

# BioDoc-It<sup>®2</sup> Imaging System

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## *Installation and User Instructions*



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## Introduction

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The **BioDoc-It<sup>2</sup> Imaging System** enables simple documentation of fluorescent and non-fluorescent gels, membranes, blots, film plates and assays with the ability to save images to a USB flash drive or network location for later quantitative analysis or enhancement for publication.

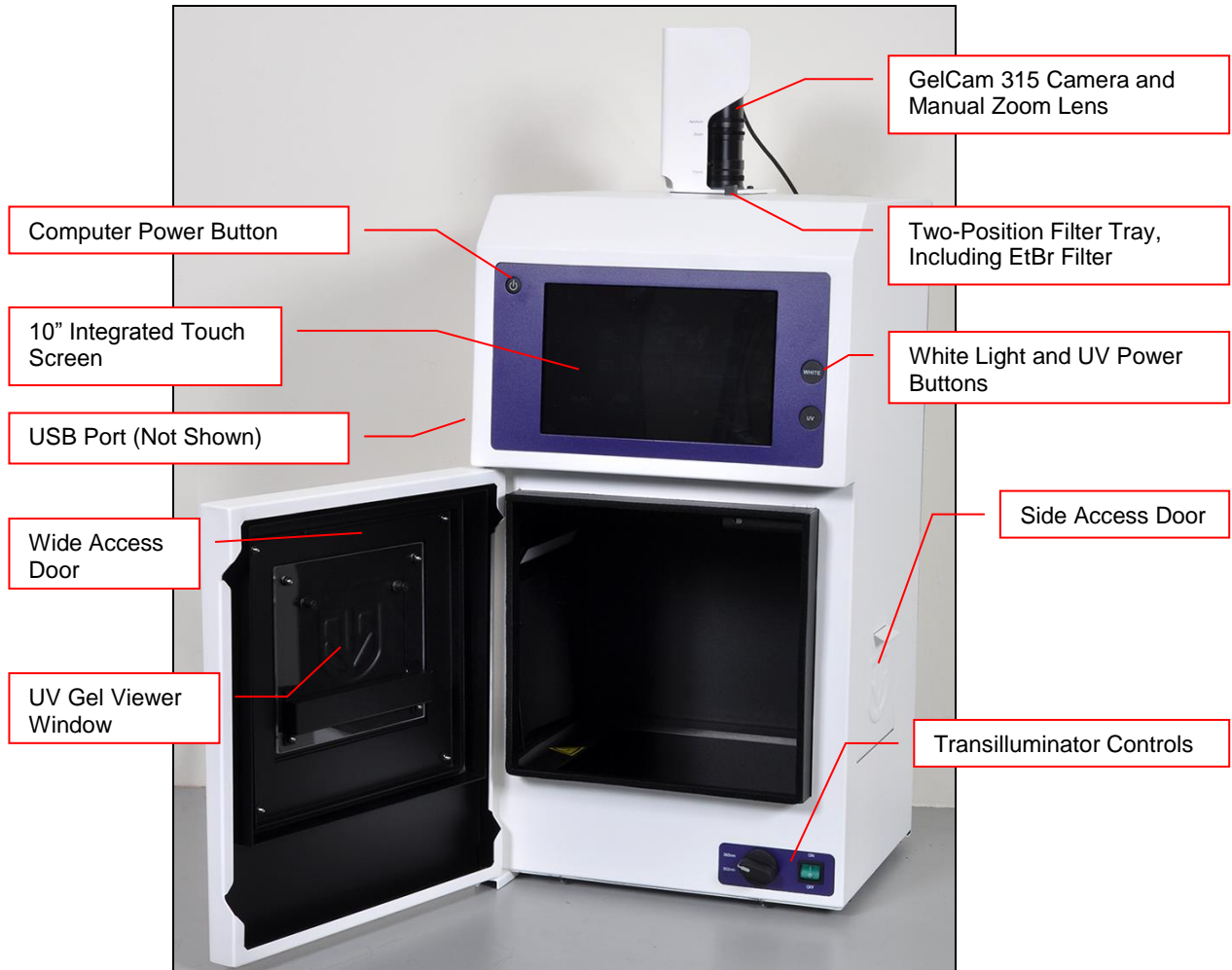
Images are saved in a variety of selectable formats, allowing saved images to be read by most PC or Mac programs. The BioDoc-It<sup>2</sup> Imaging System is a cost effective solution for capturing quality images in a compact standalone package, as no external computer is required.

The BioDoc-It<sup>2</sup> comes standard with the **GelCam 315 camera**, which includes 5MP (2592 x 1944) resolution, an 8-48mm f/1.2 zoom lens, and 16-bit file bit depth. Multiple transillumination options are available, including single UV (302nm), 2UV™ (302/365nm) and 3UV™ (302/365/254nm) versions with illumination areas ranging from 20 x 20cm to 25 x 26cm

*\*System/software configurations may vary by country. Contact UVP or authorized distributor for details.*

## System Components

Refer to the packing slip and pictured components below 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

## Built-In Touch Screen Computer

Operating System:	Windows® 8.1, 64-Bit
Connectivity Ports:	1 USB (side of system) 6 USB (rear of system)
Wireless Networking Capability:	802.11 a/b/g/n
USB Flash Drive Capacity:	8GB (minimum)
Software:	UVP TS (Touch Screen) Software

## Cameras and Lenses

The BioDoc-It<sup>2</sup> 315 is equipped with the GelCam 315 Camera, with a resolution of 5.0MP. The system is equipped with an 8-48mm zoom lens, allowing the user to zoom in and out on the sample within the darkroom.

