

Lonza

FlashGel™ Power Supply

Instruction Manual

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FlashGel™ Power Supply

Important Safety Information

Safety symbols

The following symbols alert the user to important operational, maintenance, and/or warranty requirements, or possible hazard exposure.



Symbol indicates a warning of potential exposure to hazardous voltage where contact may result in death or serious injury.



Symbol indicates disposal instruction. DO NOT throw this unit into a municipal trash bin. For utmost protection of the global environment and to minimize pollution, please recycle this unit.

General Product Warning Statement:

CAUTION: Hazardous Voltage

Contact may cause death or serious injury

Caution should be exercised in the operation of this system as it can develop sufficient voltage and current to produce a lethal shock. To reduce risk of injury, the system should only be operated by properly trained personnel and always in accordance with the instructions provided.

Prior to turning on the DC power source, ensure that the black lead is connected to the negative terminal and the red lead is connected to the positive terminal. Failure to adhere to these instructions could result in personal and /or laboratory hazards, as well as invalidate any warranty. Always turn off the DC power source prior to removing cassettes from the dock. For maximum safety, always operate this system in an isolated, low traffic area not accessible to unauthorized personnel. Never operate damaged or broken equipment.

Use a high level of precaution with any electrical device. Before connecting the electrical supply, check to see if the supply voltage is within the range stated on the rating label, and see to it that the device plug be firmly seated. Place the unit in a safe and dry location; it must NOT touch any surrounding objects. Follow the safety precautions for chemicals / dangerous materials. If needed, please contact a qualified service representative or scientific.support@lonza.com.

Environmental Conditions

Ensure the instrument is installed and operated strictly under the following conditions:

- 75 kPa – 106 kPa
- Pollution degree: 2
- Main supply voltage fluctuations up to $\pm 10\%$ of the normal voltage
- Temperature: 15°C-40°C
- Humidity: $\leq 95\%$ relative humidity, non-condensing
- For indoor use only
- Altitude up to 2000m

Maintenance

Visually inspect the power supply prior to use for signs of wear, cracks or damage. Do not use if damage is found.

There are no user serviceable parts contained in the FlashGel™ Power Supply.

Specifications

Electrical Specifications

Output Voltage / Inc.:	10 - 300V / 1VDC
Output Current / Inc.:	10 - 400mA / 1mA
Max. Watt:	60W
Rated Voltage:	100 - 240 V, 50 - 60 Hz, 2A
Output Type:	Constant Voltage or Constant Current
Control:	Microprocessor controller
Timer:	1 - 999 minutes with alarm, continuous
Safety Device:	No load detection; shrouded plugs and sockets

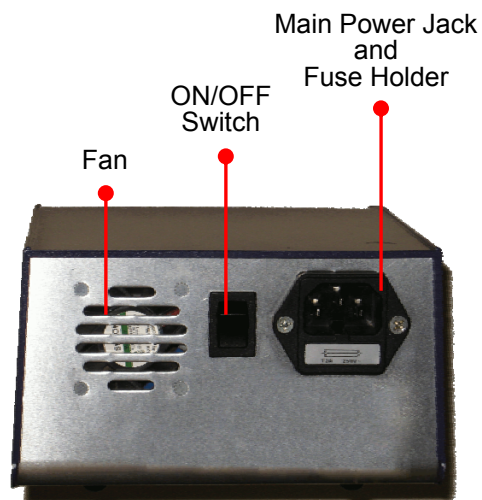
Physical Specifications

Terminal Pairs:	2 Pairs
Display:	3 digit LED
Construction material:	Polycarbonate housing & aluminum bottom plates
Unit Dimension:	140 x 191 x 84mm
Weight:	~1 kg

Catalog Number 57068 - FlashGel™ Power Supply



Front view



Rear view

Warning

The FlashGel™ Power Supply has been tested and found to comply with the limits of CE regulation. The power supply is marked with ETL which indicates it conforms to US and Canadian product safety standards. The device also complies with RoHS, indicating it's free of certain hazardous substances associated with electrical and electronic equipment which meets the environmental directive. These limits are designed to provide reasonable protection against harmful interference when the instrument series is operated in a commercial environment. This instrument used together with the FlashGel™ Dock or other electrophoresis chamber, uses, and can radiate, radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this instrument in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their expense. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. It is strongly recommended for the user to read the following points carefully before operating this equipment.

