



E-Base[™] Electrophoresis Device

Catalog nos. EB-M03, EB-D03

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MAN0002597

User Manual

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Overview

Introduction

The E-Base™ is an easy-to-use, pre-programmable, automated device designed to simplify electrophoresis of pre-cast E-PAGE™ 96, E-PAGE™ 48, E-Gel® 48, and E-Gel® 96 gels from Invitrogen. The E-Base™ is a base and a power supply combined in one device.

Types of E-Base™

Two types of bases are available from Invitrogen:

The **Mother E-Base™** (Catalog no. EB-M03) has an electrical plug that can be connected directly to an electrical outlet and is used for electrophoresis of one E-PAGE™ 48, E-PAGE™ 96, E-Gel® 48 or E-Gel® 96 gel available from Invitrogen.

The **Daughter E-Base™** (Catalog no. EB-D03) connects to the Mother E-Base™, and together they can be used for the independent electrophoresis of two or more E-PAGE™ 48/96 or E-Gel® 48/96 gels.

Note: The Daughter E-Base™ does not have an electrical plug and cannot be used without a Mother E-Base™. See next page for a diagram of the bases.

E-Base™ Specifications

The specifications for Mother E-Base™ and Daughter E-Base™ are listed below.

Dimensions:	14.6 cm × 15 cm × 5.3 cm
Weight:	370 g (Mother E-Base™) 271 g (Daughter E-Base™)
Safety:	Double Insulation
Temperature:	Ambient 5°C to 40°C
Built-in Features:	Digital time display (00–99 minutes), alarm, light LED

The SBS (Society for Biomolecular Screening) standard 96-well plate format of the E-Base™ fits on most robotic platforms allowing the loading and electrophoresis of gels on the E-Base™ directly on the automated liquid handling system.

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Overview, Continued

Mother E-Base™

Each Mother E-Base™ has a **pwr/prg** (power/program) button (right side) and a time button (left side) on the lower right side of the base. The lower left side of each Mother E-Base™ contains a light LED and a digital time display (00–99). The gel cassette is inserted into the two electrode connections. The Mother E-Base™ is connected to an electrical outlet with the electrical plug.

Mother E-Base™



Note: The Mother E-Base™ has been tested with up to three Daughter E-Bases™ connected at one time.

The E-Base™ is pre-programmed with 2 programs specific for each gel type as described below:

<u>Program</u>	<u>Gel Type</u>
EG	E-Gel® 48/96
EP	E-PAGE™ 48/96

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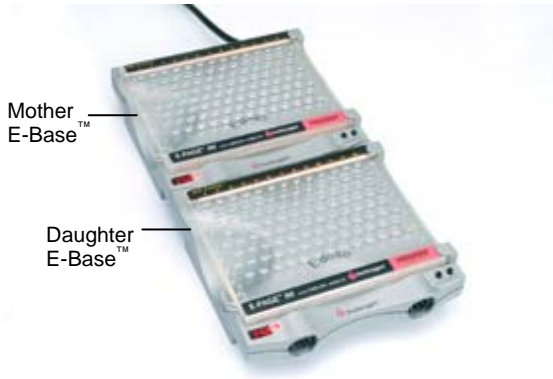
Overview, Continued

Daughter E-Base™

The Daughter E-Base™ is similar to the Mother E-Base™ except the Daughter E-Base™ does not have an electrical cord and cannot be connected to an electrical outlet.

The Daughter E-Base™ connects to a Mother E-Base™ or to another Daughter E-Base™ (already connected to a Mother E-Base™). Once connected to a Mother E-Base™, each Daughter E-Base™ is designed to function independently of the Mother E-Base™ or other Daughter E-Bases.™

Mother E-Base™/Daughter E-Base™



Intended Use For research use only. Not intended for human or animal diagnostic or therapeutic uses.

Instructions for Use

Introduction

Instructions to perform electrophoresis using a Mother E-Base™ and Daughter E-Base™ are described in this section.

For sample preparation, refer to the manual supplied with the gels.

Connecting a Daughter E-Base™

Make sure the Mother E-Base™ is unplugged prior to attaching a Daughter E-Base™.

1. Connect the Daughter E-Base™ to a Mother E-Base™ or another Daughter E-Base™ already connected to a Mother E-Base™.
2. Plug the Mother E-Base™ into an electrical outlet using the electrical plug on the base.

The displays show EP or the last program used (EP or EG) if there are no gel cassettes on the bases.

Selecting a Program

Select the appropriate program for your application prior to inserting a gel into the E-Base™.

