

Odyssey[®] XF

Operator's Manual



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奥德赛的Fc/XF成像仪 Odyssey Fc Imager and Odyssey XF Imager						
部件名称 Part Name	有毒有害物质或元素 Toxic and Hazardous Substances or Elements					
	铅 (PB)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板 (PCBs)	X	O	O	O	O	O
机电配件 (Electromechanical Parts)	X	O	O	O	O	O
光学 (Optics)	X	O	X	O	O	O
电缆和电线 (Cables and Wires)	X	O	O	O	O	X
金属部件 (Metal Parts)	X	O	O	O	O	O
塑料零件 (Plastic Parts)	O	O	O	O	O	O
电池 (Batteries)	O	O	O	O	O	O
本表格依据 SJ/T 11364 的规定编制 O = 表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下 indicates that the content of the toxic and hazardous substance in all the Homogeneous Materials of the part is below the concentration limit requirement as described in GB/T 26572 X = 表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求 indicates that the content of the toxic and hazardous substance in at least one Homogeneous Material of the part exceeds the concentration limit requirement as described in GB/T 26572 						

Notes on Safety

LI-COR products have been designed to be safe when operated in the manner described in this manual. The safety of this product cannot be guaranteed if the product is used in any other way than is specified in this manual. The Odyssey® XF Imager is intended to be used by qualified personnel. Read this entire manual before using the Odyssey XF Imager.

Equipment Markings:



The product is marked with this symbol when it is necessary for you to refer to the manual or accompanying documents in order to protect against damage to the product.



The product is marked with this symbol when a hazardous voltage may be present.

Manual Markings:

WARNING	Warnings must be followed carefully to avoid bodily injury.
CAUTION	Cautions must be observed to avoid damaging your equipment.
NOTE	Notes contain additional information and useful tips.
IMPORTANT	Information of importance to prevent procedural mistakes in the operation of the equipment or related software. Failure to comply may result in a poor experimental outcome but will not cause bodily injury or equipment damage.

Federal Communications Commission Radio Frequency Interference Statement

WARNING: This equipment generates, uses, and can radiate radio frequency energy and if not installed in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide a reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

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Imager

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Chapter 1: Installation and Safety Information

Odyssey[®] XF
Imager

Safety Considerations

Laser Safety

The Center for Devices and Radiological Health (CDRH) was established in October 1982, by the U.S. Food and Drug Administration (FDA) to protect the public health in the fields of medical devices and radiological health.

Manufacturers of products subject to performance standards under the Radiation Control for Health and Safety Act of 1968 are required to furnish various reports to the CDRH.

The Odyssey XF Imager is certified as a Class I laser product. This means that hazardous laser radiation is not emitted outside the instrument. Radiation emitted inside the Odyssey XF Imager is confined within protective housings and external covers. A series of safety interlocks ensures that the laser beam cannot escape during any phase of user operation.

One laser emits at 785nm and the other one at 685-690nm. The 785nm laser has a peak power rating of 1.2 watt. The 685-690nm laser has a peak power rating of 0.5 watt. The lasers emit visible and invisible laser radiation - **direct exposure to either beam may cause eye damage**. Laser radiation from each laser uniformly illuminates the target area only, which is marked in the imaging tray (Figure 3-1) that fits in the imaging drawer. There is no emission of laser radiation outside the instrument under normal conditions.

The CDRH implemented regulations for laser products on August 1, 1976 (CDRH radiation performance standard 21, Code of Federal Regulations Chapter 1, Sub-chapter J). Compliance for products marketed in the United States is mandatory. This product complies with CDRH radiation performance standard 21 CFR Chapter 1, Sub-chapter J. Ce produit est conforme à la performance de rayonnement CDRH chapitre CFR norme 1 Sous-chapitre J. The label that must be attached to laser products marketed in the United States is Figure 3-1 and is located on the rear panel of the Odyssey XF Imager (Figure 3-2), indicating compliance with CDRH regulations.

WARNING: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

AVERTISSEMENT: L'utilisation des commandes ou le réglage ou la performance des procédures autrement qu'il a été indiqué dans le présent texte peut résulter en de dangereuses expositions aux radiations.



Figure 3-1. CDRH and IEC 60825-1:2014 regulation compliance label. See **Power Cords and Disconnecting Power** on page 13 for more information about disconnecting power before servicing.

