



blueGel™ Electrophoresis System

User's guide

Integrated electrophoresis and visualization system

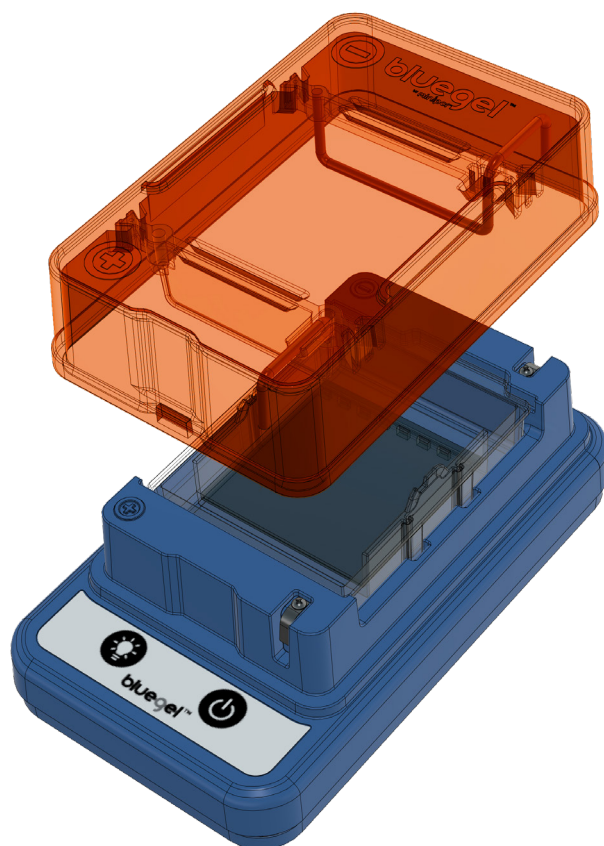


TABLE OF CONTENTS

Overview	03
Features	03
Manufacturer	04
Intended use of the equipment	04
Technical support	04
Technical specifications	05
Compliance	06
Electromagnetic compatibility (EMC)	06
Hazards	07
Operating conditions	08
Equipment installation	08
Cleaning and decontamination	08
Equipment maintenance and service	08
Warranty	09
What's included	10
Components	11
Directions for use	14
Pouring gels	14
Running the gel	15
Visualizing results	16
Troubleshooting and maintenance	17
Troubleshooting	17
Care & maintenance	18
Specifications & operating conditions	19



OVERVIEW

FEATURES



■ **Fast and Safe Electrophoresis**

UL and CE marked power supply. Automatic current shut-off when cover is not present. Buffer chamber and small reagent volumes designed for maximum run rate.

■ **Safe Blue Light Illumination**

High intensity blue LED illuminator panel. Blue diffuser for even gel illumination. Amber filter integrated in cover for direct visualization. View results within minutes.

■ **Integrated casting System**

Save on reagents: 20 ml gels and 30 ml buffer. 60 x 60 mm gel tray with one or two rows of combs. Four double-sided combs with choice of 5, 6, 9 and 13 wells. Seamless construction eliminates leaks.

■ **Easy to Operate and Store**

Intuitive two-button operation: one for Run, one for Light. 3 x 9 inch footprint, 4 inches high. Storage pouch included.

■ **Fold-a-View™ Documentation Hood**

A portable, foldable darkroom. Image capture even in brightly lit rooms.

■ **Conforms to CE standards**

MANUFACTURER

Ampliyus LLC, dba miniPCR bio™. 1770 Massachusetts Avenue, Suite 167, Cambridge, Massachusetts, 02140, United States of America.

INTENDED USE OF THE EQUIPMENT

This device is intended for the separation of biological samples.

TECHNICAL SUPPORT

The miniPCRbio™ technical support department is open Monday through Friday, 9:00 AM to 5:00 PM, Eastern Time. Contact us by phone at +1-781-990-8727 or by email at support@minipcr.com.

