Matrix Light ML-X LED Light

••• Contents •••

••• Before using this product carefully read this manual.

••• This product is subject to change without notice in advance for improved performance.

The Matrix Light ML-X LED Light Featuring Advanced AI Algorithms

The Matrix Light ML-X LED light is an autonomously responsive lighting system equipped with cutting-edge AI algorithms. Photographers no longer need to worry about lighting adjustments?they can simply focus on framing and composition. This light intelligently detects ambient brightness and color temperature in real time and automatically delivers the optimal light intensity and color temperature. As a result, users benefit from natural and consistent lighting, maintaining high-quality visuals across diverse shooting environments. The Matrix Light ML-X is a smart lighting solution designed to provide professionals with the best possible shooting conditions.

Ambient light sensor-based adaptive lighting

The Ambient Light Sensor built into the ML-X LED Light is a multispectral sensor equipped with a hybrid filter capable of detecting red, green, and blue light sources as well as infrared. By utilizing this sensor, the system measures the chromaticity coordinates of the surrounding lighting environment and digitizes the data to automatically adjust the brightness and color temperature of the ENG camera LED light according to the ambient illuminance and color temperature. The ML-X LED Light features three adjustable AI control levels, and it displays real-time AI correction values on-screen. To enhance usability, a 1.4-inch TFT LCD is mounted on the rear of the device, allowing users to easily monitor the current brightness and color temperature settings. In addition, the ML-X offers a Turbo Mode that delivers up to 2,200 lumens of brightness equivalent to approximately a 220W incandescent bulb—ensuring sufficient light output even in emergency situations with no external lighting available.

All-weather waterproof lighting with IP67 rating

The ML-X LED Light is an all-weather waterproof lighting solution boasting an IP67 rating, offering outstanding durability and reliability in any environment. It is specifically engineered to perform consistently even in harsh weather or extreme climate conditions. Every component of the ML-X is built with a meticulous waterproof design, ensuring complete protection against water and dust intrusion. In particular, the power connector utilizes a waterproof interface to minimize the risk of damage from rain, humidity, or moisture exposure—enhancing both safety and durability. Thanks to its robust waterproof construction, the ML-X LED Light delivers exceptional performance in outdoor filming, broadcast environments, and various demanding field operations. It ensures lighting stability even in unexpected situations, giving users the confidence to operate in challenging environments without compromise.

Ultra-high color rendering LED with CRI > 97

The ML-X LED Light features ultra-high color rendering LED elements with a CRI greater than 97, delivering color reproduction that closely resembles natural light. These high-CRI LEDs maximize color accuracy, producing vivid and true-to-life illumination across various environments. As a result, users can achieve faithful color expression without distortion—ideal for photography, video production, and professional tasks where accurate color representation is critical. The ML-X is highly compatible with broadcast and commercial-grade filming equipment, excelling in applications that demand exceptional color fidelity. This innovative lighting system combines outstanding color quality with efficient energy consumption, making the ML-X LED Light a powerful and reliable solution for demanding visual work.

The ML-X LED Light features an intuitive user interface designed for ease of operation and quick status monitoring. A 1.4-inch TFT LCD screen is integrated into the unit, simultaneously displaying both the user-defined settings and the real-time AI-adjusted values. This dual-display approach allows users to make precise adjustments with greater convenience and confidence.

••• PRODUCT FEATURES
Before you read the manual •••

Before you read the manual, check the details below.

Safety Icons

Icon	Name	Function
⚠	Warning	This symbol indicates potentially hazardous actions and situations, which, if not avoided, could result in death or serious injury.
✋	Caution	This symbol indicates potentially hazardous actions and situations, which, if not avoided, could result in personal injury or property damage.

Check the manual

Please read carefully safety tips before using the product.　▶ side 4-7

● Product drawings on this manual and the actual product may differ slightly.
● Please refer to 'Check point before asking for service,' before requesting for service. ▶Page 20
● Service charges are applicable for a non-defective product received by us, even within the warranty period.
● To maintain the performance and maximize the lifetime of your battery and light, we recommend using them at least once a month.
● Injury or damage caused by violating instructions of this manual is solely the

responsibility of the user.

● Please check the performance of your light before an important filming.

⚠ Warnings

Battery charger

⚠ Avoid bending or pulling on the power cord of the charger unnecessarily, or placing heavy objects on the cord. It can cause electric shock and fire.

