

Mini300V Plus Power Supply

Instruction manual

Mini300V Plus



Version 01
May 2012



Packing list

Mini300V Plus

- 1x Mini300V Plus Power Supply
- 1x Power Cord
- 1x Instruction Manual

Signed by:

Date:

Warning

The MINI300V PLUS Power Supply has been thoroughly tested and found to comply within the limits of CE regulation. It has been manufactured using the latest technology and does not require maintenance. When used correctly this unit poses no particular health risk, although it can deliver dangerous voltage levels if used incorrectly. Accordingly, this power supply must only be operated by fully qualified personnel adhering to the guidelines laid out within this instruction manual. Although this power supply is equipped with all necessary safety features against abuse and accidental failure, caution should always be exercised when working with high voltage equipment. Any individual intending to use this instrument should read the entire manual thoroughly before operation.

1. Read the instruction manual thoroughly before use.
2. Never touch the power outlets with any conductive object (e.g. naked metal wire) other than properly insulated power supply cables.
3. Do not spill liquid or insert metal objects inside the power supply.
4. Never block the ventilation holes or place the unit in any enclosure unless there is adequate ventilation; never expose the power supply to a direct heat source.
5. Never touch any part of the power supply assembly (i.e. power supply, cables or electrophoresis tank) before switching OFF the power supply.
6. Never manipulate with wet hands.
7. Do not connect to ground any of the power outputs or the buffer within the electrophoresis tank; the power outputs should be only connected to an insulated electrophoresis tank equipped with a safety cover.
8. Do not connect any power supplies in series or in parallel.
9. Never open the back plate or remove the cover, otherwise an electric shock may result. Repairs should only be made by the manufacturer or a service technician authorised by the manufacturer.
10. Never use this power supply if the safety cover is not in position correctly.
11. Do not use the unit if there is any sign of damage to the external tank or cover. Contact the manufacturer or supplier immediately to replace or

repair any damaged parts.

12. Never use the power supply in the presence of flammable or combustible material as fire or explosion may result.
13. Ensure that the power supply is only connected to an earthed power line. Do not cut and splice the power line. When removing the power cord from the wall, unplug it by holding the plug attachment and not by pulling the cord. Do not hold the plug with wet hands or gloves.

Environmental Conditions

This power supply may only be installed and operated only under the following environmental conditions:

1. For indoor use only
2. Relative humidity: $\leq 95\%$
3. Atmospheric pressure: 75 kPa – 106 kPa
4. Altitude: ≤ 2000 metres
5. Operating temperature: ambient to 40°C
6. Pollution degree: 2
7. Mains supply voltage fluctuations up to $\pm 10\%$ of the normal voltage

Symbols

The symbols used on the power supply are explained below.



Indicates the potential for electric shock.

Consult the manual to avoid possible personal injury or instrument damage.



Do not dispose of this power supply in municipal or domestic waste once it has reached the end of its lifespan. Please recycle it if possible.

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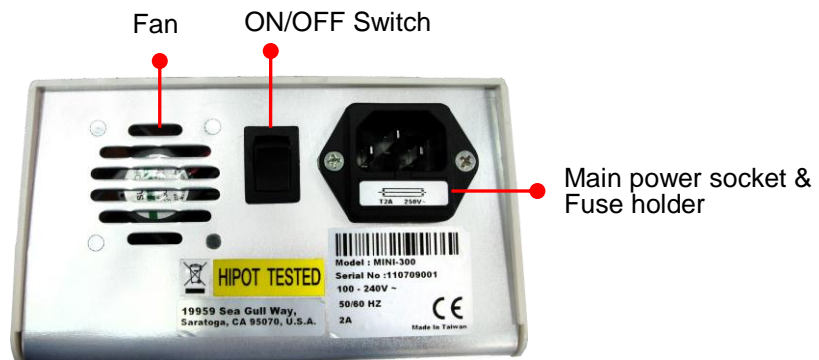
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Section 1 Introduction

1.1 Overview



Front view



Rear view

1.2 Product Description & Features

With enhanced features, such as a maximum constant current output of 400mA, in addition to constant voltage up to 300V, the MINI300V PLUS is capable of running all Fisher Scientific horizontal Sub-gel and vertical Verti-gel mini gels, either on a continuous run or timed setting up to 999 minutes. The MINI300V PLUS's user-friendly interface is easily adjustable in 1V and 1mA increments, making it perfect for separations where precise settings are required, while its ultra-compact size and two pairs of parallel power terminals, which can run two electrophoresis units simultaneously, save time and bench space. A dual voltage rating ensures full portability, and allows easy transportation between laboratories irrespective of their geographical location.

