

BioDoc-It™ and VisiDoc-It™ Systems

Operating Instructions



IMPORTANT:

Please read these instructions before operating your UVP System to familiarize yourself with operation procedures.



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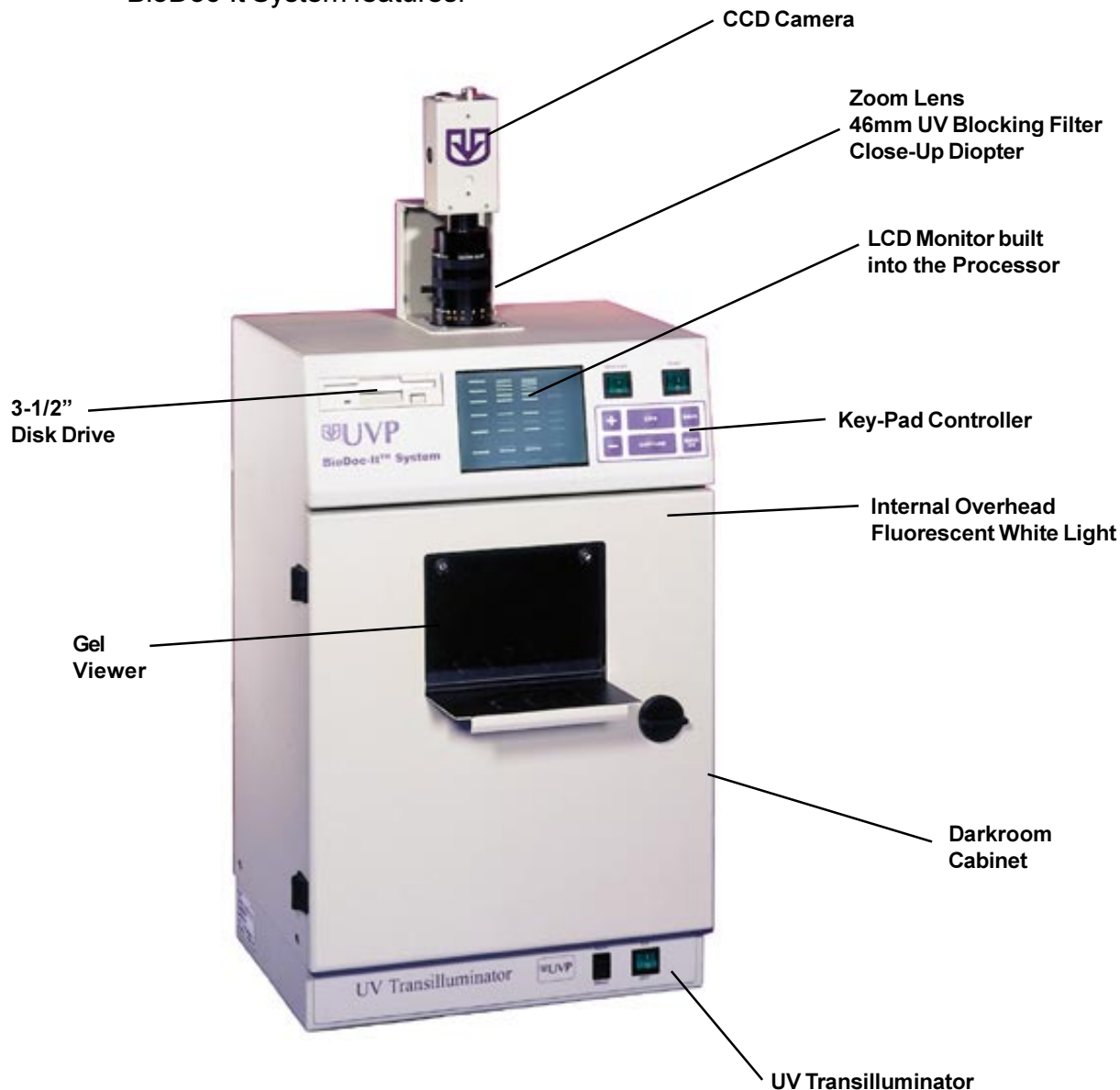
System Introductions

BioDoc-It System

The BioDoc-It System enables simple documentation of fluorescent and non-fluorescent gels, membranes, blots, film plates and assays with the ability to save images to disk for later quantitative analysis or enhancement for publication.

