
C2 Camera

UV-LED Visual Inspection Tool



**Operator's
Manual**

Description

The C2 Camera displays live color video to a LCD screen from an imaging sensor and lighting source connected to a flexible cable. It can be used to look into confined or concealed areas.

The C2 Camera and its intellectual properties are covered under United States Patent No. 6,491,408.

Safety Information

Every person using the C2 Camera, should read this operator's manual carefully before using it. Failure to understand and follow the contents of this manual may result in electrical shock, fire and/or severe personal injury.

Safety Instructions and UV Light Warnings

1. Do not look directly into the ultra-violet LED ("UV-LED")* during operation of the device. The UV-LED radiates intense ultra-violet light ("UV light") and can be harmful to the eyes even during a brief period of exposure.
* UV-LED means any UV-LED device or packaged UV-LEDs which emit ultra-violet light whose peak wavelength is shorter than 400nm.
2. Always wear UV protective eyewear when handling the UV-LEDs.
3. UV light can cause skin damage, up to and including, skin cancer. Always wear protective clothing to prevent UV-LED exposure to skin.
4. Instruct and warn all intended users of proper handling of the UV-LEDs and all potential hazards. Always provide proper instructions, labels and warnings in accordance, with the standards set forth by the International Electric Committee (IEC). **All UV light should be used in such a way as to ensure that no direct exposure to the UV light on the human body, particularly the eyes, is experienced.**
5. Always keep this product out of the reach of children and other untrained persons.
6. Always adhere to safety instructions and warnings.

**SAVE THESE INSTRUCTION FOR FUTURE
OPERATORS TO READ**

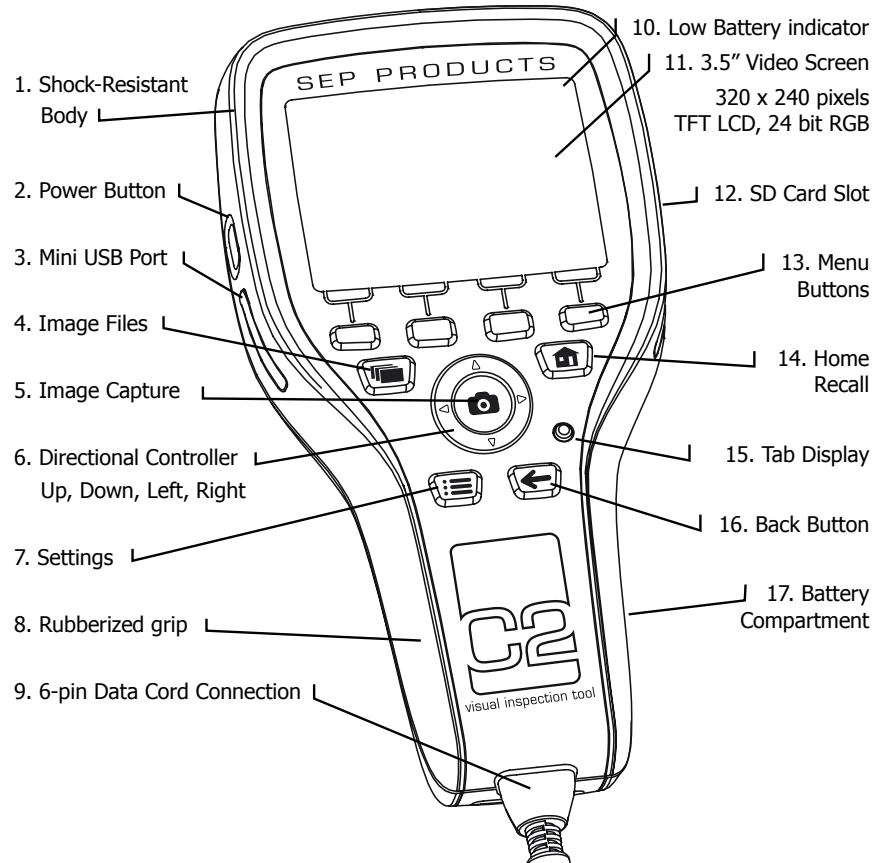
Work Area Safety

- Keep the work area clean and well lit.
- Do not operate the C2 Camera in explosive atmospheres, or in the presence of flammable liquids, gases, or heavy dust. Electrical tools can create sparks which may ignite the dust or fumes.
- Do not use the C2 Camera around corrosive chemicals. Exposure can affect the plastic covering on the camera head and ruin the picture quality.

