SpectraMax Mini

Multi-Mode Microplate Reader
Installation Guide

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MOLECULAR DEVICES

Safety Information

Information about the safe use of the instrument from Molecular Devices includes an understanding of the user-attention statements in this guide, the safety labels on the instrument, precautions to follow before you operate the instrument, and precautions to follow while you operate the instrument.

Make sure that everyone involved with the operation of the instrument has:

- Received instruction in general safety practices for laboratories.
- Received instruction in specific safety practices for the instrument.
- Read and understood all Safety Data Sheets (SDS) for all materials being used.

Read and observe all warnings, cautions, and instructions. The most important key to safety is to operate the instrument with care.

WARNING! If the instrument is used in a manner not specified by Molecular Devices, the protection provided by the equipment might be impaired.

Warnings, Cautions, Notes, and Tips

All warning symbols are framed within a yellow triangle. An exclamation mark is used for most warnings. Follow the related safety information. Other symbols can warn of other types of hazards such as biohazard or electrical warnings as are described in the text of the warning.

The following user attention statements can display in the Molecular Devices user documentation. Each statement implies the amount of observation or a recommended procedure.

WARNING! A warning indicates a situation or operation that could cause personal injury if precautions are not followed.

CAUTION! A caution indicates a situation or operation that could cause damage to the instrument or loss of data if correct procedures are not followed.

Note: A note calls attention to significant information.

Tip: A tip provides useful information or a shortcut but is not essential to the completion of a procedure.

Symbols on the Instrument

Each safety label on the instrument contains an alert symbol that indicates the type of potential safety hazard.

Symbol	Indication
	Consult the product documentation.
	Potential pinch hazard.
	Potential biohazard.
	Potential heat hazard.
	Electrostatic sensitive device (ESD). Observe precautions to handle electrostatic sensitive devices.

Near-field Communication

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense. Changes or modifications made to this equipment not expressly approved by the party responsible for compliance may void the FCC authorization to operate this equipment.

A sticker on the back of the instrument displays the following symbols:

Symbol	Indication
	The instrument serial number.
	The instrument manufacture date.
	You should consult the instructions for use.
	CSA certification.
	European technology conformity.
	United Kingdom technology conformity.
	The instrument complies with Australian radio communication requirements.
	This symbol is required in accordance with the Waste Electrical and Electronic Equipment (WEEE) Directive of the European Union. It indicates that you must not discard this electrical or electronic product or its components in domestic household waste or in the municipal waste collection system. For products under the requirement of the WEEE directive, contact your dealer or local Molecular Devices office for the procedures to facilitate the proper collection, treatment, recovery, recycling, and safe disposal of the device.
	Indicates the environmental friendly use period.
	The instrument manufacturer.
	California proposition 65 requires businesses to provide warnings to Californians about significant exposures to chemicals that cause cancer, birth defects, or other reproductive harm.

Chemical and Biological Safety

Normal operation of the instrument can involve the use of materials that are toxic, flammable, or otherwise biologically harmful. When you use such materials, observe the following precautions:

- Handle infectious samples based on good laboratory procedures and methods to prevent the spread of disease.
- Observe all cautionary information printed on the original containers of solutions before their use.
- Dispose of all waste solutions based on the waste disposal procedures of your facility.
- Operate the instrument in accordance with the instructions outlined in this guide, and take all the required precautions when using pathological, toxic, or radioactive materials.
- Splashing of liquids can occur. Take applicable safety precautions, such as using safety glasses and wearing protective clothing, when working with potentially hazardous liquids.
- Observe the applicable cautionary procedures as defined by your safety officer when using hazardous materials, flammable solvents, toxic, pathological, or radioactive materials in or near a powered-up instrument.

WARNING! Never use the instrument in an environment where potentially damaging liquids or gases are present.

Electrical Safety

To prevent electrical injuries and property damage, inspect all electrical equipment before use and report all electrical deficiencies. Contact Molecular Devices technical support for equipment service that requires the removal of covers or panels.

To prevent electrical shock, use the supplied power cord and connect to a properly grounded wall outlet.