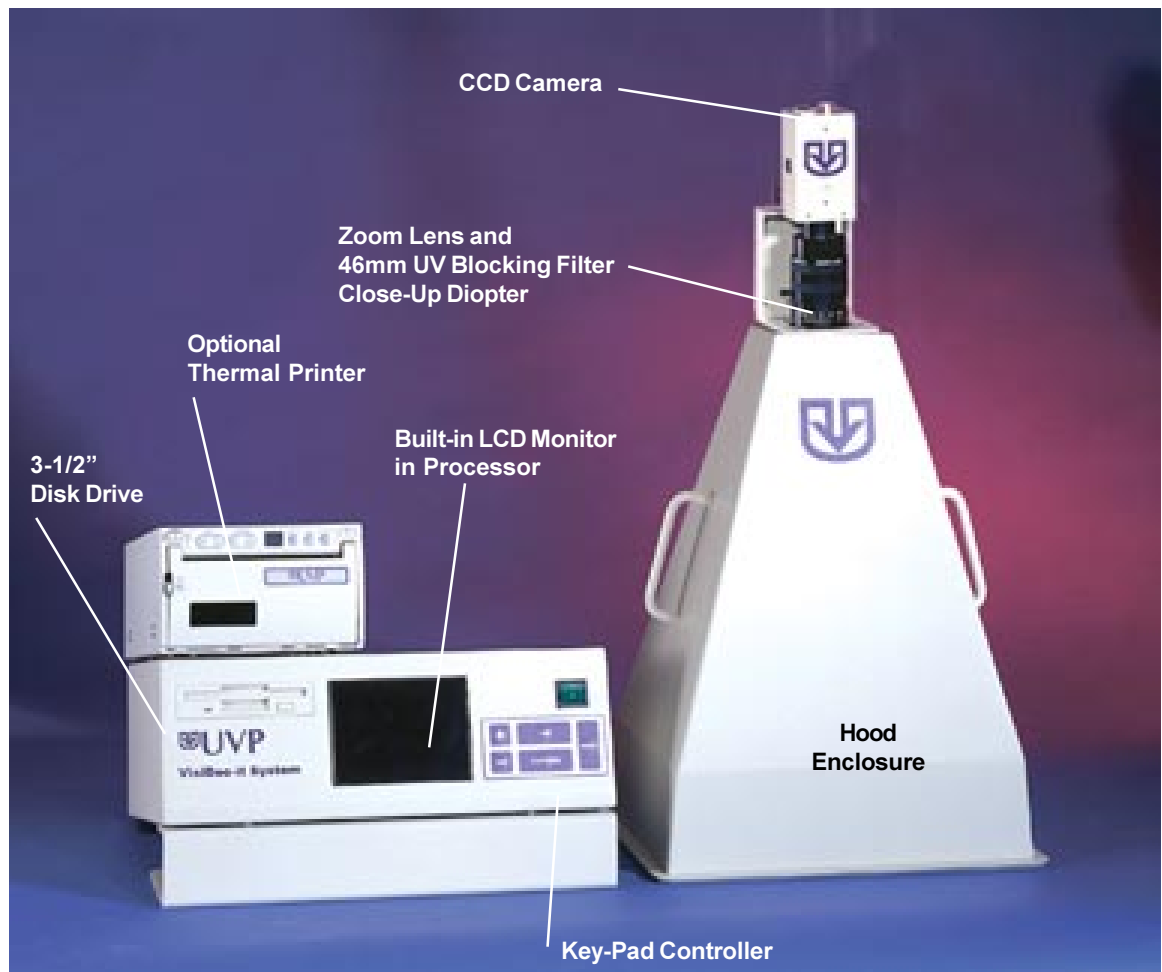
Images are stored on a 3.5" HD diskette in Tiff or Jpeg formats allowing the images to be read by most PC or MAC image processing programs. BioDoc-It is a cost effective solution for archiving high-resolution images in a small stand-alone package.

