

PROTEAN i12 IEF System

12 Lanes. Individual Control. Total Confidence.



PROTEAN i12 IEF System

With individual lane control, Bio-Rad's PROTEAN i12 IEF System is the only isoelectric focusing cell that can simultaneously run multiple lanes, each with a different sample, protocol, and pH gradient.

- Optimize your experiments in fewer runs
- Boost lab productivity by performing multiple experiments at once
- Obtain better quality data with less experimental risk —
 1 irregular sample cannot compromise the entire run



Individual Lane Control — Optimization, Efficiency, and Confidence

- Benefit from 12 individual, separately programmable power supplies, which make the PROTEAN i12 IEF System a unique problem solver
- Save time by optimizing as many as 12 conditions simultaneously. Investigate different samples, pH gradients, and protocols in the same run and get optimal results for each
- Use the system more efficiently because different experiments can now be run together
- Set a precise current limit for each lane and proceed with the confidence that each condition will be precisely met. The current you program is the current that is delivered, every time, regardless of the other samples in the run



Touch Screen — Intuitive and Easy-to-Use Interface

- Set up runs and create protocols effortlessly
- Use convenient file organization and user-defined default parameters to control the system
- Transfer and store data using the USB port. Analyze data with Excel or the PROTEAN i12 Reporter web application for analysis









Web Application — Effortless Data Analysis and Protocol Creation

- Create graphs and reports using the PROTEAN i12
 Reporter, a free web-based application for analyzing run data generated by the system
- Use the web application to create protocols and transfer them back into the instrument
- Access this application at i12reporter.com

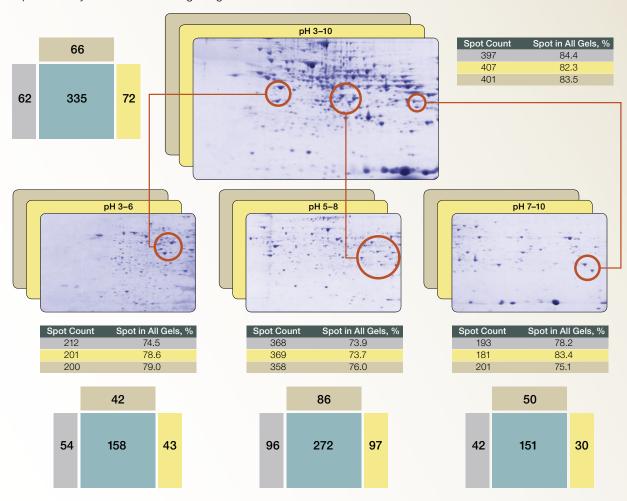
System Flexibility — Work the Way You Want

- Innovative tray and electrode design allows running strips gel-side down or gel-side up and loading with sample cups
- Electrodes snap in and out of all 6 tray sizes
- Difference gel electrophoresis-compatible lid makes the system ideal for light-sensitive dyes and labels

PROTEAN i12 IEF System — More Data, More Reliably in Fewer Runs

Achieve Highly Reproducible Data and Extended Separation across Multiple pH Ranges

Data showing extended separation on multiple range immobilized pH gradient (IPG) strips were generated in a single IEF run. Four different pH gradients and protocols were run simultaneously in triplicate to compare the separation capacity of the broad range pH 3–10 strip with the combination of the narrow range pH 3–6, pH 5–8, and pH 7–10 strips. The red circles highlight the increased resolution attainable with narrow range strips. Broad range separation can, therefore, be achieved with higher resolution on midi-format gels without the need for multiple runs. The box diagrams display the number of spots found in all three replicates of each pH range, showing that a high level of reproducibility was realized among the gels.



A mouse liver sample was extracted in a urea-thiourea-CHAPS solution. The extract was run in a single PROTEAN i12 IEF Cell run on twelve 11 cm ReadyStrip IPG Strips simultaneously at each of the following pH ranges: 3–10, 3–6, 5–8, and 7–10. Each pH gradient was run in triplicate. The second dimension for each IPG strip was run in 8–16% gradient Criterion Precast Gels that were stained with Bio-Safe Coomassie Stain. The above figure shows a representative gel image for each pH range along with the spot counts for each replicate. The box diagrams show the number of spots found in all three replicates.

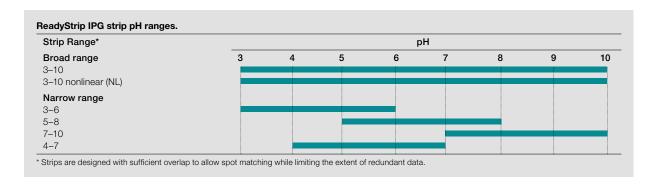
Key points of this experiment:

- Running different pH gradients and protocols in 1 run
- Achieving a high level of reproducibility between gels
- Running each pH gradient in triplicate
- Achieving extended separation with narrow-range strips



ReadyStrip IPG Strips — A Key Component of the PROTEAN i12 IEF System

- Bio-Rad's high-quality ReadyStrip IPG Strips come in five lengths (7, 11, 17, 18, and 24 cm) and six pH ranges that cover broad and narrow ranges
- Narrow pH ranges increase the number of centimeters per pH unit for enhanced resolution
- Tight gel-length tolerances guarantee pH consistency