The GelCam 315 uses a USB 2.0 connection. 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 before making any adjustments to camera settings.

## Ethidium Bromide (EtBr) Emission Filter

The ethidium bromide (50mm<sup>2</sup>) UV-blocking bandpass interference filter blocks UV and IR radiation emitted from the transilluminator. The filter is placed in the two-position emission filter assembly and 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 ordering information.

## Darkroom

Darkroom features include:

- Integrated 10" touchscreen interface
- Integrated transilluminator and epi (overhead) LED white lights
- UV-safe gel viewer window built into the darkroom door
- Side doors for easy access to the interior of the darkroom (for placement or excision of samples)
- Two-position emission filter selector
- UV safety interlock switch to disable UV transillumination when the main darkroom door is opened

## Transilluminator

The BioDoc-It<sup>2</sup> Imaging System includes an integrated UVP Benchtop transilluminator. UVP offers a variety of transilluminator configurations, including models with multiple wavelengths and variable intensities.

## LCD Touch Screen

The BioDoc-It<sup>2</sup> Imaging System contains a fully integrated 10.1-inch color touchscreen computer. The touch screen allows the user to perform a variety of tasks, including previewing, capturing, saving and printing images, as well as selecting preference options, without the use of an external mouse or keyboard.

For users who prefer not to use the touch screen interface, an external keyboard and mouse can be used via any available system USB ports.

## UVP TS Software

Image acquisition functions for the BioDoc-It<sup>2</sup> are controlled by the TS (Touch Screen) Software interface. Software features include image preview, capture and save functions.

For more information, see the **Touch Screen Interface** section in this manual.

## 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.



## USB Flash Drive

The removable USB flash drive, included with the system, has 8GB memory (minimum) and connects to the system to allow for saving and transferring of images.

## 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.

### ***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 to white light.

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.



## Setup Instructions

### Components

When unpacking the BioDoc-It<sup>2</sup> Imaging System, the following items will be included:

1. BioDoc-It<sup>2</sup> system with integrated transilluminator
2. Camera and zoom lens
3. Power, jumper and USB cables
4. Ethidium bromide (EtBr) emission filter
5. USB flash drive (8GB minimum)
6. Supporting documentation

Place the darkroom on a flat surface which can provide adequate support for up to 50 pounds.

**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. 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.
2. Connect the jumper cable from the darkroom to the rear of the transilluminator.

Connection for the main darkroom power

Connection for jumper cord to the transilluminator



### Installing Emission Filters

To install the 50mm<sup>2</sup> ethidium bromide (EtBr) filter and 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 2-position filter tray is located at the top of the system, below the camera lens hole. Place the emission filter in the desired position by inserting the filter through the camera lens hole and into the desired filter tray position. **Note:** The camera and lens must be removed to access the filter tray.

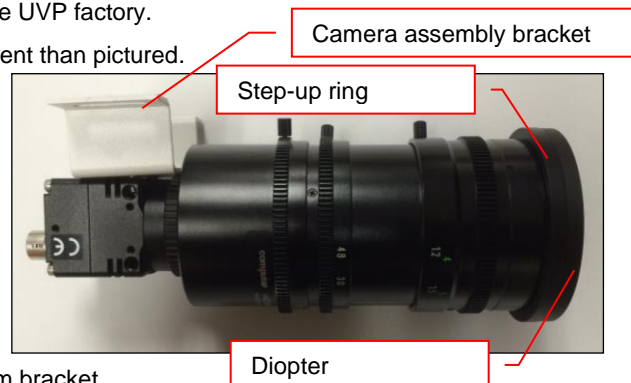
Additional and replacement emission filters are available through UVP. Refer to the **Replacement Parts and Accessories** section of this manual for ordering information.

### Camera Setup and Installation

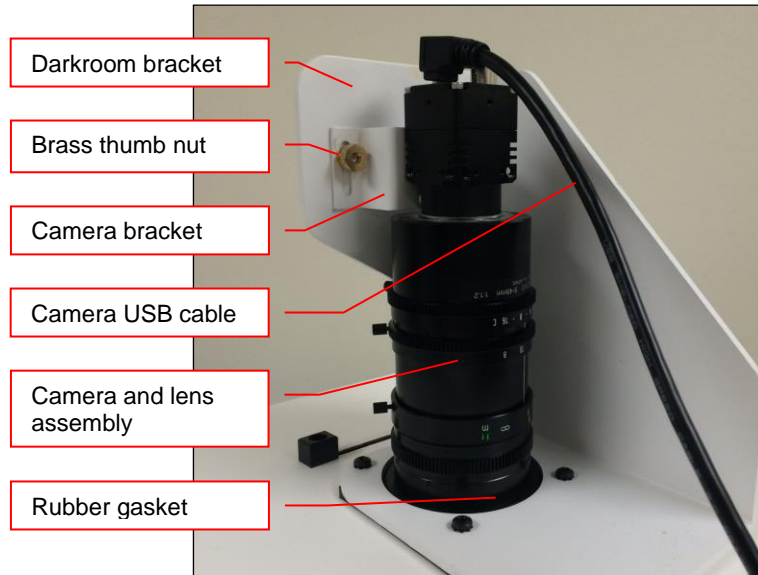
The camera and zoom lens are assembled at the UVP factory.

