

FT-IR

Nicolet iS5

User Guide

269-263800 Revision A

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Welcome

The Thermo Scientific Nicolet™ iS™5 fourier transform infrared (FT-IR) spectrometer lets you perform chemical analyses of sample materials by collecting data in the mid-IR spectral range using a variety of accessories, including transmission, attenuated total reflection (ATR), diffuse reflection (DRIFTS), and specular reflection (SR). The system has integrated verification features, a powerful software suite, and many other features that make data collection easy. You can install optional hardware and perform several service and maintenance procedures yourself. This document, or other provided documentation, contains the information you need.

Be sure to read the safety guide that came with the system before operating the instrument.

Note We recommend that you maintain seal and desiccation and/or purge your instrument at all times. Equipment damage due to failure to maintain seal and desiccation and/or purge is not covered by the warranty. If you have questions about this requirement, please [contact us](#).

Contents

- [Conventions Used](#)
- [About the Help System](#)
- [Finding Other PDF Documents](#)
- [Warranty Information](#)
- [Ordering Parts](#)
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-

Conventions Used

Safety precautions and other important information use the following format:

Note Notes contain helpful supplementary information.

NOTICE Follow instructions with this label to avoid damaging the system hardware or losing data.

CAUTION Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

WARNING Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

About the Help System

To view the electronic Help version of this document, choose Spectrometer Help Topics from the Help menu in OMNIC software.

Finding Other PDF Documents

PDF files of system documentation are on the documentation disk provided with your instrument.

Warranty Information

Thermo Fisher Scientific warrants that each product we sell you is free from defects in labor and materials and shall conform to its product specifications as defined in the product user documentation. If the product does not function as warranted during the warranty period, we will repair or replace it without charge. If in our judgment we are unable to do so, you may return it to us and we will refund your money.

This warranty replaces all other warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose and any other obligations or liabilities on the part of Thermo Fisher Scientific whether in contract, warranty, negligence or otherwise. Thermo Fisher Scientific shall not be liable for and disclaims all consequential, incidental and contingent damages.

Warranty period

The system warranty period is 12 months in the U.S.A. and Canada. The warranty period begins on the date of installation or 30 days from the date of invoice, whichever is sooner.

The system warranty period for products sold outside the U.S.A. and Canada is 12 months from the date of installation or 14 months from the date of shipment, whichever is sooner.

Limit of warranty

Misuse, accident, modification, unsuitable physical or operating environment, improper maintenance, or damage caused by a product for which we are not responsible will void the warranty. Certain components may have separate warranty periods as stated in the product user documentation. Consumables are not covered under warranty.

Items not covered by warranty

We do not warrant uninterrupted or error-free operation of a product. We provide certain non-Thermo Fisher Scientific products on an “as is” basis. Non-Thermo Fisher Scientific manufacturers or suppliers may provide their own warranties to you. A separate software warranty is provided with the software user documentation.

Ordering Parts

To order parts, [contact us](#).

If you need to send the instrument or an accessory to us for repair, call or e-mail us first for any shipping requirements or other instructions.

Contacting Us

For U.S. Technical Support, please contact:

Thermo Fisher Scientific
5225 Verona Road
Madison, WI 53711-4495 U.S.A.
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For International Support, please contact:

Thermo Fisher Scientific
Telephone: +1 608 273 5017
E-mail: support.madison@thermofisher.com
World Wide Web: <http://www.thermo.com/spectroscopy>

If you have problems with your system, refer to the [Troubleshooting](#) information for help, or call Technical Support.

Note To expedite and assist in problem diagnosis, please be prepared to send us a copy of your diagnostics log file. The diagnostic log includes a history of important system parameters and events that occur during system operation. To copy the diagnostics log to your Windows desktop, start OMNIC software and choose **File > Copy Diagnostics File to Desktop**. Attach this file to an e-mail message to our Technical Support group.

Operation

This section provides instructions for setting up your instrument and installing accessories.

Contents

- [Electrical and Communication Cabling](#)
- [Turning the Power On and Off](#)
- [Installing an Accessory](#)
- [Collecting Data](#)
- [Setting the Purge Gas Controls](#)
- [Aligning Your Spectrometer](#)
- [Verifying the Laser Frequency](#)
- [Using the iD1 Transmission Accessory](#)
- [Entering Serial Numbers](#)

Your instrument is designed for indoor use at altitudes up to 2,000 m (6,500 ft). It operates reliably at a constant temperature between 15 °C and 35 °C (60 °F and 95 °F). Temperature changes may result in drift in the system response.

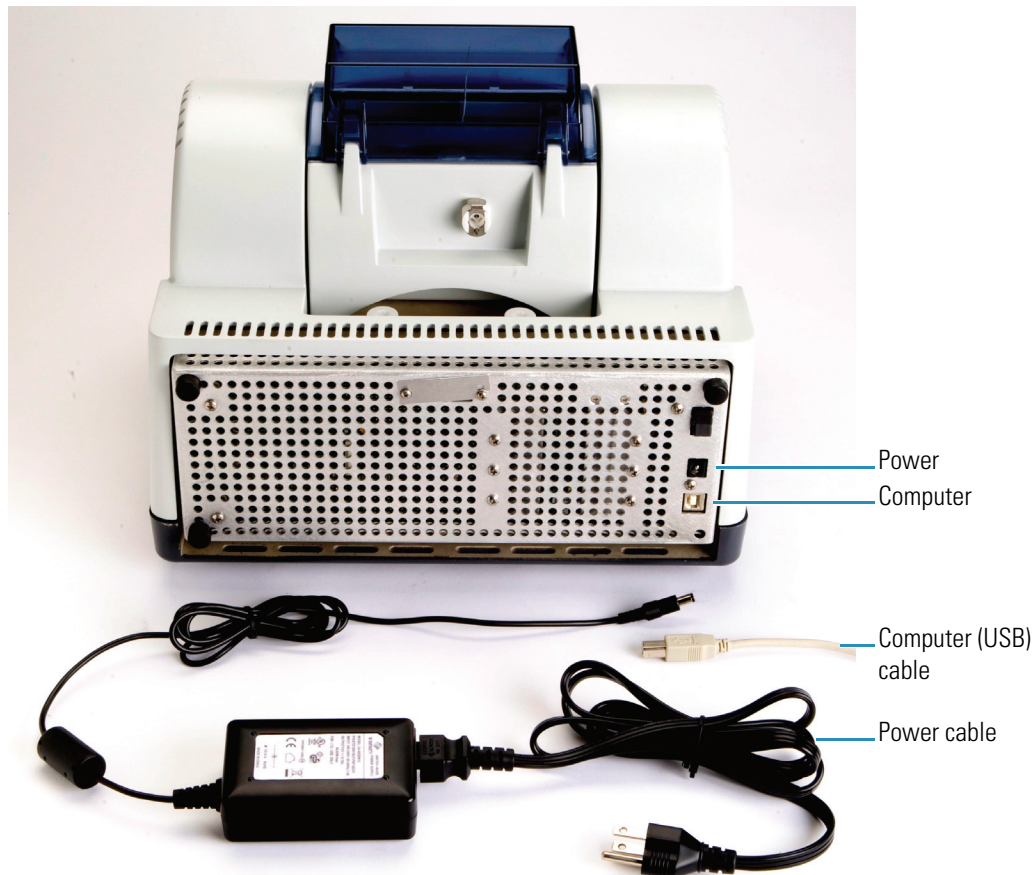
IMPORTANT Your instrument must be protected from excessive humidity, since the beamsplitters, detectors, and other components may corrode with exposure to moisture. Maintain humidity in the range of 20% to 80% noncondensing. To accomplish this, this instrument is sealed and desiccated. For additional humidity protection, the optional purge configuration and/or zinc selenide (ZnSe) windows can be used.



