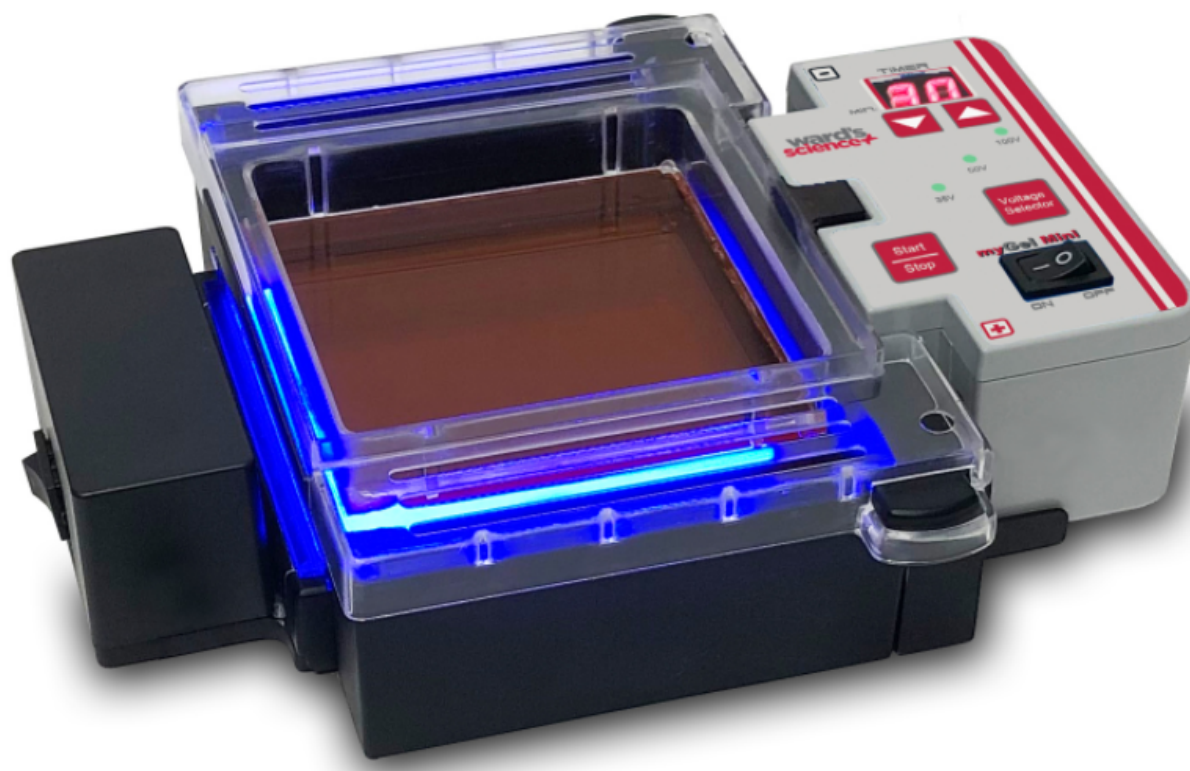




InstaView Electrophoresis System

Operating Manual

Version 1.0



Contents

1. Introduction.....	2
1.1 Included Component List.....	3
1.2 Diagrams of Included Components.....	4
1.3 Specifications.....	6
2. Installation.....	7
3. Warnings.....	7
4. Gel Preparation.....	8
5. Gel Tank Set Up	10
6. Power Supply Operation / Electrophoresis	12
7. Viewing Electrophoresis Progress.....	13
8. Imaging using a smart phone.....	13
9. Maintenance.....	14
10. Troubleshooting.....	14

1. Introduction

Thank you for purchasing the Ward's InstaView Electrophoresis System.

This operating manual includes a product introduction, operating and safety information. Before using the Ward's InstaView, please read this manual in its entirety and be sure to fully understand the features and methods for proper operation. Keep this manual for future reference.

The Ward's InstaView is a complete horizontal electrophoresis system that includes a power supply, gel running tank, safety lid with viewing filter, blue LED transilluminator, and a gel casting set. The system is designed for separating nucleic acids in agarose gels, and allows viewing the stained DNA bands during electrophoresis without removing the gel from the tank. All components and accessories are included for casting and running agarose gels. The blue LED transilluminator and viewing filter are compatible with green fluorescent stains such as Accuris SmartGlow PS, SmartGlow LD, SYBR® Green, and other similar stains that fluoresce under 465nm blue light.

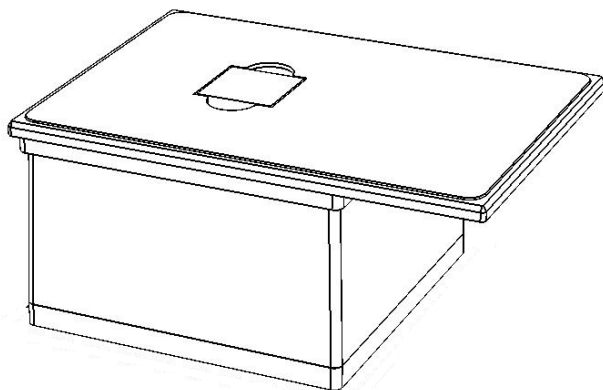


Before use, please read this operating manual in its entirety.

