

BG-Power300 Power Supply

Instruction Manual



Execution standard: GB/T 29248-2012

Product Record: Jingshun Machinery Equipment 20140002

Beijing Baygene Biotech Company Limited

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Important safety information!

Please read carefully before use!

Please read the manual carefully to fully understand the safe and proper use of this product.

To avoid the risk of electric shock when the instrument is not in use, disconnect the instrument from the power source. This equipment has been tested for operation at temperatures from 4° C to 40° C, with relative humidity from 0 to 95%. Do not operate the power supply in extreme humidity (>95%) or else it will be damage by short circuit. You can use this instrument immediately when move from the room at high temperature to the one at low temperature, while keep it for about 2h before use when move from the room at low temperature to the one at high temperature. Please use the power cord including in this product package for safety. In addition, please check if the wire and plug with loose connection, broken rubber, wire corrosion, wire disconnection, etc., so as to avoid harm to the human body during use. The instrument can be used according to this manual and don't use when it is damaged or the wire is damaged. Only accessories and parts approved or supplied by BAYGENE BIOTECH. may be used for operating, maintaining, and repairing this product. Please disconnect the power when moving it or there's any unnormal voltage or sound during usage. Please contact our company or local office if you are not clear or met any problems about this instrument.

Note: The company is not responsible for any consequences caused by not following the instruction

Section 1: Product Introduction

1.1 Introduction

BG-Power300 is a high - quality, high - precision and high - security electrophoresis power supply。 The power supply is designed to provide constant voltage, current, or power for a wide range of electrophoresis applications。

We can provide power for BG-vermini verMINI vertical electrophoresis system, BG-sub series horizontal electrophoresis system, BG-verblot mini vertical transfer system and other companies' rated electrophoresis systems.

Output specifications::

1. Voltage: 5 – 300 V, fully adjustable in 1V steps.
2. Current: 1 – 500 mA, fully adjustable in 0.001 A steps.
3. Power: Adjustable from 1 to 150 watts (W) in 1-watt increments.
4. Type of output: Constant voltage, constant current, or constant power with automatic control
5. * Automatic match function: Once set the constant value of any one of the voltage, current or power the other two are automatically matched. You needn't set up all three parameters each time and won't worry about miss set for the other two once set one constant.
6. Microcomputer Control of power output and switch。
7. Storage capacity for up to 12 user-defined methods.
8. Pause/resume function.
9. * Micro-current state function: At the end of electrophoresis, the microcurrent state starts automatically. It can not only avoid the sample diffusion after the electrophoresis completed without anybody standby, but also prevent the sample from over running.
10. Alarming, automatic shutdown and power automatic recovery to continue the electrophoresis program function: avoid misoperation during experiment in case of blackouts
11. Safety features: overvoltage, arc, short circuit, rapid resistance change, no-load and overload monitoring and power leakage protection
12. LCD screen displays.
13. Output terminals: 4 pair recessed banana jacks floating in parallel which can carry several electrophoresis tanks.
14. It is compact and thin in appearance. High power output while light and small which really saving laboratory space.
15. Input power can be switched between 100V and 240V which can be applied in different countries and regions.

1.2 Structural Composition

After purchase the instrument, please check the accessories on the packing list before use and check if the instrument is damaged due to transportation. If the number of accessories is more or less than that noted on packing list or the instrument is damaged, please contact the company or local office immediately. When unpacking, use a knife to cut the packing tape gently and take out the instrument.

Package list:

Description	Quantity
BG-Power300 power supply	1
Power cord	1
Instruction manual	1
Warranty card	1
Certification	1

1.3 Technical Parameters

Performance index	Parameter
Feature	Once set the constant value of any one of the voltage, current or power the other two are automatically matched
Output specifications	voltage: 5-300V DC Current: 1-500mA power: 1-150W
Programmed limits	voltage: 5-300V DC current: 10-500mA power: 1-150W Timer: 0-999min
Output Resolution	voltage: 1V current: 1mA, 40-500mA power: 1W
Setting Resolution	voltage: 1V current: 1mA power: 1W Timer: 1min, 000-999min
Precision	voltage: 4%, 或±2V current: 4%, 或±4mA power: 2%, 或±1W Timer: <0.1%, ±1min, 0-999min
Linear adjustment rate	<0.2%
Load adjustment rate	<1%, Load change range (10-90%)
Ripple coefficient	<2%, 300V
Short-term stability	<0.2%, 10 hours after starting up
Long-term stability	<1%, after one year