CAUTION If a protective cover on a system component appears damaged, turn off the system and secure it against any unintended operation.

Electrical and Communication Cabling

The illustration below shows the correct cable connections for electrical power and data communication.



Check the Preparing Your Site guide on your documentation disk for electrical and other system requirements before you connect the power cord. The wall outlet must be equipped with a 3-wire line: live, neutral, and ground.



WARNING To ensure a good ground connection and avoid shock hazard, do not use an outlet that has ground connected to a conduit ground. The ground must be a non-current-carrying wire connected to earth ground at the main distribution box.



WARNING Do not block access to the power supply, AC power cord or power switch.

To cable the instrument:

1. Connect the power supply to the spectrometer and to a properly grounded AC power source.

2. Connect the USB cable to the spectrometer and to a USB 2.0 port on the computer. (Do not use a USB auxiliary port or hub.)

Related Topics

[Turning the Power On and Off](#)

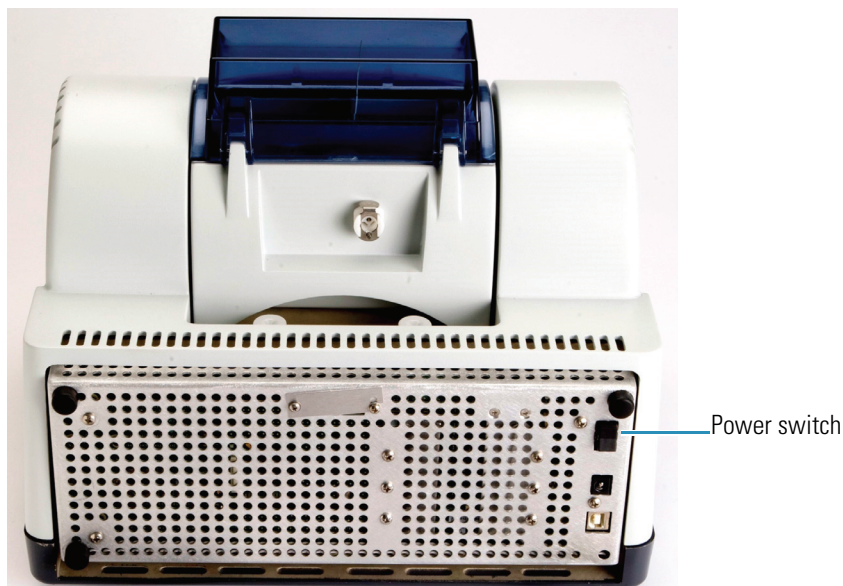
[Setting the Purge Gas Controls](#)

[Checking and Changing the Purge Gas Filter](#)

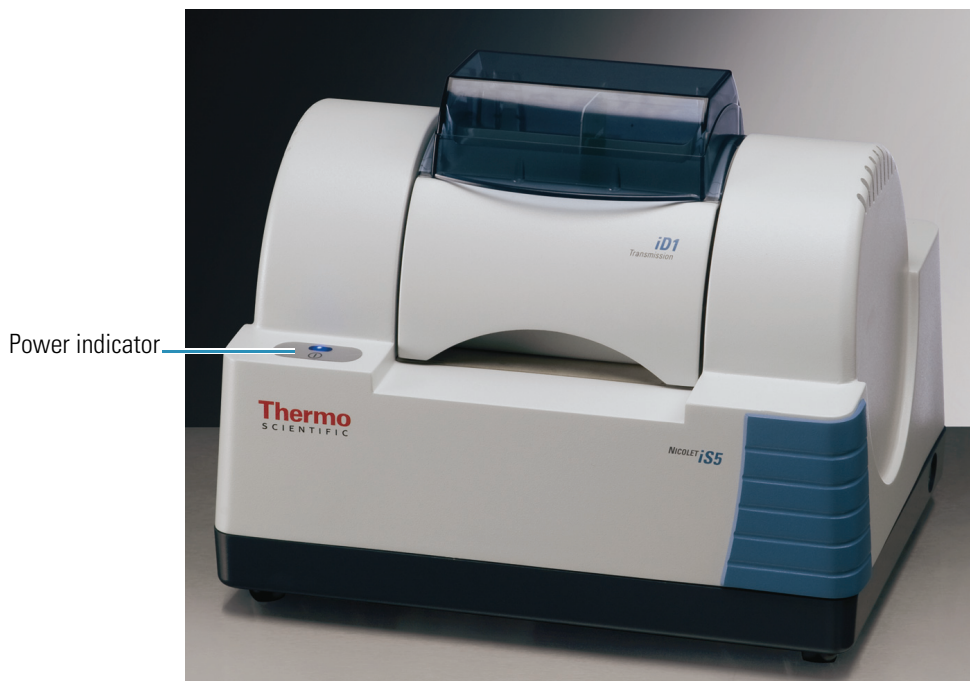
[Static Electricity Precautions](#)

Turning the Power On and Off

To turn the system power on or off, press the power switch on the back of the instrument:



When the system is powered on, the blue power indicator on the main cover flashes while the instrument warms up and performs diagnostics (about 2 minutes) and then the indicator stays lit. During initialization, OMNIC software displays the number of seconds remaining and the Collect menu is disabled; the system cannot collect data until initialization is completed.



NOTICE Do not place anything on top of the vents at the back of the instrument. Electronic components can overheat if these vents are blocked.

Related Topics

[Electrical and Communication Cabling](#)

[Setting the Purge Gas Controls](#)

[Troubleshooting](#)

Installing an Accessory

The Nicolet iS5 spectrometer includes the iD1 transmission accessory which accommodates a wide variety of samples and slide-mount sample holders for transmission experiments. Integrated iS5 accessories for common ATR analyses are also available. Contact us for details.

Mounting baseplates are available to accommodate a wide variety of standard accessories from us and other manufacturers.