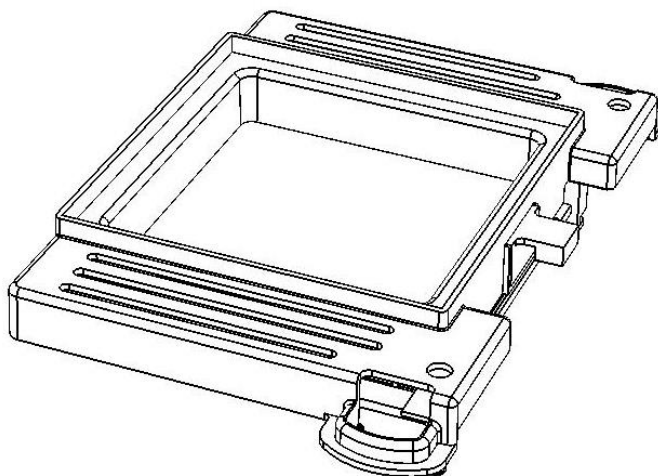
1.1 Included Components

Power Supply	1pc
Gel Running Tank Assembly	1 pc
Blue Light LED Illuminator	1 pc
12VDC Power Supply (for LED Illuminator)	1 pc
Power cord for 115V/230V outlet	1 pc
Gel Casting Stand	1 pc
Gel Casting Divider	1 pc
Long Gel Tray (10.5 x 10cm)	1 pcs
Short Gel Tray (10.5 x 6cm)	2 pcs
Double Sided Comb (12/22 teeth)	2 pcs
AC transformer (only included with 230V model)	1 pc
User Manual	1 pc

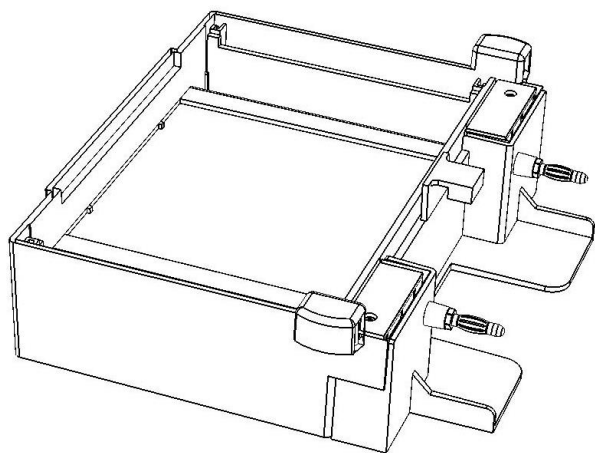
1.2 Diagrams of Included Components



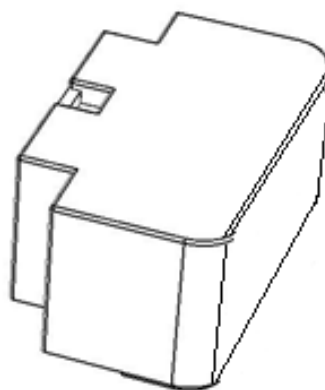
Smart phone imaging enclosure with photo filter



Safety Lid with Integral Viewing Filter



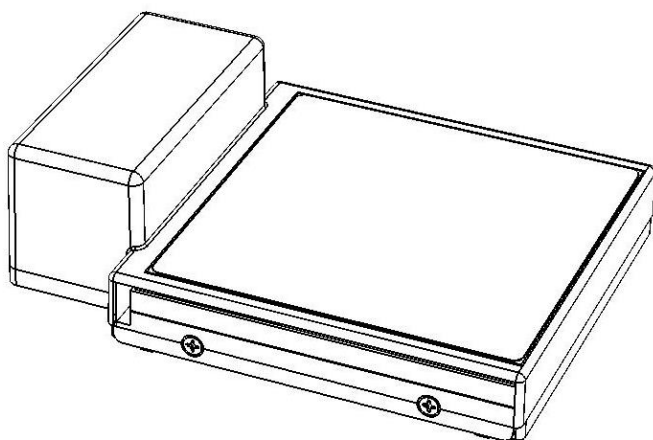
Gel Running Tank



Power Supply



AC Power Cord

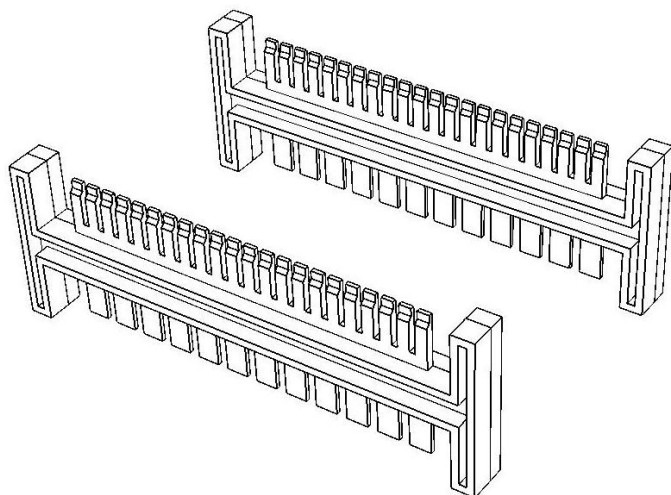


Blue LED Transilluminator

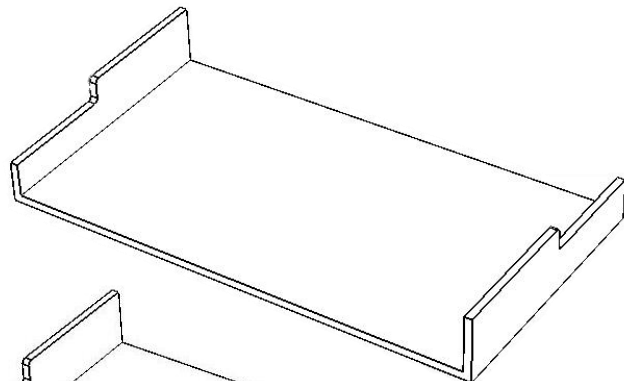


12V Power Adapter

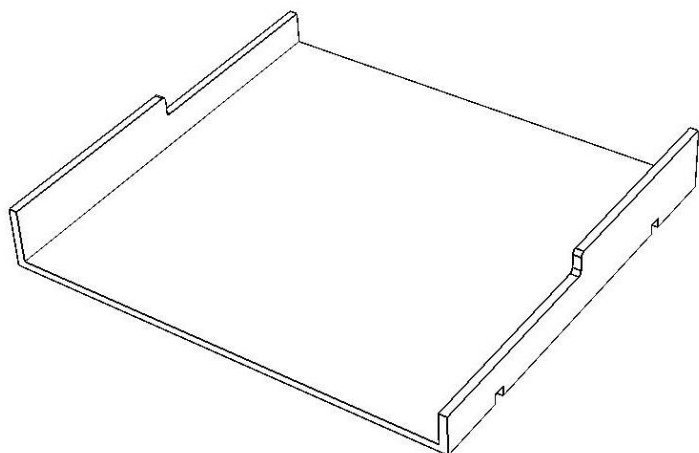
Diagram of Included Components (Gel Casting Set)