⚠ Plug the charger into the power outlet tightly. Incomplete connection can cause an electrical fire.

⚠ Never use a damaged power cord, a damaged plug, or a loose electrical outlet. They can cause electric shock and fire.

⚠ Never handle power plug with wet hands. It can cause an electric shock.

⚠ Do not place power cord near a heat source. Heat damaged insulation on the wire may cause fire and electric shock.

⚠ Do not use multiple power plugs in one outlet at the same time. It may lead to overheating and may cause fire.

Battery

⚠ Never dismantle or short out the battery. Do not mix with other batteries. Do not charge battery improperly. It may cause fire and explosion.

⚠ When battery warning lamp is blinking, charge the battery immediately. Excessive charging and discharging can shorten the life of battery and can cause mechanical malfunction.

⚠ Avoid shock and impact on the battery. It may cause breakdown leading to fire and/or explosion.

⚠ Do not place battery in high-temperature and high humidity area. It may cause mechanical malfunction, fire and/or explosion.

⚠ Please use only the included charger and power connector when charging and lighting. Using non-standard parts may cause mechanical malfunction, fire and/or explosion.

⚠ If you detect strange noise, burning smell or smoke during charging, unplug the power immediately and contact a service center. It may cause fire and/or explosion.

⚠ Never put battery into fire or expose to high temperature. It may cause overheating, fire and/or explosion.

⚠ Please use the included charger only. Using other chargers can cause overheating and/or explosion.

⚠ Do not store or carry a battery together with metal products such as necklace or hairpin. It may create a short and lead to overheating and/or explosion.

⚠ If your eyes come in contact with liquid leaked out of the battery, wash them immediately with clean water and seek medical attention. If left unwashed it will cause injury to the eyes.

⚠ If your skin or clothing comes in contact with liquid leaked out of the battery, wash it immediately with clean water. If left unwashed it will cause injury to the skin.

⚠ Do not dismantle the battery case nor damage any parts. Do not use the battery without case or in a broken case. It may cause overheating and/or explosion.

⚠ Stop charging the battery immediately if charging continues after a prolonged period of time without completion. It may cause overheating and/or explosion.

⚠ Do not wet the battery. It may cause overheating and/or explosion.

⚠ Separate the battery from the device after use. Failure to do so may result

in overheating or battery fluid leakage.

◉ Please discard batteries in accordance with the regulations of the local government after covering the electrical contacts with tape, etc.

Light Installation

⚠ Do not install in the place with excess oil, smoke, dampness, dust, or rainwater.

⚠ If the inside of the device is exposed to oil or dampness, it may cause electrical shock and/or fire.

⚠ Do not switch on the light close to the eyes on people or animals. It can damage their vision. Especially be careful when filming infants not to point the light directly at their eyes and keep the light at least 2 meters away.

⚠ Do not switch on the light towards vehicle operators. It can distract them and may cause an accident.

⚠ Do not block the front panel or vent of the light. It will degrade the life of LED module by raising the internal temperature and may cause fire.

⚠ Use only designated batteries as the power source. Using other power equipment can cause malfunction and creates a risk of fire.

⚠ In case of water damage or case damage, turn off the power and unplug the light. Do not attempt to power on the light again as it may cause electrical shock or fire. Please contact a service center.

⚠ Do not dismantle or modify the light. It can be an electric shock and fire hazard. If in need of repair call a service center.

⚠ Do not store or use explosive spray or flammable substances near the light. It can create an explosion and fire hazard.

⚠ Do not insert metal or flammable substances such as chopstick, wire, gimlet, paper, or match into cooling vents or DC Power jack. It can cause

electric shock and fire. If any foreign matter enters the light casing, first turn off power, unplug the light, and contact a service center.

⚠ Avoid the place with high humidity and extreme temperature changes. It can cause mechanical malfunction and electric shock. Using the product outdoor in thunder and lightning can cause mechanical malfunction and electric shock.

⚠ Do not clean with benzene or paint thinner. It will damage the LED light.

⚠ Keep small parts out of reach of children. If they swallowed any part, please consult a doctor immediately.

⚠ Do not touch the LED Light with wet hands. It can cause an electric shock.

◉ Store in a well-ventilated area after use.

••• Product Features
Check product and accessories •••

Before using the product, make sure that you received all accessories. Depending on the product kit, parts and accessories may be different.

