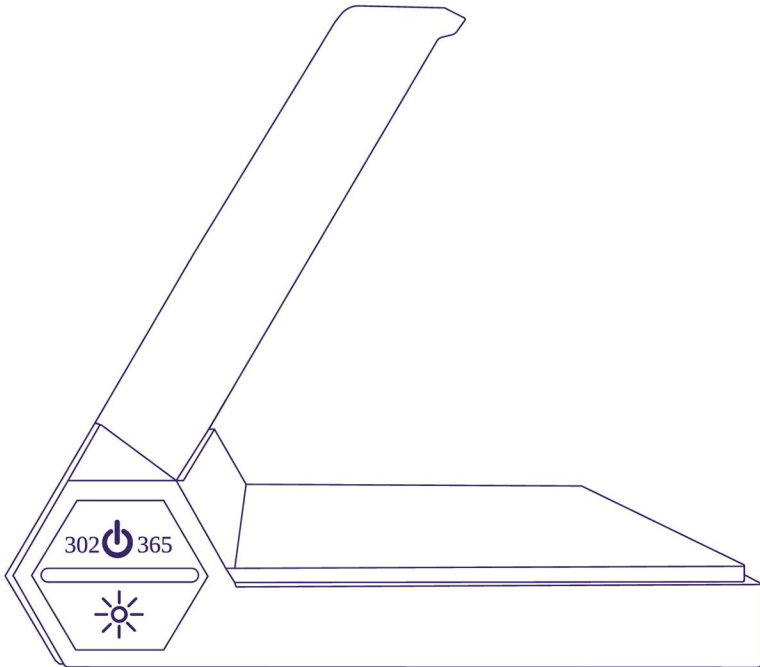


 **VAV** PAD



UVPAD Trio LED 365/302/300nm UV Transilluminator

Catalog Number: UP001CU

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01 Description

INTENDED USE : This UV transilluminator is designed for the qualitative observation and quantitative analysis of nucleic acids and proteins gels in laboratory settings by trained personnel. It is for indoor use only.

This device uses high-performance ultraviolet light-emitting diodes (UV-LEDs) as the excitation light source, replacing traditional mercury UV lamps. It offers advantages such as long lifespan, rapid start-up, and high energy efficiency. Moreover, it contains no mercury or other harmful heavy metals, making it safer for both users and the environment. Its unique backlit illumination design combines three UV wavelengths: 302 nm, 365 nm, and high-power 300 nm, to deliver uniform and adjustable excitation light. This allows flexible adaptation to various fluorescent dyes, chemical stains, and sample conditions, meeting diverse experimental needs.

The device features a compact and durable body with three-level brightness adjustment, light shielding, and safety power cut-off functions, enhancing experimental sensitivity, operational convenience, and user safety. When used with a miniDarkroom, observation efficiency is further improved, and image capture can be completed quickly. As this device is specifically designed for the qualitative observation and quantitative analysis for both nucleic acids and proteins, it is widely applicable in molecular biology, proteomics, clinical research, and educational laboratories, which makes it an essential piece of device in modern life science research.

02 Modes

365 nm Wavelength Mode

Activation: The red indicator light glows to indicate the 365 nm mode has been switched on by pressing the power button once.



This mode uses a UV-LED with a wavelength of 365 nm as the excitation light source, which is suitable for fluorescent dyes or luminescent chemical labels that can be excited by 365 nm UV light.

Applicable samples include nucleic acids, proteins, or other target molecules labeled with fluorescent markers. It is ideal for both qualitative observation and quantitative analysis. This mode offers three levels of intensity, allowing users to select the optimal intensity based on sample concentration and imaging needs, enhancing contrast and image clarity to ensure optimal viewing and photo capture.

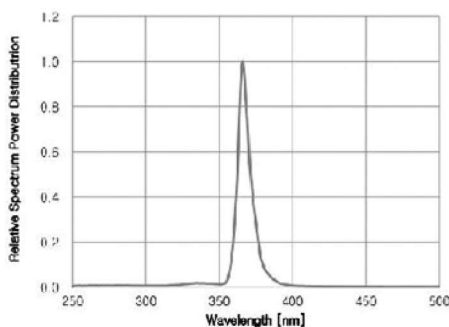


Figure 1. Excitation Spectrum in 365 nm Wavelength Mode

302 nm Wavelength Mode

Activation: The green indicator light glows to indicate the 302 nm mode has been switched on by pressing the power button twice, or once after the 365 nm mode.



