
TECHNICAL INFORMATION

BLUEMAXX™ Rechargeable Forensic Lights

Catalog Nos. BM500, BM500220

BLUEMAXX™ SYSTEMS OVERVIEW

BLUEMAXX™ systems are illumination sources useful for performing fluorescent examinations on materials of forensic interest having excitation bands between 390 and 520 nanometers (nm), including physiological fluids such as urine, semen and saliva, and materials treated with certain powders and dyes. These devices are especially useful in the search for evidence at crime scenes.

BLUEMAXX™ systems work with any potential evidence having excitation bands between approximately 390nm and 520nm. BLUEMAXX™ systems are essential in area searches for evidence at the crime scene, and excellent for the photography of evidence after location. BLUEMAXX™ light sources provide the best results when used under subdued lighting conditions. Total darkness is not necessary to see the fluorescence produced from most items of evidentiary value.



CAUTIONS

The BLUEMAXX is generally not intense enough to cause eye damage, but caution should be taken to not overly expose eyes to the direct beam. Use of the orange barrier filter for viewing minimizes any risks to the user.

HOW IT WORKS

The BLUEMAXX™ rechargeable system emits light at a wavelength of approximately 455nm (blue region). This excitation source causes certain materials to give off weak fluorescence. When used in a totally darkened room, only the light emitted by the BM500 is present. This light frequency causes some materials to fluoresce, but this fluorescence is hidden or masked by the intense blue light. For this reason, BLUEMAXX™ alternate light sources employ an orange barrier filter between the objects being examined and your eyes. This filtration effectively blocks the blue light permitting viewing of the weaker fluorescence.

INTRODUCTION

The BLUEMAXX™ Rechargeable Forensic Light offers a convenient means of searching crime scenes for physical evidence that exhibits fluorescent properties. The light source provides an alternate light operating at or near 455 nanometers (nm), a light frequency known to be of value when seeking items of forensic interest. The BM500 features a halogen lamp and high-capacity battery that can be recharged up to 1000 times. The BM500 emits a high-intensity blue light (455nm) that can be viewed through the orange barrier filter provided. The light is supplied with matched barrier and excitation filters, and excellent for locating and facilitating photographs of a variety of forensic evidence including physiological fluids (urine, saliva and semen), and latent prints enhanced with fluorescent powders or dyes. The light source measures 12.6" (32cm) in length and weighs 32 oz. (907.2g).

INITIAL SETUP/USAGE

Installing the Barrier Filter

The barrier filter (shown to the right) is ready-to-use. Simply slip it onto the head of the flashlight.



Mounting the Charging Unit

The Charging Cradle may be wall mounted or mounted in a motor vehicle. **Note:** *Install the mounting bracket with release button at the top.*

- Remove mounting bracket from the rear of the charging cradle by depressing the release button (Fig.1).
- Mounting to a wood surface: Use four 1" wood screws (not supplied).
- Mounting to a hollow wall: Use a minimum of two hollow wall anchors (not supplied).
- Mounting in a vehicle: Use four self-tapping sheet metal screws (not supplied). **DO NOT** mount to plastic surfaces.
- After the mounting bracket is installed, connect the charging cradle by engaging the two tabs on the bottom of the cradle into the slots on the mounting bracket. Depress the release button and push the cradle forward until it snaps into place.



FIGURE 1

Charging the Light

Note: *Barrier Filter must be installed for charging rings on light to line up with terminals.*

- Install the battery stick into the light by removing the tail cap from the light and inserting the battery stick with the Positive (+) end of the stick going in first (Fig. 2). If the battery is reversed, the unit will not charge and the battery stick may be damaged. After installing the battery stick, replace the tail cap (Fig. 2A) and be certain the light is turned OFF.
- Open the two movable clamps securing the light in charging cradle (Fig. 3).
- Press the light assembly into the cradle until the clamps snap closed.



FIGURE 2



FIGURE 2A

- Connect cable connectors from the AC charger to charging cradle (Fig. 4).
- Plug the AC power supply into an outlet (red LED charge indicator will illuminate).
- If this is the first time the unit has been charged, a full 16-hour charge should be given.

The battery is completely discharged and you're not sure if the switch is ON, proceed as follows:

- Remove the battery from the light and plug the charger into a power source.
- Place the empty light into the charging cradle as instructions above.
- If the switch is ON, the red LED will be ON. Switch the light OFF and reinstall the battery for charging. **NOTE:** *Rechargeable NiCad batteries are prone to develop memory problems. Allow the light to fully discharge every 2-3 months by leaving the light on for 1 1/2 to 2 hours before applying a full 16-hour charge. (Lamp Life: Up to 50 hours.)*

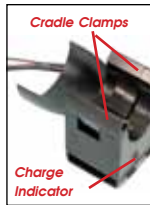


FIGURE 3



FIGURE 4



PHOTOGRAPHY

Evidence photos may be taken using a standard 35mm or digital camera. The camera lens must be equipped with a barrier filter, which may be ordered from the factory. Lengthy exposures may be necessary, therefore we recommend that the camera be mounted on a sturdy tripod. The area must be darkened as much as possible. When using film (ASA400), begin with a trial exposure of $f/5.6$ at $1/2$ second and bracket exposures on either side of this value. If the camera is equipped with a full automatic mode (film or digital camera), use this mode for best results.

