

300V HC (High Current), 2A, 300W
Electrophoresis Power Supply

INSTRUCTION MANUAL

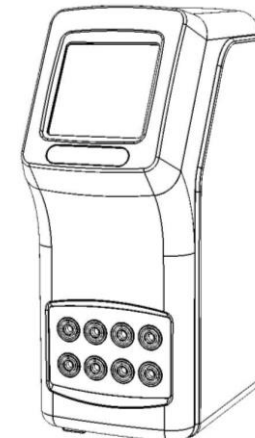
European Catalogue Numbers:

Euro Plug: 700-1373

UK Plug: 700-1374

Version 1.1

Issued: 28.1.2022



UK
CA

CE

This product is for research only

Legal Address of Manufacturer:

United States	Europe
VWR International, LLC	VWR International bvba
100 Matsonford Rd	Researchpark Haasrode 2020
Radnor, PA 19087	Geldenaaksebaan 464
800-932-5000	B-3001 Leuven
http://www.vwr.com	+ 32 16 385011
	http://be.vwr.com

Country of origin: USA

Contents

1. Introduction and Warning.....	3
2. Product Overview.....	4
3. Symbols and Conventions	5
4. Specifications.....	5
5. Installation.....	6
6. Warnings.....	6
7. Operating Guide.....	7
8. Overview of Electrical Principles.....	9
9. Maintenance.....	10
10. Troubleshooting.....	11
11. Technical Service.....	11
12. Warranty	12
13. Disposal	13
13. VWR Contact	14

Italy
VWR International S.r.l.
Via San Giusto 85
20153 Milano (MI)
Tel.: +39 02-3320311/02-487791
Email: info.it@vwr.com

The Netherlands
VWR International B.V.
Postbus 8198
1005 AD Amsterdam
Tel.: +31 020 4808 400
Email: info.nl@vwr.com

Norway
VWR International AS
Brynsalleen 4
0667 Oslo
Tel.: +47 22 90 00 00
Email: info.no@vwr.com

Poland
VWR International Sp. z o.o.
Limbowa 5
80-175 Gdansk
Tel.: +48 058 32 38 210
Email: info.pl@vwr.com

Portugal
VWR International - Material
de Laboratório, Lda
Centro Empresarial de
Alfragide
Rua da Indústria, nº 6
2610-088 Amadora
Tel.: +351 21 3600 770
Email: info.pt@vwr.com

Singapore
VWR Singapore Pte Ltd
18 Gul Drive
Singapore 629468
Tel: +65 6505 0760
Email: sales.sg@vwr.com

Spain
VWR International Eurolab S.L.
C/ Tecnología 5-17
A-7 Llinars Park
08450 - Llinars del Vallès
Barcelona
Tel.: +34 902 222 897
Email: info.es@vwr.com

Sweden
VWR International AB
Fagerstagatan 18a
163 94 Stockholm
Tel.: +46 08 621 34 00
Email: info.se@vwr.com

Switzerland
VWR International GmbH
Lerzenstrasse 16/18
8953 Dietikon
Tel.: +41 044 745 13 13
Email: info.ch@vwr.com

UK
VWR International Ltd
Customer Service Centre
Hunter Boulevard
Magna Park
Lutterworth
Leicestershire
LE17 4XN
Tel.: +44 (0) 800 22 33 44
Email: uksales@vwr.com

14. VWR Contact

Austria
VWR International GmbH
Graumannsgasse 7
1150 Vienna
Tel.: +43 1 97 002 0
Email: info.at@vwr.com

Belgium
VWR International bvba
Researchpark Haasrode 2020
Geldenaaksebaan 464
3001 Leuven
Tel.: +32 016 385 011
Email: vwr.be@vwr.com

China
VWR International China Co., Ltd
Shanghai Branch
Room 256, No. 3058 Pusan Road
Pudong New District
Shanghai, 20012388
Fax: +86-21
Tel.: +86-21 589 868 585 588 01
Email: info_china@vwr.com

Czech Republic
VWR International s. r. o.
Veetee Business Park
Pražská 442
CZ - 281 67 Strábrná Skalice
Tel.: +420 321 570 321
Email: info.cz@vwr.com

Denmark
VWR International A/S
Tobaksvejen 21
2860 Søborg
Tel.: +45 43 86 87 88
Email: info.dk@vwr.com

Finland
VWR International Oy
Valimotie 9
00380 Helsinki
Tel.: +358 9 80 45 51
Email: info.fi@vwr.com

France
VWR International S.A.S.
Le Périgares – Bâtiment B
201, rue Carnot
94126 Fontenay-sous-Bois cedex
Tel.: 0 825 02 30 30* (national)
Tel.: +33 (0) 1 45 14 85 00 (international)
Email: info.fr@vwr.com

