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DUAL LED BLUE/WHITE LIGHT TRANSILLUMINATOR

Instruction Manual

Catalogue No. MBE-200BW

Version: V.01A
Issued Date: 2024/05/31

Packing List

- Dual LED Blue/White Light Transilluminator × 1
- Power cord × 1
- L-Shape Amber Filter × 1
- Synthetic Paper Hood × 1

Signed by:
Date:

Major Science is liable for all missing or damaged parts / accessories within 7 days after customer received this instrument package. Please contact Major Science immediately regarding this issue. If no response within such time period from consignee party, that will be consignee party's whole responsibility.

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Warning

Major Science Dual LED Blue/White Light Transilluminator has been tested and found to comply with the limits for the CE regulation. Also, it is RoHS compliant to deliver confident product which meets the environmental directive. These limits are designed to provide reasonable protection against harmful interference when the instrument series is operated in a commercial environment. This instrument series used together with power supply unit 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 instrument series in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their expense. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. It is strongly recommended for the user to read the following points carefully before operating this equipment.

1. Read and follow the manual instructions carefully.
2. Do not alter the equipment. Failure to follow these directions could result in personal and/or laboratory hazards, as well as invalidate equipment warranty.
3. Use a properly grounded electrical outlet with correct voltage and current handling capacity.
4. Disconnect from power supply before maintenance and servicing. Refer servicing to qualified personnel.
5. Never use this instrument series without having the safety cover correctly in position.
6. Do not use the unit if there is any sign of damage to the external tank or cover. Replace damaged parts.
7. Do not use in the presence of flammable or combustible material; fire or explosion may result. This device contains components which may ignite such materials.
8. Refer maintenance and servicing to qualified personnel.
9. Ensure that the system is connected to electrical service according to local and national electrical codes. Failure to make a proper connection may create fire or shock hazard.
10. Use appropriate materials and operate correctly to avoid possible hazards of explosion, implosion or release of toxic or flammable gases arising from overheated materials.
11. The unit shall be operated only by qualified personnel.

Safety Information

Use high level of precaution against any electrical device. Before connecting the electrical supply, check to see if the supply voltage is within the range stated at the rating label, and see to it that the device be seated firmly. Place the unit in a safe and dry location; it must NOT touch the surrounding. Follow the safety precautions for chemicals / dangerous materials. If needed, please contact qualified service representative or service@majorsci.com, info@majorsci.com.

Caution:

Safe blue LED lights of Dual LED Blue/White Light Transilluminator may induce macular degeneration upon prolonged exposure, especially in those prone to such problems (e.g. people with fair complexion and blue eyes, nutritional or endocrine defects or those who are aging).

Environmental Conditions

Ensure the instrument is installed and operated strictly under the following conditions:

1. Indoor use only
2. ≤95% RH
3. 75 kPa – 106 kPa
4. Altitude must not exceed 2000 meters
5. Ambient to 40°C operating temperature
6. Pollution degree: 2
7. Mains supply voltage fluctuations up to ±10% of the normal voltage

Avoiding Electrical Shock

Follow the guidelines below to ensure safe operation of the unit.

Dual LED Blue/White Light Transilluminator has been designed to utilize shielded wires thus minimizing any potential shock hazard to the user. Major Science recommends against the use of unshielded wires.

To avoid electrical shock:

1. In the event of solution spilling on the instrument, it must be dried out for at least 2 hours and restored to NORMAL CONDITION before each operation.
2. Never connect or disconnect wires loading from the power jacks when the red indicator light of power switch is on.
3. WAIT at least 5 seconds after stopping a run before handling output leads or any connected apparatus.
4. ALWAYS make sure that your hands, work area, and instruments are **clean** and **dry** before making any connections or operating the power supply.
5. ONLY connect the power cord to a properly grounded AC outlet.

Avoiding Damage to the Instrument

1. Do not attempt to operate the device if damage is suspected.
2. Protect this unit from physical damage, corrosive agents and extreme temperatures (direct sunlight, etc.).
3. For proper ventilation and safety concerns, keep at least 10 cm of space behind the instrument, and at least 5 cm of space on each side.
4. Use high level of precaution against the damages on the unit.
5. Do not operate the unit out of environmental conditions addressed above.
6. Prior to applying any cleaning or decontamination methods other than manufacturer's recommendation, users should check with the manufacturer's instruction to see if the proposed method will damage the equipment.