No-load detection	resistance <math><0.04M\Omega</math>
Ground leak protection	current<math>< 500\mu A</math>
Safety features	overload/short circuit protection, overvoltage detection, input line protection
Power-fail protection	<math><8s</math>, Automatic program recovery >math>\geq 8s</math>, Manual program recovery
Operating temperature	4-40°C
Working Humidity	0-95%
Pressure bearing range	68-106KPa, Maximum altitude 2000m
Allowable Input Voltage	AC100-120/200-240V; 50/60Hz
Input power	Max 200W
Dimensions (h × w × d)	308×242×100mm
Weight	3.5Kg

Section 2: Technical Description

2.1 Front Panel

Panel include one LCD、 eight keys and one diodes(will light when power output) (Fig 1) 。

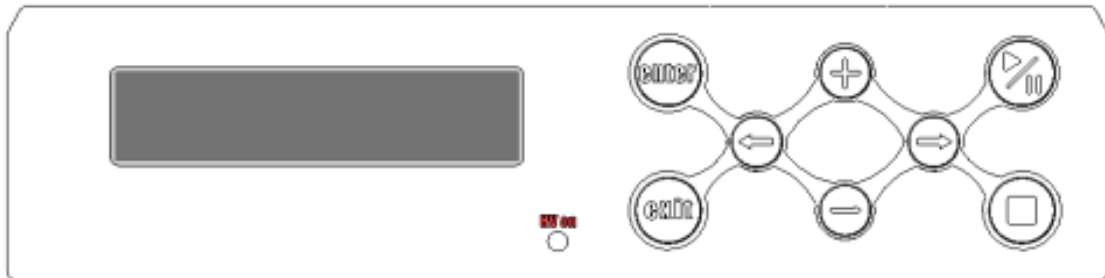


Fig 1: Front Panel

2.2 Rear Panel

Rear Panel (see Fig 2)

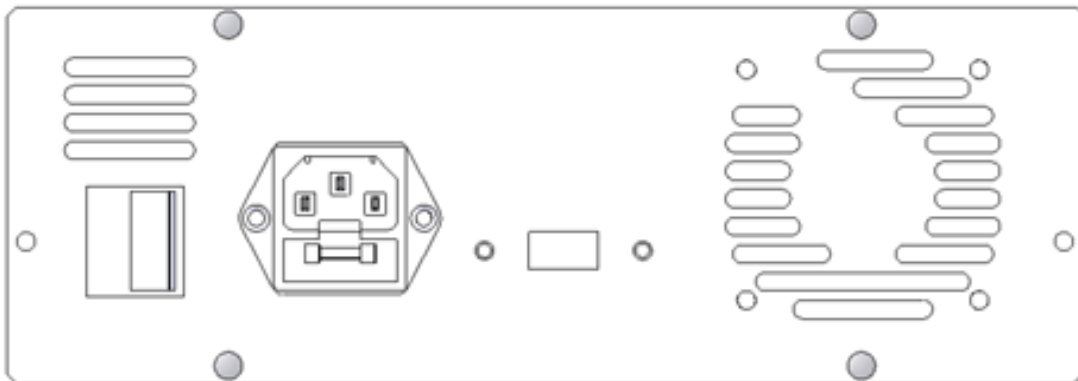










Fig 2: Rear Panel

1. ON/OFF Switch: 1 refer to ON and 0 refer to OFF
2. Power Cord In
3. Input Voltage Switching: left 100-120V, right 200-240V。
4. Fan

2.3 Keyboard

-  Set and change the Parameter, when press the key to enter the next interface.
-   left/right arrows: Use to toggle cursor position and view Settings during run.
-   Add/ subtract: Use to change the value of the selected parameter
-  RUN/PAUSE: Switch between RUN and PAUSE mode. Program Numbers, real-time values of voltage, current and power, and countdown times are displayed on the screen during running. Press this key, the instrument will enter the pause mode and stop the output, and the screen will display the parameters at pausing site.
-  Abort: Terminates the run to stop mode. The output of voltage stops and the final parameters display.
-  Go back to the previous menu.

2.4 Output Jacks

There are 4 pairs of output jacks, and 4 electrophoresis apparatus can run together. The output voltage is 5-300V.

Section 3: Operation

3.1 Program

1. Connect electrophoresis cells.
2. Turn on the main power switch on the rear panel. The front panel should be illuminated (Fig 3) .

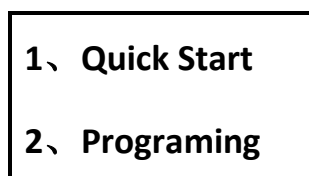




Fig 3: screen

Use   select Quick Start mode or Programing mode, next



3.1.1 Quick Start mode

If the quick start mode is used the first time, the screen display as shown in fig 4.