To ensure sufficient ventilation and provide access to disconnect power from the instrument, maintain a 20 cm to 30 cm (7.9 in. to 11.8 in.) gap between the rear of the instrument and the wall.

Power off the instrument when not in use.

Moving Parts Safety

The instrument contains moving parts that can cause injury. Under normal conditions, the instrument is designed to protect you from these moving parts.

WARNING! If the instrument is used in a manner not specified by Molecular Devices, the protection provided by the equipment might be impaired.

To prevent injury:

- Never try to exchange labware, reagents, or tools while the instrument is operating.
- Never try to physically restrict the moving components of the instrument.

Chapter 1: SoftMax Pro Software Version 7.1.2 Patch Installation for the SpectraMax Mini Multi-Mode Microplate Reader

1

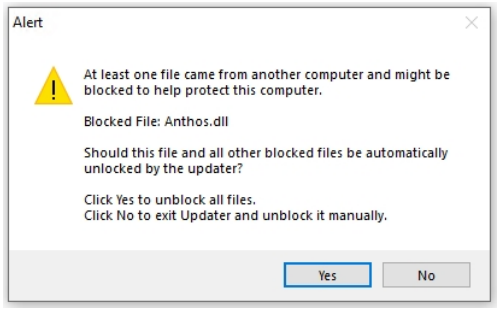
You must install the SoftMax® Pro Data Acquisition and Analysis Software on a computer before you can use the SpectraMax® Mini Multi-Mode Microplate Reader. If you have not yet installed the SoftMax Pro Software, see the *SoftMax Pro Data Acquisition and Analysis Software - Standard Edition and MiniMax Imaging Edition - Installation Guide*.

Note: The SoftMax Pro Software - GxP edition does not support this instrument.

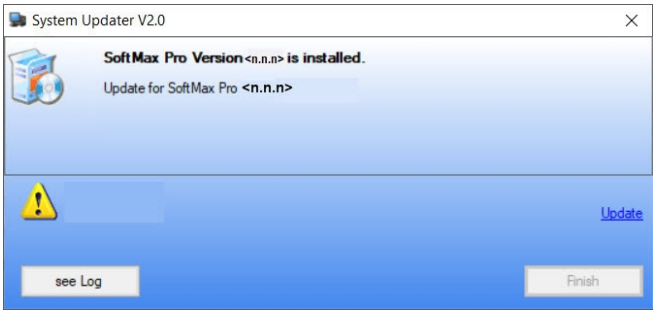
If the computer is running SoftMax Pro Software version 7.1.2, you must install a software patch to run the SpectraMax Mini Reader. For SoftMax Pro Software version 7.2 and higher, you do not need to install the software patch.

To install the SpectraMax Mini Reader patch for SoftMax Pro Software version 7.1.2:

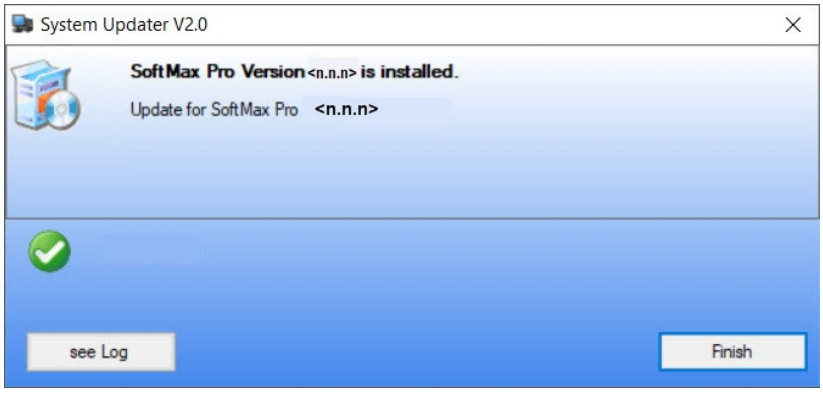
1. Power off all connected instruments and close all versions of the SoftMax Pro Software on the computer.
2. Right-click the **SpectraMax Mini Update.zip** file and select **Extract All**.
3. Enter or Browse to the location to where you want to extract the files and click **Extract**.
4. Double-click the **System Updater.exe** file to start the installation program.
5. When prompted to unblock files, click **Yes**.