This mode uses a UV-LED with a wavelength of 302 nm as the excitation light source. It is suitable for fluorescent dyes, ethidium bromide (EtBr), or luminescent chemical labels that can be excited by 302 nm UV light.

Applicable samples include stained nucleic acids, proteins, or other target molecules labeled with fluorescent markers. It is ideal for both qualitative observation and quantitative analysis. This mode also offers three levels of intensity, allowing users to select the optimal intensity based on sample concentration and imaging requirements, improving contrast and image clarity for optimal observation and photography.

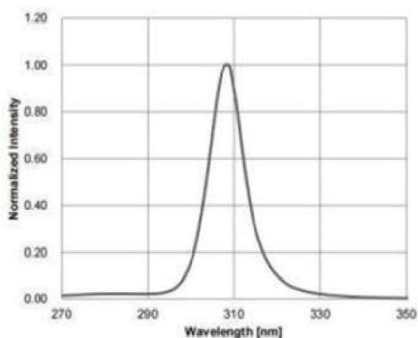


Figure 2. Excitation Spectrum in 302 nm Wavelength Mode

300 nm High-Power Wavelength Mode

Activation: The blue indicator light glows to indicate the 300 nm high-power mode has been switched on by pressing and holding the power button for 5 seconds, a design to prevent switching on accidentally.



This mode is equipped with a high-intensity 300 nm UV-LED as the excitation source, delivering an output intensity of 6,000–8,000 $\mu\text{W}/\text{cm}^2$. It is suitable for fluorescent dyes, luminescent chemical labels, or pre-cast gels that respond to high-energy UV light.

This mode is especially ideal for applications where samples need to be quickly identified by the naked eye. It provides stable and concentrated UV energy, enabling fast imaging and high-efficiency observation to ensure accurate results and enhanced operational efficiency.

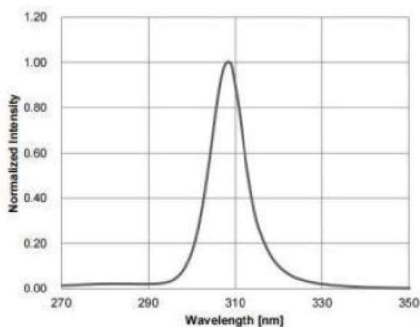


Figure 3. Excitation Spectrum in 300 nm Wavelength Mode

【Note】 : Brightness adjustment is not available in this mode.

【Note】 : This mode is limited to the central area of 12.0(W) × 10.0(L) cm.

03 Features

Triple-Wavelength UV Design (365 nm / 302 nm / 300 nm)

Wide application range suitable for fundamental life sciences, medical diagnostics, molecular biology, and related research fields.

Magnetic Lid Design

Utilizes a hinge-free magnetic attachment structure for easy, safe, and durable operation. Equipped with a UV-Shielding Cover that enables direct sample observation, gel cutting, and photography while preventing biological damage.

Auto Power-Off When Lid Is Detached

The device will automatically shut down if the UV-Shielding Cover is not properly installed, preventing accidental UV leakage and enhancing operational safety.

Auto Shut-Off Function

To protect the device and prevent potential risks caused by oversight, this product is equipped with an auto shut-off feature.

- 365 nm / 302 nm Modes: Automatically shuts off after 5 minutes of operation.
- High-Power 300 nm Mode: Automatically shuts off after 7 minutes of operation.

Bottom-Illuminated LED Design

The system is equipped with long-lasting, maintenance-free, bottom-embedded LEDs, eliminating the need for tube replacement and the risk of harmful gas emissions. The bottom-up lighting design significantly reduces refraction and diffraction commonly associated with side lighting, thereby enhancing image clarity and photography quality,

Three-Level Brightness Adjustment

Brightness levels can be adjusted based on sample concentration or observation requirements by pressing the brightness button (as shown in the image below) when operating in the 302 nm or 365 nm wavelength modes. This function is not available in the 300 nm high-power wavelength mode. Brightness adjustment ensures optimal image contrast and viewing quality.



Durable and Lightweight for Versatile Use

The alloy housing provides a balance of stability and portability. Its compact and durable design makes it suitable for both laboratory use and field applications.

04 Specifications

Intended Use : For qualitative observation and quantitative analysis of nucleic acids and proteins gels in laboratory settings.

