



GELATO™ electrophoresis and visualization system

User's guide

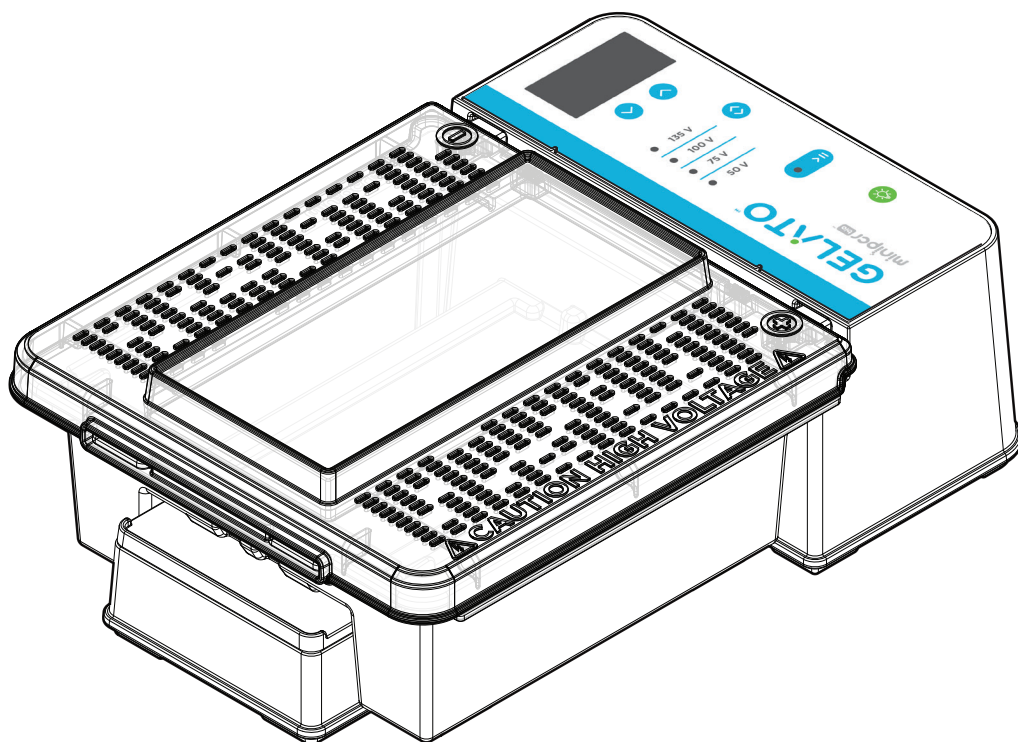




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MANUFACTURER

Amplifyus 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 separation and visualization of biological molecules.

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

GELATO™ electrophoresis and visualization system QP-1600-01

RUNNING VOLTAGE	Adjustable. 50, 75, 100 and 135 V
ILLUMINATION	Integrated, 120 high-intensity blue LEDs
BUFFER COMPATIBILITY	TAE and TBE
GEL SIZE	Small tray 6 x 6 cm, large tray 12 x 6 cm
LOADING CAPACITY	Up to 26 lanes on small gels and 50 on large gels
MULTICHANNEL COMPATIBLE	Yes
COMPATIBLE DNA DYES	SeeGreen™, GelGreen®, SYBR™, GreenView™ and other blue-light compatible DNA dyes
DOCUMENTATION	Fold-a-View™ photo hood
TIMER	Variable, up to 120 min
DIMENSIONS	25 x 17 x 8 cm
WEIGHT	800 grams
POWER SUPPLY	DC 9 V, 4 A

COMPLIANCE

The GELATO electrophoresis and illumination 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 GELATO electrophoresis and illumination 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.

HAZARDS

- The GELATO electrophoresis and transillumination system is designed to operate safely when used in the manner specified by Amplyus LLC. If the GELATO electrophoresis and transillumination 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 consumable materials are used in the equipment and no poisonous or injurious substances are liberated.
- 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	5-40 °C (40-104 °F)
Transport and storage temperature	-10-50 °C (14-122 °F)
Max. relative humidity	60%
Max. altitude	2000 m (6561 ft)

EQUIPMENT INSTALLATION

Equipment shall be installed on a level, dry and flat surface that will support its weight and dimensions. At least 9 inches of unobstructed space around the unit are required for appropriate ventilation.

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

CLEANING

The different components of the GELATO electrophoresis and visualization system are cleaned in different ways. Follow these instructions carefully to avoid permanent damage to the equipment.

- Console: wipe clean with a moist microfiber cloth or paper. Do not submerge.
- Casting platform, combs, gel trays and buffer chamber: soak in distilled water. If needed, warm soapy water can be used followed by a rinse with distilled water.
- Cover and goggles: wipe clean with a moist microfiber cloth. An acrylic cleaner can also be used. Do not clean with ethanol or other alcohols. If needed, warm soapy water can be used followed by a rinse with distilled water.

EQUIPMENT MAINTENANCE AND SERVICE

The GELATO electrophoresis and illumination system does 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 24 months from the date of purchase under the following conditions:

This 24-month warranty is valid from the date of purchase of GELATO electrophoresis and illumination system (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 GELATO electrophoresis and illumination system 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.