Personal Safety

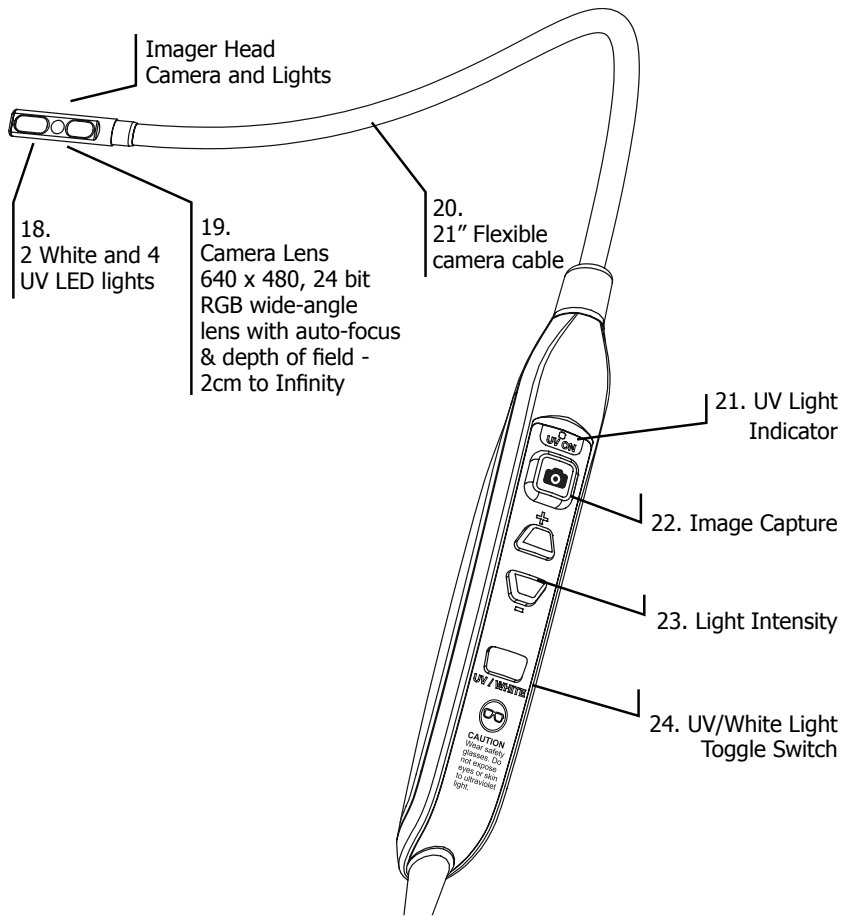
- Stay alert, be cautious about what you are doing. Use common sense. Do not use the C2 Camera while tired or under the influence of drugs, alcohol, or medications. Inattention while operating tools can result in serious personal injury.
- Always wear eye protection. Use safety equipment such as a dust mask, non-skid safety shoes, hard hat, or hearing protection for appropriate conditions.
- Use proper accessories. Do not place the camera on any unstable surface. It may fall causing serious damage to the product or injury to a person.
- Do not over-reach. Keep proper footing and balance at all times. This leads to better control of the tool in unexpected situations.
- Never spill liquid of any kind on the video display unit. Any liquid increases the risk of electrical shock and damage to the product.
- Do not use this device for personal or medical use/inspection in anyway.