All of our integrated accessories and baseplates are easy to install and remove and are recognized automatically by the software.

Contents

- [Installing Integrated Accessories](#)
- [Installing Baseplate-mounted Accessories](#)
- [Installing Slide-mounted Accessories](#)



WARNING Prevent fire and explosion. The infrared source inside the instrument is an ignition source. If you are using volatile solvents, provide a fume hood or other active venting system that is free of spark and other ignition sources and prevents flammable vapors from collecting in the atmosphere surrounding the instrument.

These measures will help prolong the life of your instrument and will eliminate the possibility of spectral interference caused by volatile solvent vapors.

Using solvents that may produce HCl or HF vapors in the sample compartment may severely damage the system. If you use halogenated solvents, purging the instrument with dry, clean air or nitrogen is strongly recommended. See the Preparing Your Site guide for a details.



CAUTION Materials such as hydrochloric acid, hydrofluoric acid and phosgene are highly toxic. If you plan to regularly use solvents containing halogenated hydrocarbons, be sure your work area is properly ventilated.

Installing Integrated Accessories

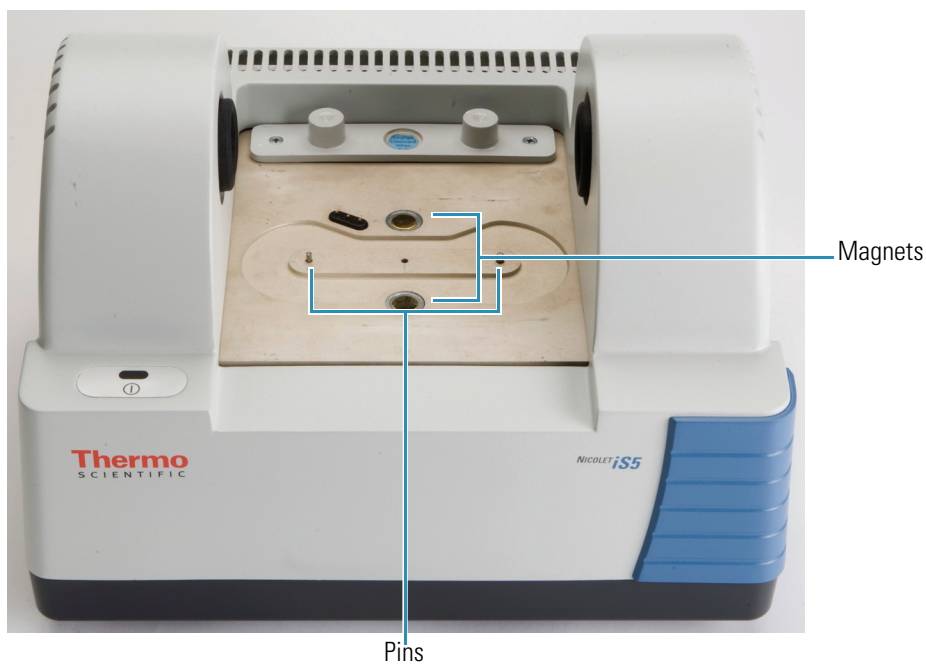
To install an integrated iS5 accessory, such as the iD5 ATR accessory shown below, hold it by the front and rear handles and lower it onto the spectrometer.



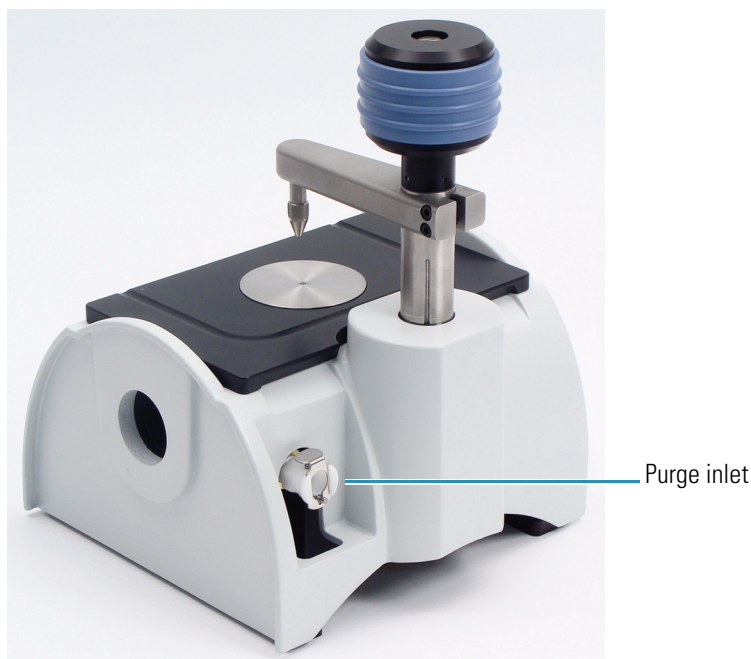
2 Operation

Installing an Accessory

The accessory fits over two alignment pins on the spectrometer baseplate and is held in place by magnets.



If your instrument is purged, attach the purge line labeled “Accessory” to the purge inlet on the back of the accessory. See [Installing a Purge Kit](#) for more information.



Note To remove an accessory, disconnect the purge line if necessary and then grasp the accessory by the handles and lift it up. When not using an accessory, store it in a dust-free environment like a cabinet or box.

Related Topics

[Using the iD1 Transmission Accessory](#)

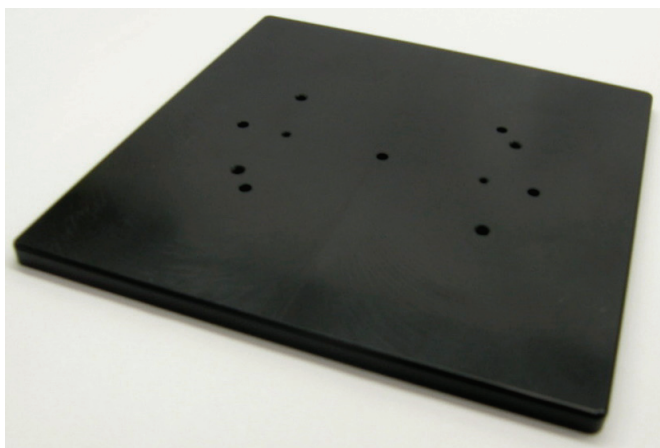
[Installing an Accessory](#)

Installing Baseplate-mounted Accessories

Special baseplates are available to accommodate a wide variety of accessories for FT-IR sampling.

iD Base Adapter

The iD Base Adapter provides a place to mount large transmission accessories and other specialized accessories.