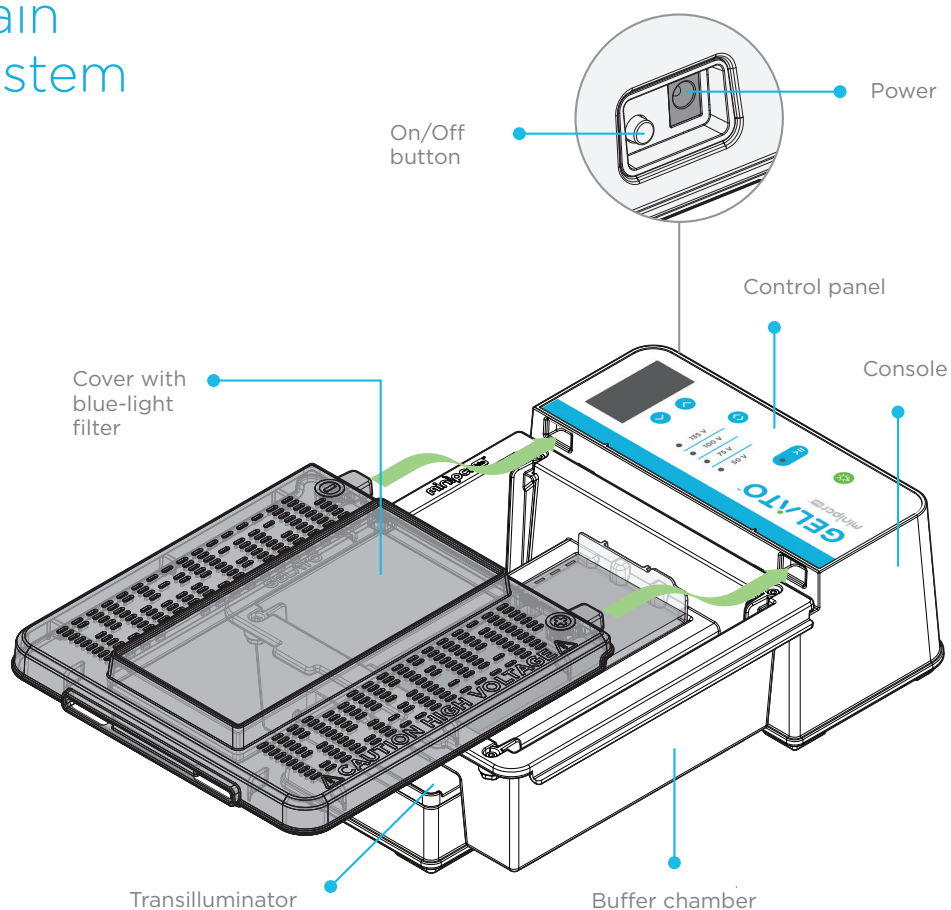
WHAT'S INCLUDED

- Console with control panel
- Light-filtering buffer chamber
- Cover with blue light filter
- Power adapter (US style, others available upon request)
- Casting platform
- Two small gel casting trays (60 mm x 60 mm), two large casting trays (120 mm x 60 mm)
- Four double-sided combs (two with 25 teeth for large gels and 13 teeth for small gels, and two with 13 teeth for large gels and 9 for small gels)
- Fold-a-View™ photo documentation hood
- Gel-cutting tray
- DNA visualization goggles
- ClearView™ anti-fog spray
- Microfiber cleaning cloth

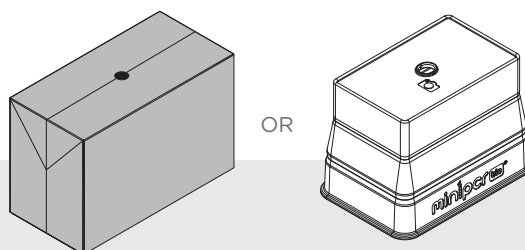


COMPONENTS

Main System



Caution: Light is very bright.
Use DNA visualization goggles if the cover is not in place.



Fold-a-View™

A portable, foldable darkroom.
Capture images even in brightly lit rooms.