1. Plug the Mother E-Base™ into an electrical outlet using the electrical plug on the base.
The display shows EP or the last program used (EP or EG) if there is no gel cassette on the base.
2. Select the appropriate program for the type of gel by pressing and releasing the **pwr/prg** (power/program) button:

Gel Type	Program	Default Run Time
E-Gel®	EG	12 minutes
E-PAGE™	EP	14 minutes

Continued on next page

Instructions For Use, Continued

Setting the Run Time

The default time setting for program EG is 12 minutes, while EP is 14 minutes. Follow the instructions on the next page to increase or decrease the time setting according to the gel type being used.

Gel Type	Recommended Run Time	Maximum Run Time
E-Gel® 48	20 minutes	30 minutes
E-Gel® 96	12 minutes or EG	20 minutes
E-PAGE™ 48 8%	27 minutes	30 minutes
E-PAGE™ 96 6%	14 minutes or EP	25 minutes

Note: Do not exceed the maximum run time listed for the type of gel when setting the time.

Setting the Time without a Cassette on the Base

To increase or decrease the default run time when no cassette is on the base, use the following steps:

1. Press and release the time button located on the lower right corner of the base to view the time setting.
2. Press and hold the time button to increase the time.
3. When the appropriate run time for the gel type is reached, release the time button.

If the time button is not released, the time setting will continue advancing until it reaches 00. To begin cycling through the numbers again, press the time button again.

Setting the Time with a Cassette on the Base

To increase the run time when a cassette is inserted (e.g., during electrophoresis), press and release the time button to increase the time setting by 1-minute intervals or press and hold the time button to increase the time continuously.

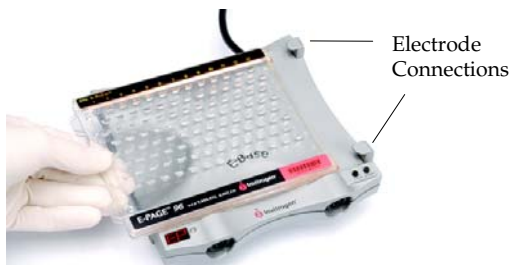
To interrupt or stop a run in progress, see page 11.

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Instructions for Use, Continued

Running the Gel

1. Open the package and remove the gel.
2. Remove the plastic comb from the gel.
3. Slide the gel into the Mother E-Base™ or Daughter E-Base™ such that the two copper electrodes on the right side of the gel cassette come in contact with the two electrode connections on the base.



When the gel is properly inserted into the base, the fan in the base begins to run and a red light will illuminate at the lower left corner of the base. The digital display shows the default time for a selected program or the last manual setting (Ready Mode).

4. Load the appropriate amount of DNA or protein samples into sample wells. Load water or sample buffer containing the same salt concentration as the sample into any remaining empty wells.
5. Load DNA or protein markers in marker wells.
6. To begin electrophoresis, press and release the **pwr/prg** button located on the lower right corner of the Mother E-Base™ or Daughter E-Base™.

The **red light** changes to a **green light** and the display counts down the time remaining in the run. To increase the run time during electrophoresis, press the time button until the desired time is reached (see page 8).

To interrupt or stop a run in progress, see page 11.

Continued on next page

Instructions for Use, Continued

Running the Gel, continued

7. The Mother E-Base™ or Daughter E-Base™ signals the end of the run with a **flashing red light** and rapid beeping for 2 minutes, followed by a **single beep** every minute.

At the end of the run, the display shows the original time setting (time added during electrophoresis is not shown). The display also shows the elapsed time since the end of the run (up to 19 minutes with a negative sign).

8. **Press and release** the **pwr/prg** button to stop the beeping. The light turns to a **steady red** and the display shows the last time setting.
9. Remove the gel cassette from the Mother E-Base™ or Daughter E-Base™. Proceed to stain or capture an image of the gel.

Note: The bands in the gel will diffuse within 20-40 minutes.



Note

We recommend that you disconnect the Mother E-Base™ from the electrical outlet when not in use for prolonged periods of time.

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Instructions for Use, Continued

Interrupting a Run

You can interrupt an electrophoresis run at any time by **pressing and releasing** the pwr/prg button to stop the current. The stopped current is indicated by a **steady red light** and the digital display flashes to indicate that the run was interrupted.