BioDoc-It System features:



VisiDoc-It System

The VisiDoc-It System is designed for researchers who already have a transilluminator in the lab. The compact enclosure fits on top of UVP's High Performance and Benchtop Transilluminators. The VisiDoc-It is similar to the BioDoc-It in its functions for simple documentation of fluorescent and non-fluorescent gels, membranes, blots, film plates and assays with the ability to save images to disk for later quantitative analysis or enhancement for publication.



The hood enclosure fits on any of UVP's High Performance or Benchtop Transilluminators. The Visi-Doc-It System is shown with the optional thermal printer.

System Hardware

The systems are comprised of:

Camera

This is a CCD video camera with a resolution of 752 X 582 pixels PAL and a resolution of 768 X 494 pixels NTSC. All camera settings are factory pre-set for optimum performance when viewing gels, films, or membranes under low light level conditions. These settings are located beneath the UVP logo side cover. Before installing the zoom lens, remove the protective plug fitted to the lens. UVP Technical Support should be contacted before making any adjustments to the camera settings.



Camera

Zoom Lens

The zoom lens is fitted with a close-up diopter. The camera can then be held in a fixed position and positioning of the image carried out. A 46mm UV Blocking filter is supplied as part of the zoom lens package. The filter is easily screwed onto the front of the lens.



Zoom Lens

46mm UV Blocking Filter

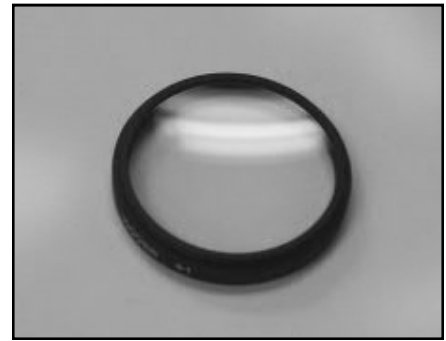
The orange-colored UV blocking band pass filter used to absorb UV and IR radiation from the transilluminator and to enhance the orange/pink bands generated by ethidium bromide stained gels. The filter is threaded onto the front of the zoom lens. These filters can be removed when imaging non-fluorescent media (protein gels, colony plates, etc.) in order to produce brighter images.



UV Blocking Filter

Close-Up Diopter

The zoom lens is fitted with a close-up diopter. It is for focusing on objects at the focus length of the Bio Doc-It system.



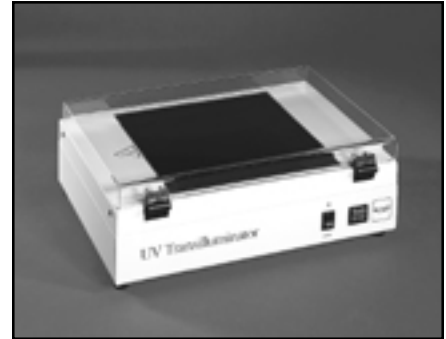
Close-Up Diopter

Transilluminator

The BioDoc-It includes a transilluminator (check your packaging slip for the model type).

If white light transillumination is needed, an optional UV to White Light Converter Screen should be used.

For the VisiDoc-It System, a transilluminator is ordered separately.



Transilluminator

Darkroom Cabinet of the BioDoc-It

The BioDoc-It's small format darkroom comes with a fluorescent white light mounted into the unit for overhead illumination. The transilluminator is activated when the darkroom door is closed provided the transilluminator and darkroom have been cross-connected by the enclosed cord. The camera with zoom lens is mounted on top of the darkroom.



Darkroom

Hood Enclosure for the VisiDoc-It

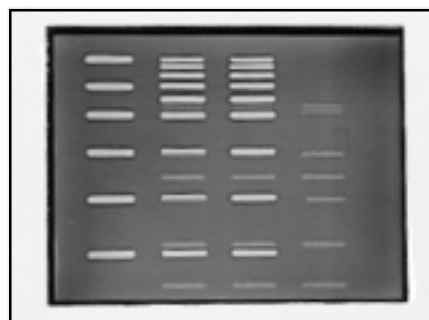
The compact hood enclosure is manufactured of lightweight plastic for portability. Handles are positioned on two sides of the hood to make it easy to move the hood for access to the transilluminator surface. The camera with zoom lens is mounted on top of the hood.



Hood Enclosure

LCD Monitor

The monitor is a 5" Flat Panel Monochrome/Color Display integrated into the darkroom cabinet allowing live or integrated viewing of images from the video camera. This assures that the images are acceptable before saving them to disk or printing. This LCD automatically switches between NTSC and CCIR video signals.



