

Electrophoresis Power Supplies



Full range of Power Supplies for protein, DNA and RNA electrophoresis including blotting, DNA sequencing, fingerprinting techniques and isoelectric focusing.

Low Voltage Power Supplies:

- 4 models from 0 to 400 V

High Voltage Power Supplies:

- 2 models with wide output range up to 3,000 V

Electrophoresis

Basics

OHM's law:

$$V = R * I$$

V is the potential difference measured across the resistance in units of volts (V)

I is the current through the resistance in units of amperes (A)

R is the resistance of the conductor in units of ohms (Ω); *constant parameter !*

⇒ specify Volts OR Amperes; set the non-specified parameter at max !

Electrophoresis

Basics

Applications and required settings

- **Agarose gel electrophoresis:**

- specify V, set mA at max.
- multiple chambers connected to one power supply = parallel circuit
 - ⇒ same V setting as for one chamber

- **Polyacrylamide gel electrophoresis:**

- specify mA per gel, set V at max.
- multiple gels / chambers connected to one power supply = series circuit
 - ⇒ multiply mA setting per gel with the number of gels to be run

- **Blotting:**

- specify mA per cm² of the gel multiplied with the gel's area (in cm²), set V at max.
- multiple gels / chambers connected to one power supply = series circuit
 - ⇒ multiply mA per cm² of the gel with the total area (in cm²) of all gels

Electrophoresis

Power Supplies – equipment compatibility

Low Voltage Power Supplies

	Model PS304	Model PS305T	Standard Power Pack P25	Standard Power Pack P25 Timer
Agarose Gel Electrophoresis	+	+	+	+
Polyacrylamide Gel Electrophoresis	+	+	+	+
Semidry-Blotting	(+) ^b	(+) ^b	+	+
Tank-Blotting	(+) ^b	(+) ^b	+	+

High Voltage Power Supplies

	Model PS3003	Model PS9009
Agarose Gel Electrophoresis	+	+
Polyacrylamide Gel Electrophoresis	+	+
Sequencing	+	+
IEF	+	+ ^a
Semidry-Blotting	(+) ^b	(+) ^b
Tank-Blotting	(+) ^b	(+) ^b

^a Incl. 1 dedicated program special designed for IEF (Prog. 28: 0 - 300 mA) applications

^b Use may be limited for blotting

Electrophoresis

Low Voltage Power Supplies - overview

	Max. voltage	Max. current	Connections	
Model PS304	300 V	400 mA	2	
Model PS305T	300 V	500 mA	2	timer
P25	400 V	1000 mA	4	also for blotting
P25 T	400 V	1000 mA	4	also for blotting + timer

Electrophoresis

Low Voltage Power Supplies

Model PS304 Power Supply

- Power Supply for standard agarose and polyacrylamide gel electrophoresis.
- Operates at constant voltage or current with automatic crossover.

Voltage output: 1 - 300 VDC

Current output: 1 - 400 mA

Maximum power output: 120 W

Pairs of recessed jacks: 2



Electrophoresis

Low Voltage Power Supplies

Model PS305T Power Supply

- Power Supply for electrophoresis and blotting.
- Built-in timer with settings to 999 mins.
- Gel saver (band saving) function with keeps bands sharp after the main run is complete.
- Operates at constant voltage or current with automatic crossover.

Voltage output: 1 - 300 VDC

Current output: 1 - 500 mA

Maximum power output: 150 W

Pairs of recessed jacks: 2



Electrophoresis

Low Voltage Power Supplies

Standard Power Pack P25

- Power supply for use with horizontal and vertical electrophoresis.
- Also suitable for electroblotting due to the high current output.
- Operates at constant voltage or current with automatic crossover.
- Large and easy to read LCD display.
- Automatic restart after main power interruption.

Voltage output:	1 - 400 VDC
Output current settings:	0 - 500 mA at 0 - 400 V 0 - 1000 mA at 0 - 200 V
Power output:	200 W continuous
Pairs of recessed jacks:	4



Electrophoresis

Low Voltage Power Supplies

Standard Power Pack P25

- Power supply for use with horizontal and vertical electrophoresis.
- Build-in timer with a setting from 1 min to 1999 min
- Also suitable for electroblotting due to the high current output.
- Operates at constant voltage or current with automatic crossover.
- Large and easy to read LCD display.

Voltage output:	1 - 400 VDC
Output current settings:	0 - 500 mA at 0 - 400 V 0 - 1000 mA at 0 - 200 V
Power output:	200 W continuous
Pairs of recessed jacks:	4



Electrophoresis

High Voltage Power Supplies

	Max. voltage	Connections	
PS3003	3000 V	3	no timer
PS9009	3000 V	2	temperature sensor, 8 programs (up to 10 steps) or 16 programmes (1 step), timer, Vh integration, works in μA range (for IEF)

For all models: 300 mA, 300 W

Electrophoresis

High Voltage Power Supplies

Model PS3003 Power Supply

Basic high voltage model recommended for sequencing and other electrophoresis applications like IEF, 2D-gel elpho, PAGE and agarose elpho as well as western blotting (limited use).

- Operates at constant voltage, current or power with automatic crossover.
- Automatic restart with main electrical failure.
- Last settings automatically restored at power on.

Voltage output:	10 - 3,000 VDC 10 Volt steps
Current output:	15 μ A - 300 mA
Maximum power output:	300 W
Pairs of recessed jacks:	3



Electrophoresis

High Voltage Power Supplies

Model PS9009 Programmable Power Supply

- For sequencing and all other electrophoresis applications. Special program for **IEF** !
- Temperature probe available separately to regulate temperature at plate surface.
- Operates at constant voltage, current or power with automatic crossover.
- Stores up to 8 programs with 10 steps each or 16 one-step programs.
- Operates in three modes: run, program and integrate.
- Built-in count-up timer with settings to 99,999 min.
- Automatic restart with main electrical failure of less than 30 min.
- Alarm sound at end of run.

Voltage output:	10 - 3,000 VDC 10 Volt steps
Current output:	15 μ A - 300 mA
Current output with Prog. 28:	0 mA - 300 mA
Maximum power output:	300 W
Pairs of recessed jacks:	2








Electrophoresis

Power Supplies Adaptors

	Power Supply Output Jacks		
<p>Instrument Leads</p>	<p>4 mm sheathed safety output jacks</p> <p>Found on all Biometra Power Supplies</p> 	<p>4 mm non-sheathed output jacks</p> <p>Found on very old (non CE-labeled) versions of Power Supplies</p>	<p>2 mm high-voltage output jacks</p> <p>May be found on Power Supplies of other suppliers</p> 
<p>Sheathed 4 mm male plug</p>  <p>Installed on all current Biometra electrophoresis units</p>	<p>no adaptor necessary</p>	<p>010-026 or 010-027</p> 	<p>022-007</p> 
<p>Sheathed 2 mm male plug</p>  <p>May be included with electrophoresis units from other suppliers</p>	<p>022-018</p> 	<p>022-018</p> 	<p>no adaptor necessary</p>

Electrophoresis

Power Supplies Adaptors

Item		Order No.
	Power supply adaptors	
	Standard safety adaptor set (4 mm/4 mm), conical, for use with sheathed 4 mm male plug instrument leads to non-sheathed 4 mm power supply output jacks	010-026
	Safety adaptor set (4 mm/4 mm), cylindrical, for use with sheathed 4 mm male plug instrument leads to non-sheathed 4 mm power supply output jacks	010-027
	Safety adaptor set (4 mm/2 mm), for use with sheathed 4 mm male plug instrument leads to 2 mm high-voltage power supply output jacks	022-007
	Safety adaptor set (2 mm/4 mm), for use with sheathed 2 mm male plug instrument leads to sheathed 4 mm power supply output jacks	022-018
	Safety adaptor (4 mm/4 mm), special, for use with sheathed 4 mm male plug instrument leads to recessed 4 mm Bio-Rad power supply output jacks	010-031

Electrophoresis

Power Supplies Specifications

	Low Voltage Power Supplies					High Voltage Power Supplies	
	deleted Model 125	Model PS304	Model PS305T	Standard Power Pack P25	Standard Power Pack P25 Timer	Model PS3003	Model PS9009
max. Voltage [V]	50, 100, 125	300	300	400	400	3000	3000
max. Current [mA]	150	400	500	1000	1000	300	300
max. Power [W]	20	120	150	200	200	300	300
const. Voltage	+	+	+	+	+	+	+
const. Current	-	+	+	+	+	+	+
const. Power	-	-	-	-	-	+	+
No. of Outputs	1	2	2	4	4	3	2
Timer	-	-	+	-	+	-	+
Audible alarm	-	-	1 beep (5 sec)	-	-	-	1 beep (90 sec)
Programmable	-	-	-	-	-	-	+
Number of Programms	-	-	-	-	-	-	8* (up to 10 steps) or 16 (1 step)
Gel Saver Function	-	-	+	-	-	-	-
Integration-Modi (Operation Modi)	-	-	-	-	-	-	Vh
External Temperature Sensor (option)	-	-	-	-	-	-	+
Equipment compatibility							
Agarose							
Gel Electrophoresis	+	+	+	+	+	+	+
Rotaphor	-	-	-	+	+	-	-
Polyacrylamide							
Gel Electrophoresis	-	+	+	+	+	+	+
Sequencing	-	-	-	-	-	+	+
IEF	-	-	-	-	-	+	+
Semidry-Blotting	-	(+) ^b	(+) ^b	+	+	(+) ^b	(+) ^b
Tank-Blotting	-	(+) ^b	(+) ^b	+	+	(+) ^b	(+) ^b

^a including 1 dedicated programm special designed for IEF (Prog. 28: 0 - 300 mA)

^b only limited use for blotting applications