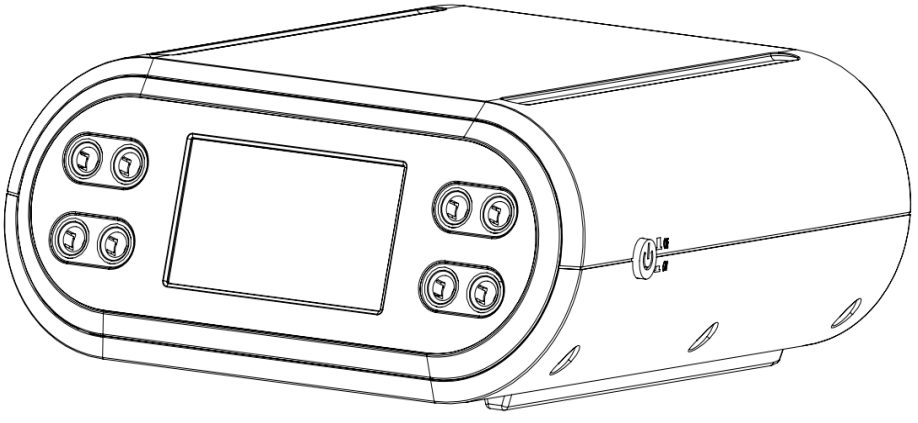
Electrophoresis

User Manual

Please read the manual carefully and use the instrument safely according to the instructions in the manual. Any changes in appearance and performance specifications will not be separately notified.



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Version:20241030

Thank you for choosing the DEP series electrophoresis power supply.

1. Upon receiving the power supply, please check the external packaging for any damage incurred during transportation. Damage to the packaging may affect the power supply. If any damage is found, please contact the distributor or manufacturer.

2. Open the package and verify the contents:

1	Electrophoresis power supply	1 unit
2	Power cord	1 piece
3	User manual	1 copy
4	Certificate of Conformity	1 piece

3. Before using the power supply, carefully read the "User Manual." Keep the manual with the power supply for easy reference. If the manual is lost, please request a replacement from us.

4. The power supply comes with a national standard power cord and should be connected to an AC 220V/50Hz power grid with a capacity of over 5A.

5. Do not obstruct the rear panel of the power supply during operation. It is recommended to maintain a distance of more than 20 cm between the rear panel and the wall.

6. The electrical warning indicates the presence of a potential hazzard which could result in electrical shock.

7. During use, avoid splashing electrophoresis buffer solution into the power supply. If

liquid enters the power supply, do not connect the power to avoid accidents. The power supply should only be used after inspection and repair by a professional.

8. If any abnormalities are observed during use, immediately cut off the power and conduct an inspection. Non-professionals should not disassemble the power supply. During the warranty period, please contact our technical service center. Unauthorized disassembly will void the warranty.

9. The power supply contains energy-storing components like capacitors and inductors. Do not touch the output ports or open the cover within 10 minutes of power-off.

10. When not in use for a long time, unplug the power cord and cover the power supply with a protective cover.

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1. Product Overview

1.1 Functions and Features

- Multi-CPU intelligent control, two-level topology circuit, stable parameters, and reliable performance.
- 4.3-inch color LCD touch screen for easy human-machine interaction.
- Voltage, current, and power can be adjusted from zero, with automatic switching between constant voltage, constant current, and constant power modes.
- Program parameters can be entered in table form, with a simple operation and memory function (20 programs, 20 steps/program).
- Real-time adjustment of parameters during operation.
- Power-off recovery function.
- Low current maintenance function, current can be set within 30mA.
- Safety protection and alarm functions, with short circuit protection, no-load protection, and buzzer settings.
- Four pairs of output sockets, allowing simultaneous operation of four electrophoresis instruments (electrophoresis tanks).

1.2 Basic Performance Parameters

Specifications	DEP-600	DEP-300HC
Display	LCD touchscreen	

Output Types	Constant Voltage, Constant Current, Constant Power (continuously adjustable)	
Voltage Range	0~600V	0~300V
Current Range	0~600mA	0~3000mA
Power Range	0~300W	0~400W
Resolution	Voltage (1V), Current (1mA), Power (1W)	
Time Setting Range	1min ~ 99h59min	
Output Sockets	4 sets	
Voltage	100~120V/200~240V,50/60 Hz	100-240V，50/60Hz
Operating Temperature and Humidity	0℃~40℃，≤95%	
Dimensions (L×W×H)	310×260×115mm	
Weight	1.96kg	2.05kg