TECHNICAL SPECIFICATIONS

blueGel electrophoresis system

QP-1500-01

FEATURES	<p>GEL ELECTROPHORESIS UNIT WITH BUILT-IN TRANSILLUMINATOR</p> <p>SEAMLESS POLYCARBONATE AND ABS INJECTION MOLDED PARTS</p> <p>TWO-BUTTON OPERATION; ONE FOR RUN, ONE FOR LIGHT</p> <p>CASTING SYSTEM WITH INTEGRATED COMB HOLDER</p> <p>PLATINUM AND STAINLESS STEEL ELECTRODES</p> <p>HIGH INTENSITY BLUE LED TRANSILLUMINATOR PANEL</p>
GEL SIZE	60 X 60 MM
GEL VOLUME	15 TO 20 ML
BUFFER VOLUME	30 ML, OPTIMIZED FOR TBE
COMBS	DOUBLE SIDED. FOR 5, 6, 9 OR 13 WELLS
POWER SUPPLY	<p>INPUT: AC 100-240 V, 50-60 HZ</p> <p>OUTPUT: USB-C PD 2.0+, 12V/1.5A</p>
DIMENSIONS	9" X 4" X 3" HEIGHT (23 X 10 X 7 CM.)
WEIGHT	0.75 LBS., 350 GR

COMPLIANCE

The blueGel electrophoresis system has been tested and found to be in compliance with all applicable requirements of the following safety standards:

EN 61010-1:2010/A1: 2019/AC: 2019, Safety Requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements.

ELECTROMAGNETIC COMPATIBILITY (EMC)

The blueGel electrophoresis system has been tested and found to be in compliance with all applicable requirements of the following safety standards:

- EN 61326-1: 2013, Electrical Equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements. Tested as a class A device.
- ICES-003, Issue 7 (October 15, 2020), Information Technology Equipment (Including Digital Apparatus) – Limits and Methods of Measurement. Tested as a class A device.
- FCC Part 15, Subpart B. Tested as a class A device.

Note: 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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

Note regarding cables: This instrument was tested for EMC compliance with the USB cables supplied with the instrument. These cables must be used with the instrument to ensure continued compliance with the EMC emissions limits.

HAZARDS

- The blueGel electrophoresis system is designed to operate safely when used in the manner specified by Amplyus LLC. If the electrophoresis system or any of its associated components is used in a manner not specified by the manufacturer, the inherent protection provided by the instrument may be impaired. Amplyus LLC is not liable for any injury or damage caused by the use of this equipment in any unspecified manner, or by modifications to the instrument not performed by Amplyus LLC or an authorized agent.
- No uncommon electrical hazard is posed to operators if installed and operated properly without physical modification and connected to a power source of proper specification.
- If biohazardous samples are used, Biosafety Microbiological and Biomedical Laboratory (BMBL) practices published by the Centers for Disease Control should be followed.

OPERATING CONDITIONS

Environment	Indoor use only
Operating temperature	15-32 °C (54-90 °F)
Transport and storage temperature	-10-50 °C (14-122 °F)
Power supply Input	AC 100-240 V, 50-60 Hz
Power supply Output	USB-C PD 2.0+, 12V/1.5 A

EQUIPMENT INSTALLATION

Equipment shall be installed on a level, dry and flat surface that will support its weight and dimensions.

Note: the safety of any system incorporating the equipment is the responsibility of the assembler of the system.

CLEANING AND DECONTAMINATION

BlueGel electrophoresis systems can be cleaned using a cloth paper towel moist with water. The equipment should not come into contact with organic solvents or corrosive solutions. Ensure that no liquid enters the device. The device must be disconnected from the power supply before cleaning.

EQUIPMENT MAINTENANCE AND SERVICE

BlueGel electrophoresis systems do not require regular maintenance. Contact the manufacturer if any problems are encountered during use.



WARRANTY

This Limited Warranty covers defects in materials and workmanship for a period of 36 months from the date of purchase under the following conditions:

This 36-month warranty is valid from the date of purchase of blueGel electrophoresis systems (the “Product”).

This Limited Warranty covers the original purchaser of the Product and shall not extend in its validity to third parties without the written agreement of Amplyus LLC (“Amplyus”).

This Limited Warranty covers only the Product and any original accessories provided with it. It excludes software, documentation, consumables, or related items.

This Limited Warranty will maintain its validity only as long as the Product is operated in the manner, conditions, and with the care described in its User’s Guide.

This Limited Warranty will be voided by improper or unauthorized maintenance of the Product, or by improper attachment of electrical adapters and power supplies not supplied by Amplyus or its authorized representatives.