6. When the *Do You Want to Allow This App to make changes to your device?* message displays, click **Yes**.
7. When the System Updater dialog displays, click **Update**.



8. After the installation completes, click **Finish**.



Computer Integration

Each Molecular Devices microplate reader ships with a license key for the SoftMax® Pro Data Acquisition and Analysis Software. You install the SoftMax Pro Software on the computer that you use to operate the instrument to provide integrated instrument control, data display, and statistical data analysis.

You should install the SoftMax Pro Software on the computer before you set up the instrument. Please be aware that some updates to the SoftMax Pro Software require a purchase. Contact Molecular Devices before you update the software.

For information about the computer specifications required to run the software, the software installation and licensing instructions, and the directions to create the software connection between the computer and the instrument, see the *SoftMax Pro Data Acquisition and Analysis Software - Standard Edition and MiniMax Imaging Edition - Installation Guide*.

Note: The SoftMax Pro Software - GxP edition does not support this instrument.

Chapter 2: Setting Up the Instrument

Before you unpack and set up the instrument, prepare a dry, flat work area that is away from direct sunlight, dust, drafts, vibration, and moisture. The work area must have sufficient space for the instrument, host computer, and required cables. To provide access for disconnecting power from the instrument, maintain a 20 cm to 30 cm (7.9 in. to 11.8 in.) gap between the rear of the instrument and the wall. To ensure sufficient ventilation, do not block the ventilation grids on the rear of the instrument.

The package contains the instrument and the following accessories:

- SoftMax Pro Software, product key, and instructions to install the SoftMax Pro Software patch for the features that are specific to the SpectraMax Mini.
- Instrument installation guide
- USB computer connection cable
- Power supply
- Power cord
- Accessory case that contains:
  - Hex wrench for transport lock removal
  - Up to four filter cubes depending on how many you purchased. (Additional filter cubes are shipped in a separate box.)

For a complete list of the package contents, see the enclosed packing list.

Note: You must install SoftMax Pro Software version 7.1.2 or higher. Version 7.1.2 requires that you install the SpectraMax Mini software patch. See the *SoftMax Pro Data Acquisition and Analysis Software - Standard Edition and MiniMax Imaging Edition - Installation Guide*. SoftMax Pro Software version 7.2 and higher does not require the additional software patch.

Unpacking the Instrument

The package is designed to protect the instrument during shipment.

CAUTION! Do not touch or loosen screws or parts other than those specifically designated in the instructions. Doing so could cause misalignment and possibly void the warranty.

The instrument is packed in a specially designed carton. Before you unpack the instrument, check the box for any damage that might have occurred during transportation. If any damage is noted, inform the supplier immediately and keep the damaged packaging.

Note: Retain the shipping box and all packing materials for future transport needs.

To unpack the instrument:

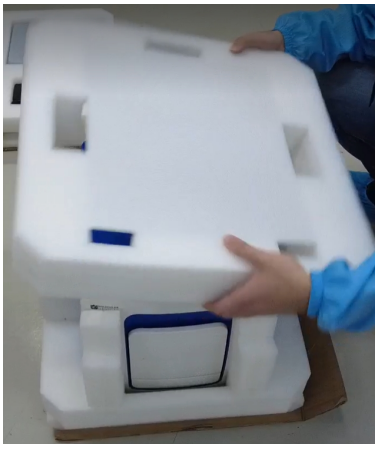
1. Open the side of the box.

2. Grasp the cardboard handles below the top layer of foam packing material and slide the accessories package out of the carton. This contains the power supply, power cord, USB cable, and a case that contains the filter cubes and other accessories.