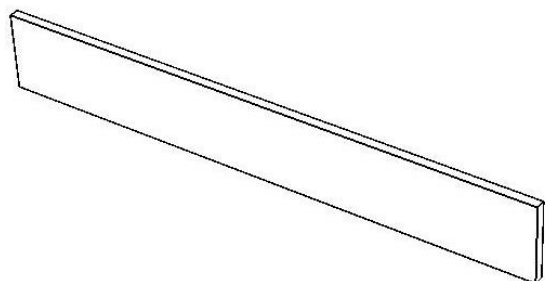
Double Sided Comb (12/22 teeth)



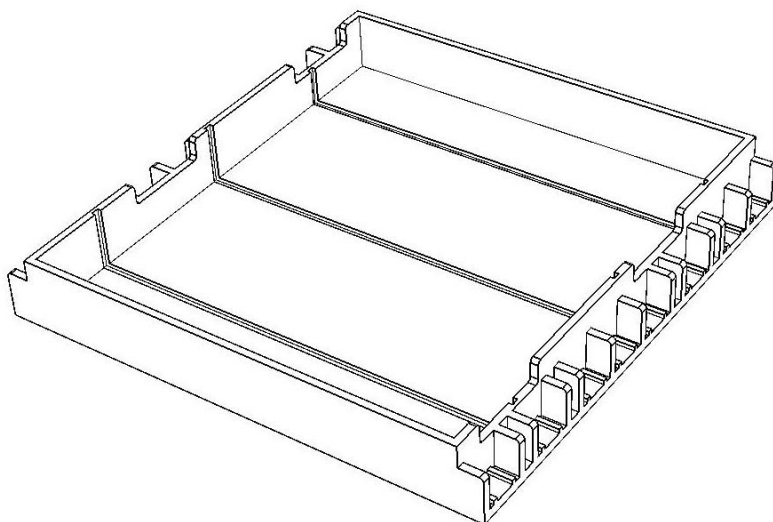
Short Gel Trays (10.5 x 6cm)



Long Gel Tray (10.5 x 10cm)



Gel Casting Divider



Gel Casting Stand

1.3 Product Specifications

Power Supply	
Input voltage	115V 50/60Hz or 230V 50/60Hz (Transformer included with 230V input model)
Output voltage	35V, 50V, 100V
Max power	40 Watt
Timer	0 ~ 99min
Fuse	250V, 2A
Migration Tank	
Dimension	120mm×110mm×45mm (inner dimension)
Buffer volume	200ml-225ml
Electrodes	Platinum wire
Blue LED Transilluminator	
Viewing area dimension	10.5cm x 10.5cm
Wavelength	465nm
Input voltage	12VDC (Power Adapter included for 100VAC to 240VAC input)
Gel Casting Set	
Gel casting stand	Accommodates 10.5cm x 11cm and 10.5cm×6cm trays (Divider included)
Comb specifications	Teeth width x Teeth thickness x Teeth no.) 3mm×1mm×22 5.6mm×1mm×12
Gel trays	10.5cm x 11cm and 10.5cm×6cm

2. Installation

Place the electrophoresis system on a smooth, level surface.

Connect one end of the power cord to the instrument and the other end to an appropriate outlet, the input voltage should be between 100~120VAC. When the input voltage is 220VAC, use the transformer inline.

3. Warnings



To avoid electrical shock, do not use this product with wet hands.



When operating, do not move or bump the system, do not put your finger or any other objects into the migration tank.



Do not detach the power supply module from the migration tank when the power is on. Attempting to do so can cause damage.



Please carefully read this instruction manual before operation to avoid any personal injury. Only trained laboratory personnel should operate the system.



Do not attempt to open or repair the MyGel system. Contact your distributor or Benchmark Scientific for service.



Always use the MyGel in an environment with low humidity and low dust, also keep away from water, direct sunlight / strong light, corrosive gas, high magnetic fields, heaters, fires and other heat sources.



The power switch for the power supply is located on the top of the control panel, press “I” to power on, “O” to turn off.



Always turn off the power after operation. When not in use, detach the power supply and store in an area that is free from moisture and dust.