LCD Monitor

Optional Hardware

Thermal Printer

The thermal printer provides archive quality, 256 grayscale prints, and five optional print sizes. This printer comes with its own manual.



Thermal Printer

UV/White Light Converter Plate

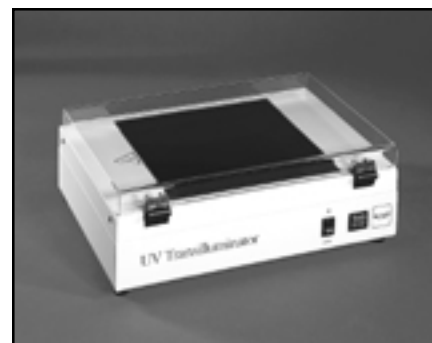
The UV/White Light Converter Plate allows imaging of non-fluorescent stained media with an ultra-violet transilluminator. The converter plate is specially coated to convert the 302nm UV output to white light, rather than using a separate white light box. The work area measures 21x26cm.



Converter Plate

Transilluminators

A large selection of transilluminators are available from UVP. These units include High Performance 25 watt models (for use with the VisiDoc-It hood) to compact 8-watt Benchtop Transilluminators. White light transilluminators and converter plates are also available. Visi-Blue transilluminators and converter plates are designed for use with blue excitation samples and SYBR green, SYPRO orange and GFP stains. Contact UVP for information.



Transilluminator

Set-Up Instructions

Components:

- Camera – lens/filter/cable
- Monitor/processor
- Darkroom or Hood Enclosure
- Transilluminator (optional equipment for VisiDoc-It System)

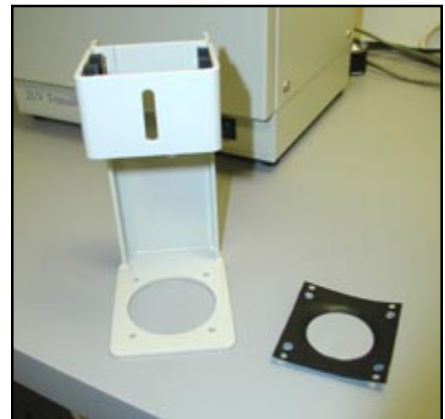
DO NOT ATTEMPT TO CONNECT ANY WIRING WHILE THE EQUIPMENT IS CONNECTED TO ANY POWER SUPPLY.

CAUTION

Do not install the system in places with high moisture, dust, or high temperature. Do not use any oil or petroleum based cleaner for the cabinet. Use only mild soap or detergent solution for cleaning. Ensure that the system is turned OFF during cleaning. Keep the equipment away from motors or other large magnetic equipment apparatus.

System Component Set-Up

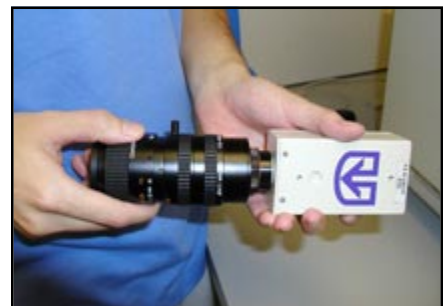
1. Attach the camera's mounting bracket to the top of the darkroom cabinet. First place the rubber light sealing gasket on top of the darkroom lens opening, align the holes. Position the mounting bracket over the gasket, aligning the holes. Install in the four screws that secure the bracket to the top of the darkroom.
2. Attach the zoom lens to the CCD camera. Screw the lens into the CCD camera clockwise until snug.



Bracket and Gasket



Connecting the Bracket and Gasket



Connecting the Lens to the Camera

3. Attach the camera cable to the camera.
4. Slide the camera/lens into the camera bracket on top of the darkroom cabinet. Turn the mounting knob clockwise into the threaded mounting hole on the front of the camera.
5. Loosen the CCD camera's mounting knob and slide the camera and lens down. Insert the lens through the rubber gasket approximately $\frac{1}{4}$ " then pull it back up about $\frac{1}{8}$ ", which leaves about $\frac{1}{8}$ " of the lens front in the darkroom cabinet. Then retighten the camera's mounting knob. This provides the proper light seal to perform integrated exposures for faint fluorescent bands.
6. Locate the 9-Pin end of the CCD camera's cable, and insert it into the 9-pin connection located on the top-back of the processor. Secure the tightening screws on the cable.



