

Azure™ cSeries

User Manual

for the c150, c200, c300, c400, c500 and c600



Safety and Regulatory Compliance

Important Safety Information

Please read these instructions before operating the Azure™ cSeries imaging system.

UV Safety Precautions



CAUTION Because U.V. radiation can cause serious damage to unprotected eyes and skin, we recommend to wear U.V. protection glasses or face shield.

The Azure™ cSeries system comes with a built-in Ultra-Violet (UV 200-400nm) Transilluminator. Exposure to UV radiation can cause permanent damage to the eyes and skin. The enclosure confines the radiation within the system and shields the user from exposure. The system is also equipped with a two-way safety interlock switch which automatically cuts off the power to the transilluminator when the door is opened during normal use.

The Azure cSeries imaging systems belongs to Class A equipment, and fulfills the limit values of table 3 but not table 4 of EN 61326:1997+A1+A2+A3. It may become necessary to defeat the safety lock or operate the transilluminator outside the system for service. In this case, be sure to use the following safety precautions:

- Always wear UV-protected eyewear that is specified by the safety equipment manufacturer as providing protection at the wavelength(s) used, making sure that the eyewear protects any areas where radiation may come through (UV sunglasses may not prevent UV radiation from coming in through the sides or around the lenses).
- Always cover all skin that may be exposed to UV light, especially the face, neck, hands, and arms.
- Always make sure that any UV protection devices (such as the safety switch on the light cabinet apparatus) are working properly. If not, discontinue use until the device(s) are properly repaired.
- Use only UV lamps in the transilluminator and ensure they are the correct size and voltage.

Electrical Safety Precautions

Be sure to take proper precautions when handling any electrical equipment. NEVER work on any live circuit, fixture, receptacle, or switch. Safety rules you should follow whenever working with any electrical appliance include:

- Always shut off power at the main disconnect before changing a fuse.
- Always shut off power to the circuit before repairing or replacing a switch, receptacle, or fixture.
- Always tape over the main switch, empty fuse socket, or circuit breaker you are working on.
- Always check that the circuit is dead before beginning work on it. Using a circuit tester or voltmeter can help you determine this.
- Always unplug any appliance before repairing it.



Protective ground terminal

The ground terminal, intended for connection to an external protective conductor for protection against electric shock in case of a fault, is located on the inside of the back panel.

Hot surface warning



Under normal conditions, the temperature of glass surface of UV transilluminator is below 50 °C and safe to touch. However, if the system malfunctions, it is possible that the glass surface temperature may exceed 80°C. Please exercise caution when touching the glass surface if this occurs.

Laser Safety

General Information

Azure Biosystems imaging system models c600 and c500 both include a laser illumination system that provides 660nm and 785nm Narrow band excitation for NIR applications. The imaging systems are certified to comply with CE, UL and CSA safety standards and consists of two fully enclosed electronic modules located on the right and left interior sides of the imaging chamber. This laser system is by its appropriate classification and definition a non-removable laser system as it is not operable when the laser modules themselves are removed from within the system.

Safety Features

Azure Biosystems imaging systems are designed to prevent direct and collateral human exposure to radiation by means of a safety interlock switch located on the right front side of the imaging chamber. The safety interlock reacts to “door open” and “door closed” states and defeats all power to internal light sources when the door is in the “open position”. Lasers and other internal system light sources will not power on unless the door is fully closed. If the access door is opened during imaging, all light sources will immediately power off to prevent human exposure to internal illumination sources. Right and left laser modules located in the c500 and c600 imaging chamber are installed in a highly diffused protective metal enclosure preventing exposure to full laser radiation power. In addition, the entire laser system is fully enclosed within the system enclosure and there are no viewing ports, windows, or openings to facilitate viewing of, or exposure to radiation fields from direct impact, reflection, or leakage.

Maintenance

Azure Biosystems c500 and c600 laser systems do not require regular, periodic, or preventive maintenance in the form of adjustments, calibrations, cleaning, or other standard maintenance procedures to maintain optimal performance, thereby removing the need for users or their service technicians to initiate any actions where exposure to laser radiation would occur.

Serviceability

Replacement of faulty laser modules is a manufacturer-only repair action and not a customer-service action. Laser repair or replacement may be performed in the field by Azure Biosystems authorized service technicians, or by return of the entire system to Azure Biosystems, or its authorized service location(s) for laser repair or replacement. Lasers are deemed to be faulty or defective if users discover images that show evidence of output signal level loss in either the left or right laser module, a significant difference between the output signal levels between the left and right lasers modules, or complete loss of output signal level in either or both laser modules. Users or their service technicians should make no attempt to determine the cause of faulty laser operation, and should promptly contact Azure Biosystems at support@biosystems.com or their nearest Azure Biosystems authorized service location.

Caution

Azure Biosystems c500 and c600 systems contain a defeatable safety interlock system. It is not recommended or advised by Azure Biosystems, under any circumstances, for users to defeat the interlock system and perform laser imaging, or imaging with any c500 or c600 light source with the access door open. The access door must be fully closed.

For Research Use Only

This instrument is suitable for research use only. It must be used, therefore, only by personnel who know the health risks associated with the reagents that are normally used with this instrument.

Warranty

The Azure cSeries products are warranted against defects in materials and workmanship for one year unless otherwise outlined on your sales order or www.azurebiosystems.com/warranty. If any defect occurs in the instrument during this warranty period, Azure Biosystems, Inc. will repair or replace the defective parts at its discretion without charge. The following defects, however, are specifically excluded:

- Defects caused by improper operation.
- Repair or modification done by anyone other than Azure Biosystems or the company's authorized agent.
- Use of spare parts supplied by anyone other than Azure Biosystems.
- Damage caused by accident or misuse.
- Damage caused by disaster.
- Corrosion caused by improper solvents or samples.

Voltage Setting Information

The Azure cSeries imaging system has a power supply that automatically chooses the correct voltage for your country or region.