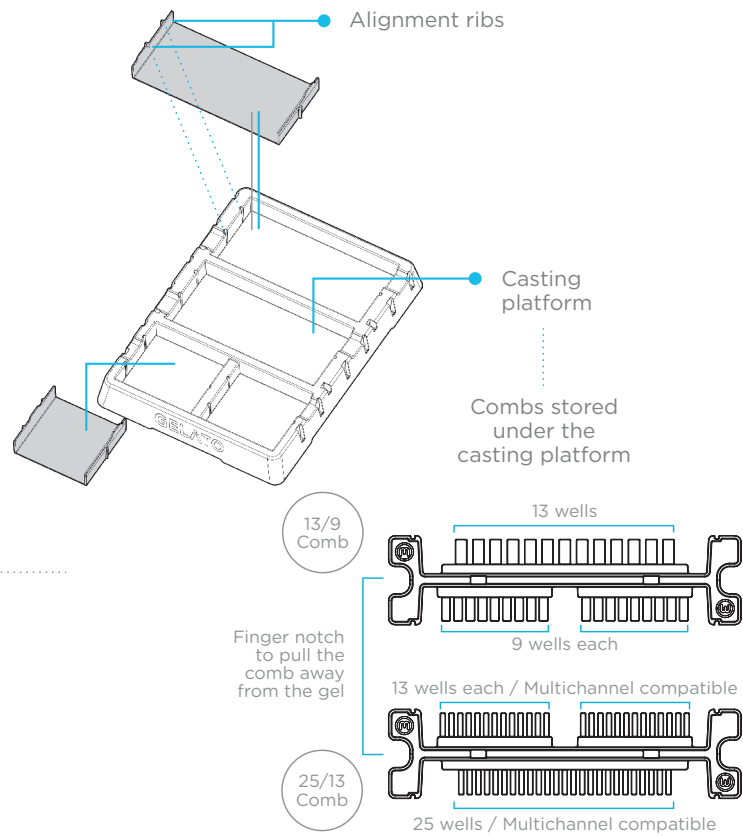
Casting System

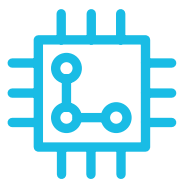
Large Gel Tray

40 ml gels
Up to 50 samples

Small Gel Tray

20 ml gels
Up to 26 samples



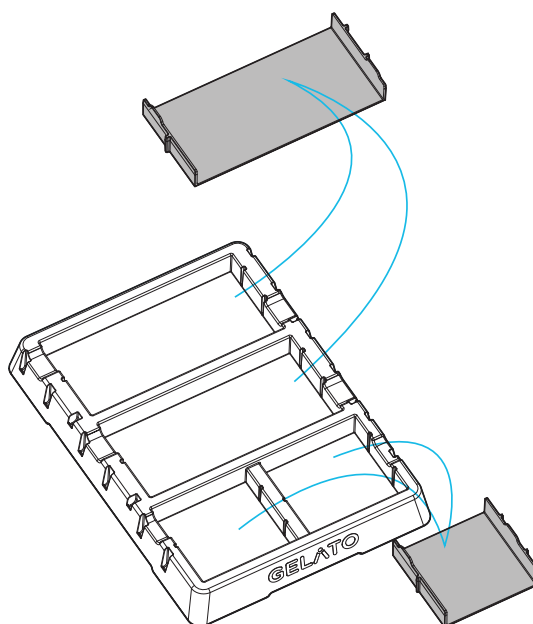


OPERATION

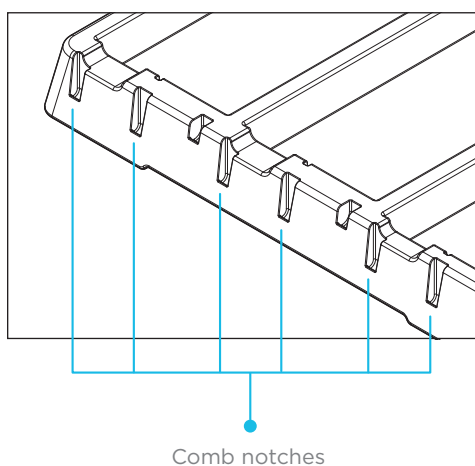
CASTING A GEL

The GELATO electrophoresis and visualization system is compatible with TAE and TBE running solutions.

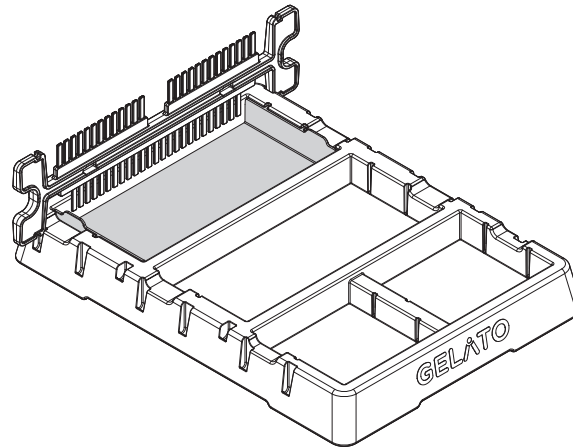
- 1 – Place the tray or trays in the casting platform.



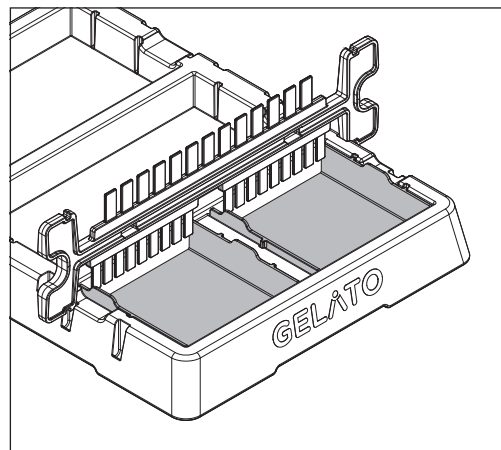
- 2 – Place comb or combs on the platform, using the comb notches for proper alignment.



Example 1. One comb to create 25 wells in a large gel tray.
Note: two combs can be used per gel.



Example 2. One comb spanning two gel trays. Each gel will have nine wells.