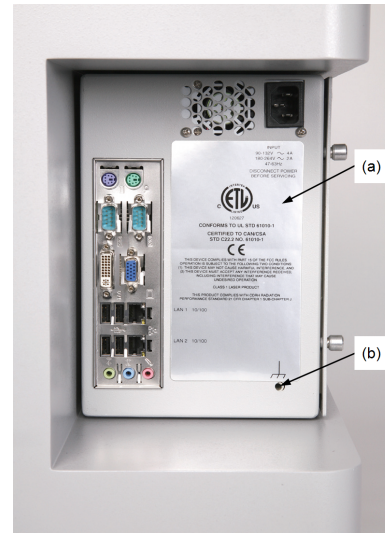


Figure 3-2. (a) Location of CDRH compliance label on the right side of the Odyssey® XF Imager. (b) Access hole for chassis ground.

Note: The appearance of your instrument's back panel may vary slightly from the one shown.

Safety Interlocks

Where there is a potential for class 4 laser radiation behind a given panel, the label in Figure 3-4 is affixed to the panel. The label shown in Figure 3-4 is affixed to the Odyssey XF in two locations; one on top of the camera hood and one on the inner front access panel (Figure 3-3).

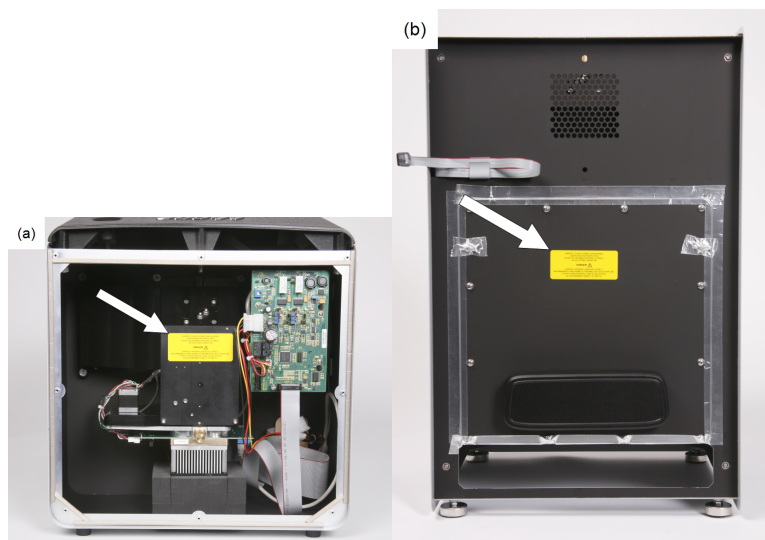


Figure 3-3. Location of class 4 laser warning label located on (a) the camera hood under the top panels of the Odyssey XF Imager enclosure and (b) on the inner front access panel (do not open, no user-serviceable parts inside).

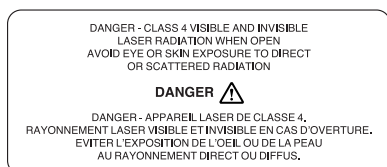


Figure 3-4. Class 4 laser warning label.

The Odyssey® XF Imager has two safety interlocks that prevent exposure to laser radiation when the imaging drawer is opened during operation. Do not attempt to defeat these interlocks. The drawer interlocks are located in the back of the instrument.

Placement in the Laboratory

The Odyssey XF Imager weighs approximately 27 kg (60 lbs). The instrument should be placed on a laboratory bench that is level and sufficiently sturdy to bear the instrument's weight. The bench should also be able to bear the weight of the computer if the computer is to be installed beside the Odyssey XF Imager.

The Odyssey XF is intended for indoor use only.

Ambient Laboratory Conditions

Place the Odyssey XF Imager away from external heat sources (furnaces, windows, etc.). Additional heating can cause high temperatures within the enclosure. Place the instrument away from sinks or other sources of water that pose a shock hazard. Recommended operating conditions are 15 - 35 °C and a dew point not greater than 22 °C to prevent condensation on the laser assemblies, which are cooled during operation.

Instrument Ventilation

The air intake fan on the back of the Odyssey XF Imager (Figure 4-4.) is used to cool the internal electronics and maintain fresh air circulation throughout the internal volume of the instrument. The air intake is filtered and the filter should be periodically cleaned (see *Routine Maintenance* on page 25). Make sure there is plenty of room behind the instrument so that the air intake is not blocked and the filter is easily accessible for cleaning.