CE Conformity

The following Azure™ Imaging Systems, models: c150, c200, c280 c300, c400, c500, c600 are in conformity with the provisions of the following EC Directives, including all amendments, and national legislation implementing these directives:

- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC

And that the following harmonized standards have been applied:

- EN61010-1: 2001
- EN61326-1: 1997+A1:1998+A2:2001+A3:2003 Class A
- EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11

Protection category: IP20 according IEC 60529

Contact

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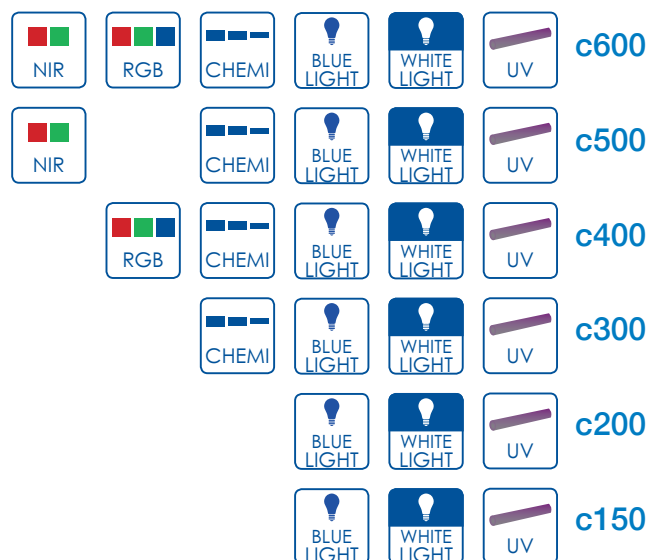
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1. Introduction

The Azure cSeries imaging systems offer high performance imaging for a wide variety of applications. The cSeries family of instruments includes the follow products: c150, c200, c300, c400, c500 and c600.

Select which one fits your applications now, and learn more about upgrading later when your needs change.

Each Azure cSeries imaging workstation can be upgraded in the field to a higher model with a wider range of applications, with the exception of the c150 which is not upgradeable. Contact us at info@azurebiosystems.com to learn more.



The Azure cSeries system includes the following key components:

- **Cabinet** – The cabinet is a light tight image station. It includes the camera and lens, light sources, filter wheel, integrated tablet, and USBs for data collection.
- **Camera** – High resolution camera, preinstalled in the system. A motorized 0.95 lens is included on the c300 systems and above. High resolution 6MP camera integrated in the system with a motorized lens included.
- **UV Transilluminator** – The UV illuminator provides 302nm and 365nm trans illumination. It is mounted on a pull out tray.
- **EPI LEDs** – The LED module allows you to take Blue Light, White Light, and Color images.
- **EPI RGB LEDs** – High intensity LED illuminators (c400 and c600).
- **EPI 660nm & 785nm Laser Diodes** (c500 and c600).
- **Filter Wheel** – The 7 position filter wheel is automated. It includes the standard Orange filter for most UV fluorescent applications, and additional Red, Green, Blue, and/or IR filters for multichannel systems.
- **Integrated Computer** – The touch screen PC is completely integrated for system control and image acquisition.
- **Orange Tray** – For Visible dyes, the orange tray converts UV light into Visible light.
- **Blot Tray** – Stored in the cSeries door, the Blot Tray is required for imaging all blots. For fluorescent blots, it is placed on the UV transilluminator. For Chemi blots, it can be placed on the UV transilluminator, or on the chemi shelf in the cabinet.
- **USB Ports** – There are 3 USB ports for data transfer. One located on the front panel, and two on the lower right side of the cabinet.
- **USB Memory Stick** – The Azure Biosystems memory stick contains files relevant to your imaging system.
- **AzureSpot Analysis Software** – Please contact our technical support to receive your electronical license at support@azurebiosystems.com.

1.1 Table of Specifications

Image Resolution	5.4M pixels (c150, c200); 8.3M pixels (c300, c400, c500, c600)
Epi-illuminations	White LED; Blue LED; RGB LED (c400, c600); 660nm LD (c500, c600) 785nm LD (c500, c600)
Trans-Illumination	302nm/365nm
Lens	25mm/F0.95 motorized (c300, c400, c500, c600); 8mm/F1.2 (c200)
Maximum Field of View	20 cm x 15 cm
Image output	16 bit TIFF, JPEG
Working environment	Ambient temperature/humidity: 0 –30°C / 85%
Power requirement	100-240 VAC, 4A
Dimensions (W x D x H)	38 cm x 30 cm x 45 cm
Weight	22 kg (49 lbs.)

1.2 Contacting Technical Support

For questions about installation, setup or general use of the system, please contact support@azurebiosystems.com or call (925) 307-7127, 9am-4pm Pacific time.

2. Installation and Setup

2.1 System Placement

WARNING: Excessive Weight Hazard – Please use two or more people to lift the system. Failure to do so can result in system damage and personal injury.

As with all electrical instruments, the Azure cSeries imaging system should be located away from water, solvents, or corrosive materials, on a flat and stable surface with adequate clearance on all sides. The system must remain stationary during operation.

The system should be placed away from interfering electrical signals and magnetic fields. If possible, a dedicated electrical outlet should be used to eliminate electrical interference from other instrumentation in your laboratory.

The Azure cSeries imaging system should be installed at no more than 3000 meters above sea level. Additionally the unit should be placed out of direct, bright sunlight or illumination sources to guard against light leaks.

2.2 Connecting to Power

The power entry module is located in the lower right on the back panel of the system. Connect the power cord to a secure power outlet.

It is important to connect the system to a well grounded power source. Azure Biosystems recommends that you employ a surge protecting power strip to protect against unexpected power surges that may cause damage to the electrical components.



2.3 Turning the System On/Off

The main power switch is located at the back panel, next to the power cord.

1. First, flip the power switch to On (I).
2. To wake the integrated computer, press the power button on the right side of the screen.

To turn off the system, shut down the tablet by

1. Swiping from the right to left on the right side of the screen.
 - a. Select **SETTINGS**.
 - b. Select **POWER**.
 - c. Select **SHUT DOWN**.

2. Turn off power to the system using the power switch on the back of the instrument.

Azure Biosystems recommends leaving the system on during working hours.