3. Remove the foam packing material that was above the accessories.

4. Grasp the cardboard handles below the instrument and slide the instrument out of the carton.

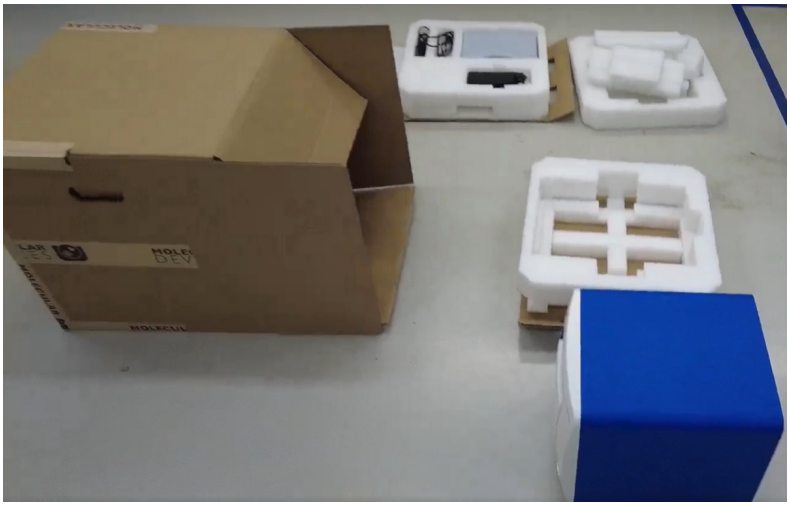
5. Lift the foam packing material above the instrument upward to reveal the top of the instrument.



6. Slide the five vertical pieces of foam packing material that surround the instrument upward to clear the sides of the instrument.

7. Lift the instrument from the bottom foam packing material and place the instrument on a level surface.

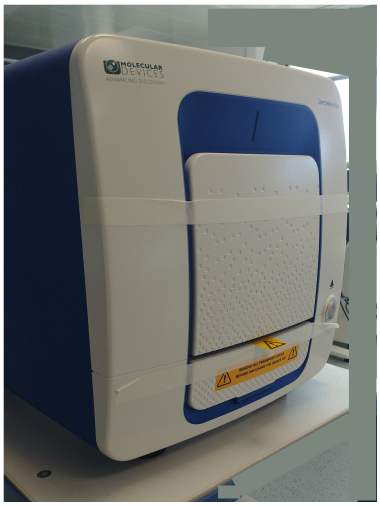
8. Save the carton, cardboard slides, and foam packing for future shipments.



Removing the Transport Lock

CAUTION! The instrument can be damaged if you do not remove the transport lock before you power on the instrument.

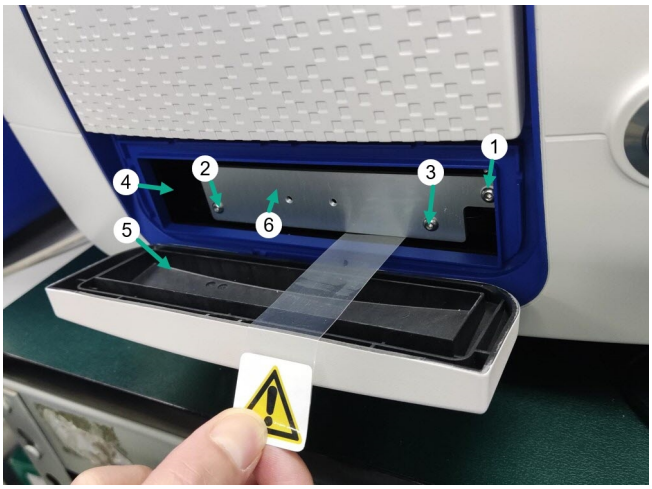
CAUTION! Do not touch or loosen screws or parts other than those specifically designated in the instructions. Doing so could cause misalignment and possibly void the warranty.



To remove the transport lock:

1. Remove the tape that holds the filter chamber door shut and remove the tape that holds the plate chamber door shut.
2. Gently pull the yellow tab that protrudes from the plate chamber door to open the door. Hold the door open while you remove the transport lock.

Note: Do not tear the yellow tab. It remains attached to the transport lock to make it easier to open the plate chamber door.



Item	Description
1	Screw #1 fastens the lock to the internal frame of the instrument (remove first)
2	Screw #2 fastens the lock to the plate drawer
3	Screw #3 fastens the lock to the plate drawer
4	Plate drawer
5	Plate chamber door in open position
6	Plate drawer transport lock

3. Use the hex key (included in the accessory case) to loosen screw #1 in the upper-right corner of the transport lock until the lock disconnects from the instrument frame. The screw has a retaining washer to prevent removal from the lock.

