

QUANSYS 
B I O S C I E N C E S

Q-ViewTM IMAGERLS
Operator's Manual

Notes on Safety

The Q-View™ Imager LS has been designed for safety and will not cause any harm to persons or property as long as the user operates the device correctly. It is critical that the user read this manual in its entirety and train on the device frequently to ensure proper operation. If the device is used outside of the instructions herein or modified, disassembled, or altered, the safety of the device cannot be guaranteed. Improper operation will lead to the following:

1. Void the manufacturer's warranty
2. Void the regulatory certification
3. Create a potential safety hazard

Manual Markings



Indicates a warning: Warnings help prevent safety issues or failures in performance.



Indicates an important notification: Important notifications alert the user to certain steps that are critical for optimal performance.

Notice of Warranty

THIS LIMITED WARRANTY COVERS NORMAL USE. QUANSYS BIOSCIENCES DOES NOT WARRANT AND IS NOT RESPONSIBLE FOR DAMAGES CAUSED BY MISUSE, ABUSE, ACCIDENTS, VIRUSES, UNAUTHORIZED SERVICE OR PARTS, OR THE COMBINATION OF QUANSYS BIOSCIENCES BRANDED PRODUCTS WITH OTHER PRODUCTS. THIS LIMITED WARRANTY DOES NOT COVER NON-QUANSYS BIOSCIENCES BRANDED PRODUCTS. ANY WARRANTY APPLICABLE TO NON-QUANSYS BIOSCIENCES BRANDED SOFTWARE OR PRODUCTS IS PROVIDED BY THE ORIGINAL MANUFACTURER.

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Chapter 1: Installation and Safety Information

SAFETY PRECAUTIONS

Lid and Glass/Tray Insert



Make sure the lid is open and is not moving when placing the plate in the tray. Also, if removing the glass/tray insert for cleaning, exercise caution that nothing is dropped on the lens of the camera.

Electricity



Since the Q-View Imager LS has a 110V/220V power supply, exercise typical precautions to ensure shocks do not occur. Do not place liquids close to the Q-View Imager LS and do not cut cords that provide power or connect the device to the PC.

PLACEMENT IN THE LABORATORY

Temperature and Humidity



The Q-View Imager LS has a high resolution camera, which can cause performance failures if the temperature is too high. If the lab temperature is too high, the camera may be unable to perform correctly. Recommended operating conditions are 15–35° C. Humidity can also cause operation problems for the Q-View Imager LS. Ensure your laboratory environment does not exceed a dew point of 20° C to prevent condensation.

Ventilation and Dust

Ensure the room where the Q-View Imager LS is placed has adequate ventilation to ensure passive cooling can occur. Dust can collect on the glass on the tray deck and cause dust particles to be visible in your image. Please take precautions to keep the lab bench surface and floors clean of dust.

Space

The footprint of the Q-View Imager LS is 25.4 W x 23.5 D x 55.88 H cm (10 x 9.25 x 22 inches). Ensure the space around the Q-View Imager LS is free of chemicals that can spill or other equipment that can fall and damage the Q-View Imager LS.



Vibration

The exposure times of the Q-View Imager LS can be up to 5 minutes. It's important that the location of the Q-View Imager LS is free of excessive vibration. Make sure equipment that might cause vibrations such as vortex mixers, shakers, centrifuges, etc. are not co-located on the bench with the Q-View Imager LS. Also consider where the Q-View Imager LS is placed in the laboratory. For example, the Q-View Imager LS should not be placed on a bench near a door that could be slammed or on a bench near a desk where someone could bump it during exposures.

Q-VIEW IMAGER LS SETUP

Assembly

The Q-View Imager LS weighs approximately 9.12 kg (20.12 lbs). Use both hands and lift with your legs, not with your back, when moving the Q-View Imager LS. To correctly setup the Q-View Imager LS the following steps should be followed:

1. Place the Q-View Imager LS in a clean work area. Ensure the location meets the requirements addressed in **Placement in the Laboratory** (page 3)
2. Connect the wall cord to the Q-View Imager LS power supply.
3. Plug the wall cord into a surge protector.
4. Connect the USB cord to the computer that will be running Q-View™ Software.
5. Open Q-View Imager LS lid, ensure the enclosure where the glass/tray insert fits is clean of debris and liquids.
6. Clean the Q-View Imager LS glass within the glass/tray insert with a lint-free cloth and ethanol, rubbing alcohol, or window cleaner.
7. Take the glass/tray insert and place it on the Q-View Imager LS with the glass on the bottom.
8. Once the Q-View Imager LS is connected, click **Continue** on Q-View Software to scan for imagers.