2. Structural Features

Anti-Slip Grooves

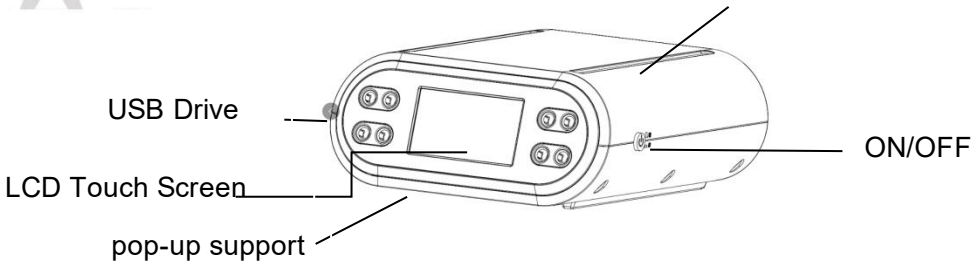


Figure 2-1 Outline Diagram

To open this USB port, a tool is required, which will be provided by the maintenance personnel.This USB port is only for manufacturer maintenance use ,Please wear gloves when plugging/unplugging the USB.

- The casing of the DEP series electrophoresis power supply is made of engineering plastic by injection molding.
- Pop-up feet and anti-slip grooves allow the user to adjust the screen viewing angle.
- Color LCD touch screen for operation and display.

3.Operation

3.1 Main Screen

Upon powering on, the LCD screen starts and, after a 4-second countdown, automatically enters the main screen interface.

Figure 3-1 Main Screen

Status Bar Icon Meanings:

Icon : Power recovery function display

Icon : Low current maintenance function display

Icon : Buzzer activation

Icon : "Home" button

Icon : "Back" button

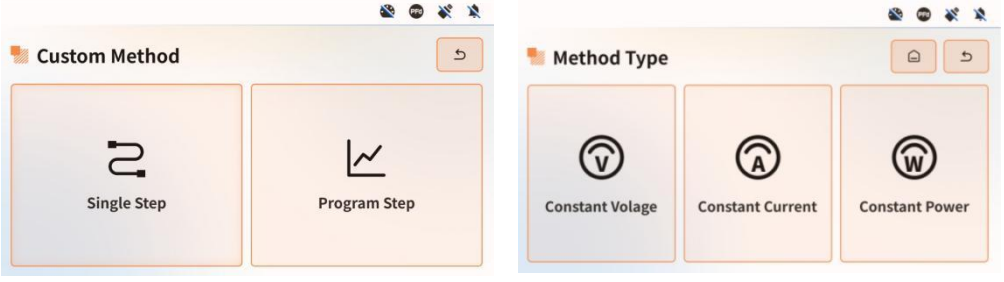
Main Screen Function Introduction:

Select "Custom Method" : To program a new operating method.

Select "Latest History Run" : To quickly start the last used experimental method.

Select "System Settings" : To configure the system functions.

3.2 Single-Step Operation Setting



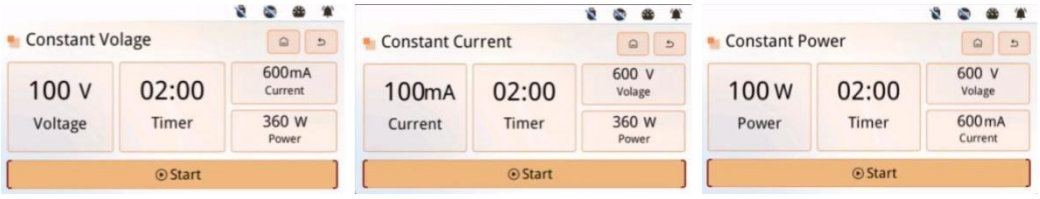


Figure 3-2 Method Type Interface

1) Switch the power switch on the right side of the device to the ON position.
2) Click "Custom Method" on the main screen and choose between "Single Step Execution" and "Program Execution" as needed.
3) Click "Single Step Execution" to select the method type. On the "Method Type" screen, select either "Constant Voltage," "Constant Current," or "Constant Power" based on experimental requirements.
4) Edit the operating parameters (voltage, timing, current, and power) by clicking the parameters on the screen. The default maximum values are 600V, 600mA, and 360W.
5) Enter the required parameter values, then press Enter to confirm and display the newly modified operating parameters.
6) Click "Run" to start the operation. When the operation starts, the "Run" screen will be displayed.
7) To view or stop the operation before completion, click "View/Stop/Pause."
8) To edit the operating parameters during the operation, pause the operation, enter the changes, and click "Run." When the operation resumes, the timer will continue from where it paused.

9) Upon completion, return to the "Home" screen.

