑨	**CH4 output terminals**	Channel 4 output connectors.
⑩	**CH3 output terminals**	Channel 3 output connectors.
⑪	**Ground terminal**	Channel ground connector.
⑫	**CH2 output terminals**	Channel 2 output connectors.
⑬	**CH1 output terminals**	Channel 1 output connectors.
⑭	**Power button**	Turn on/off the instrument

Instructions for panel key indicator

ON/OFF key: Press the button, and the channel light and the button light will turn on.

3.1.2 Rear Panel

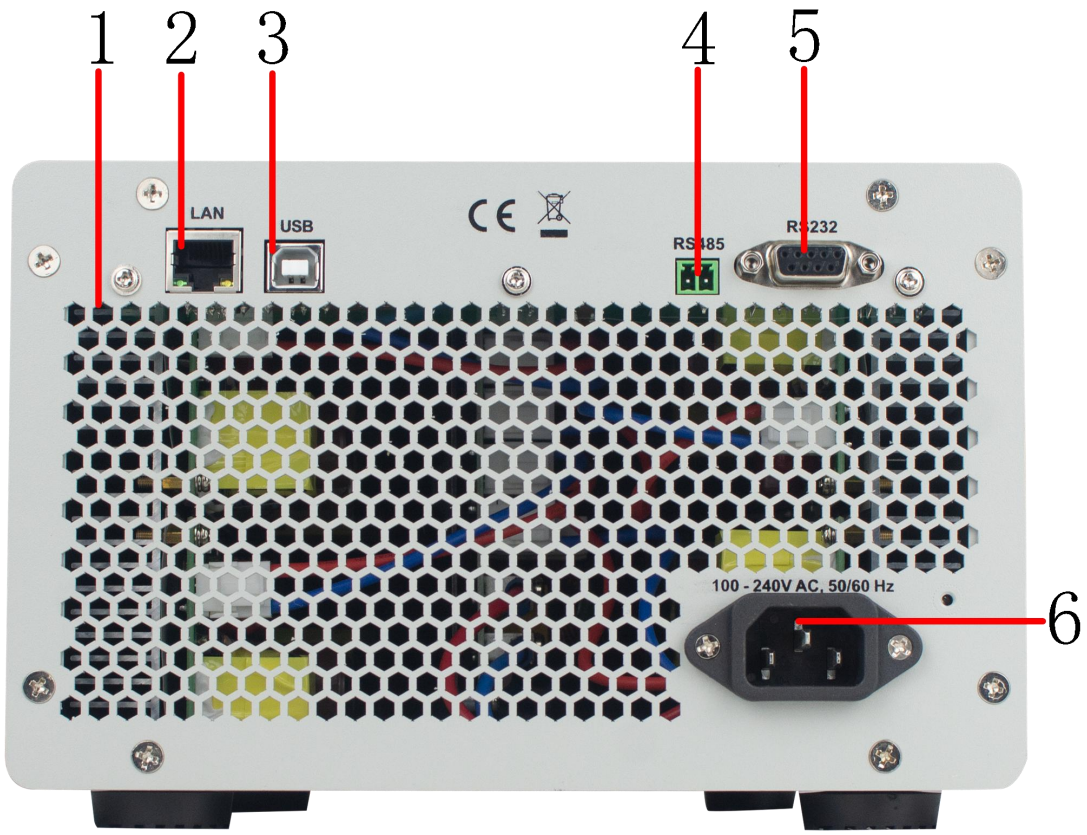


Figure 3- 2 Rear panel overview

①	**Fan Air Outlet**	Do not block the air outlet. Obstruction may cause inadequate internal cooling, leading to overheating and potential damage.
②	**LAN Port**	Ethernet communication interface for remote control. Connects the unit to a PC or network for remote operation.
③	**USB Serial Port**	USB communication port for connecting the device to a computer.
④	**RS485 Interface**	RS485 communication port.
⑤	**RS232 Interface**	RS232 communication port.
⑥	**AC Power Input Terminal**	AC power input interface, rated input current not exceeding 10A.