4. Gel Preparation

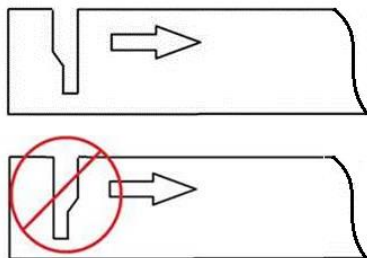
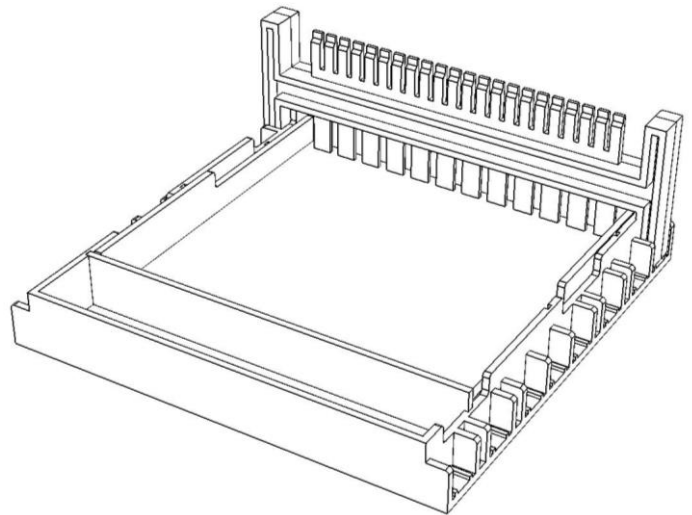
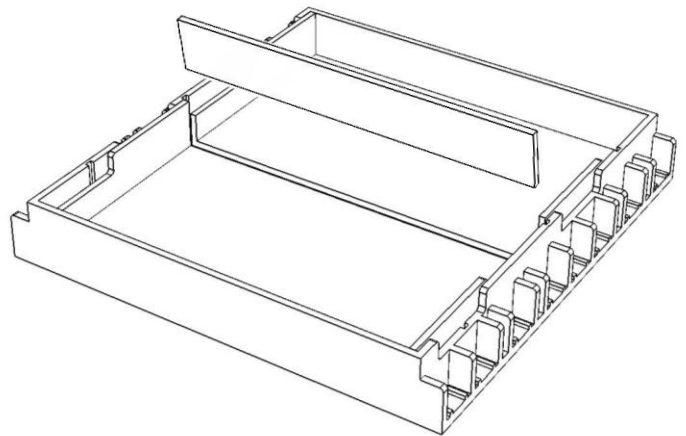
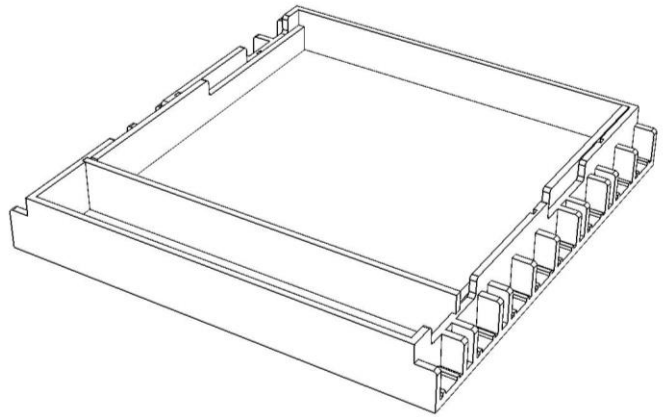
Place the gel casting stand on a level surface, and place the divider and desired gel trays into the proper positions in the stand.

Either one long gel tray, or two short trays can be inserted into the casting stand (see diagrams on right)

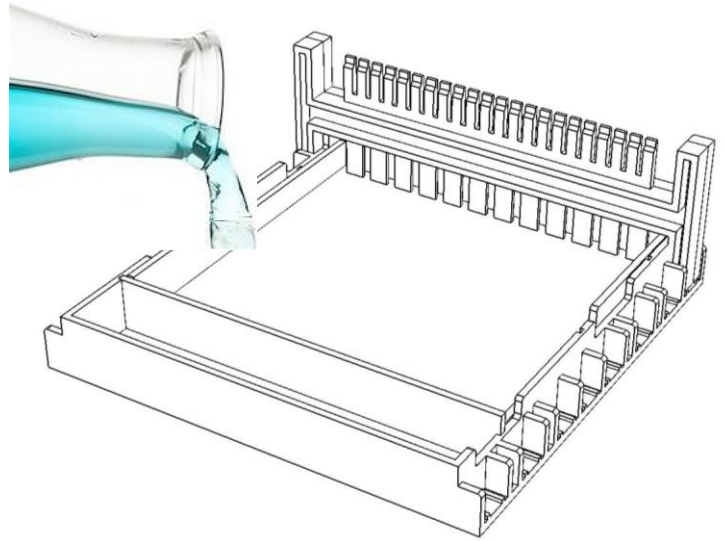
Note: If the gel tray is not level, the thickness of the gel will not be uniform and DNA migration may be uneven.

Insert the comb(s) into the gel casting stand as per photo on the right. Multiple combs can be inserted depending on the number of samples and desired run distance.

Note: when using the fine toothed comb, the flat side of the well comb should be facing the direction of DNA travel. See figure below.

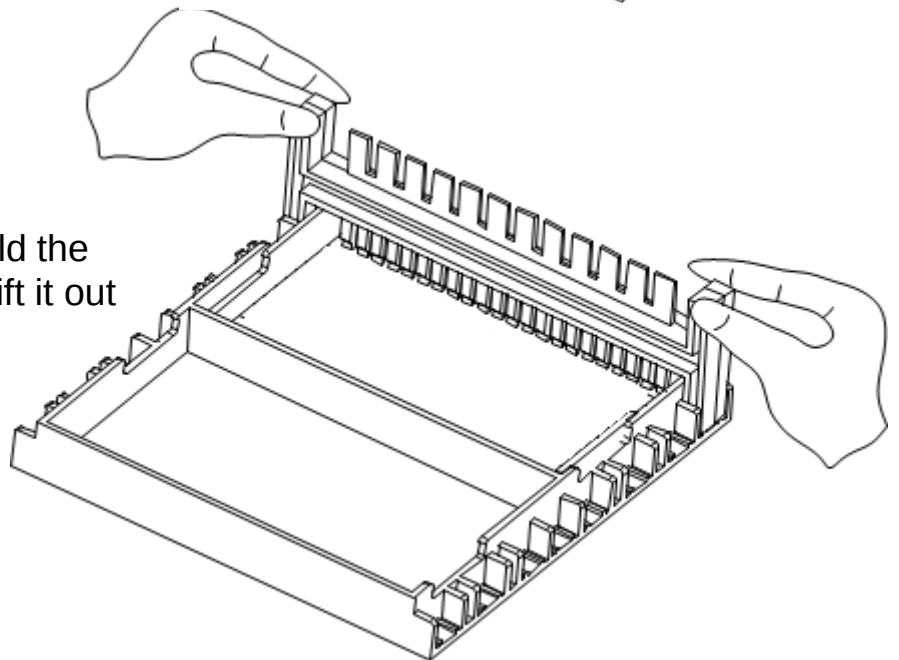


Pour the agarose gel/DNA stain solution into the gel tray to make a gel approximately 4mm thick. Each 6x10.5cm tray requires about 25ml of agarose.