   Tip: After you loosen screw #1, pull the plate drawer slightly out of the instrument to hold the chamber door open.

4. Loosen screws #2 and #3 until the lock comes free of the plate drawer and you can remove the lock from the instrument. The screws have retaining washers that prevent removal from the lock.

   Note: Store the transport lock in slot within the accessory case.

5. Push the plate drawer back inside the instrument and close the chamber door.

Connecting Instrument Cables

The power cord and USB cable connect to the ports on the rear of the instrument.

Note: Before you connect or disconnect the power cord, make sure that the power switch that is on the rear of the instrument is in the Off position.

To connect the instrument cables:

1. Turn the instrument around so that the rear of the instrument faces you.

2. Make sure that the power switch is in the Off position.
3. Connect the appropriate end of the supplied USB cable to the USB port, and then connect the other end to a USB port on the computer.
4. Connect the supplied power adapter to the power cord port, and then connect the other end to a grounded electrical wall outlet.
5. Turn the instrument around so that the front of the instrument faces you.

   Note: Ensure no cables run beneath the instrument.

Installing Filter Cubes

Filter cubes ship with the instrument in a specialized case. Each case can contain up to four filter cubes. Store filters and filter cubes in a protected, dust-free area, preferably in the supplied case.

CAUTION! Handle filter cubes by the stem only. Do not touch filter surfaces with fingers. Fingerprints left on filters negatively affect measurement results.

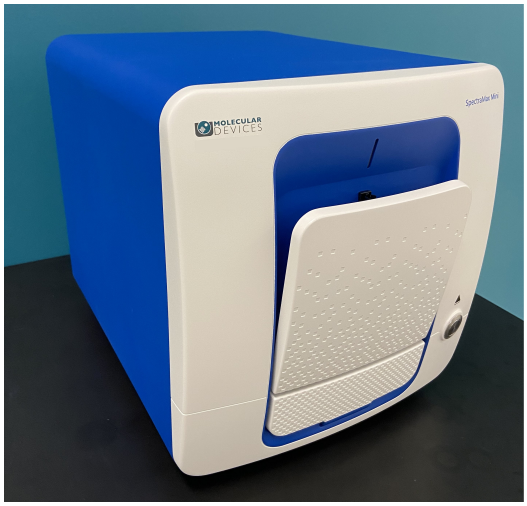
You insert the filter cube into the filter chamber on the front of the instrument. Each filter cube has an NFC tag that the instrument reads. The NFC tag contains the information the instrument uses for reads. Filter information displays in the Instrument Information dialog in the software.

To install filter cubes:

1. Turn on the instrument power switch located on the rear of the instrument. Wait for the instrument to complete its diagnostic check and the indicator light to turn green.

   Note: You can install a filter cube with the instrument powered off, but the instrument must be powered on and connected to the computer in order for the SoftMax Pro Software to recognize the filter cube you install.

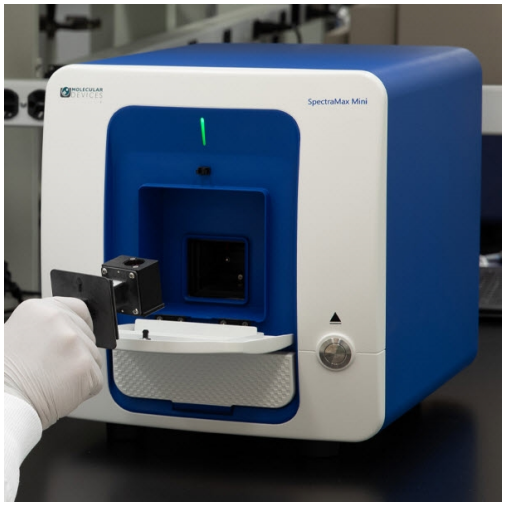
2. Press the top of the filter chamber cover to release the latch. The door opens slightly.



3. From the top of the door, gently pull down to open the filter chamber.

Note: The filter chamber should open with no resistance. Do not use excessive force to open the chamber.

