

GelDoc-It^e Imager

Installation and User Instructions



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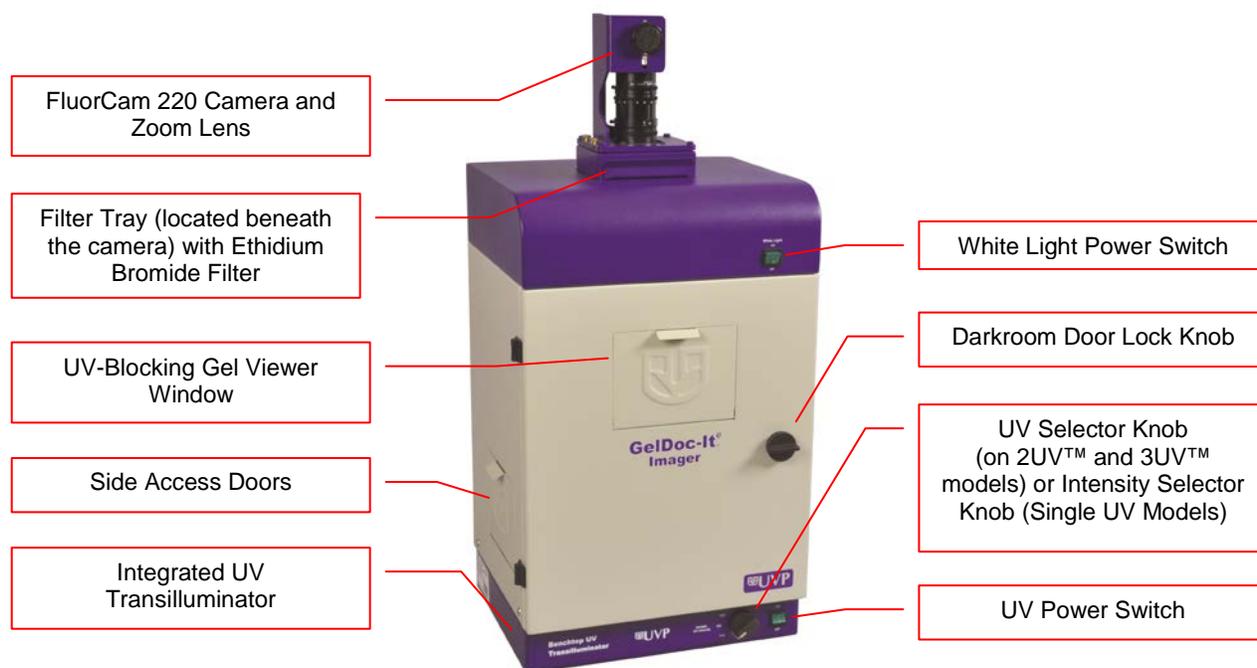
Introduction

The GelDoc-It[®] Imager enables easy, efficient and economical documentation and analysis of fluorescent and non-fluorescent gels, membranes, film, plates and assays. Use UVP's VisionWorks[®]LS Acquisition and Analysis software to capture images, to save images for later quantitative analysis, or for image enhancement for publication purposes.

The GelDoc-It[®] Imager contains a built-in UV transilluminator, standard ethidium bromide filter, and a FluorCam 220 camera with 1.3MP and optical zoom for ideal image capture. In addition, the Imager's front Viewer Window provides a look into the imaging darkroom, while the two side doors offer easy access to the imaging surface for sample movement or excision.

System Components

Refer to the packing slip and pictured components for specific parts and components included with the system.



Specifications

Power Requirements:	100/115V, 50/60Hz; 3.1 Amps at 120 Volts 230V, 50/60Hz; 1.55 Amps at 230 Volts Mains supply voltage fluctuations are not to exceed 10 percent of the nominal supply voltage
Pollution Degree:	2
Installation Category:	II
Altitude:	Up to 2000m
Ambient Temperature:	5°C to 40°C
Humidity:	Maximum relative humidity of 80% for temperatures up to 31°C, decreasing linearly to 50% maximum relative humidity at 40°C
Minimum Computer Requirements:	
Processor:	Pentium class, 1.6 GHz or higher
RAM:	1 GB (2GB Preferred)
Display:	1024 x 768
Operating System:	Microsoft Windows XP Service Pack 2 or Newer (32-bit or 64-bit)
Internet Browser:	Microsoft Internet Explorer 6.0 or later
Computer USB Ports:	Computer must come equipped with a minimum of one USB port; additional peripherals (mouse, keyboard, printer, etc.) may require additional USB ports.