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

1. Remove the cap from the lens.
2. If not already assembled, attach the step-up ring and diopter to the lens. The step-up ring and diopter will only fit one way.
3. Using the two brass thumb nuts provided, secure the camera assembly bracket to the darkroom bracket located on the top of the BioDoc-It<sup>2</sup>. Ensure that a light-tight seal is made between the end of the lens and the rubber gasket beneath the darkroom bracket.



4. Plug the camera cable into the top of the camera and the other end into a USB port on back of the darkroom.





## Using the System

### Powering Up the System

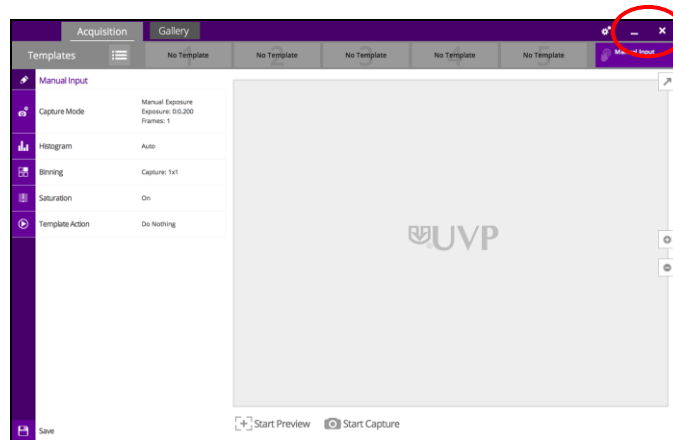
Press the **POWER** button on the front of the system, and hold for 3 seconds to power on the internal computer.

Once the computer completely boots, the TS Software will load automatically.

Press briefly to put unit into sleep mode, or get out of sleep mode. To power off the computer, hold for 3 seconds.

### Operating the TS Software Interface

Upon startup, the internal computer will proceed through the boot-up process. When complete, the Windows desktop will appear. The TS Software screen, similar to the one below, will open automatically shortly thereafter.



To exit the TS Software interface, press either the close (**X**) or minimize (**\_**) buttons at the top right corner of the software (see red circle above). To power down the system, press the **POWER** button located on the front of the BioDoc-It<sup>2</sup>.

Refer to **Touch Screen Interface** in this manual for further instructions on using the software.

### Using the Transilluminator

Once the BioDoc-It<sup>2</sup> darkroom is plugged in to a power outlet, power is supplied to all components. This includes the jumper cable that supplies power to the transilluminator.

To use the transilluminator:

1. Open the darkroom door and place the main power switch located on the front of the transilluminator in the **ON (I)** position. (Note: It is recommended to always leave this power switch in the **ON (I)** position.)
2. Use the rotary knob on the front of the transilluminator to select from the available lighting wavelengths or intensities (transilluminator settings vary by model).
3. Locate the **UV** power button on the front of the BioDoc-It<sup>2</sup> system, to the right of the touch screen. Press this switch until it glows green. The transillumination is now active.
4. Press the switch again to turn off the transilluminator.

Refer to the transilluminator manual for additional instructions on using the transilluminator.

**Note:** The BioDoc-It<sup>2</sup> integrates a UV interlock switch which will inactivate the UV transilluminator when the main darkroom door is open. This switch is located on the upper right corner of the darkroom door opening and is only accessible when the main door is open.

## Using the Epi (Overhead) White Light

1. Locate the **White** power button on the front of the BioDoc-It<sup>2</sup> system, to the right of the touch screen. Press this switch until it glows green. The epi (overhead) white light is now active.
2. Press the switch again to turn off the epi (overhead) white light.

## Using the UV Gel Viewer Window

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

To open the window cover, pull down on the metal tab. The cover will pop open. To close the cover, pivot it up until it reengages with the two small magnets.

**NOTE:** Close the UV Gel Viewer Window prior to capturing light-sensitive images.

## Image Focusing

Prior to capturing an image, prepare the image focus as follows:

1. Remove the blue protective film from the **Fluorescent Focus Target** (see the “Fluorescent Focus Target” section of this manual for more information).
2. Turn on the transilluminator and place the Target on the transilluminator surface.
3. Using the TS Software, press **Start Preview** to begin viewing the sample within the system. Adjust the focus, zoom and aperture controls using the **Focus**, **Zoom** and **Aperture** rings on the camera lens until an ideal image is visible.

Refer to the **Touch Screen Interface** section in this manual for further instructions on using the software.

## Image Zooming

The BioDoc-It<sup>2</sup> is equipped with an optical zoom lens, meaning that the system uses the lens' optics to make the sample appear closer/larger on the screen. Optical zoom is adjusted using the **Zoom** ring on the camera lens.