4. Grasp the filter cube by the stem and with the arrow pointing up, insert the filter cube into the opening at the rear of the filter chamber. A magnet draws the filter cube into place and holds the filter cube in the correct position within the instrument.



5. Close the filter chamber cover.
6. In the SoftMax Pro Software, on the **Operations** tab in the Ribbon, click **Info** to display the Instrument Information dialog to confirm successful filter cube installation.

Chapter 3: Maintenance

Perform only the maintenance tasks described in this guide. Contact a Molecular Devices service engineer to inspect and perform a preventive maintenance service on the instrument each year. See Obtaining Support on page 23.

Before you operate the instrument or perform maintenance operations, make sure you are familiar with the safety information in this guide. See Safety Information on page 2.

CAUTION! Maintenance procedures other than those specified in this guide must be performed by Molecular Devices. When service is required, contact Molecular Devices technical support.

Cleaning the Instrument

WARNING! BIOHAZARD. It is your responsibility to decontaminate components of the instrument before you request service by a service engineer, or you return parts to Molecular Devices for repair. Molecular Devices does not accept items that have not been decontaminated where applicable to do so. If parts are returned, they must be enclosed in a sealed plastic bag that states that the contents are safe to handle and are not contaminated.

WARNING! BIOHAZARD. Always wear gloves when operating the instrument and during cleaning procedures that could involve contact with either hazardous or biohazardous materials or fluids.

Do the following before you clean equipment that has been exposed to hazardous material:

- Contact the applicable Chemical and Biological Safety personnel.
- Review the Chemical and Biological Safety information contained in this guide. See Chemical and Biological Safety on page 5.

Always turn the power switch off and disconnect the power cord from the main power source before using liquids to clean the instrument.

Chapter 4: Storing or Shipping the Instrument

4

Before you move the instrument, make sure that the new location is a dry, flat work area that has sufficient space for the instrument, host computer, and required cables.

Tip: Although you can always carry the instrument, depending on the distance that you are moving it, you might use a rolling cart instead.

If you must store the instrument, then store it in a dry, dust-free, environmentally controlled area. The storage temperature can range from -20°C to 65°C.

To minimize the possibility of damage during storage or shipment, you should pack the instrument in the original packaging materials. Correctly repacking the instrument includes following applicable decontamination procedures and packing instructions.

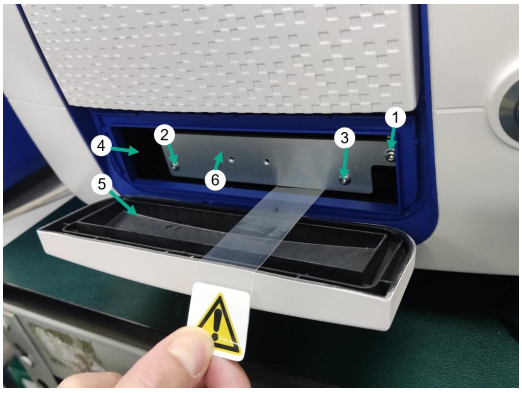
CAUTION! When transporting the instrument, warranty claims are void if improper packing results in damage to the instrument.

Packing the Instrument

The original packaging is designed to protect the instrument during shipment and storage. You must always pack the instrument before you ship it or store it.

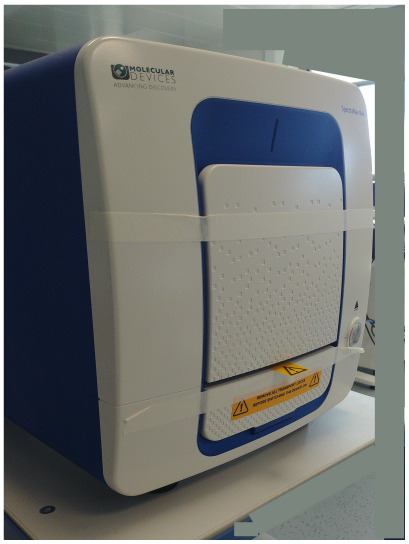
To pack the instrument:

1. Make sure the plate drawer chamber and filter cube chamber are empty.
2. Power off the instrument.
3. Disconnect the power cord and USB cable from the rear of the instrument.
4. Locate the transport lock that you stored in the accessories case.

