USER GUIDE

invitrogen
by life technologies

E-Gel® Go! Gel Electrophoresis System

General information for using the E Gel® Go! system for electrophoresis of DNA on agarose gels

Catalog Number G4400, G4401ST, and G4402ST

Revision A

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life technologies

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TRADEMARKS

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Safety Information

Before starting

Before you begin using this product, or any installation or service operation, please read the following safety information.

Attention to these warnings will help prevent personal injuries and damage to the products

It is your responsibility to use the product in an appropriate manner. This product is designed for use in laboratory environments or, if expressly permitted, also in the field and must not be used in any way that may cause personal injury or property damage.

You are responsible if the product is used for any intention other than its designated purpose or in disregard of Life Technologies instructions. Life Technologies shall assume no responsibility for such use of the product.

The product is used for its designated purpose if it is used in accordance with its product documentation and within its performance limits.

Using the product requires technical skills and a basic knowledge of English. It is therefore essential that only skilled and specialized staff or thoroughly trained personnel with the required skills be allowed to use the product.

Keep the basic safety instructions and the product documentation in a safe place and pass them on to the subsequent users.

Applicable local or national safety regulations and rules for the prevention of accidents must be observed in all work performed.

Continued on next page

Product Contents

Types of kits

Two E-Gel® Go! Starter Kits are available to perform electrophoresis with the E-Gel® Go! Base. Each kit include the following components:

Component	G4401ST	G4402ST
E-Gel® Go! Base Kit	1	1
E-Gel® 1 Kb Plus DNA Ladder	1	1
E-Gel® Sample Loading Buffer (1X)	1	1
E-Gel® Go! 1%, 10-pak	1	—
E-Gel® Go! 2%, 10-pak	—	1

E-Gel® Go! Base Kit

The E-Gel® Go! Base is available as part of the E-Gel® Go! Starter Kit, or as a standalone item. The device includes the following components:

Component	G4400
E-Gel® Go! Base	1
Power Cord	1
Power Adaptors (for NA, UK, EU, AU)	4

Upon receiving instrument

Examine the device carefully for any damage incurred during transit. Any damage claims must be filed with the carrier. The warranty does not cover in-transit damage.

Store the E-Gel® Sample Loading Buffer (1X) at 4˚C, and all other components at room temperature.

⚠CAUTION

Never turn on or connect to power any equipment when there is evidence of mechanical damage, fire, exposure to water, or structural damage.

Intended use

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

Overview

E-Gel® Go!

The E-Gel® Go! Base is an easy-to-use, programmable, automated device designed to allow electrophoresis of E-Gel® Go! agarose gel from Invitrogen. The E-Gel® Go! Base is a blue light transilluminator and a power supply in one device.

- Device contains a built in blue light trans-illuminator enabling real time viewing of the bands
- Gels contain a propriety DNA gel stain, with
- High sensitivity – as low as 1.5 ng of DNA per band
- Supplied as 1% and 2% pre-cast agarose gels allowing fast, consistent, and high-resolution separation of DNA fragments
- Eliminates the need to prepare agarose gels and buffers, and stain gels

Features

The E-Gel® Go! Base offers:

- Built in power supply system, enabling a full run of the E-Gel® Go! agarose gel in 15 minutes (power cord supplied)
- Real-time integrated transilluminator combined with an amber filter
- Device goes into sleep mode after 5 minutes when not plugged in, or after 30 minutes when plugged in. To restart the device from sleep mode, press the Start button.

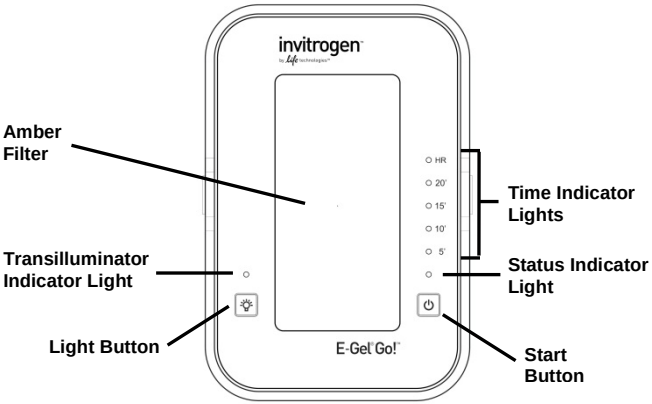
Continued on next page

E-Gel® Go! Base description

The E-Gel® Go! Base has a simple easy to use interface:

- A **Start** button to start programs and toggle between time settings
- An **LED Status Indicator Light** to show the status of the base
- Five **LED Time Indicator Lights** indicate the duration of the run (5–20 minutes in 5 minute increments, or "HR" 30 minute run)
- A **Light** button to turn the blue light transilluminator on and off
- An LED Transilluminator Indicator just above the **Light** button, to indicate the status of the blue light transilluminator
- An amber filter unit integrated into the cover

E-Gel® Go! Base, top view (cover closed)



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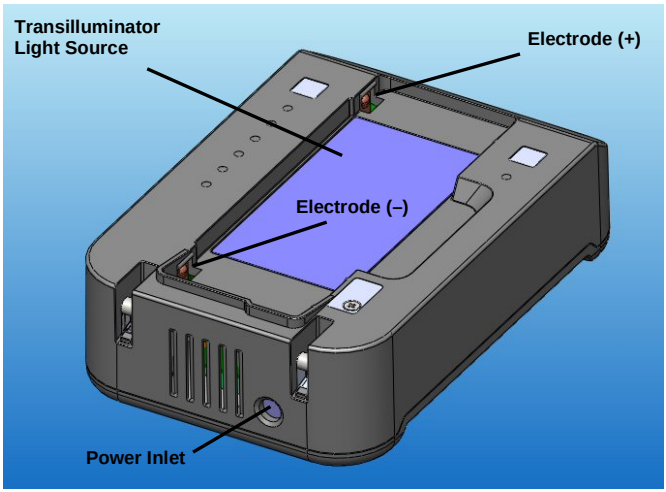
E-Gel® Go! Base description, continued

Opening the cover of the base reveals the blue light transilluminator for monitoring the run in real time, and the two **electrode connections** that make contact with the E-Gel® Go! agarose gel cassette.

Additional features include:

- An array of LED sources behind a blue filter that emit high intensity blue light.
- The blue light transilluminator has a switch that automatically turns the light off after 2 minutes.
- A power inlet to accommodate the power supply cord supplied with the base, or the optional Car Adaptor.

E-Gel® Go! Base, rear view (no cover)



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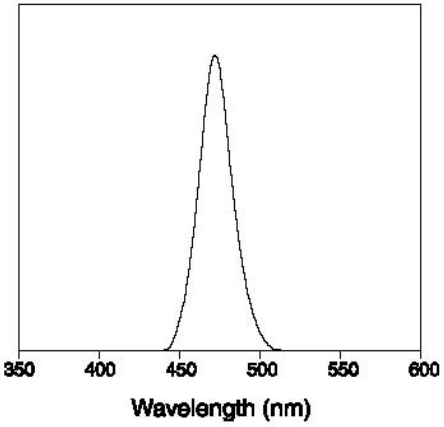
Emission spectrum of blue light transilluminator

Light from the array of 12 LED sources inside the transilluminator passes through a blue filter producing a single-intensity signal at approximately 480 nm, effective for the excitation of the proprietary blue light excitable fluorescent nucleic acid stain used in E-Gel® Go! agarose gels.

The blue light transilluminator utilizes an intense blue light for viewing gels, rather than UV light. Therefore, the amber filter unit in the cover should always be lowered to protect your eyes while viewing gels.

Emission spectrum for the E-Gel® Safe Imager™ Real-time Transilluminator.