This Limited Warranty will be voided by any failure to meet requirements for the operation of the Product in laboratory conditions as described in the User’s Guide.

Amplyus will repair or replace any defective items upon factory inspection of the item claimed. Amplyus will cover shipping charges if the claim is initiated within 30 days from purchase. After 30 days from the date of purchase, end users of the Product will be responsible for shipping charges to and from the Amplyus facility for assessment and repair under the terms of this Limited Warranty.

This Limited Warranty does not cover wear and tear to components resulting from normal use of the Product, nor does it cover failures caused by incorrect use, negligence, alterations, or damage caused by intentional or accidental misuse of equipment. This Limited Warranty also excludes damage caused during any shipment/transport/movement of the product following its initial receipt by the customer.

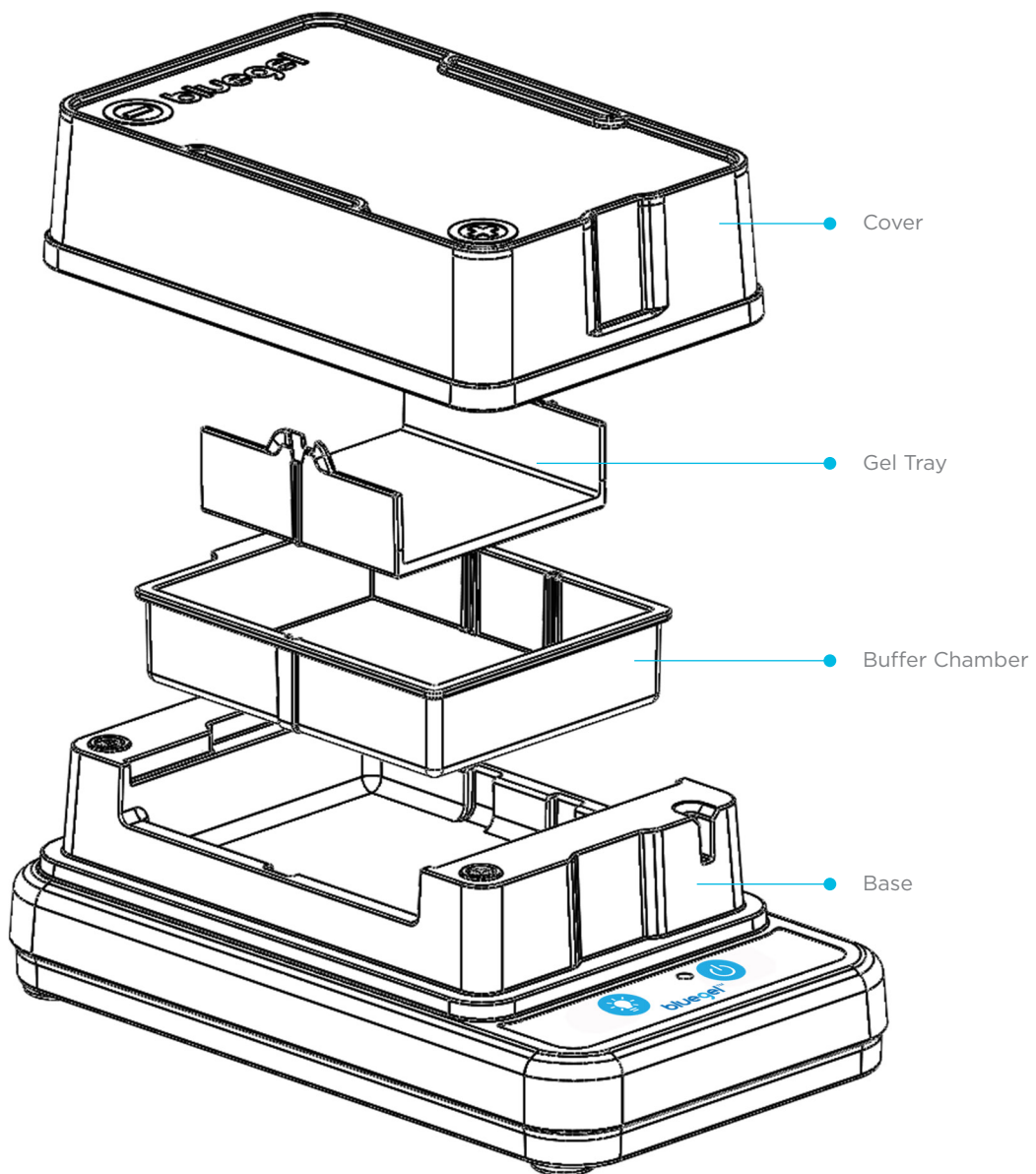
Amplyus’ sole liability, under this Limited Warranty, for failure to repair the Product after a reasonable number of attempts, is limited to the replacement of the Product or, at Amplyus’ sole discretion, the refund of the original purchase price of the Product.



