

## TECHNICAL INFORMATION



**GoldPanther™**  
**Forensic Light Source Kit**  
 (Patent Pending)  
**Cat. Nos. FAL2000, FAL2000220**

### INTRODUCTION

Physical evidence is a crucial part of any criminal investigation and the FAL200 Forensic Light Instrument simplifies locating items of forensic interest. This compact, self-contained light source is fully portable—no interconnecting cables or shoulder packs—offering unlimited freedom to move about the scene. The instrument may be hand-held in two different positions or mounted on a standard photographic-type tripod. Battery operation permits searching a multitude of surfaces, even when working in the tightest situations, and especially when searching for microparticle, physiological or latent print evidence.



No. FAL200

The high-intensity Xenon lamp produces light that approximates sunlight, and six (6) bandpass filters cover the spectrum (365nm-530nm) needed to identify many forms of physical evidence such as semen, saliva, materials with natural fluorescence, and fluorescent powders and dyes. High intensity white light is available for locating hairs, fibers, dust prints and more. The filters are contained in two sliding filter arrays for quick selection of individual wavelengths and changeover from one array to the other. Detents are machined into each array providing positive positioning. Each filter is labeled for easy filter selection and a filter/usage label is provided on the side of the FAL200 for quick reference (see Page 2).

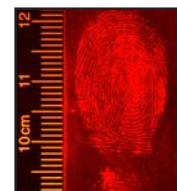
The intense light source and low-loss filters simplify photography when the camera is equipped with the appropriate barrier filter. *The FAL200 is supplied with three 49mm barrier filters: Orange, Yellow and Red.*

The rugged construction of the FAL200 will provide many years of trouble-free service even under the most demanding situations. The lamp assembly features a combination of precision-machined aluminum parts and high impact, heat-resistant plastic. The pre-focused, polished lamp reflector insures a consistently even circle of bright, intense light.

The FAL2000 (110V AC) Kit contains all of the equipment needed for an intense, thorough search for evidence at the crime scene or in the laboratory. 220V AC version is available with Cat. No. FAL2000220.

### The FAL200 is used to assist in locating the following kinds of evidence:

- Hair
- Fibers
- Bite marks
- Dust prints
- Latent fingerprints
- Certain narcotics and drugs
- Physiological fluids (semen, saliva, etc.)
- Treated fingerprints (DFO, fluorescent powders, fluorescent dyes, etc.)



*DFO treated print (left) viewed using No. FAL200 with the 470nm filter and orange goggles.*

### APPLICATIONS

The filter/usage label provided on the side of the FAL200 lists recommendations based on our firsthand experience in testing the unit. Due to the variety and chemical makeup of substances often found at the scene, additional results may be obtained in addition to those listed on the label shown on Page 2.

## PRECAUTIONS

- **DO NOT** stare directly into the lens when unit is on.
- Always wear appropriate goggles when unit is in operation.

FILTER	PRINCIPAL USE	GOGGLES
None	Indoor/outdoor general crime scene search	●
365nm	Hair, fibers, fluorescent materials, body fluids, bruises	●
415nm	Blood traces, semen, fluorescent materials	● ● ●
450nm	Semen on certain materials, fluorescent materials	● ● ● ●
470nm	DFO, fluorescent materials, Basic Yellow dye stain	● ● ● ● ●
505nm	DFO, Cyanoacrylate prints stained w/Rhodamine 6G	● ● ● ● ● ●
530nm	Cyanoacrylate prints stained w/Rhodamine 6G	● ● ● ● ● ● ●

A Filter/Usage Label is provided on the side of the FAL200 for quick reference.

## OPERATION

The FAL200 Forensic Alternate Light is used for the examination of physical evidence at the crime scene and the laboratory. Two (2) Sliding Filter Arrays provide light filtering at six (6) different wavelengths: **Filter #1:** 365nm, 415nm, 450nm, and white light. **Filter #2:** 470nm, 505nm, 530nm and white light. See above for principal uses.