2.4 Software Installation

The Azure cSeries Acquisition Software is pre-installed. When the tablet is powered on, the software launches directly into the cSeries capture software application. If the software has been closed, double click on the desktop icon.



Once the system is done initializing, the software displays the gallery tab, and is ready to use.



2.5 Other USB Input Devices

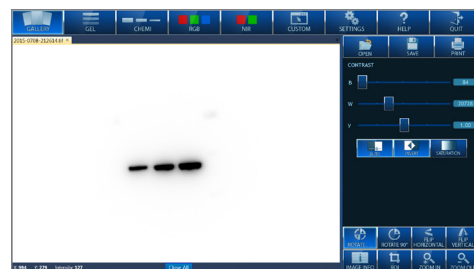
You may attach regulatory approved, Windows OS supported USB keyboard, USB mouse or other USB input devices to either the front or upper USB port. The lower USB port is a dedicated PC connection to run the system off of a laptop or PC.

3. cSeries Capture Software Overview

Azure cSeries captures high quality images with an intuitive user interface. The icon based software allows you to program multiple different applications with the touch of a button. There is no need to focus on your sample, simply put your sample in the system, select an exposure time , then hit capture.

3.1 Gallery

The software opens in the Gallery window. This window is designed to Open, Close, Save, or Print your images. It also allows you to perform basic image editing on your opened image.



OPEN – Use this icon to open an image that is stored locally, on a USB, or on the network.



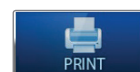
SAVE – Save an image to a USB, the integrated computer, or to a network drive. Images can be saved as a TIFF or JPEG file. File names are automatically generated with the date and time stamp. You can overwrite this name by editing it in the displayed textbox. All images are saved as 300 DPI. *Note: Azure does not recommend saving images to the tablet computer, in order to maintain a fast processing speed for the application.*



SAVE AS – Save a copy of a previously saved image with an alternate name, file type, or to an alternate file location.

SAVE ALL – Saves any unsaved images open in the gallery tab. The file names will be automatically generated with the date and time stamp.

PRINT – Print to a local printer connected to the system, or to a network printer.



CONTRAST – Manually adjust the black, white, and gamma settings for the displayed image. Recommended for chemiluminescent blots. *Note: Adjusting these settings will not affect the raw data when saved as a .tiff file. Only images saved as a .jpg will display with the adjusted contrast settings, as the .JPG file format alters the raw data. Azure recommends using .tiff formats for images that need to be quantified, and saving a copy as a .jpg with contrast adjustments for publication purposes.*



AUTO – Adjusts the contrast of the image to show the greatest number of features. *Note: Azure recommends cropping the image area of the sample before auto contrast for best results.*



INVERT – Invert will display your image with dark and light pixels reversed. Invert also inverts the data values, so when an image is opened in another image editing application such as Photoshop or Powerpoint, the image appears the same as in the cSeries software. This does not change the data in anyway.



SATURATION – Selecting Saturation will show you images with intensities beyond the dynamic range of the camera.



SINGLE/MULTICHANNEL VIEWING – When a multicolor image is displayed in the gallery, you will have the option of viewing single channels, or all three channels at once. By default, the image is displayed as a multichannel image. Contrasting the image in the multichannel mode will contrast all channels. To view one channel, select the button that corresponds to the color of the channel you wish to view. To go back to the multichannel image, select the multicolor button. To extract the image into its component grayscale images, select the grey button.



ROTATE 90 DEGREES, FLIP HORIZONTAL, FLIP VERTICAL – By select one or more of these icons, you can change the alignment of your image.



ROTATE – Allows you to rotate a small amount. This is ideal for slightly crooked gels. A green alignment tool will appear over your image.

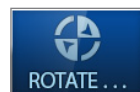
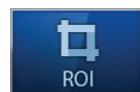


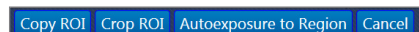
IMAGE INFO – Displays the parameters for image acquisition including date & time, capture type, light source, exposure time, filter position, aperture, focus, bin level, calibration, software version, and comments.



ROI – Selects a Region Of Interest for further actions including Copy, Crop, and Autoexpose to Region (chemi only). Adjust the green highlight window to select a region of interest.



COPY ROI – Adjust the ROI box to select and copy a region of interest on a single channel image. After selecting another image of the same size, use the paste option to overlay the copied ROI.



CROP ROI – Crop out the desired image area. Adjust the ROI box, then select Crop ROI. A new image tab will open with only the selected area.

AUTOEXPOSE TO REGION – Adjust the box around the area you are interested in, and select Autoexpose to Region. A new chemi image will be acquired, with the autoexpose focused on the region selected.

CANCEL – Close these options.

ZOOM IN/ZOOM OUT – Increase or decrease the zoom factor on your image.



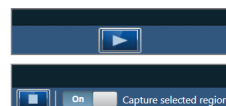
3.2 General Imaging

The Azure cSeries software is organized with a tab for each application type. The default settings have been optimized for the selected application. All tabs include the following features:

EXPOSURE SELECTION – There are two options for exposure selection. **AUTOEXPOSURE** automatically determines the optimal exposure time using the full dynamic range of the camera. Or manually enter the desired exposure time in minutes, seconds, and milliseconds.



LIVE VIEW – To start Live View, select the Play button located at the bottom of the Gel window. If Capture selected region is on, only the region selected will be captured. Adjust the area size by selecting and dragging the green corners.



CAPTURE – When you are ready to capture your image, the capture button tells the system to start acquiring an image.