Q-View Imager LS Identification

Once the Q-View Imager LS has been recognized, click **Continue** again, and a dialog box where the Q-View Imager LS can be named will appear. When you are finished naming, click **Continue** to focus the Q-View imager LS.

Focusing the Q-View Imager LS

Open the Q-View Imager LS lid. Place the 96-well focusing plate (included) on the plate tray. With the focusing plate on the plate tray and with the lid still open, use the **+** and **-** buttons on the software to bring the words printed on the focusing plate into focus if needed. You can click on the image to zoom in or out. When zoomed in, right-click and drag to scroll.

Light Leak Check

Upon completing the Q-View Imager LS installation it may be necessary to ensure there are no light leaks. To perform this test remove any plates from the Q-View Imager LS, ensure the lid is closed, and capture an image. The average pixel intensity of the image should be less than 500 PI. If the pixel intensity is above this specification, please contact customer support at Quansys Biosciences [1-888-QUANSYS \(782-6797\)](tel:1-888-QUANSYS) or support@quansysbio.com.

Acquire Dark Field

Dark Field Image Acquisition minimizes background noise in subsequent plate images. Remove any plates from the Q-View Imager LS, close the Q-View Imager LS lid, and click **OK** on the software. In the Settings menu click on **Administration**, then select **Manage Imagers**. Select the correct imager and press **Acquire Dark Field**. The process will take approximately five minutes.

Setup Completion

Once the Q-View Imager LS setup is finished, the software opens with the Update Preferences dialog box. Select your preferences and log in if user accounts were enabled. If your Internet connection on any computer running Q-View Software goes through a proxy, specify these settings under **Administration > Network Settings**. Your Q-View Software and Q-View Imager LS are now ready to use.

Disassembly

Carefully, remove the glass/tray insert from the Q-View Imager LS. Take caution that while removing the glass/tray insert, nothing is dropped into the Q-View Imager LS cavity. Anything dropped will fall directly onto the lens of the camera and cause damage which will adversely affect the Q-View Imager LS.



MOVING THE Q-VIEW IMAGER LS



Ensure there is no plate on the tray of the Q-View Imager LS and unplug all cords. The Q-View Imager LS weighs approximately 9.12 kg (20.12 lbs). Use both hands and lift with your legs, not with your back, when moving the Q-View Imager LS.

In order to move or ship the Q-View Imager LS, there are several critical steps that should take place.

1. Ensure the new location meets the requirements addressed in ***Placement in the Laboratory*** (page 3)
2. Remove any remaining plates on the tray
3. Remove the glass/tray insert
4. Close Q-View Software on the PC
5. Remove all cords from the device
6. With a piece of tape, tape the lid down so it doesn't open during transit
7. Insert the Q-View Imager LS into the provided plastic sleeve
8. Insert the glass/tray insert into the protective sleeve
9. Take the cables and bundle and tie them together
10. Insert the Q-View Imager LS into the foam insert and then into the Q-View Imager LS box
11. Place the glass/tray insert, and cords into the box

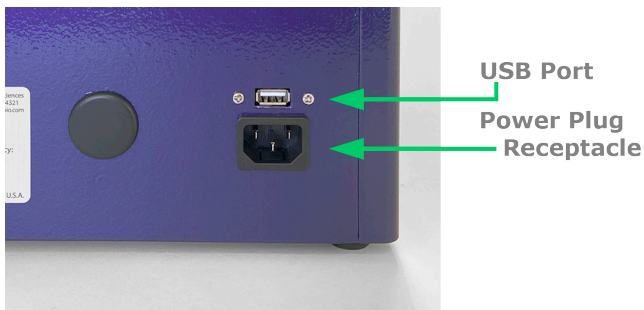


CHEMICAL SAFETY

The only chemicals used with the Q-View Imager LS are deposited within the wells of the plate, which is placed on the glass/tray insert. It is important to take precaution that these chemicals do not spill onto the glass/tray insert. If any spillage occurs on the glass/tray insert, clean it immediately before closing the lid. If liquids are present on the glass/tray insert, they may drip onto the camera lens and damage the Q-View Imager LS.