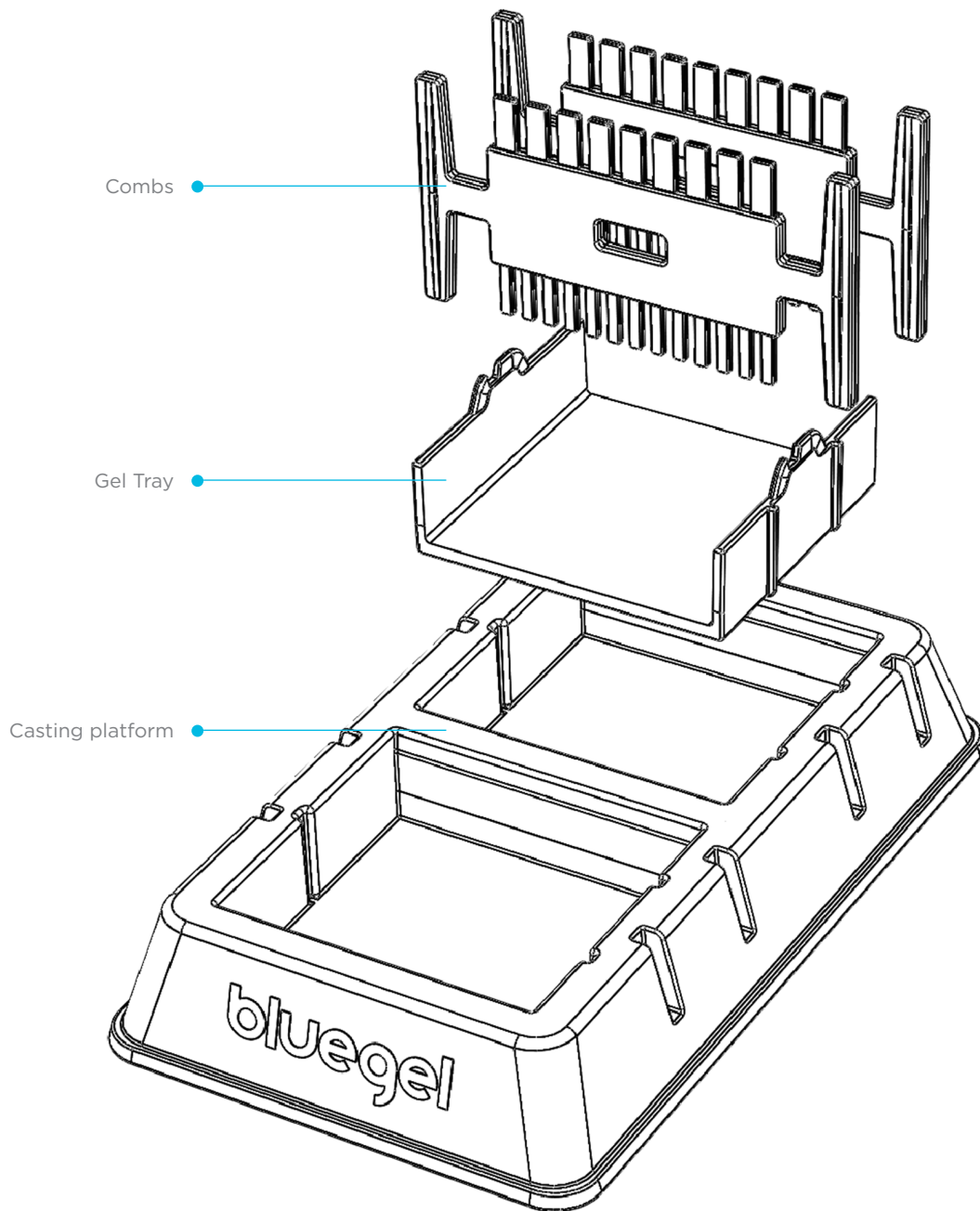
WHAT'S INCLUDED

- 1 x Casting platform
- 2 x Double-sided combs with 5 and 6 teeth
- 2 x Double-sided combs with 9 and 13 teeth
- 2 x Gel trays
- 1 x Buffer chamber
- 1 x Integrated power and illumination base
- 1 x Orange light-filtering cover
- 1 x Power supply
- 1 x ClearView™ Spray
- 1 x Cleaning cloth
- 1 x Fold-a-View™ imaging hood
- 1 x Carrying pouch

COMPONENTS

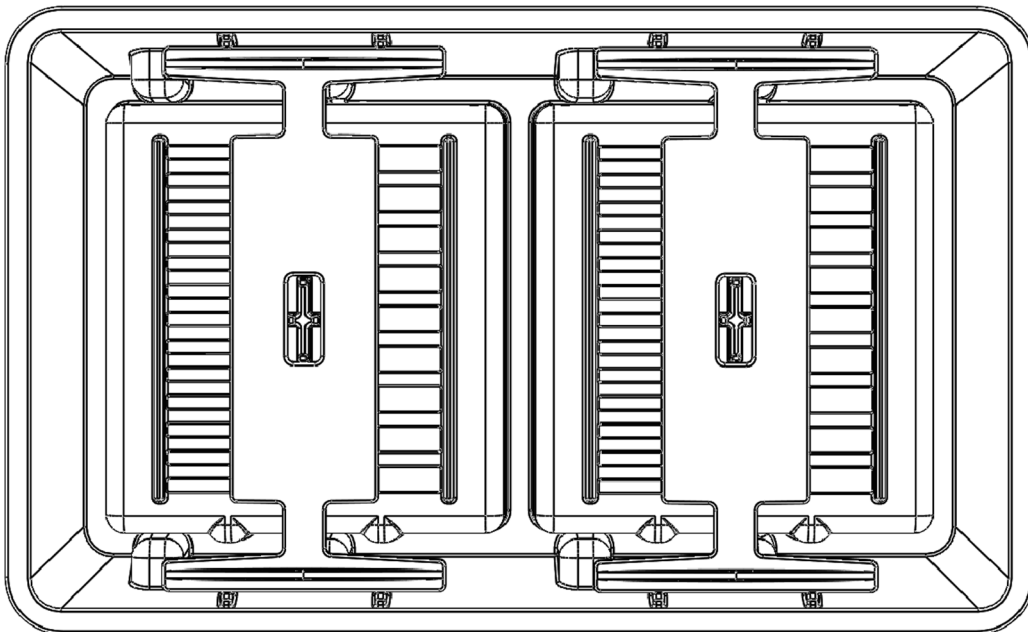


COMPONENTS (Cont.)



COMPONENTS (Cont.)

Comb storage under casting platform





DIRECTIONS FOR USE



PROTECTIVE GLOVES AND EYEWEAR SHOULD BE WORN AT ALL TIMES

POURING GELS

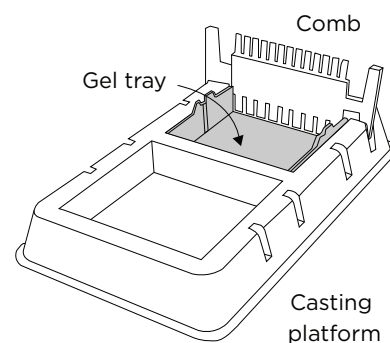
Gels can be prepared up to three days ahead of time and stored at ambient temperature, covered in air-tight plastic wrap and protected from light.

1 – Prepare 1X TBE buffer

- TBE buffer is typically provided in 20X concentration.
- Add 1 part 20X buffer to 19 parts distilled water to make 1X buffer.

2 – Prepare a clean and dry casting platform with a gel tray and comb

- Place the clear gel tray in the white casting platform.
- Place a well-forming comb at the top of the gel tray.