❶ ML-X LED Light Unit

❷ ML-LB2 Ball Head Bracket

❸ ML-MSC1 Shoe Convertor**

❹ ML-CHG1 Battery Charger*

❺ ML-PC2 Cable for Hand Held Camera*

❻ ML-PT3 4PIN Power Tap Power Cable for ENG camera**

❼ ML-SL30 L Type Slide*

❽ ML-SL10 C Type Slide***

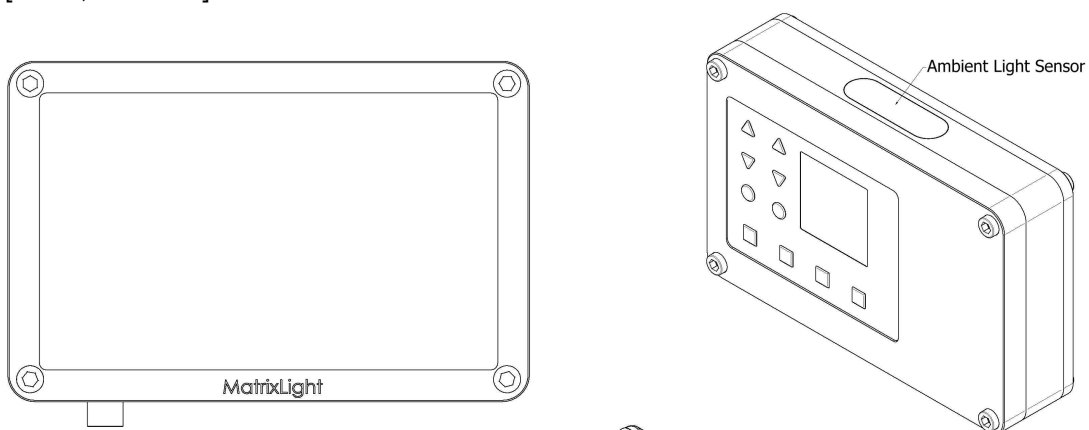❾ ML-BA12 12V/ 5200mA Li-ion Battery*

⚇

  * : Only for Hand Held Package
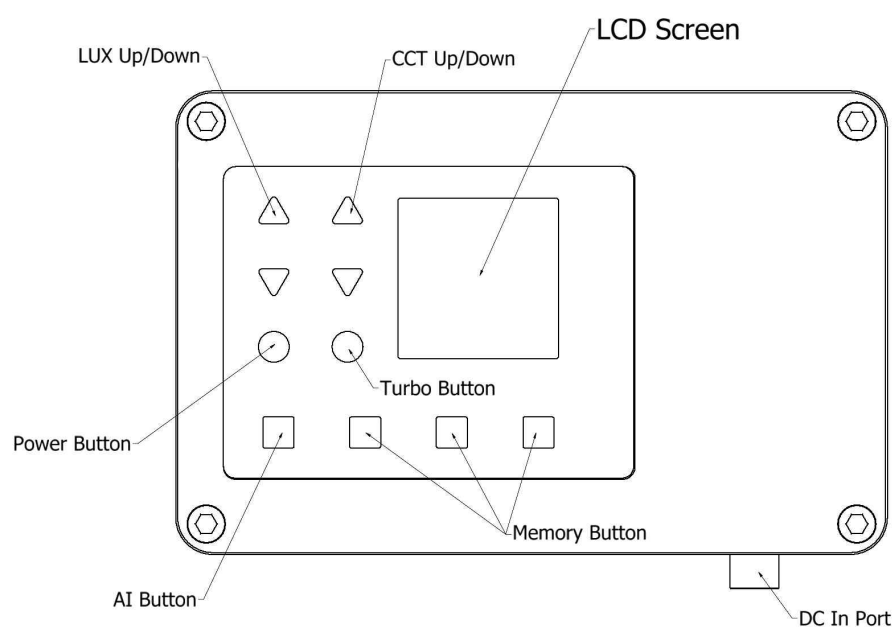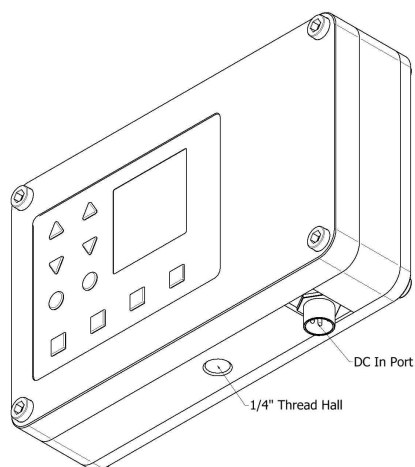 ** : Only for ENG Package
 *** : Only for DSLR Package

■ You can purchase all accessories at dealer shop or Matrix Light website (www.matrixlight.com).

