

## *Midi300V/4 Power Supply*

Instruction manual

Midi300V/4

(FB79530 / 12613546)



Version 01a  
Dec 2012



## Packing list

Midi300V/4

- 1x Midi300V/4 Power Supply
- 1x Power Cord
- 1x Instruction Manual

Signed by:

Date:

## Warning

The MIDI300V/4 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:  $\leq 2000$  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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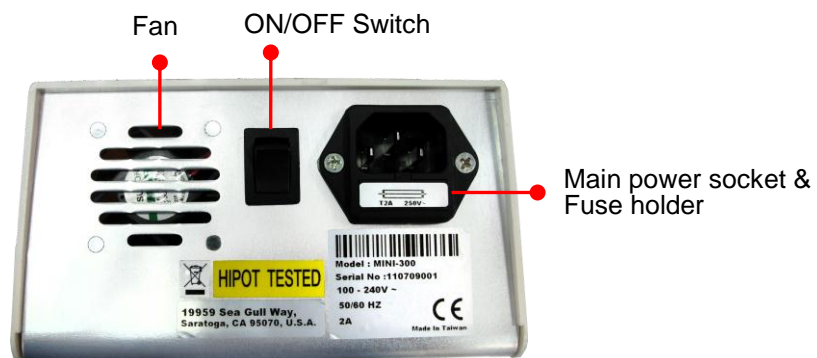
## Section 1 Introduction

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### 1.1 Overview



Front view



Rear view

## 1.2 Product Description & Features

With nearly twice the current and power of the market leader's equivalent unit, at 700mA and 150W, the MIDI300V/4 offers a specification comparable to any midi power supply presently available on the market. The MIDI300V/4 is perfectly suited to use with all Fisher horizontal Sub-Gel systems and Verti-Gel mini vertical gel units, and may also be adapted for specialist techniques including the Comet Assay, and clinical and high throughput horizontal electrophoresis. Microprocessor control with four sets of power terminals allow simultaneous operation of as many electrophoresis units either at a constant voltage or current setting, while the timer function may be set continuously or up to a maximum 999 minutes when an alarm sounds to signify termination of the run. A user-friendly interface houses a conspicuous 3-digit LED to aid set up, as well as a convenient 'pause / resume' key, a particularly useful feature during extended runs when it is necessary to access the gel tank to monitor buffer levels and sample migration. Given its high specification and remarkable versatility the MIDI300V/4 is relatively inexpensive, and benefits from additional features such as a stackable design; rigorous in-built safety mechanisms; automatic crossover and dual voltage compatibility.

## Section 2 Technical Specification

<b>Output range (programmable)</b>	
<b>Voltage</b>	<b>2-300V</b>
<b>Current</b>	<b>1-700mA</b>
<b>Power</b>	<b>150W max.</b>
<b>Resolution</b>	<b>1V / 1mA</b>
<b>Type of Output</b>	<b>Constant voltage or constant current</b>
<b>Automatic crossover</b>	<b>Yes</b>
<b>Timer</b>	<b>1-999 min. with alarm; Continuous</b>
<b>Pause/resume function</b>	<b>Yes</b>
<b>Display</b>	<b>3-digit LED</b>
<b>Programmable Methods</b>	<b>-</b>
<b>Automatic recovery after power failure</b>	<b>Yes</b>
<b>Safety features</b>	<b>No-load detection; sudden load change detection; overload detection; ground-leak detection; over-voltage, current &amp; temperature protection; maximum power output detection; shrouded plugs and sockets</b>
<b>Operating conditions</b>	<b>Ambient-40°C; ≤95% humidity</b>
<b>Stackable</b>	<b>Yes</b>
<b>Number of output jacks</b>	<b>4 sets in parallel</b>
<b>Regulatory conformity</b>	<b>EN-61010-1; CE</b>
<b>Dual voltage</b>	<b>Yes; 100-240 VAC</b>
<b>Construction</b>	<b>Flame retardant ABS-plate design with aluminium base</b>
<b>Dimensions (WxDxH)</b>	<b>190x305x95mm</b>
<b>Weight</b>	<b>2.5Kg</b>

### Section 3 Installation Instructions

The MIDI300V/4 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





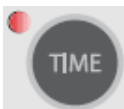

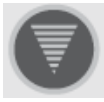


There are seven buttons and four LED indicators on the faceplate. The LED indicates the operation status of the unit.