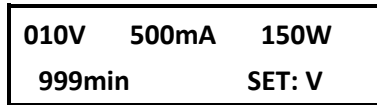


Fig 4: Quick Start mode

Set the V, A/P parameter to the desired value.

Move the cursor by left/right arrow keys to the parameter which need to set and set it with



Set the T parameter

This parameter is set 999min by default, set the timer , Add/ subtract the value of timer to the desired run time, then enter key, the last press the START/STOP button.

3.1.2 Programing mode

If the Programing mode is used the first time, the screen displays as shown in figure 5.



Fig 5: Programing mode

Save a Procedure

Select a black procedure, set a V、 A/P, save the procedure after run, this unit can save 12 procedure. BG-Power300 Setup and Operation as shown in figure 6.

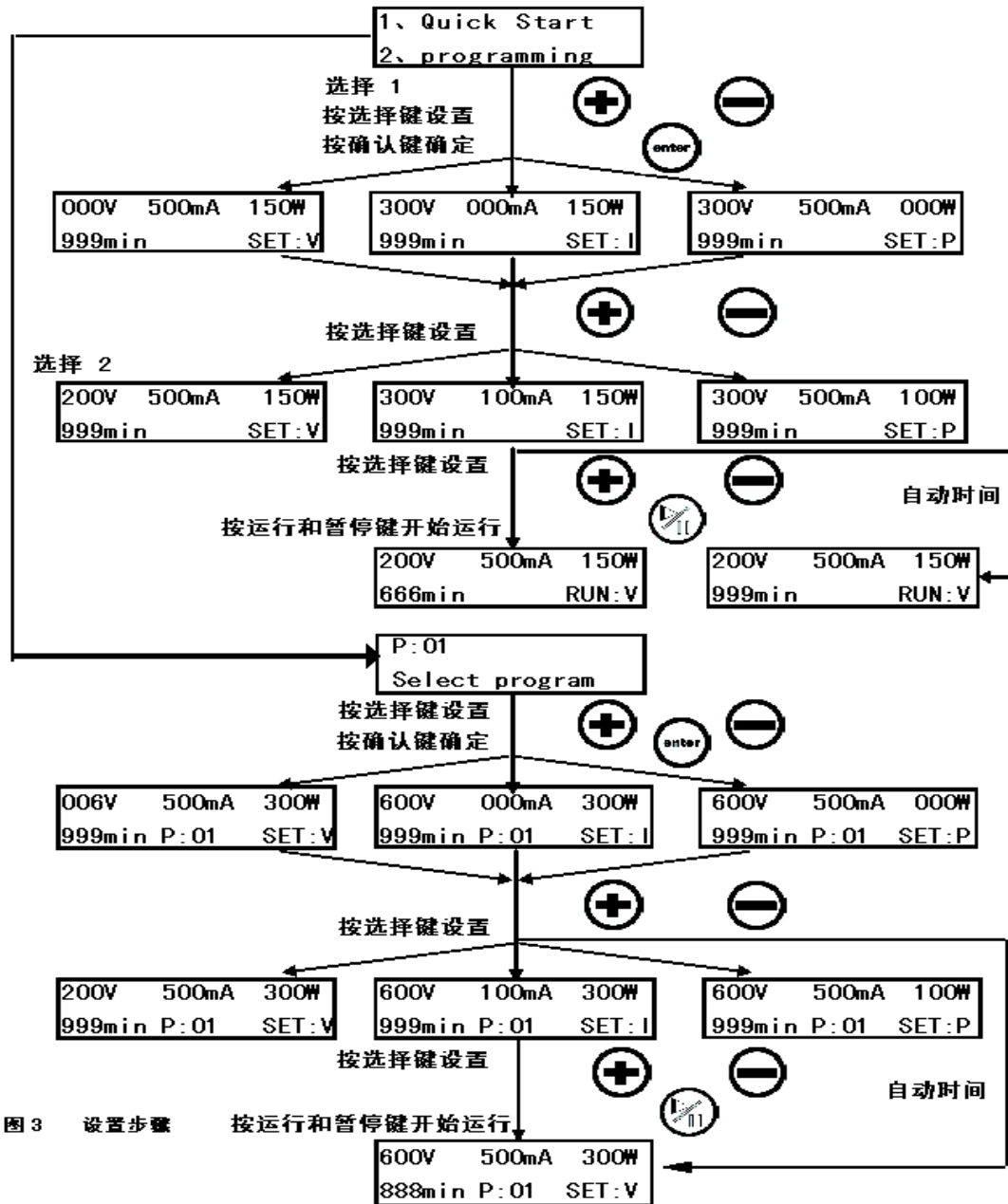


图 3 设置步骤

Fig 6: Setup and Operation

Select a procedure

Select a procedure NO. by Add/subtract key, then ENTER key, Check the run parameter, then press the run key to start the run.