■ Revision of the manual is available for download from our website (www.matrixlight.com).

■ Matrix Light is not responsible for malfunction or reduced life of the light from using unauthorized accessories.

••• THE NAME AND FUNCTION OF EACH PART
LED light •••

[Front, Bottom]

Ambient Light Sensor

[Back]

DC In Port

1/4" Thread Hall

LUX Up/Down

CCT Up/Down

LCD Screen
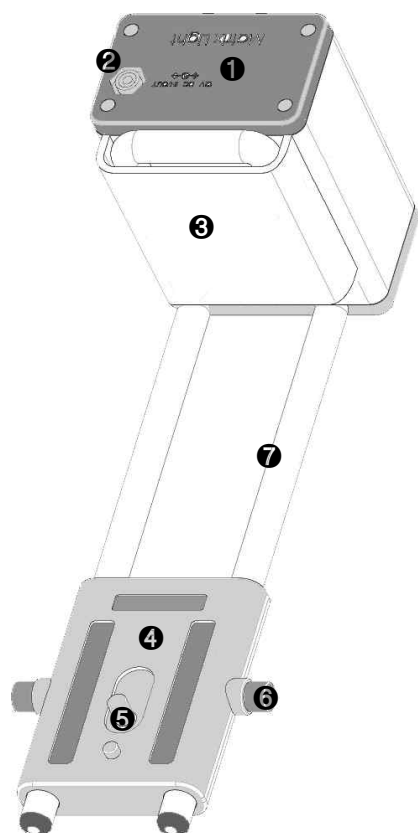
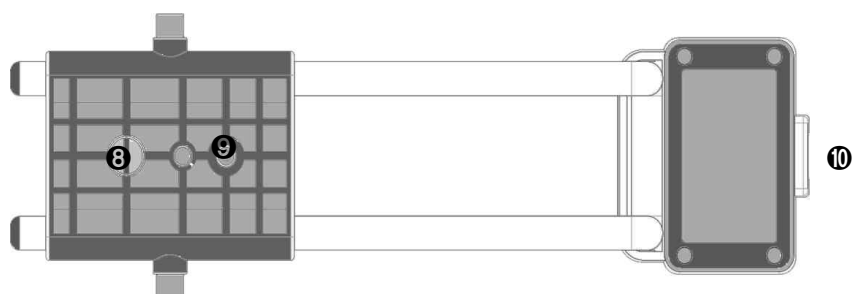Turbo Button

Power Button

Memory Button

AI Button

DC In Port

Battery and Camera-Tripod Attachment •••

Top & Side

❶ Battery
❷ 12V DC connector
❸ Bracket for L-slide
❹ Tripod adapter
❺ Camera attachment bolt
❻ Fastening screw
❼ L-slide

Bottom

❽ Camera attachment bolt
❾ Tripod adapter nut
❿ Shoe for Wireless Microphone

••• INSTALLATION AND USE OF LIGHT

Light Installation and usage •••

▌Switch Operation

1. Power ON/OFF and Brightness Adjustment Switch
 - Press once to turn the power on, and press again to turn it off.
 - Press the up arrow to increase brightness in 1% increments.
 - Press the down arrow to decrease brightness in 1% increments.
 - Holding the up or down arrow continuously will rapidly increase or decrease
   the brightness.

2. Turbo Mode ON/OFF and Color Temperature Adjustment Switch
 - Press once to activate Turbo Mode, and press again to deactivate it.
 - Press the up arrow to increase the color temperature in 100K increments.
 - Press the down arrow to decrease the color temperature in 100K increments.
 - Holding the up or down arrow continuously will rapidly adjust the color
   temperature.

3. Memory Buttons
 - You can save your preferred brightness and color temperature settings to
   one of three memory buttons for quick access.
 - First, adjust the light to your desired brightness and color temperature.
 - Then press and hold the desired memory button for 5 seconds to store the
   current settings. A "Save Complete" message will appear on the LCD when
   done.
 - To recall a saved setting, simply press the corresponding memory button
   once. The light will immediately switch to the saved values, and the selected
   memory will be displayed on the LCD to indicate active use.