Equipment Operation

Follow the guidelines below to ensure safe operation of the unit:

1. NEVER access dangerous chemicals or other materials to prevent possible hazard of explosion and damage.
2. Do not operate the unit without lids or covers to prevent possible hazards.
3. A temporary conductivity caused by condensation might occur even though this series is rated Pollution Degree 2 in accordance with IEC 664.

Symbol

Symbols used on Dual LED Blue/White Light Transilluminator are explained below.

Indicates disposal instruction.

DO NOT throw this unit into a municipal trash bin when this unit has reached the end of its lifetime. To ensure utmost protection of the global environment and minimize pollution, please recycle this unit.

Introduction

Overview

The advanced Dual LED Blue/White Light Transilluminator separates its 580nm amber lid from the body, and makes the illuminator thinner and more lightweight.
Like the previous generation of BluView Transilluminator, it is packed with safe 470nm blue LED light. With imaging size of it is packed with safe 470nm blue LED light, beside this, it is also packed with white LED light.
One machine dual-use, stable and reliable, cost-effective, dual light sources provide more wide ranges of applicability and compatibility in life science and medical diagnosis research fields.
With imaging size of 153x153mm, you could fit any midi to small size gel on top of the transilluminator.
The Dual LED Blue/White Light Transilluminator is also compatible with our imaging system such as Digimage System and Smartview Simple System.

Features

- Both sides integrate two different LED light source
- Portable size and lightweight
- Safe and harmless 470nm blue light wavelength for direct human contact
- Real-time observation
- Efficient and early mistake detection
- Ultra-high light uniformity
- Aluminum alloy casing design
- Low heat dispersion
- Energy saving product

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Component Guide

Top View (two sides)

Side View

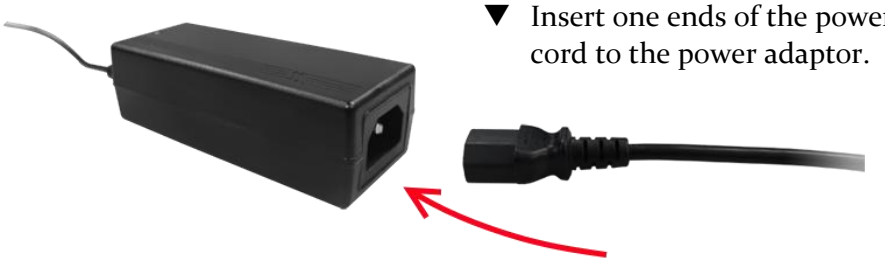
Product Specification

Dimension (WxLxH)	200x200x15.6 mm
Viewing Area	153 x 153 mm
Blue Light Source	12W
White Light Source	12W
Blue Light Wavelength	470nm
Automatic Shutdown	Approx. 6 min
Material	Aluminum alloy
Power Rating	DC 12V, 2A
Weight	Approx. 935.5g

Installation Instruction

Major Science Dual LED Blue/White Light Transilluminator is a fully-assembled product. Place it on a flat, level surface; then you can start up the device once you connect the power cord to AC power. The following instructions show you the correct way of installing the power adaptor.

◀ Place the transilluminator (blue light side or white light side)on the flat and level surface.