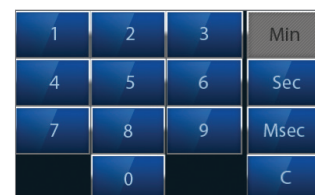
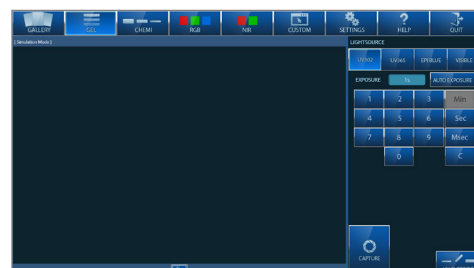


3.3 Gel Applications

For applications that include EtBr, SYBR® Green, Coomassie Blue or similar, select the Gel tab. You will see the following user interface:

3.3A Imaging Workflow

1. Select a light source. You can select from UV 302, UV 365, EPI Blue or Visible. The correct emission filter will be selected automatically.
 - **UV 302** – For dyes that are UV excitable, UV 302 will be the brightest and best light source.
 - **UV 365** – For cutting bands out of a gel, UV 365 reduces the nicks that might be introduced into the DNA by UV 302.
 - **EPI Blue** – Select this light source for gels that are stained with dyes that excite in the blue range.
 - **Visible** – For dyes that are visible without additional excitation, use the Visible light source. When selected, the software will prompt you to use the Orange Tray, which converts the UV light into bright visible light to provide contrast to your image.
2. Place the sample on the UV transilluminator, or on the Orange Tray for Visible samples.
3. Select an imaging time.
 - a. Manual Imaging times are entered using our keypad. For gels, we recommend setting exposure time to less than 1 minute.
 - For 20 seconds, hit **2** then **0** then **SEC**. To select 1.5 seconds, type **1** then **S**, and then **5 0 0** and **MSEC**.
 - To erase what you done, hit the **C** button, for clear.
 - b. Or, you can select **AUTOEXPOSE** which will calculate the best imaging time for you image. Selecting autoexpose will grey out the keypad, enabling you to simply press capture.
 - c. Maximum exposure time is 60 seconds.
4. Hit **CAPTURE**. The software will direct the camera to collect the image, and the final image will be displayed in the Gallery tab.



3.3B UV Override and Stain-Free Workflow

1. The UV override button was created for situations when you need to do longer exposures with the UV transilluminator without taking an image.

Select the **UV OVERRIDE** button.

BAND EXCISION – Override the safety switch for situations when a user needs to cut bands out of their UV excitable gel.

Care must be taken to avoid eye and skin exposure to the UV radiation.



WARNING: ALWAYS WEAR APPROPRIATE PROTECTION WHEN EXPOSED TO UV LIGHT. The use of protective eyeglasses, mask, and/or gloves is strongly recommended.

After selecting the Band Excision button, pull out the override safety switch.

Select **OK** from the screen prompt, the light will remain on for 5 minutes, or until the band excision switch is pressed again. Capturing an image, or selecting another light source will also turn the light off.

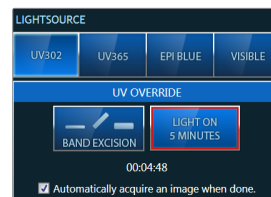
2. **LIGHT ON 5 MINUTES** – To have the light on for 5 minutes, first select your light source, then select light on 5 minutes.

Stain Free Workflow

When working with Stain-Free Gels, the gels must be UV activated prior to imaging. Azure supports a one step solution. With Stain-Free Gels:

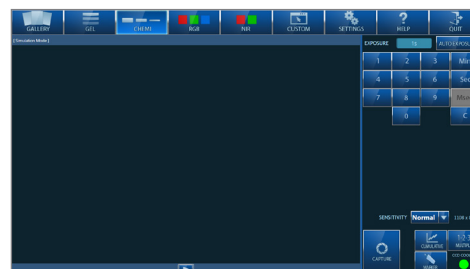
1. Select **UV OVERRIDE**, then **LIGHT ON 5 MINUTES**, and check the box “Automatically acquire image when done”.

The UV light will activate the Stain-Free Gel for 5 minutes, then automatically capture the image when activation is complete.

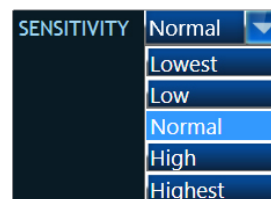


3.4 Chemiluminescent Applications (c300 systems and above)

For chemi applications, select the Chemi tab. You will see the following user interface:



SENSITIVITY – Changes both the sensitivity and the resolution of the camera and image. At the Lowest sensitivity setting, you will be taking a full resolution image with the camera. And the Highest sensitivity setting, the resulting image will be 0.3 MP image. The resolution is displayed next to the sensitivity settings.



CUMULATIVE – Selecting Cumulative will take up to 10 images at the time interval you selected and stacks them on the preceding images. *For example: if you set an exposure time of 1 minute, it will display 10 images, every 1 minute. The first image displayed will be a 1 minute exposure. The second image displayed, at the 2 minute interval, will be a sum of the first two images. The tenth image will be the sum of 10, 1 minute images.* You can view the images in the gallery tab while the next image is being acquired.



MULTIPLE – Select between 1 and 10 images. Each image exposure setting is set individually. The images are independent exposures and are not stacked. Use the arrow buttons to move between the frames when setting the exposure times.



STOP CAPTURE – You may stop capture at any time during Cumulative or Multiple exposures. Any acquired frames will be saved.

MARKER – If you would like to add a visible light marker to your image, select the marker button. The system will take a visible light image after the chemi image.

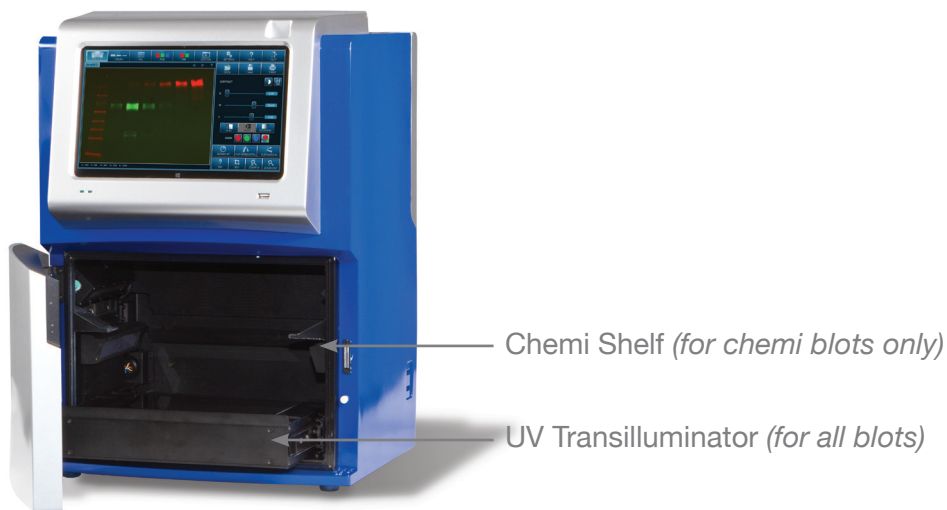


CCD COOLED – This green light indicates the CCD chip has cooled to the proper imaging temperature.