3 – Prepare an agarose solution with the percentage of your choice

4 – Use a microwave or hot plate to heat the solution until the agarose is fully dissolved

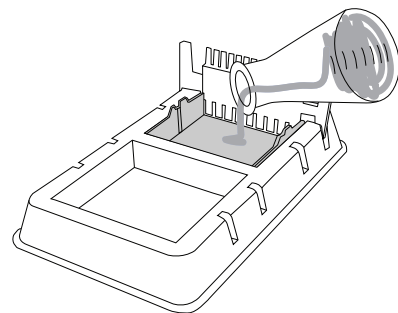
There are several ways to prepare agarose gels

Watch a video outlining three methods to cast agarose gels by scanning the QR code.



5 – Pour the agarose solution into the prepared casting platform with a gel tray and comb

- The agarose solution should cover the bottom of the gel tray and the bottom 3 mm of the comb (roughly the bottom 1/3 of the comb).



6 – Allow gel to solidify completely and remove the comb by pulling firmly upwards

- Gels will typically be ready in about 10 minutes.
- Gel is ready when cool and firm to the touch.

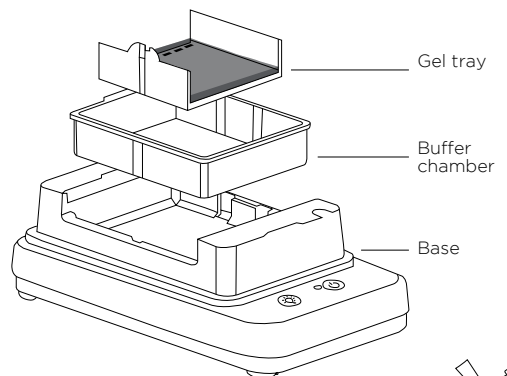


PROTECTIVE GLOVES AND EYEWEAR SHOULD BE WORN AT ALL TIMES

RUNNING THE GEL

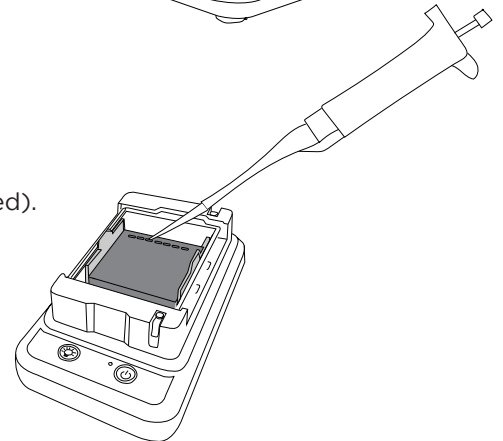
1 – Place the gel tray containing your gel in the buffer chamber

- Ensure that the clear buffer chamber is inside the blueGel™ electrophoresis system.
- The wells of the gel should be on the same side as the negative electrode, away from the power button.



2 – Add 30 ml of 1X TBE electrophoresis buffer

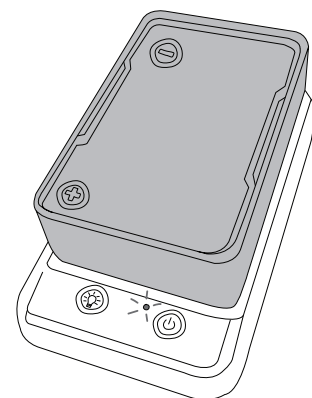
- The buffer should just cover the gel and wells.
- Ensure that there are no air bubbles in the wells. (shake the gel gently if bubbles need to be dislodged).



3 – Load samples on to the gel

4 – Place the orange cover on the blueGel™ electrophoresis system

- To prevent fogging, make sure that ClearView™ spray has been evenly applied to the inside of the orange cover.
- Match the positive and negative electrode signs on the orange lid with the corresponding positive and negative signs on the blue base.
- The electrodes of the lid should be aligned with the metal leads on the base.
- The orange lid should sit flush with the blue base using little force.



5 – Press the “Run” button

- Check that the green light beside the power button remains illuminated.

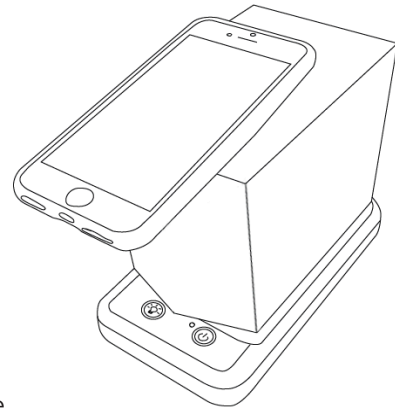
6 – Conduct electrophoresis for 15-25 minutes

- The colored dye should progress to about half the length of the gel.
- Longer electrophoresis times will result in better size resolution.