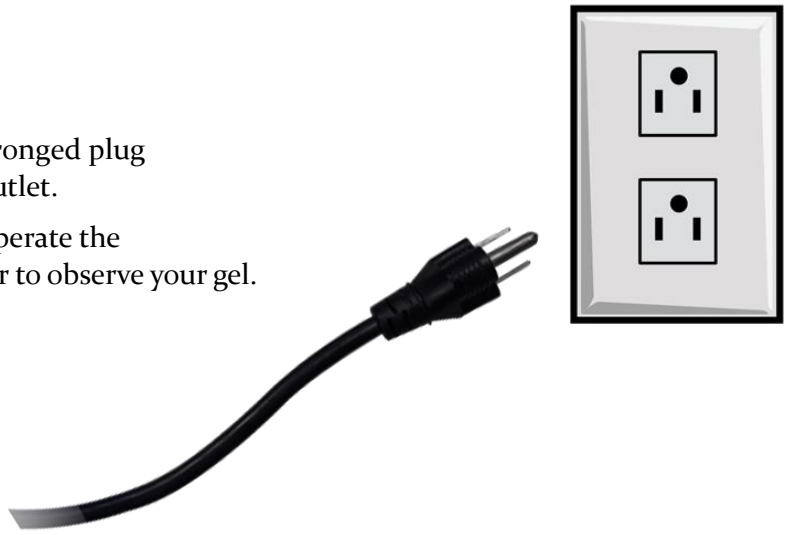


▼ Insert one ends of the power cord to the power adaptor.

◀ Plug the cord of the power adaptor into the transilluminator.

▶ Insert the three-pronged plug into the electric outlet.

Then you can operate the transilluminator to observe your gel.



◀ Switch on the transilluminator.

Operation Instruction

Before using MBE-200BW:

Blue LED Light Side-

To have a better result when documenting with the **blue light** as lighting source, the recommended stain selection guide table is provided below, choose the appropriate dye to have the gel stained:

Nucleic Acid Stain	Performance	Experimental Protocol		
		Pre-staining	Post Staining	Sample Staining
Major Blue	Excellent			√
SYBR® Green I (DNA)	Excellent	√	√	√
SYBR® Green II (RNA)	Excellent		√	√
SYBR® Gold	Excellent	√	√	
Midori Green Driect	Excellent			√
Hydra Green™ Safe DNA Dye	Excellent	√	√	
HD Green™ DNA Stain	Excellent	√	√	
Novel Juice	Excellent			√
SafeView DNA Stain	Good	√		
SYBR® Safe	Good	√	√	
Midori Green	Good	√	√	
Midori Green Advanced	Good	√	√	
Serva DNA Stain Clear G	Good	√	√	
GelGreen ™	Good	√	√	
GelRed ™	NR	√	√	
Ethidium Bromide	NR	√	√	
HealthView ™	NR	√		

**NR= Not recommended*

Once the gel is ready, follow the steps below to operate the device and analyze your experiment result.

Note:
This selection guide serves as a reference only. For the best staining procedures and stain spectrums please refer to manufacturer's protocol/user guide.

White LED Light Side-

To have a better result when documenting with the **white light** as lighting source, the recommended stain method selection guide table is provided below:

Protein Stain/Image	Performance
Coomassie Blue Stain	Excellent
Silver Stain	Excellent
X-Ray film	Excellent

Operating MBE-200BW

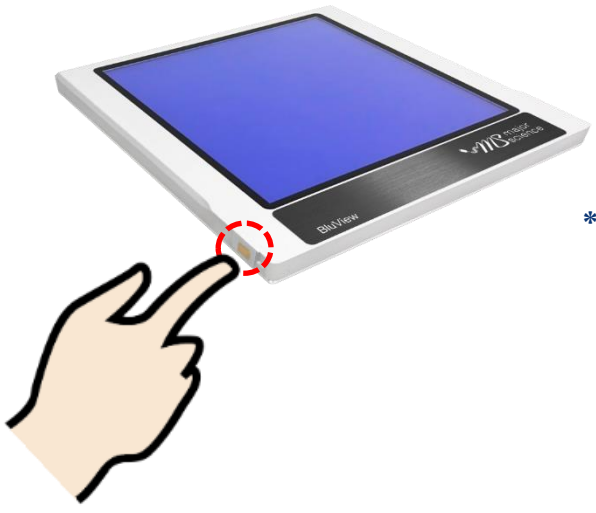
Make sure the device is installed correctly; then you can start up the transilluminator to observe your experiment result.

- Place the gel[*1] on the center of the gel platform.

Note (1):

You'll need to have the gel stained and run the electrophoresis before put it onto the transilluminator.
Gel size should be under 150 × 150mm and 10mm in thickness.

- Place amber filter in front of MBE-200BW before you turn on the blue light.