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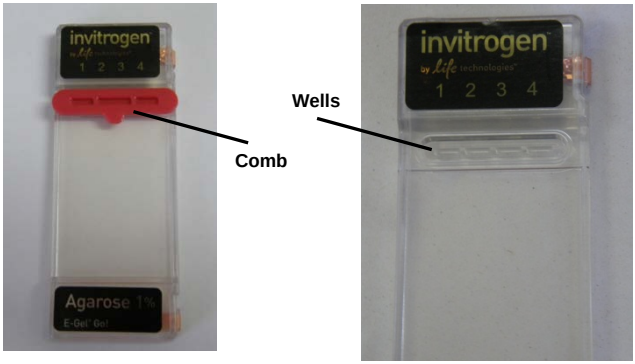
Overview, Continued

E-Gel® Go! Agarose Gel Cassettes

The E-Gel® Go! agarose gel cassettes offers:

- Four 10 µL wells
- High sensitivity
- Fast run time, with full separation in 15 minutes
- Real time monitoring of the run

E-Gel® Go! Agarose Gel Cassette

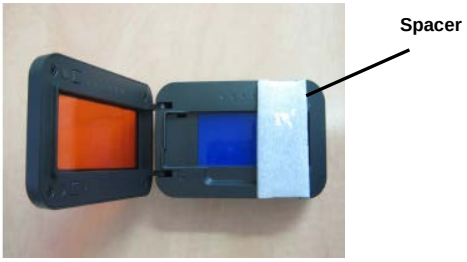


Device Installation

Unpacking instructions

Follow these instructions after unpacking the E-Gel® Go! Base.

1. Remove the protective film from the surface of the screens.
2. Remove the spacer taped to the blue filter.



Installing the E-Gel® Go! Base

Follow these instructions to install the E-Gel® Go! Base.

1. Place the E-Gel® Go! Base on a level surface, with enough space around the device to allow air circulation and prevent overheating.
2. Verify that the power cord supplied with the device is compatible with the local socket format. Contact Technical Support (page 21) if the plug does not fit.
3. Plug the connecting end of the power cord with the transformer into the rear power inlet of the E-Gel® Go! Base, and connect the power cord to the electrical socket.

(*Optional*) Using the E-Gel® Go! Base with the car adaptor

The E-Gel® Go! Car Adaptor can be used to provide power to the E-Gel® Go! Base. To connect the E-Gel® Go! Car Adaptor to the E-Gel® Go! Base, follow these instructions:

1. Connect the car adaptor cord to the car electrical socket. A steady, green light illuminates on the adaptor when it is properly connected.
2. Plug the connecting end of the car adaptor cord into the rear power inlet of the E-Gel® Go! Base..

Note: Do not attempt to run the E-Gel® Go! Base while operating your vehicle, and do not use the E-Gel® Go! Base in a moving vehicle.

General Guidelines

Sample preparation

1. Use 100 ng of total sample for optimal resolution. Refer to the following table for details.

% Agarose Gel	Single DNA Band	Multiple DNA Bands	Optimal Sample Amount	Maximum Sample Amount
1%	1.5–40 ng	1.5–20 ng/band	100 ng	200 ng
2%	1.5–150 ng	1.5–100 ng/band	100 ng	500 ng

2. Sample volume is 10 µL per well. If the sample volume is lower than 10 µL, add 1X E-Gel® Loading Dye, or deionized water to a final volume of 10 µL. Do not exceed 10 µL because excess sample may cause well-to-well contamination.
3. Prepare DNA samples in 1X E-Gel® Loading Dye or deionized water.
4. Dilute high salt samples (certain restriction enzyme and PCR buffers) 2 to 20-fold.

General Guidelines, Continued

Safety information

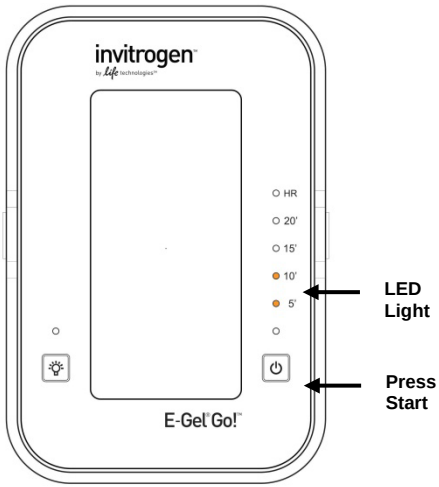
Use this product only under the operating conditions, and in the positions specified by Life Technologies Corporation. See page 23 for additional safety information.