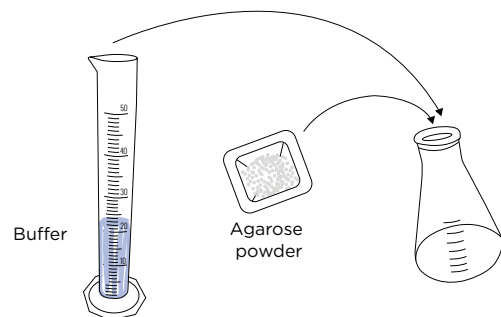
Gel preparation guidelines

Size of DNA to separate		Single small gel (20 ml)	One large or two small gels (40 ml)
	Gel percentage	Agarose (g)	Agarose (g)
1 kb to 12 kb	0.8	0.16	0.32
500 bp to 5 kb	1	0.2	0.4
400 bp to 4 kb	1.5	0.3	0.6
50 bp to 1.5 kb	2	0.4	0.8

GELATO can be used with SeeGreen™ tabs (SKU: RG-1500-20). Tabs contain pre-weighed agarose, TBE and DNA stain. Just add water, microwave and pour.

3 – Prepare the agarose solution

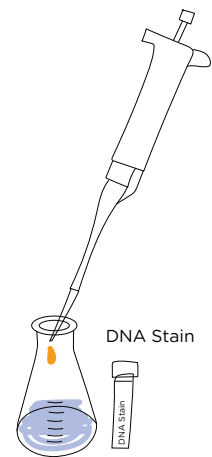
- Obtain a heat-resistant container such as a glass Erlenmeyer flask or beaker that is at least three times the volume you wish to add.
- Combine 1X TBE or TAE solution with the agarose powder for each gel you plan to pour.
- Swirl the flask or beaker until reagents are well mixed.



4 – Heat the solution

- Expect to heat for about 45 seconds per 20 ml of liquid in a standard microwave.
- If a microwave is not available, a hot plate can be used. This option can take up to 10 minutes.
- Heat until the solution boils and continue until agarose is fully dissolved. No agarose particles should remain.

Caution: The solution may boil over the top of some containers. The solution will be very hot.

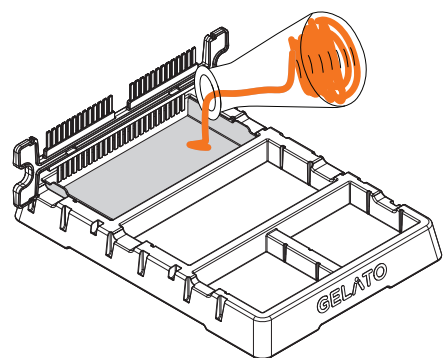


5 – Add DNA stain to the solution

- Add 2 μ l of SeeGreen™ stain or GelGreen® stain for each 20 ml of solution. Follow manufacturer's recommendations for other dyes.
- Swirl the solution in flask or beaker until dye appears evenly distributed.

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

- The agarose solution should cover the bottom third of the comb.

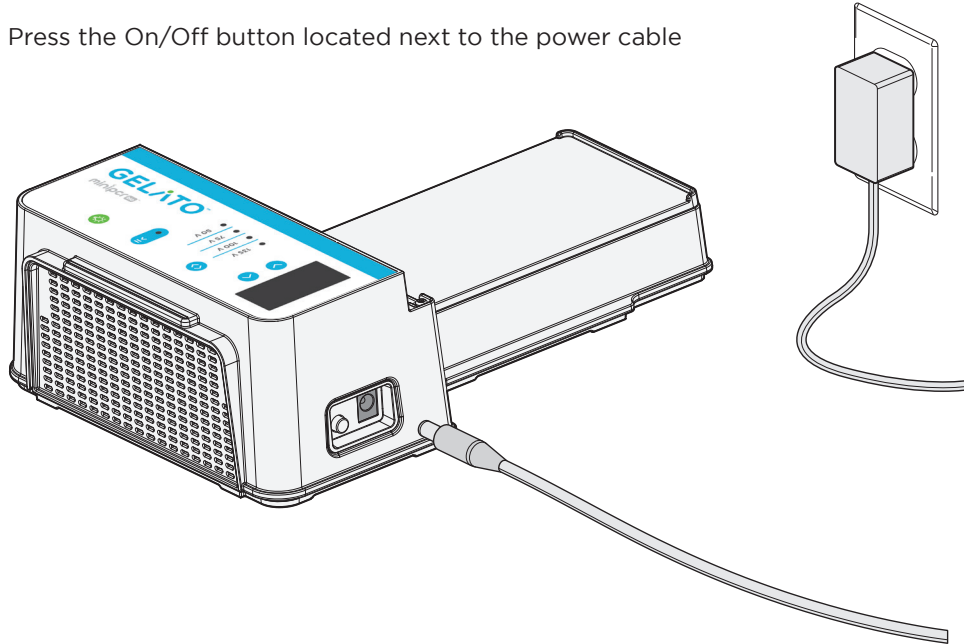


7 – Allow the gel to solidify completely, then remove the comb by pulling firmly upwards

