Servicebio®

User Manual

Electrophoresis Power

SPW-DSE

Wuhan Servicebio Technology Co., Ltd.

CONTENTS

目录

01 Notices

Notices / Warnings

・Note that the manual contains important information, please read it carefully. If not follow theinstructions, may causing equipment damage or malfunction.

・A warning message that calls for special care in a procedure or method. If not follow theinstructions, may causing serious person injury.

1.Non-professionals of the company are not allowed to open the instrument case. After the instrument is powered on, it is not allowed to plug and unplug the electrophoresis cable for live operation.

2.If the outer skin of the power cord is damaged or the outer shell of the instrument is damaged, it is not allowed to continue to use, please contact the company's after-sales service as soon as possible.

3.Please make sure that the voltage of the local power supply is consistent with the voltage required by the instrument before starting to use, so as not to cause damage to the equipment.

4.Keep the environment clean and away from water sources, with good ventilation and no interference from strong magnetic fields.

5.Don’ t use the product under high temperature environment.

02 Product Overview.

This product is a rectifier that converts alternating current into direct current. It can convert alternating current into controllable constant voltage and constant current direct current, which meets the experimental production demand of electrophoresis and is widely used in biology, medical etc. fields.

Products Features

1. It can realize separate control of two groups of systems, and can stably realize the operation of two groups of constant current mode, constant voltage mode and gradient mode at the same time without interfering with each other.

2. In the working state, online real-time minute adjustment is possible.

3. Intelligent PID control, stable and reliable output.

4. The high-definition touch LCD screen can display setting parameters and real-time voltage and current values.

5. High precision.

6. With constant voltage timing, constant current timing, constant voltage programming and constant current programming and other working modes.

7. Adopt forward switching power supply design, good stability. With overvoltage, overcurrent, overload, variable load, no-load protection, automatic alarm protection under abnormal conditions.

8. Can dynamically set output voltage or current upper limit.

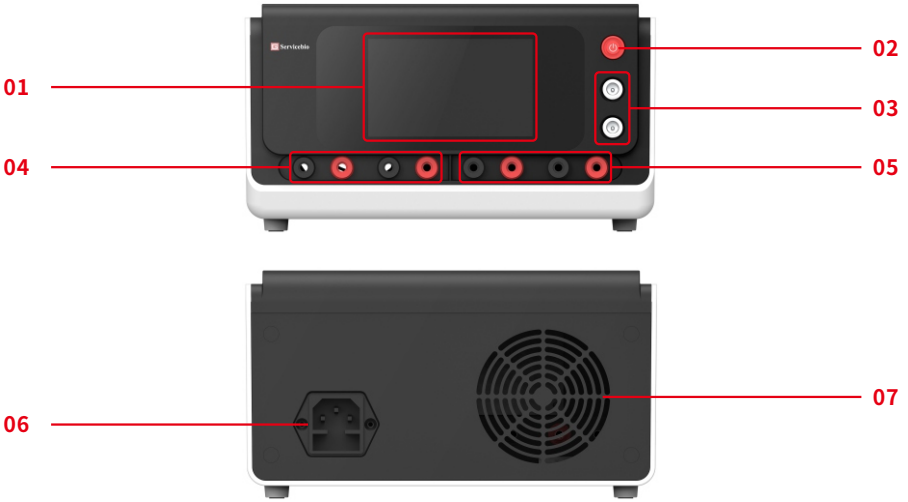
9. The parameters can be memorized when the power is turned off. If the device is powered off unexpectedly, the unfinished setting program can be run automatically after power-on.