However, it may be desirable to use digital zooming to move in closer on the image. Digital zoom enlarges a portion of the image, simulating optical zoom. Thus, the camera crops a portion of the image and enlarges the cropped portion to fill the imaging area on the screen.

To use digital zoom functionality:

1. With a preview or captured image on the screen, use the “+” and “-” buttons located on the right side of the image.
2. Tap and drag to move around on the zoomed-in image.

Notes regarding digital zoom operation:

- The software's digital zoom feature utilizes WYSIWYG, or “what you see is what you get,” meaning that a zoomed preview image will result in a zoomed capture image.
- A zoomed capture image will save and print as shown on the screen (WYSIWYG).

Refer to the **Digital Zoom** section of **Touch Screen Interface** in this manual for further information.

## Touch Screen Interface

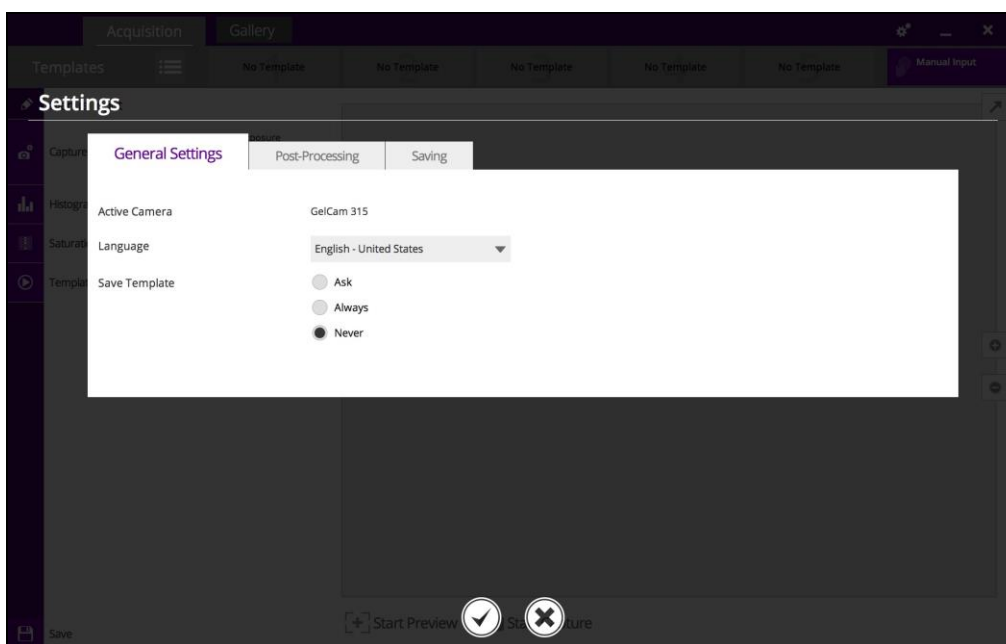
### Setting User Preferences

The **Settings** portion of the TS Software allows the user to select preferences which are normally set once and rarely changed. Such settings include image save format and image save location. Access the user preferences by pressing the **Settings** button in the upper-right corner of the main TS screen and selecting from the following tabs:



- **General Settings**
- **Post-Processing**
- **Saving**

The following pop-up screen will appear:



#### **General Settings Tab**

**Language:** Use the drop-down arrow to select the desired language for the TS Software interface. Multiple language options are available including English (US), Chinese (simplified), Turkish, Japanese, Korean, Russian, Portuguese, Spanish and German.

**Save Template:** Select from **Ask**, **Always** or **Never** to choose whether the software should ask to save any changes to a template, always save the changes automatically without asking, or never save the changes automatically.

#### **Post-Processing Tab**

**Auto Rotate:** Set Auto Rotate to **ON** to automatically rotate the image to the desired degree upon image capture. *Note: "Auto Rotate" must be set to **ON** in order to rotate images during image capture, as images cannot be rotated after capture using the TS Software.*

To select the degree of image rotation, press the down arrow from the drop-down menu and choose to rotate the image 90 degrees clockwise, 90 degrees counterclockwise, or 180 degrees (upside down). *Note: "Auto Rotate" must first be turned **ON** before selecting a rotation setting.*

**Auto Invert Image:** Set Auto Invert Image to **ON** to automatically invert the image upon image capture. *Note: "Auto Invert Image" must be set to ON in order to invert images during image capture; captured images can also be inverted in the Gallery view.*

**Noise Subtraction:** Set Noise Subtraction to **ON** to reduce the amount of background and ambient ("white") noise within the image. In most circumstances, this setting should be left **ON**. *Note: "Noise Subtraction" must be set to ON in order to subtract noise from images during image capture, as noise cannot be subtracted from images after capture using the TS Software.*

## Saving Tab

**Save Format:** Press the down arrow to select the desired file save format from the drop-down menu. Save images in **JPEG, TIFF, BMP** or **PNG** file formats.

From the drop-down menu to the right of the chosen file format, choose **Save Selected Format** to save the image only in the chosen format. Or, select **Save Selected & Original Formats** to save in both the selected format as well as in an uncompressed TIFF format (note: two separate files will be saved using this method).