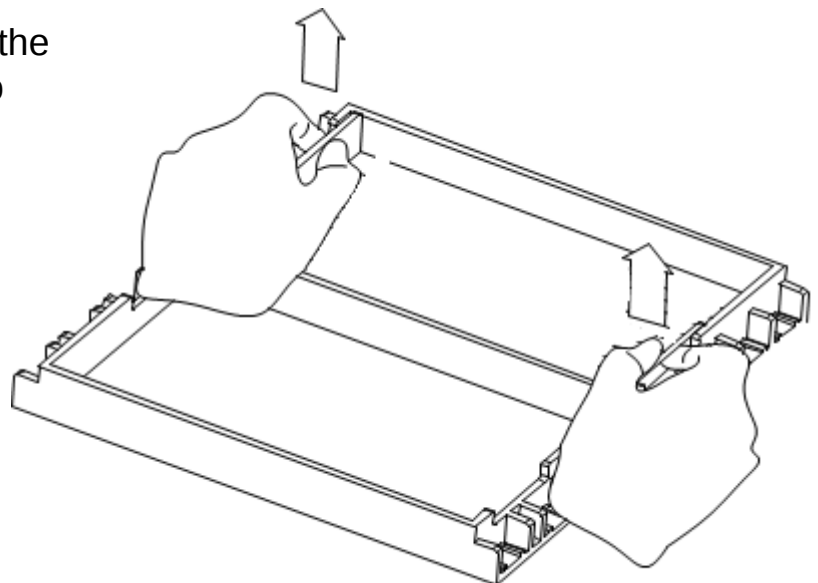


Note: After mixing and heating agarose solution, let it cool to approximately 60° C before pouring into the gel trays

After the gel has solidified (approximately 20 minutes) hold the two sides of comb and gently lift it out of the gel. The wells should be straight and undamaged.



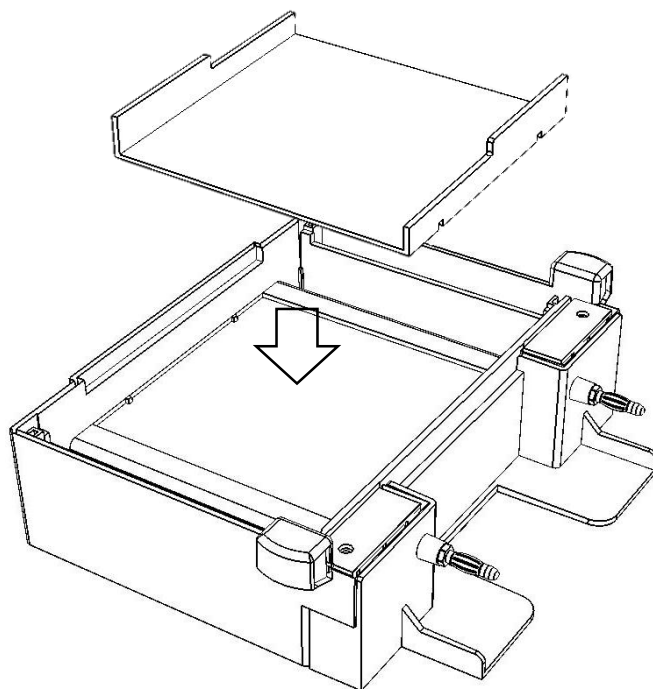
Carefully remove the gel tray with the gel from the stand and place it into the migration tank in the correct orientation. (DNA samples will migrate from the – to + electrode).



5. Gel Tank Set Up

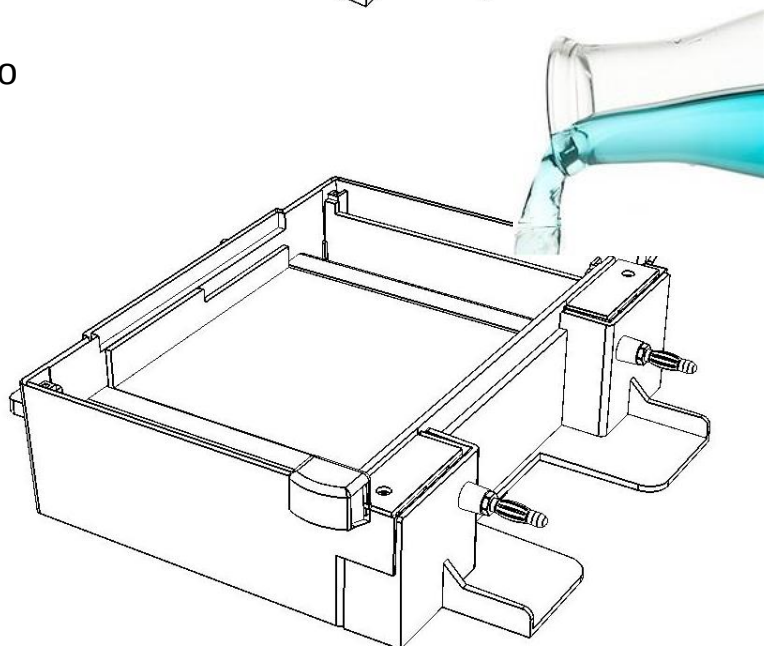
Note: Make sure that the MyGel System is installed on a stable and level surface. This will ensure even sample migration.