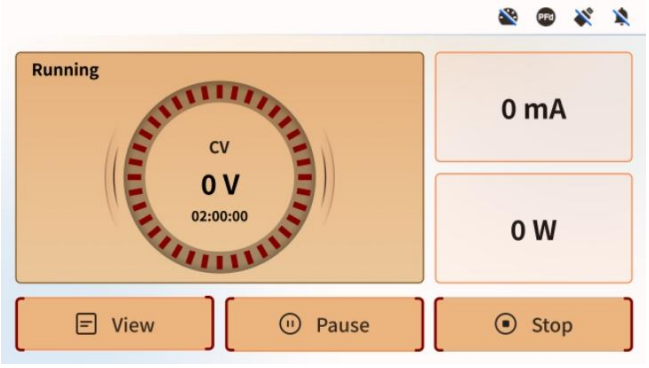


Figure 3-3 Operation Interface

3.3 Program Execution Setting

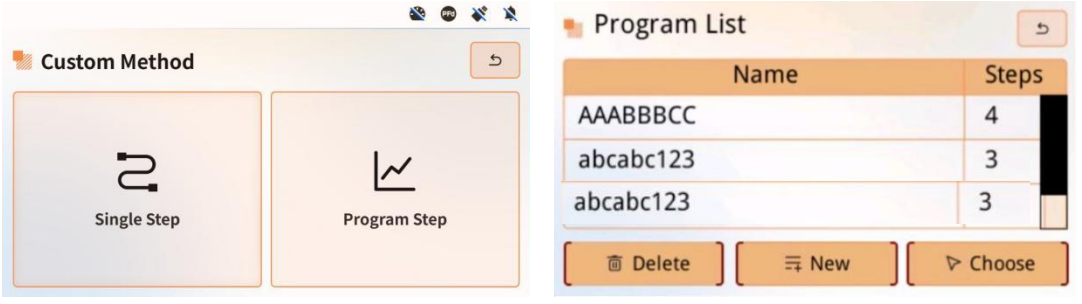


Figure 3-4 Program List Interface

1) Click "Program Execution" to enter the program list, where saved program methods are displayed. You can "Delete/New/Select" a program.

2) Select a program from the list to edit its parameters or run it.

3) Only three programs or steps are displayed in the program list or program parameter table. Use the scroll bar on the right to view other programs or steps.

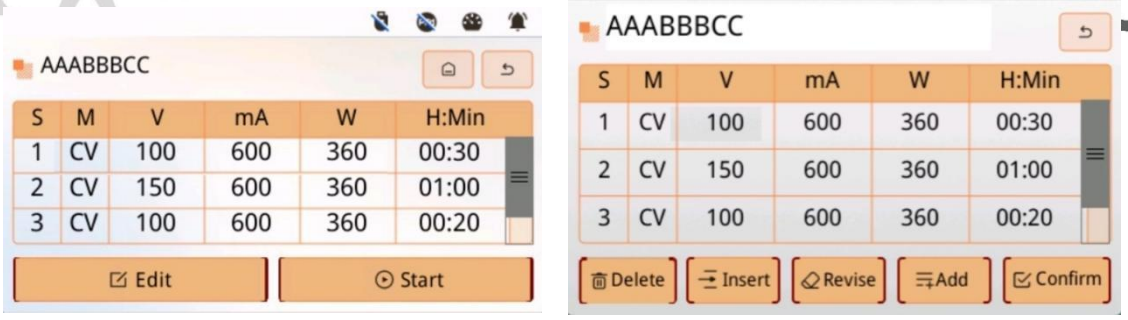


Figure 3-5 Saved Program Edit Interface

4) Create a new program by clicking "New," where you can "Add/Insert/Modify/Delete/Confirm" operations.

Figure 3-6 Edit New Program Interface

During operation, in addition to the descriptions above, you may encounter some prompt screens. Simply follow the instructions provided on those screens.

3.4 Last Run

On the home screen, click "Latest Historical Run" to quickly start the recently run single-step or program execution parameters.See Figure 3-7.

Figure 3-7 Last Run

3.5 System Settings

On the home screen, click "System Settings" to enter the function or parameter settings screen.

Language settings: switch between Chinese and English interfaces.

Buzzer: enable or disable the buzzer.

Product information: view relevant product information.

No-load protection: disable the no-load protection function during low current operation.

Short-circuit protection: disable the short-circuit protection function during low voltage operation. These settings ensure the normal operation of special experiments under low current or low voltage conditions.

Figure 3-8 System Settings

4.Function Introduction

4.1 Run/Pause/Stop/Fault

After power-on, the electrophoresis power supply can be in one of four states:

Stop, Run, Pause, Fault. Parameters or function settings are completed in the Stop state. Some parameters can be modified in the Pause state.

Click "Run" to start the power supply, and the timer begins.

After "Pause," the timer stops and holds. When resumed, the timer continues.

After "Stop," it returns to the home screen, the timer resets, and it starts timing again when run.

To stop the operation, there are three ways: "Stop" button, timed stop, and low current maintenance. Low current maintenance requires manual "Stop" to completely stop the output.

If the power supply is not functioning properly, a fault alarm will occur, and the circular progress bar will flash. Manually turn off the power to prevent the fault from expanding.