*Note: If the TIFF file format is selected and **Save Selected & Original Formats** is also selected, both compressed and uncompressed TIFF files will be saved.*

**Save Images To:** Select the location where images are to be saved. The black dot within the radio button indicates which selection is activated.

1. Select **USB** to save the file to the USB drive if one is currently inserted. If a USB device is not present, the user will be notified that a USB drive is not present when attempting to save an image.
2. Select **Prompt for Location** to prompt the user to select a file save location when attempting to save an image. This setting will also allow the user to save using a custom file name.
3. Choose **Select Folder** to define where the file will be saved when attempting to save an image. Select from any local or network drive by pressing the folder icon to the right of the file path display. *Note: The **Select Folder** radio icon must first be selected prior to defining the save location.*

**Auto Save After Capture:** Set **Auto Save After Capture** to **ON** to automatically save the image after capture. The image will automatically save to the location selected in **Save Images To** and in the format selected in **Save Format**, as described above.

**NOTE:** If the **Auto Save After Capture** function is set to **OFF**, press the **Save** button in the Gallery view to manually save an image.

**Auto Print After Capture:** Select **ON** to automatically send the captured image to the default printer after an image is captured. If a default printer is not installed, the Windows "Printers and Faxes" dialog will automatically appear after the image is captured. Select the desired printer in the "Printers and Faxes" dialog box and press **OK** on the dialog box to print the image.







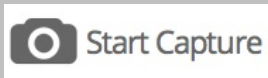
## Accept or Cancel Settings




Once all Preferences settings have been made, press the **Checkmark** button at the bottom of the Preferences screen to save all preferences and go back to the main TS screen. Or, press the **"X"** button to go back to the main TS screen without saving changes.









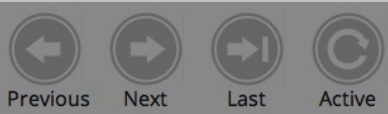







## Identifying the Touch Screen Buttons and Functions

Using the BioDoc-It<sup>2</sup>'s built-in touch screen allows for convenient selection of all system functions, including image capture, save and print. Following is a list of buttons on the touch screen and their individual functions.






<u>TS Button</u>	<u>Function</u>
 <p><i>"Off" and "On" Sliders</i></p>	<p>Throughout the TS interface, the <b>"Off" and "On" Sliders</b> are used to turn settings either off or on. To toggle between off and on, tap the Slider; the Slider will automatically move between the "X" (off) and the checkmark (on).</p>
 <p><i>"Acquisition" Tab</i></p>	<p>To access system acquisition settings, press to select the <b>Acquisition</b> tab.</p>
 <p><i>Settings</i></p>	<p>Access user preferences by pressing the <b>Settings</b> button in the upper-right corner of the main TS screen. The <b>Settings</b> screen allows the user to select settings which are normally chosen once and rarely changed, such as interface language and image save format.</p> <p>See the <b>Setting User Preferences</b> section of this manual for further information.</p>
 <p><i>Templates</i></p>	<p>Press the <b>Templates</b> button to access the list of templates. Press again to close the list of templates.</p> <p>For more information on templates, see the <b>Using Templates</b> section of this manual.</p>
	<p>To view a preview of the image prior to capturing, press the <b>Start Preview</b> button.</p> <p>This function is active when the button's text and pictogram are shown in purple and read "Stop Preview". When active, press the button again to deactivate live preview.</p>
 <p><i>Maximize</i>      <i>Minimize</i></p>	<p>When an image preview is open, press the <b>Maximize</b> button to show the image in full-screen mode.</p> <p>Press the <b>Minimize</b> button to close full-screen.</p>
	<p>To capture an image with user-defined settings, press the <b>Start Capture</b> button. For longer exposures, the amount of time remaining for the capture to complete will appear to the right of the "Start Capture" button.</p> <p>This function is active when the button reads "Stop Capture" in purple lettering.</p> <p><b>NOTE:</b> When using the Start Capture button, if the <b>Auto Save After Capture</b> function is enabled in Preferences, the image will automatically be saved to the preset location (see "Saving Tab" under <b>Setting User Preferences</b> in this manual).</p>