BLUEMAXX™ Forensic Photography

Not all substances are capable of luminescence. They will not luminesce at all, regardless of the light wavelength used, or may require excitation by specific wavelengths.

Fortunately, many substances of primary interest at the crime scene do luminesce when exposed to radiation

from a BLUEMAXX™ light source. Those substances that are non-luminescent or are weakly luminescent such as blood and palmer oils, may be made luminescent by bonding luminescent agents to them. The photographs shown to the right are of latent prints developed with SIRCHIE fluorescent powders and exposed to the BLUEMAXX™ light. The maximum level of brilliance for optimum photographic fingerprint ridge detail may be obtained by varying exposure time. This type of photographic enhancement is not possible with powder-developed fingerprints that have not been externally excited by a forensic light source. **Note:** A standard 35mm camera and Kodak Ektachrome Elite 150 color slide film were used, and exposure times were varied.



REDCHARGE™ LL601 treated prints, excited by BLUEMAXX™ light—exposed for 4 sec. @ f/8.



REDESCENT™ LL701 treated prints, excited by BLUEMAXX™ light—exposed for 15 sec. @ f/5.6.

CARE AND MAINTENANCE

Barrier Filter

The barrier filter is a transparent acrylic material selected for its spectral characteristics and durability. But like all plastics, the surfaces of this filter are subject to scratching. Minor scratches are generally not a problem unless photography through the filter is attempted. Polishing can reduce the effects of minor scratches and abrasions. Use a clean, soft cotton buffing wheel at low speeds. Fine alumina buffing compounds may be needed, followed by tallow and a final buffing from a compound-free cotton flannel wheel. Replacement filters are available.

Blue Light Filter

If the filter becomes foggy or dirty, clean with a lens cloth ONLY. Do not use cleaners or water, as they will dam-

age the filter coating. If the filter is damaged or broken, please contact customer service to order a replacement (BMF100B).

Bulbs

Best results are obtained with quartz envelope bulbs. Krypton or halogen gas and similar bulbs are highly preferable to standard incandescent bulbs.

Lamp Replacement

Note: Allow the lamp to cool before removing.

- Unscrew the face cap. The reflector assembly will also come out, revealing the lamp.
- Grasp the lamp firmly with thumb and forefinger and lift the lamp out of the socket (Fig. 5).
- Line up the two pins on the new lamp with the holes in the socket (press in as far as it will go).
- Slide the lamp head back into its original position. Replace the reflector assembly and face cap.

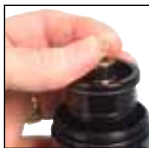


FIGURE 5

BM500 SPECIFICATIONS:

- Bulb Type: 6V, 11-watt high-intensity halogen (50-hour rating)
- Output: 30,000 peak beam candlepower at 10' (3m)
- Reflector: Parabolic, calibrated for 8"-10" (20.3cm-25.4cm) spot at 10' (3m)
- Beam Pattern: Adjustable cam action with 1/4 turn of head
- Construction: Rugged machined aluminum w/knurled design, anodized inside and out (corrosion, water, and shock resistant)
- Switch: Recessed, push-button, self-cleaning, 3 position
- Battery: 5 cell, (1/2 "D") nickel cadmium battery pack. Rechargeable up to 1000 times
- Length: 12.6" (32cm)
- Weight w/Battery: 32 oz. (907.2g)
- Barrier Filter: Acrylic, selected for its spectral characteristics/durability: Dimensions: 4.75" x 7.5" (12.1cm x 19cm)

Charger Cradle:

- Construction: Black ABS plastic "cradle/clamp" type
- Power Source: Universal 12-14V DC
- Charge Contact: 360° positive contact
- Charging Indicator: Red LED
- Charge Rate: 220 milliamperes typ.
- Charge Time: 12-14 hrs. typ.

Converter:

- Input: 110V AC 60 Hz
- Output: 12-14V DC
- Insulation: Double

BM500 COMPONENTS:

- 1- BM520 Rechargeable Flashlight
- 1- BM521 Halogen Bulb
- 1- BM522 Charger Cradle
- 1- BM523 Converter, 110V (BM500 only)
- 1- BM523220 Converter, 220V (BM500220 only)
- 1- BM525 NiCad Battery Pack
- 1- BM500S Barrier Filter



100 HUNTER PLACE, YOUNGSVILLE, NC 27596 USA

919-554-2244 • 800-356-7311

www.sirchie.com