3.1.3 User Interface

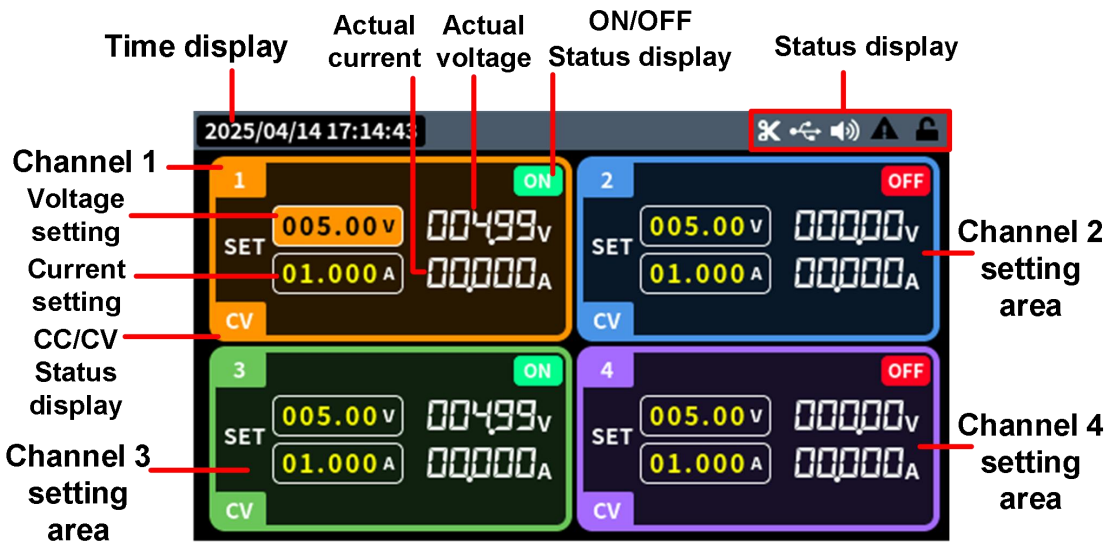


Figure 3- 3 User Interface

Status Icon

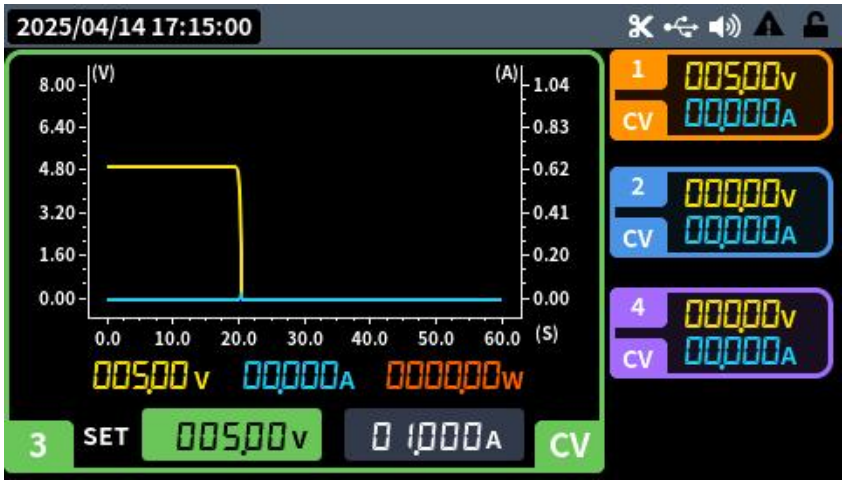
Icon	Description
	USB drive screenshot indicator (Hold down the number key "**0**" for 3 seconds to save the current screen to the USB drive)
	The front panel USB port has a USB drive or other storage media connected to it.
	Enable beeper
	Alarm Indicator: Red - Fault; Gray - Normal
	The panel buttons are locked state

Note:

- In CC/CV mode, pressing the **CH1**, **CH2**, **CH3**, **CH4** buttons allows you to switch to the single-channel display main interface.

- In CC/CV or LIST mode, pressing the **DISP** button switches to the

waveform display interface.



3.2 General Inspection

After you get a new power supply, 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 on the first appearance of the instrument, or the instrument cannot 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.

3.3 Power-on Inspection

(1) Connect the instrument to an AC power source using the power cord supplied with the accessory.

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

(2) Press the **power button** on the front panel and the startup screen will be displayed on the screen.

3.4 Output Inspection

Output verification ensures that the instrument reaches its rated output value and can correctly execute front panel operations.

3.4.1 Voltage Output Inspection

The following steps verify basic voltage functions without load:

(1) When the instrument is under no load, select a channel and ensure the output current setting for this channel is not at zero.

(2) Turn on the channel output, then ensure the channel is in Constant Voltage output mode.

(3) Set some different voltage values on this channel; check if the actual voltage value displayed is close to the set voltage value, and also that the actual current value displayed is nearly to zero.

(4) Check if the output voltage can be adjusted from zero to the maximum rating.

3.4.2 Current Output Inspection

The following steps check basic current functions to directly short the output two terminals:

(1) Starting up.

(2) Connect a short across (+) and (-) output terminals with an insulated test lead on this channel. Use a wire size sufficient to handle the maximum current.

(3) Set the output voltage to the maximum rating on this channel.

(4) Turn on the channel output. Ensure the channel you used is in Constant Current output mode.

(5) Set some different current values on this channel; check if the actual current value displayed is close to the set current value, and to check if the actual voltage value displayed is nearly zero.

(6) Check that if the output current can be adjusted from zero to the maximum rating.

(7) Turn off the channel output and remove the short circuit from the output terminals.

4. Panel Operation

4.1 Turn On/Off the Channel Output

Yellow **On/Off** button: Press the **On/Off** button will turn on the output of Channel 1, and the button light will turn on. Press the button again will turn off the output of Channel 1, and the button light will turn off.

Blue **On/Off** button: Pressing the **On/Off** button will turn on the output of Channel 2, and the button light will turn on. Pressing the button again will turn off the output of Channel 2, and the button light will turn off.

Green **On/Off** button: Pressing the **On/Off** button will turn on the output of Channel 3, and the button light will turn on. Pressing the button again will turn off the output of Channel 3, and the button light will turn off.

Purple **On/Off** button: Pressing the **On/Off** button will turn on the output of Channel 4, and the button light will turn on. Pressing the button again will turn off the output of Channel 4, and the button light will turn off.