FIGURE 1



FIGURE 2

1. Be certain that both batteries have a full charge before use. Each battery will provide from 25 to 30 minutes of use (Fig. 1).
2. To remove the battery from the instrument, depress and hold down the red button and slide the battery off in the direction shown in Fig. 2. The battery is re-attached by sliding it into the holder in the opposite direction.
3. Four (4) pairs of barrier goggles are provided with the FAL2000 Kit. Use the appropriate pair of goggles for the filter currently in use (see principal use chart above). When using the 365nm filter and white light position, the user should wear the clear goggles (UV). *NOTE: The orange goggles may be used with all visible light filters (415nm-530nm), but due to the variations in excitation of certain materials, the user should also try the other goggles (UV, Yellow or Red) during the search.*
4. The carrying handle on the FAL200 is removable. It may be positioned on the top or bottom of the instrument, depending on the application. The handle is equipped with sliding locks to secure it into position (Fig. 3).



FIGURE 3



FIGURE 4

5. Select the Sliding Filter Array to be used and insert it into the slot behind the lens. The user should be able to read the label on the slide from the rear of the instrument (Fig. 4).
6. The only control necessary on the instrument is the ON/OFF switch. Place the switch in the ON position to begin the search.



FIGURE 5

### FAL204 Optional Side Light Attachment

The optional Side Light Attachment (Fig. 5) is used to provide a wide angle beam—either vertical or horizontal—depending on its position. With the slit of the attachment in the vertical position, a horizontal beam is projected. The horizontal position of the attachment produces a vertical beam (Fig. 6). Using the high-intensity white light setting and the FAL204 Side Light Attachment, hair and fiber samples can be easily located (Fig. 7).

The Side Light Attachment is a friction-fit. Simply slide it over the lens barrel (Fig. 8).

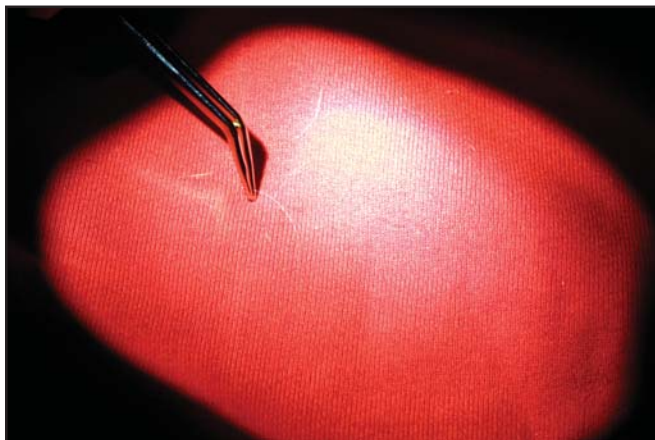


FIGURE 7—Locate hair and fiber samples by using the high-intensity white light setting and the FAL204 Side Light Attachment.



FIGURE 6



FIGURE 8—FAL204 Side Light Attachment slips over the end of the lens barrel.

### Tripod Use

The operator is afforded hands-free operation with the professional duty tripod (see photo on Page 8).

The lamp assembly is equipped with a 1/4-20 threaded mounting socket and the tripod features a removable mounting coupler (Fig. 9).

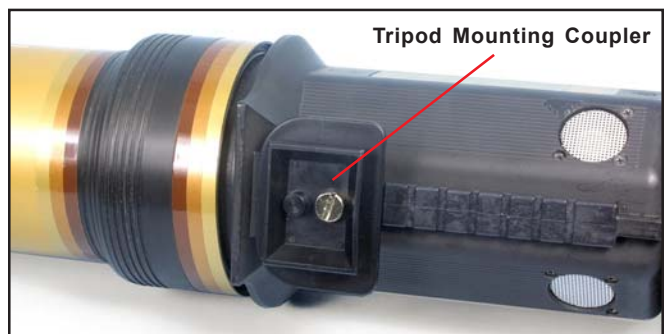


FIGURE 9

## Lamp Replacement

*When it becomes necessary to replace the lamp, remove the battery and allow the instrument to cool down before proceeding.*

1. Grasp the main barrel and twist counterclockwise until it reaches the end of the threads. Carefully lift the barrel away from the instrument, being careful not to touch the lamp (Fig. 10).
2. Place instrument vertically on a flat surface. Remove the Spacer Ring (Fig. 11).
3. Use a magnetic Phillips screwdriver to loosen and remove the two clamp screws (Fig. 12). This will prevent the screws from falling down inside the instrument. Carefully remove the clamps.
4. While holding the lamp assembly in one hand, carefully unplug the lamp power connector (Fig. 13). Set the defective lamp aside.