For all blots, use the blot tray which is stored in the door.

Positions for blot tray:



3.4A Imaging Workflow for Chemiluminescent Applications

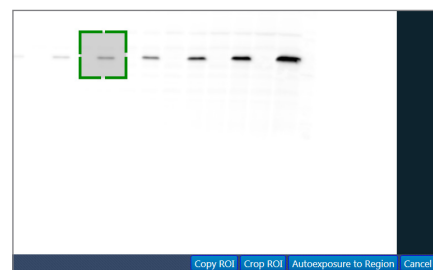
1. Remove the Blot Tray from the cSeries door.
2. After you have applied the substrate to your blot, place your blot in the very center of the tray.
3. Place the blot tray in one of two positions: on the UV transilluminator, or on the chemi shelf, in the middle of the imaging system.
 - Use the position on the UV transilluminator for larger blots.
 - Use the position on the chemi shelf for small blots. Using this top shelf increases the resolution of the blot.
4. Close the door to the system.
5. Select an exposure time. Choose the exposure time manually or use autoexposure which will allow the software to capture image for you using the full dynamic range of the camera.
 - *Recommendation: Set the exposure time to 30 Seconds by hitting **3** then **0** and then **SEC**. Keep the Sensitivity setting on the default setting, **NORMAL**. Select **CUMULATIVE**. After hitting **CAPTURE**, a series of images will be displayed, and you can select the best one from the gallery tab.*
 - Maximum exposure time is 60 minutes.
6. Select **CAPTURE**.
7. The images will be displayed in the gallery tab.

3.4B Autoexpose to Region

If you would like to focus your exposure on a specific band you can do so using the **ROI TOOL**.

If you would like to focus your exposure on a specific band you can do so using the ROI tool.

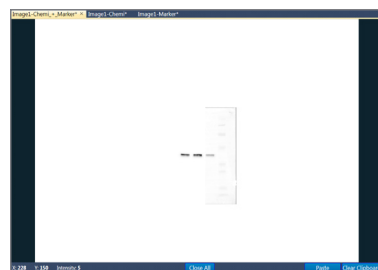
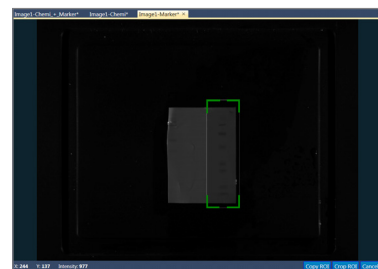
1. Take a Chemi image, it will open in the Gallery.
2. Select the **ROI** tool and adjust the area to fit the band of interest.
3. Select **AUTOEXPOSE TO REGION**.



3.4c Visible Light Marker

To add a visible light marker to your chemi image first highlight the marker button prior to image capture. The system will automatically take the visible light image after capturing the chemi image. To add the marker image to your chemi image, use the **ROI** tool as follows:

1. Select the Image1-Marker file, and then select the **ROI** tool.
2. Adjust the area of interest, then select **COPY**.
3. Switch over to the Image1-Chemi tab, then select **PASTE**. A new image is created and is automatically scaled so that the background matches on both images.

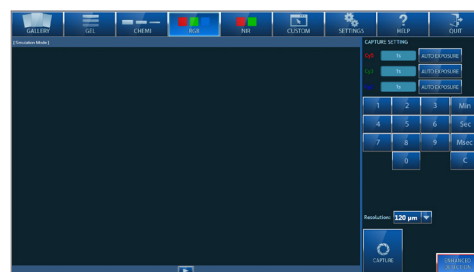


3.5 RGB Applications (c400 and c600)

For multi-channel applications, select the RGB tab. You will see the following user interface:

The RGB setting is for fluorescent Western blots labeled with Cy5/Cy3/Cy2 or dyes with similar excitation and emission spectrums.

For all RGB blots, use the Blot Tray on the UV transilluminator position only. The blot tray provides a dark background to improve the contrast on the blot image. Placing this Tray on the UV transilluminator position provides even illumination for your samples.



ENHANCED DETECTION – Enhanced Detection reduces the background on RGB blots.



For each wavelength, you can set a unique exposure time. Each channel will be captured in a unique color channel, and will be displayed in a multicolor overlaid image. You can take a 1, 2 or 3 channel image.

1. Place blot in the center of the Blot Tray.
2. Close the door.
- 3A. Manual Exposure:
 - Touch the exposure time box next to the channel that you want to image. Type in an exposure time using the keypad. *See section 3.2A on how to use the keypad.*
 - To take a multi channel image, such as a Cy5/Cy3 image, enter an exposure time for both the Cy5 and Cy3 channel.
 - For any channels you do not want to image, change the exposure time to 0.
 - Maximum exposure time is 5 minutes per channel.
- 3B. Auto exposure: autoexpose will calculate the best imaging time for you image. After selecting **AUTOEXPOSE**, simply press **CAPTURE**. You can choose auto exposure for all, one, or two channels.
4. Select the resolution. The higher the resolution, the longer we recommend setting your exposure time.
5. Select **CAPTURE**. The channels will be captured sequentially.
6. The resulting image will be displayed in the gallery tab.

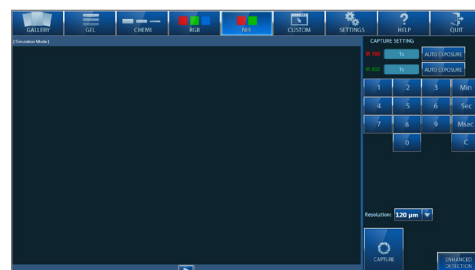


3.6 NIR Applications (c500 and c600)

For multi-channel applications, select the RGB tab. You will see the following user interface:

For all NIR blots, use the Blot Tray on the UV transilluminator position only. The blot tray provides a dark background to improve the contrast on the blot image. Placing this Tray on the UV transilluminator position provides even illumination for your samples.