4.2 Set the Output Voltage/Current

4.2.1 Set the Output Voltage

- **Set the output voltage of CH1:** Press the **CH1** to select Channel 1, use **knob** or ▲▼◄► to change the value location. Press ↵ when the digital display of the output voltage setting appears with a white background cursor, indicating the value is editable. The following methods can be used to set the value:
  - Turn the **knob** or press ▲▼to change the value and press < / > can move the cursor. Press the < / > key to move the cursor. Press the ↵ key to confirm.
  - Use the **numeric keys** to input desired value. Press the ↵ key to confirm.

- **Set the output voltage of CH2:** Press **CH2** to select Channel 2, you can set the value in the same way as CH1 above.
- **Set the output voltage of CH3:** Press **CH3** to select Channel 3, you can set the value in the same way as CH1 above.
- **Set the output voltage of CH4:** Press **CH4** to select Channel 4, you can set the value in the same way as CH1 above.

4.2.2 Set the Output Current

- **Set the output current of CH1:** Press the **CH1** to select Channel 1, use **knob** or ▲▼◄ ► to change the value location. Press  when the digital display of the output current setting appears with a white background cursor, indicating the value is editable. The following methods can be used to set the value:
  - Turn the **knob** or press ▲▼to change the value and press < / > can move the cursor. Press the < / > key to move the cursor. Press the  key to confirm.
  - Use the **numeric keys** to input desired value. Press the  key to confirm.
- **Set the output current of CH2:** Press **CH2** to select Channel 2, you can set the value in the same way as CH1 above.
- **Set the output current of CH3:** Press **CH3** to select Channel 3, you can set the value in the same way as CH1 above.
- **Set the output current of CH4:** Press **CH4** to select Channel 4, you can set the value in the same way as CH1 above.

Note: When the input value exceeds the rated range, it shall be set to the maximum or minimum limit value.

4.3 Protection Setting

- When the output mode is CC/CV, press the **CONF** to enter system menu, use **knob** to protection setting box, then press  to enter protection setting interface. Use the **knob** or ▲▼◄ ► to change the value location. Press  when the parameter appears with a blue background cursor, indicating the value is editable. The following methods can be used to set

the value:

- Turn the **knob** or press ▲▼to change the value and press < / > can move the cursor. Press the < / > key to move the cursor. Press the ↵ key to confirm.
- Use the **numeric keys** to input desired value. Press the ↵ key to confirm.

When the output voltage, current, or load power exceeds the set value, the instrument will disconnect the output, and a warning window will pop up on the screen. Press ↵ or the **On/Off** key of any channel can retrieve the alarm information, but the red alarm indicator in the top right corner of the screen will not disappear. It will only return to normal after the fault in that channel is resolved and the system is restarted.

Note:
When the system automatically disconnects the output due to protection, the user must close the channel and reopen it after making appropriate adjustments before normal output can be resumed.

prevents the power output from exceeding the rated value of the load, thereby protecting the load.

4.4 System Setting

4.4.1 Language Setting

(1) Press **CONF** key, then press **SYSTEM SETUP** to enter system setup menu.

(2) Press **knob** or ▲ / ▼ / ▶ / ◀ to select **LANGUAGE SETUP**. Press ↵ will display a drop-down selection box with supported languages including Chinese, English, etc. Select desired language, then press ↵ to confirm.

4.4.2 Sound Setting

(1) Press **CONF** key, then press **SYSTEM SETUP** to enter system setup menu.

(2) Press **knob** or ▲ / ▼ / ▶ / ◀ to select **SOUND SETUP**. Press ↵ will display a drop-down selection box, select on or off and then press ↵ to confirm.

4.4.3 Alarm Setting

(1) Press **CONF** key, then press **SYSTEM SETUP** to enter system setup menu.

(2) Press **knob** or ▲ / ▼ / ▶ / ◀ to select **ALARM SETUP**. Press ↵ will display a drop-down selection box, select on or off and then press ↵ to confirm. When the alarm sound is enabled, 🔊 will display. When the system prompt appears, emit a buzzing sound, such as when the output is cut off due to overvoltage/overcurrent protection.

4.4.4 Date Setting

(1) Press **CONF** key, then press **SYSTEM SETUP** to enter system setup menu.

(2) Press **knob** or ▲ / ▼ / ▶ / ◀ to select **DATE SETUP**. Press < / > to move cursor, and use the **Knob** or ▲ / ▼ to set desired value, and then press ↵ to confirm.

4.4.5 Time Setting

(1) Press **CONF** key, then press **SYSTEM SETUP** to enter system setup menu.

(2) Press **Knob** or ▲ / ▼ / ▶ / ◀ to select **TIME SETUP**. Press < / > to

move cursor, and use the **Knob** or ▲ / ▼ to set desired value, and then press ↵ to confirm.

4.4.6 Backlight Setting

(1) Press **CONF** key, then press **SYSTEM SETUP** to enter system setup menu.

(2) Press **knob** or ▲ / ▼ / ▶ / ◀ to select **BACKLIGHT SETUP**. Press ↵ to enter edit mode, and use the **Knob** or ▲ / ▼ to set desired value, and then press ↵ to confirm.