Germany
VWR International GmbH
Hilpertstrasse 20a
D - 64295 Darmstadt
Freecall: 0800 702 00 07
Tel.: +49 (0) 6151 3972 0 (international)
Email: info.de@vwr.com

Hungary
VWR International Kft.
Simon László u. 4.
4034 Debrecen
Tel.: +36 (52) 521-130
Email: info.hu@vwr.com

India
VWR Lab Products Private Limited
No.139. BDA Industrial Suburb,
6th Main, Tumkur Road,
Peenya Post,
Bangalore, India – 560058
Tel.: +91-80-28078400
Email: vwr_india@vwr.com

Ireland / Northern Ireland
VWR International Ltd
Orion Business Campus
Northwest Business Park
Ballycoolin
Dublin 15
Tel.: +353 01 88 22 222
Email sales.ie@vwr.com

1. Introduction

Thank you for purchasing the *VWR 300V/2A High Current Electrophoresis Power Supply* with touch screen control.

This operating manual includes a product introduction, and important operating and safety information. Before using the power supply, please read this manual in its entirety to understand the operation and safety warnings. Keep this manual for future reference.

Please check the contents when opening the box, and if there are any parts missing, damaged, or incorrect, please contact VWR at 1-800-932-5000.

The *VWR 300V HC* is a DC Power Supply for electrophoresis separations. It is designed for laboratory research applications.

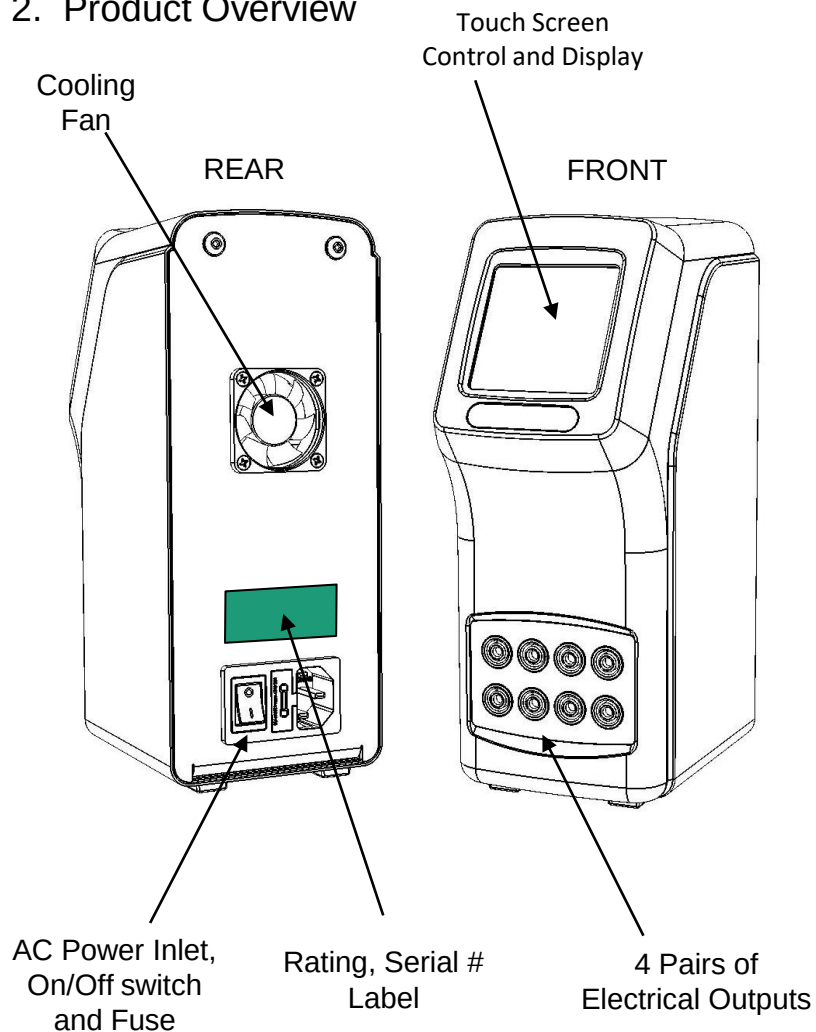
The power supply has 4 sets of outputs that accept standard electrical leads with banana plugs and should only be used with electrophoresis tanks that incorporate sufficient safety features to prevent electric shock. Some types of shielded plugs may not fit into the output jacks, and in this case an adapter



WARNING:

This power supply outputs high voltage and current and should be used only by experienced laboratory personnel that understand how to safely operate the instrument. Incorrect usage can present a shock or electrocution hazard.