7. On the other end of the cable are the Video and Auxiliary connections to the camera. Push on the "Video" connection and twist about $\frac{1}{4}$ " to lock the connection. Next, look into the "Aux" connection from the cable to determine the proper direction to plug into the "AUX" port on top of the camera. The "Lens" port on the CCD camera is purposely left unattached.
8. Located on the back-top of the processor is the main power port.

For the BioDoc-It, one side of the port receives power from the wall (surge protector) and the other side of the port takes power to the transilluminator through a jumper power cable. Connect the jumper cable to the transilluminator, then the darkroom cabinet's main power port. Then connect the main power into the darkroom cabinet, being sure to connect to the wall (surge protector) last.



System Operation

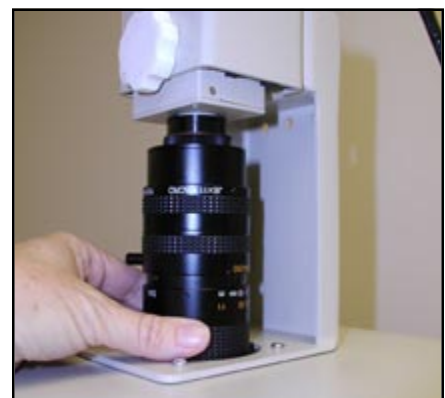
Image Focusing and Set-up

1. Turn on the main power switch on the processor. Once the power is switched on, power is applied to all internal components. The jumper power cable powers the transilluminator.
2. Turn on the transilluminator and insert the supplied “Fluorescent Focus” page on the transilluminator surface. **NOTE FOR THE BIODOC-IT: The darkroom has a UV safety switch that turns the transilluminator off when the door is open.**

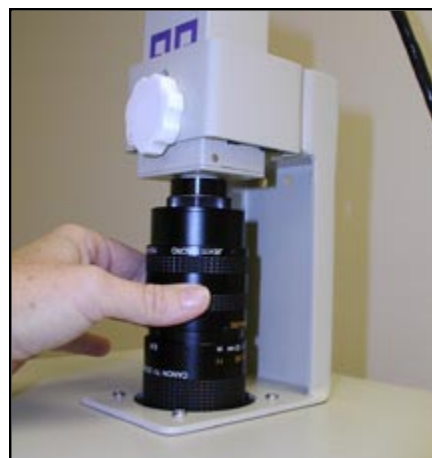
After closing the BioDoc-It darkroom cabinet's door, be sure the overhead white light is turned off. To verify the overhead white light is turned off, check to see that the white light power switch is not illuminated green. If so, flip the switch to off so that the switch does not light.

3. While watching the LCD monitor, rotate the lens f-stop adjustment (top ring) so that the image is bright enough to see on the screen.
4. Rotate the lens focus adjustment (*bottom ring*) on the lens. Adjust this so that the image appears in clear focus on the LCD monitor.

Note: Once the proper zoom range is set, the lens will have to be refocused when zoomed in completely. Then the lens will remain in focus, even as the zoom is readjusted.



5. Rotate the zoom lens adjustment (*middle ring*) on the lens, so that the image is as big as possible. Readjust the focus ring (bottom ring) on the lens, making the image clear. Once the focus is set when zoomed all the way in, the lens will remain in focus throughout the zoom range. Adjust the zoom so that the object of interest is within the picture on the LCD monitor.



Integration Control

1. The membrane keypad buttons on the front face of the processor are to control the exposure times and save images to diskette.
2. When imaging dim samples, integration of the CCD camera may be necessary to capture the more faint bands or objects. If the image on screen is too dark, start by adjusting the f-stop adjustment (top lens ring) on the lens to increase the brightness of the image.



Note: The lower the f-stop number, the brighter the image will be.

3. To further increase the brightness of the image on screen, press the “+” **button** on the keypad controller. Each time the “+” button is pressed, the camera is set to the next increasing exposure time. There are 17 different exposure time steps from 0.1sec to 10sec.
4. To decrease the exposure time and to avoid over-saturation of the image, press the “-“ **button** on the keypad controller.