Specifications

Input power	100-240 VAC, 50/60 Hz	Environmental	For indoor use only, at altitudes of up to 1,829 m (6,000 ft). Operates at		
Fuse	Two 6.3-amp, time delay, 5×20 mm	requirements			
Power input IEC 60320 standard cord set with ground			10–35°C ambient temperature, with maximum 90% relative humidity		
Power output		5	maximum 90% relative numbers		
Voltage per lane	0, 50-10,000 V	Regulatory	ENGIQUO 1:0010 (Ord Edition) III CTD		
Current per lane	0-100 μA, 1 μA intervals	Safety	EN61010-1:2010 (3rd Edition), UL STD No. 61010-1:2012, CAN/CSA C22.2		
Power	0-1 W per lane		No. 61010-1.2012, CAN/CSA C22.2		
Peltier platform		EMC	EN61326-1:2013 Class A Equipment for		
Tray capacity	1 tray		Measurement, Control, and Laboratory		
Temperature	10-25 ± 0.5°C at maximum ambient temperature 23°C		Use, General Requirements		
	15–25 ± 0.5°C at maximum ambient temperature	Dimensions (W \times D \times H)	$46 \times 34.5 \times 18.5 \text{ cm} (18.1 \times 13.6 \times 7.3 \text{ in.})$		
	31°C	Weight	8.6 kg (19 lb)		
Focusing trays		User interface			
Material	Polycarbonate	Display	QVGA resolution (320 × 240).		
IPG strip length	7, 11, 13, 17, 18, and 24 cm		Touch screen or mouse control		
Capacity Maximum channel volume	1–12 IPG strips per focusing tray 7 cm: 7 ml; 11 cm: 10 ml; 13 cm: 11.2 ml;	Programmable	Yes		
		Ramping	Step, linear, gradual, and hold voltage		
channel volume	17 cm: 14.2 ml; 18 cm: 15.2 ml; 24 cm: 20.2 ml		ramping used for each focusing step.		
Dahuduatian/anuili	-· ···· ···		Hold mode as a final step to prevent		
Rehydration/equili Material	Polystyrene		diffusion when focusing is complete		
IPG strip length	7, 11, 13, 17, 18, and 24 cm	Protocol capacity	2 GB, storage of approximately 20,000		
Capacity	1–12 IPG strips per tray 7 cm: 6.8 ml; 11 cm: 9.6 ml; 13 cm: 10.5 ml;		data and protocol files		
Maximum		Data collection	.DAT file format		
channel volume	17 cm: 14.2 ml; 18 cm: 16 ml; 24 cm: 19 ml				





