

# Electrophoresis Power Supply

EC-105

Operation and Maintenance Manual 7218471 Rev. 0



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**MANUAL NUMBER 7218471**

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**Important** Read this instruction manual. Failure to read, understand and follow the instructions in this manual may result in damage to the unit, injury to operating personnel, and poor equipment performance. ▲

**Caution** All internal adjustments and maintenance must be performed by qualified service personnel. ▲

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Important operating and/or maintenance instructions. Read the accompanying text carefully.



Potential electrical hazards. Only qualified persons should perform procedures associated with this symbol.



Equipment being maintained or serviced must be turned off and locked off to prevent possible injury.



Hot surface(s) present which may cause burns to unprotected skin, or to materials which may be damaged by elevated temperatures.



Marking of electrical and electronic equipment, which applies to electrical and electronic equipment falling under the Directive 2002/96/EC (WEEE) and the equipment that has been put on the market after 13 August 2005.



This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC. It is marked with the WEEE symbol. Thermo Fisher Scientific has contracted with one or more recycling/disposal companies in each EU Member State European Country, and this product should be disposed of or recycled through them. Further information on Thermo's compliance with this directive, the recyclers in your country and information on Thermo products will be available at [www.thermofisher.com](http://www.thermofisher.com).

- ✓ Always use the proper protective equipment (clothing, gloves, goggles, etc.)
- ✓ Always dissipate extreme cold or heat and wear protective clothing.
- ✓ Always follow good hygiene practices.
- ✓ Each individual is responsible for his or her own safety.

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Our **Sales Support** staff can provide information on pricing and give you quotations. We can take your order and provide delivery information on major equipment items or make arrangements to have your local sales representative contact you. Our products are listed on the Internet and we can be contacted through our Internet home page.

Our **Service Support** staff can supply technical information about proper setup, operation or troubleshooting of your equipment. We can fill your needs for spare or replacement parts or provide you with on-site service. We can also provide you with a quotation on our Extended Warranty for your Thermo Scientific products.

Whatever Thermo Scientific products you need or use, we will be happy to discuss your applications. If you are experiencing technical problems, working together, we will help you locate the problem and, chances are, correct it yourself...over the telephone without a service call.

When more extensive service is necessary, we will assist you with direct factory trained technicians or a qualified service organization for on-the-spot repair. If your service need is covered by the warranty, we will arrange for the unit to be repaired at our expense and to your satisfaction.

Regardless of your needs, our professional telephone technicians are available to assist you Monday through Friday from 8:00 a.m. to 6:00 p.m. Eastern Time. Please contact us by telephone or fax. If you wish to write, our mailing address is:

Thermo Fisher Scientific  
401 Millcreek Road, Box 649  
Marietta, OH 45750

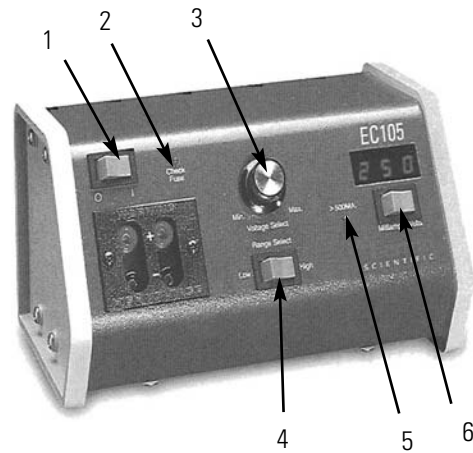
International customers, please contact your local Thermo Scientific distributor.

# Table of Contents

<b>Section 1</b>	<b>General Information</b> .....	<b>1-1</b>
	Intended Use and Specifications .....	1-2
<b>Section 2</b>	<b>Set-Up</b> .....	<b>2-1</b>
<b>Section 3</b>	<b>Operation</b> .....	<b>3-1</b>
<b>Section 4</b>	<b>Precautions and Service</b> .....	<b>4-1</b>
	Cleaning .....	4-1
	Technical Specifications .....	4-2



## Section 1 General Information



**Figure 1-1.** EC-105 Components

1. Main Power Switch
2. Check Fuse LED
3. Voltage Selec Control
4. Low / High Range Switch
5. Overcurrent LED
6. Volts / Milliamp Display



## **Intended Use and Specifications**

- The EC-105 Power Supply is intended for use with any electrophoretic device designed to operate below 250 Volts and 500 milliAmps DC.
- Two sets of outputs operate in parallel to provide between 20 and 250 volts, up to 500 milliamps, and up to 75 watts in the constant voltage mode.
- A single LED display provides output voltage or current readings.
- Overcurrent protection is provided by audible and visual alarms and a single 1 amp slo blow fuse on the main circuit.

## Section 2 Set-Up

### Unpack and Check

Unpack and carefully examine the power supply. Report any damage to the distributor. Do not attempt to operate this device if physical damage is present. Save all packing material if damage is found.

### Electricity Supply

Before connecting this device to the electricity supply, check the information given on the power supply rating label and confirm the following:

- Your electricity supply is single phase A.C. (alternating current) of the stated frequency with neutral nominally at earth potential.
- Your supply voltage is within the stated range.
- The current rating is within the capacity of your supply outlet.