During operation, it may work in the limit parameter constant mode. The circular progress bar on the screen will flash "Limit," which will not affect normal operation. Adjust parameters based on the specific experimental situation.

4.2 Low Current Maintenance

When "Low Current Maintenance" is set to "On," the low current maintenance mode starts after the experiment scheme is executed with the set timing. The default low current maintenance is 10mA, which can be set between 1~30mA, with a maximum voltage limit of 12V.

When "Low Current Maintenance" is set to "Off," the run ends after executing the set parameters and returns to the home screen.

In low current maintenance, parameter fine-tuning is invalid; no-load, short-circuit, and overload protections are not triggered. Return to the home screen by pressing "Stop."

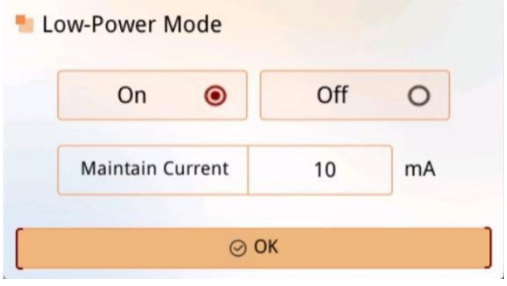


Figure 4-1 Low Current Maintenance

4.3 Power-Off Recovery

In "System Settings," the user can set "Power-Off Recovery" to "On" or "Off.". See Figure4-2.

Figure 4-2 Power-Off Recovery

When "Power-Off Recovery" is "On," after a sudden power outage, the power supply automatically resumes operation with the previous parameters.

When "Power-Off Recovery" is "Off," if power is restored within 8 seconds, the power supply resumes operation with the previous parameters. If the outage exceeds 8 seconds, the power supply does not resume operation.

The default setting for "Power-Off Recovery" is "Off." For safety, a password is

required to set it to "On." The default password is 123456.

5. Maintenance

5.1 Maintenance During Operation

The power supply is equipped with various protection and warning functions, including over-voltage, over-current, over-power, no-load, short-circuit, load, leakage, and circuit protections. Table 5-1 lists the types of alarms and their corresponding handling methods.

Table 5-1

Alarm Type	Description	Operating Status	Audible Alert	Handling Method	Remarks
Over Voltage	When the voltage (current, power) read by the control circuit board from the power control board exceeds the rated value by 5%	Stop	√	Immediately cut off the input power and troubleshoot. After troubleshooting, reconnect the power to clear the alarm. Contact our sales or after-sales	
Over Current		Stop	√		
Over Power		Stop	√		
Leakage	When the power supply generates a leakage current exceeding 500uA to	Stop	√		

	the protective ground			service.	
No Load	When the output current is less than 0.5mA	Stop	√		Users can set this to ON or OFF.
Short Circuit	When the output voltage is less than 0.5V	Stop	√		Users can set this to ON or OFF.
Communication	When there is a communication issue between the control board and the power board	Stop	√	Turn off the power for 1 minute and then turn it on again. If the alarm persists, request repair service.	
Circuit	When there is an issue with the power circuit	Stop	√		
Limit	When the set CV/CC/CP does not match the actual operating CV/CC/CP	Continue Running	√	1)The set constant mode or parameters are inappropriate. Reset them. 2) If the	Notify user.

				operation continues, no intervention is needed.	

5.2 Troubleshooting

If any issues arise during the use of this power supply, please follow the methods below. If the problem persists, contact our sales or after-sales service.

1、The device cannot be turned on, and the LCD screen does not display:

1) Check if the power cord is properly connected.
2) Check if the power switch on the front panel is in the ON position.
3) Unplug the power cord and check if the fuse is intact and the specifications are correct.
4) If the problem still exists, contact our sales or after-sales service.

2、The buzzer does not sound:

1) Check if the buzzer icon in the top right corner is set to mute.
2) Go to Home Page -> System Settings -> check if the buzzer is set to "ON."
3) If the problem still exists, contact our sales or after-sales service.

3、Reports no-load or short-circuit protection:

1) After cutting off the input power, check if the output cables are securely connected to the electrophoresis power supply and the electrophoresis apparatus (electrophoresis tank).

2) Check if the output cables of the electrophoresis power supply are broken or short-circuited.
3) Check if the electrophoresis apparatus (electrophoresis tank) is ready and intact.
4) If the power supply operates with low current or low voltage during the experiment, set the no-load protection or short-circuit protection to "OFF" in the "System Settings" interface and restart.
5) If the problem still cannot be resolved, contact our sales or after-sales service.

4、Touch keys do not work:

1) Carefully read the user manual; many contents cannot be modified in the "View" interface; during low current maintenance operation, only the "Stop" key is effective.
2) Restart the electrophoresis power supply and try again.
3) If the problem still cannot be resolved, contact our sales or after-sales service.

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