If the image is still too bright after reaching “Live” mode (no integration), adjust the f-stop (top lens ring) on the lens to decrease the brightness of the image.



5. Once the image on the monitor is satisfactory, press the **“Capture” button** on the keypad controller. (Frz LIVE) displays on the bottom of the screen. This will hold the image on screen to be viewed, saved, or printed.
6. To save the image to a floppy disk, insert a 3.5” floppy disk into the drive. Press the **“Save As” button** on the keypad controller and TIFF, Jpeg, QUIT will display on the screen. A diskette accommodates approximate 4 TIFF or 80 JPEG files. Press **“Save”** to save the image in the chosen format. NOTE: “Save As” does not save the image. This is for selection of saving the image to a specified file format.



Once the file is saved to the diskette, a unique number/file name will display on the screen. When the next image is saved, it will automatically be saved in the last used file format.

7. Press the **“Live” button** on the keypad controller to return the camera to live mode. If necessary repeat steps 3 and 4 to adjust for the brightness of each sample to be imaged.
8. Press **“Print”** on the thermal printer (optional) in order to print any captured images. (See separate printer manual for complete details on the printer operation). To order a thermal printer, contact UVP’s offices.



Oversaturation Detection

1. To show oversaturated pixels in your image, select the **“Live”** button. The oversaturated pixels will flash on the LCD screen.
2. To stop the oversaturated pixels from flashing, push the **“Live”** button again. To save the image in the chosen format. NOTE: “Save As” does not save the image.
3. Adjust the brightness on the oversaturated pixels by pressing **“-”** button to the desired brightness.

Troubleshooting

No power to darkroom cabinet!

1. Recheck main power cord connections to the both the Bio Doc-It System and the wall power (surge protector).
2. Check the fuse. Located on the main power port, between the main power cord and the jumper power cord is a small pull out drawer. There are two 1.5A fuses in the drawer. The fuse located closest to the darkroom cabinet is the active fuse. The other is a spare. Inspect the thin wire within the glass fuse to see if there is a break in the wire anywhere within the fuse. If so replace the burnt fuse with the spare. If the system continues to blow fuses, call UVP Technical Support Department.
3. Call UVP Technical Support Department!

No image appears on the LCD screen!

1. Be sure the darkroom cabinet's main power switch is lit. If not, refer to "**No power to darkroom cabinet!**"
2. Look on top of the CCD camera to see if the green light is lit. If, not refer to "**System Component Set-Up**" section, #'s 4 and 7.
3. With the internal overhead white light on, completely rotate the f-stop adjustment (top lens ring adjustment) from side to side to see if there is any brightness change on the LCD. If so, refer to "**System Operation - Image focusing and Set-up**" section, #'s 4 and 5. Also check on the bottom of the lens to be sure the close-up diopter is present.
4. Unplug the "AUX" connection on the CCD camera cable to see if any image appears. If so, write down the serial number on the CCD camera's label and call UVP Technical Support Department.
5. Call UVP Technical Support Department!

Keypad Controller will not respond to commands!

1. Call UVP Technical Support Department!

Floppy Disk drive will not respond when saving to disk!

1. Call UVP Technical Support Department!

Transilluminator will not turn on!

1. Be sure the darkroom cabinet's door is completely closed. There is a UV exposure safety cut-off switch that turns the transilluminator off when the darkroom cabinet's door is opened.

2. Be sure the darkroom cabinet's main power switch is lit. If not, refer to "**No power to darkroom cabinet!**"
3. Be sure the transilluminator switch is on. When the switch is lit green, the unit is receiving power!
4. Be sure the transilluminator's power jumper cord is securely connected at both the ends of the cable.
5. Call UVP Technical Support Department

Replacement Parts and Accessories

Contact UVP's offices at the telephone numbers below for additional replacement parts for BioDoc-It and VisiDoc-It equipment. For transilluminator replacement parts refer to the separate manual for the transilluminators included with your shipment.