FIGURE 10



FIGURE 11



FIGURE 12



FIGURE 13

5. Unpack the new lamp assembly and plug it into the lamp connector.
6. Reinstall both clamps one at a time. **DO NOT** fully tighten the first clamp. Position the second clamp and tighten its screw, and then fully tighten the first clamp. Note that the clamps should be in the slot on the lamp as shown in Fig. 14.

7. Reinstall the Spacer Ring and screw the main barrel onto the instrument.
8. Reinstall the battery and test the lamp.

## MAINTENANCE

The only maintenance that may be performed in the field is lamp replacement (see above). Keep the instrument clean by occasionally wiping it down with a dry, soft cloth or towel. **DO NOT** use cleaning solvents or polishing materials as they may damage the finish.

No field repairs to the instrument or battery charger are recommended. If the instrument will not function and you have determined that the batteries are fully charged, and that the lamp has been replaced, please contact Customer Service at 800-356-7311 for a return authorization.

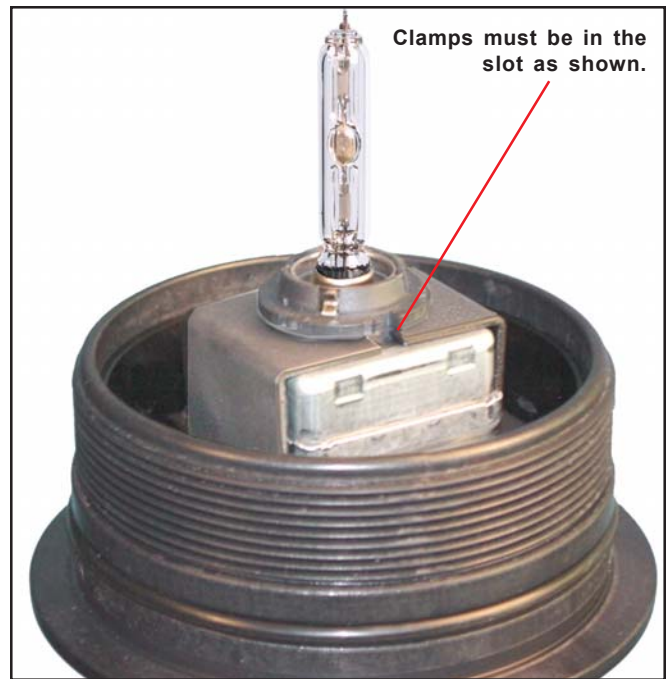
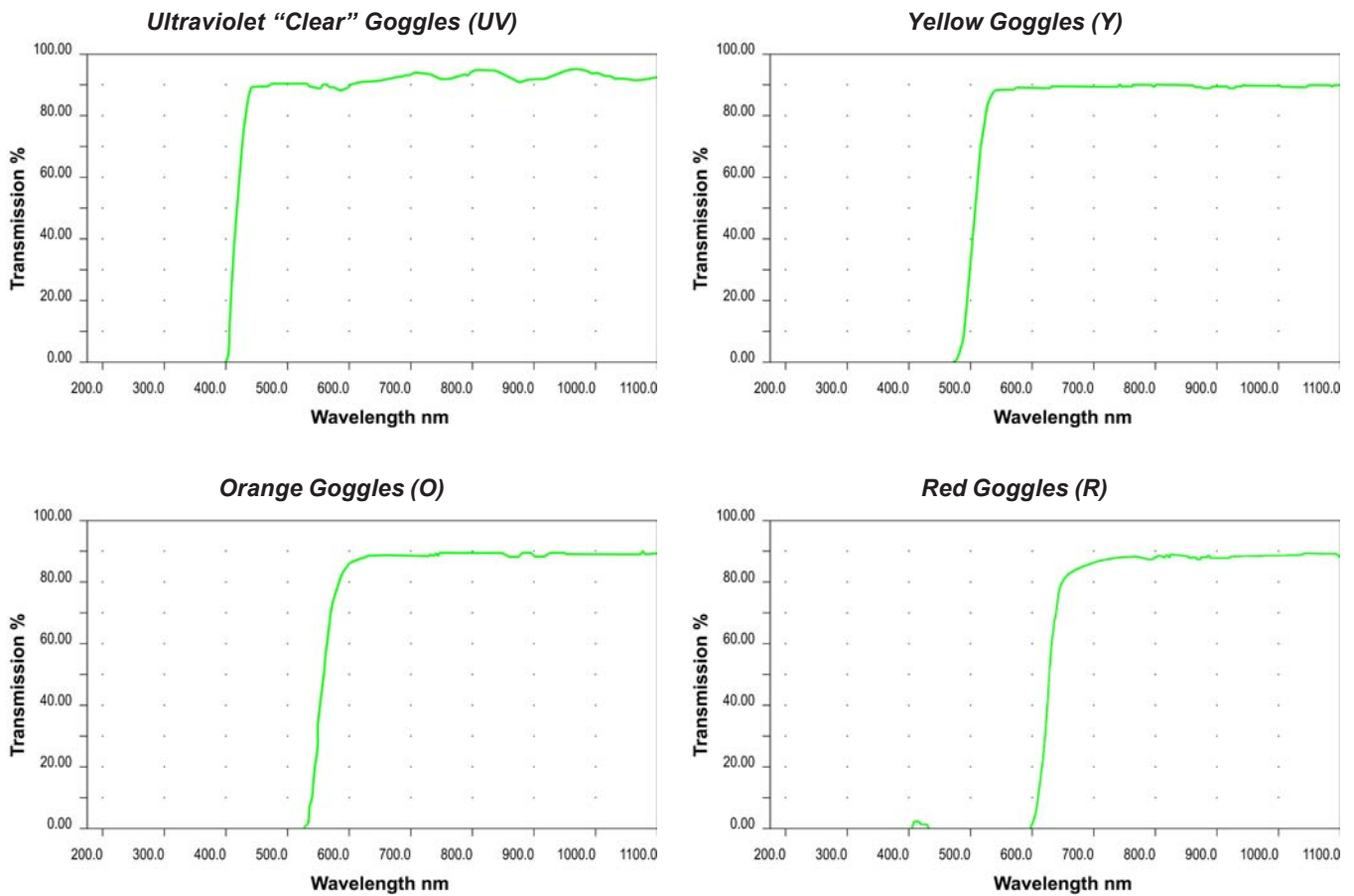


