QUANSYS
BIOSCIENCES

Q-View™ IMAGER PRO
Operator's Manual

For Research Use Only   Version 1.2

FCC and CE Marking

This product is an FCC and CE-marked product. For more information regarding these markings, please contact Quansys at:
http://www.quansysbio.com/contact-us.

Notes on Safety

The Q-View Imager Pro 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. QUANSYS BIOSCIENCES ASSUMES RESPONSIBILITY FOR THE DELIVERY AND INSTALLATION OF THE Q-VIEW IMAGER PRO TO THE END USER.

Printing History

Version Number:	Date:
1.0	August 2015
1.1	September 2015
1.2	November 2017

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TABLE OF CONTENTS

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Chapter 1: Installation and Safety Information

SAFETY PRECAUTIONS

Automated Tray

Do not attempt to remove any plates from or insert any plates into the automated tray while the tray is moving. The operating button will turn red as the tray opens and will remain red until the tray is closed. Only remove or insert plates when the tray is fully extended and is no longer in motion. The tray is controlled by motors, and any body parts, clothing or other objects placed in the path of tray travel may be damaged or injured.

Electricity

Since the Q-View Imager Pro 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 Pro and do not cut cords that provide power or connect the device to the PC.

Personal Protective Equipment

When handling biohazardous or infectious materials the user should be wearing personal protective equipment.

PLACEMENT IN THE LABORATORY

Temperature and Humidity

The Q-View Imager Pro has a cooled CCD camera, which has to maintain a temperature of 0° C. The Q-View Imager Pro also has a fan at the bottom of the

device to pass ambient air across the camera to assist in cooling. If the lab temperature is too high, the camera may be unable to maintain 0° C. Recommended operating conditions are 15–35° C. Humidity can also cause operation problems for the Q-View Imager Pro. Ensure your laboratory environment does not exceed a dew point of 20° C to prevent condensation.

Note: Q-View Software prevents imaging when the target temperature cannot be reached and turns off cooling to protect the camera.

Ventilation and Dust

The fan on the bottom of the device pulls ambient air across the camera to keep it cool. Ensure the room where the Q-View Imager Pro is placed has adequate ventilation to ensure cooling can occur. Dust in high levels can be pulled into the fan and adhere to the camera cooling apparatus. Dust can also 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. It is important to keep any objects, such as paper or other flat materials, away from the bottom of the Q-View Imager Pro as these can block airflow to the fan.

Space

The footprint of the Q-View Imager Pro is 26.7 W x 24.1 D x 45.7 H cm (10.5 x 9.5 x 18 inches). Ensure the space around the Q-View Imager Pro is free of chemicals that can spill or other equipment that can fall and damage the Q-View Imager Pro.

Vibration

The exposure times of the Q-View Imager Pro can be up to 5 minutes. It's important that the location of the Q-View Imager Pro 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 Pro. Also consider where the Q-View Imager Pro is placed in the laboratory. For example, the Q-View Imager Pro 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 PRO SETUP

The Q-View Imager Pro weighs approximately 13.6 kg (30 lbs). Use both hands and lift with your legs, not with your back, when moving the Q-View Imager Pro. To correctly setup the Q-View Imager Pro the following steps should be followed:

1. Place the Q-View Imager Pro on a clean work area.
2. Connect the wall cord to the Q-View Imager Pro power supply.
3. Plug the wall cord into a surge protector.
4. Turn on the PC that will be running Q-View Software.
5. *Run the Q-View Imager Pro drivers installer.*
6. Connect the USB cord to both the Q-View Imager Pro and the PC.
7. Turn on the Q-View Imager Pro by pushing the power switch on the back to the "|" position.
8. *Install Q-View Software onto the computer and follow the set up wizard prompts.*
9. Once Q-View Software recognizes the Q-View Imager Pro, green LED lights will turn on around the tray button on the front of the Q-View Imager Pro.
10. Press the tray button on the front of the Q-View Imager Pro.

Note: *Steps 5 and 8* only apply to PCs NOT purchased from Quansys. PCs purchased from Quansys are preconfigured with Q-View Software and the required Drivers to run the Q-View Imager Pro.

11. Once the tray is opened, ensure the enclosure where the glass fits is clean of debris and liquids.
12. Clean the Q-View Imager Pro glass with a lint-free cloth and ethanol, rubbing alcohol, or window cleaner.

13. Take the cleaned glass and insert it into the receptacle.
14. Then take the glass cover and insert it on the tray on top of the glass with the A1 icon positioned in the lower left hand corner.

15. Once the Q-View Imager Pro is connected, click Continue on Q-View Software to scan for imagers.

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Q-View Imager Pro Identification

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

Focusing the Q-View Imager Pro

Open the Q-View Imager Pro tray by pressing the button on the front of the device. Place the 96-well focusing plate (included) on the plate tray and retract the tray. 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 Pro installation it may be necessary to ensure there are no light leaks. To perform this test remove any plates from the Q-View Imager Pro, ensure the tray is retracted, 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) or techsupp@quansysbio.com.