03 Technical Parameters

Input power	180V-240V
AC frequency	50Hz/60Hz
Environmental temperature	4°C-35°C
Environment humidity	10%-70%
Output Qty	Two sets of positive and negative electrodes A/B each
Output range	Output rangeVoltage: 6V-500V (accuracy 1V) Current: 6mA-500mA (accuracy 1mA)
Control precision	If the voltage is set to less than 100V, the voltage stability accuracy is less than 1V. If the voltage is more than 100V, the voltage stability accuracy is less than ±1%. If the current is set to less than 100mA, the current stability accuracy is less than 1mA. If the current is more than 100mA, the current stability accuracy is less than ±1%.
Rated output power	500W
Dimensions	265 (Length) ×215(Width)×120 (Height) mm

04 Products Introduction

4.1 Products Appearance



01 **Display and setting** Full touch screen, display data in real time, and modify data by touch

02 **Switch** Turn on and off the power

03 **Light Interface** A maximum of 12V1A can be connected to a single interface, and it can be connected to two blue light illuminators

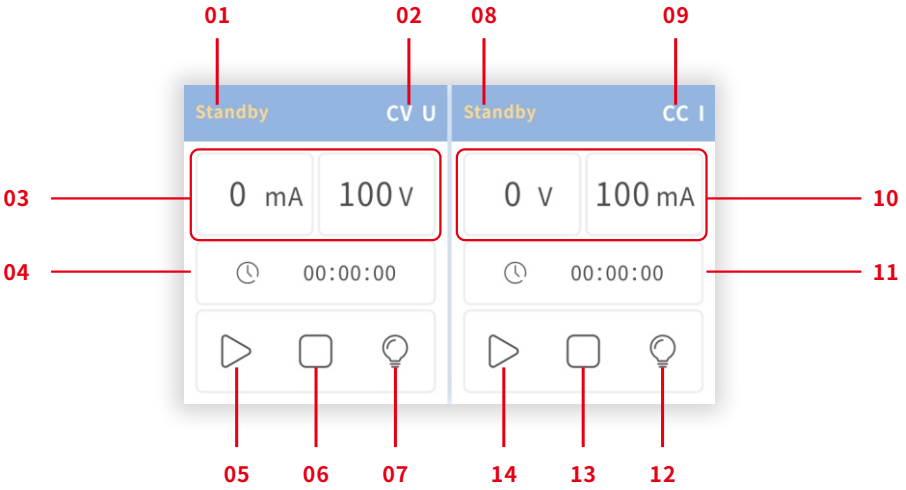
04 **Module channel** output interface can be connected to electrophoresis apparatus, transfer apparatus and other equipment, red is the positive pole, black is the negative pole, control by right channel 1.

05 **Module channel** output interface can be connected to electrophoresis apparatus, transfer apparatus and other equipment, red is the positive pole, black is the negative pole, control by right channel 2.

06 **External power port** External AC port

07 **Cooling hole** Cooling outlet inside the power supply

4.2 Interface



01 **State display** The icons 01 and 08 show the current status, which are standby, running, pause, and no-load respectively.

02 **Mode display** The icons 02 and 09 show the current mode being used, which are constant voltage U, constant current I, gradient voltage U, and gradient current I respectively.

03 **Status display** The icons 03 and 10 show the current status, where the left value is a variable, and the right value is a set value.

04 **Time display** The icons 04 and 11 show the time status. When no time is set, it displays positive timing, when time is set, it displays countdown.

05 **Start/Pause** The icons 05 and 14 are Start/Pause icons. Pressing them once switches between running and paused state.

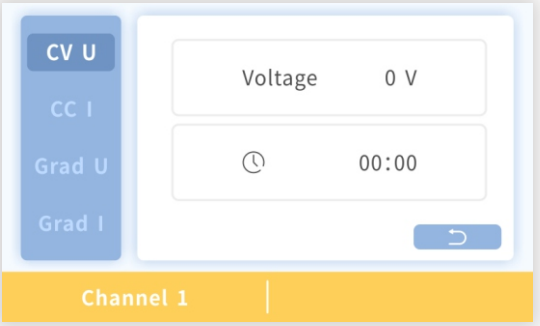
06 **Stop** The icons 06 and 13 are stop icons, and pressing them will stop the program.