Unit Dimensions : (W × L × H) 23.0 × 20.1 × 5.1 cm

Viewing Area : (W × L) 365 nm / 302 nm Modes: 21.0 × 13.0 cm
300 nm Mode : 12.0 × 10.0 cm

Power Adapter Input : 100–240 VAC ±10%, 50/60 Hz, 1.5–0.8A
Output : 24V DC, 2.5A (60W)

LED Light : Source Built-in UV 365 nm, UV 302 nm, and UV 300 nm LED modules

LED Lifespan : >5,000 hours

Emission Wavelengths : 365 nm / 302 nm / 300 nm

Operating Environment : Indoor use only. Altitude up to 2,000 m.

Operating Temperature : +5 °C to +40 °C

Operating Humidity : Max. 80% RH for temperatures up to 31 °C, decreasing linearly to 50% RH at 40 °C.

Storage Temperature : +4 °C to +50 °C

Auto Power-Off Time : 365 nm / 302 nm Modes: 5 minutes
High-Power 300 nm Mode: 7 minutes

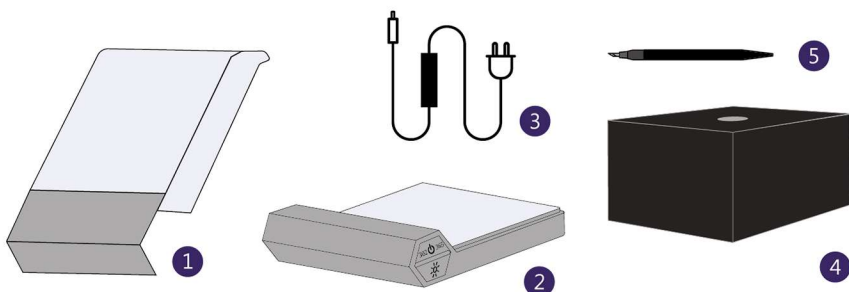
Filter Type : UV-blocking Polycarbonate

Pollution Degree : Degree 2

Overvoltage Category : Category I
(Equipment supplied via AC Adapter)

Certifications : CE / ETL

05 Contents



- ① UV-Shielding Cover
- ② Transilluminator Base
- ③ Power Adapter
- ④ miniDarkroom
- ⑤ Gel-Cutting Knife and Replacement Blades

06 Operation Instructions

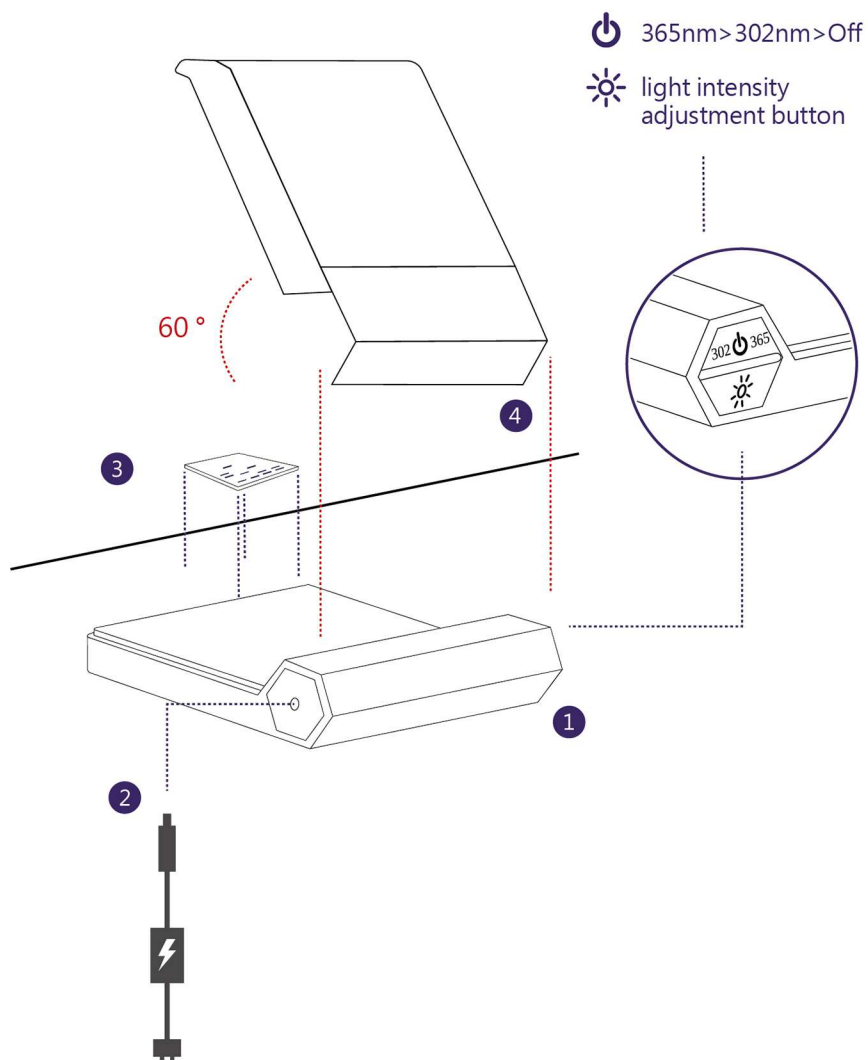
Safety Preparation Warning:

The responsible body (operator or institution) must ensure that all protective guards, including the magnetic UV-shielding cover and any screws or fasteners, are intact and correctly installed on the device before operation. Do not operate the device if any protective part is missing, damaged, or improperly fitted.

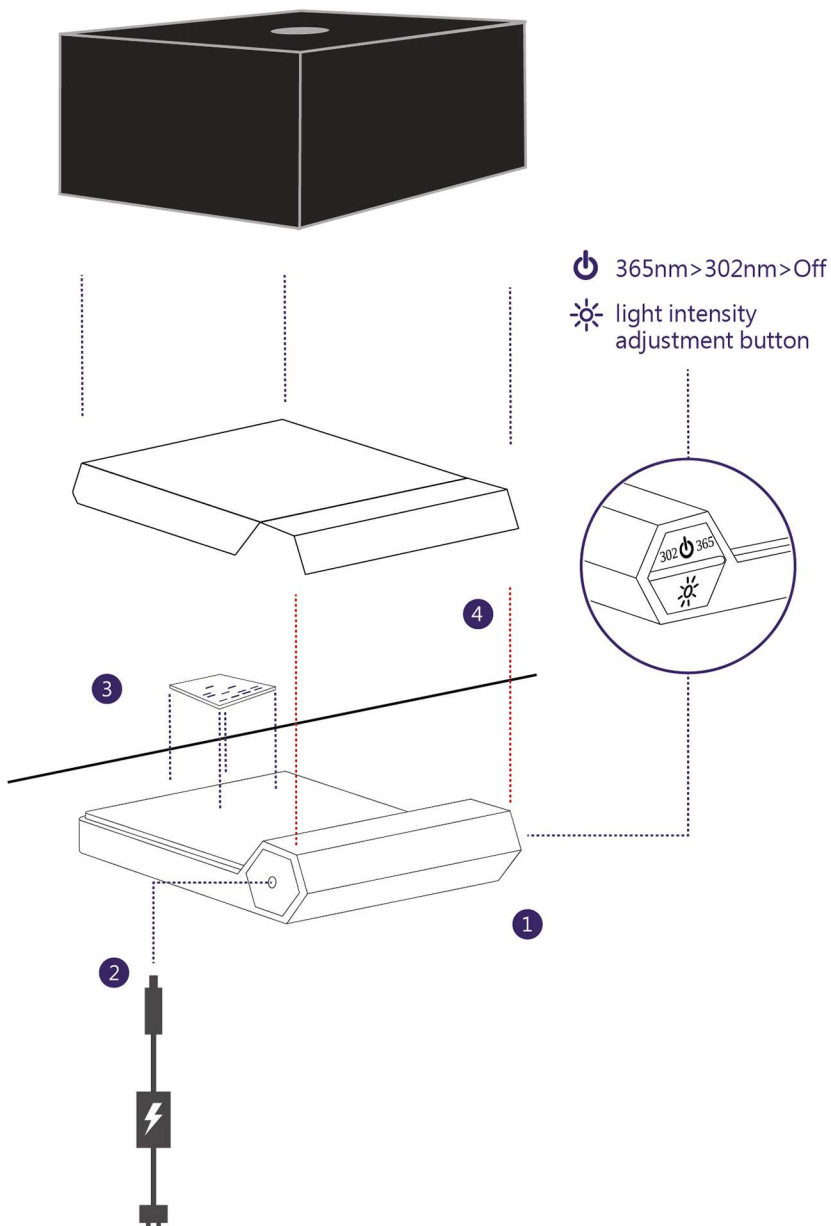
General Setup Instructions:

- Place the device on a stable, horizontal surface with sufficient ventilation.
- Connect the power cable and plug it into a power outlet.
- Position the gel sample on the center of the black glass area.
- Attach the UV-Shielding Cover magnetically to the Transilluminator Base. (Horizontal for imaging/high-power mode; angled at 60° for gel cutting).