Acquire Dark Field

Dark Field Image Acquisition minimizes background noise in subsequent plate images. Remove any plates from the Q-View Imager Pro, close the imager tray, 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 Pro 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 Pro are now ready to use.

MOVING AND SHIPPING THE Q-VIEW IMAGER PRO

⚠️ Ensure there is no plate on the tray of the Q-View Imager Pro and unplug all cords. The Q-View Imager Pro weighs approximately 13.6 kg (30 lbs). Use both hands and lift with your legs, not with your back, when moving the Q-View Imager Pro.

In order to move or ship the Q-View Imager Pro, 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 cover
4. Remove the glass
5. Close Q-View Software on the PC
6. Turn off the Q-View Imager Pro using the switch on the back of the Q-View Imager Pro
7. Remove all cords from the device
8. Insert the Q-View Imager Pro into the provided plastic sleeve
9. Insert the glass cover and glass into their respective protective sleeves

10. Take the cables and bundle and tie them together
11. Insert the Q-View Imager Pro into the foam insert and then into the Q-View Imager Pro box
12. Place the glass cover, glass, and cords into the box
13. If disposal of the Q-View Imager Pro is needed contact Quansys Biosciences for assistance.

CHEMICAL SAFETY

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

ELECTRICAL CONSIDERATIONS

Power Switch

Fuse

Power Plug Receptacle

USB Port
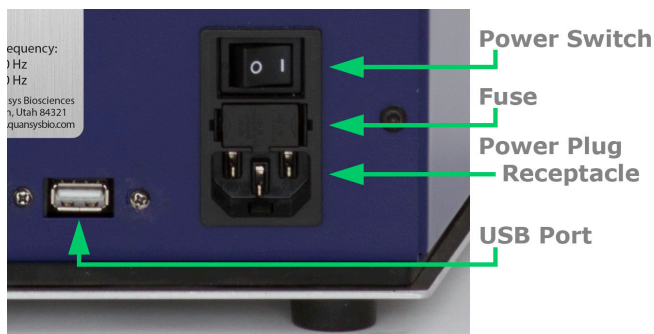
Power Cord

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 Pro. Do not remove the grounding leg of the plug. Doing so will void all warranty on the Q-View Imager Pro.

The Q-View Imager Pro requires a maximum of 2 amperes at 100-240 volts AC. The power cord provided with the Q-View Imager Pro 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 Pro. Ensure that all equipment plugged into the same circuit as the Q-View Imager Pro 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 and the device is powered off by the switch on the back of the Q-View Imager Pro. At this point, it is safe to remove the power cord.

USB Cord

The USB cord connects the Q-View Imager Pro to the PC, which controls and operates the Q-View Imager

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Pro. This USB 2.0 cord should only be unplugged from the Q-View Imager Pro once Q-View Software is closed and the Q-View Imager Pro is powered off.

Power Switch

The power switch is located on the back of the device above the power plug receptacle and the fuse box. This switch controls the power to the Q-View Imager Pro and NOT the PC. To turn on the Q-View Imager Pro, push the power switch to the "|" position. To turn off the Q-View Imager Pro, push the power switch to the "O" position.

Fuse

The fuse is located on the back of the Q-View Imager Pro in-between the power plug receptacle and the power switch. The fuse is 250V/10A/T. If the device is not powering up when the switch is turned on, the user can check the fuse.

Carefully remove the fuse receptacle. Inside the receptacle, there are two fuses; one is inline and the other is a backup. If the main fuse, which is connected to the circuitry, is broken, blown, or discolored, the user can switch the fuses. If you run out of fuses, please contact Quansys technical support.

ROUTINE MAINTENANCE

Cleaning

Cleaning is recommended before every use. Ensure that the glass, glass cover, and tray are 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 Pro.

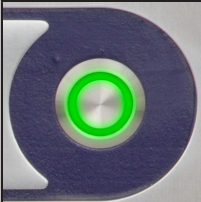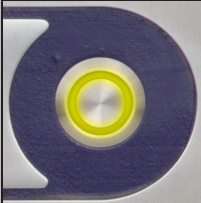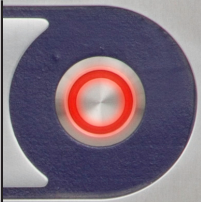Regularly inspect all cables for fraying or loose connections.
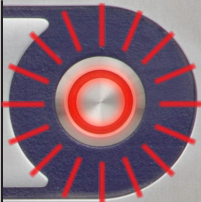
Chapter 2: System Overview

EXTERNAL CONTROLS

Front

The only control on the front of the device is the tray button. The tray button can glow three different colors.

	Green: The Q-View Imager Pro is on, connected to the Q-View Software, and the tray can be opened.
	Yellow: The Q-View Imager Pro is acquiring images, and the tray is locked.
	Red: The tray is either in motion or fully extended.
	Flashing Red: The Q-View Imager Pro is alerting the user to an abnormal condition, such as overheating.