When there is an error in the run of the instrument, there will be a continuous alarm sound. At the end of the run, there will be a discontinuous alarm sound and enter the micro-current state.

3.2 Running Program

Connect the mains power cord, connect electrophoresis cells, (The output jacks are recessed and color coded), red is polarity, black is polarity. 4 electrophoresis apparatus can run together in the same voltage.

Note: When four electrophoresis apparatus are running at the same time under the condition of constant

current or constant power, the current or power should be four times of that of one electrophoresis apparatus. The voltage is the same as that of one electrophoresis apparatus.

Run a Procedure

Use the left/right arrows to select 1 or 2, then select a program you want to run and press enter. (If you are programming as described in 3.1, this step can be ignored.) Press the START/STOP button to start the run. The LCD indicates that voltage and current are being applied to the output jacks and the time remaining. Indicator light will be on when voltage output is available. If there is an error, please see section 4.

The constant parameter can be adjusted during a run.

Pause

Press Starts/pauses key to pause a run. At this point, the output voltage and current will be suspended, and the high-voltage indicator lamp will be off, so that the sample can be added to the experiment safely. The LCD will display the status current . Press the run and pause buttons again to continue the electrophoresis.

View Settings parameters

Use the Run screen to monitor run parameters by left/right arrows. The Run screen displays the elapsed time versus the programmed time, voltage, current, and power values, but we can't edit the procedure. The LCD will automatically return to the real-time parameter interface after 2 seconds.

Stop running and view the parameters at stop

When the initial set time is reached, the micro current mode will be entered. You can use the stop button to manually stop the program. At this time, the high voltage indicator is off and the LCD displays the parameters when it stops. After pressing the stop button, you will not be able to continue running. You can start the program by pressing the Run and Pause keys again (time reset).

Section 4: Trouble shooting

Error code	Explanation	Possible solutions	Note
ERROR CODE: 05 CHECK THE LOAD	1. Load Resistance exceeded. 2. Improper electrophoresis cell connection to the power supply, or buffer levels too low	Check all connections.	
ERROR CODE:02/03/04 CALL	If other errors occur, the program goes into error handling mode, closes	contact our company or local office and tell the error code	

SERVICE	the output and displays an error message to the screen		
ERROR CODE: 06 GROUND LEAKAGE	The ground wire leakage current is heavy	Check all connections.	
ERROR CODE: 07 POWER FAIL	Abnormal supply voltage	1. Whether the board voltage switch is correct 2. Check whether the input voltage is right	

Section 5: Care and maintenance

1. Always wipe the instrument with a damp cloth. After the instrument is used up, dry it and let it cool.
2. When using, it is strictly forbidden to place the liquid-filled container on the power supply surface.
3. If liquids spill to the instrument, unplug the power supply and allow to dry completely.
4. When the power is not used, please put it in a ventilated place.
5. Do not block the fan vent at the rear of the unit when using a power supply.

Section 6: Shipping and Storage

1. Do not place heavy objects during transportation or storage. When transport, please take it gently.
2. The packaged product should be stored in a well-ventilated room with a temperature of $-20^{\circ}\text{C} \sim 55^{\circ}\text{C}$, a relative humidity of no more than 93% with no corrosive gas.

Section 7: Warranty

- 1) The product come with one-year machine warranty free of charge from the date of sold and all-life services.
- 2) This warranty free of charge shall not apply to any product that has been subjected to any following situation. We provide fee-based services for these cases.

- a. Certificates, warranty cards and invoices cannot be presented.
- b. Altered invoice.
- c. Damage caused by accidental factors or disaster; Improper operation and operate not according to the instruction manual.
- d. Damage caused by self-repair
- e. Out of the expiration date, while it can still be used after repair.

BAYGENE BIOTECH COMPANY LIMITED

Address: No. 28, Yuhua Road, Shunyi District, Beijing (No. 7-8, Airport Area B)

Postcode: 101300

Tel: 010-80483100/80483200 010-80483456/80483457

Fax: 010-80482859

Website: www.baygenebiotech.com.cn

Email: info@baygenebiotech.com