1. Place blot in the center of the Blot Tray on the UV transilluminator position.
2. Close the door



3A. Manual Exposure:

- Touch the exposure time box next to the channel that you want to image. Type in an exposure time using the keypad. *See section 3.2A on how to use the keypad.*
- To take a multi channel image, enter an exposure time for both the 700 and 800 channel.
- For all channels you do not want to image, leave the exposure time at 0.
- Maximum exposure time is 5 minutes per channel.

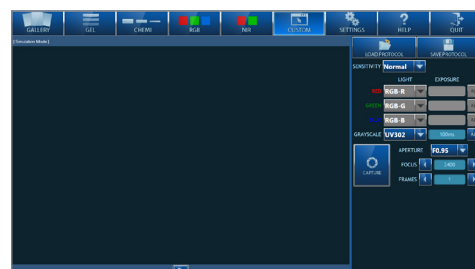


3B. Auto exposure: autoexpose will calculate the best imaging time for you image. After selecting **AUTOEXPOSE**, simply press **CAPTURE**. You can choose auto exposure for all, one, or two channels.

4. Select the resolution. The higher the resolution, the longer we recommend setting your exposure time.
5. Select **CAPTURE**. The channels will be captured sequentially.
6. The resulting image will be displayed in the gallery tab.

3.7 Custom Applications

The custom tab allows the users full flexibility when acquiring their image.



LOAD PROTOCOL – Load previously saved protocols, for quick image capture.



SAVE PROTOCOL – Save custom settings for quick recall in the future.



Imaging workflow:

1. Select the sensitivity/resolution for your setting. To use the full camera resolution, select **LOWEST**.
2. Select the light sources you wish to use.
 - a. If you wish to take a single channel image, select a light source next to **GRAYSCALE**.
 - b. If you wish to take a multichannel image, make sure the imaging time next to Grayscale is set to **0**. Then, select the light sources you would like to image, next to the color channel you would like them assigned to. Set the exposure time for each channel.
3. Select the aperture setting: the smaller the number, the wider the aperture. For chemiluminescence, we recommend 0.95 for fastest light gathering. For UV applications, 2.8 is the recommended aperture setting. For RGB and NIR, 1.4 is recommended.
4. Adjust the focus settings as desired
5. Select the number of frames.

6. Save your protocol if you think you will use it in the future.
7. Hit **CAPTURE**. The resulting imaging will be displayed in the gallery tab.

3.8 Save Acquired Image

Users are discouraged from storing image files on the tablet since its disk space and memory resources are limited. Please use a USB storage device, or if the system is networked, save to a network location. There are three USB ports, one in the front and two on the right side panel.

To save an image, select **SAVE** from the gallery tab. A file name is auto populated, but this can be changed by touching the entry area, and a keyboard will pop up. Images can be saved as TIFF or JPEG files. TIFF files are recommended if the image is later going to be analyzed.



4. Settings

The settings tab may be used only by authorized service technician and is password protected. The default administrator password is: admin

RECREATE DARKMASTER – Darkmasters are created at the factory, but in the event that the camera is replaced, creating darkmasters in the field can be done.



FOCUS CALIBRATION – Allows the technician to reset the focus setting in case of a shift in focus.



CREATE FLATS – Allows the technician to recreate flat calibration files.



CHANGE PASSWORD – Change the administrator password.

5. Help

The complete PDF of the user manual is accessible under the Help Tab.

For further help, please email us at info@azurebiosystems.com.

6. Quit

Selecting **QUIT** will return you to the Windows 10 desktop.



7. Tablet and Windows® tools

Tablet Specifications

Processor Speed	1.50 GHz
Processor Core	Dual-core (2 Core)
Cache	1 MB
Standard Memory	2 GB
Flash Memory Capacity	32-64 GB
Screen Size	10.1”
Screen Mode	HD
Aspect Ratio	16:9

Screen Resolution	1366 x 768
Wi-Fi	Yes
Wi-Fi Standard	IEEE 802.11a/b/g/n
Bluetooth	Yes
Operating System Platform	Windows
Operating System	Windows 10 Pro
Operating System Architecture	32-bit

To help those who aren't familiar with the Windows 10, here are a few key tips.

7.1 How to Power Off/Restart the Tablet

To turn off the integrated computer:

- a. Open the **START** menu by selecting the Windows icon in the lower left corner.
- b. Select **POWER**.
- c. Select **SHUT DOWN** option.

Or: Press the power button on the upper right side of the screen.

7.2 How to Access the Keyboard

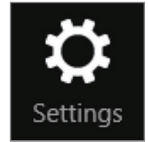
The keyboard can be accessed on the bottom screen menu bar.



Appendix A: Installing a New Version of the cSeries Capture Software (c300–c600)

Please note: you need to be logged in an Admin account to install new software on your computer. If you are using the Azure provided tablet, the admin password is admin.