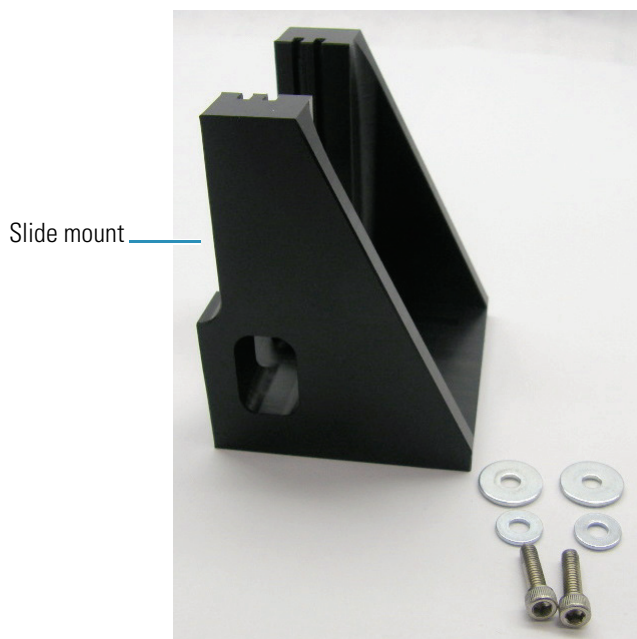


Note Avoid installing the iD Base Adapter without an attached accessory. Very strong magnets hold the adapter in place; you may need to use a tool to pry it free.

2 Operation

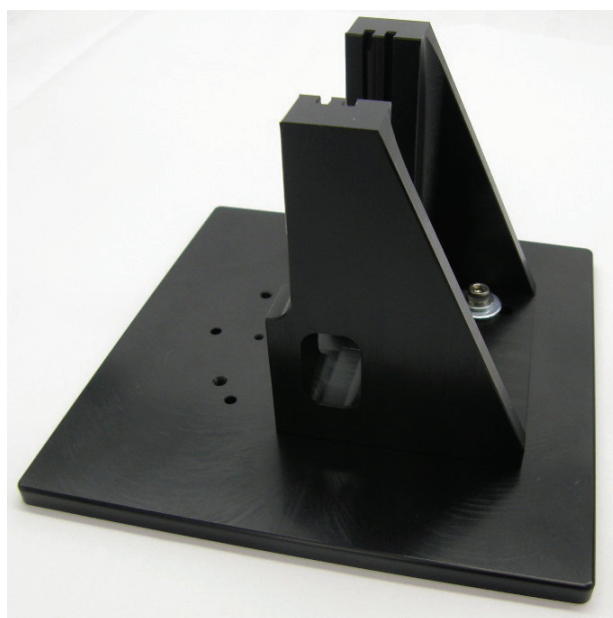
Installing an Accessory

For slide-mounted accessories that are too big for the iD1 Transmission Accessory, a slide mount that fits the iD base is available.



The iD Base Adapter has two sets of screw holes so the slide mount can be installed facing either direction. To install the slide mount, position it over the screw holes, and then insert and tighten the two washers and screws.

Use the large center screw to raise or lower a sample or accessory to align it in the infrared light beam.



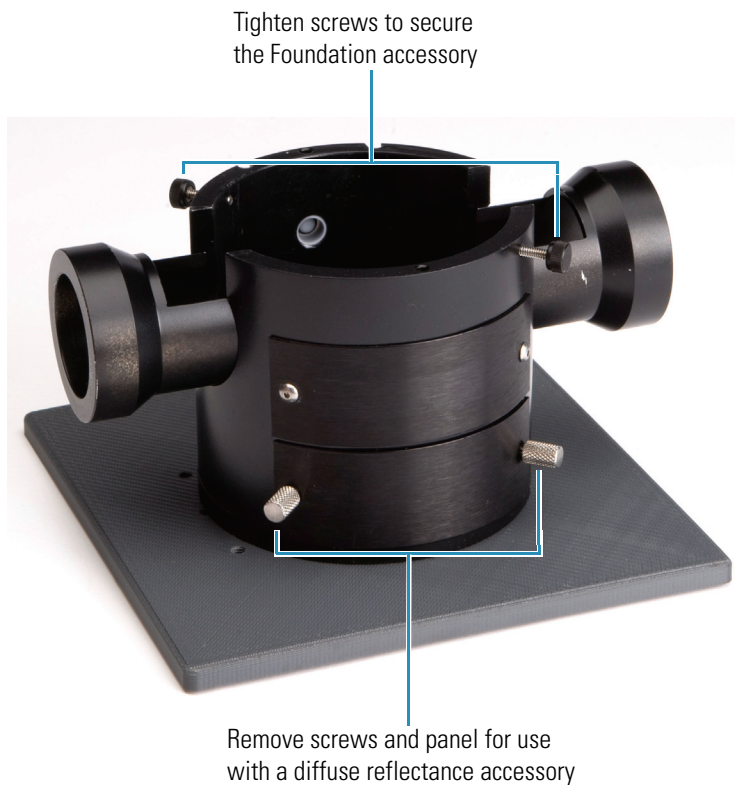
To install an accessory attached to the iD Base Adapter, remove any accessory from the iS5 spectrometer and place the adapter over the pins on the spectrometer baseplate. Magnets hold the adapter in the proper position.

Here is the iD Base Adapter and attached slide mount with a cuvette holder installed in the Nicolet iS5 spectrometer.



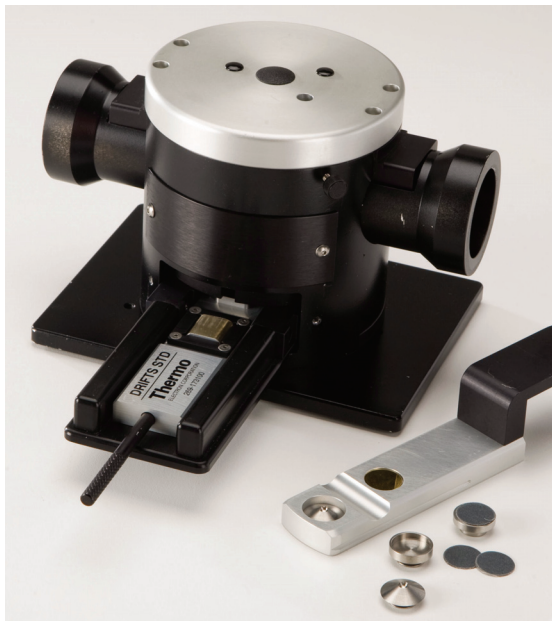
iD Foundation Adapter

The iD Foundation Adapter fits our Foundation Series Swap-Top Modules. For information about these modules, see the Foundation Series User Guide on your documentation disk.



To install the adapter, remove any accessory from the iS5 spectrometer and place the adapter over the pins on the spectrometer baseplate. Magnets hold the adapter in the proper position.

Slide any Foundation Series Swap-Top Module into the holder, rotate the accessory to line up the notches and pins and then hand tighten the screws (see the image above). For diffuse reflection accessories, remove the two screws and lower panel to accommodate the sample slide as shown in the image below.