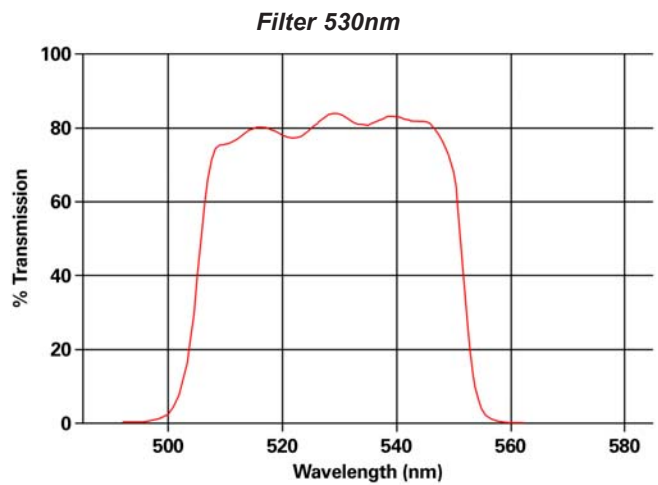
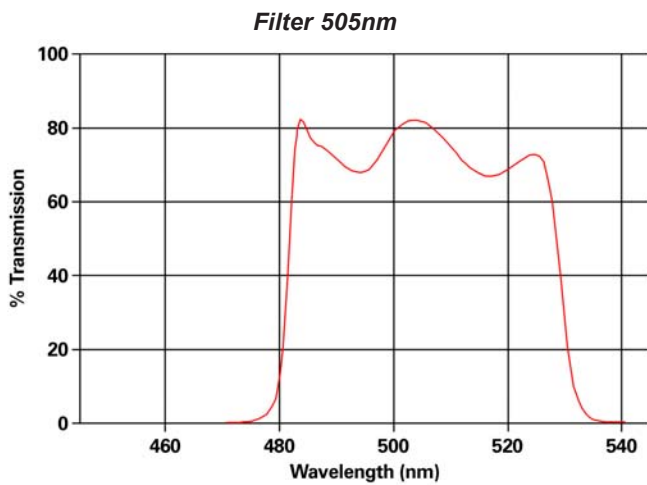
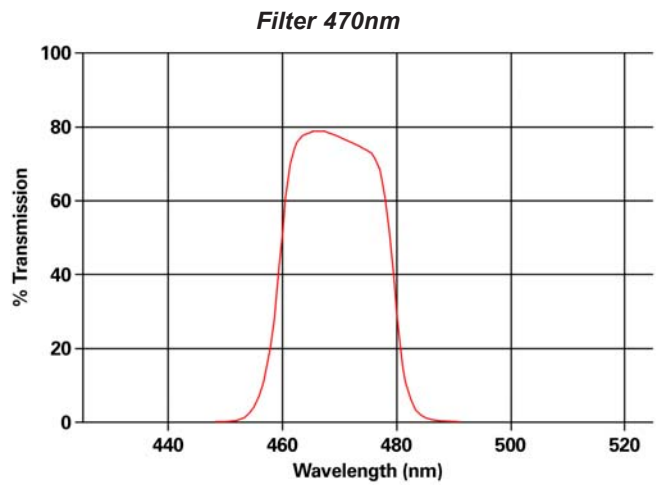