The Video Display and Controller Unit



Unit will timeout to sleep in 10 minutes, and shutdown in 20 minutes.

The Camera Wand and Controller



Feature Instructions - Numbers refer to diagrams on pages 3 and 4.

1. Shock Resistant Body. Formed for durability and easy gripping.
 2. Power Button. Push in to turn on and off.
 3. Mini USB Port. For downloading image files to your computer via USB cable.
 4. Image Files. Press to revisit images taken. Shows image number, date, & time.
 - Rotate.** Menu button to turn image in 90 degree increments. *Note orange arrow on side of screen denoting original top of image.*
 - Zoom+.** Each time it's pressed, it enlarges to 2x's, then 4x's, then back to original 1x size. With the image enlarged, use the Directional Controller buttons (6) to navigate around the image.
 - Delete.** Deletes the image on screen.
 - More.** To secondary menu:
 - Transfer.** With USB cable connected, it will send images to your computer. *See Page 6 for Transfer details.*
 - Delete All.** This will delete the entire catalog of images in the camera. Press the **Home** button (14) to return to a live image.
 5. Image Capture. Press when the image you want is on the live screen.
 6. Directional Controller. Press the Image Files button (4) to show captured images. Use the left and right arrows of the Directional Controller (6) to move from image to image. Left to go backward, right to move forward. When in the Zoom mode, it moves the images left, right, up, or down.
 7. Settings. To create and change settings.
 - Secondary Menu. **Set Date.** Use Directional Controller (6) to move left and right between day, date, and time. Use the Up and Down controls to change numbers. When complete, press **Set** to finalize. Unit will automatically go back to main screen. **Brightness.** Use controller to adjust up or down. Brightness will revert to Default on restart. Press SET. **Cancel** will void changes and take you back to the main screen.
 8. Rubberized Grip. Easy to hold, helps protect the frame from dents or scratches.
 9. 6-pin Data Cord Connection. Be careful when connecting not to damage pins.
 10. Low Battery Indicator. Green bars turn red when battery is low.
 11. 3.5" LCD Screen. Clean only with dry, soft cloth. May use alcohol, if necessary.
 12. SD Card Slot. Push card in all the way to insert. Push again to release/remove.
 13. Menu Buttons (LIVE Picture Mode).
 - Rotate.** Button turns image 90 degrees counterclockwise each time it is pushed. *Note: Orange arrow at edge of image identifies original top position of image.*
 - Zoom+.** Zooms from 1x to 2x to 4x and then back to 1x each touch cycle.
 - Zoom-.** In LIVE Camera mode only, will change from 4x to 2x to 1x.
 - Rotate.** Turns image clockwise.
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14. Home Recall. Returns to the home screen.
 15. Menu (Tab) Display. Press to show tabs on screen, or to turn them off.
 16. Back Button. Returns to the last screen shown only.
 17. Battery Compartment. The battery fits in the backside of the handle.
 18. LED Lights. Both white and ultraviolet (UV) lights for a variety of uses.
 19. Camera Lens. Wide angle with auto focus for sharp and clear images.
 20. Flexible Camera Extension. Wound steel casing for durability and safety.
 21. UV Light Indicator. Lights up when UV lights are on.
 22. Image Capture. Press to capture the image shown on the video screen.
 23. Light Intensity. Used for both UV and white lights. Press (+) to brighten, (-) to darken.
 24. Toggle Switch. Press to switch between using UV and white lights.

Operating Instructions

Numbers refer to diagrams of the C2 Camera.