Camera and Lens

The GelDoc-It[®] Imager is equipped with a FluorCam 220 camera, a scientific-grade monochrome CCD camera with a resolution of 1.3 megapixels (1280x1024). The FluorCam 220 utilizes a USB 2.0 PC connection and is equipped with an 8-48mm optical zoom lens.

All camera settings are factory pre-set for optimum performance when viewing gels, films or membranes under low light level conditions. Contact UVP Technical Support prior to making any adjustments to the camera settings.

VisionWorksLS Acquisition and Analysis Software

The GelDoc-It[®] is configured with VisionWorksLS Software for acquisition and analysis of gels, plates and membranes. The software features image enhancement, complete analysis tools and reporting capabilities, and is ideal for users who require robust image acquisition and analysis functions.

Ethidium Bromide (EtBr) Emission Filter

The ethidium bromide (50mm square) UV-blocking bandpass interference filter blocks UV and IR radiation emitted from the transilluminator. The filter is placed in the Filter Tray located beneath the camera/lens assembly. The filter allows visualization of fluorophores from 580-630nm, targeting the ethidium bromide emission peak of 605nm.

Additional filters are available for other specific fluorophores, including custom filters. Filters can also be removed when imaging non-fluorescent media (including protein gels, colony plates, etc.) in order to produce brighter images. Contact UVP for filter ordering information.

Darkroom

The GelDoc-It[®] Imager's darkroom features include:

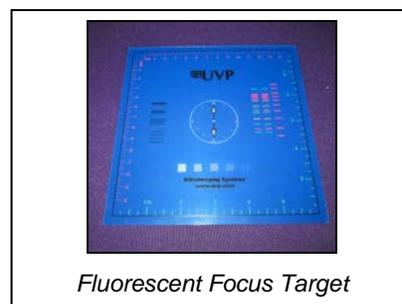
- Integrated UV transilluminator (available in 3UV, 2UV and single UV models)
- Epi (overhead) LED white light
- UV-Blocking Gel Viewer Window built into the darkroom door
- Two side doors for easy access to the imaging surface
- Single position emission filter tray
- UV safety interlock switch to disable UV transillumination when darkroom door is opened

Transilluminator

The GelDoc-It[®] Imager is configured with UVP's 3UV, 2UV or single UV Benchtop transilluminator models. Refer to the packing slip for the specific transilluminator model included with your system.

Fluorescent Focus Target

The UVP Fluorescent Focus Target fluoresces when placed on a UV transilluminator or when exposed to overhead UV. The Target provides sharp fluorescent images to aid in adjusting the lens and camera settings for ideal imaging results.



Optional Equipment

UVP offers a variety of optional equipment to support the needs of varying laboratory environments. Refer to “Replacement Parts and Accessories” at the end of this manual for optional equipment part numbers.

Thermal Printer

The thermal printer provides archive quality, 256 grayscale prints and five optional cost-effective print sizes.



Thermal Printer

Converter Plates

The **UV/White Converter Plate** allows imaging of non-fluorescent stained media with an ultraviolet transilluminator. The converter plate is specially coated to convert 302nm UV output to white light rather than using a separate white light transilluminator or plate.

The **Visi-Blue Converter Plate** (not shown) converts UV to a safe 460-470nm wavelength designed for use with blue excitation samples and SYBR Green, SYPRO Orange and GFP stains.



UV/White Converter Plate

Setup Instructions

Components

When unpacking the GelDoc-It[®], the following items will be included:

1. GelDoc-It[®] darkroom
2. Camera kit with camera, zoom lens, bracket and related hardware
3. Ethidium bromide (EtBr) emission filter
4. Power cable
5. VisionWorksLS software disk
6. Supporting documentation

WARNING: Do not attempt to perform any setup procedures while the system is plugged in or powered on unless otherwise instructed.

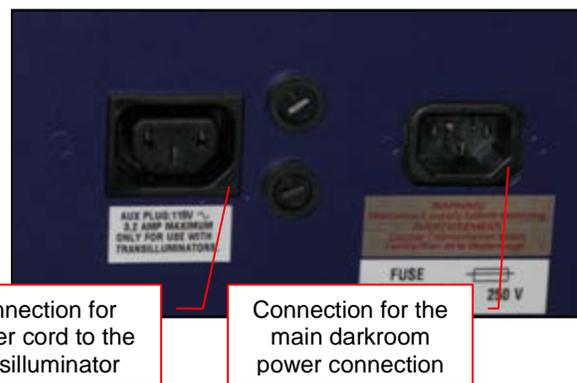
CAUTION: Do not install the system in areas with high moisture, dust or high temperatures. Keep the equipment away from motors or any other large magnetic equipment apparatus. This system is designed for indoor use only.