Place a prepared gel, together with the gel tray onto the gel bed inside the gel tank.

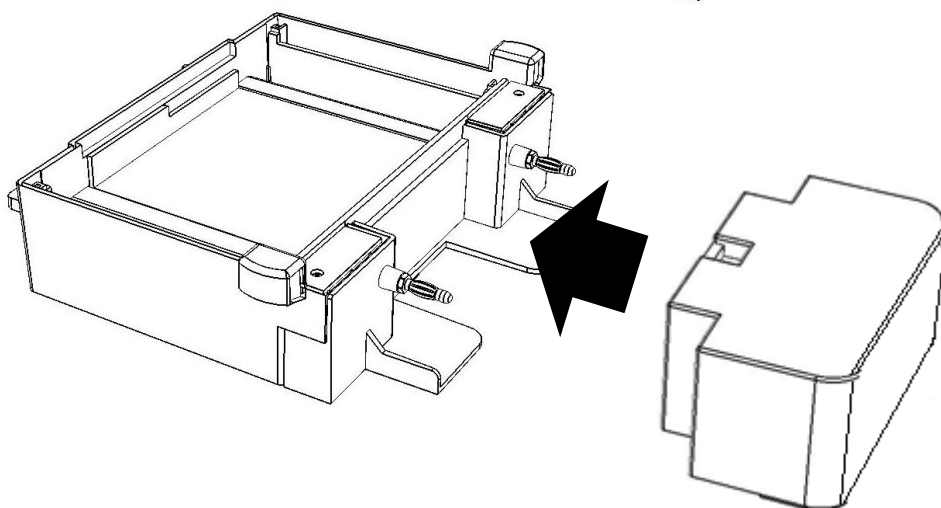


Carefully pour an appropriate buffer solution to a level about 2 mm above the surface of the gel. Typically, 200ml of buffer is required.

It is recommended to use Accuris QuickSilver TAE or TBE at a concentration of 0.5X, or QuickSilver Fast Running buffer at a concentration of 1X.



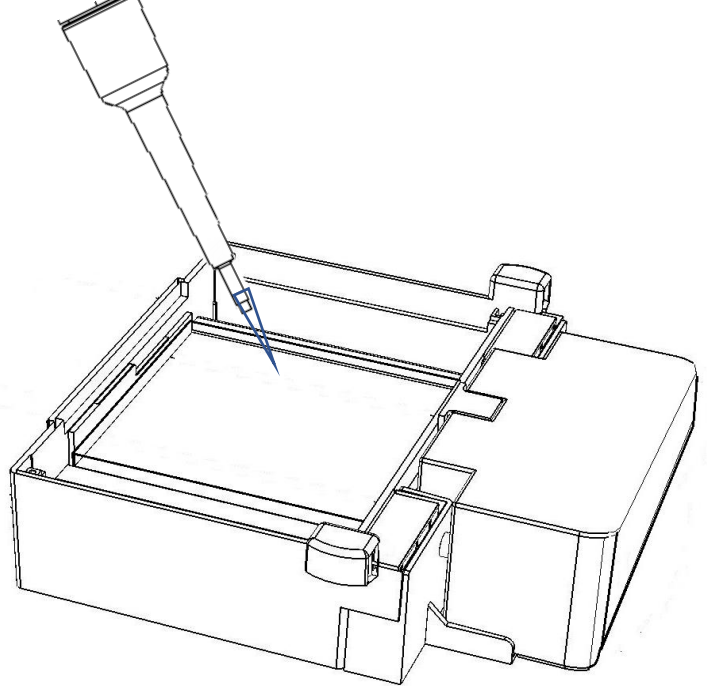
Connect the power supply to the migration tank.



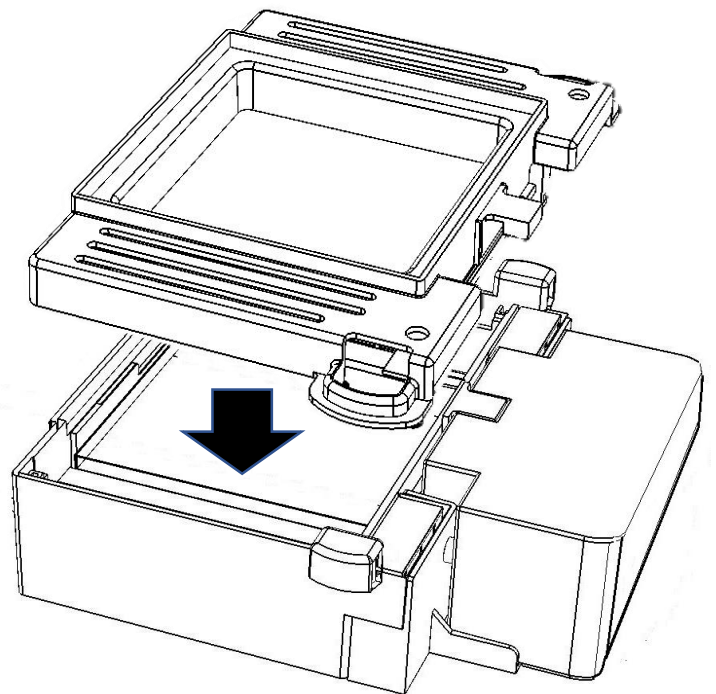
Add DNA samples to the gel

Use an appropriate pipette to carefully dispense samples into the wells of the gel.