You can remove the gel from the E-Base™ to check the progress of the run. Then:

- To **continue** the run from the point at which it was stopped, reinsert the gel and press and release the pwr/prg button. The light changes to steady green and the digital display shows the count down time.
- To **cancel** the rest of the interrupted run, press and hold the pwr/prg button for a few seconds. The digital display resets and the base returns to Ready Mode. If desired, you can then program a new run time as described on page 8 and rerun the gel.

In case of an **external power failure** (loss of electricity or the electrical cord is accidentally removed from the outlet), the run will continue when the power resumes. The Mother E-Base™ or Daughter E-Base™ signals the end of the run as described on the previous page, except the light will be an alternating red/green to indicate that an external power failure has occurred during the run.

Maintaining E-Base™

Keep the surfaces of the Mother E-Base™ and Daughter E-Base™ free of contaminants. To clean, disconnect bases from power source and wipe with a dry cloth. Do not attempt to open or service the bases. To honor the warranty, bases should only be opened and serviced by Invitrogen.

E-Base™ Quick Reference Guide

Introduction A quick reference guide for operating the Mother E-Base™ and Daughter E-Base™ is provided below.

Mode	Action	Sound	Light	Digital Display
Base plugged in	Mother E-Base™ connected to an electrical outlet	1 beep	No light if a cassette is not inserted, or red light if a cassette is inserted	Without gel cassette -EP, last program used (EP or EG) With gel cassette in -last time setting
Ready (with no current flowing through gel)	Gel cassette inserted into a base	—	Steady red	Default time setting (12 minutes for EG, 14 minutes for EP, or last time setting)
Run	Press and release the pwr/prg button	—	Steady green	Count down time
End of run	Automatic	Continuous beeping for 2 minutes followed by a single beep every minute	Flashing red until the time button is pressed	Negative time display (00 to -19 minutes)
Run ends after an external power failure during the run	Automatic	Continuous beeping for 2 minutes followed by a single beep every minute	Alternating red and green	Negative time display (00 to -19 minutes)
Pause (manually end the run)	Press and release the pwr/prg button during the run	—	With gel cassette in - steady red Without gel cassette - no light	Flashing time display

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E-Base™ Quick Reference Guide, Continued

Mode	Action	Sound	Light	Digital Display
Return to Ready mode after an automatic stop	Press and release the pwr/prg button	—	Steady red	Last time setting
Restart after a manual stop	Press and release the pwr/prg button	—	Steady green	Count down time
Return to Ready mode after a manual stop	Press and hold the pwr/prg button	—	With gel cassette in – steady red Without gel cassette – no light	With gel cassette in – last time setting Without gel cassette – last program setting
Failure	Press and hold pwr/prg button for 2 seconds and remove gel from the base	Continuous loud beeping		Flashing “ER”
No cassette	—	—	—	EP, last program used (EP or EG)
Run time setting	With gel cassette in - Press and release the time button	—	With gel cassette – steady red	Time increases by 1 minute increments
	With and without gel cassette - Press and hold the time button	—	With gel cassette in – steady red Without gel cassette – no light	Time increases continuously and automatically stops at 00
Program setting	Press and release the pwr/prg button when no cassette is inserted into the E-Base™ to select the desired program	1 beep	No light	Selected program EP or EG

Troubleshooting

Introduction The table below provides some solutions to the problems you might encounter during electrophoresis using E-Base.[™]

For troubleshooting resolution and sample preparation problems, refer to the manual supplied with the gels.

Observation	Reason	Solution
No current	Daughter E-Base [™] used without a Mother E-Base [™]	Do not use the Daughter E-Base [™] without a Mother E-Base [™] . The Daughter E-Base [™] does not have an electrical plug to connect to an electrical outlet.
	Copper contacts in the Mother E-Base [™] or Daughter E-Base [™] are damaged due to improper use	Make sure that the copper contact in the base is intact.
	Expired or defective gel cassette used	Use fresh gel cassette. Use properly stored gels before the specified expiration date.
	Gel cassette is not correctly inserted into the base	Remove cassette and reinsert; a steady red light illuminates on the base when the cassette is correctly inserted and power is on.