Ordering Information

Ordering I	Information		
Catalog #	Description	Catalog #	Description
1646000	PROTEAN i12 IEF System, 90–240 VAC, includes basic unit, positive and negative electrode assemblies, 7, 11, and 17 cm focusing trays with IPG strip retainers, 1 pack each	1646021	i12 Sample Cups, pkg of 25, disposable sample cups, for use with the PROTEAN i12 IEF System Sample Cup Holder (#1646020)
	of 7, 11, and 17 cm rehydration/equilibration trays, 2 pairs of forceps, 2 packs electrode wicks for gel-side down and	1646030	Gel-Side Up Electrode Wicks, pkg of 100, precut electrode wicks, for gel-side up applications
	gel-side up applications, mineral oil, 2 cleaning brushes, cleaning concentrate, 2 USB flash drives, 3 styluses, pH 3–10	1646031	Gel-Side Down Electrode Wicks, pkg of 500, precut electrode wicks, for gel-side down applications
	ReadyStrip IPG Strips in 7, 11, and 17 cm lengths, rehydration sample buffer, and instruction manual. 13, 18, and 24 cm trays and cup loading accessories can be purchased separately	1646012	Negative Electrode Assembly, pkg of 1, replacement negative electrode assembly, can be used with all sizes of i12 Focusing Trays
1646001	PROTEAN i12 IEF Cell, includes basic unit, electrode assemblies, and 3 styluses. Focusing trays and other accessories sold separately	1646011	Positive Electrode Assembly, pkg of 1, replacement positive electrode assembly, can be used with all sizes of i12 Focusing Trays
DDOTEAN :4		1646010	Electrode Assembly Pair, pkg of 1 pair, positive and
1646107	2 IEF System Accessories i12 7 cm Focusing Tray, pkg of 1, 7 cm focusing tray, holds up to twelve 7 cm IPG strips, includes 2 IPG strip	1010010	negative electrode assemblies, can be used with all sizes of i12 Focusing Trays
	retainers for gel-side down applications	1654072	Cleaning Brushes, pkg of 2
1646111	i12 11 cm Focusing Tray, pkg of 1, 11 cm focusing tray,	1610722	Cleaning Concentrate, 1 kg, 50x alkaline detergent
	holds up to twelve 11 cm IPG strips, includes 2 IPG strip retainers for gel-side down applications	1646060	USB Flash Drives, pkg of 2, 2 GB flash drives, compatible with the PROTEAN i12 IEF System, for transferring data from the PROTEAN i12 IEF System to a computer for data analysis
1646113	i12 13 cm Focusing Tray, pkg of 1, 13 cm focusing tray, holds up to twelve 13 cm IPG strips, includes 2 IPG strip retainers for gel-side down applications	1646050	Stylus , pkg of 3, for use on the PROTEAN i12 IEF System touch-screen user interface
1646117	i12 17 cm Focusing Tray, pkg of 1, 17 cm focusing tray, holds up to twelve 17 cm IPG strips, includes 2 IPG strip	1632129 1654070	Mineral Oil, 500 ml Forceps, pkg of 1 pair, fine-tipped forceps for handling IPG strips
1646118	retainers for gel-side down applications i12 18 cm Focusing Tray, pkg of 1, 18 cm focusing tray, holds up to twelve 18 cm IPG strips, includes 2 IPG strip retainers for gel-side down applications	1632105	ReadyPrep 2-D Starter Kit, 2-D gel electrophoresis kit, includes protein sample and buffers for IPG strip rehydration, focusing, and transfer to second dimension (IPG strips
1646124	i12 24 cm Focusing Tray, pkg of 1, 24 cm focusing tray, holds up to twelve 24 cm IPG strips, includes 2 IPG strip retainers for gel-side down applications	1610378	not included) Precision Plus Protein Standard Plugs, pkg of 24, 1 mm thick agarose plugs containing 10 Strep-tagged
1654035	i12 7 cm Rehydration/Equilibration Trays, pkg of 25, 7 cm rehydration/equilibration trays, hold up to twelve 7 cm IPG strips		recombinant proteins (10-250 kD), including 3 reference bands
1654025	i12 11 cm Rehydration/Equilibration Trays, pkg of 25,		Scan this QR code or visit
	11 cm rehydration/equilibration trays, hold up to twelve 11 cm IPG strips		bio-rad.com/i12IEF to learn more
1646313	i12 13 cm Rehydration/Equilibration Trays, pkg of 25, 13 cm rehydration/equilibration trays, hold up to twelve	in the same	about the PROTEAN i12 IEF System.
	13 cm IPG strips	ReadyStrip	IPG Strips, 12 per package
1654015	i12 17 cm Rehydration/Equilibration Trays, pkg of 25,	pH Range	7 cm 11 cm 17 cm 18 cm 24 cm

pH Range	7 cm	11 cm	17 cm	18 cm	24 cm
pH 3-10	1632000	1632014	1632007	1632032	1632042
pH 3-10 NL*	1632002	1632016	1632009	1632033	1632043
pH 3-6	1632003	1632017	1632010	1632035	1632045
pH 4-7	1632001	1632015	1632008	1632034	1632044
pH 5-8	1632004	1632018	1632011	1632036	1632046
pH 7–10	1632005	1632019	1632012	1632037	1632047

^{*} NL, nonlinear gradient.

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Bio-Rad Laboratories, Inc.

17 cm rehydration/equilibration trays, hold up to twelve

i12 18 cm Rehydration/Equilibration Trays, pkg of 25, 18 cm rehydration/equilibration trays, hold up to twelve

i12 24 cm Rehydration/Equilibration Trays, pkg of 25, 24 cm rehydration/equilibration trays, hold up to twelve

IPG Strip Retainers, pkg of 2, replacement IPG strip retainers for use with all sizes of PROTEAN i12 Focusing Trays

i12 Sample Cup Holder, pkg of 1, 12-position sample cup

holder, includes 25 disposable sample cups (#1646021)

17 cm IPG strips

18 cm IPG strips

24 cm IPG strips,

Life Science Group

1654041

1654043

1646040

1646020

Web site bio-rad.com USA 1 800 424 6723 Australia 61 2 9914 2800 Austria 43 01 877 89019 Belgium 32 03 710 53 00 Brazil 55 11 3065 7550 Canada 1 905 364 3435 China 86 21 6169 8500 Czech Republic 36 01 459 6192 Denmark 45 04 452 10 00 Finland 35 08 980 422 00 France 33 01 479 593 00 Germany 49 089 3188 4393 Hong Kong 852 2789 3300 Hungary 36 01 459 6190 India 91 124 4029300 Israel 972 03 963 6050 Italy 39 02 49486600 Japan 81 3 6361 7000 Korea 82 2 2473 4460 Mexico 52 555 488 7670 The Netherlands 31 0 318 540 666 New Zealand 64 9 415 2280 Norway 47 0 233 841 30 Poland 36 01 459 6191 Portugal 351 21 4727717 Russia 7 495 721 14 04 Singapore 65 6415 3188 South Africa 36 01 459 6193 Spain 34 091 49 06 580 Sweden 46 08 555 127 00 Switzerland 41 0617 17 9555 Taiwan 886 2 2578 7189 Thailand 66 2 651 8311 United Arab Emirates 971 4 8187300 United Kingdom 44 01923 47 1301

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