07 **Illumination switch** The icons 07 and 12 are illumination switch icons. Pressing them in any state can control the lighting interface on and off.

05 Operation Function Introduction

The following operation introduction : Channel 1-settings introduction. The same applies to channel 2. The two sets of systems are set and run independently without interfering with each other.

5.1 Constant Voltage U Mode



1. Voltage setting: In the initial interface, icon 1 should be displayed as standby state (if it is not, click icon 6 to stop it), click icon 2 on the screen to enter channel 1 mode selection interface (as shown above), select constant voltage U mode, click on the voltage and the numerical value will enter the numerical value setting keyboard. After setting the required voltage value (6V-500V), click the return icon and the system will automatically save the input data. The interface will automatically jump back to the mode selection interface (to delete input, click the backspace key. To exit without modification, click the Esc key).

2.Time setting: The hour and minute can be set separately in the time setting area, and the time limit is 99H59M. If there is no need to set a countdown, the time can be set to 0.

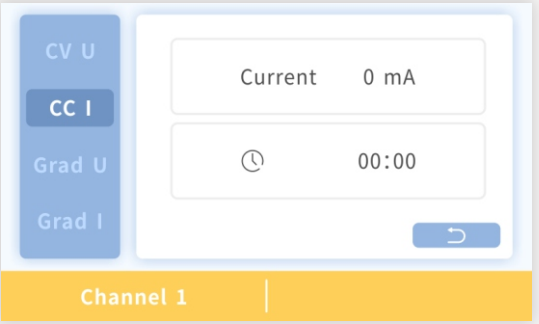
3.Running setting: After completing the voltage and time setting, click the return icon in the lower right corner of the screen to return to the initial interface, and click icon 5 to start/pause, starting operation. At this time, icon 1 will display the running status. When running, you can click on the voltage value in area 3 to set new data online. After completing the setting, click the return icon, and the data will run according to the new setting data without changing the running time.

4.Pause and stop: During running, if pause is needed, you can click the start/pause icon (icon 5) on the screen, and the time counting will pause. At this time, you can set the current mode value but not the time. You can also click icon 2 to view other mode settings, but cannot modify them. Click the start/pause icon to continue the program and resume counting. If you need to reset the time or other modes, click the stop icon (icon 6), and the system will stop running, the time will be cleared and restored to the previously set time. At this time, you can reset new modes and time.

5.After the operation is finished, the running time will be restored to 0, accompanied by a beeping reminder sound, and the icon 1 will show the status change to standby.

6.No-load: When the program detects no-load, icon 1 will flash the red no-load icon and there will be a continuous beeping reminder sound. At this time, click the stop icon (icon 6) to release the no-load alarm status.

5.2 Constant Current I Mode



1.Current setting: In the initial interface, icon 1 should be displayed as standby state (if it is not, click icon 6 to stop it), click icon 2 on the screen to enter channel 1 mode selection interface (as shown above), select constant current I mode, click on the current and the numerical value will enter the numerical value setting keyboard. After setting the required current value (6mA-500mA), click the return icon and the system will automatically save the input data. The interface will automatically jump back to the mode selection interface (to delete input, click the backspace key. To exit without modification, click the Esc key).

2.Time setting: The hour and minute can be set separately in the time setting area, and the time limit is 99H59M. If there is no need to set a countdown, the time can be set to 0.

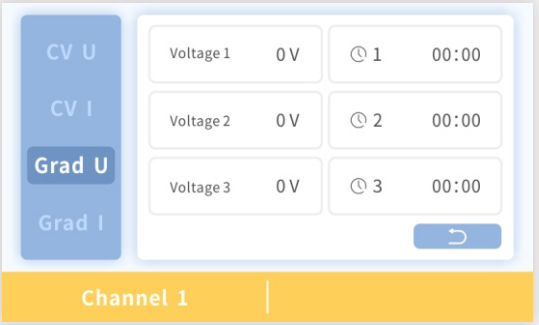
3.Running Settings: After completing the current and time settings, click the return icon in the lower right corner of the screen to return to the initial interface. Click icon 5 to start/pause and begin running. At this time, icon 1 shows the running status. During the running state, clicking on the current value in area 3 can set new data online. After setting is completed, click the return icon to run the data according to new settings. The running time remains unchanged.