Replacement Parts	Part Number
Gasket, Seal for camera	72-0055-01
Tube, 4W, cool white	34-0066-01
Fuse, 1amp/250V, SLO-BLO (2 required)	56-0022-02
Accessories	Part Number
Thermal Printer, Analog, Mitsubishi (115/230V)	89-0069-01
Thermal Paper, 4 rolls (800 images)	89-0038-01
Thermal paper, 16 rolls (3200 images)	89-0038-04
Thermal Paper, 40 rolls (8000 images)	89-0038-05
Thermal Printer, Analog, Sony (230V for Europe)	89-0175-02
Thermal paper, High Gloss, 5 rolls	89-0174-01
UV to White Light Converter Plate (21x26cm)	38-0191-01
Visi-Blue Converter Plate (21x26cm)	38-0200-01
Camera Filter for SYBR Green and EGFP	38-0187-01

Technical Assistance

UVP offers technical support for all of its products. If you have any questions about the product's use, operation or repair, please call or fax UVP Customer Service or Technical Support at the following:

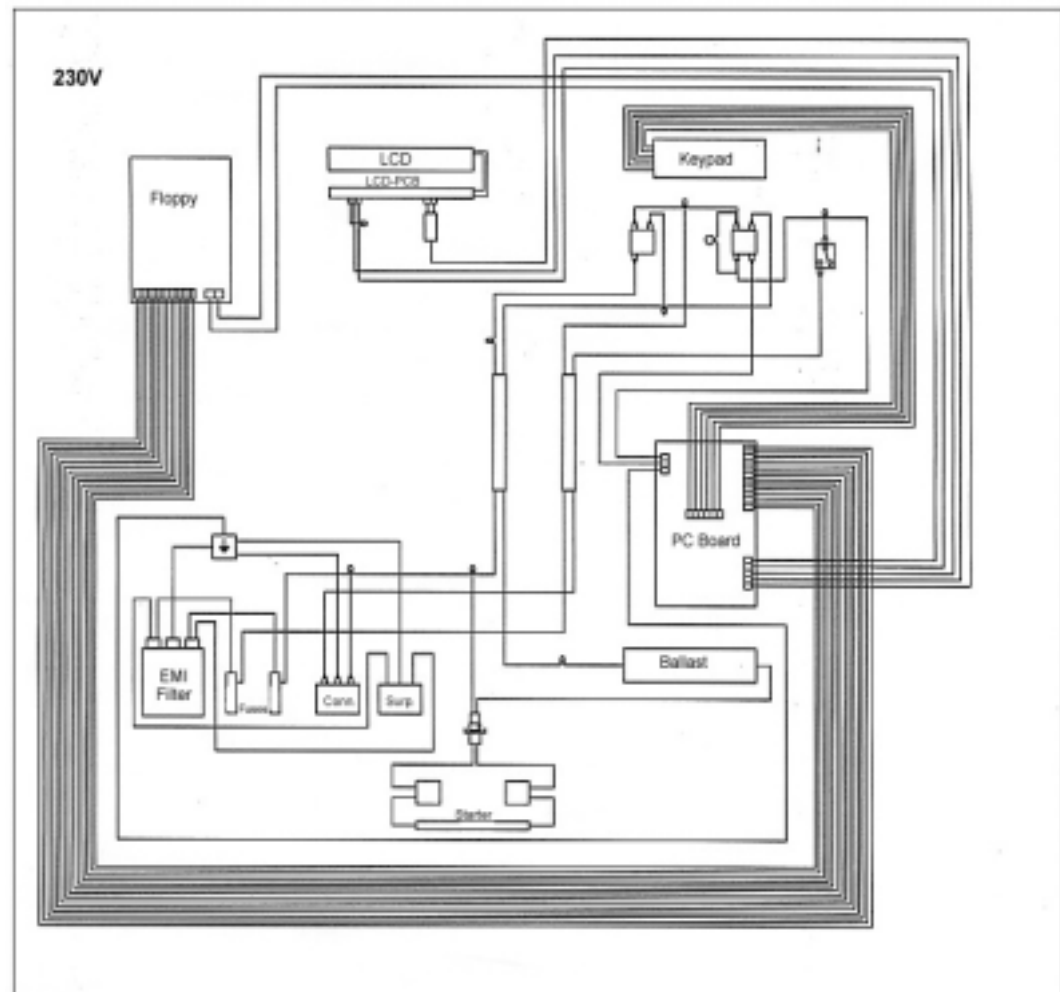