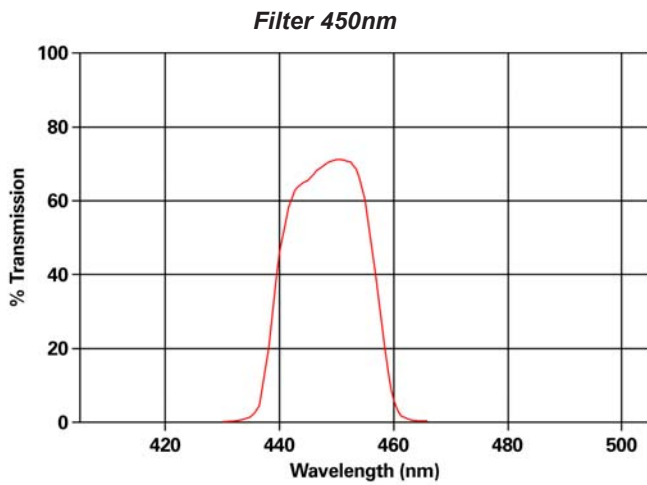
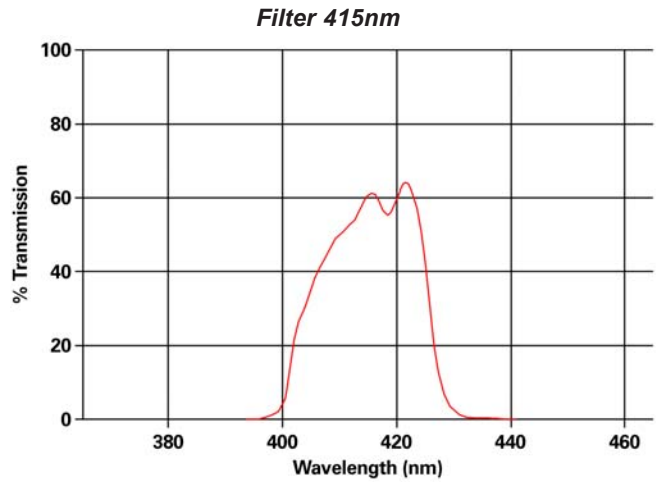
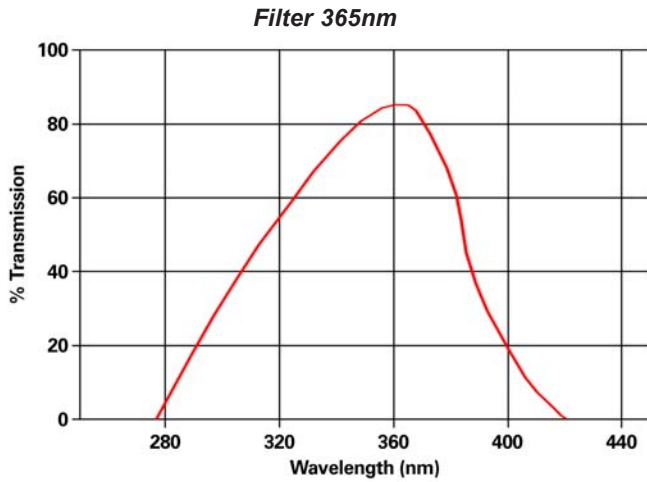
FIGURE 14