Selecting run times

Select the run time for electrophoresis before inserting the E-Gel® Go! agarose gel cassette.

1. Press the **Start** button and keep the button depressed to select the length of your run. An amber LED illuminates next to the run time indicated on the lid of the base.

   Run times are pre-set to 5, 10, 15, and 20 minutes, with a "HR" setting for higher resolution runs (30 minutes) to separate bands that are similar in size.



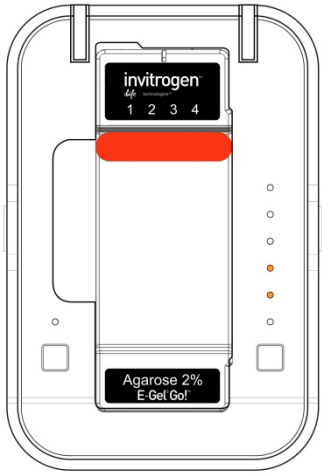
   Note: The default run time setting is 15 minutes, or the last setting used on the base (until the base goes into sleep mode, after which it is reset to the default setting).

2. Release the button when the desired run time is reached.

Running the E-Gel® Go! Base

Loading and running the gel

1. Open the package and remove the gel. Gently remove the comb from the gel.
2. Insert the E-Gel® Go! agarose gel cassette into the E-Gel® Go! Base. The two electrodes on the right side of the gel cassette must be in contact with the two electrode connections on the base. The LED Indicator Light illuminates with a **steady red** light to show that the cassette is correctly inserted when the cover is closed.



3. Load 10 µL of prepared sample into sample wells.
4. Load 10 µL of DNA ladder into the desired wells. The recommended ladders are:
   - E-Gel® 1kb plus ladder for E-Gel® Go! 1% agarose gels.
   - E-Gel® 1 Kb Plus DNA Ladder or the E-Gel® 50 bp DNA Ladder for E-Gel® Go! 2% agarose gels.
5. Load 10 µL of deionized water into any remaining empty wells.

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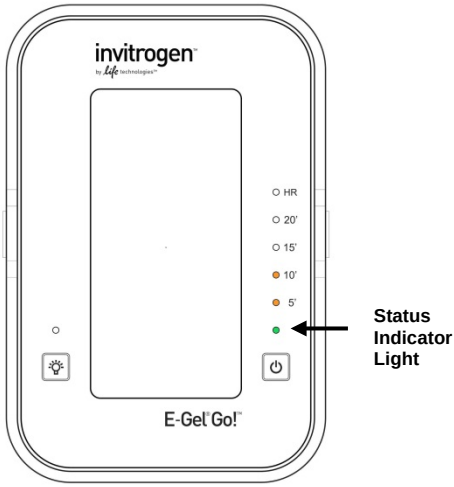
Loading and running the gel, continued

6. Close the cover of the base.



7. Press the **Start** button to start the run. The red Status Indicator light turns to a steady green light to show the start of the run.
   Do not wait more than 2 minutes between loading the gel and starting electrophoresis.

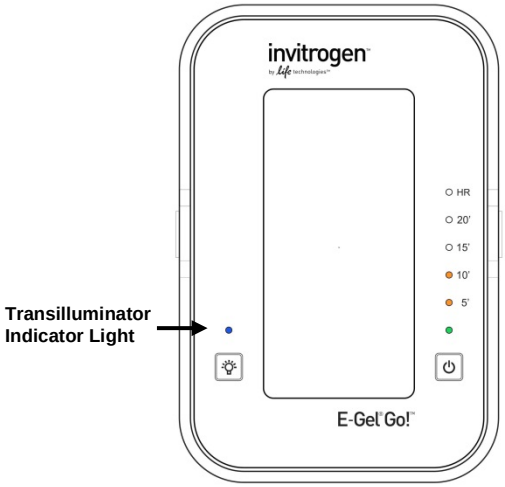
   Note: The lid must be closed for the run to start. If the lid is opened during a run, the base (and transilluminator) automatically stop, the device beeps, and the Status Indicator Light blinks red. Press **Start** to reset the device. Pressing Start a second time starts the run from the originally selected run time.

Continued on next page

Loading and running the gel, continued

8. If you want to view the bands while the gel runs, press the **Light** button. The Transilluminator Indicator illuminates with a steady blue light when the transilluminator is on. Pressing the button a second time turns the transilluminator off.

   Note: Pressing the Light button when the lid is open turns the transilluminator on. It is important to only view the bands through an amber filter to avoid overexposure of the eyes to blue light.



9. As the run progresses, the amber LED lights next to the run times turn off sequentially in 5 minute increments to indicate the amount of time remaining for the run. The run stops automatically after the programmed time has elapsed. The end of the run is signaled by a rapid beeping, and the Status Indicator turning from green to a steady red.

Continued on next page

Downstream application

You are now ready to proceed to imaging or any other application with the gel. To document results, any standard imaging device may be used. For best results use a blue light source and imaging setting for "SYBR" dyes. It may also be possible to image the gel using transillumination from the E-Gel® Go! Base depending upon the optical configuration of your camera. If blue light imaging is not possible, UV settings may be used but the sensitivity might be compromised.

We recommend that you disconnect the E-Gel® Go! Base from the electrical outlet when not in use for a prolonged period of time.

Maintaining E-Gel® Go!

Keep the surfaces of the E-Gel® Go! Base free of contaminants. To clean, disconnect from power source and wipe with a dry cloth, or a wet cloth with water and mild soap or ethanol. Avoid damaging or scratching the surface of the transilluminator with abrasive cleaners, sharp instruments, or harsh solvents. Do not attempt to open or service the bases. To honor the warranty, bases should only be opened and serviced by Invitrogen.

Troubleshooting

The table below provides some solutions to the problems you might encounter when using the E-Gel® Go! Base.

Observation	Reason	Solution
No current	Cassette improperly inserted or is defected	Remove the gel cassette and re-insert the cassette correctly, or try using a fresh cassette.
Poor resolution or smearing of bands	Sample overloaded	Refer to **Sample Preparation** (page 13) for appropriate loads.
	Delay in starting electrophoresis	Start the run within 2 minutes of loading the gel.
	High salt samples	Dilute your samples as described in the E-Gel® Technical Guide.
	Sample not loaded properly or low sample volume loaded	Do not introduce bubbles while loading samples. For proper resolution, keep all sample volumes uniform and load water into empty wells.
Melted gel	Increased current due to longer run times	Do not run the gel longer than 20 minutes, or 30 minutes for "HR".
Sample leaking from wells	Wells damaged during comb removal or gel loading	Be sure to remove the comb gently without damaging the wells.
	Sample is over loaded	Load the recommended sample volume (10 µL) per well.
High back-ground, suboptimal, or no image	No filter or wrong filter set	Refer to E-Gel® Technical Guide to determine the optimal filter set to use, or contact the instrument manufacturer for advice.
	Photographic setting not optimal	Optimize settings of your system empirically. You may need to change the exposure time or gain setting.

Appendix A

Accessory Products

Additional products

Additional products available separately from Invitrogen are listed in the table below. For more information, visit our website (**www.lifetechnologies.com**) or contact Technical Support (page 21).

Product	Quantity	Catalog no.
E-Gel® Go! Base	1 unit	G4400
E-Gel® Go! 1%, 10-pak	10 gels	G4410-01
E-Gel® Go! 1%, 20-pak	20 gels	G4420-01
E-Gel® Go! 2%, 10-pak	10 gels	G4410-02
E-Gel® Go! 2%, 20-pak	20 gels	G4420-02
E-Gel® Go! Car Adaptor	1 adaptor	G4444
E-Gel® Sample Loading Buffer	1.25 mL	10482055
E-Gel® 1 Kb Plus DNA Ladder	500 µL	10488090
E-Gel® 50 bp DNA Ladder	500 µL	10488099

Technical Support

Obtaining support

For the latest services and support information for all locations, go to **www.lifetechnologies.com**

At the website, you can:

- Access worldwide telephone and fax numbers to contact Technical Support and Sales facilities
- Search through frequently asked questions (FAQs)
- Submit a question directly to Technical Support (**techsupport@lifetech.com)**
- Search for user documents, SDSs, vector maps and sequences, application notes, formulations, handbooks, certificates of analysis, citations, and other product support documents
- Obtain information about customer training
- Download software updates and patches

Safety Data Sheets (SDS)

Safety Data Sheets (SDSs) are available at **www.lifetechnologies.com/support**.

Certificate of Analysis

The Certificate of Analysis provides detailed quality control and product qualification information for each product. Certificates of Analysis are available on our website. Go to **www.lifetechnologies.com/support** and search for the Certificate of Analysis by product lot number, which is printed on the box.

Limited warranty

Life Technologies and/or its affiliate(s) warrant their products as set forth in the Life Technologies General Terms and Conditions of Sale found on the Life Technologies web site at **http://www.lifetechnologies.com/termsandconditions** If you have any questions, please contact Life Technologies.

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Product Specifications

E-Gel® Go! specifications

The specifications for the E-Gel® Go! Base are listed below.

Viewing surface dimensions:	3.5 cm × 6 cm
E-Gel® Go! Base dimensions:	4.5 cm × 8 cm × 12 cm
Electrical Requirements:	100–240VAC 50/60Hz 0.6A
Temperature:	Ambient ±5˚C to 40˚C
LED life:	50,000 hours
LED Specifications:	Array of LEDs emitting at 480 ± 5 nm. The LEDs used radiate less than 10 Lumens each at 200 mA.
Adaptor Specifications:	Use only the UL Listed adaptor supplied with the E-Gel® Go! Base. The adaptors are of "Limited Power Source" in accordance with Edition 2or 3 of UL/EN 60950-1 or equivalent
Input:	100–240 VAC, 50/60Hz, 0.6 A maximum
Output:	15 VDC, 1.2 A maximum

Appendix B: Safety

Safety Information

Tags and their meaning

The following signal words are used in the product documentation in order to warn the reader about risks and dangers.

Tag	Meaning
DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates the possibility of incorrect operation which can result in damage to the product. The word ATTENTION may be used synonymously.
	Indicates that information related to safety or system proper information is provided.

Continued on next page

Installation

The product may be operated only under the operating conditions and in the positions specified by Life Technologies Corporation. The protection provided by the equipment may be impaired if the equipment is used in a manner not specified by Invitrogen.

⚠CAUTION

The following are the required operating position and conditions:

- Do not place the product in a location where the product's ventilation can be obstructed.
- Do not place the product on heat-generating surface or near heat emitting devices such heaters. Verify that there is sufficient clearance between the product and any other system that may exhaust warm air.
- The product operating ambient range is temperature of 5–40°C (50–95 °F) and Relative humidity of 20–80%. Life Technologies recommends that an ambient temperature of 20–25 °C (68–77 °F) and relative humidity of 30–50% is maintained during normal operation as this will result in better performance and longer MTBF of the equipment. Temperature must not exceed the maximum temperature specified above.
- The product is for indoor use only
- The product is for use in pollution degree 2 environment
- A tolerance of ±10 % shall apply to the nominal input voltage and ±3 % to the nominal frequency, overvoltage category 2.
- Mains plug is a disconnect device and must be easily accessible.
- Maximum operating altitude 2000 m asl, Maximum transport altitude 4500 m asl.

Continued next page

Safety Information, Continued

Electrical safety

The following information on electrical safety must be observed, failing to follow these instruction may result in electric shock, fire and/or serious personal injury or death.

⚠ DANGER

- Prior to switching on the product, always ensure that the nominal voltage setting on the product matches the nominal voltage of the AC supply network.
- Never remove the cover or any part of the housing. Doing so will expose circuits and components and can lead to injuries, fire or damage to the product.
- The product is not liquid-proof; therefore, the equipment must be protected against penetration by liquids. If the necessary precautions are not taken, the user may suffer electric shock or the product itself may be damaged, which can also lead to personal injury.
- Never use the product under conditions in which condensation has formed or can form in or on the product, e.g. if the product has been moved from a cold to a warm environment. Penetration by water increases the risk of electric shock.
- Prior to cleaning the product, disconnect it completely from the power supply. Use a soft, non-linting cloth to clean the product. Never use chemical cleaning agents such as alcohol, acetone or diluents for cellulose lacquers.

Operation

The following information on electrical safety must be observed, failing to follow these instruction may result in electric shock, fire and/or serious personal injury or death.

⚠CAUTION

- Never attempt to open the housing of the device.
- If the LED remains on when the device cover is open, do not stare directly at the light. Shut down the device and contact Technical Support (page 21).
- Do not use the device while operating a moving vehicle.
- Do not use the device in a moving vehicle.

Service operation requirements

This product contains no user-serviceable parts. In the event of an equipment malfunction, all repairs must be performed either by Life Technologies or by an authorized agent. It is the customer responsibility to report the need for service to Life Technologies or to one of the authorized agents. For service information, contact Technical Support (page 21).

⚠WARNING

Servicing of this product or device is to be performed by trained service personnel only

Product Regulatory Compliance

Product safety compliance

The E-Gel® Go! Base complies with the following safety requirements:

- IEC 61010-1 (International), CB Certificate & Report including all international deviations.

Certification/ registrations/ declarations

TUV Listing (US/Canada)

The E-Gel® Go! Base complies with part 15 of the FCC rules. Operation of the devices are subject to the following conditions:

- The device may not cause harmful interference
- The device must accept any interference received, including interference that may cause undesired operation.

Life Technologies Israel Ltd., is the manufacturer and owner of the TUV file. For more information, contact Technical Support (page 21) or Life Technologies Israel:

Life Technologies Israel Ltd.
12 Hamada St.
P.O. Box 4035
Rehovot, Israel 74103

Electromagnetic Compatibility Notices

Class A notice

WARNING:

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC (USA)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For questions related to the EMC performance of this product, contact:

Life Technologies Israel Ltd.
12 Hamada St.
P.O. Box 4035
Rehovot, Israel 74103

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

Electromagnetic Compatibility Notices,
Continued

FCC (USA)

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit other than the one to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment. The customer is responsible for ensuring compliance of the modified product.

Only peripherals (computer input/output devices, terminals, printers, etc.) that comply with FCC Class A or B limits may be attached to this computer product. Operation with noncompliant peripherals is likely to result in interference to radio and TV reception.

All cables used to connect to peripherals must be shielded and grounded. Operation with cables connected to peripherals that are not shielded and grounded may result in interference to radio and TV reception.

Electromagnetic Compatibility Notices,
Continued

B.2.2 Industry Canada (ICES-003)

Cet appareil numérique respecte les limites bruits radioélectriques applicables aux

appareils numériques de Classe A prescrites dans la norme sur le matériel brouilleur:

“Appareils Numériques”, NMB-003 édictée par le Ministre Canadian des Communications.

English translation of the notice above:

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the interference-causing equipment standard entitled

“Digital Apparatus”, ICES-003 of the Canadian Department of Communications.

Europe (CE declaration of conformity)

This product has been tested in accordance to, and complies with, the Low Voltage Directive (2006/95/EC) and EMC Directive (2004/108/EC). The product has been marked with the CE Mark to illustrate its compliance.

Explanation of Symbols and Warnings

The CE mark symbolizes that the product conforms to all applicable European Community provisions for which this marking is required. The E-Gel® Go! Base complies with the TUV Rhineland North America Inc. regulation and European Community Safety requirements. The E-Gel® Go! Base complies with part 15 of the FCC rules. Operation of the E-Gel® Go! Base is subject to the conditions described in this manual. The protection provided by the equipment may be impaired if the equipment is used in a manner not specified by Invitrogen.

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.lifetechnologies.com/weee** for collection and recycling options.

The C-Tick symbol denotes that the device is compliant with the electromagnetic compatibility (EMC) of the Australian Communications Authority (ACA).

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

The E-Gel® Go! Base is classified as a Class 1 LED product, which is indicated by the symbol to the left.

For support visit
www.invitrogen.com/support or email techsupport@invitrogen.com
www.lifetechnologies.com
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