 <p><b>Marker</b></p> <p><b>Slider Bar</b></p>	<p>Use the <b>slider bar</b> to adjust various settings. To adjust the settings, do one of the following:</p> <ul style="list-style-type: none"> <li>• Press and drag the marker (small triangle) to the desired position;</li> <li>• Touch anywhere along the gray slider bar and the marker will automatically “snap” to that position (not applicable to Histogram);</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>• Press the “+” and “-” buttons to make fine adjustments to the settings (not applicable to Histogram).</li> </ul>
 <p><b>Digital Zoom</b></p>	<p>To digitally zoom in on previewed or captured images, use the <b>Digital Zoom Buttons</b> (“+” and “-”) located to the right of the active image.</p> <p>Tap and drag to move around on the zoomed-in image.</p>
 <p><b>Capture Mode</b></p>	<p>Press the <b>Capture Mode</b> button to access exposure time adjustment for live image preview and capture, as well as to select modes for image capture.</p> <p>Use the vertical <b>slider bars</b> and/or the “+” and “-” buttons to make adjustments to the desired portion of the exposure time (<b>sec</b>, <b>ms</b> or <b>microseconds</b>).</p> <p>To adjust capture modes, select the desired mode from the drop-down menu. Capture modes include:</p> <ul style="list-style-type: none"> <li>• <b>Manual Exposure:</b> Captures one (or more) images with a pre-selected exposure time.</li> </ul> <p>If desired, select the <b>Number of Frames</b> to be captured. Use the “+” and “-” buttons to select the desired number of frames.</p> <ul style="list-style-type: none"> <li>• <b>Auto Exposure:</b> Captures an image with an ideal exposure time determined automatically by the system prior to image capture. (<b>NOTE:</b> When using the Auto Exposure function, any exposure time settings made by the user prior to image capture will be changed.)</li> </ul> <p>After selecting <b>Auto Exposure</b>, select from one of the following image acquisition settings:</p> <ol style="list-style-type: none"> <li>1. <b>Best (Longer Exposure)</b> exposes the image to the maximum value of the histogram (65,000 gray levels).</li> <li>2. <b>Better</b> exposes to fill the histogram 50% so the brightest portion of the image is at 32,000 gray levels.</li> <li>3. <b>Good</b> exposes to fill the histogram to 25% or 16,000 gray levels.</li> <li>4. <b>Minimum (Fast Exposure)</b> exposes to fill the histogram to 10% over background.</li> </ol>

 <p><b>Histogram</b></p>	<p>Press the <b>Histogram</b> button to access image histogram adjustment. Use the pointers on the vertical <b>slider bar</b> to make adjustments to this setting. Slide the top marker down to darken the image, or slide the bottom marker up to lighten the image.</p> <p>Push the “Reset” button to reset the markers to the top and bottom of the slider bar, showing the image’s full histogram range.</p> <p>Turn <b>Auto Adjust</b> on to automatically adjust the image histogram for ideal imaging results.</p> <p><b>NOTE:</b> Histogram settings also apply to the Gallery view, discussed later in this manual.</p>
 <p><b>Saturation Warning</b></p>	<p>Turn on <b>Saturation Warning</b> to provide a bright yellow or red image overlay on oversaturated areas of the image during Live Preview. Yellow indicates mild overexposure while red indicates extreme overexposure.</p> <p>To capture an ideally exposed image, decrease the aperture or exposure time until the yellow or red overlay disappears.</p> <p>To activate saturation warning, press the <b>Saturation Warning</b> slider until the check mark appears.</p>
 <p><b>Action</b></p>	<p>Press the <b>Template Action</b> button to select which action the BioDoc-It<sup>2</sup> will take when a template is selected. Available actions include:</p> <ul style="list-style-type: none"> <li>• <b>Start Capture:</b> When a template includes this Action, all system settings will be adjusted according to the template and then the image will automatically be captured.</li> <li>• <b>Start Preview:</b> When a template includes this Action, all system settings will be adjusted according to the template and an image preview will automatically be shown.</li> <li>• <b>Do Nothing:</b> When a template includes this Action, all system settings will be adjusted according to the template; no image preview or capture will occur.</li> </ul>
 <p><b>Done and Save</b></p>	<p>After all template settings have been made, press the <b>Done</b> (checkmark) button. Then, to save the selected settings as a template for future use, press the <b>Save</b> (disk) icon.</p> <p>A window will appear prompting the user to enter a template name using the on-screen keyboard. After the name has been entered, press the <b>Checkmark</b> button to accept the name or the “<b>X</b>” button to cancel.</p>
 <p><b>“Gallery” Tab</b></p>	<p>To access the photo gallery, press to select the <b>Gallery</b> tab.</p> <p>Once active, select the desired image from the top of the Gallery screen.</p>

 <p><b>Open Image</b></p>	<p>To open a previously-saved image, press the <b>Open Image</b> button. Pressing this button will open the Windows file/folder navigation screen. Select the desired file and press <b>Open</b>.</p>
 <p><b>Gallery Navigation</b></p>	<p>Use the <b>Gallery Navigation</b> buttons to navigate through the image gallery.</p> <p>When multiple “pages” of images appear in the gallery:</p> <ul style="list-style-type: none"> <li>• Press <b>Previous</b> to go to the previous page.</li> <li>• Press <b>Next</b> to go to the next page.</li> <li>• Press <b>Last</b> to go to the newest picture in the Gallery.</li> <li>• Press <b>Active</b> to go to the active image shown on the main image screen.</li> </ul>
  <p><b>Maximize</b>      <b>Minimize</b></p>	<p>When an image is open in the Gallery, press the <b>Maximize</b> button to show the image in full-screen mode.</p> <p>Press the <b>Minimize</b> button to close full-screen mode.</p>
 <p><b>Close</b></p>	<p>Press the <b>Close</b> button to the right of the image to close the active image. If the image is unsaved, the user will be prompted to save the image before closing.</p>
 <p><b>Information</b></p>	<p>Press the “<b>i</b>” (<b>Information</b>) button to view information pertaining to the open image, such as exposure time. Press the “<b>i</b>” button again to close the image information screen.</p> <p><b>NOTE:</b> Image information is only available for images captured using the BioDoc-It<sup>2</sup>.</p>
 <p><b>Digital Zoom Buttons</b></p>	<p>Use the “<b>+</b>” and “<b>-</b>” buttons located to the right of the active image to digitally zoom in or out on Gallery images.</p> <p>Tap and drag to move around on the zoomed-in image.</p>
 <p><b>Save Burned</b></p>  <p><b>Save</b></p>	<p>Press the <b>Save Burned</b> button to save the image with all modifications (such as time stamp and histogram modifications) embedded in the image. Or, press the <b>Save</b> button to save the raw image without any modifications embedded. Images will be saved to the location specified in <b>Preferences</b>.</p> <p>The file name is automatically assigned by the software as <b>yyyy-mm-dd_hh-mm-ss</b>, with “yyyy-mm-dd” being the date of image capture and “hh-mm-ss” being the time of image capture.</p> <p><b>NOTE:</b> To manually change the file name when saving an image, select <b>Prompt for Location</b> under the <b>Saving</b> tab in <b>Settings</b> prior to saving. Then, each time the Save</p>