## SPECTRAL CHARACTERISTICS OF GOGGLES\*



\*Approximate wavelengths of goggles shown.

# EXCITATION FILTER SPECTRAL CHARACTERISTICS\*



\*Approximate wavelengths of excitation filters shown.

*Sliding Filter allows for rapid filter selection.*



*Technician uses the FAL200 in conjunction with yellow goggles to view latent prints developed on the handrail with PINKESCENT™ No. LL702 powder.*



*Resultant print*



*Technician searches for microparticle evidence using high-intensity white light setting.*

*The FAL200 is used to locate semen stains.*



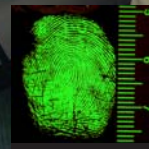
*GREENESCENT™ No. LL703 powder is used to develop prints viewed with the FAL200.*



*Resultant print*



*Technician uses the FAL200 mounted to the tripod to illuminate treated latent prints for photo.*



*Resultant print developed with GREENESCENT™ LL703 powder.*

## KIT CONTENTS:

- 1-FAL200 Lamp Assembly with High Intensity Xenon lamp
- 2-PA6GF30 NiCad 14.4V DC Rechargeable Batteries
- 1-FAL201F Sliding Filter Array
- 1-FAL202F Sliding Filter Array
- 1-FAL207 Red Barrier Filter Goggles
- 1-FAL208 Yellow Barrier Filter Goggles
- 1-BMS300 Orange Barrier Filter Goggles
- 1-797GV UV Goggles (clear)
- 1-49mm Orange Camera Lens Barrier Filter
- 1-49mm Yellow Camera Lens Barrier Filter
- 1-49mm Red Camera Lens Barrier Filter
- 1-CGA6GF30 Battery Charger
- 1-Molded Carrying Case w/precut foam insert
- 1-Professional Duty Tripod



No. FAL2000 Kit and Components

## SPECIFICATIONS:

### SLIDING FILTER ARRAYS

FAL201F: 365nm, 415nm, 450nm, white light

FAL202F: 470nm, 505nm, 530nm, white light

### CAT. NO. FAL200 LAMP ASSEMBLY

Light Source:

- 35-watt, high intensity Xenon lamp/igniter
- Approx. 3000 hrs. operation
- Color temp.: ~4200° K. lamp
- Output: 3200 lumens

Dimensions: 18.75" x 4.5 x 7.25"

Weight: 5.9 lbs. (w/battery and filter)

Cooling: 2 silent running, high volume fans

### CAT. NO. CGA6GF30 CHARGER

- 1-hour charging time
- Input: FAL2000=110V AC, 60 Hz  
FAL2000220=220V AC, 50 Hz
- Output: 12.0-14.4V DC, 1.8A
- Automatic voltage regulation, monitors battery condition
- Weight: 3.5 lbs. (less battery)

- Dimensions: 9" x 4.5" x 3 3/8"

### CAT. NO. PA6GF30 BATTERY

- NiCad, Rechargeable 14.4V DC, 2-AH
- Approx. 25-30 minutes continuous operation from fully charged battery
- Weight: 1.8 lbs.

### CARRYING CASE

High impact, molded plastic

Dimensions: 10.5" x 28" x 17"

Weight (case and contents): 22.2 lbs.

T103-285ENG-REV3

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