ELECTRONIC CONSIDERATIONS



Power Cord

The power cord is a 3-wire grounding-type plug. This cord will only fit into a grounded outlet, which is a requirement for the Q-View Imager LS. Do not remove the grounding leg of the plug. Doing so will void all warranty on the Q-View Imager LS.



The Q-View Imager LS requires only 5 amperes at 120 volts. The power cord provided with the Q-View Imager LS is for 120-volt service. If you have a different voltage supply or need a different power cord for any reason, please contact technical support. Do not use an extension cord for the Q-View Imager LS. Ensure that all equipment plugged into the same circuit as the Q-View Imager LS does not exceed the

amperes of service, or you may experience a tripped breaker or power failure that could result in the loss of your image.

Before unplugging the power cord, make sure Q-View Software is closed on the PC. Make sure the USB cord is unplugged. At this point, it is safe to remove the power cord.

USB Cord

The USB cord connects the Q-View Imager LS to the PC, which controls and operates the Q-View Imager LS. This USB 2.0 cord should only be unplugged from the Q-View Imager LS once Q-View Software is closed.

ROUTINE MAINTENANCE

Cleaning



Cleaning is recommended before every use. Ensure that the glass/tray insert is free from dust and any chemicals. To clean the device, use 70 percent ethanol or warm water. Do not use scouring cleaners or abrasive pads as this can scratch the glass. Be careful not to spill any cleaning materials inside the Q-View Imager LS.

Regularly inspect all cables for fraying or loose connections.

Chapter 2: System Overview

EXTERNAL FEATURES

Back

There are three features on the back of the Q-View Imager LS. A power plug receptacle, the USB cord receptacle, and a label containing the serial number and power specifications for the unit.



Note: The label is placed on the back panel and contains the serial number along with power specifications including voltage, current, and frequency.

OPTICAL DESCRIPTION

The camera is housed in the bottom of the Q-View Imager LS tower and is angled toward the bottom of the plate. The camera has a customized lens attached that is controlled by and can be adjusted for focus through Q-View Software. The optical pathway passes through the glass, which is housed in the bottom of the tray. Once passed the glass, the camera will image the bottom of the plate.

COMPUTER CONNECTION

The Q-View Imager LS is connected to the PC via a USB cable. Do not unplug either end of the USB cable without closing Q-View Software on the PC. From within Q-View Software, the user can open Imager Management and see an entry in a table for the Q-View Imager LS with one of the columns saying "connected" or "disconnected."

Q-VIEW SOFTWARE INTRODUCTION

A copy of Q-View Software will accompany the Q-View Imager LS. To download and install Q-View Software from online, you must request a license key from customer support (sales@quansysbio.com). You may also request a copy of Q-View Software from: quansysbio.com/request-software.



Q-View Software is used to control and operate the Q-View Imager LS. To learn more about how to use Q-View Software, visit the Quansys website to watch multiple video tutorials. To navigate to the video tutorials, go to quansysbio.com/support/video-library/ scroll down to Q-View Imager and Software Tutorials. From a tablet or smartphone, use a QR reader and the QR code to the left to be taken directly the to the Online video tutorials.

These video tutorials cover the following topics:

Part 1: **Introduction**

Provides an overview of Q-View Software, outlines the software's basic functions, and provides definitions of common terms.

Part 2: **Installation**

Outlines the minimum computer specifications, the installation and setup process, and how to uninstall Q-View Software.

Part 3: **Q-View Projects**

Explains Q-View Software projects, how to create new projects, and how to work with multiplex projects at once.

Part 4: **Settings and Preferences**

Shows how to change your password, alter preferences, and manage administration settings.

Part 5: **Capturing an Image**

Describes how to capture a new image using Q-View Software.



Part 6: **Importing and Image**

Shows how to import an image into Q-View Software.

Part 7: **Managing and Adjusting Image Options**

Reviews how to manage and adjust image options in Q-View Software.

Part 8: **Placing the Plate overlay**

Shows how to place the plate overlay.

Please contact our technical support staff at support@quansysbio.com for more assistance with Q-View Software.