4.Pause and Stop: During use, if you need to pause, you can click on the screen icon 5 to start/pause to pause the time count. At this time, you can set the current mode value, but you cannot set the time. You can click on icon 2 to view other mode settings, but you cannot modify them. Clicking the start/pause icon can continue the program timing. If you need to reset the time or other modes, click icon 6 to stop the program operation. The time will be reset to the previously set time, and you can then reset the new mode and time.

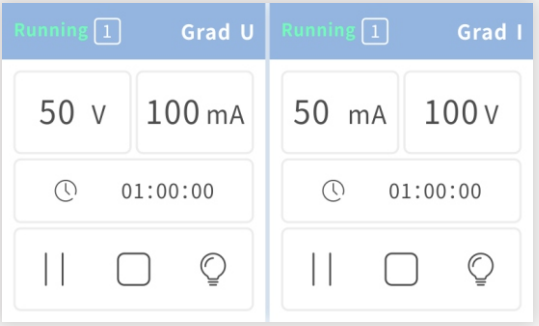
5.After the operation ends, the running time is reset to 0, and there is a beeping reminder sound. Icon 1 shows the status as standby.

6.No-load: When the program detects no-load, icon 1 will flash the red no-load icon, accompanied by a continuous beeping reminder sound. At this time, click icon 6 to stop and release the no-load alarm status.

5.3 Gradient U Mode (Gradient Constant Voltage Mode)



图一



图二

1.Mode Setting: On the initial interface, if the vibration indicator at icon 1 is not in standby mode, click icon 6 to stop it. Click icon 2 on the screen to enter the mode selection interface for channel 1 (as shown in the figure above) and select Gradient U Mode. This mode can set three different data groups, which will be run according to the order of 1-2-3. Click on voltage 1, voltage 2, and voltage 3, and the values will enter the value setting keyboard. Set the required voltage value (6-500V) and click the enter icon. The system will automatically save the input data, and the interface will automatically return to the mode selection interface (press the backspace key to modify input errors, or press the Esc key to exit without modifying).

2.Time Setting: In the time setting area, you can set the hours and minutes separately, and the maximum time limit is 99H59M. You can set the time for three sets of data separately as needed. If there is data that does not need to be run, set the time for that group to 0, and it will be automatically skipped during operation, running the next set of data. Only the total duration of the three sets of data will be displayed during operation, with a countdown timer, and the separately set time for each group will not be displayed. If no time is set for any of the data groups, the first set of data will be run by default, with time counting up.

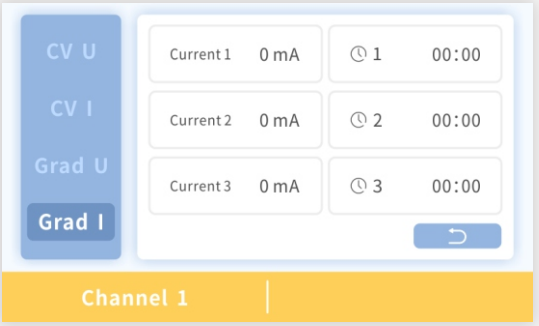
3.Running Settings: After completing the voltage and time settings, click the return icon in the lower right corner of the screen to return to the initial interface. Click icon 5 to start/pause it, and the status indicator at icon 1 will show "running", and the group data number will be displayed next to it (as shown in the figure above). The program will run sequentially according to the set group order. During operation, click on the voltage value in area 3. You can edit the current group setting data online during operation or pause (you cannot set the time). After setting is completed, click the enter icon. The data will run according to the newly set data, and the running time will not change.