Section 2 Technical Specification

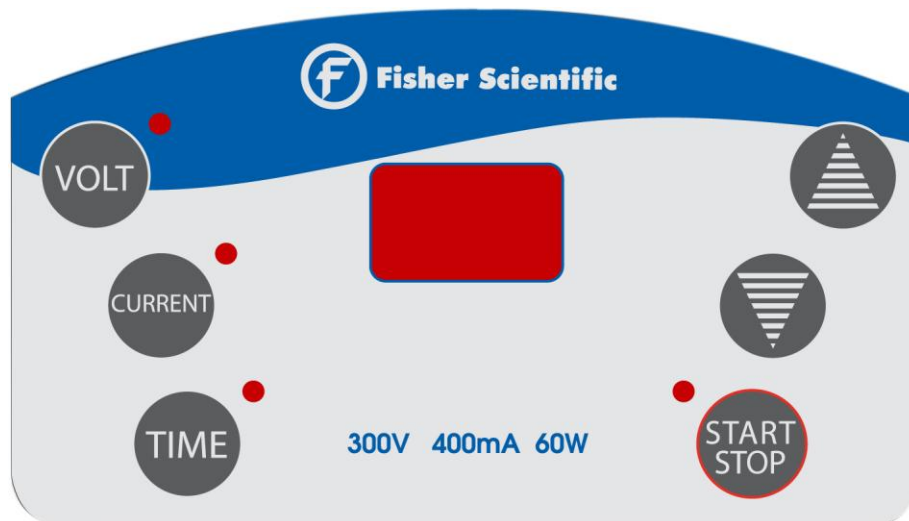
Output range (programmable)	
Voltage	10-300V
Current	10-400mA
Power	60W max.
Resolution	1V / 1mA
Type of Output	Constant voltage or constant current
Automatic crossover	-
Timer	1-999 min. with alarm; Continuous
Pause/resume function	-
Display	3-digit LED
Programmable Methods	-
Automatic recovery after power failure	-
Safety features	No-load detection; over-voltage, current & temperature protection; maximum power output detection; shrouded plugs and sockets
Operating conditions	Ambient-40°C; ≤95% humidity
Stackable	-
Number of output jacks	2 sets in parallel
Regulatory conformity	EN-61010-1; CE
Dual voltage	Yes; 100-240 VAC
Construction	Polycarbonate housing with aluminium base
Dimensions (WxDxH)	140x191x84mm
Weight	1Kg

Section 3 Installation Instructions

The MINI300V PLUS Power Supply is a factory pre-installed instrument. The power supply is ready for immediate use once it is unpacked and placed on a level, dry bench surface that is adequately ventilated and away from sources of direct heat.

Section 4 Operation Instructions

4.1 Control interface









There are six buttons and four LED indicators on the faceplate. The LED indicates the operation status of the unit.

a. Setup Mode (before pressing RUN/Start)

Each illuminated LED light shows the parameter currently selected on the faceplate of the power supply. For example, if the voltage is selected the VOLT LED will be illuminated.

b. Operation Mode

Once the power supply is started, the LED will be illuminated on the faceplate adjacent to the START/STOP button.

1.  – Voltage Select
2.  – Current Select
3.  – Time Select
4.  – Increase Select
5.  – Decrease Select
6.  – Start/Stop Program



4.2 To 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 the current to the maximum output of 400mA before running the power supply with the voltage set at the desired output setting.

1. Place the power supply on a level, dry bench surface away from sources of direct heat.
2. With the AC power switch in the OFF position, plug the power cord into a grounded AC outlet of the appropriate voltage (*i.e.* 100V or 240V, determined by the rating sticker near the AC cord on the back of the unit).
3. Switch on the power supply by pressing the ON/OFF button at the rear of the power supply.




4. Connect the power supply cables from the electrophoresis unit by inserting the red lead (+) into the red power supply output and the black lead (-) into the black power supply output beneath the front fascia plate.

4.3 To use the constant voltage or current mode

* Press the  or  buttons to set a constant voltage or current respectively.



5. Press the  or  buttons to adjust the voltage or current in 1V or 1mA increments or decrements to the required output value.
6. After adjusting your constant mode output value (e.g. voltage), set the other parameter to the maximum output (e.g. current).




4.4 To adjust the time

7. After setting the desired current or voltage output value, press the  button, and then press  key or  key to adjust timer accordingly.

For non-stop continuous operation, set the  button to 'zero'.