Gel Cutting :



Imaging :



Mode Selection:

- Press Power Button once: Activate 365 nm mode (red indicator)
- Press Power Button twice: Activate 302 nm mode (green indicator)
- Press Power Button a third time: Turn off device
- For 300 nm high-power mode: Press and hold Power Button for 5 seconds (blue indicator)

Brightness Adjustment (365 nm / 302 nm mode only):

- Default: 50%
- Press once: 75%
- Press twice: 100%

High-Power 300 nm Mode Note:

- This mode does not support brightness adjustment
- Sample must be placed strictly within the 12 × 10 cm central zone of the glass area

Use of miniDarkroom:

- For optimal imaging and reduced ambient light interference, use the provided miniDarkroom.

Auto Power-Off Function:

- The device will automatically power off after 5 minutes of continuous operation to ensure safe use and prevent prolonged UV exposure.
- The device will automatically shut down if the UV-Shielding Cover is not properly installed, preventing accidental UV leakage and enhancing operational safety.

Equipment Function Verification:

If a hazard could be caused by a failure to detect a target substance (e.g., in diagnostic or safety-critical applications), users must verify the performance of the UV illumination and their visual observation by running a control sample with a known positive result or a sample known to contain the target substance prior to analyzing unknown samples.

07 Troubleshooting

Refer to the table below to troubleshoot problems that you may encounter when viewing with the UVPAD Trio LED 365/302/300 nm UV Transilluminator.

Issue	Possible Cause	Solution
Can't turn on the power	- The power cable is not properly connected - Microcontroller crashing	- Ensure the power adapter is correctly plugged in and connected to a power outlet - Disconnect and reconnect the power to reset the device
Sample image not visible or poor image quality	- Incompatible wavelength and sample dye - Sample concentration too low - Low brightness setting	- Verify the selected wavelength matches the excitation range of the fluorescent dye - Increase the sample concentration - Adjust the brightness level
Protein band not visible	- Dye is not UV-excitable- Gel is not UV-responsive	- Confirm that the protein stain can be excited by UV light - Make sure the precast gel used is UV-excitable and suitable for imaging
Fogging on UV-Shielding Cover	- Moisture condensation from warm gel inside the chamber - Humid environment - Heat accumulation under the UV-Shielding Cover	- Allow the gel to cool slightly before placement - Apply anti-fog spray or wipes to the inner surface of the UV-Shielding Cover

08 Related Ordering Information

Warning :

For safety and performance, use only accessories, consumables, and spare parts that meet the manufacturer's specifications. The use of non-approved accessories may impair the safety, performance, and warranty of this equipment.

Cat. No.	Descriptions
UP001-Base	Transilluminator Base
UP-Blocker	UV-Shielding Cover
UP-AC60W	60W 24V 2.5A Power Adapter
UP-miniDR	miniDarkroom
UP-KNIFE	Gel Cutting Knife Set

09 Maintenance

Warning :

Prior to Maintenance:

Before performing any cleaning or maintenance, disconnect the device from power. After maintenance, the responsible body must verify that all protective guards and panels are securely reattached and that no screws or fasteners are loose or missing before restoring power and using the device.

Cleaning

After each use, turn off the device and unplug it. Remove the gel sample, then clean the black glass surface, UV-Shielding Cover, and device body using a soft cloth slightly dampened with clean water, preferably deionized water.

Do not use any chemical cleaners, detergents, alcohol, solvents, or corrosive substances, as they may permanently damage the black glass.

Avoid overly wet clothes to prevent moisture intrusion. After cleaning, ensure all surfaces are completely dried with a clean, dry cloth before storage or further use.

A protective film is applied to the black glass at shipment. After cleaning, reapply it to reduce air exposure and maintain surface cleanliness.

*Caution: Persistent water streaks on the black glass surface are caused by oxidation-related changes in the material. This is a normal condition that does not affect sample observation or imaging quality. The device remains fully functional for regular use.

Blade Replacement

To replace the blade, unscrew the silver handle connector from the head by turning it counterclockwise. Push out the blade holder from the knife head. Remove the old blade and insert a new one into the X-shaped blade slot. Reattach the silver handle connector and tighten it by turning clockwise to secure the knife head.

*Caution: The blade is extremely sharp. Handle with care to avoid injury.

10 Warranty and Service

This device is covered by a one-year limited warranty from the date of purchase, covering defects in materials and workmanship under normal use. During this period, defective parts will be repaired or replaced at no charge.

Only original manufacturer parts are permitted for replacement. The use of non-approved or third-party components will void the warranty.