2. Product Overview



13. Equipment disposal



This equipment is marked with the crossed out wheeled bin symbol to indicate that this equipment must not be disposed of with unsorted waste.

Instead it's your responsibility to correctly dispose of your equipment at lifecycle -end by handling it over to an authorized facility for separate collection and recycling. It's also your responsibility to decontaminate the equipment in case of biological, chemical and/or radiological contamination, so as to protect from health hazards the persons involved in the disposal and recycling of the equipment.

For more information about where you can drop off your waste of equipment, please contact your local dealer from whom you originally purchased this equipment.

By doing so, you will help to conserve natural and environmental resources and you will ensure that your equipment is recycled in a manner that protects human health. Thank you

12. Warranty

VWR warrants that this product will be free from defects in material and workmanship for a period of two (2) years from date of delivery. If a defect is present, VWR will, at its option and cost, repair, replace, or refund the purchase price of this product to the customer, provided it is returned during the warranty period. This warranty does not apply if the product has been damaged by accident, abuse, misuse, or misapplication, or from ordinary wear and tear. If the required maintenance and inspection services are not performed according to the manuals and any local regulations, such warranty turns invalid, except to the extent, the defect of the product is not due to such non-performance.

Compliance with local laws and regulations

The customer is responsible for applying for and obtaining the necessary regulatory approvals or other authorisations necessary to run or use the Product in its local environment. VWR will not be held liable for any related omission or for not obtaining the required approval or authorisation, unless any refusal is due to a defect of the product.

3. Symbols and Conventions

	CAUTION This symbol indicates a potential risk and alerts you to proceed with caution
	CAUTION This symbol indicates the presence of high voltage and warns the user to proceed with caution

4. Specifications

VWR 300V/2A High Current Power Supply	
Output Voltage	10 to 300 VDC, in 1 V increments
Voltage Accuracy	+/- 2% of displayed value or 3V (whichever is greater)
Output Current	4 to 2000mA (2A), in 5 mA increments
Current Accuracy	+/- 2% of displayed value or 5mA (whichever is greater)
Maximum Power	300 Watts
Output Terminals	4 Pair, wired in parallel
Timer	1 min to 20 hours, or Continuous
Control Panel	Capacitive touch screen
Display	Color TFT, LCD
Fuse	250V 2.0A, 5x20mm, Type T
Operating Temp	0 – 40° C
Humidity	0 – 95%
Dimensions (W×D×H)	3.5 x 5 x 8.5 in / 9 x 13.5 x 22 cm
Net weight	3.3 lbs / 1.5 kg
Input Electrical	100 to 240 VAC, 50/60Hz

5. Installation

Place the power supply on a smooth, level surface in an area where it will not contact liquids or chemicals.

Connect one end of the included power cord to the instrument and the other end to an appropriate electrical outlet. Check the Rating/Serial # label on the rear of the power supply for the required electrical input.

Always leave 2 inches of space on all sides of the power supply to allow for proper ventilation.

6. Warnings



To avoid electrical shock, do not use this product with wet hands and ensure that all electrical leads being used are dry. Only use electrical leads that offer sufficient protective insulation and gel boxes that have appropriate safety lid systems and are rated for the appropriate voltage and amperage levels.



Please carefully read this instruction manual before operation to avoid any personal injury. Only trained laboratory personnel should operate the system.



Do not attempt to open or repair the Power Supply. Contact VWR for service.



Always use the Power Supply in an environment with low humidity and low dust, also keep it away from water, direct sunlight / strong light, corrosive gas, high magnetic fields, heaters, fires and other heat sources.

10. Troubleshooting

Problem	Causes	Measures
No display	Power not connected. Fuse blown.	Check cord connection and power supply, Unplug and re-attach power cord. Check and replace fuse at power inlet.
Voltage or Amperage setting not reached	Maximum wattage exceeded	Resistance of the load (gel tank buffer) is too low. Change buffer concentration.
NO LOAD displayed	Connection wires not attached properly. Buffer is not conductive.	Check wire connections. Check buffer concentration.