4. AI Button
 - The AI button enables automatic adjustment of brightness and color
   temperature based on real-time ambient light and color temperature data
   captured by the onboard light sensor. There are three AI modes:

- AI Mode 1

  Automatically adjusts within ±20% of the user-defined brightness and color temperature based on ambient readings.
- AI Mode 2

  Automatically adjusts within ±30% of the user-defined values.
- AI Mode 3

  Automatically adjusts within ±40% of the user-defined values.

  Pressing the AI button cycles through the modes in the following order:

  AI Mode 1 → AI Mode 2 → AI Mode 3 → AI OFF

  For environments with rapid and frequent lighting changes, AI Mode 3 is recommended. For slower, more stable lighting changes, AI Mode 1 is more effective.

5. LCD Screen Display

  The ML-X LED Light's LCD provides real-time information about color temperature, brightness, and system status.
- Brightness and Color Temperature Display

  Shows the current brightness and color temperature values.

  The color temperature changes with the Color Temp Adjustment Switch, and brightness changes with the Brightness Adjustment Switch.

  Below these values, the AI-adjusted values (if AI mode is active) are displayed. When AI mode is off, the displayed values will match the user's inputs.
- Battery Warning Indicator

  When battery level falls below 15% (or input voltage drops below 10.5V), the battery indicator changes from green to red.

  If this warning appears, please recharge the battery promptly.

  The included Matrix Light ML-BA12 lithium-ion battery is free from memory effect and can be recharged at any time.

  However, do not allow the battery to fully discharge, as this may lead to rapid degradation or permanent failure.
- CCT Mode Indicator

  Indicates that the ML-X LED Light is in CCT mode, allowing manual control of brightness and color temperature.
- Turbo Mode Indicator

Shows when Turbo Mode is active.

Turbo Mode can double the maximum brightness compared to CCT mode.
Note: In Turbo Mode, only brightness can be adjusted; color temperature
adjustment is disabled.

◉ CAUTION:

Using Turbo Mode continuously can reduce battery life to approximately 1
hour and 30 minutes. Prolonged use in Turbo Mode may also shorten the
lifespan of the LED components.

Installation on an ENG Camera

1. Mount the ML-X light unit to the female shoe of the camera utilizing
   the ML-LB3 bracket.

2. If the camera is equipped with a male shoe, please use the appropriate
   converter (ML-MSC1) or the screw (ML-SCR1) which are available
   separately.

3. Use the ML-PT3 Power Tap Connector cable to connect the light to the
   12V DC output on the camera, or the battery pack. Please ensure the
   polarity of the cable is correct.

4. Tighten the screw on the ML-LB2 Ball-head Bracket once the light is adjusted correctly.

Installation on a Camera using supplied Battery

1. For use with cameras without a 12V DC output, the supplied battery (ML-BA12) must be used.

2. Start by installing the Tripod Adapter (ML-AT1) to the camera.

3. Attach the L-bracket Slide (ML-SL30) to the Tripod Adapter and tighten the fastening screw.

4. Hook the battery on to the slide and connect it to the light.

5. If required, extra attachments can be used with the Tripod Adapter and the Slide in place utilizing the threaded nut at the bottom of the Adapter.

••• How to use Accessories

How to use Battery and Camera / Tripod Attachment •••

To adjust the length of the L-bracket Slide (ML-SL30)

1. Loosen the fastening screw.

2. Slide the bracket to the desired length

3. Tighten the fastening screw

◉ CAUTION: It is possible to damage the attachment points on the camera as well as the adapter when excessive load is placed on the slide. To reduce this risk always adjust the slide as short as possible.

To use a Tripod with the Tripod Adapter (ML-AT1) Installed

1. Attach the Tripod Adapter to the bottom of the camera

2. Make sure the Adapter is fixed securely to the camera

3. Attach the assembly on to a tripod

◉ CAUTION: Always minimize the slide length before attaching it on to a tripod

••• USING THE BATTERY AND CHARGER

How to use the battery •••

To connect LED Light(ML-X) to Battery

1. Connect the power cable (ML-PC1) to the battery's DC power jack.

2. Connect the other end of the power cable (ML-PC1) to the LED Light's power connector.

3. Turn on the LED Light (ML-X).

Charging the battery

1. Unplug the power cable (ML-PC2) from the battery's DC power jack.

2. Plug the battery charger (ML-CHG2) into an AC outlet. Connect the charger plug to the battery's DC power jack. When charging the battery the charger's indicator LED turns red.