	<p>button is pressed, the user will be prompted to select a file save location and can enter a custom file name.</p> <p><b>NOTE:</b> If <b>Save Selected &amp; Original Formats</b> is selected in the <b>Settings</b> menu (described earlier in this manual) and the <b>Save</b> button is pressed, both the selected and original formats will be saved. However, if the <b>Save Burned</b> button is pressed, only the selected format will be saved.</p>
 <p><b>Print</b></p>	<p>Press the <b>Print</b> button to print the current image on the default printer. If a default printer is not installed, pressing the <b>Print</b> button will place the print request in queue.</p>
 <p><b>Histogram</b></p>	<p>See the <b>Histogram</b> section in the <b>Acquisition</b> portion of this manual for information on using the histogram in Gallery view.</p>
 <p><b>Time Stamp</b></p>	<p>To add a date stamp to the captured image, press the <b>Time Stamp</b> button, then press the slider until the check mark appears. This will add <b>mmm/dd/yyyy hh:mm:ss</b> to the bottom right corner of the image.</p> <p><b>NOTE:</b> The time stamp is not saved to the image unless <b>Save Burned</b> is selected (as described earlier in this manual).</p>
 <p><b>Pseudocolor and Invert</b></p>	<p>Press the <b>Pseudocolor</b> button to access a variety of Pseudocolor options for captured images. Pseudocolor options include <b>in vivo</b>, <b>oversaturation</b> (shows yellow to indicate mild overexposure and red to indicate extreme overexposure), <b>yellow</b>, <b>red</b>, <b>green</b> and <b>blue</b>. Press the appropriate radio button to select the desired pseudocolor.</p> <p>Press the <b>Invert</b> button to access image inversion selection. Under <b>Invert</b>, touch the slider until the check mark appears to activate image inversion.</p> <p><b>NOTE:</b> Pseudocolors and image inversion are not saved to the image unless <b>Save Burned</b> is selected (as described earlier in this manual).</p>
 <p><b>Minimize and Close</b></p>	<p>Press the <b>Minimize</b> (“_”) button in the upper-right corner of the screen to minimize the TS Software.</p> <p>Press the <b>Close</b> (“X”) button in the upper-right corner of the screen to close the TS Software. If any unsaved images are open prior to closing the TS Software, the user will be prompted to choose one of the following:</p> <ol style="list-style-type: none"> <li>1. Save the current image</li> <li>2. Not save the current image</li> <li>3. Cancel closing the software</li> <li>4. Save none of the images</li> <li>5. Save all images</li> </ol> <p>The user will also be prompted to <b>Save Selected Format</b> or <b>Save Selected &amp; Original Formats</b>. See the “Preferences” section of this manual for more information.</p>

## Using Templates

The BioDoc-It<sup>2</sup> is capable of utilizing templates to recall pre-saved systems settings for repeat experiments. An unlimited number of templates can be saved in the system, with up to five quick-access templates available at the top of the main system screen for easy access.

To create a template:

1. Set the various system settings as desired following the instructions shown in the **Identifying the Touch Screen Buttons and Functions** section of this manual.
2. Once all desired settings have been selected, press **Done** at the bottom left of the screen. A summary of all settings will be shown. Then, press **Save** to save the template:
  - a. For new templates, a popup will appear requesting for the template to be assigned a name.
  - b. For existing templates, the keyboard will appear with the template name shown. The user can then accept the current name by pressing the **Checkmark** button, enter a new template name then press the **Checkmark** button, or press the **“X”** button to cancel saving.
3. To access saved templates, press the **Templates** button as shown: 
4. To select the quick-access templates to be shown at the top of the TS screen, press the **Templates** button until the list of saved templates is shown. Then, drag the template to the desired quick-access position.

To run a template, either:

1. Select the desired template from the **Templates** menu by pressing the gray check box icon to the right of the template name, or
2. Select the template from the quick-access area.

Once the template is selected, all template settings and actions will automatically be performed on the system.

A template is active when the template button shows white letters on a purple background. A template is inactive when black letters are shown on a gray background.

To edit a template name, press the gray pencil icon to the right of the template name in the list of saved templates. The template settings will be shown. Press the pencil icon in the upper-left corner of the screen to the left of the template name. An on-screen keyboard will appear. Use the keyboard to enter the desired template name. Press the **Checkmark** button to accept the revised name, or press the **“X”** button to cancel.