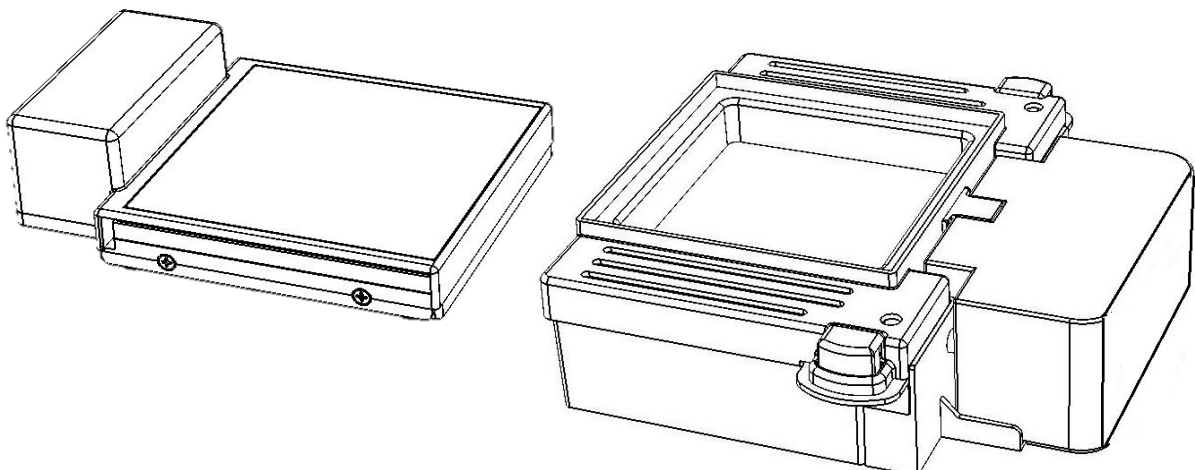
Note: Loading buffer should be mixed with the DNA samples so they will sink to the bottom of the wells.



Carefully lower the safety cover onto the gel tank, making sure to align the magnet with the sensor recess. The orange viewing filter should fully contact the surface of the buffer so there are no bubbles visible. If the buffer level is too low, remove the cover, and add more buffer to the tank.

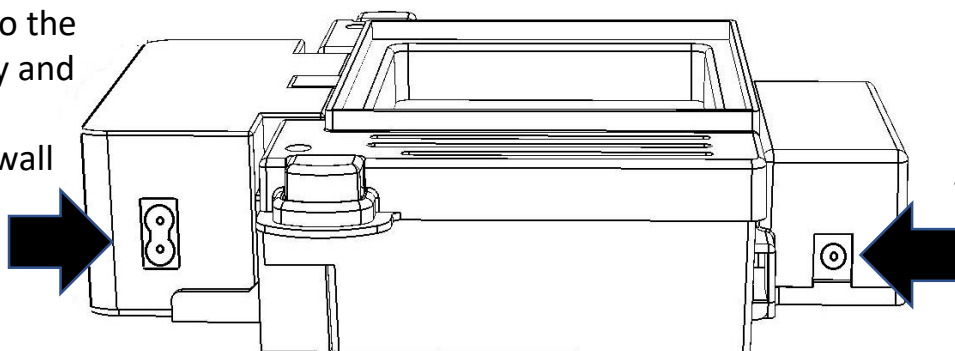


Slide the blue LED illuminator under the gel tank..



6. Power Supply Operation / Electrophoresis

Connect the power cord to the power supply and plug into the appropriate wall outlet.



Connect the 12V power supply to the LED transilluminator

Press ▲ ▼ to set the run time from 1 to 99 min. For a continuous run, set the timer to “00”.

Press the Voltage Selector button to toggle through and select the appropriate output voltage. The LED for the selected voltage will light.

Press the “Start/Stop” button once to start a run. The set output voltage LED will blink to indicate a run is in process. At the end of a timed run, the alarm will beep 3 times, and the display will show “Ed” to indicate END. Press any key to clear “Ed” and set up another run.

To stop a run in process, press and hold “Start/Stop” for 3 second. The voltage LED will stop blinking to indicate the run has stopped.

If removing the gel the end of an electrophoresis run, turn off the power remove the lid and remove the gel tray.

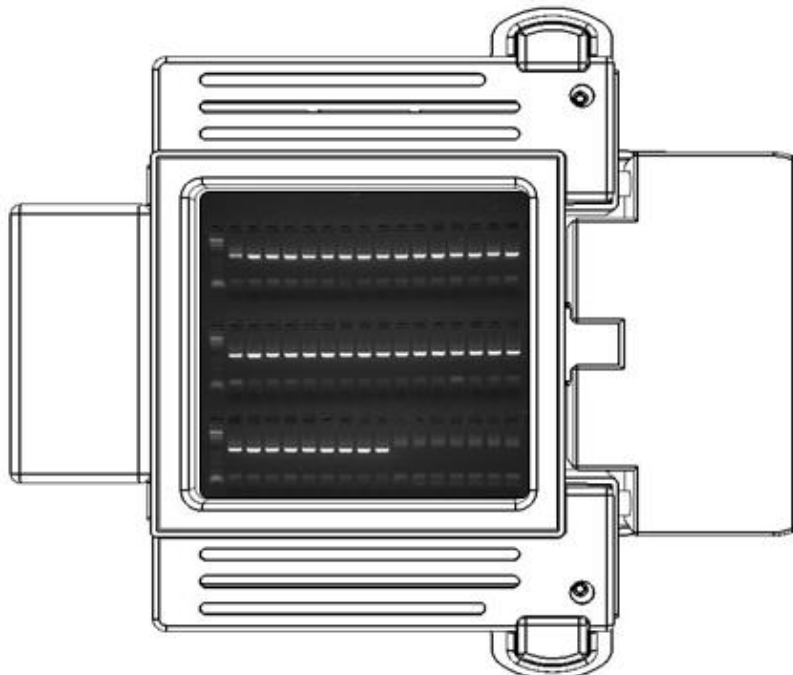


7. Viewing Electrophoresis Progress

To visualize the DNA separation in the gel during electrophoresis, turn on the blue LED illuminator using the ON/OFF switch.