11. Technical Service

Web Resources

Visit the VWR website at www.vwr.com for:

- Complete technical service contact information
 - Access to the VWR Online Catalogue, and information about accessories and related products
 - Additional product information and special offers
- Contact us For information or technical assistance contact your local VWR representative or visit. www.vwr.com.

$$\text{Current (I)} = \frac{\text{Voltage (V)}}{\text{Resistance (R)}}$$

$$\text{Resistance (R)} = \frac{\text{Voltage (V)}}{\text{Current (I)}}$$

$$\text{Power (W)} = \text{Current (I)} \times \text{Voltage (V)}$$

9. Maintenance



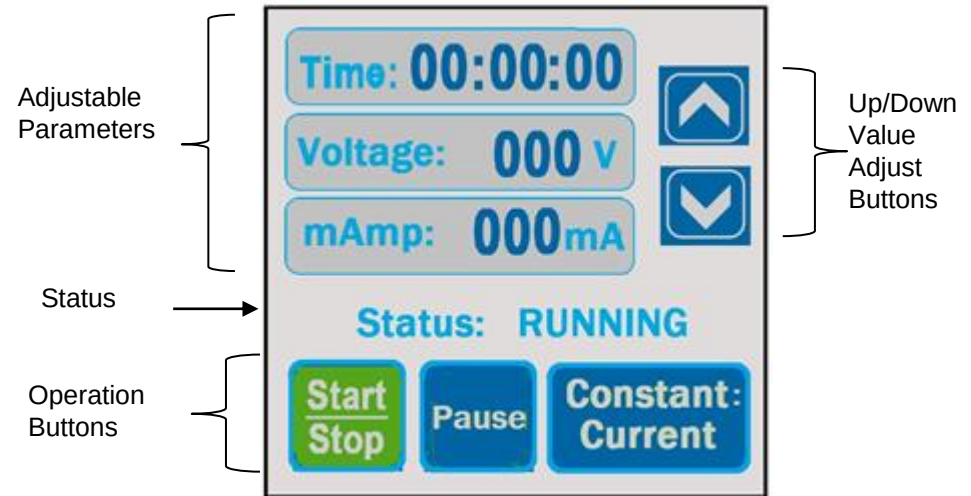
Always disconnect the power cord for cleaning. When cleaning the surfaces of the instrument, use a lightly dampened cloth with mild detergent if needed. Do not use any corrosive solutions that could damage plastic.



Use caution when cleaning near the housing vents. Do not allow liquid to enter the power supply.

7. Operating guide

7.1 Touch Screen Control



7.2 Setting Parameters

The VWR 300V High Current Power Supply has 3 main parameters that can be adjusted: Run Time (TIME), Voltage (VOLTAGE), and Current (mAmp).

(See section 7 for an overview of Voltage, Current, Resistance, and Power)

Press the parameter box to adjust the value. The selected parameter box will be highlighted. Press the UP/DOWN arrows to change the value.

Adjust parameters (TIME, VOLTAGE, mAmp) as required for the electrophoresis application.

7.3 Constant Voltage / Constant Amperage

The Power Supply can be set to run with constant voltage or constant amperage output, with the non-constant parameter set as a limit.

Press the box “CONSTANT ...” to switch between “CONSTANT CURRENT” and “CONSTANT VOLTAGE” running modes.

In constant voltage mode, the power supply will output the set voltage, and the mAmp current value will fluctuate (“float”) depending on the resistance of the load, up to a maximum of the mAmp current setting that has been chosen. The buffer concentration and size of the electrophoresis gel box will dictate the resistance.

In CONSTANT CURRENT mode, the power supply will output the set mAmp current parameter, and the voltage will fluctuate relative to the resistance of the load (buffer concentration in the attached electrophoresis tanks) up to a maximum of the voltage setting that has been chosen.

7.4 Automatic Cross Over

During an electrophoresis run, the power supply will attempt to maintain the constant voltage or amperage setting, depending on which parameter is set to “CONSTANT”.

If, during a run, the non-constant parameter setting (limit) is met due to the resistance of the load, the power supply will automatically “cross over” so the non-constant parameter will now be the constant and limiting parameter. A red outline will appear around the new “constant” value.

7.5 Maximum Power Limit

The VWR 300V/2A Power Supply has a maximum power output of 300 Watts.

Per Ohms Law:

Power (P) = Current (I) x Voltage (V)

If the maximum power is reached during an electrophoresis run, the non-constant parameter will be limited to prevent exceeding the maximum power output.



CAUTION: It is not recommended to run the power supply at or near the maximum wattage for long periods, as this can cause the power supply and gel tank to get hot. Most standard electrophoresis buffer concentrations will not have such low resistance that the current and voltage level will come close to the maximum power limit.

8. Overview of Electrical Principles

Definitions:

Voltage: The amount of potential energy between two points in a circuit.

Current: The time rate of flow of an electric charge, measured in amperes.

Resistance: A material's opposition to the flow of electric current, measured in Ohms.

Power: The rate at which electric energy is transferred by an electric circuit. Electric power is expressed in units of watts, one watt is equal to one joule per second.