To delete a template, press the gray trash can icon to the right of the template name.

To disregard a template and enter settings and actions manually, press the **Manual Input** button located at the top right of the software:



## Connecting to a Network

BioDoc-It<sup>2</sup> Imaging Systems have built-in wireless networking capability. While it is fairly simple to connect the system to a network, it is highly recommend to obtain assistance from a network administrator to ensure that the process is completed properly.

Follow Microsoft or local standard network protocols for network configuration. To minimize the TS Software interface and access Microsoft Windows for network configuration, press the **Minimize** (“\_”) button in the upper-right corner of the software.

## Installing Drivers or Additional Software

In the event that additional drivers or software must be installed on the system, exit the TS Software interface and access Microsoft Windows by pressing the **Close** ("X") button located in the upper-right corner of the main TS screen.

To install drivers or additional software, copy the software to an external storage device, open Windows Explorer, navigate to the appropriate folder and run the desired program.

## Service Procedures

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### Return Procedure

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

### Replacement Parts and Accessories

To order accessories or replacement parts for the BioDoc-It<sup>2</sup> Imaging System, contact UVP's offices.

Part Description	Part Number
Fuses:	
Fuse, 3.15A (for Darkroom)	56-0022-04
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
White Light Converter Plate, 25x26cm	38-0191-04
Visi-Blue Converter Plate, 21x26cm	38-0200-01
Visi-Blue Converter Plate, 25x26cm	38-0200-04
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
Doc-It <sup>®</sup> LS Image Analysis Software	97-0185-02
USB-to-Ethernet Adapter	89-0380-01
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

### Troubleshooting

#### ***No Power to the Darkroom or Transilluminator***

1. Recheck the main power cord connection to the BioDoc-It<sup>2</sup> darkroom, as well as the power cables between the darkroom and transilluminator.
2. Check the fuse located at the top rear of the unit next to the power port. A flat-head screwdriver is required. After removing the main power cable from the darkroom, use the screwdriver to pry open the fuseholder door located directly above the power cable connector. Pop the fuse out of the holder by pulling the fuse down and out of the holder. Inspect the thin wire within the glass fuse to see if there is a break in the wire. If the wire is broken, replace the fuse. If fuses are blowing repeatedly, contact UVP Technical Support for additional troubleshooting.

### ***Transilluminator Will Not Turn On***

1. Make sure to turn **ON** the two transilluminator power switches and that both switches are glowing green. One switch is on the front of the BioDoc-It<sup>2</sup> unit and is labeled **UV**. The other switch is located on the front of the transilluminator itself, directly behind the darkroom door.

If the switches do not glow green, refer to “No Power to the Darkroom or Transilluminator” above.

2. Be sure the darkroom door is completely closed. There is a UV safety Interlock switch that turns the transilluminator off when the main darkroom door is opened.
3. Be sure the transilluminator’s power jumper cord is securely connected at both the ends.

### ***Error Messages Appear on the Screen***

1. An error message that is related to the TS Software interface or Microsoft Windows may appear on the screen. If the message is related to Microsoft Windows, such as a reminder to activate or update the copy of Windows, please contact your system administrator for assistance.
2. If an error message appears repeatedly and your system administrator does not recognize it as a Microsoft Windows error, contact UVP Technical Support for further assistance.

## **Replacing Transilluminator Bulbs**

Follow these steps to replace the UV tubes in the system’s transilluminator:

1. Unplug the BioDoc-It<sup>2</sup> from its power source. Remove all cables from the back of the unit, including power, jumper and USB cables.
2. Lay the BioDoc-It<sup>2</sup> on its back and remove the four rubber feet from the bottom of the system using a Phillips head screwdriver.
3. Place the system in the upright position with the back of the system facing the user. Remove all screws holding the back panel of the BioDoc-It<sup>2</sup> in place, then carefully remove the back panel.
4. Carefully slide the transilluminator out of the back of the system.
5. Remove the transilluminator filter cover: Use a Phillips head screwdriver to remove the four screws on the sides of the transilluminator, then lift the filter cover off of the unit.
6. Remove the reflectors on the left and right sides of the transilluminator: Slide the reflectors up out of the unit.
7. Remove the UV tube: Carefully rotate the tube and slide it out of the socket. Replace with a new tube by sliding the tube into the socket and rotating into place.
8. Insert the reflectors back into place and reattach the filter cover to the transilluminator.
9. Installation is the reverse of removal.

For more information, see the transilluminator manual which is included with the BioDoc-It<sup>2</sup> or contact UVP for assistance.

## **Care and Cleaning**

Use only mild soap or detergent solution for cleaning the BioDoc-It<sup>2</sup>. Do NOT use oil- or petroleum-based cleaners for the cabinet. Ensure that the system is turned **OFF** and unplugged during cleaning.

When cleaning the transilluminator surface, use a damp soft cloth or sponge. Never use abrasive cleaners which can damage the UV filter surface.

## Technical Support

UVP offers free lifetime technical support on all of its products and software. Should you have any questions regarding the product's use, operation or repair, contact UVP's offices at the locations below, or visit [www.uvp.com](http://www.uvp.com).

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

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