Connecting the Power Cables

1. Plug the main power cable into the back of the darkroom and the other end into a surge-protected power outlet.

Note: Do not position the system so that it is difficult to access the power at the back of the unit.

2. Connect the jumper cord from the darkroom to the back of the built-in transilluminator.

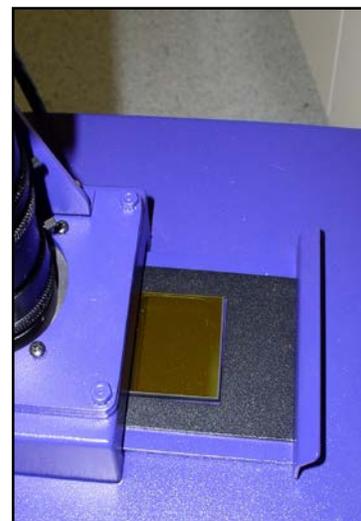


Installing the Emission Filter

To install the 50mm square ethidium bromide (EtBr) filter or any other emission filters:

1. Carefully remove the filter from the protective plastic case, holding the filter at the edges to prevent placing fingerprints on the glass surface.
2. The filter tray is located under the camera bracket at the top of the darkroom. Slide the tray drawer open from the front.
3. Place the filter inside the filter tray with the filter positioned so that the text on the edge of the filter is facing up.
4. Once the filter has been loaded, slide the filter tray back into the system.

Additional and replacement emission filters are available through UVP. Refer to the "Replacement Parts and Accessories" section of this manual for ordering information.

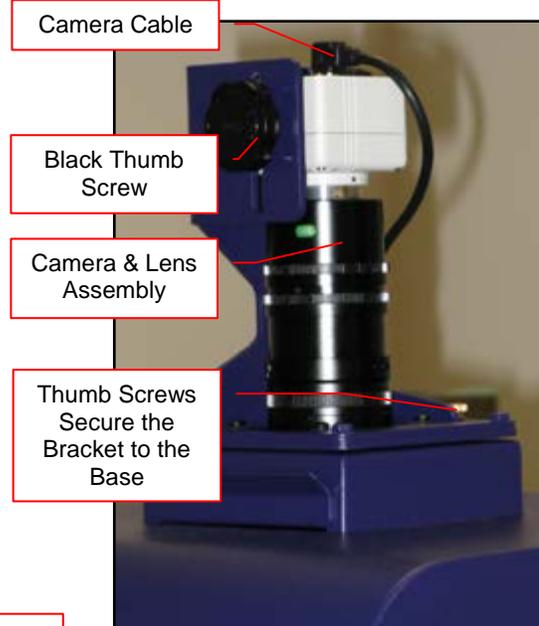
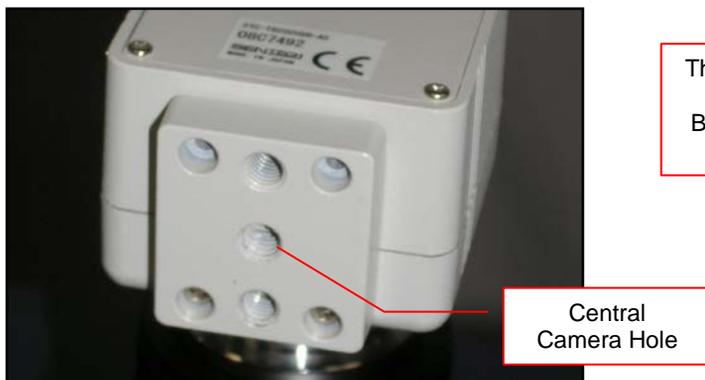
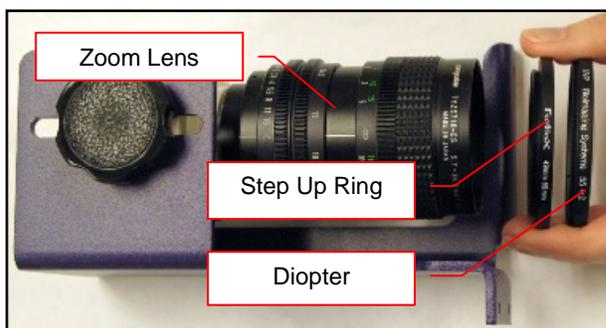


Installing the Camera and Lens

The camera and zoom lens will arrive as an assembled unit from the UVP factory.