1. Insert SD card into the Video Display Unit (VDU), (12).
2. Plug 6-Pin Data Cord (9) from wand into VDU at heel of handle.
Be careful to insert correctly with widest side up. Insert firmly.
3. Press Power Button. (2) and allow 1 minute for power up process.
In the event the VDU will not power up: 1. Check SD Card insertion,
2. Check Data Cord is fully inserted, 3. Check battery is charged.
4. UV and White Lights. Use the White LED's for normal inspection.
Use the UV LED's for dye inspection. (24 switch)
5. Insert the camera cable into the inspection area.
6. Once the inspection area is found you may press the "Image Capture"
button (5 on the VDU or 22 on the wand handle), to capture the image.
7. Captured images can be viewed, rotated, zoomed and panned on the
VDU screen. (Images will not be captured to memory without the SD
card inserted, but will be viewable.)
8. Images can be transferred by SD card or through the USB port.
9. Upon completion of operations, disassemble the unit and store in its
case. Recharge the battery if needed.

How to Transfer Pictures

Numbers refer to diagram at right.

From the SD Card: Push the card (12) inward once. It will release from the camera. Take the card and insert it into your SD Card reader. Follow the (*) direction below to transfer image files to your computer.

From the Camera - to a computer using Windows OS and a USB cable (not included).

- Connect USB mini-B end of connector to the left side of the Camera (3).
- Connect the USB A connector to a USB port on the target computer.
- Press the IMAGE FILES button (4) to put the Camera in playback mode.
- Press the MORE menu key (shown on the video screen).
- Press the TRANSFER menu key. (In Transfer mode, the Camera will appear as an external drive to the target computer.)
- * Using the Windows browser, open the external drive, and copy or move the .jpg picture files from the DCIM\100SPEC directory to the desired location on the target computer.
- Press the STOP menu item on the Camera video screen to leave transfer mode.
- Disconnect the USB cable from the Camera, and the target computer.

Camera Safety

- Do not submerge any portion of the C2 Camera into any liquid.
- Do not insert the C2 Camera wand into anything or anywhere that may contain a live electrical charge.
- WALLS: Shut off the circuit breaker to the whole house before using the C2 Camera to inspect inside walls that may contain live electrical circuitry.
- PIPES: If you suspect a metal pipe could contain an electrical charge, have a qualified electrician check the pipe before using the C2 Camera. Ground circuits, in some cases, can be returned to cast iron pipes and cause them to be charged.
- AUTOMOBILES: Be sure the automobile is not running during inspection. Do not get oil or gas on the imager head. Exposure to petroleum-based substances will eventually degrade the camera lens covering.
- GENERAL USE: Do not use anywhere the unit may come into exposure with hazardous chemicals, electrical charges or moving parts. Such situations may result in serious injury or death. Use good judgement!

Battery Precautions

- Remove the battery when cleaning the unit.
- Remove the battery before storing the unit for extended periods of time.
- Use only the size and type of battery specified.
- Be sure to re-install the battery correctly.
- Do not use improper replacement batteries. This will void the warranty.
- Properly dispose of used batteries. Exposure to high temperatures can cause a battery to explode. Do not dispose of in a fire. Some countries have regulations concerning battery disposal. Please follow all applicable regulations.

Camera Use and Care

- Do not operate the C2 Camera unless this **Operators Manual** has been read and understood completely.
- Do not immerse the video display unit in water. Store in a dry place. The camera head and cable are water resistant when the unit is assembled, but the video display unit is susceptible to water infiltration.
- Do not use the camera if condensation forms inside the lens. Place in a dry area and let the water evaporate before operating.
- Do not use the unit if ON/OFF switch is not properly working. Any tool that cannot be controlled with the switch needs to be repaired.
- Store spare equipment in the storage box provided.
- Maintain the C2 Camera with care. Properly maintained tools last longer, are easier to work with and are less likely to cause injury.
- If unit is dropped, check for cracks, or other conditions that may affect the tools operation. If damaged, have it serviced before using.
- Use only accessories that are approved by the manufacturer for this tool.
- Use CLEAN hands before turning the unit ON or OFF and before replacing batteries.
- Protect against excessive heat. The camera should be situated away from heat sources such as radiators, heat registers, stoves or other products that produce heat. Do not use the unit near moving machinery or areas where the temperature will exceed 110°F (43°C) or below 32°F (0°C).