Here is a Foundation Multi-bounce ATR accessory installed in the Nicolet iS5 spectrometer.



Related Topics

[Installing an Accessory](#)

Installing Slide-mounted Accessories

The iD1 Transmission Accessory is designed to accommodate gas or liquid transmission cells and thin film or pellet holders that have a 2 x 3 inch slide mount.



❖ **To install a slide-mounted accessory**

1. Slide the accessory into one pair of slots in the iD1 Transmission Accessory.

Choose a pair of slots that will place the center of the accessory at the beam focus (designated by arrow heads on the accessory housing).



Related Topics

[Installing Baseplate-mounted Accessories](#)

[Installing an Accessory](#)

[Using the iD1 Transmission Accessory](#)

Collecting Data

For information about collecting data with your instrument, see the provided Nicolet iS5 Getting Started and Fast Facts manuals.

Setting the Purge Gas Controls

You can use an appropriate source of purge gas (dry air or nitrogen) to purge the instrument of moisture and other environmental contaminants. See [Installing a Purge Kit](#) for more information.

For best results the purge gas should be dried to a dew point of $-70\text{ }^{\circ}\text{C}$ ($-94\text{ }^{\circ}\text{F}$) or below.

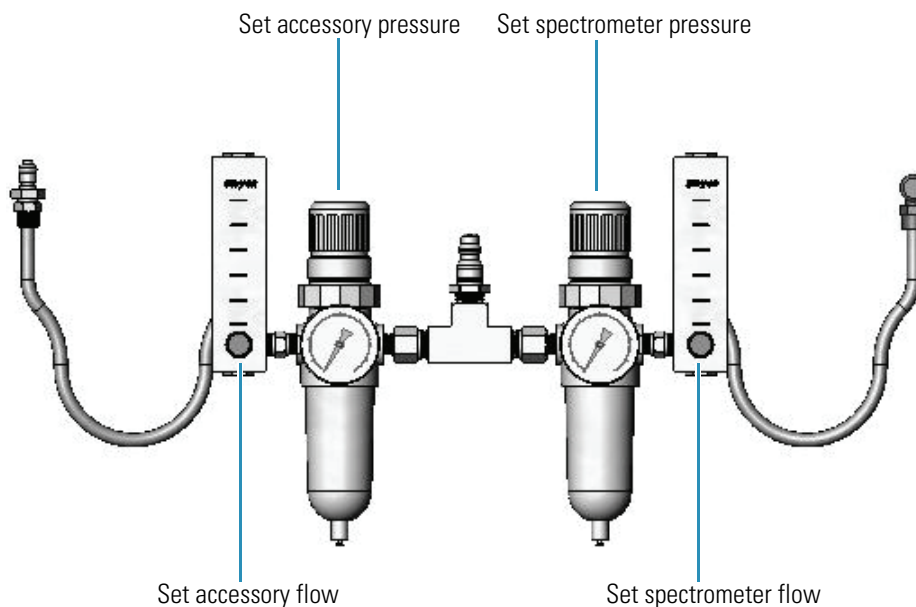
NOTICE We recommend maintaining seal and desiccation and/or purging the instrument at all times. Equipment damage due to failure to maintain seal and desiccation and/or purge is not covered under the warranty. If you have questions about this requirement, please contact us.



WARNING Never use a flammable, combustible, or toxic gas to purge this instrument. The purge gas must be free of oil and other reactive materials. Heat from the source or from laser absorption may ignite flammable gases or reactive materials in purge gas. Use only dried air or nitrogen to purge your instrument.

❖ To set the purge gas controls

1. Open the main valve to start the flow of purge gas through the regulator.
2. Adjust the pressure regulator for the spectrometer until the gauge indicates that the pressure is 5 psig (34).



3. Set the flowmeter for the spectrometer to 1 scfh (0.47 l/min).

4. If you are using an accessory that is purged, set the purge gas controls for the accessory as indicated below.
 - Accessory pressure, 5 psig (34)
 - Accessory flow, 4–10 scfh (1.9–4.7 l/min)

NOTICE Flow rates greater than recommended values can cause vibration which can affect data quality.

Related Topics

[Installing a Purge Kit](#)

[Checking and Changing the Purge Gas Filter](#)

Aligning Your Spectrometer

Your instrument can be aligned automatically using OMNIC software. Alignment optimizes the energy throughput to the detector. Alignment can change slightly over time, particularly in locations that have large temperature swings or excessive vibration.

Note The instrument is aligned automatically each time you run a Performance Verification (PV) test. We recommend running a PV test at least once a month.

Use the **Align** button on the Diagnostic tab of the Experiment Setup dialog box (available through the Collect menu in OMNIC software). For more information, see OMNIC Help Topics in the Help menu.

Related Topics

[Verifying the Laser Frequency](#)

[Maintaining Your Instrument](#)

[Troubleshooting](#)

Verifying the Laser Frequency

Use the Laser Verification button on the Diagnostic tab in the Experiment Setup dialog box in OMNIC software to verify the laser.

For optimum system performance, verify the laser frequency according to the following schedule:

2 Operation

Verifying the Laser Frequency

Spectrometer environment	Spectrometer state	Recommended Schedule
Stable	Always powered on	every 3 months
Unstable (e.g., temperature or humidity constantly changing)	Powered on and off frequently	every day or once a week

Note The laser is verified automatically each time you run a Performance Verification (PV) test. We recommend running a PV test at least once a month.

❖ To verify the laser frequency

1. From the OMNIC software main screen, choose **Collect > Experiment Setup**.
2. Click **Laser Verification** on the Diagnostic tab.
3. As prompted, remove all accessories and samples from the instrument and then click **OK**.
4. Click **Start Verification**.

When the verification is completed, one of the following occurs:

- A message indicates the laser frequency has been verified. Click **OK** to finish.
- The newly measured laser frequency appears below the previously measured frequency and a message indicates the laser frequency has been optimized. Click **OK** to finish.

Related Topics

[Aligning Your Spectrometer](#)

[Maintaining Your Instrument](#)

[Troubleshooting](#)

Using the iD1 Transmission Accessory

The iD1 Transmission Accessory lets you collect spectra of transmission samples, such as thin films, liquids in a liquid cell, and gases in a gas cell.



Install the module as explained in [Installing an Accessory](#).