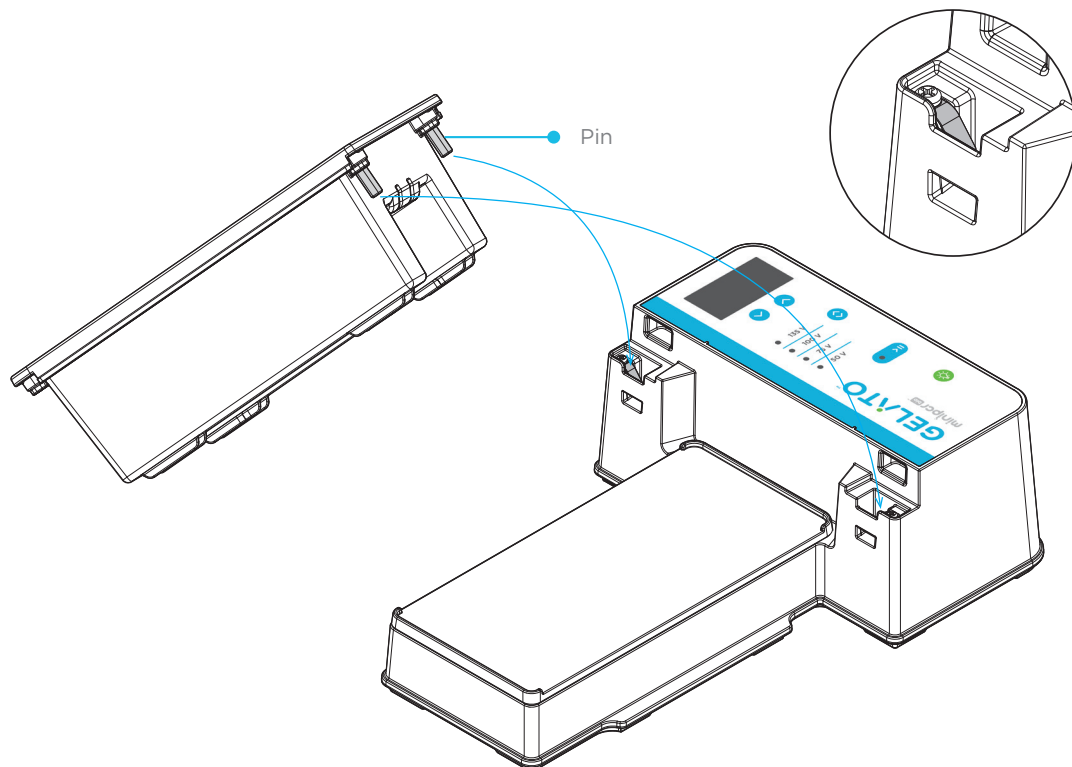
- Gels will typically be ready in about 10 minutes.
- Gel is ready when cool and firm to the touch.
- Gels can be stored for up to three days at room temperature in an airtight container protected from light.

SETTING UP THE SYSTEM

- Plug the power adapter to an outlet
- Plug the pin of the power adapter into the console
- Press the On/Off button located next to the power cable

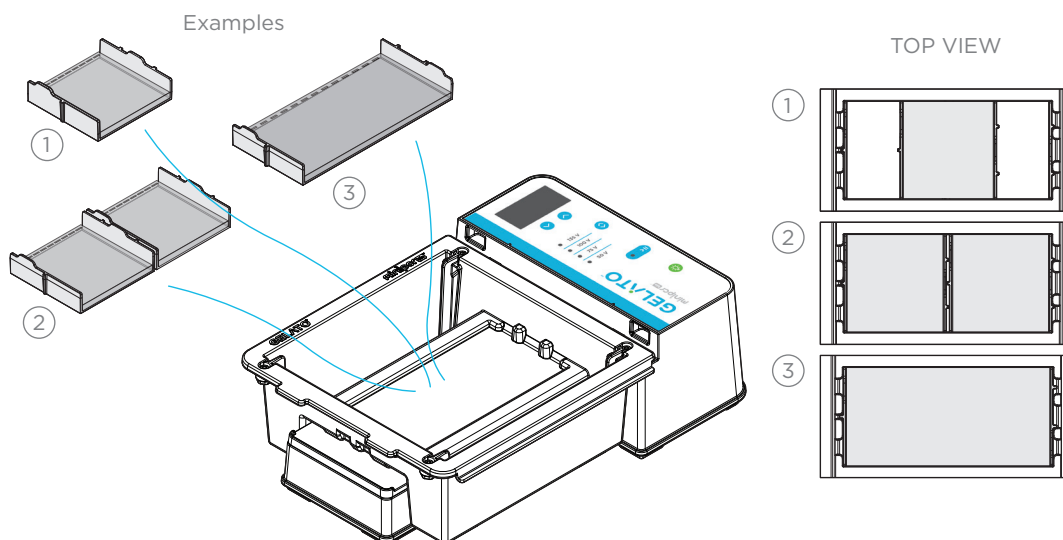


- 1 — Place the buffer chamber on the console by aligning the buffer chamber hexagonal pins with the metal clips on the console.

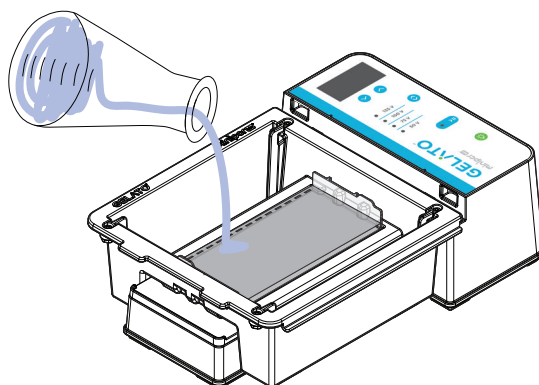


Note: In GELATO models without pins and clips, simply place the buffer chamber on the console.

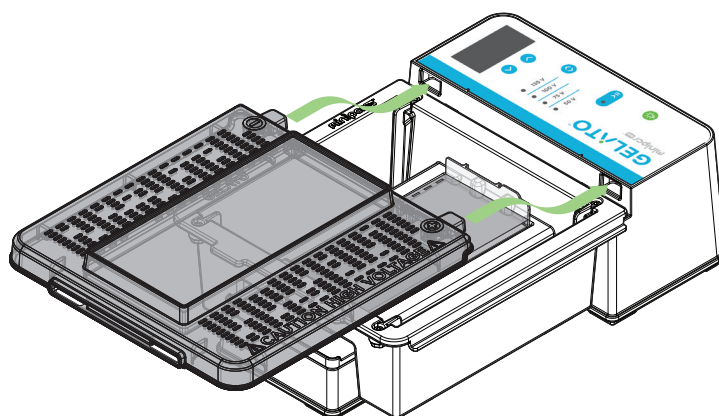
- 2 –** Remove trays with gels from the casting platform and place them on the buffer chamber.



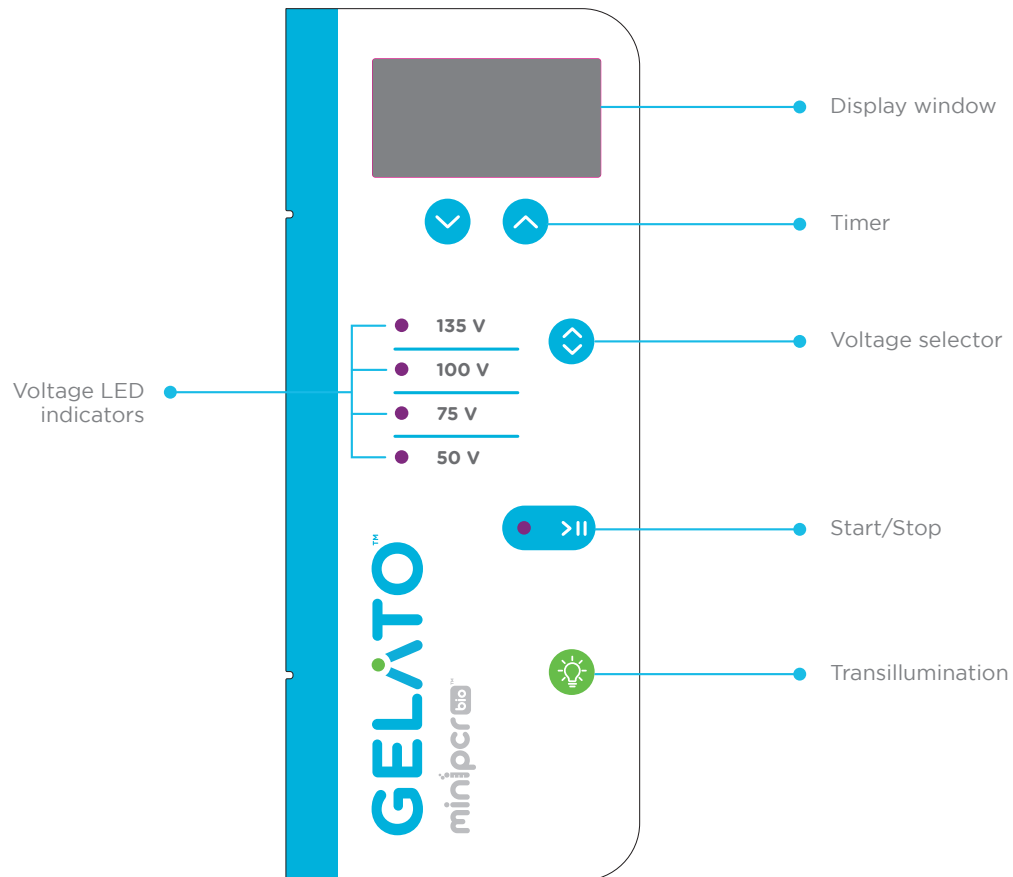
- 3 –** Add running solution to the buffer chamber. There should be enough liquid to cover the gel, about 350 ml.



- 4 –** Load samples.
5 – Slide the cover until it is fully inserted into the console. A short beep indicates that the instrument is ready for use.



STARTING THE RUN



- 1 –** Press the voltage selector button repeatedly until the indicator LED corresponding to the desired voltage is lit.
- 2 –** Press the up or down timer buttons to set the desired run time in minutes. Hold down to change time in increments of 10 minutes.

For safety, GELATO's maximum times for each of the different voltages are as follows:

- 135 V - 60 minutes
- 100 V - 80 minutes
- 75 V - 100 minutes
- 50 V - 150 minutes

- 3 –** Press the Start/Stop button to start the run. You will hear a beep, the indicator light next to the button will light up, and a dot at the bottom right of the display will blink. The timer will start immediately.
- 4 –** The unit will beep three times when the time is up.

Notes:

The time can be modified while the unit is running.

To change the voltage, the run needs to be stopped using the Start/Stop button.