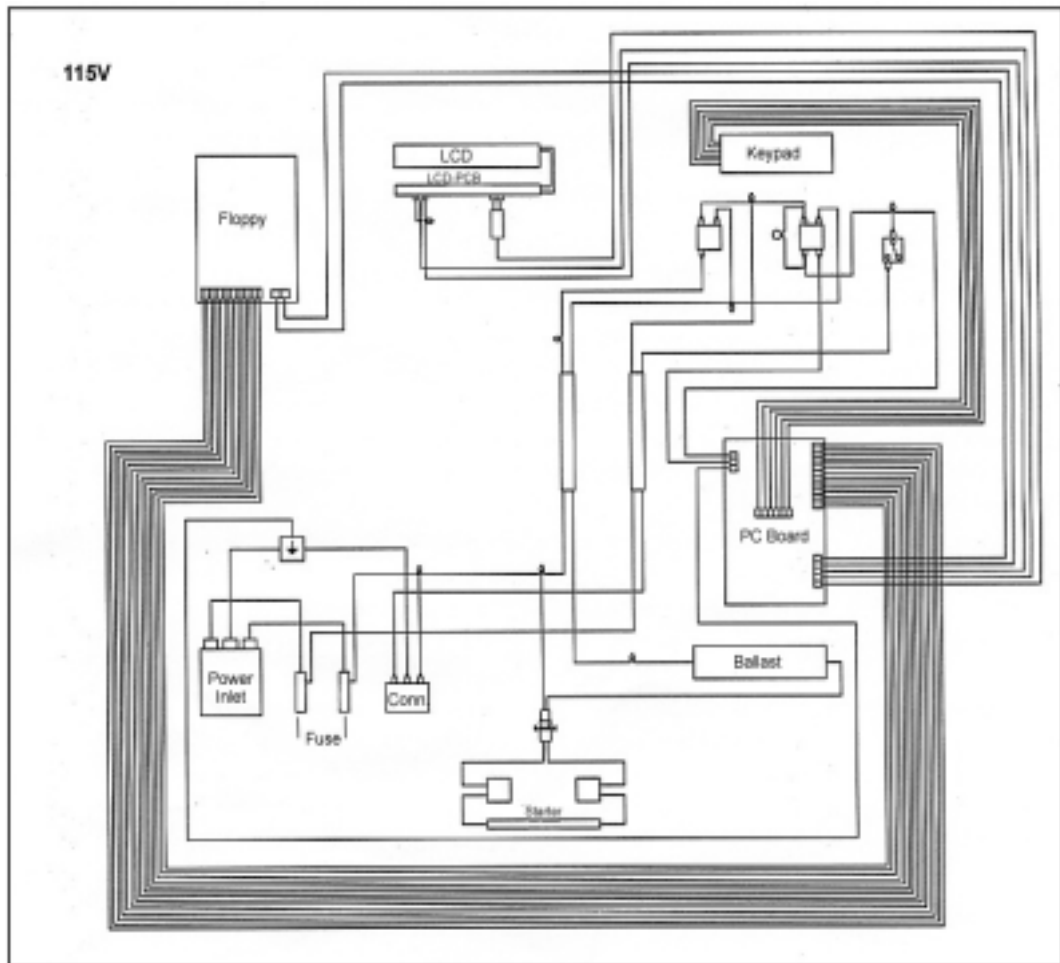
UVP, Inc. In the US 2066 W. 11th Street, Upland, CA 91786
 Toll free (800) 452-6788 or (909) 946-3197, fax: (909) 946-3597
 uvp@uvp.com or techsupport@uvp.com

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 Call +44(0)1223-420022 or fax: +44(0)1223-420561
 Unit 1, Trinity Hall Farm Estate, Nuffield Road, Cambridge CB4 1TG UK | uvp@uvp.co.uk

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

Wiring Diagrams

for BioDoc-It and VisiDoc-It Processors



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Other products from UVP include:

LabWorks Image Analysis Software

Biolmaging Systems

Crosslinkers

Hybridization Ovens

Ultraviolet Lamps and Light Sources

UV Viewing Cabinets

UV Intensity Meters

Multi-Sense Meters



<http://www.uvp.com>

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