Related Topics

[Installing Samples in the iD1 Transmission Accessory](#)

[Installing Integrated Accessories](#)

[Installing Slide-mounted Accessories](#)

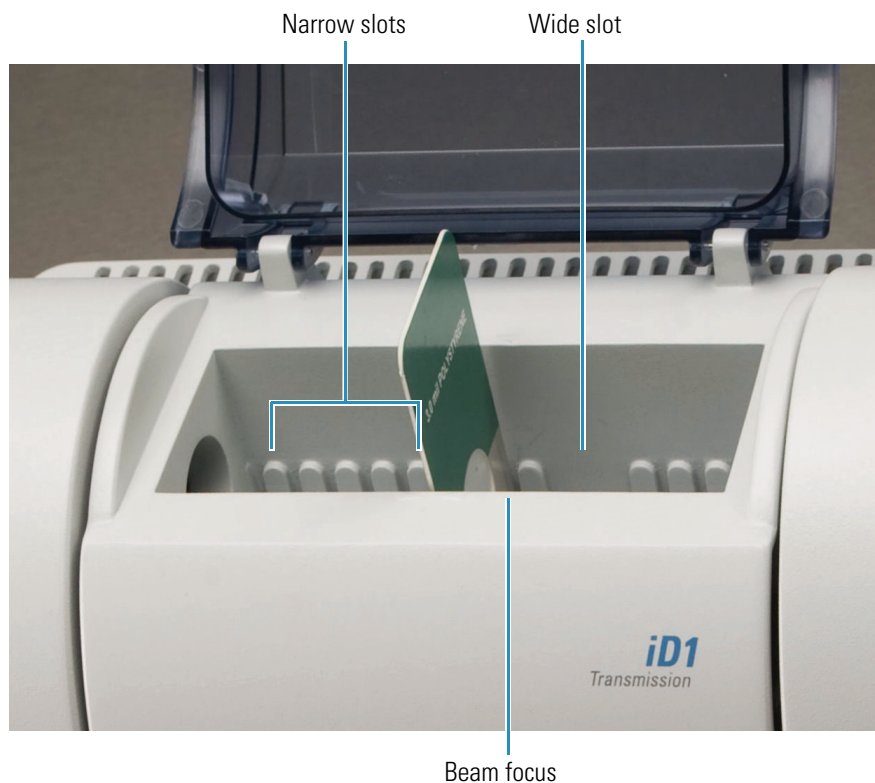
[Collecting Data With the iD1 Transmission Accessory](#)

2 Operation

Using the iD1 Transmission Accessory

Installing Samples in the iD1 Transmission Accessory

To install a thin sample such as a film, swing open the accessory cover and slide the sample into any of the narrow slots. Normally a slot at or near the focus position is used. The focus position is at the center of the sample compartment as indicated by the arrows on the sample compartment housing.



The wide slot provides clearance for liquid and gas cell flanges.

Related Topics

[Installing Integrated Accessories](#)

[Collecting Data With the iD1 Transmission Accessory](#)

Collecting Data With the iD1 Transmission Accessory

For information about collecting data with the accessory, see the provided Getting Started and Fast Facts manuals.

Related Topics

[Installing Samples in the iD1 Transmission Accessory](#)

Entering Serial Numbers

The software stores important settings, serial numbers and installation dates. Update any corresponding setting, serial number or installation date after replacing components in your spectrometer.

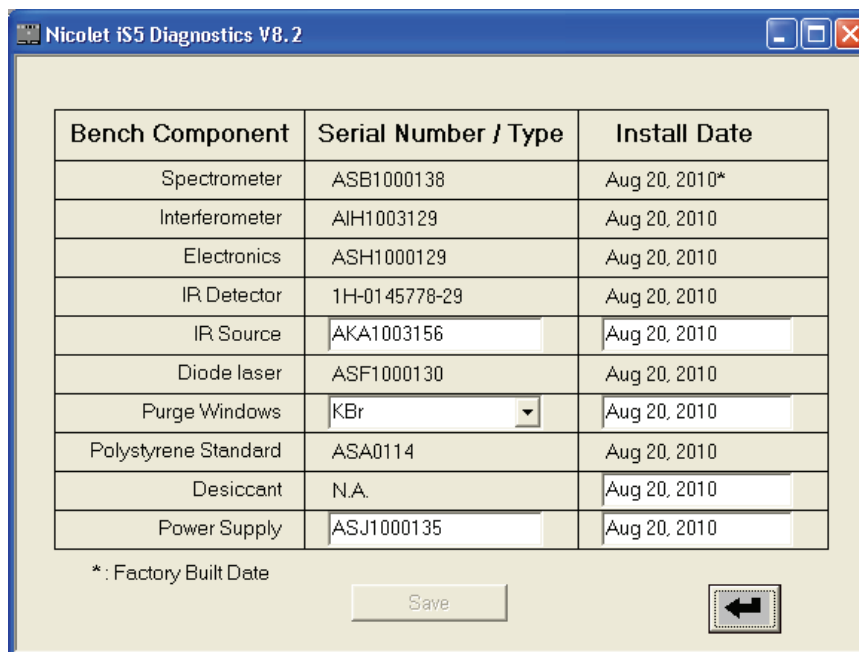
❖ **To check or update the instrument information**

1. Choose **Advanced Diagnostics** in the Collect menu. The Diagnostics screen appears.



Verify that all components are working properly. (If a component malfunctions, a red slash mark appears over the corresponding icon on this screen. See [Troubleshooting](#) or contact us for assistance.)

2. Click the **Installation** icon. An information screen appears.



Update any pertinent information, enter today's date and then click **Save**.

Related Topics

[Maintaining Your Instrument](#)

[Troubleshooting](#)

Maintenance

This section provides instructions for installing and replacing hardware and maintaining your instrument.

NOTICE All other maintenance, troubleshooting or repair must be performed by one of our trained and certified service engineers.



WARNING When performing any of the maintenance procedures, always follow the safety precautions included in the user guide or Help system and in any of the other documentation that came with your instrument.

Contents

- [Installing or Replacing Hardware](#)
- [Maintaining Your Instrument](#)

Installing or Replacing Hardware

Contents

- [Installing a Purge Kit](#)
- [Replacing Sample Compartment Windows](#)
- [Replacing the Power Supply](#)
- [Replacing the Source](#)



WARNING The following parts must be replaced only with replacement parts supplied by us:

- Infrared source
- Desiccant
- Sample compartment windows
- Power supply

Installing a Purge Kit

Purging protects instrument components from moisture and other environmental contaminants by maintaining an internal atmosphere of dry air or nitrogen. If you ordered the purge option, you must install a purge kit.

NOTICE We recommend maintaining seal and desiccation and/or purging the instrument at all times. Equipment damage due to failure to maintain seal and desiccation and/or purge is not covered under the warranty. If you have questions about this requirement, please contact us.

Time needed: 30 minutes or less

Set up needed:

- Source of dry air or nitrogen that meets Thermo Scientific specifications for the Nicolet iS5 spectrometer. See the Preparing Your Site manual on your documentation disk for more information.

Note For best results dry the purge gas to a dew point of $-70\text{ }^{\circ}\text{C}$ ($-94\text{ }^{\circ}\text{F}$) or below.

