ELITEX



POWER SUPPLY FOR ELECTROPHORESIS, VOLT E600

Please read the User Manual carefully before use, and follow all operating and safety instructions

User Manual
English

User Manual

EN

POWER SUPPLY FOR ELECTROPHORESIS, VOLT E600

Preface

Thank you for purchasing our product. Users should read this manual carefully, follow the instructions and procedures, and be aware of all preventive measures when using this instrument.

Service

If help is needed, you can always contact your dealer or Letslab via **www.letslab.com**.

Please provide the customer service representative with the following information:

- Serial number
- Description of the problem
- Your contact information

Warranty

This instrument is guaranteed to be free from defects in materials and workmanship under normal use and service for a period of 24 months from the date of invoice. The warranty is extended only to the original purchaser and shall not apply to any product or parts that have been damaged due to improper installation, improper connections, misuse, accidents, or abnormal conditions of operation.

For claims under the warranty, please contact your supplier.

Thank you for choosing the power supply for electrophoresis VOLT E600.

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	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 more than 20 cm between the rear panel and the wall.

6. During use, avoid splashing electrophoresis buffer solution into the power supply. If liquid enters the power supply, do not connect to the power to avoid accidents. The power supply should only be used after inspection and repair by a professional.

7. 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.

8. 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.

9. 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.
- Operating parameters can be recorded via USB for easy experimental data analysis.
- 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	
Display	LCD touchscreen
Output Types	Constant Voltage, Constant Current, Constant Power (continuously adjustable)
Voltage Range	0~600V
Current Range	0~600mA
Power Range	0~360W
Resolution	Voltage (1V), Current (1mA), Power (1W)

Time Setting Range	1min ~ 99h59min
Interface	USB
Output Sockets	4 sets
Voltage	100~120V/200~240V,50/60Hz
Operating Temperature and Humidity	0℃~40℃，≤95%
Dimensions (L×W×H)	310×260×115mm
Weight	1.96kg

2. Structural features

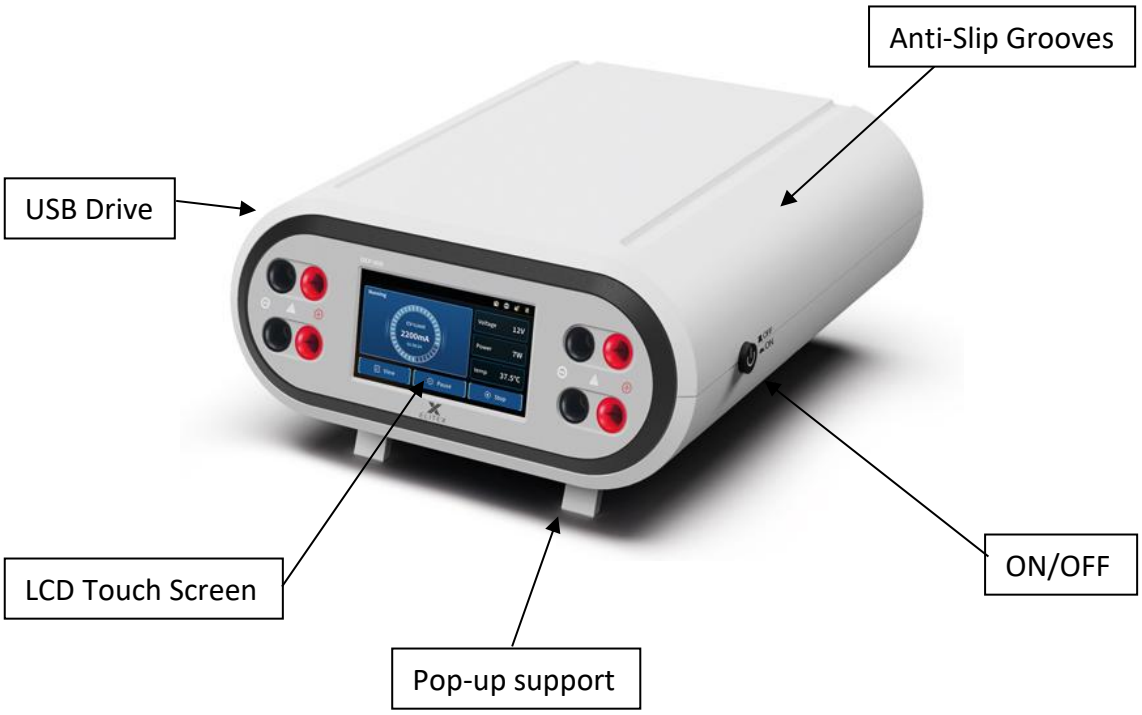

Figure 2-1 Outline Diagram

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.
- USB interface and power switch are located on the left and right front sides for user convenience.
- 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 : USB drive function display