1. Open the **START** menu and search for **CONTROL PANEL**.

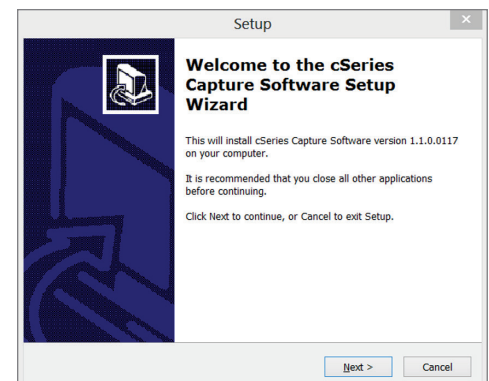


2. Select **UNINSTALL A PROGRAM**.

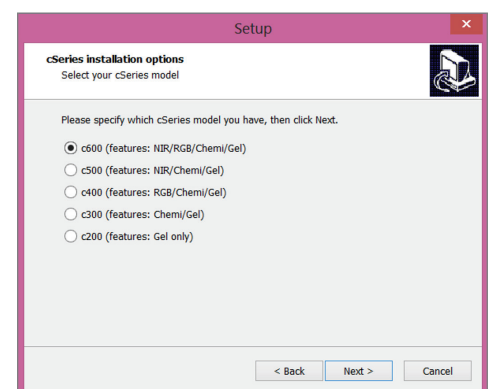


Programs
Uninstall a program

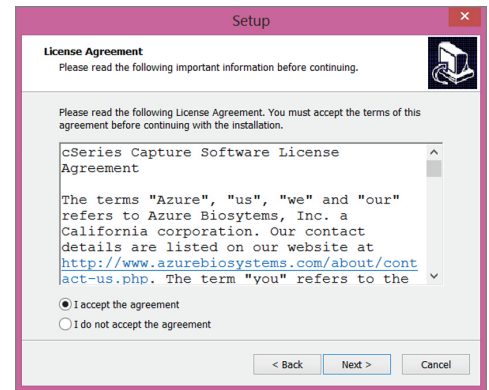
3. From the list of programs to uninstall, select **CSERIES CAPTURE SOFTWARE**.
4. Once it is uninstalled, you can begin installing the new software.
5. Select the **SETUP** file in the new software folder.
6. Select **RUN** from the **OPEN FILE – SECURITY WARNING**.
7. A “User Account Control” Window will pop up and ask you to verify that you know the Publisher of the software. Select **RUN**.
8. On the setup screen, select **NEXT**.



9. On the next Setup screen, select the cSeries model that you have.

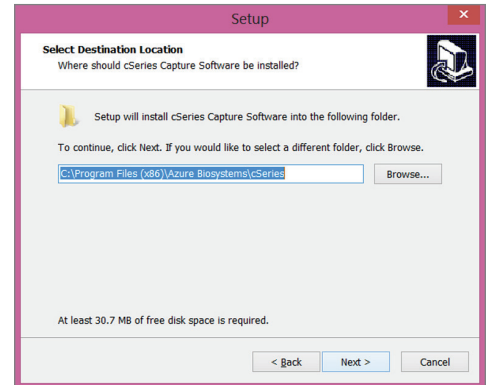


10. Accept the License Agreement.



11. Select the destination you would like to install the software. We recommend the default.

12. If it asks you to replace the existing cSeries folder, select **YES**, then **INSTALL**.



13. On the CP210x USB to UART Bridge Driver Installer screen, select **NEXT**.

14. On the next screen, accept the agreement.

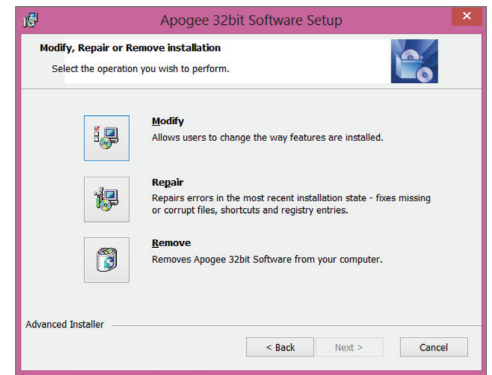
15. Select **FINISH** on the next screen in this installation process.



16. The next screen will be the 32 bit software setup screen. Select **NEXT**.



17. On the “Modify, Repair or Remove Installation” screen, select **MODIFY**, then **NEXT** and then **INSTALL**.
18. On the next screen, select **FINISH**.
19. When the software launches automatically, there will be an error message if the system is not on. Quit the software and make sure the hardware is turned on, and re-launch the software.



Appendix B: QC cSeries Capture Software

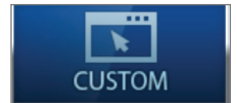
Introduction

The QC version of the cSeries capture software is designed to allow an administrator to control who can run certain protocols. There are three accounts types:

User Permissions	Administrator	Manager	Standard User
Create users	✓		
Change passwords	✓		
Capture images without a protocol	✓	✓	
Create protocols	✓	✓	
Delete protocols	✓	✓	
Run protocols	✓	✓	
Mark protocols QC approved	✓		
Run QC approved protocols	✓	✓	✓
Delete QC approved protocol	✓		

Access to Custom and Settings Tab

The Custom tab is only accessible to administrator accounts. This tab allows you to change parameters such as the focus calibration and darkmaster files. Since changes such as these are not recommended in a QC setting, only administrators can access this tab.



In the Settings tab, Administrators can manage users. Both Administrators and Managers can access protocol management in this tab. Standard users cannot access this tab.

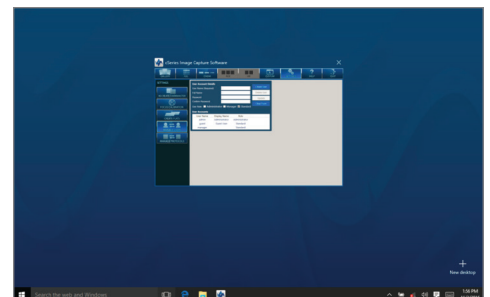


Installation

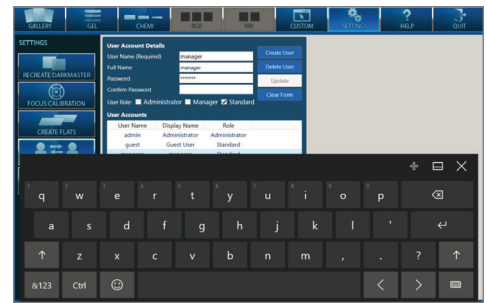
To install this software, follow the standard installation instructions. Select the “QC” version of the software when prompted.

Accessing the Keyboard

To access the tablet keyboard, swipe from the left. You will see the active screen shrink, and the keyboard icon in the lower left to appear.

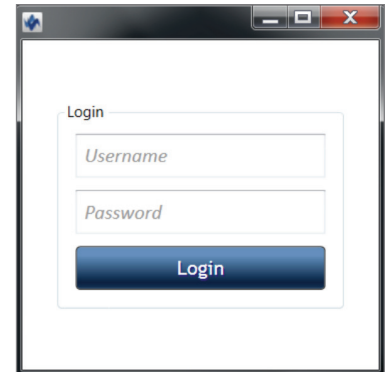


Once you select the keyboard, it will take up the bottom half of the screen. Select your active screen to enlarge it, then use the keyboard as normal.