Chapter 3: Operation

BEFORE YOU BEGIN

The following procedure is recommended before every use.

1. Clean the top of the glass/tray insert and ensure it is free of debris.
2. Check within Q-View Software that the Q-View Imager LS is connected to the PC.

CLEANING THE TRAY SURFACE

If any particulate, liquid, or dried salt residues or smudges are left on the glass or the tray, it will adversely affect the quality of the image and the overall quality of your data. This can be cleaned with 70 percent ethanol using a lint-free cloth. Do not use scouring cleaners or abrasive pads as this can scratch the glass.

LOADING THE PLATE

The user sets the Q-Plex™ plate in the glass/tray insert with the well A1 in the top left corner of the tray when facing the Q-View Imager LS. Make sure the plate recesses into the glass/tray insert and rests flat on the glass on all edges of the plate. Make sure there



is no lid on the plate and there is only one plate on the tray. Then, gently close the lid and proceed to image.

IMAGING THE PLATE

Within Q-View Software, the user will select Image Processing. Then select the tab, **Acquire Image** and under the title **Imager**, select **Refresh**. The name of the Q-View Imager LS will appear and connection can be made.

At this point, the user can select the **Image Processing** setting along with **Exposure Time** and **Image Name**. Once these settings are made, click on **Capture Image** and Q-View Software will image the plate that has been inserted.

For a video tutorial, review the videos **Part 4 Settings and Preferences** and **Part 5 Capture an Image** on the Quansys website. Go to quansysbio.com/support/video-library/ scroll down to Q-View Imager and Software Tutorials.



USING THE QUALIFICATION PLATE

The optional Q-View™ Qualification Plate can be used to qualify the performance of the Q-View Imager LS over time. This plate has built-in LEDs that create a constant signal that can be imaged over certain periods of time with Q-View Imagers. Parameters can be imported or determined dynamically by Q-View Software to determine acceptable levels of performance.

As an example of how to use the Q-View Qualification Plate, for Quansys in-house purposes, 10 images are taken of the Qualification Plate. Acceptable parameters are established by taking the average of the 10 images, plus or minus two times the standard deviation of each window read by the Q-View Imager LS.

! Note: The qualification process will take 45 minutes to complete.

To purchase or learn more about the Q-View Qualification Plate, please contact Quansys sales or technical support.

TROUBLESHOOTING

To resolve any issue with the Q-View Imager LS, please contact Quansys Biosciences by calling **1-877-QUANSYS** or send an email describing the issue to support@quansysbio.com. If outside the USA, please contact your Quansys distributor for your area. Have your serial number available with a detailed description of the issue. The serial number is located on the label on the back of the device.

Troubleshooting Guide:

Issue	Problem	Solution
Q-View Software is unable to recognize the Q-View Imager LS	Failure of communication between the Q-View Imager LS and computer	<ul style="list-style-type: none">• Ensure power is supplied to the Q-View Imager LS• Ensure the USB cable is connected to both the Q-View Imager LS and the computer• Disconnect the Q-View Imager LS USB cable from the computer and restart the computer
Plate images are blurry	The Q-View Imager LS is out of focus	Using the focus functionality built into Q-View Software, focus the Q-View Imager LS.
Cannot focus Q-View Imager LS	Clicking the focus buttons has no effect	Disconnect the Q-View Imager LS USB cable from the computer and power cycle the Q-View Imager LS.

Appendix

Q-VIEW IMAGER LS SPECIFICATIONS

Resolution:	18 Megapixels
Pixel Pitch:	4.11 microns
Sensor Type:	CMOS
Sensor Size:	337.5mm ²
Optics:	EF-S 60mm f/2.8 Macro USM Lens
Image Application:	SBS plate format with Chemiluminescent blots (7.6 cm x 12.1 cm)
Imaging Time:	1-5 minutes
Control:	Q-View Software
Connection to PC:	USB 2.0

OPERATING SPECIFICATIONS

Operating Conditions:	Temperature range of 15-35°C and dew point of no greater than 20°C, non-condensing
Power Requirements:	120-240 Volt AC; 5 amp maximum; 50/60 Hz
Dimensions:	20.32 W x 25.4 D x 55.88 H cm (8 x 10 x 22 inches)
Weight:	9.12 kg (20.12 lbs)



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