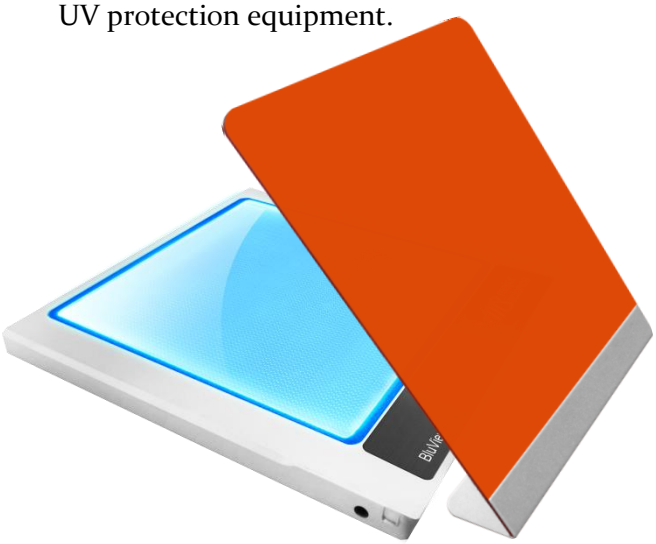


- Switch on the power[*2].

Note (2):

The transilluminator will automatically shut off after powered on over approximately 6 minutes. Switch off the power; then turn on again to activate the blue lights.

- Then you can directly view the experiment result without wearing any UV protection equipment.



Keep the instrument DRY around the switch and other electrical openings. Avoid spilling any liquid into the instrument; otherwise it may cause damage to the internal parts.