4.4.7 USB Recording Setting (Run History Preservation)

Insert U disk,the icon turns brighter. Press **CONF** and select **SYSTEM SETUP**, and then press ↵ to enter system setup interface. **USB RECORDING** and **USB UPDATE** is enabled, use the **knob** or press direction key to select USB Recording Setup, and then press ↵ to enter USB recording setting interface. The adjustable parameters include recording length (in hours, minimum 1 hour, maximum 72 hours) and recording interval (in seconds, minimum 1 second, maximum 9999 seconds). After setting these values, select **START** to confirm, and the operational data will be automatically recorded to the USB drive. When you need to interrupt the recording function, enter the USB recording settings using the same method and select **STOP**.

4.4.8 USB Update

Use the front-panel USB port to update your instrument firmware using a USB memory device.

USB memory device requirements: This instrument only supports a USB memory device with a FAT32 file system. If the USB memory device doesn't work properly, format it into the FAT32 format and try again; or try another USB memory device.

⚠ **Caution:** Updating your instrument firmware is a sensitive operation, to prevent damage to the instrument, do not power off the instrument or remove the USB memory device during the

update process.

Copy the firmware to be upgraded to a USB flash drive. The file path should be: 0:\OWH Insert the USB drive and the  icon turns brighter. Press **CONF** and select **SYSTEM SETUP**, and then press  to enter system setup interface. **USB RECORDING** and **USB UPDATE** is enabled, use the **knob** or press direction key to select USB Update, and then press  to enter USB recording setting interface. The system automatically identifies upgradable file names and quantities. Select the desired firmware index number for upgrade, and press **Confirm** to proceed. After completion, the screen will restart.

4.4.9 Restore Factory Settings

(1) Press **CONF** key, then press **SYSTEM SETUP** to enter system setup menu.

(2) Press **knob** or ▲ / ▼ / ► / ◄ to select **RESTORE FACTORY**. After press  , the screen will pop up “Restore Factory Settings **ENTER** or **CANCEL**”. Turn the **knob** or press ► / ◄ to select **ENTER** or **CANCEL** and then press  to confirm. Example, press **ENTER** to restore factory and the screen will turn off for 3～5 seconds and then restart, with all settings restored to factory defaults.

4.5 Output mode Setting

The system output mode includes CC/CV mode and LIST mode.

To set the output mode:

(1) Press **CONF** key, use the **knob** or direction key to select **MODE SETUP**, then press  to enter system setup menu.

(2) Press  will pop-up CC/CV, LIST mode drop-down selection box, select the required output mode, and press  key to confirm.

4.5.1 CC/CV Setting

In CC/CV mode, you can set the operation priority of each power channel and

configure the voltage or current ramp-up slope.

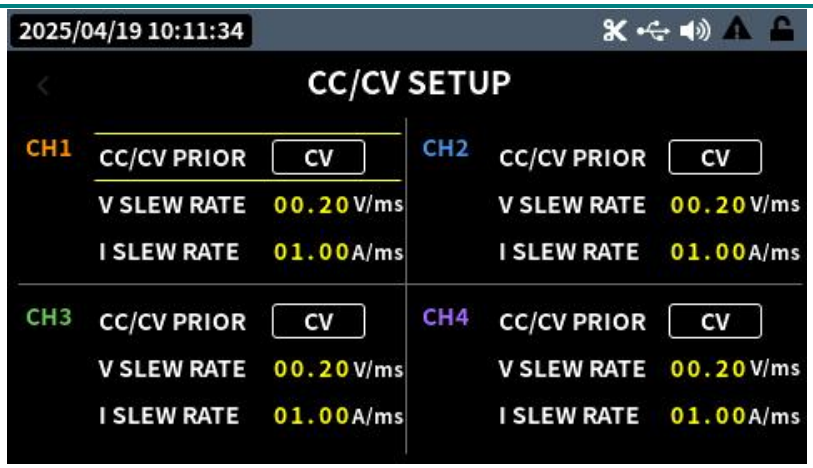
To set the output mode:

(1) Press **CONF** key, use the **knob** or direction key to select **OUTPUT SETUP**, then press ↵ to enter mode setup menu.

(2) Rotate the **knob** or press the direction keys to select the desired channel priority mode. Press ↵ will pop up the **CV**, **CC** selection box, choose the required operation priority mode, and press ↵ to confirm.

(3) Rotate the **knob** or press the direction keys to select the voltage slope or current slope setting. Press ↵ to enter edit mode, use the direction keys or numeric keys to input values, and press ↵ to confirm.

Note:
The voltage slope setting range is 0.02V/ms to 0.2V/ms, and the current slope setting range is 0.02A/ms to 1A/ms. If the settings exceed these ranges, the maximum or minimum limit values will be applied.



4.5.2 LIST Setting

In LIST mode, the system includes both asynchronous and synchronous modes.

ASYN MODE: Each channel independently sets its own LIST parameter values, operating with different time references and independently of each other.