1. Read and follow the manual instructions carefully.
2. Do not alter the equipment. Failure to follow these directions could result in personal and/or laboratory hazards, as well as invalidate any warranty.
3. Use a properly grounded electrical outlet with correct voltage and current handling capacity.
4. Disconnect from power supply before maintenance and servicing. Refer servicing to qualified personnel.
5. Do not use the unit if there is any sign of damage. Replace damaged parts.
6. Do not use in the presence of flammable or combustible material; fire or explosion may result. This device contains components which may ignite such materials.
7. Refer maintenance and servicing to qualified personnel.
8. Ensure that the system is connected to electrical service according to local and national electrical codes. Failure to make a proper connection may create fire or shock hazard.
9. Use appropriate materials and operate correctly to avoid possible hazards of explosion, implosion or release of toxic or flammable gases arising from overheated materials.
10. The unit shall be operated only by qualified personnel.

Avoiding Electrical Shock

Follow the guidelines below for safe operation of the unit.

The FlashGel™ Power Supply has been designed to utilize shielded wires thus minimizing potential shock hazard to the user. Lonza recommends against the use of unshielded wires.

To reduce risk of electrical shock:

1. In the event of solution spilling on the instrument, it must be dried out for at least 2 hours and restored to NORMAL CONDITION before each operation.
2. Never connect or disconnect wires loading from the power jacks when the red indicator light of power switch is on.
3. WAIT at least 5 seconds after stopping a run before handling output leads or any connected apparatus.
4. ALWAYS make sure that your hands, work area, and instruments are **clean and dry** before making any connections or operating the power supply.
5. ONLY connect the power cord to a properly grounded AC outlet.

Avoiding Damage to the Instrument

1. Do not attempt to operate the device if damage is suspected.
2. Protect this unit from physical damage, corrosive agents and extreme temperatures (direct sunlight, etc.).
3. For proper ventilation and safety concerns, keep at least 10 cm of space behind the instrument, and at least 5 cm of space on each side.
4. Do not operate the unit out of environmental conditions previously listed.
5. Prior to applying any cleaning or decontamination methods other than in accordance with manufacturer's recommendation, users should check with the manufacturer's instructions to see if the proposed method will damage the equipment.

Equipment Operation

Follow the guidelines below for safe operation of the unit:

1. NEVER access dangerous chemicals or other materials to reduce the likelihood of possible hazard of explosion and damage.
2. Do not operate the unit without lids or covers.
3. A temporary conductivity caused by condensation might occur even though this series is rated Pollution Degree 2 in accordance with IEC 664.

Introduction

The Lonza FlashGel™ Power Supply completes the FlashGel™ System. The FlashGel™ Power Supply is designed for use with the FlashGel™ Dock and extends its capabilities outside the FlashGel™ System to most general electrophoresis applications. The FlashGel™ Device Pack which includes the FlashGel™ Power Supply, FlashGel™ Dock, and FlashGel™ Camera offers an all in one comprehensive package for fast easy nucleic acid separation. Its compact size, with two terminal pairs which provide sufficient and accurate output voltages, can deliver reliable experimental results from one experiment to another. Lonza's FlashGel™ Power Supply is ETL (US and Canada), RoHS and CE compliant to address environmental and safety concerns.

FlashGel™ Device Pack



For additional information on the FlashGel™ System visit: www.flashgel.com

Product Description & Feature

The FlashGel™ Power Supply is powerful enough to provide the constant 225V or 275V output, which is recommended to run the FlashGel™ Cassettes while being a fraction of the size of power supplies with similar outputs. Continuous or timed operations are easily performed using the simple and user-friendly interface. The FlashGel™ Power Supply features 2 electrode pairs, allowing for up to 2 FlashGel™ Cassettes to be run simultaneously, saving both time and valuable bench space. With a universal voltage rating, the FlashGel™ Power Supply is also designed and constructed to rigorous safety standards.

- ***Compact size***
- ***Power capacity: 60W, 400mA, 300V***
- ***Constant Voltage or Constant Current operation***
- ***1 V step voltage selection; 1 mA step current selection***
- ***Timer***
- ***No load detection***
- ***Shrouded plugs and sockets***
- ***Two pairs of outlet terminals***
- ***Output voltage stability***
- ***CE marked, ETL (conforms to US and Canadian product safety standards)***

Operation Instructions

Control interface



You will find six buttons and four LED indicators on the faceplate.