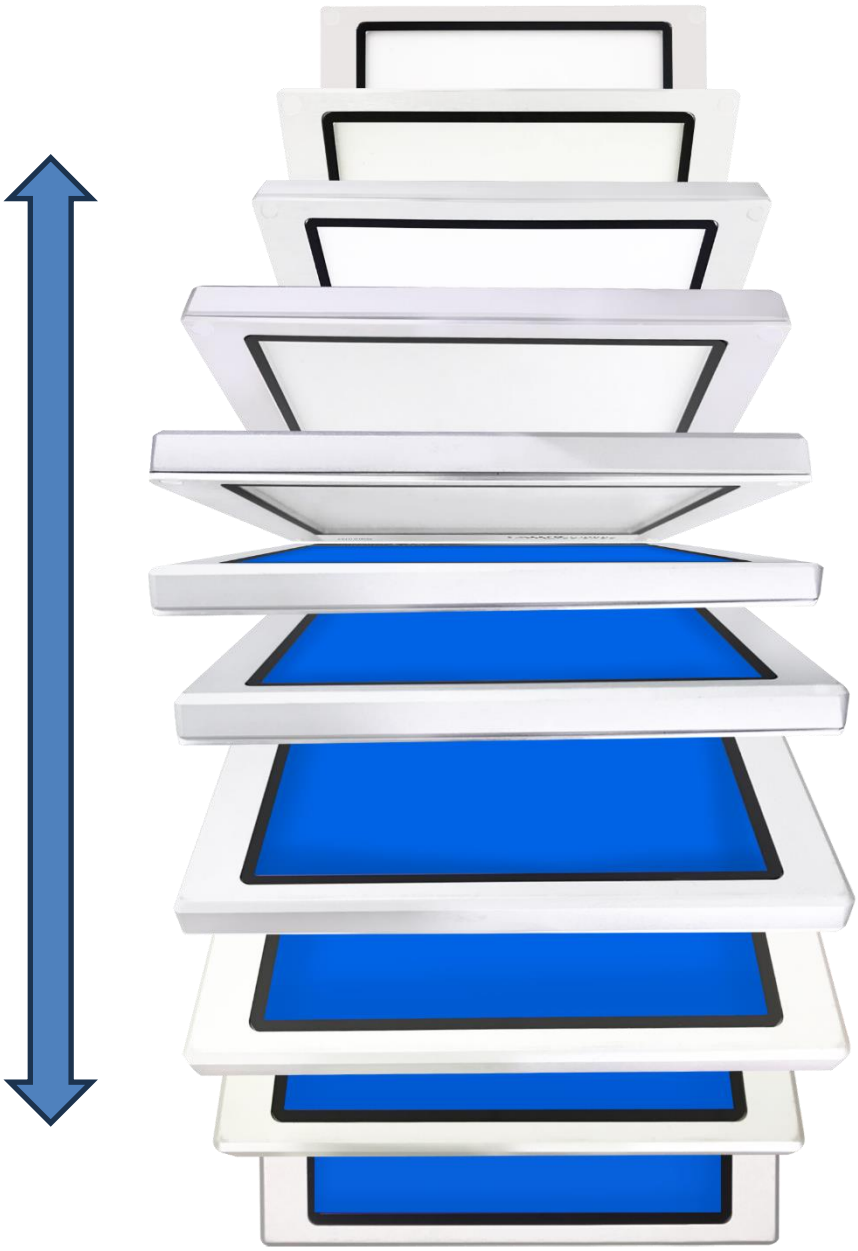
Switch the Blue/White Light Side

You can push the button to switch on the power after choose blue or white light side, then switch off the power directly.

Or you can flip the Dual LED Blue/White Light Transilluminator to switch blue or white light directly, then switch off the power directly.

1. Flip left and right

2. Flip up and down

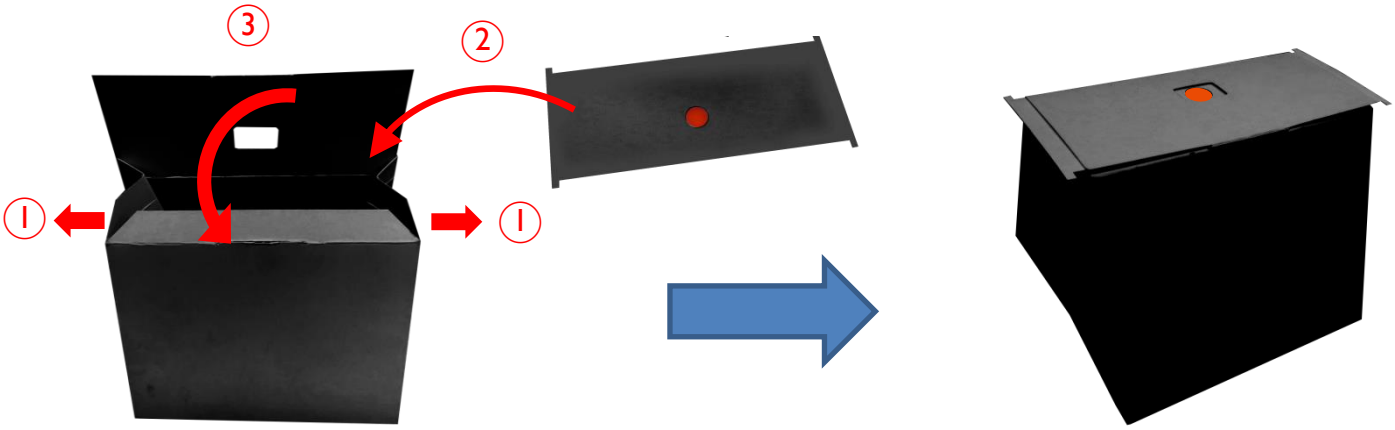


NOTE: Flip the device completed within the 3 second or device will auto-switch off.

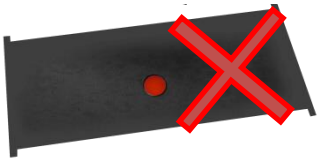
Documenting the Gel

You can adapt the attached paper hood to Dual LED Blue/White Light Transilluminator for documenting the experiment result. Assemble the hood, and cover the transilluminator with it. Then put on your smartphone to document your gel.