#### 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.  – Pause Program
7.  – 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 700mA before running the power supply with the voltage set at the desired output setting.*

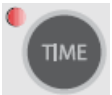


1. Place the power supply on a level, dry bench surface away from sources of direct heat.
2. With the AC power switch in the OFF position, plug the power cord into a grounded AC outlet of the appropriate voltage (*i.e.* 100V or 240V, determined by the rating sticker near the AC cord on the back of the 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 to terminate a timed run, and turn the AC power OFF using the switch at the rear of the power supply.

10. The programmed settings will be retained within power supply memory and displayed when the power supply is next switched on.

#### 4.6 Pausing the run

11. Press  key for temporary access to the gel. This interrupts the power supply during the run, allowing access to the gel. A PAUSE message will flash within the LCD screen, while the voltage and current will

read at zero value. The LED adjacent to the  will also flash.

12. Press the  key to resume electrophoresis. The voltage and

current settings will be restored within the LCD screen after a few seconds.

## Section 5 Troubleshooting and Maintenance

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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 Fisher Scientific.
Operation stops <b>nLd</b>	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 <b>START/STOP</b> 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.

	High voltage application set to run on a very low current	The no load alarm on the display screen needs to be disabled. Contact Fisher Scientific to arrange return of power supply for the appropriate circuit board modification to be made. There may be cost for this.
<b>Err1</b> Error message; power supply stops; alarm sounds	Current exceeds the maximum output for the power supply (>700mA)	Check if the buffer concentration or molarity is appropriate. Excessive buffer concentration or molarity may increase conductivity. To clear the error message, press the <b>START/STOP</b> button.
<b>Err2</b> Error message; power supply stops; alarm sounds	Voltage exceeds the maximum output for the power supply (>300V)	Press the <b>START/STOP</b> button to clear the error message. Contact Fisher Scientific if the problem persists.
<b>Err3</b> Error message; power supply stops; alarm sounds	Ground leak detection	(1) Check the electrophoresis system for earth leakage (2) If the <b>Err3</b> error message persists, switch the power on/off and restart the application.
<b>Err6</b> Error message; power supply stops; alarm sounds	Power supply is over-heating	(1) Turn off the power supply immediately and check that there is sufficient clearance around the power supply for ventilation. (2) If the <b>Err6</b> error message persists and the power supply cannot be restarted disconnect it from the mains and contact Fisher Scientific.
<b>Err7</b> Error message; power supply stops; alarm sounds	Poor connection between power cable and power supply; damaged power cable or electrode	Check the power cables and electrodes within the gel tank.

<b>A59</b> Power Supply stops; alarm sounds with countdown to zero: A58, A57 etc.	Power supply is restarting	Check the electrophoresis conditions within the system without compromising personal safety.
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### 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 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.

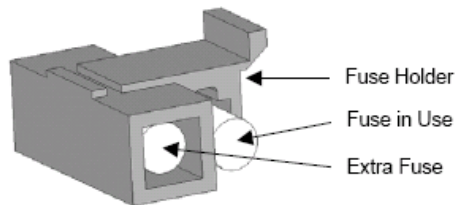
To replace the fuse:

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 MIDI300V/4 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

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<b>Cat. No.</b>	<b>Description</b>
FB79530	Fisher Scientific MIDI300V/4, 300V, 700mA, 150W Power Supply, 110-240 VAC



## **Section 7 Warranty**

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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.



NOTES



## NOTES