Tools needed:

- A 3/4-inch open-ended wrench
- An 11/16-inch open-ended wrench
- A #2 Phillips head screw driver
- Purge regulator valve (with a 1/4-inch male or 3/8-inch female fitting)
- Pipe tapes
- Purge kit with sealed desiccant packet (open just prior to installation)

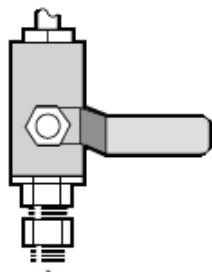
Note To order parts, call Technical Support. See [Contacting Us](#).



WARNING Never use a flammable, combustible, or toxic gas to purge this instrument. The purge gas must be free of oil and other reactive materials. Heat from the source or from laser absorption may ignite flammable gases or reactive materials in purge gas. Use only dried air or nitrogen to purge your instrument.

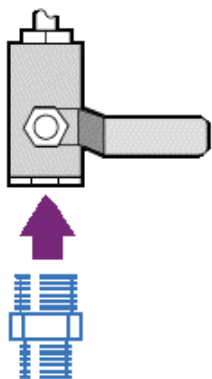
❖ To install a purge kit

1. Install the regulator valve and either a 1/4-inch male fitting or a 3/8-inch female fitting on the purge gas source. (Choose a valve and fittings that are appropriate for the purge gas source.)

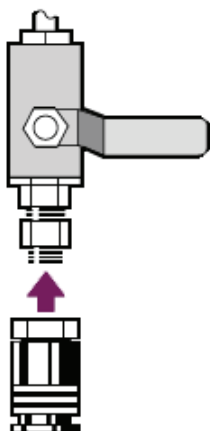


2. If you used a 1/4-inch male fitting, proceed to the next step.

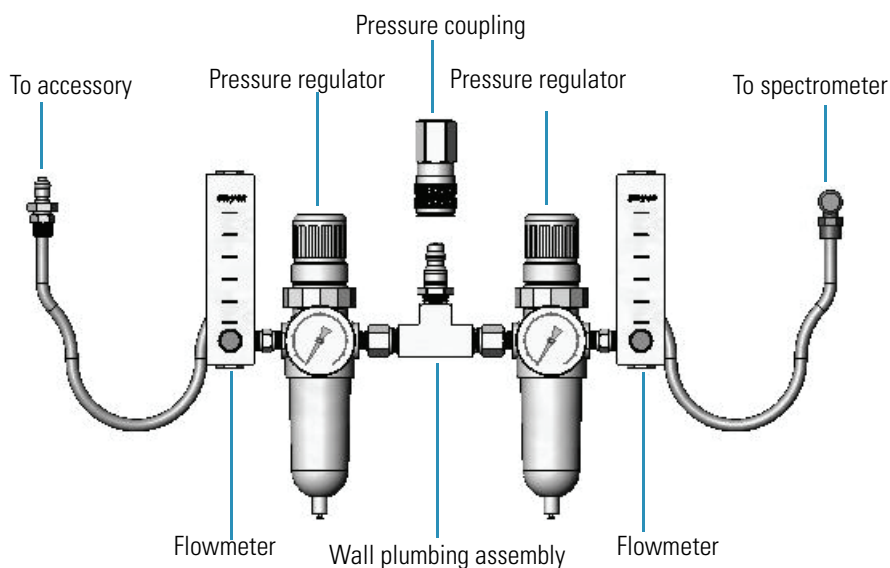
If you used a 3/8-inch female fitting on the purge gas source, install the 3/8-inch to 1/4-inch reducing nipple that was included with your purge kit. Wrap the reducing nipple with Teflon® pipe tape before you install it, and use an 11/16-inch open-ended wrench to tighten the connection.



3. Wrap the reducing nipple or the 1/4-inch male fitting with Teflon pipe tape, and then install the pressure coupling. Use a 3/4-inch open-ended wrench to tighten the connection.



4. Snap the male inlet of the wall plumbing assembly firmly into the pressure coupling.
Refer to this drawing when performing this and subsequent steps:



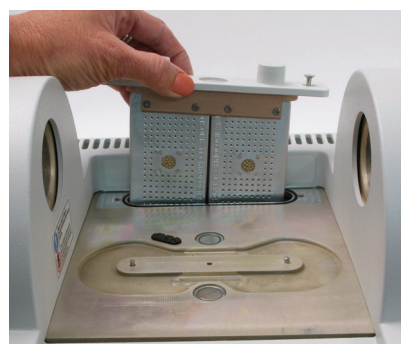
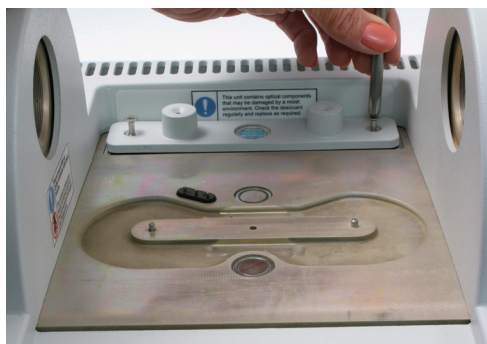
5. Turn off the instrument power, unplug the power cord and remove all accessories and samples from the system. See [Turning the Power On and Off](#) and [Installing an Accessory](#) for instructions.



WARNING Before opening the desiccant compartment, turn off the instrument power, unplug the power cord and remove all accessories and samples from the system. Entry of flammable liquids or gases into the desiccant compartment is an explosion hazard. If such entry occurs, contact us immediately and do not apply power to the instrument until the condition has been corrected.

6. Loosen the two captive Phillips head screws from the standard desiccant cartridge, and lift the cartridge straight up and out of the instrument.

Note If the standard desiccant cartridge is stored in a dry box or sealed bag (you can use the bag the purge cartridge came in), the cartridge can be reused.



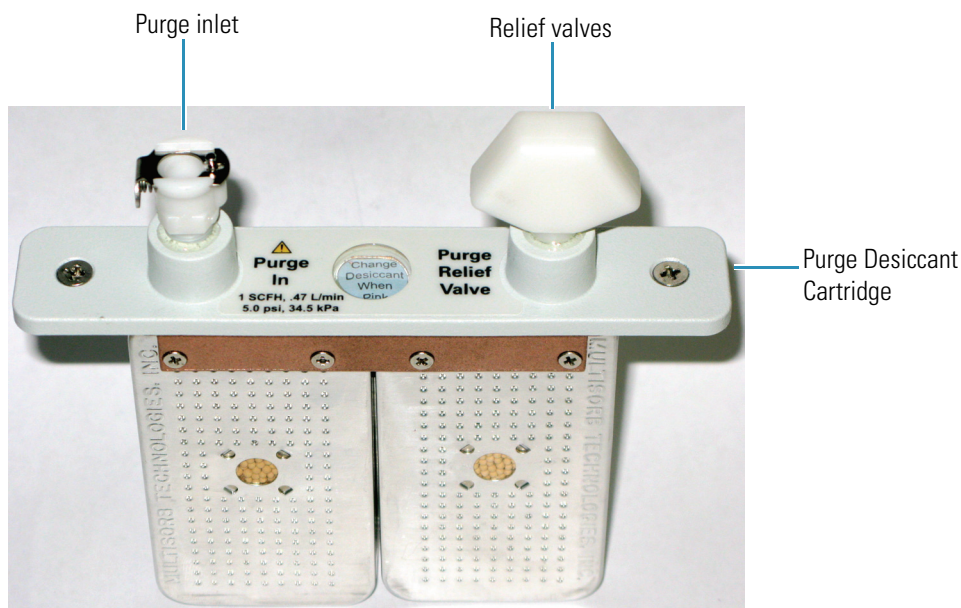
7. Remove the large O-ring.