INTERFACE

	Indicates the number of minutes the timer is set to
	A blinking dot indicates the gel is running. The number displayed is the time remaining in minutes, except for the last minute (blinking dot)
	When one minute is left, the display will show seconds (blinking dot)
	When the time has elapsed, zero will be displayed
	The number will blink if the time is being changed while the units is running (blinking number)
 	If the run is stopped by pressing the Start/Stop button, "StoP" will be displayed twice followed by three dashes that stay on
	Blinking ouC (overcurrent) error. Make sure you are using fresh 1X running solution. Please contact support@minipcr.com if the problem persists
	Blinking oPn (open) error. The open message can be caused by a variety of reasons. The most common ones are that the buffer chamber is not engaged with the console, that the cover is not fully inserted into the console, and that the buffer chamber has insufficient liquid to connect the two reservoirs. Very dilute buffers can also cause an open error. Please contact support@minipcr.com if the problem persists

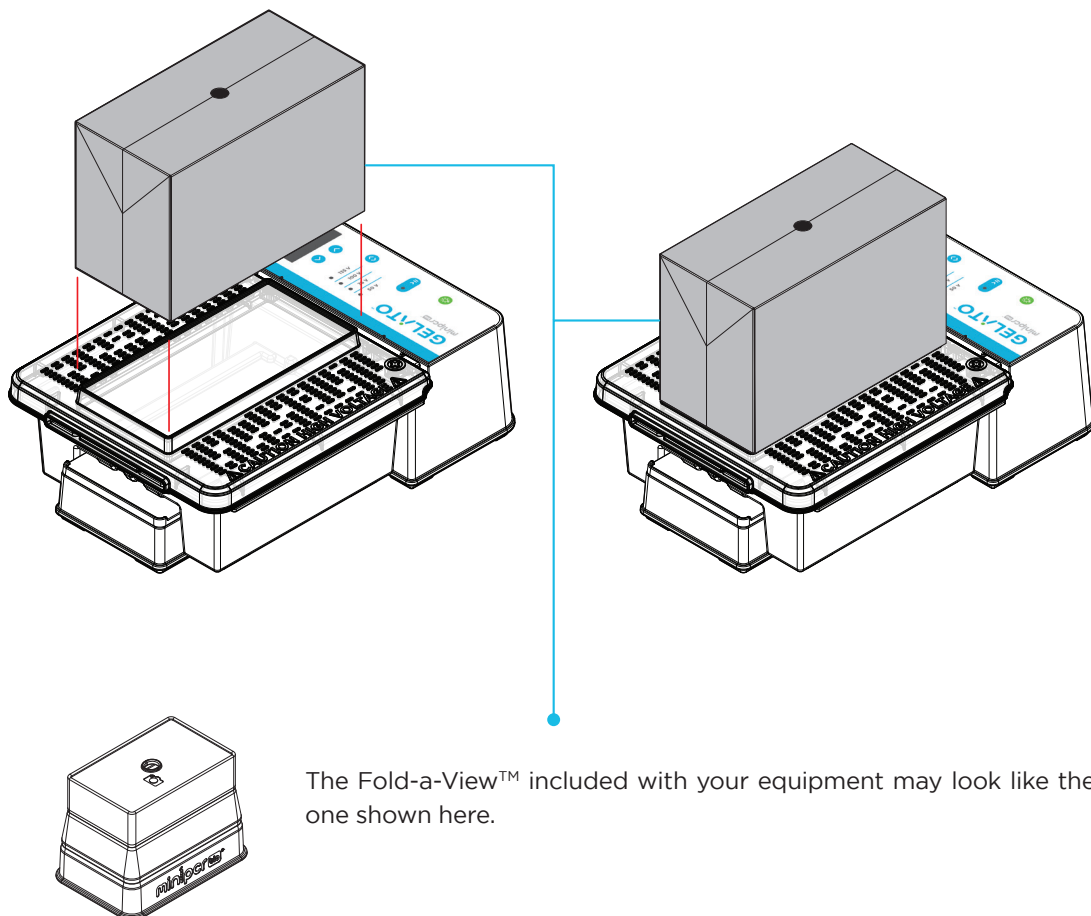
TRANSILLUMINATION

The GELATO system has a built-in blue transilluminator for direct visualization of nucleic acids, eliminating the need of transporting the gel to an image documentation system. The transilluminator is controlled as follows:

- When the unit is not running, one press of the transillumination button turns on the LED panel at 5% intensity. This facilitates visualization of the wells while loading the samples. A second press will adjust the LED panel to full intensity.
CAUTION: Do not turn the LED panel to full intensity without the cover in place. Damage to eyes may occur.
- When the unit is running, one press of the button turns on the LED panel at full intensity.

The LED panel will automatically turn off after five minutes. The shutoff can be disabled with a long press of the transillumination button when the LED panel is on.

The Fold-a-View™ accessory can be placed on top of the cover to darken the chamber, and allows for documentation using a mobile phone or tablet.