3. When the battery is fully charged the charger's indicator LED turns green from red. Unplug the battery charger (ML-CHG2) from the battery fully charged.

⚠ Caution: Only use the designated battery charger (ML-CHG2). Using other chargers can damage the battery and create explosion hazard.

◉ If the battery's DC terminals are shorted out by a metallic object, the battery's short circuit protection system cuts off the battery's power immediately. To reactivate the battery, simply charge the battery for a few seconds.

To replace the battery during filming

1. Unplug the power cable (ML-PC2) from the battery's DC power jack.

2. Release the attachment screw and pull out the L-Slide and battery.

3. Hold and grip the L-Slide then lift up the battery.

4. Hold the L-Slide and install new battery.

5. Reinstall the L-Slide and battery on the camera.

6. Plug in the power cable (ML-PC2) to the battery's DC power jack.

* When you pull out the battery from "L"type slide, grip each side of the slide firmly to pull the battery out easily.

••• TROUBLESHOOTING

Check Points •••

If the Light or battery is not working properly, check the trouble shooting points first. When the problem is not solved, contact the nearest dealer or Matrix Light service center.

Symptoms	Check your symptoms
I can not turn on the power.	■ Is the battery pack connected securely? Check connection to the fully charged battery pack. ■ Is the battery fully charged? Fully charge the battery or replace with a charged battery ■ Is the battery connected properly? Make sure that the power cable (ML-PC2) is connected to the battery's DC power jack and the light properly. ▶ 15-16 side
Light doesn't work even when connected to the charged battery.	■ Make sure the switch is turned on. ■ Check if light's internal temperature is too high. Turn it off and let it cool down.
Light turns itself off automatically.	■ Check if the battery lamp is on. If needed charge the battery. ■ Check if light's internal temperature is too high. Turn it off and let it cool down.
Battery life is very short	■ Battery's useful life is finished? Replace the battery with new one. ■ Battery may not be fully charged. Recharge the battery. If the problem persists, replace the battery with a new one.

••• AFTER SERVICE & STORAGE INSTRUCTIONS
After Service •••

● Warranty is valid for 1 year after purchase.
● The warranty does not cover theft, loss, damage from and not limited to accidents, natural disasters, abuse, tampering, normal wear, misuse, or modified products.
● Please submit the defective product with a receipt showing purchase date to an approved service center or Matrix Light for warranty repair.

Storage Instructions •••

● Keep in a well-ventilated and dry place.
● Do not place near naphthalene or magnetic source.
● Do not place in high temperature (in a car in summer, near a stove, etc.)
● Disconnect and detach the battery from the light after using.
● Rapid change in temperature can cause condensation inside the LED Light Module. To prevent this, carry the equipments in a bag and use them after they are adjusted to temperature.

Specifications •••

■ Model Type: Constant-current driven Power LED Light
■ Auto Adjustment: Auto-calibration algorithm using hybrid multi spectral filter ambient light sensor
■ Effective Illumination Range: 0.6 ~ 6 meters
(Actual range may vary depending on shutter speed, aperture, and gain settings)
■ Beam Angle: Horizontal: 120° / Vertical: 110°
■ Color Temperature: 2800K to 6500K (adjustable in 100K steps, digital control)
■ Color Rendering Index: CRI > 97 (Ultra-high color rendering)
■ Brightness Adjustment: 0% to 100% (adjustable in 1% steps, digital control)
■ Luminous Flux: Up to 1,100 lm (Normal Mode), up to 2,200 lm (Turbo Mode)
■ Illuminance:
Up to 340 lux at 1 meter (Normal Mode)

Up to 730 lux at 1 meter (Turbo Mode)

■ Waterproof Rating: IP67

■ Operating Voltage: 12V ~ 16V DC

■ Power Consumption:

Normal Mode: 1.5A / 18W (Max)

Turbo Mode: 3A / 36W (Max)

■ Battery: 12V DC / 5200mAh (Lithium-ion battery)

■ Runtime:

Normal Mode (1,100 lm): Approx. 2 hours 30 minutes continuous

Turbo Mode (2,200 lm): Approx. 1 hour 15 minutes continuous

✉ e-mail

csmatrixlight@gmail.com

Please help us serve you better by providing us with the model number and exact mode of failure.

☼ If you have any questions or suggestions please visit our website.

www.matrixlight.com

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