Note: The zoom lens shipped may appear different than the one pictured.

1. Remove the lens cap from the lens.
2. Attach the step up ring and diopter to the lens. The step up ring and diopter will only fit one way.
3. Using the four thumb screws provided, secure the bracket to the base.
4. Slide the camera and lens assembly into the camera bracket. Slide the lens through the center hole in the gasket to form a light-tight seal around the lens.
5. Insert and tighten the Black Thumb Screw in the central hole in the camera to secure the camera to the bracket.
6. Plug the camera cable into the top the camera and the other end into a USB port on the computer.



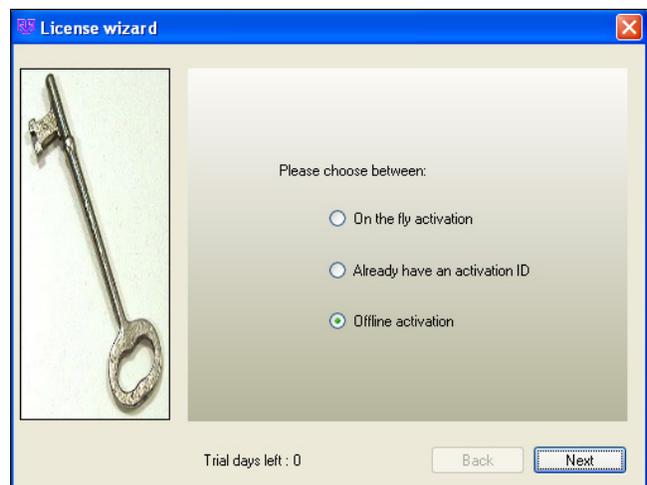
Software Installation

Installing VisionWorksLS Software

1. Insert the VisionWorksLS CD into the computer.
2. Click on the **Install** button for VisionWorksLS.
3. Click **OK**, **Next**, agree to "I accept terms of licensing agreement", then **Next**. Leave all options in their default settings. Then click **Next**, **Next**, **Install** and finally **Finish**.

Registering the Software

1. Double click the VisionWorksLS software icon on the desktop.
2. To activate the software, registration is required. To immediately activate the software online, choose **On-the-Fly activation**. If the computer is not connected to the Internet, select **Offline activation** and proceed to the following page of this manual, or call UVP to register the software.
3. Click **Next** to continue.
4. The **Already have an activation ID** option is useful when reloading the software after receiving an initial activation code.
5. Complete all required information on the form.
6. Fill out the Serial Number located on the CD. The number should be four sets of six numbers.
7. Once the form is completed, click on **Get Activation No.** and then click **Activate** once the Activation Number appears in the box.
8. If the computer is not connected to the Internet, click **Offline activation** to register the software. This allows the user to obtain the activation code and enter it at another time.
9. Click **Next** to continue.
10. Click the link provided and complete the form to obtain registration instructions. Click **Finish**.

Using the System

Powering Up the System

Once plugged in to a surge-protected wall outlet, the GelDoc-It[®] Imager is always powered on. Power to specific system components, including epi and transillumination lighting, is controlled by switches located on the front of the unit.

The switches on the front of the unit indicate when the system's illumination sources are on. The **UV Power Switch** on the front of the transilluminator will illuminate green when the ultraviolet transilluminator is on, and the **White Light Power Switch** on the darkroom will illuminate green when the overhead white light is on.

Note: The GelDoc-It[®] Imager has a UV safety interlock that turns the transilluminator off when the darkroom door is open.

Placing the Sample Inside the Darkroom

The GelDoc-It[®]'s darkroom door is locked in place by a black Darkroom Door Lock Knob. To access the interior of the darkroom, turn the Knob counterclockwise 180 degrees. The door will be released and can then be opened.

Once the sample has been positioned on the imaging surface, close the darkroom door and turn the Darkroom Door Lock Knob clockwise 180 degrees to secure the door closed.

Using the Transilluminator and Overhead (Epi) White Lighting

Once the GelDoc-It[®] Imager is plugged in, power is supplied to all components including the jumper power cable that supplies power to the transilluminator. To use the transilluminator, press the UV Power Switch to the **ON (I)** position.