Space Requirements

The Odyssey XF Imaging System requires an area 41.4 cm W (16.3") × 47 cm D (18.5") × 67.3 cm H (26.5"). Depth with the imaging drawer open is 59.7 cm (23.5").

Level the Imager

Level the imager to prevent the imaging drawer from scraping on anything and to keep the imager from tilting.

The instrument can be leveled by turning the threaded metal inserts located in each of the 4 plastic feet (Figure 3-5).



Figure 3-5. Turn feet to adjust height.

Moving the Imager

LI-COR recommends that you **do not** move your imager. Instead, please contact LI-COR Technical Support for options.



LI-COR cannot be held responsible for any damage incurred while moving, transporting, or shipping the Odyssey XF Imager, even if an existing warranty and/or service contract applies. LI-COR cannot be held responsible for any injury incurred while moving, transporting, or shipping the Odyssey XF Imager.

Chemical Safety

LICORbio recommends that all biochemicals be handled carefully, and that safe laboratory procedures be followed at all times. Be aware of the hazards associated with any chemical before you begin work.

The LI-COR® Odyssey® XF Imager should not be used with any radioactive materials.

Electrical Considerations

Power Cords and Disconnecting Power

The Odyssey XF Imager is equipped with a 3-wire grounding-type plug. This plug will only fit into a grounding-type outlet. This is a necessary safety feature. If you are unable to insert the plug into the outlet, you will need to replace the outlet. ***Do not defeat the purpose of the grounding-type plug.***

Do not locate the Odyssey XF Imager where the power cord will be walked on or exposed to water or chemical spills.

The Odyssey XF Imager draws a maximum of 4 amperes at 120V (see *Specifications* on page 31). If an extension cord is used, make sure the total of the ampere ratings on the instruments plugged into the extension cord does not exceed the extension cord ampere rating. Also make sure the total amperage of instruments plugged into the wall outlet does not exceed the amperage capacity for the outlet (usually 15 or 20 amperes in the United States).



Disconnect power before servicing.

Débrancher le pouvoir avant d'entretenir.

See Figure 3-1. on page 10 for the location of these statements on the product's regulation compliance label.

Fuse Replacement

There are no user replaceable fuses in this instrument.

Chassis Ground Access Hole

To eliminate the potential for ESD damage during service, a hole on the side of the control module provides a chassis ground (Figure 3-2.).

Computer Connections and Networking

Note: Use only the supplied Cat. 5e RJ45 Ethernet cable to connect the Odyssey XF Imager and computer.

When LI-COR® Acquisition Software starts, it searches for and discovers any Odyssey XF Imagers automatically. If only one instrument is found, LI-COR Acquisition Software establishes communication. If more than one instrument is found, the user is presented with a list of instruments and asked which to use.

Chapter 2: System Overview

Odyssey[®] XF
Imager

External Panels and Controls

Front Panel



Figure 4-1. . Front panel features and controls of the Odyssey XF Imager.

Power On/Off Button: Pressing this button momentarily turns the instrument on and off. While the instrument is performing its startup or shutdown procedure, the blue indicator light in the power button blinks. When the blue indicator light is continuously on, the instrument is ready for operation. Pressing the power on/off button when the green image acquisition indicator is lit will

cause the red error condition indicator to illuminate. This is just a warning that the instrument is in use.

Green Image Acquisition Indicator: This indicator light blinks during image acquisition and is continuously on at other times, as long as communication with LI-COR® Acquisition Software is maintained. The indicator light is off only if communication is lost or LI-COR® Acquisition Software is closed or the instrument is powered off.

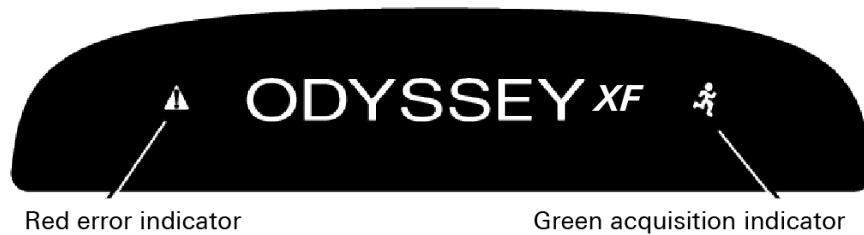


Figure 4-2. Location of the green image acquisition light and red error light.