4.Pause and Stop: If you need to pause during operation, you can click the run/pause icon at icon 5 on the screen. The timer will pause, and you can set the current mode value, but you cannot set the time. You can click icon 2 to view other mode setting values, but you cannot modify them. Clicking the start/pause icon again will continue the program timing. If you need to reset the time to another mode, click the stop icon at icon 6. The system will stop the program, reset the time to the previously set time, and you can then reset a new mode and time.

5.After the operation is complete, the running time will return to 0, and there will be a beep sound, and the status indicator at icon 1 will return to standby mode.

6.No-load state: When the program detects a no-load state, the status indicator at icon 1 will flash a red no-load icon, and there will be a continuous beep sound. Click the stop icon at icon 6 to release the no-load alarm state.

5.4 Gradient I mode (Gradient Constant Current Mode)



图一

图二

1.Mode Setting: On the initial interface, icon 1 should display standby mode (if it is not in standby mode, click icon 6 to stop the marker). Click icon 2 on the screen to enter channel 1 mode selection interface (as shown in the figure above), and select gradient bed mode. This mode can set three groups of data and will run in the order of 1-2-3. Click current 1, current 2, or current 3, and the value will enter the value setting keyboard. Set the required current value (6-500V) and then click the enter icon. The system will automatically save the input data. The interface will automatically return to the mode selection interface (press the backspace key to modify input errors and press Esc to exit if no modification is needed).

2.Time Setting: The time setting area can set the hours and minutes separately, and the time upper limit is 99H59M. Three sets of data can be set according to the required running time. If there is no need to run the data, set the group data as 0, and it will automatically skip this group of data during operation. During operation, only the total duration of the three sets of data will be displayed, and the countdown will run. Each separately set time for each group will not be displayed. If no time is set for any group, the default will be the first group of data, with positive timing.

3.Running Settings: After completing the current and time settings, click the return icon in the lower right corner of the screen to return to the initial interface. Click icon 5 to start/pause it, and the status indicator at icon 1 will show "running", and the group data number will be displayed next to it (as shown in the figure above). The program will run sequentially according to the set group order. During operation, click on the voltage value in area 3. You can edit the current group setting data online during operation or pause (you cannot set the time). After setting is completed, click the enter icon. The data will run according to the newly set data, and the running time will not change.

4.Pause and Stop: If you need to pause during operation, you can click the run/pause icon at icon 5 on the screen. The timer will pause, and you can set the current mode value, but you cannot set the time. You can click icon 2 to view other mode setting values, but you cannot modify them. Clicking the start/pause icon again will continue the program timing. If you need to reset the time to another mode, click the stop icon at icon 6. The system will stop the program, reset the time to the previously set time, and you can then reset a new mode and time.

5.After the operation is complete, the running time will return to 0, and there will be a beep sound, and the status indicator at icon 1 will return to standby mode.

6.No-load state: When the program detects a no-load state, the status indicator at icon 1 will flash a red no-load icon, and there will be a continuous beep sound. Click the stop icon at icon 6 to release the no-load alarm state.

06 Product Packing List

No.	Name	Qty
1	Electrophoresis Power Supply	1
2	Product User Manual	1
3	Warranty Card	1
4	Maintenance Record	1
5	Product Qualification Certificate	1

Warranty Card

User Name		Tel	
Cat .No.		Manufacturing No.	

Maintenance Record

Date of Repair Request	Malfunction and Repair Status	Maintenance Date	Maintenance Personnel

Servicebio®

Wuhan Servicebio Technology Co., Ltd.

027-5111-3188

info@servicebio.com

www.servicebio.com

6th Floor, Lianjie Biology Building, No.97, Gaoxin 2nd road, East lake new technology development zone, Jiangxia district, Wuhan, China