Refer to the Transilluminator Manual for additional instructions on using the transilluminator.

Note: The GelDoc-It[®] Imager has a UV safety interlock that turns the transilluminator off when the darkroom door is open.

The overhead (epi) white lighting can be used to illuminate the darkroom to aid in sample placement and for image focusing. To use the overhead (epi) white lighting, press the White Light Power Switch to the **ON (I)** position.

Using the UV-Blocking Gel Viewer Window

The **UV-Blocking Gel Viewer Window**, built into the darkroom door, allows users to view the interior of the darkroom without opening the darkroom door. The Window glass is UV blocking while providing a clear view to the transilluminator surface for sample viewing.

The Window is held closed by two magnetic latches. To open the Window, pull out the handle on the top of the Window cover to release the Window from the magnetic latches. To close the Window, push the cover up until it magnetically latches into place.

Note: For ideal image capture results, close the Gel Viewer Window prior to capturing an image.

Using the Side Access Doors

The two **Side Access Doors**, one built into each side of the darkroom, allow users to access the interior of the darkroom without opening the main darkroom door. This is useful when moving the samples or when performing excision with UV active and/or without having to open the main darkroom door.

The Side Access Doors are held closed by two magnetic latches. To open the Door, pull the handle on the top of the Door to release it from the magnetic latches. To close the Door, push the cover up until it magnetically latches into place.

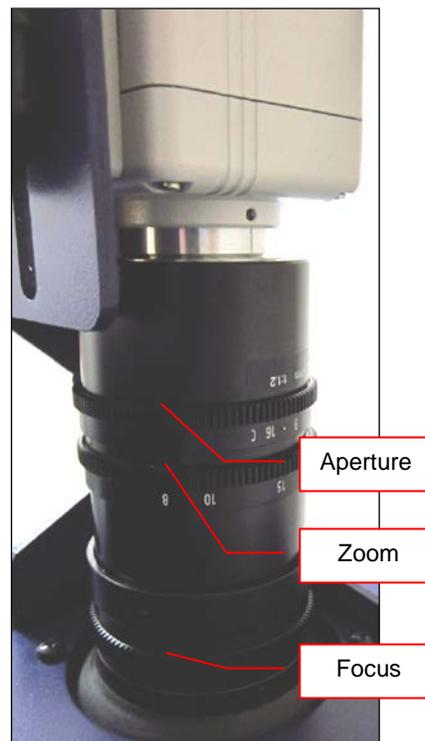
Caution: To avoid direct exposure to ultraviolet light, always use protective skin wear when using the Side Access Doors to reach inside the darkroom when the UV transilluminator is on.

Note: For ideal image capture results, close the Side Access doors prior to capturing an image.

Image Focusing

Prior to capturing an image, prepare the image focus:

1. Turn on the transilluminator and place the **Fluorescent Focus Target** (see “System Components”) on the transilluminator surface. **Note:** The darkroom has a UV safety switch that turns off the transilluminator when the door is open. After closing the door, open the UV Gel Viewer Window to ensure that the transilluminator is on and that all other lighting is off.
2. With VisionWorksLS open, preview the image. Adjust the camera settings, including exposure time, to enhance the image of the sample. To adjust the settings, go to the Acquisition Action Tab and click on the Camera Menu Button. Adjust the exposure time from the Exposure Time section of the Camera Menu.
3. Rotate the lens Aperture adjustment ring (top ring) so that the image is bright enough to be seen on the screen.
4. Rotate the lens Focus adjustment ring (bottom ring) on the lens. Adjust the focus so that the image appears clear on the screen.
5. Rotate the Zoom adjustment ring (middle ring) on the lens so that the image is ideally zoomed. Readjust the Focus adjustment ring (bottom ring) on the lens, making the image clear. Adjust the zoom so that the object of interest is within the image preview area.



Printer Setup

The Thermal Printer is an optional accessory. If this order did not include a thermal printer, move on to the next section. Otherwise, to set up the printer:

1. Plug the power cable from the printer into the power source.
2. Press the **Open** button to open the lid of the printer and load the paper by allowing the loose end of the roll to come off the top of the roll.
3. After shutting the printer lid, tear off the excess paper.
4. Plug in the USB cable from the printer into an available USB port.
5. To set the printer settings, click “Start” at the lower left of the computer screen. Next, click “Printers and Faxes,” then right-click on the appropriate printer icon and select “Printing Preferences”.
6. Choose the following settings: High Density paper, 1280X1280, Portrait mode.
7. Click on the “Option” tab and click the “Enlarge Image to Fit Paper” box. Then, click “Apply” and “OK”.

