
TECHNICAL INFORMATION

AC/DC Tiger Twin UV Light Source

Catalog Nos. 782ADC, 782ADC220

INTRODUCTION

Ultraviolet (UV) light sources are used at the crime scene and in the laboratory for the preliminary examination and location of physical evidence.

Ultraviolet (UV) light examination of physical evidence traces may yield valuable information toward the solving of many different crimes. Examination of physical evidence under UV light includes just about everything. Some of the more useful items are as follows: physiological fluids, glass and ceramics, petroleum products, fibers, hair, cosmetics, wood and botanical materials, minerals, gems, glues, adhesives, drugs, poisons, plastics, food-stuffs and arson debris.

Ultraviolet (UV) light is essential when utilizing fingerprint enhancement powders and dyes. Silver nitrate, physical developer and DFO development of fingerprints are enhanced with UV



light. The use of fluorescent tracer powders, pastes and inks in conjunction with UV light enhance theft detection and security. Imagination is the only limiting factor.

The Tiger Twin Dual Wavelength UV Light Source is the ideal choice for physiological fluids detection, questioned document examination, thief detection and trace metal detection. The Tiger Twin Light has simple push button operation and is constructed of high quality vinyl clad aluminum. The highly reflective, nickel plated light reflector offers more effective concentration of the light energy and the large shortwave filter area allows for wider light distribution.

No. 782ADC* comes with the added feature of a high-output switch for additional illumination which can be activated for longwave or shortwave use. Rear panel LEDs indicate band selected for added safety. This compact, AC/DC unit is ideal for field and lab use (*AC adapter provided, batteries are not*).

SPECIAL PRECAUTION: *Avoid the use of shortwave UV light (254nm) in the presence of visible blood-stains if subsequent DNA analysis is a consideration. Collect blood samples prior to shortwave UV light exposure.*

PROCEDURE

Operation of the Tiger Twin Dual Wavelength UV Light Source is extremely simple. To turn the unit ON, press the appropriate power push-button. It is activated by pressing the red power push-button located on the rear panel. To switch from one light source to the other (shortwave/longwave), turn the unit OFF and press the red SW/LW push-button once. Turn the power back on and one of the LEDs on the back panel will illuminate dimly indicating which light source is active. To activate the high-output switch for additional illumination, press the "High-Intensity" push-button on the rear panel. The light (shortwave or longwave) will then become considerably brighter until the button is released. ***NOTE:*** *A high-pitch "squeal" is often emitted while the "High-Intensity" button is being pressed, this is normal.*

BATTERY REPLACEMENT

1. Remove the two (2) screws holding the end cover labeled “Battery Access” with a small Phillips head screwdriver.
2. Carefully pull out the battery holder (No. SFL8945) until it just clears the end of the case.
3. Install four (4) alkaline C-batteries (not included) in the holder. Pictorials printed on the battery holder indicate direction with + and – symbols.
4. Carefully reinstall battery holder, end cap and screws.

LAMP REPLACEMENT

Note: Remove batteries before replacing lamps and proceed as follows:

LONGWAVE LAMP (blacklight, unfiltered)

1. Firmly grasp the lamp near each end with the fingers of both hands and twist 1/4 turn.
2. Carefully lift lamp out.
3. Replace with similar type F4T5 longwave bulb (blacklight), No. SFL105.

SHORTWAVE LAMP (clear, located under filter)

1. Remove the four (4) Phillips head screws holding on the filter assembly.
2. Remove both end caps (2 screws hold on each end cap).
3. Firmly grasp the filter assembly and pull up on it.
4. Twist the bulb 1/4 turn and remove.
5. Replace with a similar type G4T5 shortwave bulb (germicidal), No. SFL104.
6. Replace the filter assembly and end caps.

MAINTENANCE

Other than replacing batteries and lamps, there are no serviceable parts.
INTERNAL SHOCK HAZARD! Refer servicing to qualified personnel.

PRECAUTIONS: ULTRAVIOLET RADIATION

The three areas of ultraviolet radiation are UV-C at 100 to 280nm, UV-B at 280 to 315nm, and UV-A at 315 to 400nm. UV-C is the shortest wave ultraviolet radiation and UV-A is the longest wave ultraviolet radiation.

The retina of the eye is not very vulnerable in the ultraviolet or the far-infrared portions of the spectrum. It is the cornea and the lens that absorb ultraviolet. High exposure levels can permanently damage these structures of the eye. Intermediate levels in the UV (200-320nm) cause greater injury to the cornea, which is severe but temporary. The injury, photokeratitis, may last for only one or two days but is extremely painful. Near-ultraviolet (long wavelength UV-A) is absorbed heavily in the lens of the eye. Damage to this area of the eye may not be evident for many years and may have lasting effects.

Human skin is also susceptible to radiation injury. This susceptibility occurs in the range of radiant energy present in the ultraviolet spectral region of 200-320nm. This type of radiation can cause severe sunburn. Certain photosensitizing chemicals greatly increase the sensitivity of the skin. Previous exposures to specific wavelength bands that are generally in the long wavelength ultraviolet and visible portion of the spectrum also sensitize the skin. Some orally administered drugs such as tetracyclines and common pain relievers also cause photosensitization.

The factors predisposing individuals to possible harm from ultraviolet radiation are:

- Sensitivity of the individual
- The length of exposure
- Intensity of the ultraviolet light source
- Light source/surface distance

Recommended Personal Protective Equipment:

- UV absorbing face shield or glasses with side shields
- Long sleeved laboratory coat or overalls
- Opaque cotton or garamid fiber gloves

SIRCHIE's shortwave UV lamps utilize low-pressure mercury lamps, which emit radiation in the UV-C (254nm) spectrum. Any amount of exposure to these lamps should be considered hazardous and protective equipment for the eyes and exposed skin must be worn. When using any UV lamp, avoid needless exposure to radiation and turn the lamp off when not in use.

782ADC, 782ADC220 SPECS:

- Power Source: 4 alkaline "C" cells (1.5 volts); 110/220V AC
- Case Dimensions: 6 13/16"H x 2 5/8"W x 3 1/4"D
- Construction: 0.062" vinyl-clad aluminum, black
- Reflector: 0.040" steel with bright nickel finish
- Shortwave Filter Cover and End Caps: 0.031" steel with brushed nickel finish
- Bulb: Shortwave-UV-C germicidal type (No. G4T5), 4-watt, 254nm peak wavelength; Longwave-UV-A black light type (No. F4T5), 4-watt, 365nm peak wavelength
- Shortwave Filter: Type U-325C UV bandpass filter; Dimensions: 3"L x 1 1/2"W x 3/16" to 1/4" thickness
- Weight: 2 lbs. 2 oz. w/batteries
- Control Panel: Modular, all push-button control panel; power switch—push-button, alternate action; high-output switch—push-button, momentary action; SW/LW selector switch—push-button, alternate action