Red Error Indicator: The error indicator light illuminates when a particular process could not be completed. If the imaging drawer button is pressed before an acquisition is complete, for example, the error indicator illuminates. See LI-COR® Acquisition Software for details of what error occurred.

Imaging Drawer Button: This button opens and closes the imaging drawer in normal operation. The drawer front can be used to open or close the drawer in cases of power loss. Pressing the Imaging Drawer button when the green image acquisition indicator is lit will cause the red error condition indicator to illuminate. This is just a warning that the instrument is in use.

Imaging Drawer: The imaging drawer moves the imaging tray into position under the camera for imaging. The bottom of the imaging tray has a marker in each corner that indicates the edge of the camera's field of view.

Right-side and Rear Panels



Figure 4-3. . Close up of the Odyssey XF Imager control module showing the power receptacle and Ethernet connectors (use only the supplied Ethernet cable). Do NOT use any other connector on this panel.

Note: The appearance of your instrument's back panel may vary slightly from the one shown.



Figure 4-4. Rear panel showing air intake fan. Keep the intake unblocked during operation and accessible for routine filter cleaning (see **Cleaning the Fan Filter** on page 26).

Optical System Description

The Odyssey XF Imager is designed to image Western blots, membranes, or gels using visible, near-infrared or chemiluminescent methods. Before image acquisition starts, the imaging tray containing a membrane or gel is placed in the Odyssey XF imaging drawer and the drawer is closed. A safety interlock prevents operation of the laser illumination module while the imaging drawer is open. Image acquisition is started via your acquisition software.

The Odyssey XF Imager has four detection channels: two are infrared channels with 685 and 785 nm lasers, one is a 600 nm channel with a light source for excitation, and the fourth is for detecting visible wavelength emissions from chemiluminescent substrates. The channels used during acquisition are chosen in your image acquisition software.

The Odyssey® XF Imager laser module contains a 685 nm and 785 nm laser. During image acquisition, each laser source is turned on, followed by image acquisition with the LI-COR® CCD camera. For infrared imaging, a typical image acquisition consists of images for two fluorescent probes in the 700 and 800 nm channels (assuming both channels are enabled). Image acquisitions from chemiluminescent substrates use just the chemiluminescence channel and imaging is done at visible wavelengths. Note, however, that fluorescent markers can be imaged separately in the 700 nm channel and combined with the image from the chemiluminescence channel. Coomassie stains can also be imaged in the 700 nm channel. DNA gels stained with ethidium bromide or other comparable stains (such as SYBR Safe) can be imaged in the 600 nm channel.

The quality of images from the Odyssey XF Imager is enhanced by a patented filtering system that dramatically reduces noise before detection by the CCD detector. Infrared signal detection has also been optimized for LI-COR® IRDye® near-infrared dyes, which eliminates the need for filter selection by the user before imaging. The unique imaging technology, FieldBrite™ XT, used in the Odyssey XF Imager acquires images without saturated pixels on the first attempt with no user adjustments. More than six logs (22 bits) of dynamic range are available for each image.

Imaging Drawer

The imaging drawer is opened and closed by pressing the large button above the drawer (see Figure 4-1.).



Figure 4-5. The imaging drawer holds one imaging tray that is capable of containing one membrane or gel up to 10 x 12 cm.

Imaging Drawer Safety

Be careful not to get your fingers caught between the Odyssey XF Imager and the imaging drawer when the drawer closes. The drawer is specially designed to stop when a certain level of resistance is detected, so no harm should result, but the experience may be startling.

During an unexpected power loss, the drawer button will not function. This may leave a sample inside the Odyssey XF Imager, or it may result in the imaging drawer being left partially open or closed. If the power remains off, the drawer can be opened or closed by pulling or pushing on the drawer front. The imaging drawer should resume normal operation once power is restored.

Sample Placement

The Odyssey® XF Imaging Tray has four corner markers that delineate the edges of the Odyssey XF imaging area. Place membranes or gels up to 10 x 12 cm on the imaging tray within the corner markers for the entire membrane or gel to be imaged.



The imaging tray is designed to contain the small volume of liquid needed to keep blots or gels moist. Do not fill the imaging tray and be careful not to add so much liquid that the sloshing action created by closing the drawer may result in a spill inside the instrument.

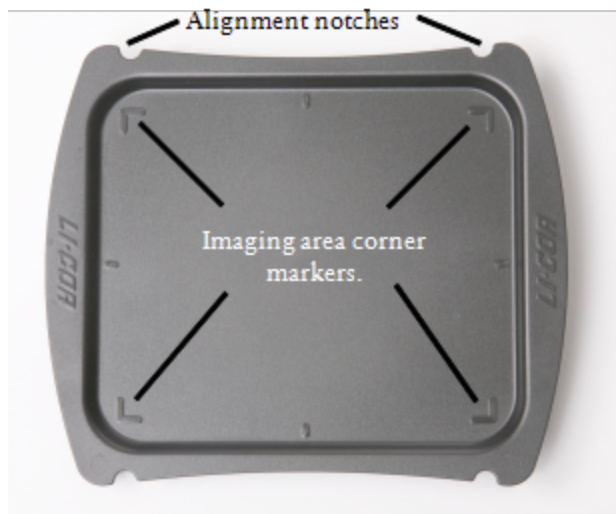


Figure 4-6. Imaging Tray.

Place membranes sample-side up with the top toward the rear of the imager.

Place gels sample-side up with the top toward the rear of the imager.

Trays can be cleaned (*Clean Tray* on page 25), but they should be discarded if an unacceptable amount of residual signal remains on the tray after cleaning. Trays can be reordered using P/N 926-40020 (5pk).

Insert Imaging Tray into Drawer

The imaging tray is inserted in the imaging drawer by aligning the notches in the tray with the guide pins in the imaging drawer (Figure 4-7), and lowering the tray into the drawer. Make sure the tray rests flat on the imaging drawer before pressing the open/close button to close the drawer.

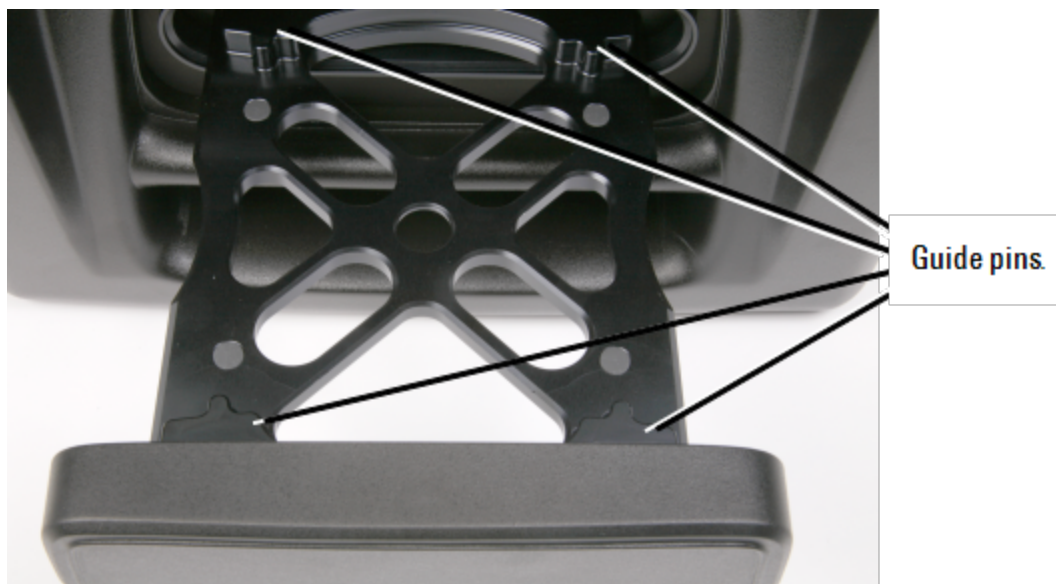


Figure 4-7. Imaging drawer has four guide pins that match the alignment notches in the imaging tray.

Clean Tray

Trays may be discarded after use. Trays should be discarded if they are damaged or if an unacceptable level of residual signal remains after cleaning.

The following procedure may allow you to clean the tray sufficiently for reuse. If you choose to reuse the tray, it should be cleaned before and after each use.

1. Remove sample from tray.

Always handle membranes with forceps.

2. Clean tray with water and wipe with a lint-free wipe.



Do not use blue wipes.

3. Rinse with 70% ethanol or 70% isopropanol and lint-free wipes. Methanol may be used if necessary.



Do not use acetone or any other harsh solvents to clean the imaging tray.

Sticking Imaging Drawer

If the Odyssey XF imaging drawer does not open and close smoothly, contact LI-COR technical support for instructions about acquiring the correct lubricant and correctly applying the lubricant.

Image Acquisition

Using Membranes

For Western blotting methods, nitrocellulose or PVDF membranes may be used (see licor.com/membranes for the latest membranes and kits that are optimal for infrared detection).

Detailed blotting protocols can be found at licor.com/support. These are some general tips for using membranes.

Handling Near-Infrared Western Blot Membranes

- **Important:** Do not touch the membrane – handle only with clean forceps. Lift the membrane only by the corners. Fingerprints, even from a glove, will show clearly when imaged.
- Use clean containers to avoid cross-contamination and reduce background.
- Protect near-infrared (NIR) Western blot membranes from light prior to imaging.
- Keep the membrane wet if it is to be stripped and re-used.
- Store in PBS or TBS at 4 °C or store dry at room temperature. The fluorescent signal on a dried membrane will remain stable for several months or longer if protected from light and air.

Acquiring NIR Western Blot Images

NIR Western blot membranes can be imaged wet or dry. Place the membrane sample-side up in the imaging tray, and place the imaging tray into the imaging drawer.

LI-COR Acquisition Software Steps for Scanning Membranes

1. Start LI-COR Acquisition Software .
2. Click Scan .
3. Enter a Username.
4. Choose your Odyssey® XF in the list of imagers.
5. Choose the Membrane workflow and follow the steps in the workflow to acquire an image.

Handling Chemiluminescent Western Blot Membranes

- **Important:** Do not touch the membrane – handle only with clean forceps. Lift the membrane only by the corners. Fingerprints, even from a glove, will show clearly when imaged.
- Use clean containers to avoid cross-contamination and reduce background.
- Do not dry chemiluminescent membranes for imaging.

Acquiring Chemiluminescent Western Blot Images

Image chemiluminescent membranes wet and with enough substrate evenly dispersed.

LI-COR Acquisition Software Steps for Scanning Membranes

1. Start LI-COR Acquisition Software .
2. Click Scan .

3. Enter a Username.
4. Choose your Odyssey XF in the list of imagers.
5. Choose the Membrane workflow and follow the steps in the workflow to acquire an image.

The following imaging settings are used in this workflow. Other settings can be entered in the Custom workflow.

- Chemi Acquisition Time Options: 30 sec, 1 min, 2 min (default), 5 min, 10 min, 20 min, 60 min
- Chemi Manual Entry for Acquisition Time: 5 seconds to 60 minutes

Using Gels

DNA gels that are stained with ethidium bromide or other comparable stains (such as SYBR® Safe) can be imaged in the 600 nm channel. A detailed technical note on imaging DNA gels can be found at licor.com/support. Coomassie-stained gels can also be imaged since Coomassie Blue dye can be seen clearly in the 700 nm channel. To image a gel, observe the following guidelines:

- Thoroughly rinse the gel with destaining solution or water to remove dye particulates.
- When placing the gel in the imaging tray, place the top toward the back of the instrument.

LI-COR Acquisition Software Steps for Scanning Membranes

1. Start LI-COR Acquisition Software .
2. Click Scan .
3. Enter a Username.
4. Choose your Odyssey XF in the list of imagers.
5. Choose the Gel workflow and follow the steps in the workflow to acquire an image.

The following imaging settings are used in this workflow. Other settings can be entered in the Custom workflow.

- Resolution: 125 μ m
- Fluorescence Acquisition Time Options: 30 sec, 1 min, 2 min (default), 5 min, 10 min

Software Overview

Below is an overview of the software available to you for your Odyssey XF Imager.

LI-COR® Acquisition Software for Image Acquisition

LI-COR Acquisition Software guides you through acquiring your images using step-by-step workflows.

You can download and learn more about LI-COR Acquisition Software at licor.com/DownloadLAS.

Download LI-COR Acquisition Software

1. Download LI-COR Acquisition from licor.com/DownloadLAS.
2. Click the downloaded installer file.
3. Follow the steps in the installation wizard to complete installation.

Empiria Studio® Software for Analysis

Empiria Studio can be used for analysis of images from multiwell plate assays, Western blots, protein gels, nucleic acid gels, and microscope slides. Empiria Studio provides step-by-step workflows for each supported assay type to minimize user-to-user variation, provide extensive analysis options, and compute statistical values.

Use Empiria Studio to analyze NIR Western blot images, chemiluminescent Western blot images, or gel images acquired on the Odyssey XF.

To get started using Empiria Studio, please see licor.com/empiria-support.

Detection Channel Summary

Channel	Excitation / Illumination	Emission Filter	Assay Category / Imaging Mode
800	785 nm	816 - 846 nm	Membrane, Gel
700	685 nm	716 - 746 nm	Membrane, Gel
Chemi	NA	NA	Membrane
600	520 nm	573 - 637 nm	Membrane, Gel

Chapter 3: Maintenance

Routine Maintenance

CAUTION: Remove the tray and its contents from the instrument prior to any maintenance that requires moving or tilting the instrument.

The Odyssey XF Imager requires only minimal maintenance. However, as with any equipment utilizing electrical voltages, there is a danger of fire or electrical shock if the equipment is not properly maintained. **Disconnect power before servicing.** Routinely inspect all cables and power cords for evidence of fraying, exposed wire, or loose connections.

Clean Imager

- Clean the exterior case parts with warm water and a damp cloth.
- Wipe away all spills.
- Keep the imaging drawer dry. If necessary, the imaging drawer can be cleaned with a wipe dampened with methanol.

Clean Tray

Trays may be discarded after use. Trays should be discarded if they are damaged or if an unacceptable level of residual signal remains after cleaning.

The following procedure may allow you to clean the tray sufficiently for reuse. If you choose to reuse the tray, it should be cleaned before and after each use.

1. Remove sample from tray.

Always handle membranes with forceps.

2. Clean tray with water and wipe with a lint-free wipe.



Do not use blue wipes.

3. Rinse with 70% ethanol or 70% isopropanol and lint-free wipes. Methanol may be used if necessary.



Do not use acetone or any other harsh solvents to clean the imaging tray.

Cleaning the Fan Filter

CAUTION: Remove the tray and its contents from the instrument prior to any maintenance that requires moving or tilting the instrument.

The air intake fan on the back of the Odyssey® XF Imager is used to cool the internal electronics. Periodically inspect the air intake filter (Figure 5-1). Clean or replace the filter when it looks like dust is starting to block air flow. To test air flow, place a piece of standard printer paper over the filter while the instrument is running. Release the paper. If the paper falls away, rather than being held to the air intake by suction, the filter is significantly blocked.

The back cover snaps off for access to the foam filter. The filter can generally be rinsed out, dried, and replaced if it is only clogged with dust.



Figure 5-1. The back cover snaps off for access to the foam filter. The filter can generally be rinsed out, dried, and replaced if it is only clogged with dust.

Front Panel Warning Light Indicates an Error

When the Odyssey® XF Imager is unable to complete a task requested by LI-COR Acquisition Software, or some hardware failure is encountered, the red error indicator on the Odyssey XF front panel (Figure 4-1. and Figure 4-2.) flashes and an audible alarm sounds. This error condition is automatically cleared after a few seconds and a message dialog is displayed in the LI-COR Acquisition Software to explain the error. The error message will instruct the user on any further required actions.

Desiccant Replacement

The Odyssey XF Imager has a cooled CCD camera that uses a desiccant to prevent water condensation on the internal cooled surfaces. Depending on the humidity of the environment, the desiccant in the camera may need to be replaced periodically.

Your imager's acquisition software will provide a warning when the desiccant will soon need to be replaced.

When the internal relative humidity reaches 30%, the software will provide a warning message. When the relative humidity reaches 60%, the cooler will be disabled to prevent condensation.

The desiccant is user-replaceable. If needed, please contact LICORbio for a desiccant replacement kit (9957-046) to perform this task.

Important: Do not remove the new desiccant cartridge from the shipping bottle until ready for installation.

Desiccant Replacement Instructions

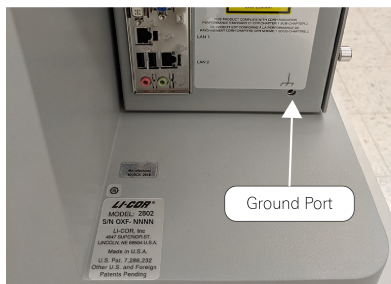


Remove the tray and its contents from the imager prior to any maintenance that requires moving or tilting the imager.

1. Exit the imager's acquisition software.
2. Power off the imager by briefly pressing the power button.
3. **Disconnect the power cord.**
4. Disconnect the Ethernet cable.
5. Place the anti-static wrist strap provided in the kit on your wrist and plug the wrist strap cord into the ground port on the back of the imager.



Do not skip this step. The wrist strap ensures that a static spark cannot be discharged from your body into the electronics of the imager.



6. Use a Phillips screw-driver to loosen the 4 screws on the top panel of the imager. (The screws cannot be removed from the panel.)



7. Lift the black plastic cover.
8. The brass desiccant cap should now be visible.



9. Remove the desiccant cap by turning it counter-clockwise. You can insert a screwdriver in the top of the cap to help loosen the cap.
10. Discard the old desiccant cartridge.
11. Remove the new desiccant cartridge from the shipping bottle. Place the new desiccant into the cap and slightly rotate it back-and-forth to engage the hook-and-loop fasteners.
12. Replace the brass desiccant cap. Turn the cap until it is just seated - do not overtighten.
13. Replace the imager top panel, and tighten the 4 screws until they are snug. Don't overtighten.
14. Reconnect the power cord, reconnect the Ethernet cable, and **wait 2 hours before starting the imager.**

Starting the Imager

Wait 2 hours before starting the imager to allow time for the air inside the camera to dry.

Obtaining Technical Support

To resolve a problem with your Odyssey XF Imager, start by contacting LI-COR Technical Support at 800-645-4260 (U.S. only), or emailing biohelp@licor.com. Outside of the U.S., contact your local sales office or distributor. Be prepared to give the serial number of your instrument, which can be found on a label near the computer module on the right side of the instrument.

Chapter 4: Appendix

Specifications

Operating Conditions: For Indoor use only; operating temperature 15 - 35 °C and dew point < 22 °C, non-condensing; maximum operating temperature may be reduced at elevations above 2000 m.

Environmental Conditions: Pollution Degree 2.

Dynamic Range: 22 bit (>6 logs)

Depth of Field for Best Sample Focus: 6 mm

Patented FieldBrite™ Technology: CV <3%

600 Channel Light Source: Light source at 520 nm

700 Channel Laser Source: Solid-state Laser Diode at 685 nm

800 Channel Laser Source: Solid-state Laser Diode at 785 nm

Laser Lifetime: 20,000 hours

Detector Type: Low-noise CCD. Thermoelectrically cooled.

Acquisition Times:

600, 700 and 800 nm channels: 30 s, 2 min, 10 min plus advanced variable time feature.

Chemiluminescence channel: 30 s, 2 min, 10 min, 60 min plus advanced variable time feature.

Focusing: None needed.

Sensitivity: Similar to Odyssey® DLx Imaging System

Wavelength Maxima for Excitation/Emission Bands:

Channel	Excitation	Emission
600 nm	520 nm	600 nm
700 nm	685 nm	730 nm
800 nm	785 nm	830 nm
Chemiluminescence	none	Visible

Dyes: Optimized for LI-COR® IRDye® 680RD and IRDye® 800CW reagents, and chemiluminescent substrates.

Image Display Options: Pseudocolor, positive and negative grayscale, single color (red, green or blue), or two colors with overlapping fluorescence displayed in a third color.

Capacity: One imaging tray containing one blot or gel.

Field of View: 10 cm D × 12 cm W (3.9" D × 4.7" W) at the surface of the imaging bed.

Power Requirements: Universal input range is between 100-127 VAC and 200-240 VAC (voltage fluctuations not to exceed 10% of the nominal voltage); 50/60 Hz; at 120V, 4 Amp maximum; at 120V, 0.3 Amp typical when idle. Overvoltage Category II.

Computer Connection Cable: Cat. 5e RJ45, 10BASE-T/100BASE-TX/1000BASE-T. Use only the supplied cable.

Size: 67.3 H × 41.4 W × 47 D cm (26.5 H × 16.3 W × 18.5 D inches). Depth with imaging drawer open is 59.7 cm (23.5").

Weight: 27 kg (60 lbs).

The Odyssey XF Imager is certified as a Class 1 laser product. Hazardous laser radiation is not emitted outside the instrument. Radiation emitted inside the Odyssey XF Imager is confined within protective housings and external covers. A series of safety interlocks ensures that laser beams cannot escape during any phase of user operation.

Embedded Firmware Source Code

The embedded firmware running on the Odyssey XF Imager (model number 2802) utilizes open source software. To obtain source code or related information, contact LI-COR Support at <http://www.licor.com/biotechsupport>.