It may be necessary to dim or turn off ambient lights for best viewing results.

The LED illuminator has a built in timer, so the light will automatically switch off after 5 minutes.

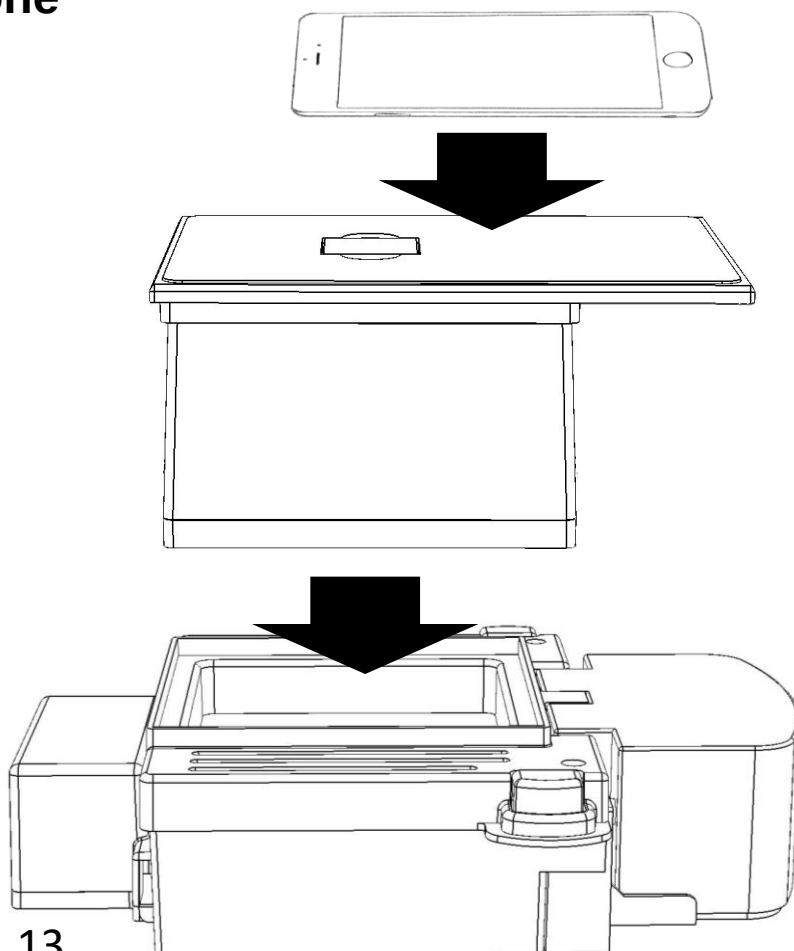


8. Imaging using a smart phone

To take a picture of the gel using a smart phone camera, fit the imaging enclosure onto the lid of the gel running tank.

Insert the included orange photo filter into the top platform of the enclosure. Turn on the smart phone's camera application, and align the camera lens with the photo filter.

Zoom and focus as necessary to optimize the image, and take the picture.



9. Maintenance



Always disconnect the power cords for cleaning. When cleaning the surfaces of the instrument and LED transilluminator, use a damp cloth with mild detergent if needed. Do not use any corrosive solutions that could damage plastic.



When cleaning the gel tank, first separate the Power Supply. Use water or neutral cleaner. Use caution when cleaning the areas near the platinum electrodes at the bottom edges of the gel tank.



Do not submerge the power supply or LED transilluminator in water.



Clean gel casting stands, gel tray and combs with water or a neutral cleaner.

10. Troubleshooting

Problem	Causes	Resolutions
No display	Power not connected. Switch failure. Fuse blown. Controller failure.	Check power supply, Unplug and re-attach power cord. Check fuse. Contact Benchmark for repair.
No Migration	Power switch off, no power, gel inserted backwards	Turn on power switch. Check that gel is properly oriented (DNA will migrate towards + electrode) Contact Benchmark for repair.
Abnormal Electrophoresis Distance	Incorrect input voltage	Check main power supply.
Abnormal heating of buffer or gels	Buffer concentration too high, voltage too high	Use 0.5X TAE/TBE buffer, 1X QuickSilver Fast Running Buffer, or reduce running voltage.
Key function failure	Control panel switch failure	Contact Benchmark for repair.

Troubleshooting (continued)

Problem	Causes	Resolutions
Error E1	Lid opened during run or magnet switch problem.	Seat lid properly. Check magnet on lid..
Error E3	Lid not closed upon start or magnetic switch problem.	Seat lid properly. Check magnet on lid.
Error E5	Electric current not flowing normally. Buffer missing, or concentration too high.	Check proper buffer level in the tank. Check buffer concentration (1X or 0.5X TAE or TBE is standard). Check electrodes and connections.
Error E7	Buffer concentration too high, current too high, power over 50W, or internal electronic problem	Check buffer concentration. Replace electronic board.

Additional Electrophoresis Supplies

Ward's Electrophoresis Buffer Stock Powders (Each pouch makes 1L of 1X solution)	
470318-976	Tris-acetate-EDTA (TAE Buffer) –100 Pouches
470326-134	TAE Buffer – 5 Pouches
470318-978	Tris-borate-EDTA (TBE Buffer) – 50 Pouches
470326-132	TBE Buffer 5-Pouches

Ward's Low EEO Agarose Powder	
470126-234	Ward's Agarose - 5g bottle
470126-232	Ward's Agarose - 25g bottle
470126-230	Ward's Agarose - 100g bottle
470126-228	Ward's Agarose - 500g bottle

Ward's Prepared Agarose (melt-and-pour)	
470233-562	0.8%, 200 ml Bottle
470233-588	2.0%, 200 ml Bottle