The LED indicates the status of the unit.

a. Setup Mode (before pressing RUN/Start)

LED light indicates your current parameter. If you are setting a value for Voltage, the Voltage LED will be lit.

b. Operation Mode

After you start the experiment, the LED light next to the RUN/STOP button will light up to indicate the unit is under operation.


1.  – Select voltage value
2.  – Select current value
3.  – Timer button
4.  – Increase the Voltage, Current or Time
5.  – Decrease the Voltage, Current, or Time
6.  – Start or stop the unit

Start the operation

NOTE: To operate under constant voltage or constant current modes, adjust the other parameter to the maximum value. For example, to operate under constant voltage, adjust current to max before running using constant voltage, and vice versa.

1. Place the unit on a sturdy and level surface in a safe, dry place, away from laboratory traffic.
2. Ensure that the AC power switch is OFF, and then plug the three-pronged power cord into a grounded three-prong AC outlet with appropriate voltage (100V to 240V as indicated on the rating sticker near the AC cord on the back of the unit).
3. Power on the unit by pressing the ON/OFF switch.
4. Connect the DC output jacks from the FlashGel™ Dock or other electrophoresis unit; insert the red lead (+) into the red output jack, and the black lead (-) into the black output jack.



5. Constant voltage or current

*To set constant voltage, press , the LED indicator will light up.



*To set constant current, press , and LED indicator will should light up.


6. Adjust the output value by pressing the  or  button.


*When running FlashGel™ Cassettes, refer to the FlashGel™ Dock instruction manual for recommended electrophoresis conditions.

7. After adjusting your constant mode output value, switch to the other parameter and set it to maximum.
8. Timer Setting: After setting the current or voltage output value, press the Timer button, and then press  button or  button to adjust timer accordingly.

Note: When timer is set as “0”, it means continuous operation.

9. Press  button to start the run. Once the electrophoresis starts, the LED light next to the  button will light up.

10. Press  button again to stop the unit at any time if necessary.

11. When the run is completed, Press  button to terminate a timed run, and turn the AC power OFF by the switch on the rear.

12. The programmed settings will be automatically saved into the system. The next time you turn it on, the same settings as your previous experiment will be displayed.

Troubleshooting

Many operating problems may be solved by carefully reading and following the instructions in this manual. Some suggestions for troubleshooting are given below. Should these suggestions not resolve the problem or if you have any questions, contact Lonza Scientific Support or the Lonza distributor in your region for assistance. If troubleshooting service is required, please include a full description of the problem.

Problem	Possible Cause	Potential Solution
No Display / lights	No AC power	Check if the power supply is unplugged, or AC power source problem
	AC power cord is not connected	Check AC power cord connections at both ends. Use the correct cords.
	The fuse has blown	Replace the fuse
Repeated fuse broken	Hardware failure	Contact Lonza Scientific Support
Operation stops	Electrophoresis leads are not connected to the power supply or to the electrophoresis unit(s), or there is a broken circuit in the electrophoresis cell	Check the connections to the power supply and on your electrophoresis cell to make sure the connection is intact; check condition of wires in electrophoresis unit. Close the circuit by reconnecting the cables. Press START/STOP to restart the run.
	High resistance due to tape left on a pre-cast gel, incorrect buffer concentration, or incorrect buffer volumes in the electrophoresis cell*	Correct the condition by making sure the tape is removed from the precast gel, buffers are prepared correctly, and the recommended volume of buffer is added to the electrophoresis unit.

Er1 Error message	Over current(400mA limitation reached)	Check if the buffer concentration is appropriate. Excessive buffer concentration may cause over current issue.* To clear the error message, press the START/STOP button again
Er2 Error message	Over voltage(300V limitation reached)	Press START/STOP button to clear the error message. Contact Lonza Scientific Support if the problem persists.
Er3 Error message	Thermal limitation reached(Output voltage <10V)	(1) Check the connections (2) If Er3 error message persists, the problem may be caused by internal fan failure. Contact Lonza Scientific Support.
nLD Message	No load is detected	(1) Check the connections (2) Check the buffer condition / buffer level.
AL1 Alarm message	Max. watts(60W) of power reached	Warning message for reference