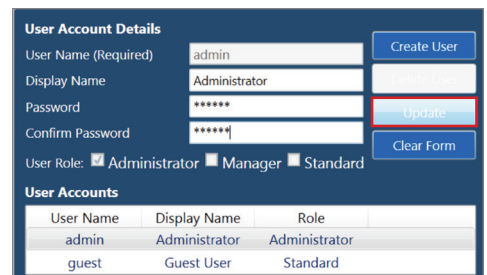


Managing Users

The administrator should be the first user to login. The username is **admin**, and the password is **admin**.

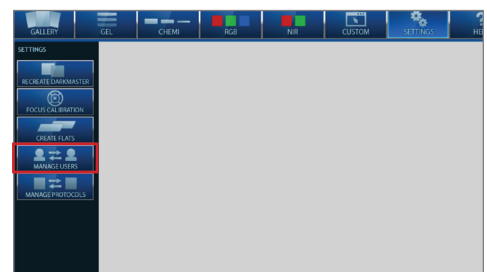


We recommend that you change the Master Admin password immediately. To change the password for the Admin user, type a new password in the password field and confirm the password. Then select **UPDATE**.



Note: the user name for the master admin cannot be changed from “Admin.”

Once logged in as an administrator, click the Settings tab. Select **MANAGE USERS** to add or edit users and permissions.

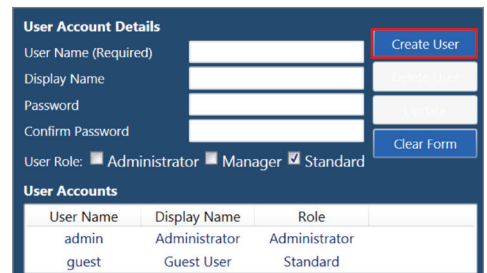


To create a new user:

1. Enter the User Name, Display Name (if different than user Name), the password and confirm the password.
2. Select the user type, Administrator, Manager or Standard User.
3. Select **CREATE USER**.

Note: User accounts are not case sensitive.

If there are changes required, select the user account from the list, make the change in the fields, and select **UPDATE USER**.

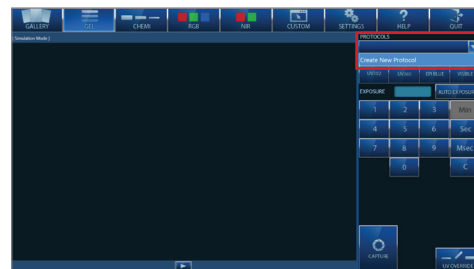


To delete a user, select the user account from the list, and then select **DELETE USER**.

Note: There is a **Guest** user account, which has Standard User level privileges. There is no password on this account. It can be deleted if not required.

Managing Protocols

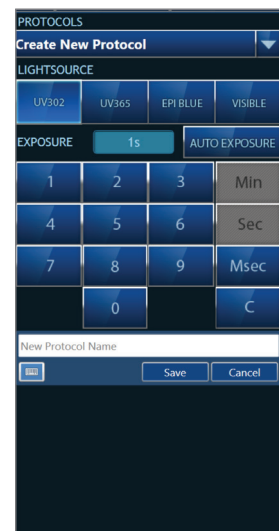
New protocols can be created by Administrator or Manager level accounts. To create a new protocol, select the application, then select the drop down at the top of the right hand menu. From the menu select **CREATE PROTOCOL**.



Select the parameters desired for the new protocol.

Enter the protocol name and select **SAVE**.

It can now be viewed and used by an administrator or a manager. Until it is QC approved, it cannot be used by a Standard User.



Approving a QC Protocol

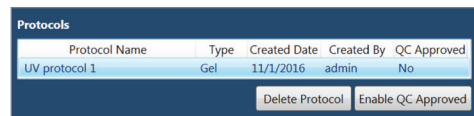
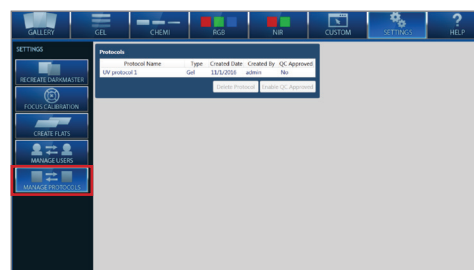
Once a protocol is created, an administrator can mark it as QC approved. A QC approved protocol cannot be deleted by anyone other than an admin. Additionally, a QC approved protocol is the only type of protocol that can be run by a Standard User.

To mark a protocol as QC approved, go to **SETTINGS**, then **MANAGE PROTOCOLS**.

Select a protocol. As an administrator, you are able to select **ENABLE QC APPROVED**. Once it is QC approved, only an admin can delete a protocol.

If you are logged in as manager, you will not be able to mark protocols as QC approved.

QC approved protocols are marked with (QC).



Deleting a Protocol

Administrators can delete all protocols. Managers can only delete protocols that are not QC approved.

To delete a protocol, go to **SETTINGS** and **MANAGE PROTOCOLS**.

Select the protocol and then **DELETE PROTOCOL**.

Protocol Name	Type	Created Date	Created By	QC Approved
Chemi Autoexpose	Chemi	11/1/2016	manager	No
UV protocol 1	Gel	11/1/2016	admin	Yes

Buttons: Delete Protocol, Enable QC Approved

Capturing an Image

Administrators

Administrators can follow the instructions in Section 3 of the user manual, cSeries Capture Software Overview and run a protocol. Alternatively, they can run a protocol or a QC approved protocol. To run a protocol, select the protocol then select Capture.



Managers

Managers can follow the instructions in Section 3 of the user manual, cSeries Capture Software Overview and run a protocol. Alternatively, they can run a protocol or a QC approved protocol. To run a protocol, select the protocol then select Capture.

Users

User can only run QC approved protocols. To run a protocol, select the protocol then select Capture.