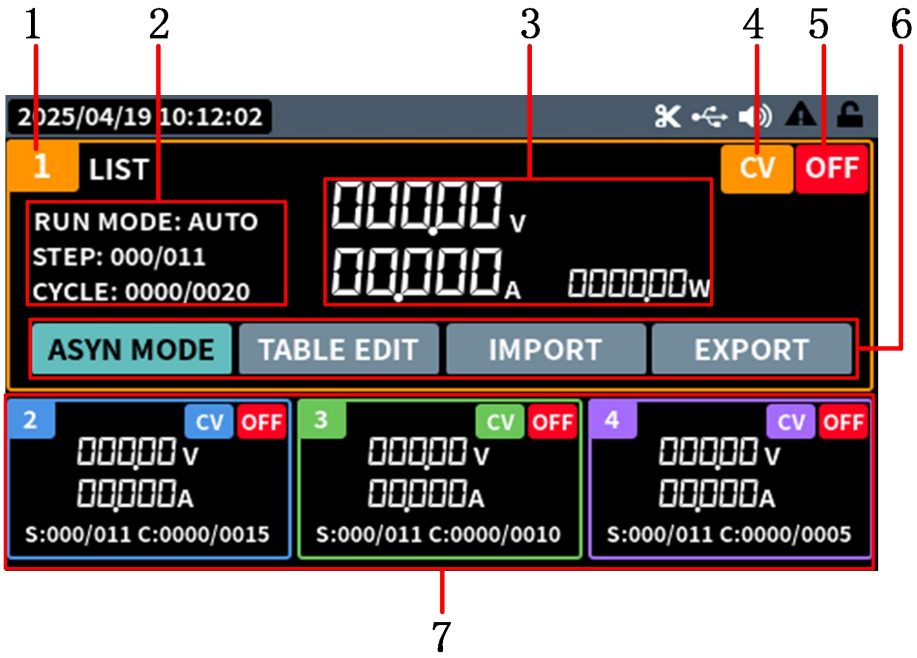
SYNC MODE: The four channels use the same time reference, with identical step counts and cycle repetitions, running synchronously.

The setup methods for synchronous and asynchronous modes are as

follows:

(1) According to the 4.5 output mode, set the output mode to LIST mode. The main interface of LIST mode is shown in the figure below.

(2) Use the **knob** or direction keys to select **SYNC MODE** (default is ASYN MODE). Press ↵ to open the drop-down menu, then use the **knob** or direction keys to choose the desired operating mode: Asynchronous Mode or Synchronous Mode. Press ↵ to confirm.

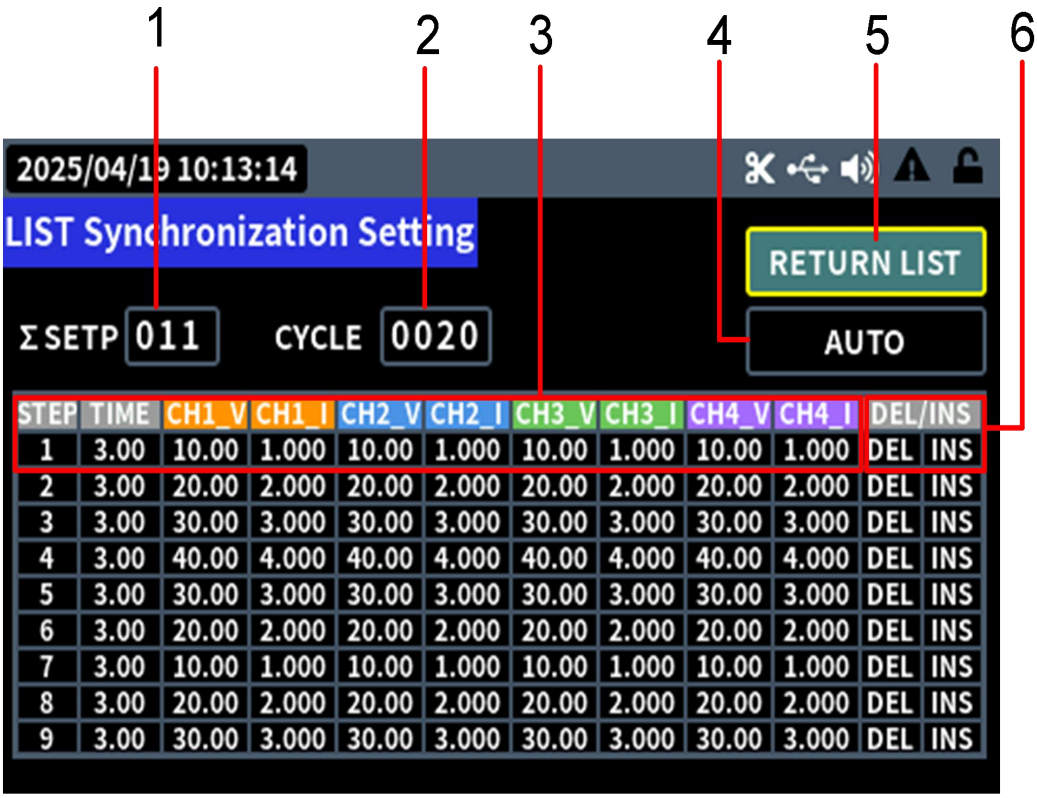


①	**Channel**	Current channel, press **CH1**, **CH2**, **CH3**, **CH4** to switch channel.
②	**Current Loop State**	Operating Modes: Automatic Mode, Manual Mode. Current Step: Current Step Number in Operation and Total Steps per Cycle. Current Cycle: Current Cycle Number and Total Cycle Count.
③	**Actual output**	Current actual output voltage, output current, output power.
④	**Output mode**	CV or CC mode.
⑤	**Power On/Off State**	The power on/off status of the current channel.

⑥	**Function Edit Box**	Modes: Asynchronous Mode, Synchronous Mode. Editing List: Programmable Output Time, Voltage, Current, Steps, Cycles, etc. Data Import: Import Excel spreadsheet data via USB flash drive. Data Export: Export setting parameters to USB flash drive.
⑦	**Other channels state**	The current operating status of other channels.

Synchronous mode Setting

In synchronous mode, you can enter the editing interface by press  through the edit list on the main interface to program the output settings. The setting interface is shown below:

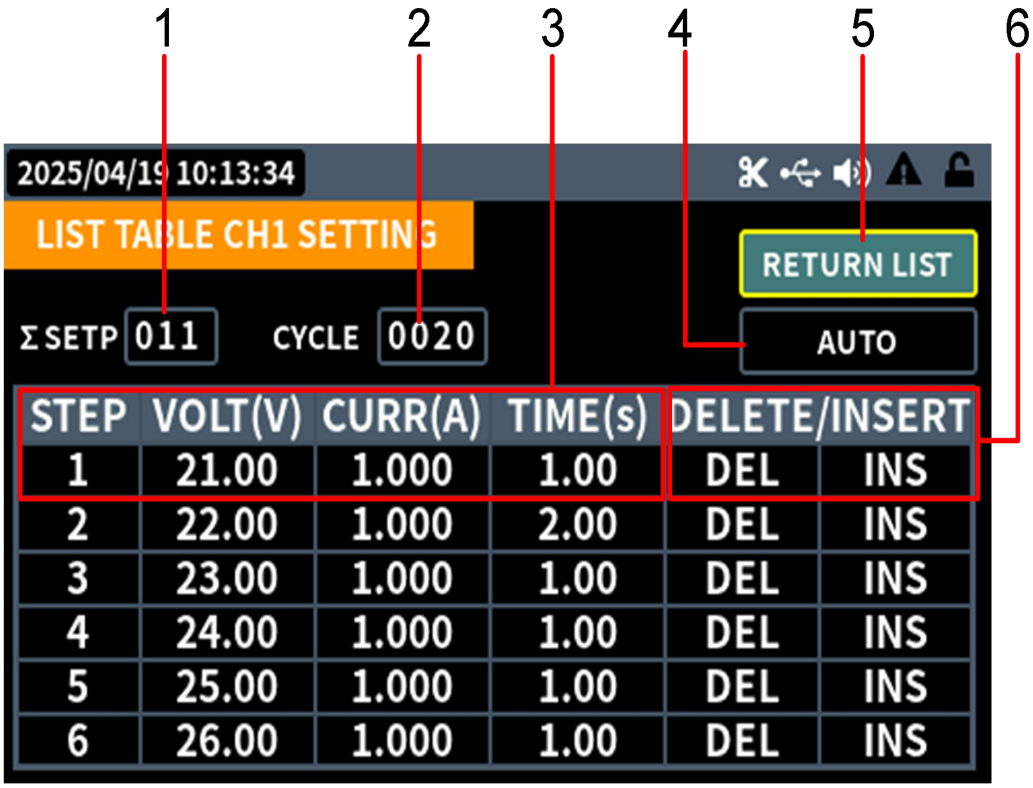


Num.	Parameter	Description
1	Total Steps	Set the work steps, with a range of 1 to 100 steps.
2	Cycle Steps	Set the total number of loops, with a range of 1 to 9999, or INF (infinite loop).
3	Parameter Edit	Set the single-step operation time, output voltage, and output current.

4	Mode Setting	Mode: Press **ON/OFF** key, all channels will automatically output according to the table parameters. Manual Mode: Press **ON/OFF** key first, all channels will have no output; Press the number **0** key to execute the first step, and each press will run one step.
5	Return	Return to the main interface.
6	Step operation	Choose to delete or insert, you can delete this line or insert a new line below.

Asynchronous mode Setting

In asynchronous mode, you can enter the editing interface by press  from the main interface's edit list, where you can program and configure independent channel outputs.



Num.	Parameter	Description
1	Total Steps	Set the work steps, with a range of 1 to 100 steps.
2	Cycle Steps	Set the total number of loops, with a range of 1 to 9999, or INF (infinite loop).
3	Parameter Edit	Set the single-step operation time, output voltage, and output current.

4	Mode Setting	Automatic Mode: Press **ON/OFF** key for each channel to enable automatic output. Manual Mode: Press **ON/OFF** key first, the channel will have no output, then press **1**~**4** keys to execute the first step, each press will run one step. Manual Trigger Conditions: Channel 1 corresponds to **1** key ; Channel 2 corresponds to **2** key; Channel 3 corresponds to **3** key; Channel 4 corresponds to **4** key.
5	Return	Return to the main interface.
6	Increase/ Decrease step	Choose to delete or insert, you can delete this line or insert a new line below.

Data Import and Export

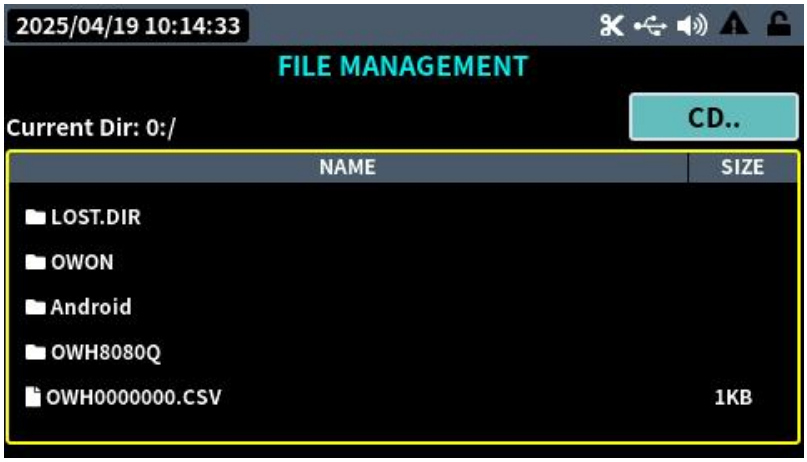
Users can also edit and save curves through import and export methods. Rotate the **knob** to select the **IMPORT** option box, then press  to navigate to the file management page. Use the **knob** to select the desired LIST curve, and press  again to import the curve. The page will switch back to the LIST setup main interface, with the total steps, voltage, current, and time loaded onto the page. Finally, press **ON/OFF** to power on, and the panel will send the curve while navigating to the LIST operation main page for execution.

CSV. File Format Definition

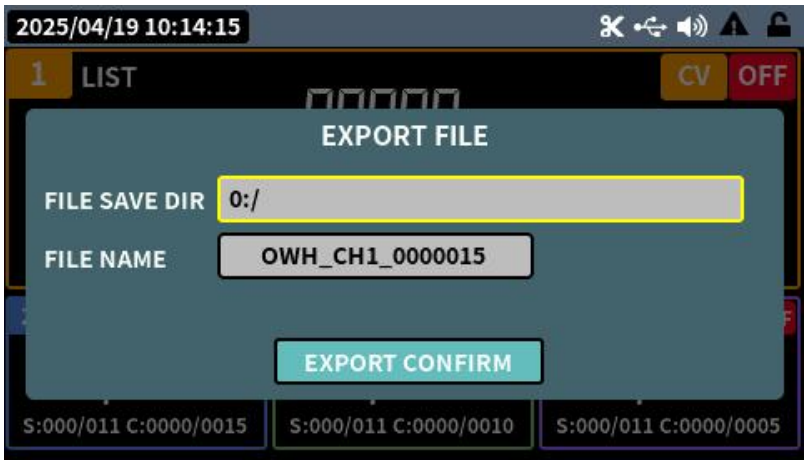
				Note
#TotalSteps	2			//Total steps
#Cycles	20			//Cycle steps
#Mode	Auto			//Run mode（Auto/Manual）
STEP	VOLT	CURR	TIME	//The voltage unit is V, the current unit is A, and the time unit is s.
#1	21	2	1	//Step 1
#2	22	2	2	//Step 2

Note:

1. **No Chinese characters/Full-width characters allowed.**
2. **When saving files and editing in Excel, you need to choose the CSV UTF-8 format for saving.**



When the user needs to export curves, can select the Export by rotating the knob, and then press ↵ to navigate to the file management page. The system automatically names files based on the time by default.After saving, press **EXIT** key to exit the file management interface and return to the LIST setup interface. The remaining operations are similar to the import process.



4.6 Remote Setting

Press **CONF** , then press **REMOTE SETUP** to enter the communication settings menu. The communication methods include USB, RS232, RS485, and Ethernet, totaling four options.

4.6.1 USB\RS232\RS485 Port Setting

(1) Rotate the **knob** or press direction keys to select the communication interface. Press ↵ to pop up the communication method selection drop-down box. Select USB, RS232, or RS485 respectively, and press

to confirm.

(2) Rotate the **knob** or press direction keys to select the baud rate. Set the baud rate value, and press to pop up the baud rate selection dropdown menu. The available options are: 2400, 4800, 9600, 19200, 38400, 57600, and 115200. The factory default setting is 115200. Press to confirm. Ensure that the instrument's baud rate setting matches the computer's baud rate setting.

4.6.2 Network Setting

(1) Rotate the **knob** or press direction keys to select the communication interface. Press to pop up the communication method selection drop-down box, select LAN and press to confirm.

(2) Rotate the **knob** or press the direction keys to select DHCH. Press to pop up the enable/disable dropdown menu, and press again to confirm. The default state is disabled.

Note: The default network parameters of the device cannot be modified. If any changes are needed, please contact our after-sales service team.

4.7 System Information

4.7.1 Check System Information

Press **CONF** , then select **SYSTEM INFO** to enter the system information menu. The screen will display the model, version, serial number, etc. of this device.

5. Troubleshooting

1. **The instrument is powered on but no display. Please following the steps:**
   - Check if the input voltage is within the specified range.
   - Check if the power is connected properly.
   - Restart the instrument after the steps above.
2. **The output is abnormal**
   - Check if the output voltage is set to 0V. If so, set it to other value.
   - Check if the output current is set to 0A. If so, set it to other value.
   - When in programmable output status, check if there is any voltage/current value is set to 0. If so, set it to other value.
   - Check if the upper right corner  indicator light is on. If it is lit, the device is either in remote control mode or the screen is locked. To unlock, disconnect the remote connection or press and hold the **LOCK** button. After unlocking, check again if there is any output.

If you encounter any other issues, please try restarting. If the product still does not function properly, please contact us so we can assist you.

6. Technical

The instrument must be operated continuously for more than 30 minutes at the specified operating temperature to achieve the following specifications.

OWH8080Q Parameter

Model		OWH8080Q-2000
Rated output (0℃ -40℃)	Voltage	0 - 80V
	OVP	1 - 85V
	Current	0 - 20A
	OCP	1 - 21A
	Power	4 x 500W
Input Voltage*	Voltage /Freq.	100V-240Vac; 45Hz-65Hz
Load regulation (%of output+offset)	CV	≤0.05%+20mV
	CC	≤0.1%+30mA
Input power regulation (%of output+offset)	CV	≤0.05%+20mV
	CC	≤0.1%+30mA
Setting resolution	Voltage	10mV
	Current	1mA
Readback resolution	Voltage	10mV
	Current	1mA
Setting accuracy	Voltage	≤0.05% ± 20mV
	Current	≤0.1% ± 30mA
Readback accuracy	Voltage	≤0.05% ± 20mV
	Current	≤0.1% ± 30mA
Ripple noise	Voltage	≤50mVp-p
	Current	≤30mArms
Output temp drift coefficient (0℃-40℃)	Voltage	100ppm/℃
	Current	200ppm/℃
Readback temp drift coefficient	Voltage	100ppm/℃
	Current	200ppm/℃
Transient response (10%-90% rated load)		≤5.0ms
Working temperature		0-40℃

Display	4.3 inch TFT LCD screen
Interface	USB, LAN, RS485, RS232
Dimension	215.0mm(W)X 133.0mm(H)X 446.2mm(D)
Weight	Approx. 6kg

*: When the input voltage is below 200V, the output power needs to be reduced to ensure that the input current does not exceed 10Arms.

OWH80Q-F Parameter

Model		**OWH8040Q-600F 4ch**	**OWH8020Q-1000F 4ch**
Rated output (0℃-40℃)	**Voltage**	0 - 80V	0 - 80V
	OVP	1 - 85V	1 - 85V
	Current	0 - 10A	0 - 5A
	OCP	1 - 11A	1 - 5.1A
	Power	4x 150W	4x 250W
Input Voltage	**Voltage/ Freq**	100V-240Vac; 45Hz-65Hz	100V-240Vac; 45Hz-65Hz
Load regulation (%of output+offset)	**CV**	≤0.03%+20mV	≤0.03%+20mV
	CC	≤0.05%+30mA	≤0.05%+30mA
Input power regulation (%of output+offset)	**CV**	≤0.03%+20mV	≤0.05%+20mV
	CC	≤0.05%+30mA	≤0.05%+30mA
Setting resolution	**Voltage**	10mV	10mV
	Current	1mA	1mA
Readback resolution	**Voltage**	10mV	10mV
	Current	1mA	1mA
Setting accuracy	**Voltage**	≤0.05% ± 40mV	≤0.05% ± 40mV
	Current	≤0.1% ± 0.1%FS	≤0.1% ± 0.1%FS
Readback accuracy	**Voltage**	≤0.05% ± 40mV	≤0.05% ± 40mV
	Current	≤0.1% ± 0.1%FS	≤0.1% ± 0.1%FS
Ripple noise	**Voltage**	≤50mVp-p	≤50mVp-p
	Current	≤30mArms	≤30mArms
Output temp drift coefficient (0℃-40℃)	**Voltage**	100ppm/℃	100ppm/℃
	Current	200ppm/℃	200ppm/℃
Readback temp drift coefficient	**Voltage**	100ppm/℃	100ppm/℃
	Current	200ppm/℃	200ppm/℃

Transient response (10%-90% rated load)	≤5.0ms	≤5.0ms
Working temperature	0-40℃	0-40℃
Display	4.3 inch TFT LCD screen	
Interface	USB, LAN, RS485, RS232	
Dimension	215.0mm(W) X 133.0mm(H) X 446.2mm(D)	
Weight	Approx. 7kg	Approx. 7kg

Interval Period of Adjustment:

One year is recommended for the calibration interval period.

7. Appendix

7.1 Appendix A: Accessories

(The accessories subject to final delivery.)

Standard Accessories:

Power Cord

User Manual

USB Cable

Options Accessories:

Banana plug to crocodile clip test leads

7.2 Appendix B: General Care and Cleaning

General Care

Do not store or leave the instrument where the liquid crystal display could be exposed to direct sunlight for long periods of time.

Caution: To avoid any damage to the instrument, do not exposed it to any sprays, liquids, or solvents.

Cleaning

Inspect the instrument as often as operating conditions require.
To clean the instrument exterior, perform the following steps:

1. Wipe the dust from the instrument surface with a soft cloth. Take care not to scratch the transparent LCD protection screen when cleaning.
2. Disconnect power before cleaning your instrument. Clean the instrument with a damp soft cloth (not dripping with water). It is recommended to clean with soft detergent or fresh water. To avoid damage to the instrument, do not use any corrosive chemical cleaning

agents.

Warning: Before re applying power, ensure that the instrument is completely dry, avoiding any electric shock or electrical short circuit resulting from moisture.