If the Thermal Printer does not work correctly, contact UVP Technical Support for assistance. See the **Technical Support** section of this manual for contact information.

Service Procedures

Return Procedure

A **Returned Goods Authorization (RGA)** number must be obtained from UVP Customer Service prior to returning any product.

Replacement Parts and Accessories

To order accessories or replacement parts for the GelDoc-It[®] Imager, contact UVP's offices.

Part Description	Part Number
Fuses:	
Fuse, 3.2A (for Darkroom)	56-0002-05 (Qty. 2 Required)
Fuse, 2A (for 115V Transilluminators)	56-0002-01 (Qty. 2 Required)
Fuse, 2A (for 230V Transilluminators)	56-0002-03 (Qty. 2 Required)
Emission Filters:	
Filter, Ethidium Bromide, 50mm Square	38-0220-01
Filter, SYBR Green, 50mm Square	38-0219-01
Filter, SYBR Gold, 50mm Square	38-0221-01
Transillumination Accessories:	
White Light Converter Plate, 21x26cm	38-0191-01
Visi-Blue Converter Plate, 21x26cm	38-0200-01
Gel Accessories:	
Gel-Cutter	85-0002-01
Gel-Ruler	85-0003-01
Gel-Scooper	85-0006-01
Gel-Tray, small	85-0007-01
Gel-Sentry DNA Preparation Plate	97-0076-01
Fluorescent Standard Step Tablet	33-0014-02
Protective Equipment:	
Spectacles, UV Blocking (UVC-303)	98-0002-01
Goggles, UV Blocking (UVC-503)	98-0002-02
Faceshield, UV Blocking (UVC-803)	98-0002-04
Thermal Printer and Paper:	
Thermal Printer	89-0069-06
High Gloss, High Contrast Thermal Paper (5 Rolls per Box)	89-0174-01
Matte Finish, High Contrast Thermal Paper (4 Rolls per Box)	89-0038-01

Troubleshooting

No Power to the Darkroom or Transilluminator

1. Recheck the main power cord connection to the GelDoc-It[®] darkroom as well as the jumper cable between the darkroom and transilluminator.
2. Check the fuses located at the back of the unit next to the power port. A flat-head screwdriver will be required.

Turn the fuseholder cap counterclockwise and the fuse holder will pop out. Inspect the thin wire within the glass fuse to see if there is a break in the wire. If so, replace the fuse(s). If fuses are blowing repeatedly, contact UVP Technical Support for additional troubleshooting.

Transilluminator Will Not Turn On

1. Make sure to turn **ON** the transilluminator power switch and that the switch is glowing green. The switch is located on the front of the transilluminator, directly below the darkroom door.
If the switch does not glow green, refer to “No Power to the Darkroom or Transilluminator” above.
2. Ensure that the darkroom cabinet’s door is completely closed. There is a UV safety interlock switch that turns the transilluminator off when the darkroom door is opened.
3. Ensure that the transilluminator’s power jumper cord is securely connected at both the ends of the cable.

Care and Cleaning

Use only mild soap or detergent solution for cleaning. Do NOT use oil- or petroleum-based cleaners for the cabinet. Ensure that the system is turned **OFF** and unplugged during cleaning.

Technical Support

UVP offers free lifetime technical support on all of its products and software. Should you have questions regarding the product’s operation or repair, contact UVP’s offices at the locations below or visit uvp.com.

If you are in North America, South America, East Asia or Australia:	If you are in Europe, Africa, the Middle East or Western Asia:
Call (800) 452-6788 or (909) 946-3197 , and ask for Customer Service during regular business days, between 7:00 am and 5:00 pm, PST.	Call +44(0) 1223-420022 , and ask for Customer Service during regular business days between 9:00 am and 5:30 pm.
E-mail your message to: info@uvp.com	E-mail your message to: uvp@uvp.co.uk
Fax Customer Service, and send it to (909) 946-3597	Fax Customer Service, and send it to: +44(0) 1223-420561
Write to: UVP, LLC 2066 W. 11 th Street, Upland, CA 91786 USA	Write to: Ultra-Violet Products Ltd Unit 1, Trinity Hall Farm Estate, Nuffield Road, Cambridge CB4 1TG UK