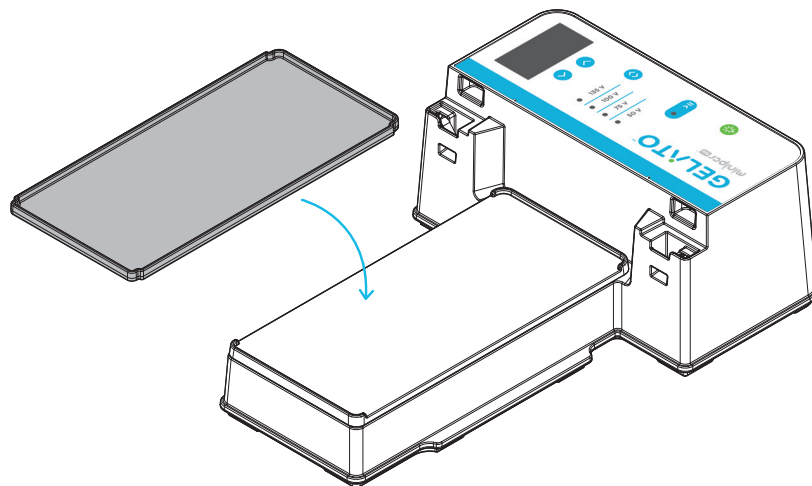


The Fold-a-View™ included with your equipment may look like the one shown here.

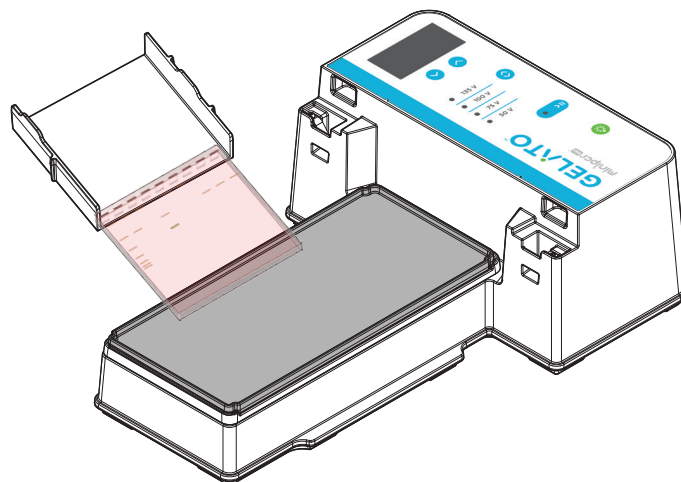
BAND EXCISION KIT

The band excision kit allows for easy extraction of gel portions containing nucleic acids.

- 1 –** Remove the cover and the buffer chamber from the console.
- 2 –** Place the supplied cutting tray on the transilluminator. Not using the cutting tray while using a sharp object may permanently damage the transilluminator.



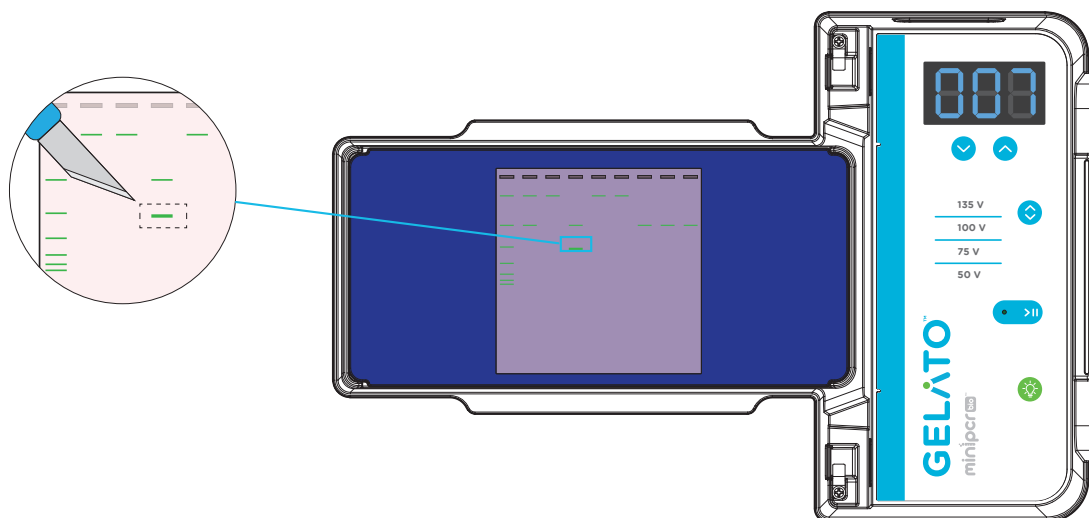
- 3 –** Place the gel on the cutting tray.



- 4 –** Wear the DNA visualization goggles.



- 5 – Turn on the blue light by pressing the transillumination button. Press a second time for maximum intensity.
- 6 – Cut the gel portion of interest.



- 7 – Remove the gel and cutting tray. Rinse the tray with distilled water and dry.

TROUBLESHOOTING

■ Excessive condensation on the cover during a run

Apply ClearView™ anti-fog spray to the inside of the cover before use. Follow instructions on the spray bottle. Additional ClearView™ spray can be purchased on the miniPCR bio website.

■ The gel trays won't fit in the buffer chamber

Ensure that the guides on the sides of the gel tray align with the ridges on the buffer chamber. You may need to rotate the tray 180 degrees.

■ The buffer chamber won't fit on top of the GELATO console

Verify that the buffer chamber is in the correct orientation. The hexagonal metal pins extending down from the buffer chamber should be making contact with the metal clips on the console. Note: In GELATO models without pins and clips, ensure that the tabs of the buffer chamber are facing away from the control panel.

■ The orange cover won't fit on the buffer chamber and/or console

Ensure that the two tabs extending horizontally from the cover are facing the console. Do not use excessive force to slide in the cover.

Document	Date	Description
GELATO User's guide Rev 1	March 20, 2024	Initial release