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

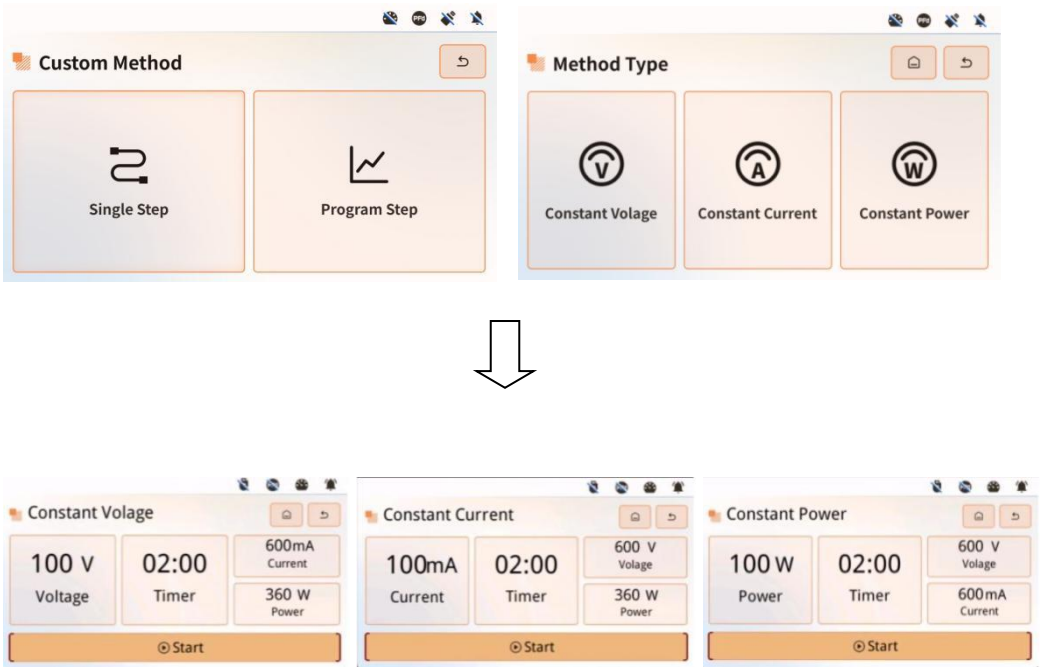

Figure 3-2 Method Type Interface

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.

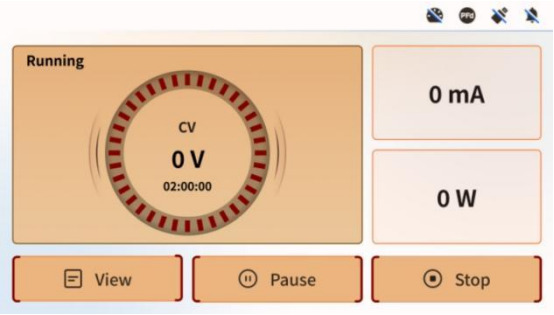

Figure 3-3 Operation Interface

3.3 Program Execution Setting

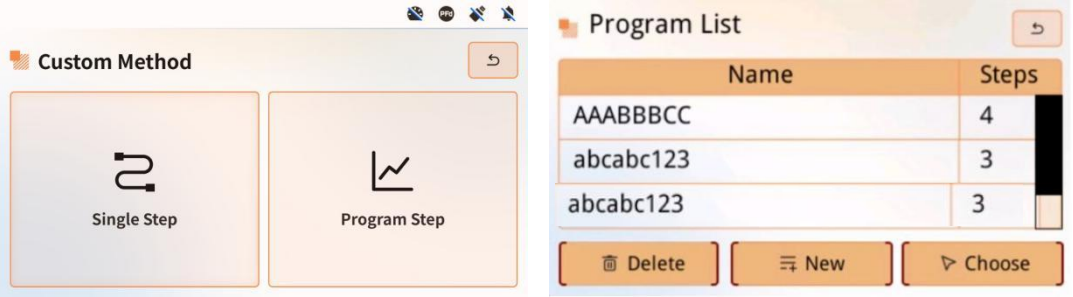

Figure 3-4 Program List Interface

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.

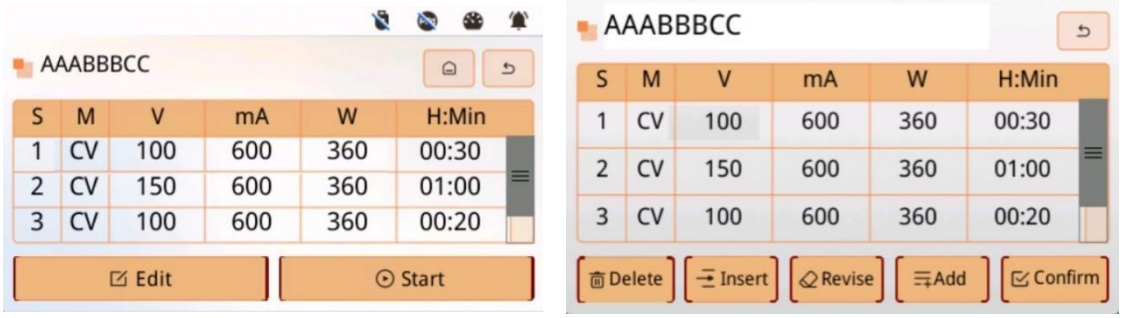

Figure 3-5 Saved Program Edit Interface

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.