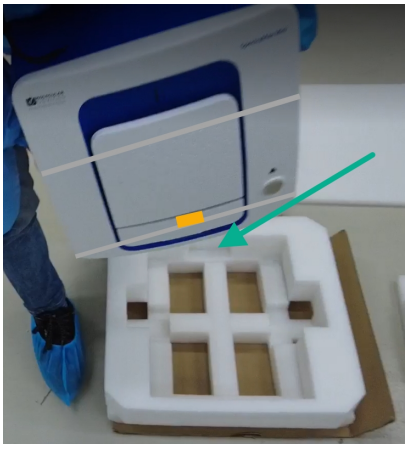


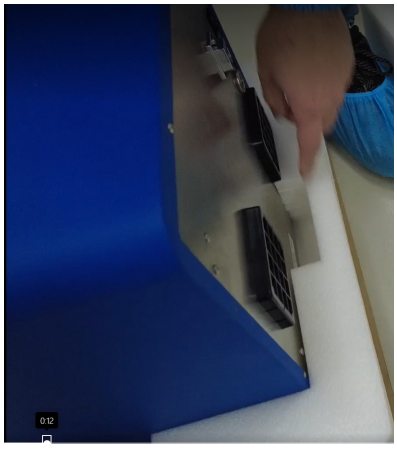
Item	Description
1	Screw #1 fastens the transport lock to the internal frame of the instrument (install last)
2	Screw #2 fastens the transport lock to the plate drawer
3	Screw #3 fastens the transport lock to the plate drawer
4	Plate drawer
5	Plate chamber door in open position
6	Plate drawer transport lock

5. Manually open the plate chamber door, gently slide the plate drawer out of the instrument, and place the transport lock on the end of the of the plate drawer.
6. Use the hex key (included in the accessory case) to tighten screws #2 and #3 until the transport lock is attached to the plate drawer.
7. Gently push the plate drawer into the instrument so that screw #1 aligns with the hole in the instrument frame. Hold the plate drawer open until you complete the next steps.
8. Tighten screw #1 in the upper-right corner of the transport lock to secure the plate drawer to the instrument frame.
9. Route the yellow tab connected to the transport lock so that it passes over the top of the plate chamber door when the door is closed.
10. Gently close the plate chamber door.
11. Use a strip of minimally adhesive tape to hold the filter chamber door shut and a strip of tape to hold the plate chamber door shut.

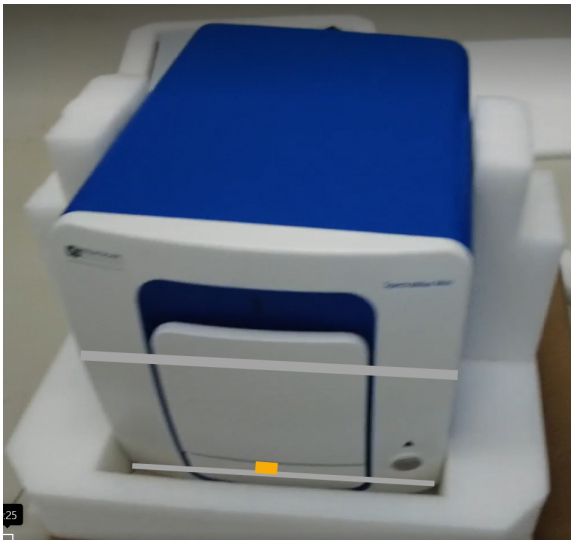


12. With the instrument's original cardboard shipping carton open on the side, place the bottom cardboard slide at the opening with the handles oriented away from the carton.
13. Place the bottom foam packing material onto the cardboard slide with the medium insert slot oriented towards the cardboard carton (see following images).
14. Place the instrument onto the bottom foam packaging material with the rear of the instrument aligned with the medium insert slot (toward the cardboard carton side).