Maintenance Instructions

Remove the battery from the unit before performing maintenance.

The C2 Camera has been designed to require little maintenance.

In order to maintain its performance, always follow these guidelines:

1. Handle the device with care. It is not shock-proof and should not be banged or dropped. Treat it as a sensitive optical device. It will work longer & with better results.
2. Always clean the imager head (camera & lights, 17 & 18) after use with a soft cloth.
3. Use only alcohol swabs to clean connections.
4. Avoid rubbing too hard on the LCD screen. After use, wipe the display gently with a clean, soft, dry cloth.
5. Do not disassemble this device beyond removing the wand from the video unit. Doing so will void the warranty.

Service

- Tool service must be performed only by authorized repair personnel. Service or maintenance performed by unqualified repair personnel could result in damage to the tool and will void warranty.
- Do not attempt to take any pieces of this unit apart.
- Closely follow instructions for changing accessories. Changing in a way that is improper or careless can lead to damaged connectors and faulty operation.
- Remove batteries before cleaning. Gently clean LCD with a dry cloth. Do not use acetone to clean surfaces.
- Stop using the unit if it starts smoking or emitting noxious fumes.
- Remove the batteries and refer servicing to qualified service personnel under any of the following conditions:
 - If liquid has been spilled or objects have fallen into product.
 - If product does not operate normally by following the operating instructions.
 - If the product has been dropped or damaged in any way.
 - When the product exhibits a distinct change in performance.

If you have any questions regarding the service or repair of this device, call or write to:

Sound Environmental Products, PO Box 23, Puyallup, WA 98371

Phone: 253-845-9957 M-F 8am—5pm Pacific Time.

Transportation & Storage

1. Avoid exposing the unit to excessive vibration or extreme hot & cold temperatures.
2. Store the C2 Camera indoors in its case.
3. Remove the battery if unit will not be used for extended periods of time.

Service and Repair

The tool should be taken to a SEP Independent Authorized Service Center or returned to the factory for servicing.

If you have any questions regarding the service or repair of this inspection tool, call or write to: Sound Environmental Products,
PO Box 23, Puyallup, WA 98371 253-845-9957 - West Coast, Pacific Time

Warranty and Liability

The warranty period for this product is ONE YEAR from date of purchase. Proof of purchase and date must accompany the product for warranty repair. BE SURE TO REGISTER your C2 Camera.

This warranty is limited to repairing or replacing, at the option of C2 Camera, any part(s) of the product which, if properly installed, used and maintained, proves upon factory examination to have been defective in materials or workmanship within ONE YEAR from date of delivery.

C2 Camera does not warrant items that deteriorate under normal use.

In addition, C2 Camera does not warrant any instrument that has been subjected to misuse, negligence or accident, or has been repaired or altered by anyone other than a certified C2 Camera repair facility.

This warranty and your remedies thereunder are solely as stated in this manual. In no event shall C2 Camera be liable for special, indirect, incidental or consequential damages, nor for any damages arising out of delay in shipment or production.

C2 CAMERA EXPRESSLY DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EXCEPT AS PROVIDED HEREIN.

NOTE: For assistance of any kind, including help with a product under warranty, contact C2 Camera. Give full details of the difficulty and include the model and serial numbers of the product and date of purchase.

If return of the product to the factory is then deemed necessary, shipping instructions will be provided. A RETURN AUTHORIZATION NUMBER IS NEEDED FOR ANY RETURN. If an estimate of charges for non warranty work or other service work is required, a quote will be furnished upon evaluation of the product. Out-of-warranty service will not be performed without customer approval.

Warranty Information

Registration is required for warranty validation and service.

Register online at C2Camera.com.

You may also mail the following information to:

Sound Environmental Products, PO Box 23, Puyallup, WA 98371.

Your company: _____

Your contact information: _____

Date of purchase: _____

Serial Number: _____

Model Number: _____

Store where purchased: _____