**Warning** This equipment must be earthed. ▲

The wires in the electrical lead are colored in accordance with the following code:

**Green Earth (Ground)    White Neutral (Common)    Black Live (Phase)**

Connect the wires to a non-reversible plug as follows:

**Green wire** to the terminal marked E (Earth), G (Ground), or colored Green.

**White wire** to the terminal marked N (Neutral) or Common.

**Black wire** to the terminal marked L (Live) or Phase.

**Important Electrical Safety Notes** Consult a qualified electrician if any doubt or if your electricity supply system has any of the following:

- No Earth
- A Color Code different from the above
- Reversible plugs
- Supply and Return Leads that are both above Earth potential

**Locate**

Place the power supply in proximity to the electrophoretic cell(s) with which it is to be connected. Be sure to place the power supply in a safe, dry location with all the controls accessible.

**Connect to Cell and Mains**

Connect power supply to electrophoretic cell, then to the AC receptacle.

## Section 3 Operation

### Power On

After the power supply is properly connected to the electrophoretic cell(s), select the 10 range and set Voltage Select to the fully counter-clockwise (minimum) position. Set the display switch to Volts and turn on power using the Power switch. When "On," the red LED is illuminated.

### Select Voltage

Adjust the Voltage Select control to the desired output voltage. The Select Control will increase the output voltage approximately 10 volts for every incremental adjustment. The Lo/Hi range switch is set to the Hi position whenever operating voltages above 140 volts are required.

**Note** The overcurrent alarm will sound whenever maximum output current (500mA) is exceeded. Should this occur, reduce the operating voltage until the overcurrent alarm goes off.

The volts/milliamps display switch will display either volts to nearest volt or milliamps to the nearest milliamp, depending on the switch setting. This switch may be changed at any time without affecting the output.

### Disconnection

When disconnecting the power supply from the electrophoretic cell, for any reason, first turn off the power switch and confirm that the red LED is no longer illuminated.



## Section 4 Precautions and Service

Use the same precautions as with any electrical device. Do not operate without the cover in place or with any possible short circuit. Do not operate in a damp, humid environment where condensing moisture may short out internal electrical components. When moving to or from a cold room, allow at least eight (8) hours for the unit to temperature-equilibrate.

This power supply is equipped with a slo blow 1 amp fuse in the mains circuit. Should this fuse open, the check fuse LED on the front panel will illuminate.

**Caution** Use only 1 amp (3/4 amp for 240VAC mains) slo blow fuses in this equipment. ▲

Should this product become excessively warm, smoke, or display erratic information during operation, discontinue use immediately and contact a qualified service representative.

**Cleaning** Use only mild, non-abrasive detergents. DO NOT use solvents or immerse in water, as this may cause permanent damage.

## Technical Specifications

EC-I05 Minicell Power Supply (115V/60Hz or 230V/50Hz)

Output mode: Constant Voltage

Voltage Steps:

Lo Range: 20,30,40,50,60,70,80,90, 100, 110,120, 130

Hi Range: 140,150,160,170,180,190,200,210,220,230,240,250

Maximum Voltage: 250 Volts

Maximum Current: 300 milliAmps @ 150-250 Volts

500 milliAmps below 150 Volts

Maximum Power: 75 Watts

Number of Outputs: 2

Fuse Replacement: 1 Amp slo blow

Temperature Range: 0°C -40°C (non-condensing atmosphere)

Dimensions: 8" W x 6" D x 4.5" H (20.3 cm x 13.3 cm x 11.4 cm )

Weight: (net) 5 lbs (2.3 kg)

Weight: (shipping) 7 lbs. (3.2 kg)

## THERMO FISHER SCIENTIFIC STANDARD PRODUCT WARRANTY

The Warranty Period starts two weeks from the date your equipment is shipped from our facility. This allows for shipping time so the warranty will go into effect at approximately the same time your equipment is delivered. The warranty protection extends to any subsequent owner during the first year warranty period.

During the first year, component parts proven to be non-conforming in materials or workmanship will be repaired or replaced at Thermo's expense, labor included. Installation and calibration are not covered by this warranty agreement. The Technical Services Department must be contacted for warranty determination and direction prior to performance of any repairs. Expendable items, glass, filters and gaskets are excluded from this warranty.

Replacement or repair of components parts or equipment under this warranty shall not extend the warranty to either the equipment or to the component part beyond the original warranty period. The Technical Services Department must give prior approval for return of any components or equipment. At Thermo's option, all non-conforming parts must be returned to Thermo Fisher Scientific postage paid and replacement parts are shipped FOB destination.

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Your local Thermo Sales Office is ready to help with comprehensive site preparation information before your equipment arrives. Printed instruction manuals carefully detail equipment installation, operation and preventive maintenance.

If equipment service is required, please call your Technical Services Department at 1-800-438-4851 (USA and Canada) or 1-740-373-4763. We're ready to answer your questions on equipment warranty, operation, maintenance, service and special application. Outside the USA, contact your local distributor for warranty information.



Rev. 4 4/09



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During the first year, component parts proven to be non-conforming in materials or workmanship will be repaired or replaced at Thermo's expense, labor excluded. Installation and calibration are not covered by this warranty agreement. The Technical Services Department must be contacted for warranty determination and direction prior to performance of any repairs. Expendable items, glass, filters, reagents, tubing, and gaskets are excluded from this warranty.

Replacement or repair of components parts or equipment under this warranty shall not extend the warranty to either the equipment or to the component part beyond the original warranty period. The Technical Services Department must give prior approval for return of any components or equipment. At Thermo's option, all non-conforming parts must be returned to Thermo postage paid and replacement parts are shipped FOB destination.

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Contact your local distributor for warranty information. We're ready to answer your questions on equipment warranty, operation, maintenance, service and special application.



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Thermo Fisher Scientific  
401 Millcreek Road  
Marietta, Ohio 45750  
United States

[www.thermofisher.com](http://www.thermofisher.com)

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