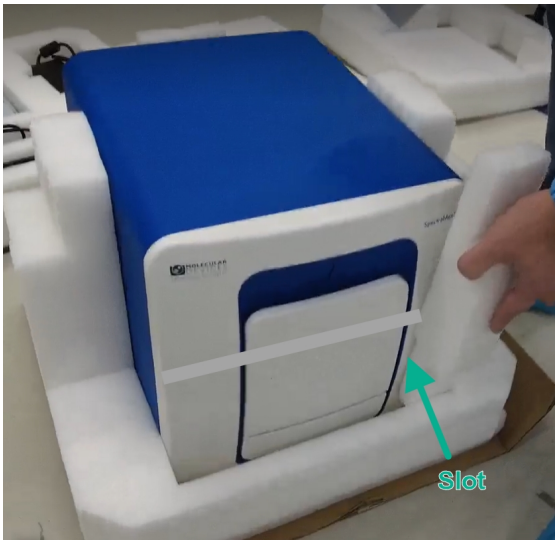




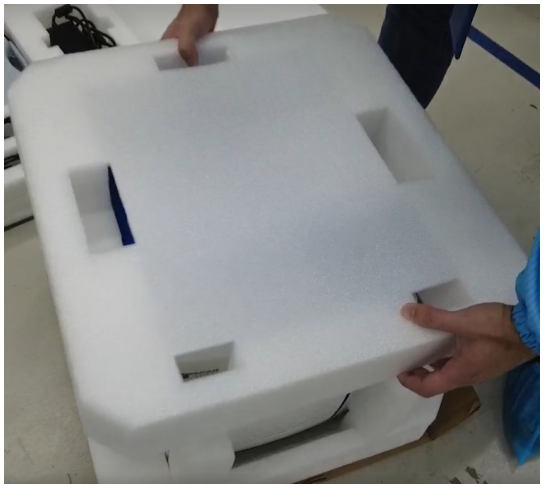
15. Place the two larger vertical foam packing materials on the sides of the instrument and the medium vertical foam packing material at the rear of the instrument.



16. Place the small vertical foam packing material, with the slot, in front of the instrument power button and the other small vertical foam packing material on the other side of the filter door in the front of the instrument.



17. Align the holes in the top foam packing material and place it over the vertical foam packing material.



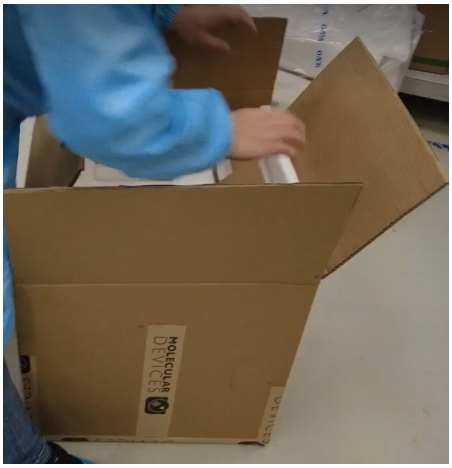
18. Fold the handles on the cardboard slide upward and use the cardboard to slide the instrument into the carton.

19. Place the accessories into the upper foam packaging material.

20. Place the accessories foam packaging material onto the second cardboard slide, fold the handles upward, and slide it into the carton above the instrument.

21. Slide the top foam packing material into the carton above the accessories.

22. If needed, turn the box upright to ensure that all items are settled inside the carton.



23. Seal the carton with packing tape.

Obtaining Support

Molecular Devices is a leading worldwide manufacturer and distributor of analytical instrumentation, software, and reagents. We are committed to the quality of our products and to fully supporting our customers with the highest level of technical service.

Our Support website, support.moleculardevices.com, has a link to the Knowledge Base, which contains technical notes, software upgrades, safety data sheets, and other resources. If you still need assistance after consulting the Knowledge Base, you can submit a request to Molecular Devices Technical Support.

You can contact your local representative or Molecular Devices Technical Support at 800-635-5577 x 1815 (North America only) or +1 408-747-1700.
In Europe call +44 (0) 118 944 8000.

To find regional support contact information, visit www.moleculardevices.com/contact.

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Patents: http://www.moleculardevices.com/patents

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