

Ettan™ IPGphor™ 3 Isoelectric Focusing System

The Ettan IPGphor 3 is a fully integrated isoelectric focusing (IEF) system optimized to deliver high throughput, speed, reproducibility, and high protein-loading capacity. This third generation instrument is optimized for easy handling of CyDye™ labeled proteins and other light-sensitive samples, and provides temperature control critical for reproducibility in 2-D DIGE (Difference Gel Electrophoresis) experiments.

The large alphanumeric graphical display accommodates up to four lines of text for fast and easy programming. Up to 10 protocols (nine steps each) can be saved, retrieved, and easily edited on the instrument. Any number of protocols can be stored on a connected PC running Ettan IPGphor 3 Control Software and uploaded to the instrument instantly. Increased safety features ensure safe high-voltage runs, and with total start/stop control from your PC, IEF runs have never been easier or more reproducible.

Features

The Ettan IPGphor 3 Isoelectric Focusing System includes the following features:

- Temperature control from 15 to 31°C
- Integrated high-voltage DC power supply delivering up to 10 kV makes the unit space-saving
- Secure light protection during the run. Compatible with CyDye-labeled proteins and other light-sensitive stains
- Programming from the control panel or in Ettan IPGphor 3 Control Software
- Use the IPGBox and IPGBox kit to rehydrate up to 12 Immobiline™ DryStrip gels or other IPG strips independently and at the same time
- Ettan IPGphor Manifolds for running up to 12 Immobiline™ DryStrips. Cup loading improves the focusing results, particularly for basic IPG strips. For larger sample volumes, the Ettan IPGphor Manifolds facilitate paperbridge loading and in-gel rehydration loading.



Fig 1. Ettan IPGphor 3 Isoelectric Focusing System.

Temperature Control

Temperature control is crucial for reproducibility. The Ettan IPGphor 3 maintains the programmed temperature precisely for the duration of the run, even for extended time periods and throughout the length of the IPG strips. In one test (using the ceramic manifold), it was set to 20°C: the temperature measured at the anode, cathode, and in the middle of the platform remained at 20°C for 19 h.

Manifolds

The Ettan IPGphor Manifolds are high-throughput accessories for first-dimension isoelectric focusing of proteins using IPG strips. These manifolds meet the increasingly stringent demands of proteomics research by ensuring high-resolution, micropreparative protein analysis.



Ettan IPGphor Manifold and Manifold Light simplify isoelectric focusing of multiple samples and reduce first-dimension hands-on time to a minimum. They significantly speed up the processing of micropreparative loads in first-dimension analysis.

Designed for maximum performance and flexibility, the manifolds can handle from 1 to 12 IPG strips simultaneously. Sample equilibration can also be performed in the same tray, saving substantial time.

The manifolds are also great for paper-bridge loading. Up to 5 mg of protein can be loaded onto an Immobiline DryStrip gel using the paper bridge pads supplied with the manifolds.

Ettan IPGphor Manifold Light is constructed from a new leading-edge polymeric material and is ideal for routine general screening applications. It is easy to handle and is extremely robust.

The ceramic Ettan IPGphor Manifold exhibits exceptionally uniform thermal characteristics and is designed for the most stringent applications. The high heat conductivity of the ceramic material prevents any hot spots that can distort 2-D electrophoresis maps.

Programming

The Ettan IPGphor 3 control panel allows up to 10 userdefined IEF protocols, each with nine steps. Programmable functions include rehydration time, platform temperature, current limit, voltage limit for each step, voltage step or gradient, and step duration.

Ettan IPGphor 3 Control Software allows easy programming on a PC (Fig 2). Recommended run parameters are obtained by giving strip length and pH gradient. Protocols created are presented as graphs, stored, and loaded onto the Ettan IPGphor 3. The software records the run parameters over time and present data as graphs and log files. Data can be saved or exported to spreadsheet software. Ettan IPGphor 3 Control Software is a valuable aid in documenting results, optimizing run parameters, and ensuring GLP compliance.