4.5 Starting and stopping the run

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

9. Press the  key again to stop the unit at any time during the run if it is necessary to access the gel tank. Press the  key to resume electrophoresis.
10. Press the  key to terminate a timed run, and turn the AC power OFF using the switch at the rear of the power supply.
11. The programmed settings will be retained within power supply memory and displayed when the power supply is next switched on.

Section 5 Troubleshooting and Maintenance

Many operating problems may be solved by reading and following the instructions in this manual accordingly. Some suggestions for troubleshooting are given below. If these suggestions fail to resolve the problem, contact the Fisher Scientific distributor in your region for assistance. If troubleshooting service is required, please include a full description of the problem.

Problem	Cause	Solution
No Display / lights	No AC power	Check if the power supply is unplugged, or if the AC power source is a problem.
	AC power cord is not connected	Check AC power cable to ensure that it fits correctly within the power supply. Use the correct power cable.
	The fuse has blown	Replace the fuse.
Fuse repeatedly broken	Hardware failure	Contact the Fisher Scientific's service department.

Operation stops	Electrophoresis cables are not connected to the power supply or to the electrophoresis unit(s). There is a broken circuit in the electrophoresis tank.	Check the connections to the power supply and the electrophoresis tank to ensure they are intact; check the condition of wires in the electrophoresis unit. Close the circuit by reconnecting the cables. Press START/STOP to resume the run.
	High resistance due to tape left on a pre-cast gel; an incorrect buffer concentration or volume in the electrophoresis tank	Ensure that any tape is removed from the ends of a pre-cast gel, the buffers are prepared correctly, and the recommended volume of buffer is added to the electrophoresis tank.
Er 1 Error message	Current exceeds the maximum output for the power supply (>400mA)	Check if the buffer concentration or molarity is appropriate. Excessive buffer concentration or molarity may increase conductivity. To clear the error message, press the START/STOP button.
Er 2 Error message	Voltage exceeds the maximum output for the power supply (>300V)	Press the START/STOP button to clear the error message. Contact Fisher Scientific's service department if the problem persists.
Er 3 Error message	Thermal limitation of the power supply reached (Output voltage <10V)	(1) Check the connections (2) If the Er3 error message persists, the problem may be caused by internal fan failure. Contact the Fisher Scientific's service department.
nLd Message	No load is detected	(1) Check the connections (2) Check the buffer condition / buffer level
AL1 Alarm message	Power exceeds the maximum output (60W)	Warning message for reference

Encountering Problems

1. Check the troubleshooting section.
2. Call or email Technical Service.
3. If it is necessary to ship the unit back for repair, contact Fisher Scientific's service department for a Return Authorisation Number (RAN) and shipping instructions. The unit will be repaired and returned to you as quickly as possible.

Replacing the Fuse

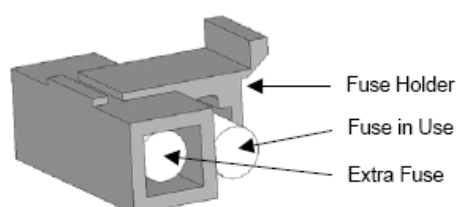
For additional fuses, please contact Fisher Scientific Ltd.

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-bladed screwdriver into the slot below the ON/OFF switch at the rear of the power supply. Gently turn the screwdriver to 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 burnt or there is a break in the fuse element, replace the fuse with an identical type of fuse (**T2AH250V**; as shown in the figure below).
4. Place the fuse holder back into the compartment.
5. Snap the cover closed.





Maintenance

The MINI300V PLUS Power Supply uses all solid-state components and should require no maintenance or recalibration under normal use. If the unit must be returned for repair, contact your local authorised Fisher Scientific distributor.



Section 6 Ordering Information

Cat. No.	Description
FB79520	Fisher Scientific MINI300V PLUS, 300V, 400mA, 60W Power Supply, 110-240 VAC



Section 7 Warranty

Fisher Scientific Ltd. Power Supplies have a warranty against manufacturing and material faults of twelve months from the date of customer receipt.

If any defects arise during this warranty period, Fisher Scientific will repair or replace the defective parts free of charge.

This warranty does not cover defects resulting from accident or misuse, or defects caused by improper operation.

Units where repair or modification has been performed by anyone other than Fisher Scientific, or an appointed distributor or representative, are no longer under warranty from the time the unit was modified.

Warranty is rendered invalid for those units which contain accessories or repaired parts not supplied by Fisher Scientific or its associated distributors.

Fisher Scientific cannot repair or replace free of charge units where improper solutions or chemicals have been used.

If a problem does occur then please contact your nearest Fisher Scientific supplier.