Assemble Paper Hood

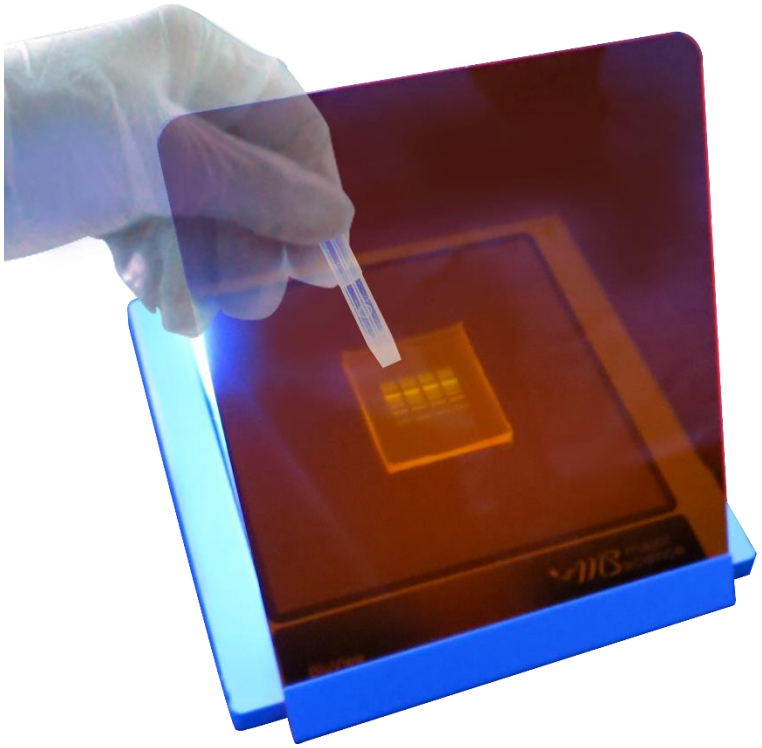


NOTE: Don't need assemble filer part when observed by using white light side.



Cutting the Gel

Both side glasses of MBE-200BW is one kind of tempered glass, in normal operation, this glass is strong enough for gel cutting.
Customer can cutting gel by using plastic gel cutter or using scalpel gently.



NOTE: When cut gel by scalpel with overdo force, the tempered glass still maybe have some scratches.
So please cut gel gently and smoothly when using scalpel.

Troubleshooting & Maintenance

Many operating problems may be solved by reading and following the instructions in this manual accordingly. Some suggestions for troubleshooting are given below. Should these suggestions did not resolve the problem, contact Service Department of Major Science or a local distributor for further assistance. If troubleshooting service is required, please include a full description of the problem.

Troubleshooting Guide

Problems	Possible Causes
Why won't the blue/white light lights up?	You did not connect the power, or connect it wrongly. You did not turn on the power switch.
Why can't I see the DNA/RNA bands clearly under the blue light?	You use the wrong staining dye.
Why won't the blue/white light lights up after reverse transilluminator?	You need to flip transilluminator within 3 seconds.

Maintenance

Wipe clean the device with a damp, soft cloth after use of Dual LED Blue/White Light Transilluminator for daily maintenance. Do not use corrosive detergents or solutions to clean the body, amber filter and gel platform. Besides the above general cleaning and dusting, Dual LED Blue/White Light Transilluminator does not require other preventive maintenance. If the amber filter and gel platform are scratched and affect your observation, replacement is recommended.

Ordering Information

MODELS		
Catalogue No.	**Description**	**Qty.**
MBE-200BW	Dual LED Blue/White Light Transilluminator, 470nm blue light and whole-wavelength white light, viewing area 153x153 mm, including amber filter and synthetic paper hood.	1

ACCESSORY		
Catalogue No.	**Description**	**Qty.**
MBE-LID-AM580	An inclined 580nm amber filter, suitable for MBE-200A, MBE-300 and MBE-200BW	1
MBE-HOOD	Synthetic paper hood	1

Warranty

Major Science warrants apparatus of its manufacture against defects in materials and workmanship, under normal service, for ***one year from the shipping date to purchaser***. This warranty excludes damages resulting from shipping, misuse, carelessness, or neglect. Consumable parts are not covered by our warranty. Major Science's liability under the warranty is limited to the receipt of reasonable proof by the customer that the defect is embraced within the terms of the warranty. All claims made under this warranty must be presented to Major Science within one year following the date of delivery of the product to the customer.

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