The warranty does NOT cover:

- Improper operation or misuse
- Unauthorized repairs or modifications
- Damage resulting from the replacement of external components
- Use of non-approved accessories or parts
- Accidents, external impact, or natural disasters
- Corrosion caused by improper solvents or sample materials

This warranty is limited to the repair or replacement of defective parts and excludes any other liabilities, whether direct or consequential.

For service or product inquiries, please contact your local distributor and provide the model and serial number of the device.

11 Appendix

Explanation of Symbols and Warnings

- **CE Mark:** This product bears the CE marking to indicate conformity with the applicable European Union directives and regulations. The conformity has been demonstrated by the manufacturer through self-certification (EU Declaration of Conformity) under the relevant harmonised legislation.



- **ETL Certification:** This product has been ETL certified for safety in the United States and Canada, in compliance with applicable local standards.



Warning

This product must be installed and operated in accordance with local regulations to ensure safe usage. Please consult the user manual for further guidance.

Waste Disposal & Environmental Protection

When decommissioning this device, do not dispose of it as unsorted municipal waste. To minimize the environmental impact of electronic waste, follow your local waste disposal regulations. If you are uncertain about the correct procedure, please contact your local environmental authority.

Safety Information

This device is a professional laboratory device. Please observe the following safety precautions when in use:

Moisture and Water Protection:

- Do not touch the power cord, plug, or outlet with wet hands.
- Do not operate the device in damp environments, on wet surfaces, or where water accumulation may occur.

Electrical Safety:

- Use only the power cable provided by the manufacturer and ensure it is correctly connected to the power input on the side of the device.
- The other end of the power cable must be plugged into a grounded power outlet, and use an appropriate plug adapter if required.
- Always turn off and unplug the device before cleaning to avoid electrical shock.
- Do not attempt to disassemble, open, or modify the device, as this may result in damage or injury.

- After each use, turn off the device and unplug the power cable from the outlet to avoid unintentional activation and protect against power surges.

UV Radiation Safety:

- This device emits ultraviolet (UV) light that can cause harm to eyes and skin.
- Always use the UV-Shielding Cover during operation, especially when the lid is open.
- Wear UV-protective safety glasses and gloves at all times when handling gels.

Operation and Placement:

- Place the device on a stable, horizontal surface to prevent gel slippage, accidental movement, or falls that may damage the instrument or compromise safety.
- When not in use for an extended period, store the device in a dry, stable, and designated location away from direct sunlight, moisture, and areas prone to accidental access or misuse.

Transport and Storage:

The manufacturer specifies that the device must be transported and stored under the following environmental conditions to prevent damage:

- Temperature: +4°C to +50 °C
- Relative Humidity: 10% to 80%, non-condensing
- Atmospheric Pressure: 500 hPa to 1060 hPa

Avoid exposure to direct sunlight, extreme temperature fluctuations, corrosive chemicals, and excessive vibration or mechanical shock.



Warning :

This device emits ultraviolet (UV) radiation, which is invisible to the human eye. Because UV light cannot be seen, accidental exposure may go unnoticed and cause damage to skin or eyes. Do not look directly at the light source or expose unprotected skin. Always operate the device with the UV-shielding cover properly in place, and follow all safety procedures outlined in this manual to ensure safe usage.

REGULATORY NOTICE :

This device has been engineered and certified in accordance with applicable safety and regulatory standards. Its safe and compliant operation is assured only when used strictly in accordance with the procedures and guidelines outlined in the official user manual. Any unauthorized modifications, alterations, or deviations from the specified operating conditions are strictly prohibited.

Modifying the device may result in, but is not limited to, the following consequences:

- Immediate revocation of the manufacturer's warranty.
- Revocation of product safety and electromagnetic compatibility (EMC) certifications.
- Creation of serious safety risks to users and the surrounding environment.

We assume no liability whatsoever for damages, malfunctions, or personal injury arising from improper use, unauthorized servicing, or modifications of this device.

Explanation of Symbols Marked on the Equipment : ———

Symbol	Explanation
	WARNING: Indicates a potential hazard. It is essential to consult the user manual for the nature of the potential hazard and any actions which have to be taken to avoid it.
	Ultraviolet Radiation Hazard. Wear appropriate personal protective equipment. Avoid exposure to eyes and skin.
	Risk of Electric Shock. Do not remove covers. Refer servicing to qualified personnel.
	Protective Earth (Ground) Terminal.
	DC Power Input.

Manufacturer ———

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