***Not likely when used with FlashGel™ Dock**

Encountering Problems

1. Check the troubleshooting section.
2. Call Scientific Support or e-mail scientific.support@lonza.com

Replacing the Fuse

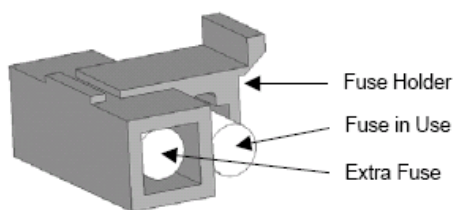
For additional fuses, call Lonza Scientific Support or e-mail scientific.support@lonza.com

To replace the fuse:

1. Turn off the main power switch at the rear of Power Supply and detach the power cord.
2. Open the fuse compartment located inside the Power Entry Module by inserting a small flat blade screwdriver into the slot below the ON/OFF switch. Turn the screwdriver to gently pry open the fuse compartment.

NOTE: The fuse compartment will not open with the power cord in place.

3. Pull the fuse holder out of the compartment and inspect the fuse. If the fuse is burned or there is a break in the fuse element, replace the fuse with the identical type of fuse (**T2AH250V**) as provided in the fuse holder (see figure below).
4. Place the fuse holder back into the compartment.
5. Snap the cover closed.



Ordering Information

FlashGel™ Devices

Cat No.	Description
57068	FlashGel™ Power Supply
57025	FlashGel™ Dock For use with all FlashGel™ Cassette types
57040	FlashGel™ Camera <i>Includes Camera, hood enclosure USB cable, and FlashGel™ Capture Software. For use with the FlashGel™ Dock.</i>

FlashGel™ Device Packs

Cat No.	Description
57062	FlashGel™ Device Pack <i>Includes FlashGel™ Dock, FlashGel™ Power Supply, and FlashGel™ Camera</i>
57069	FlashGel™ Power Supply Pack <i>Includes FlashGel™ Dock and FlashGel™ Power Supply</i>
57065	FlashGel™ Camera Pack <i>Includes FlashGel™ Dock and FlashGel™ Camera</i>

FlashGel™ Consumable Kits

Cat No.	Description
57063	FlashGel™ DNA Kit <i>Includes FlashGel™ DNA Cassettes 1.2% 12+1 well single tier 9pk, FlashGel™ Loading Dye, and FlashGel™ Marker 100 bp – 4 kb</i>
57064	FlashGel™ Recovery Kit <i>Includes FlashGel™ Recovery Cassettes 1.2% 8+1 well double tier 9pk, FlashGel™ Recovery Buffer, FlashGel™ Loading Dye, FlashGel™ QuantLadder, and Visualization Glasses</i>
57024	FlashGel™ RNA Kit <i>Includes FlashGel™ RNA Cassettes 1.2% 12+1 well single tier 9pk, RNA Marker, Sample Buffer, and Molecular Biology Water</i>

Notes

Warranty and Limitation of Liability

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Lonza Rockland, Inc. warrants this product to be free from defects in materials and workmanship under normal service for one year from date of shipment, subject to the exclusions set forth below and provided that the product has been operated and maintained according to the instructions provided. If the product proves defective during this period, Lonza Rockland, Inc., will repair or replace it at our option, free of charge, if returned to us postage prepaid. This warranty does not cover: Consumable parts (fuse), damage in transit, damage caused by carelessness, misuse or neglect, normal wear through frequent use, damage caused by solvent corrosion, damage caused by improper handling or user alteration, nor unsatisfactory performance as a result of conditions beyond Lonza's control.

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License and Trademark Information

Some components and technology of the FlashGel™ System are sold under licensing agreements. The nucleic acid stain in this product is manufactured and sold under license from Molecular Probes, Inc. and the FlashGel™ Cassette is sold under license from Invitrogen IP Holdings, Inc. and is for use only in research applications or quality control, and is covered by pending and issued patents. Dark Reader is a trademark of Clare Chemical Research, Inc. The FlashGel™ Dock technology contains Clare Chemical Research, Inc. Dark Reader® transilluminator technology and is covered under US Patents 6,198,107; 6,512,236; and 6,914,250. The electrophoresis technology is licensed from Temple University and is covered under US Patent 6,905,585.

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