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Back

The only control on the back of the unit is the power switch. To turn on the Q-View Imager Pro, push the power switch to the "|" position. To turn off the Q-View Imager Pro, push the power switch to the "O" position.

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

Tray Operation

The tray is opened by pressing the tray button on the front of the Q-View Imager Pro. The tray will not open if Q-View Software is not running, the power is turned off, or a plate is currently being imaged. Once the button is pressed, the tray will extend to the point where a plate can be placed on top of the glass and within the glass cover. If there is something blocking the tray's movement, the tray may reverse or stop. The user must remove the blockage and repress the button to resume the tray's movement.

OPTICAL DESCRIPTION

The camera is housed in the bottom of the Q-View Imager Pro 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 Pro is connected to the PC via a USB cable. Do not unplug either end of the USB cable without powering down the Q-View Imager Pro and closing Q-View Software on the PC. The user can tell the Q-View Imager Pro is on and connected to Q-View Software when the button glows green. From within Q-View Software, the user can open Imager Management and see an entry in a table for the Q-View Imager Pro 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 Pro. 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 Pro. 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 www.Quansysbio.com, hover over the Support menu, click on Video Library, and then click on Q-View Imager and Software Tutorials. From

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a tablet or smartphone, use a QR reader and the QR code to the right 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 techsupp@quansysbio.com for more assistance with Q-View Software.

Chapter 3: Operation

BEFORE YOU BEGIN

The following procedure is recommended before every use.

1. Wash the glass and glass cover within the tray and ensure it is clean and free of debris.
2. Check within Q-View Software that the Q-View Imager Pro 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

When the user pushes the front button, the tray will extend. Do not push or apply pressure on the tray while it is in the opening or resting position. This will adversely affect the performance of the tray as well as the alignment with the lens and camera.

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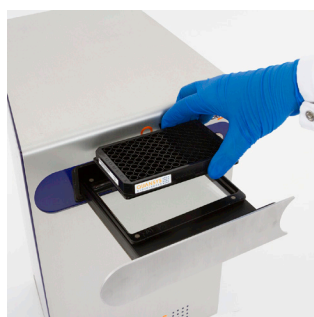
The user then sets the Q-Plex plate in the tray with the well A1 in the top left corner of the tray when facing the Q-View Imager Pro. Make sure the plate recesses into the glass cover and rests flat on the glass on all edges of the plate. Make sure there is no lid on the plate and there is only one plate on the tray. Then, push the front button on the Q-View Imager Pro. The tray will then retract within the Q-View Imager Pro.

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 Pro 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 these videos on the Quansys website. Quansysbio.com > Support > Video Library > Q-View Imager and Software Tutorials > Part 4 Settings and Preferences and Part 5 Capture an Image.

USING THE QUALIFICATION PLATE

The optional Q-View Qualification Plate can be used to qualify the performance of the Q-View Imager Pro 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.

Note: The qualification process will take 50 minutes to complete.

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 Pro.

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 Pro, please contact Quansys Biosciences by calling 1-877-QUANSYS or send an email describing the issue to techsupp@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 Pro	Failure of communication between the Q-View Imager Pro and computer	• Ensure power is supplied to the Q-View Imager Pro • Ensure the power switch is in the on position • Ensure the USB cable is connected to both the Q-View Imager Pro and the computer • Disconnect the Q-View Imager Pro USB cable from the computer, restart the computer, and cycle the power on the Q-View Imager Pro.
Tray button is flashing red	Q-View Imager Pro is overheating	Remove airflow obstructions, reduce ambient temperature of the room.
Cannot open tray	Q-View Imager Pro is not powered on	Open Q-View Software. If that fails, ensure drivers are installed and that the Q-View Imager Pro is connected to the PC and powered on.
Plate images are blurry	The Q-View Imager Pro is out of focus	Using the focus functionality built into Q-View Software, focus the Q-View Imager Pro.
Cannot focus Q-View Imager Pro	Clicking the focus buttons has no effect	Disconnect the Q-View Imager Pro USB cable from the computer and power cycle the Q-View Imager Pro.
Tray not fully retracted	An obstruction has caused the tray to not fully retract or extend	Remove obstruction and press the tray button.

Appendix

Q-VIEW IMAGER PRO SPECIFICATIONS

Resolution:	8.3 Megapixels
Pixel Size:	5.4 x 5.4 microns
Sensor Type:	CCD
Dynamic Range:	58.3 dB
Optics:	EF 28mm f/2.8 IS 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
Cooling (typical):	Max delta -40°C

OPERATING SPECIFICATIONS

Operating Conditions:	Temperature range of 15-35°C and dew point of no greater than 20°C, non-condensing
Power Requirements:	100-240VAC, 50/60Hz, 2 A Max
Dimensions:	26.7 W x 24.1D x 45.7 H cm (10.5 x 9.5 x 18 inches)
Weight:	13.6 kg (30 lbs)

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NOTES: