

Odyssey[®] DLx

Operator's Manual



LI-COR[®]

CE Marking:

This product (model number 9142) is a CE-marked product. For conformity information, contact LI-COR Support at <http://www.licor.com/biotechsupport>. Outside of the U.S., contact your local sales office or distributor.

奥德赛CLX/DLX成像仪 Odyssey CLx Imager and Odyssey DLx 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® DLx Imager is intended to be used by qualified personnel. Read this entire manual before using the Odyssey DLx 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® DLx
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 DLx 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 DLx 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.

The CDRH implemented regulations for laser products on August 1, 1976 (CDRH radiation performance standard 21, Code of Federal Regulations Chapter 1, Subchapter J). Compliance for products marketed in the United States is mandatory. The label that must be attached to laser products marketed in the United States is illustrated in Figure 3-2 and is located on the rear panel of the Odyssey® DLx, 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.

The manufacturer label is illustrated in Figure 3-1 and is also on the rear panel of the instrument.

The Odyssey DLx Infrared Imaging System contains two lasers; one emitting at 785 nm, and one at 685 nm. The 685 nm laser emits visible laser radiation - **direct exposure to either beam may cause eye damage**. Laser radiation is emitted through apertures at the top of the Odyssey DLx microscope assembly. Because the microscope assembly moves in both planes relative to the glass scanning surface, laser radiation could be focused at any position on this surface. Safety interlocks (described below) automatically turn the lasers off when the Odyssey DLx lid is opened.

The label shown in Figure 3-3 is affixed to the inside of the Odyssey DLx case at two locations; one near the laser/microscope assembly scanning bed, and the second on the cover that is used to seal the above mentioned assembly.

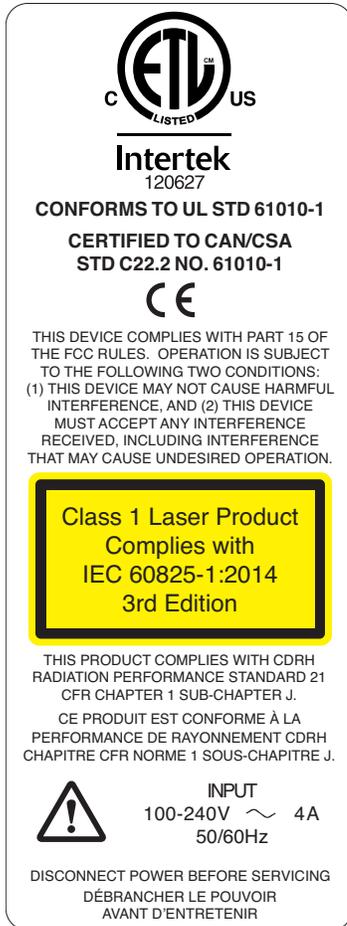


Figure 3-2. CDRH regulation compliance label.



Figure 3-1. Manufacturer label.

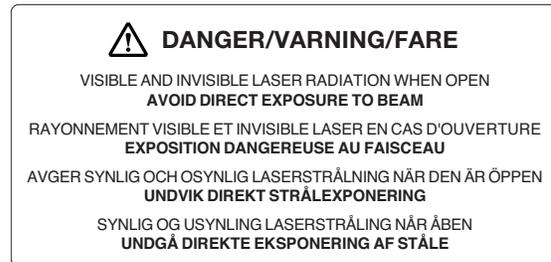


Figure 3-3. Laser radiation danger label.

See "Rear Panel" on page 16 for the location of the labels in Figure 3-1 and Figure 3-2. The label in Figure 3-3 is affixed to the inside of the Odyssey® DLx Imager case at two locations; one near the laser/microscope assembly scanning bed, and the second on the cover that is used to seal the above mentioned assembly.

Safety Interlocks

The Odyssey DLx has two safety interlocks that prevent access to the laser when the instrument lid is opened during operation. Do not attempt to defeat these interlocks. The interlocks are located on the front of the instrument bezel (Figure 3-4). Audible tones sound when the lid is opened and closed (Figure 3-4).

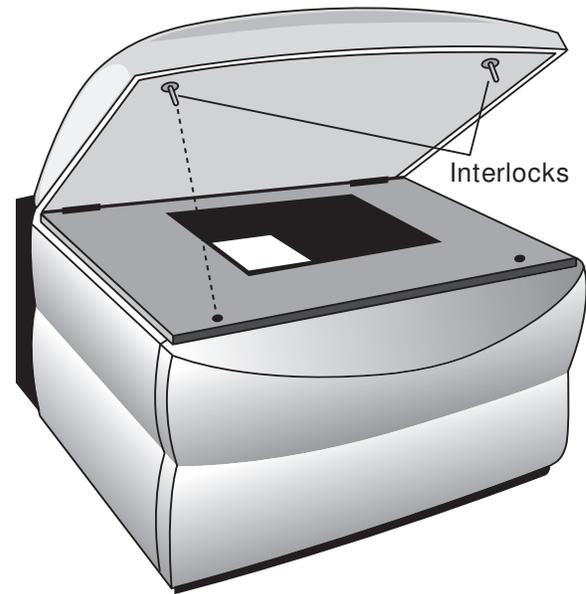


Figure 3-4. Location of interlocks on the Odyssey® DLx instrument bezel.

Placement in the Laboratory

The Odyssey DLx Near Infrared Imaging System weighs approximately 33 kg (72 lbs). The instrument should be placed on a laboratory bench that is sufficiently sturdy to bear its weight. The bench should also be able to bear the weight of the computer if the computer will be installed beside the Odyssey DLx Imager.

Ambient Laboratory Conditions

Place the Odyssey DLx 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/microscope assembly during operation. Allow the instrument to adjust to the temperature and humidity of the room before powering it on to avoid damaging the instrument. It may be necessary to allow up to a day in the new location in cases of extreme temperature and/or humidity change.

Instrument Ventilation

The instrument enclosure and circuit boards are cooled with multiple internal fans. The fan on the rear of the instrument serves as an exhaust port, so the fan shrouds are not filtered and the cover serves only as an exhaust outlet. There are no restrictions regarding placement of the instrument as spacers on the rear of the instrument ensure sufficient airflow for the exhaust port. However, it is important to not allow any objects (e.g., paper or a cover) to block airflow from the exhaust port while the instrument is on.

Space Requirements

The Odyssey DLx Imager requires an area approximately 37 H × 53 W × 62 D cm (15 H × 21 W × 24.5 D inches). With the hood fully open, the Odyssey DLx requires 74 cm (29") of vertical clearance.

Level the Imager

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 DLx 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 DLx Imager.

Chemical Safety

LI-COR Biosciences 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 DLx should not be used with any radioactive materials.

Electrical Considerations

Power Cords

The Odyssey DLx 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 DLx where the power cord will be walked on or exposed to water or chemical spills.

The Odyssey DLx draws at most 4 amperes at 120V. 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).

To disconnect power before servicing, first disconnect the instrument from the software, briefly press the power button to power down the instrument, and then remove the power cord from the power receptacle on the Odyssey DLx back panel (Figure 3-6). See *Disconnecting the Power* on page 17 for more information.

Power Switch

To power on the imager, ensure the power switch on the back of the imager is enabled, then press the power button on the front. Do not use the power switch on the back of the imager to power the imager on and off. Use the power button on the front instead.

To enable power to the imager, press the side of the power switch with the line icon on the power switch. Press the side of the switch with the circle symbol to cut power to the imager.

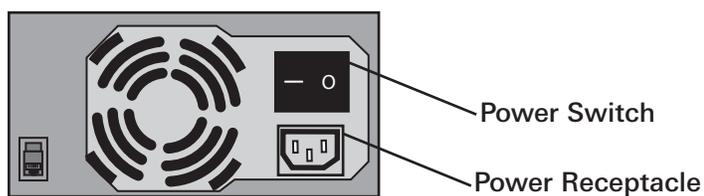


Figure 3-6. Location of the power switch and power receptacle on the Odyssey® DLx back panel. Note: The appearance of your instrument's back panel may vary slightly from the one shown.

Fuse Information

There are no user-serviceable fuses.

Computer Connections and Networking

Note: Use only the supplied Cat. 5e network cable to connect the Odyssey DLx and computer.

When LI-COR® Acquisition Software starts, it searches for and discovers any Odyssey DLx 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.

Routine Maintenance

The Odyssey DLx 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.

LI-COR Biosciences recommends that you routinely inspect the system and the scanning surface. The following are some general maintenance guidelines:

- Wipe all chemical spills from the case and/or scanning surface to prevent damage to the surface coating.
- Inspect all cables and power cords for evidence of fraying, exposed wire, or loose connections.
- Keep the scanning surface free of organic solvents and other combustibles.

- Clean the exterior case parts with warm water and a damp cloth. The exterior case parts are painted with a durable urethane coating that is resistant to chemical spills. Do not use scouring compounds or solvents (e.g., acetone, benzene, carbon tetrachlorides, lacquer thinner, or alcohol) to clean the case.

Networking Cables



A Cat. 5e network cable is provided with the Odyssey® DLx Imager. Do not use networking cables other than the one provided. The use of other networking cables may result in improper electrical performance. The networking port is on the back panel of the instrument and is marked with the label illustrated in Figure 3-7.

Figure 3-7. Networking port label.

Chapter 2: System Overview

External Panels and Controls

Front Panel and Scanning Surface

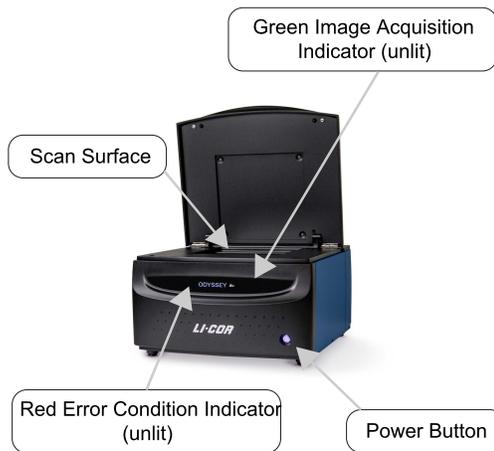


Figure 4-1. Front panel features and power button on the Odyssey DLx.

Power On/Off Button: Briefly pressing this button turns the instrument on and off, when the imager is not connected to the LI-COR® Acquisition Software. If the imager is connected, pressing the button results in the red error light blinking along with a warning sound to alert the user that the imager is connected to the software. Continuing to hold the power button for 5 seconds will turn the instrument off and the software connection will end.

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 before the instrument is connected to the software and if LI-COR Acquisition Software is closed or communication is otherwise lost.

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.

Rear Panel



Figure 4-3. Closeup of the Odyssey® DLx Imager rear panel showing the power receptacle and LAN port (use only the supplied networking cable). Also shown are the CDRH regulation compliance label, the manufacturer label and the power switch. The power switch should be left in the 'on' position. Note: The appearance of your instrument's back panel may vary slightly from the one shown.

Scanning Surface

The scanning surface is a 25 cm x 25 cm glass plate (Figure 4-4), upon which the samples to be scanned are placed. The scanning surface is sealed from the instrument interior so no moisture can penetrate to the detection optics and electronics below.

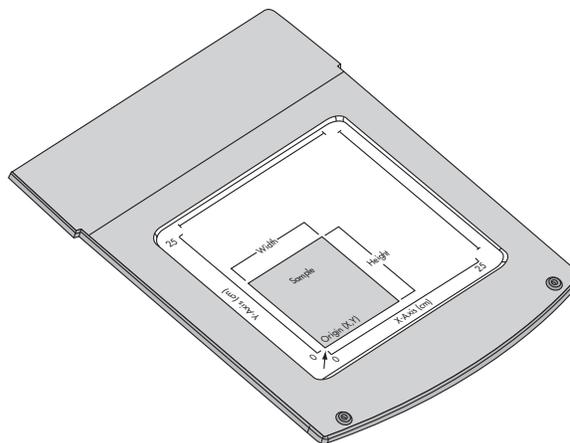


Figure 4-4. Scans progress across the X-axis and then incrementally move along the Y-axis after each X-axis pass.

General Description of Scanning

Scans are initiated using LI-COR Acquisition Software. Scanning progresses first across the X-axis, and then moves incrementally along the Y-axis of the scanning surface after each X-axis pass.

Continuous Operation

The Odyssey DLx is designed to operate continuously. During idle times, the Odyssey DLx can remain powered on or be powered off at your discretion. When idle, the Odyssey DLx typically draws approximately 0.5 Amp of current when powered with 120V (see *Specifications* on page 25). If the Odyssey DLx needs to be disconnected (when moving it, for example), see below.

Disconnecting the Power

1. First, exit LI-COR Acquisition Software by closing the application window.
2. Briefly press the power button on the front panel to power off the Odyssey DLx. Then remove the power cord from the power receptacle as described in *Electrical Considerations* on page 12.

Note: Do not unplug the power cable or push 'O' on the rear power switch while the system is running, except for an emergency situation.

Optical System Description

Solid state diode lasers simultaneously provide light excitation at 685 and 785 nm. Collimating lenses, optical bandpass filters, and a focusing lens focus and tune the laser beams to produce an excitation spot on the scanning surface. The microscope electronics then modulate the laser beams to discriminate the infrared dye signal fluorescence from background fluorescence. The scanner detection optics focus on the excitation spot and collect light from the fluorescing infrared dyes.

The light is passed to a dichroic mirror after collection by the microscope objective. The mirror splits the light and essentially sorts the fluorescent signals by transmitting the light above 810 nm and reflecting light below 750 nm. Transmitted and reflected light travels two independent paths through optics designed to remove scattered and stray light. The light is ultimately focused onto one of two avalanche photodiodes that converts the light to an electrical signal for processing by the microscope detection electronics.

In the microscope electronics the signal is amplified, filtered, and finally converted to a digital value by an analog-to-digital converter. The digital signal is demodulated, filtered again, and coordinated with the microscope position by a Digital Signal Processor (DSP) to produce the image file.

The entire compact laser/microscope assembly travels on a platform that moves beneath the scanning surface along both the X- and Y-axes. It is adjustable in the Z-dimension to allow for focusing at the scan bed up to 4 mm above the scan bed to accommodate membranes, gels, and microplates.

The Odyssey® DLx Imager has two modes for dynamic range, Automatic and Manual. In Automatic mode the Odyssey DLx acquires images with virtually no saturated pixels on the first attempt with no user adjustments. More than six logs (22 bits) of dynamic range are available for each image. In Manual mode the intensity of each channel can be manually adjusted across a 12 bit dynamic range.

Software Overview

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

LI-COR® Acquisition Software for Image Acquisition

LI-COR Acquisition Software is the latest software to acquire images using your Odyssey DLx Imager. 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 multiwell plate images, Western blot images, gel images, and microscope slides images acquired on the Odyssey DLx.

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	812 - 832 nm	Membrane, Gel, In-Cell Western (includes On-Cell Western), Cell Analysis, Microscope Slide, Custom
700	685 nm	710 - 730 nm	Membrane, Gel, In-Cell Western (includes On-Cell Western), Cell Analysis, Microscope Slide, Custom

Chapter 3: Operation

Odyssey® DLx
Imager

Before You Begin...

Cleaning the scan surface before and after every scan is recommended.

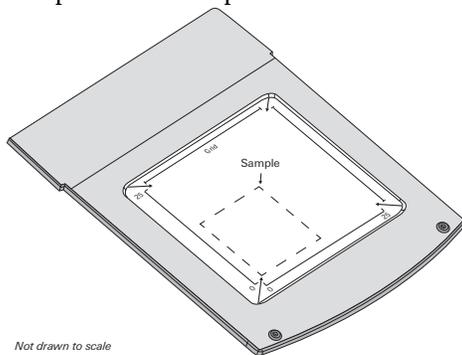
Cleaning the Scanning Surface

The scanning surface is plate glass. It is very important that the scanning surface glass and silicone mat be free of smudges, dust, and dye before scanning any samples on the Odyssey DLx. Contaminated surfaces in contact with the membrane surface may cause blotches and streaks that cannot be removed with further washing.

- 1) Thoroughly clean the glass scanning surface with ultrapure water and a lint-free wipe.
- 2) Repeat the wash with 70% ethanol and a lint-free wipe or 70% isopropanol and a lint-free wipe. If additional cleaning is necessary, 100% methanol may be used.
- 3) If the silicone mat is used, rinse it under warm water. Gentle lab soap may be used, but the soap must be completely rinsed away before use. The silicone mat may also be rinsed with isopropanol or ethanol if needed. Dry the silicone mat with a lint-free tissue.

Scanning

Samples should be placed on the scan surface in the lower-left corner next to the arrow (Figure 5-1).



Not drawn to scale

Figure 5-1

Using Membranes

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

The following are general tips for handling membranes and imaging membranes with the Odyssey® DLx.

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.

Scanning Membranes

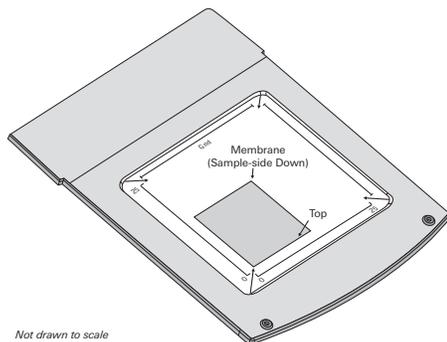
Blots can be imaged wet or dry.

Scanning Dry Membrane

Place the membrane on the scan surface sample-side down with the silicone mat on top of the membrane.

Scanning Wet Membrane

1. Place the membrane on the scan surface sample-side down.



2. Remove any air bubbles using the 4" soft roller.
3. Place 1 - 2 mL of PBS or TBS on top of the membrane. If you are imaging multiple membranes, place the silicone mat on top of the membranes.

If the signal on the membrane is too strong, saturated pixels will be shown in bright contrast to the rest of the image. Re-scan at a lower intensity setting or use Auto Mode.

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 DLx 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.

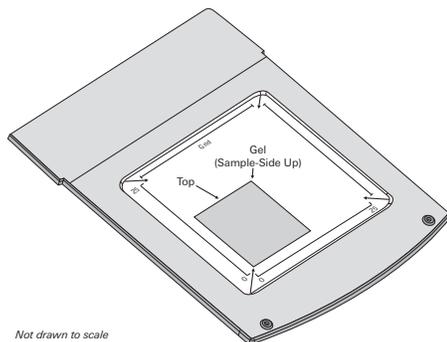
- Resolution: 169 μm
- Focus Offset: 0.00 mm

Using Gels

You can find a detailed In-Gel Western protocol for use with the Odyssey® DLx at licor.com/support. Coomassie-stained gels can also be scanned since Coomassie Blue dye can be seen clearly in the 700 nm channel, and faintly in the 800 nm channel. Nucleic acids stained with Syto® 60 and separated in a gel can be imaged in the 700 nm channel (see licor.com/support for more information).

Scanning Gels

- 1) Thoroughly rinse the gel with destaining solution or water to remove dye particulates.
- 2) When placing the gel on the scanning surface, take care not to trap air bubbles underneath.



- 3) Adjust the focus offset for the gel thickness. The correct focus offset is 1/2 the thickness of the gel; for a 1 mm gel, set the focus offset to 0.5 mm. The maximum offset is 4 mm in the Odyssey® DLx Imaging system, allowing gels of up to 8 mm to be scanned.
- 4) Scan the gel in the appropriate channel.
- 5) After removing the gel, clean the glass surface to remove any residual dye by following the instructions in the section **Before You Begin...** on page 19.

LI-COR Acquisition Software Steps for Scanning Gels

1. Start LI-COR Acquisition Software .
2. Click Scan .
3. Enter a Username.
4. Choose your Odyssey DLx 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: 169 μm
- Focus Offset: 0.50 mm

Using Multiwell Plates

Multiwell plates that meet certain physical characteristics can be scanned directly on the Odyssey DLx scanning surface. Proper selection of multiwell plates significantly affects the results of your analysis. Different models of plate differ with regard to properties such as well depth and autofluorescence.

- Plate dimensions must be such that the distance from the Odyssey DLx scanning surface to the target detection area of the plate is 4.0 mm or less.
- Do not use plates with white walls, because the white surface will create significant noise.
- For an In-Cell Western™ Assay, LI-COR recommends the following plates.
 - For adherent cells, LI-COR recommends a 96-well plate with a clear, flat bottom and black wells, such as the Greiner Bio-One CELLSTAR® Black μClear ® Microplate, LI-COR PN 926-19156 (8 pack) or 926-19157 (32 pack).
 - For suspension cells, LI-COR recommends growing cells in a 96-well U-bottom plate and transferring cells to Greiner Bio-One CELLSTAR® Black μClear ® Microplate, LI-COR PN 926-19156 (8 pack) or 926-19157 (32 pack), for imaging.
- Before plate scanning, clean the bottom plate surface with lint-free tissue and 70% ethanol. Additionally, the Odyssey DLx scanning surface should be thoroughly cleaned using the procedures described earlier in this chapter.
- Protect plates from light before imaging to ensure highest sensitivity.

Scanning Multiwell Plates

1. Place the Plate Alignment Guide (P/N 9891-080) on the scan surface so that the corner of the guide contacts the front, left corner of the bezel. Push the guide into the corner until it contacts the bezel on both the front and left sides.
2. Place the multiwell plate on the scan surface and slide it into place so that it contacts both the front and left sides of the Plate Alignment Guide. The first well in the first row (A1) should be

toward the back and left side of the Plate Alignment Guide as shown (Figure 5-2).

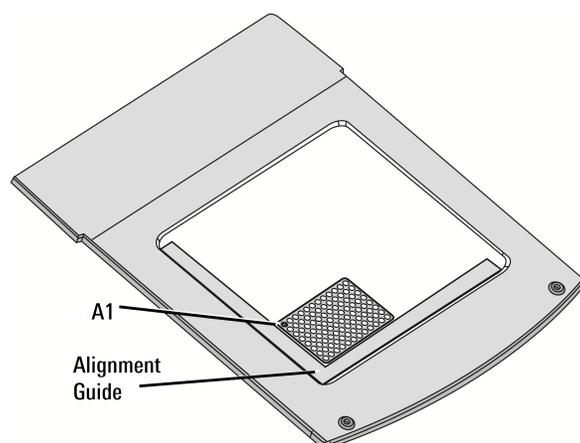


Figure 5-2

3. Multiwell plates can be scanned in LI-COR® Acquisition Software. Multiple multiwell plates can be imaged at one time by drawing multiple Scan Areas on the Set scan area page.

LI-COR Acquisition Software Steps for Scanning Multiwell Plates

1. Start LI-COR Acquisition Software [🔗](#).
2. Click Scan [🔗](#).
3. Enter a Username.
4. Choose your Odyssey DLx in the list of imagers.
5. Choose the Multiwell Plate 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.

In-Cell Western
 Resolution (96-Well Plate): 169 μm
 Resolution (384-Well Plate): 84 μm
 Resolution Options: 84, 169 μm (default)
 Focus Offset: 4.00 mm
 Available Focus Offset Range: 0.00 - 4.00 mm

Cell Analysis
 Resolution: 169 μm
 Resolution Options: 84, 169 μm (default)
 Focus Offset: 4.00 mm
 Available Focus Offset Range: 0.00 – 4.00 mm

Scanning Slides

1. Clean slides and scan surface with 70% ethanol or 70% isopropanol.
2. Place slides with the coverslip facing up (tissue facing up) on the scan surface.
3. Follow acquisition software instructions to acquire the image.

For more information about preparing and imaging tissue sections, please see the the Tissue Section Imaging Guide (licor.com/tissue_section_guide).

For information about ex vivo imaging, please visit licor.com/support.

LI-COR Acquisition Software Steps for Scanning Slides

1. Start LI-COR Acquisition Software .
2. Click Scan .
3. Enter a Username.
4. Choose your Odyssey DLx in the list of imagers.
5. Choose the Microscope Slide 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: 21 μm
- Resolution Options: 21 (default), 42, 84, 169 μm
- Focus Offset: 1.00 mm

Obtaining Technical Support

To resolve a problem with your Odyssey® DLx, 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 the manufacturer label on the rear panel of the instrument (Figure 3-1). You can also find the serial number by looking at the top left corner of the LI-COR Acquisition Software window.

Finding Empiria Studio® Software Log Files

If a LI-COR representative asks to see the Empiria Studio log file, please send the log file named PDIApp.log located here C:\Users\\.licor\Empiria Studio.

Chapter 4: Appendix

Odyssey® DLx
Imager

Specifications

Imaging System

Laser Lifetime: 40,000 hours typical.

700 Channel Laser Source: Solid-state diode laser at 685 nm.

800 Channel Laser Source: Solid-state diode laser at 785 nm.

Detectors: Silicon avalanche photodiodes.

Scanning Speed: 5-40 cm/s.

Resolution: 21-337 μm .

Focus: Adjustable to be aligned to the top surface of the scan bed up to 4 mm above the scan bed to obtain the best signal-to-noise ratio of sample in membranes, gels, or microplates.

Dynamic Range:

4 logs (Manual); >6 logs (Auto).

Operating Specifications

Operating Conditions: For indoor use only; operating temperature 15 - 35 °C and dew point not greater than 22 °C, non-condensing; altitude not to exceed 2000 m.

Environmental Conditions: Pollution Degree 2.

Power Requirements: Universal input range is between 100-240 VAC (voltage fluctuations not to exceed 10% of the nominal voltage); 4 Amp maximum; at 120V, 0.5 Amp typical when idle; 50/60 Hz.

Dimensions: 37 H \times 53 W \times 62 D cm (15 H \times 21 W \times 24.5 D inches). With the hood fully open, the Odyssey DLx requires 74 cm (29") of vertical clearance.

Weight: 33 kg (72 lbs).

Network Protocol: TCP/IP.

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

Embedded Firmware Source Code

The embedded firmware running on the Odyssey DLx Imager (model number 9142) utilizes open source software. To obtain source code or related information, contact LI-COR Support at <http://www.licor.com/biotechsupport>.