VISUALIZING RESULTS

1 – Press the “light bulb” button to turn on the blueGel™ transilluminator

- For best viewing, dim lights or use Fold-a-View™ photo documentation hood with a smartphone camera.
- Gels may be viewed at the end of the run or periodically throughout the run.
- If the image appears hazy, wipe off the inside of the orange cover and reapply ClearView™ spray.

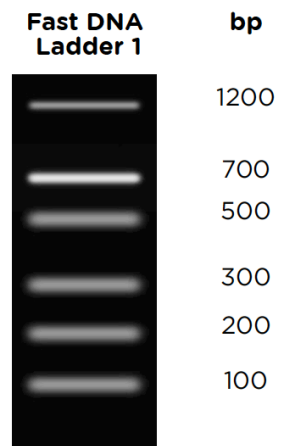


2 – Ensure that there are sufficient DNA band resolution

- Run the gel longer if needed to increase resolution.

3 – Document your results

- Place Fold-a-View™ photo documentation hood on the blueGel™ electrophoresis system to take a picture with a smartphone or other digital camera.
- Compare the bands from the DNA samples to the ladder to obtain size estimates.





TROUBLESHOOTING AND MAINTENANCE

TROUBLESHOOTING

Can't find combs: combs are stored in the back of the casting platform.

Gel tray won't fit inside the buffer chamber: ensure guides at the sides of the gel tray and casting platform are aligned.

Buffer chamber won't fit inside the base: ensure the chamber is being inserted in the correct orientation, with the tab towards the back of the unit.

Orange cover won't fit: ensure proper orientation.

Run won't start (LED indicator not on): check electrode contact and alignment between cover and base. Check that the running buffer is making contact with the electrodes. Confirm that you are using the correct running buffer.

Condensation on cover: apply ClearView™ before use or use lens cleaning cloth to gently wipe off.

Gel edges shrinking after prolonged runs: ensure you are using 0.5X or 1X TBE buffer.

If you need to contact miniPCR bio:

Phone: 781-990-8PCR

Email: support@minipcr.com

Mail: 1770 Massachusetts Ave., Suite 167

Cambridge, MA 02140

CARE & MAINTENANCE OF YOUR BLUEGEL ELECTROPHORESIS SYSTEM

Please follow these recommendations to maintain your blueGel™ system in optimal working condition:

Rinse the casting platform, combs, gel tray, buffer chamber and cover in distilled water after each use. Do not wipe or handle platinum wire. Air dry.

Never submerge the blueGel™ base in water.

Do not use ethanol or organic solvents to clean parts.

Handle the buffer chamber, gel tray and cover with care to protect from scratching.

Always store blueGel™ components in the carrying pouch.

SPECIFICATIONS & OPERATING CONDITIONS

Appendix A - blueGel™ accessories and replacement parts available at www.minipcr.com

Description	Part No.
GelGreen® Agarose Tabs™	RG-1500-10
SeeGreen™ Agarose Tabs™, 3-in-1 agarose tablets	RG-1500-20
Agarose, 20g	RG-1500-02
TBE Buffer, 20X	RG-1502-02
blueGel™ base	6AA73
blueGel™ cover	6AA74
blueGel™ casting platform	1AA22
blueGel™ gel tray	1AA17
blueGel™ 9/12 comb	1AA16
blueGel™ buffer chamber	1AA18
blueGel™ carrying pouch	1AA49
blueGel™ Lens cleaning cloth	6AA75
Fold-a-View™ photo documentation hood	7AA93
blueGel 5/6 comb	7AA94

Appendix B - DNA gel stains compatible with blueGel™

DNA gel stain	Manufacturer
SeeGreen™	miniPCR bio
GreenView™ Plus, GreenView™ Ultra	Applied BioProbes
GelGreen®	Biotium
SYBR® Safe and SYBR® Green	ThermoFisher
EvaGreen®	Biotium

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Document	Date	Description
blueGel User's Guide Rev A1	09/01/2024	Initial release