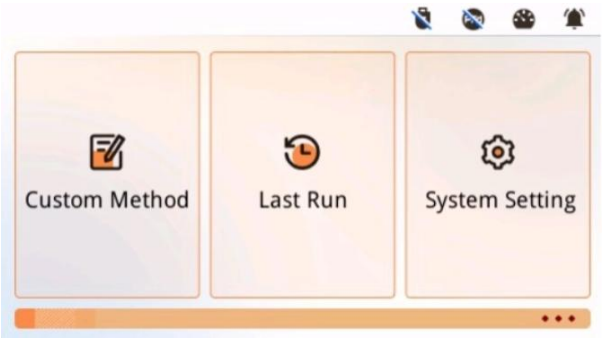

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Figure 3-7 Last Run

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.

For USB recording, low current maintenance, and power-off recovery settings, see section "4 Function Introduction."



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 it resumes, 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 specific experimental situations.

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."

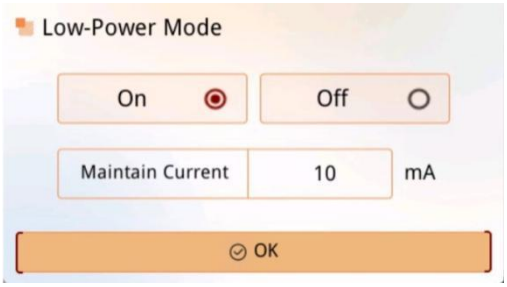

Figure 4-1 Low Current Maintenance

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.

4.4 Data Recording

Users can set whether to enable the power supply's data recording function and the recording frequency. The default data recording interval is 60 seconds, which can be set

between 2~1800 seconds.

When USB recording is "On," the USB status is displayed in the top right corner.

When USB recording is "Off," there is no USB icon display.

Insert the USB drive; when the status is displayed, the power supply automatically creates a txt file（S001.txt, S002.txt，……）. The data includes parameters, time, and operating state. Do not insert or remove the USB drive during power-on to avoid data loss.



Figure 4-3 USB Drive Record Function Settings Interface

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	Stop	√	Immediately cut off the input power and troubleshoot. After troubleshooting,	
Over Current		Stop	√		
Over power		Stop	√		

	value by 5%			reconnect the power to clear the alarm. Contact our sales or after-sales service.	
Leakage	When the power supply generates a leakage current exceeding 500uA to the protective ground	Stop	√		
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 operation continues, no intervention is	Notify user.

				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. USB drive cannot record data:

1) Check if the data recording is set to "ON," and the recording interval is recommended to be more than 5 seconds.
2) Check if the USB drive is properly inserted.

3) Ensure that you are using a flash drive, as this device does not support hard disk drives.
4) Try using a common USB flash drive with a plastic shell of 16GB or less.
5) Restart the electrophoresis power supply and then insert the USB drive to check.
6) If the problem still cannot be resolved, contact our sales or after-sales service.

5. 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.

Nota importante para los aparatos electrónicos vendidos en España

Instrucciones sobre la protección del medio ambiente y la eliminación de aparatos electrónicos:



Los aparatos eléctricos y electrónicos marcados con este símbolo no pueden ser eliminados en forma de residuos urbanos.

De conformidad con la Directiva 2012/19/UE, los usuarios de la Unión Europea de aparatos eléctricos y electrónicos, tienen la posibilidad de devolver sus RAEE para su eliminación al distribuidor o fabricante del equipo después de la compra de uno nuevo. La eliminación ilegal de aparatos eléctricos y electrónicos es castigada con multa administrativa.

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Informations sur la protection du milieu environnemental et élimination des déchets électroniques :



Les appareils électriques et électroniques portant ce symbole ne peuvent pas être jetés dans les décharges.
En réponse à la règlementation, Labbox remplit ses obligations relatives à la fin de vie des équipements électriques de laboratoire qu'il met sur le marché en finançant la filière de recyclage de ecosystem dédiée aux DEEE Pro qui les reprend gratuitement (plus d'informations sur www.ecosystem.eco).
L'élimination illégale d'appareils électriques et électroniques est punie d'amende administrative.

Nota importante per le apparecchiature elettroniche vendute in Italia

Istruzioni sulla protezione ambientale e sullo smaltimento dei dispositivi elettronici:



Le apparecchiature elettriche ed elettroniche contrassegnate con questo simbolo non possono essere smaltite come rifiuti urbani.
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