Ettan IPGphor 3 Control Software can be used to control up to four Ettan IPGphor 3 units at one time, each running a different program. To control multiple units from one computer, an optional junction box is necessary.



Fig 2. Ettan IPGphor 3 Control Software allows easy programming and viewing of run data.

Specifications

Fig 2. System specifications

| | |
|------------------------------|---|
| Electrode areas | Gold-plated copper |
| Capacity | Maximum of 12 strips: either up to 12 individual fixed-length strip holders, 7–24 cm, or in one manifold |
| Run voltage | 10–10000 V in 10-V steps |
| Run current | 0–1.5 mA (1 µA/strip step) |
| Platform temperature | 15–31°C ± 1°C (internal Peltier cooling) |
| Temperature gradient | 1°C/min |
| Control panel | 7-key membrane keypad |
| Liquid crystal display (LCD) | 4 lines, 24 characters per line |
| Programmable parameters | Rehydration time, platform temperature, maximum current per strip, voltage limit in each step, voltage step or gradient, and step duration User-controllable settings for the platform temperature, depending on use in rehydration mode or run mode |
| Programming capacity | 10 protocols, with up to 9 steps each, on control unit. Unlimited number of protocols in Ettan IPGphor 3 Control Software |
| Serial port | RS232C, 1200 or 9600 baud, 8 data bits, 1 stop bit, no parity, no flow control. 9600 baud is mandatory for connection with PC A USB-to-RS232 converter is available for users without an RS232 port on their PC |
| Operating temperature | 15–32°C |
| Operating relative humidity | 0–70% noncondensing |
| Storage temperature | –25 to +60°C |
| Power requirements | 100–230 V ± 10%, 50–60 Hz, 230 VA |
| Dimensions (W × H × D) | 278 × 160 × 471 mm |
| Weight | 8.3 kg |
| Safety features | Automatic voltage cutoff when safety lid is opened |