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Troubleshooting, Continued

Observation	Reason	Solution
Over-run the gel or need more time to run gel	Accidentally selected an incorrect program	<p>Select EG if you are using E-Gel® 48 or E-Gel® 96 gels and EP if you are using E-PAGE™ 48 or E-PAGE™ 96 gels.</p> <p>If you are at the beginning of the run, stop the run and select the desired program.</p> <p>If you are well into the run, check the gel to see where the loading dye is running. Estimate the amount of time remaining and then manually stop the run.</p>
Failure Mode indicated by flashing "ER", and continuous loud beeping	Defective cassette	<p>Disconnect E-Base™ and remove the gel cassette from the base.</p> <p>Press and hold the pwr/prg button for 2 seconds to return to Ready Mode. Use a fresh gel cassette.</p>
	Cold cassette	<p>Use a room temperature cassette stored at room temperature. Avoid storing gel cassettes at 4°C.</p>
	Improper operating conditions	<p>Use E-Base™ at room temperature (20°C to 25°C).</p>

Explanation of Symbols and Warnings



E189045

The Mother E-Base™ and Daughter E-Base™ comply with the Underwriters Laboratories Inc. regulation and the European Community Safety requirements. Operation of the E-Base™ is subject to the following conditions:

- Indoor use.
- Altitude below 2,000 meters.
- Temperature range: 5° to 40° C.
- Maximum relative humidity: 80%.
- Installation categories (over voltage categories) II; Pollution degree 2
- Mains supply voltage fluctuations not to exceed 10% of the nominal voltage (100–240V, 50/60Hz, 500 mA).
- The Mother E-Base™ has been tested with up to three Daughter E-Bases™ connected at one time.
- Mains plug is a disconnect device and must be easily accessible.
- Do not attempt to open the Mother E-Base™ or Daughter E-Base™. To honor the warranty, E-Base™ can only be opened and serviced by Invitrogen.
- The protection provided by the equipment may be impaired if the equipment is used in a manner not specified by Invitrogen.

Life Technologies Israel Ltd., a Life Technologies company, is the manufacturer and owner of the UL file. For more information, contact:

Life Technologies Israel Ltd.
12 Hamada St.
Rehovot, Israel 76703



Caution

The **Caution** symbol denotes a risk of safety hazard. Refer to accompanying documentation.



Double Insulation

Class II product

Explanation of Symbols and Warnings, Continued



WEEE

The WEEE (Waste Electrical and Electronic Equipment) symbol indicates that this product should not be disposed of in unsorted municipal waste. Follow local municipal waste ordinances for proper disposal provisions to reduce the environmental impact of WEEE. Visit www.invitrogen.com/weee for collection and recycling options.

Accessory Products

Additional Products

Additional products available separately from Invitrogen are listed in the table below. For more information on these products, visit our website at www.invitrogen.com or contact Technical Support (next page).

Product	Quantity	Catalog no.
E-PAGE™ 48 8% Gels	1 kit	EP048-08
E-PAGE™ 96 6% Gels	1 kit	EP096-06
E-Gel® 96 1% Gels	8 gels	G7008-01
E-Gel® 96 2% Gels	8 gels	G7008-02
E-Gel® 48 1% Gels	8 gels	G8008-01
E-Gel® 48 2% Gels	8 gels	G8008-02
E-Gel® 48 4% Gels	8 gels	G8008-04
E-Holder™ Platform	2	EH-03

Molecular Weight Markers

A variety of DNA and protein molecular weight markers are available from Invitrogen. The recommended marker for each gel type is listed in the manual supplied with the gels. For more information, visit www.invitrogen.com or contact Technical Support (next page).

Technical Support

Web Resources



Visit the Invitrogen website at www.invitrogen.com for:

- Technical resources, including manuals, vector maps and sequences, application notes, SDSs, FAQs, formulations, citations, handbooks, etc.
 - Complete technical support contact information
 - Access to the Invitrogen Online Catalog
 - Additional product information and special offers
-

Contact Us

For more information or technical assistance, call, write, fax, or email. Additional international offices are listed on our website (www.invitrogen.com).

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E-mail: eurotech@invitrogen.com

SDS

Safety Data Sheets (SDSs) are available at www.invitrogen.com/sds.

E-Base™ Warranty

Invitrogen warrants that Mother E-Base™ and Daughter E-Base™ electrophoresis devices will be free from defects in material and workmanship for a period of one year from date of purchase. If a defect is present, Invitrogen will, at its option, repair, replace, or refund the purchase price of this product at no charge to you, 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. This warranty shall be limited to the replacement of defective products. **It is expressly agreed that this warranty will be in lieu of all warranties of fitness and in lieu of the warranty of merchantability.**

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Technical Support, Continued

Limited Warranty

Invitrogen (a part of Life Technologies Corporation) is committed to providing our customers with high-quality goods and services. Our goal is to ensure that every customer is 100% satisfied with our products and our service. If you should have any questions or concerns about an Invitrogen product or service, contact our Technical Support Representatives.

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