Ordering information

| Product | Code no. | Product | Code no. |
|---|------------|--|------------|
| Ettan IPGphor 3 Isoelectric Focusing Unit (includes cable, control software, and tutorial CD) | 11-0033-64 | Immobiline DryStrip gels, 11 cm | |
| Ettan IPGphor Manifold, Complete | 80-6498-38 | Immobiline DryStrip pH 3-5.6 NL, 11 cm | 17-6003-54 |
| Ettan IPGphor Manifold Light , Complete | 11-0026-88 | Immobiline DryStrip pH 5.3-6.5, 11 cm | 17-6003-59 |
| IPGBox | 28-9334-65 | Immobiline DryStrip pH 6.2-7.5, 11 cm | 17-6003-64 |
| IPGBox kit | 28-9334-92 | Immobiline DryStrip pH 7-11 NL, 11 cm | 17-6003-69 |
| Immobiline Drystrip cover fluid | 17-1335-01 | Immobiline DryStrip pH 3-11 NL, 11 cm | 17-6003-74 |
| IPGPhor Manifold ceramic tray | 80-6498-57 | Immobiline DryStrip pH 4-7, 11 cm | 18-1016-60 |
| Ettan IPGPhor Manifold Polymeric Tray | 11-0025-80 | Immobiline DryStrip, pH 6-11, 11 cm | 17-6001-95 |
| | | Immobiline DryStrip pH 3-10, 11 cm | 18-1016-61 |
| Immobiline DryStrip gels, 24 cm | | Immobiline DryStrip gels, 7 cm | |
| Immobiline DryStrip pH 3-5.6 NL, 24 cm | 17-6003-57 | Immobiline DryStrip pH 3-5.6 NL, 7 cm | 17-6003-53 |
| Immobiline DryStrip pH 5.3-6.5, 24 cm | 17-6003-62 | Immobiline DryStrip pH 5.3-6.5, 7 cm | 17-6003-58 |
| Immobiline DryStrip pH 6.2-7.5, 24 cm | 17-6003-67 | Immobiline DryStrip pH 6.2-7.5, 7 cm | 17-6003-63 |
| Immobiline DryStrip pH 7-11 NL, 24 cm | 17-6003-72 | Immobiline DryStrip pH 7-11 NL, 7 cm | 17-6003-68 |
| Immobiline DryStrip pH 3-11 NL, 24 cm | 17-6003-77 | Immobiline DryStrip pH 3-11 NL, 7 cm | 17-6003-73 |
| Immobiline DryStrip pH 3.5-4.5, 24 cm | 17-6002-38 | Immobiline DryStrip pH 4-7, 7 cm | 17-6001-10 |
| Immobiline DryStrip pH 3-7 NL, 24 cm | 17-6002-43 | Immobiline DryStrip, pH 6-11, 7 cm | 17-6001-94 |
| Immobiline DryStrip pH 4-7, 24 cm | 17-6002-46 | Immobiline DryStrip pH 3-10 NL, 7 cm | 17-6001-12 |
| Immobiline DryStrip pH 6-9, 24 cm | 17-6002-47 | Immobiline DryStrip pH 3-10, 7 cm | 17-6001-11 |
| Immobiline DryStrip pH 3-10 NL, 24 cm | 17-6002-45 | | |
| Immobiline DryStrip pH 3-10, 24 cm | 17-6002-44 | | |
| Immobiline DryStrip gels, 18 cm | | | |
| Immobiline DryStrip pH 3-5.6 NL, 18 cm | 17-6003-56 | | |
| Immobiline DryStrip pH 5.3-6.5, 18 cm | 17-6003-61 | | |
| Immobiline DryStrip pH 6.2-7.5, 18 cm | 17-6003-66 | | |
| Immobiline DryStrip pH 7-11 NL, 18 cm | 17-6003-71 | | |
| Immobiline DryStrip pH 3-11 NL, 18 cm | 17-6003-76 | | |
| Immobiline DryStrip pH 4-7, 18 cm | 17-1233-01 | | |
| Immobiline DryStrip pH 6-9, 18 cm | 17-6001-88 | | |
| Immobiline DryStrip pH 6-11, 18 cm | 17-6001-97 | | |
| Immobiline DryStrip pH 3-10 NL, 18 cm | 17-1235-01 | | |
| Immobiline DryStrip pH 3-10, 18 cm | 17-1234-01 | | |
| Immobiline DryStrip gels, 13 cm | | | |
| Immobiline DryStrip pH 3-5.6 NL, 13 cm | 17-6003-55 | | |
| Immobiline DryStrip pH 5.3-6.5, 13 cm | 17-6003-60 | | |
| Immobiline DryStrip pH 6.2-7.5, 13 cm | 17-6003-65 | | |
| Immobiline DryStrip pH 7-11 NL, 13 cm | 17-6003-70 | | |
| Immobiline DryStrip pH 3-11 NL, 13 cm | 17-6003-75 | | |
| Immobiline DryStrip pH 4-7, 13 cm | 17-6001-13 | | |
| Immobiline DryStrip pH 6-11, 13 cm | 17-6001-96 | | |
| Immobiline DryStrip pH 3-10 NL, 13 cm | 17-6001-15 | | |
| Immobiline DryStrip pH 3-10, 13 cm | 17-6001-14 | | |

For more information, additional products or to place an order, visit www.gelifesciences.com or contact your local authorized GE distributor.

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GE Healthcare Bio-Sciences AB
Björkgatan 30
751 84 Uppsala
Sweden



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GE Healthcare UK Limited
Amersham Place, Little Chalfont
Buckinghamshire, HP7 9NA
UK

GE Healthcare Europe, GmbH
Munzinger Strasse 5
D-79111 Freiburg
Germany

GE Healthcare Bio-Sciences Corp.
800 Centennial Avenue, P.O. Box 1327
Piscataway, NJ 08855-1327
USA

GE Healthcare Japan Corporation
Sanken Bldg., 3-25-1, Hyakunincho
Shinjuku-ku, Tokyo 169-0073
Japan