Note Be careful not to drop the sealing O-ring into the desiccant compartment.

8. Open the purge kit and then open the sealed desiccant packet (must be sealed to keep the desiccant dry).
9. Remove the O-ring from the packet and install it on the instrument base plate (see the previous image). Make sure the O-ring is properly seated in the groove.
10. Remove the desiccant cartridge with purge fittings from the packet, insert the cartridge in the desiccant compartment, make sure it is seated properly over the O-ring and then secure it using the two screws.

Note the correct orientation of the cartridge (the label on the cartridge should be readable from the front of the instrument when the cartridge is installed).



11. Connect the right-angle flow coupler from the wall plumbing assembly (labeled “to spectrometer”) to the purge inlet on the instrument.

3 Maintenance

Installing or Replacing Hardware

12. Install any sampling accessory you removed previously.
13. If the accessory is purged, connect the straight flow coupler from the plumbing assembly (labeled “to accessory”) to the purge inlet on the installed accessory.
14. Open the main regulator valve and set the purge gas controls as indicated below (see [Setting the Purge Gas Controls](#) for details). If you are not purging an accessory, set the pressure regulator for accessories to zero.

Hardware	Pressure (psig)	Flow Rate (scfh)
iS5 Spectrometer	5	1
iD1 Transmission Accessory	5	4-10
iD3 ATR Accessory	5	4-10
iD5 ATR Accessory	5	4-10
iD Foundation	5	4-10

15. Plug in the power cord to the instrument and turn on the power.
16. Wait 30 to 60 minutes for the instrument to fully purge.

Note If the instrument is powered off without purge, you can use either desiccant cartridge (with or without the purge connectors) to maintain the required humidity. Make sure you check the humidity indicator once a month (see [Checking the Humidity Indicators](#)) and replace the desiccant when necessary (see [Replacing the Desiccant](#)).

Related Topics

[Setting the Purge Gas Controls](#)

[Replacing the Desiccant](#)

[Checking and Changing the Purge Gas Filter](#)

Replacing Sample Compartment Windows

Your instrument has windows on both sides of the sample compartment that seal the spectrometer from moisture and other contaminants in the room atmosphere. The windows must be installed, even if your system is purged.



WARNING Prevent fire and explosion. The infrared source inside the instrument is an ignition source. If you are using volatile solvents, provide a fume hood or other active venting system that is free of spark and other ignition sources and prevents flammable vapors from collecting in the atmosphere surrounding the instrument.

The sample compartment windows are either potassium bromide (KBr) with a hygroscopic protective coating, or non-hygroscopic zinc selenide (ZnSe) with an anti-reflection coating (for extremely humid environments). Both types of windows should be clear and clean (no fingerprints).

NOTICE Do not allow liquids to come into contact with the sample compartment windows.

NOTICE Windows can be scratched and ruined very easily. Do not touch or attempt to clean them. Dust will not affect the signal, but fingerprints can degrade the performance of the instrument and permanently damage mirrors or windows. If you wish to remove dust from a mirror or window, blow it off with a gentle stream of clean, dry air or nitrogen (Do not use compressed air from a can or contaminants may cause damage.)

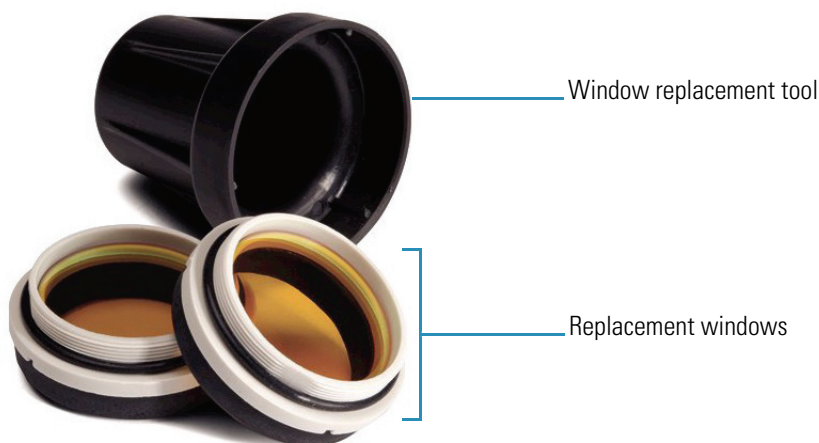


WARNING Replace the sample compartment windows only with replacement parts supplied by us.

Time needed: 10 minutes

Tools needed:

- iS5 window replacement tool (provided)
- iS5 replacement windows (2)
- latex gloves



❖ **To replace sample compartment windows**

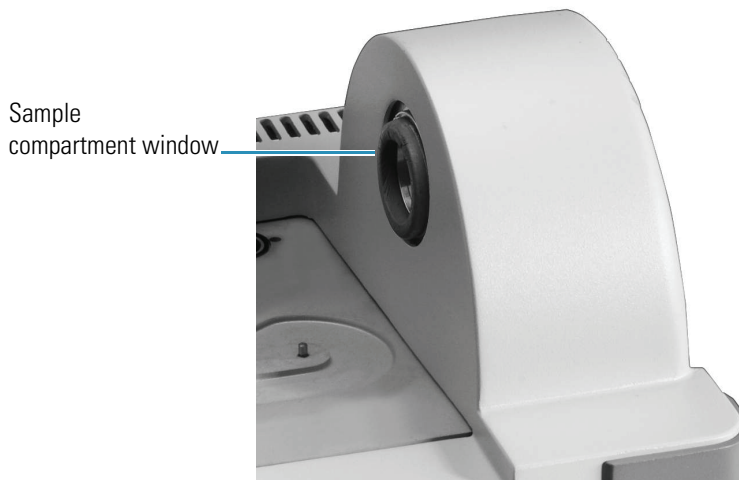
1. Turn off the instrument power. See [Turning the Power On and Off](#).

Note If your instrument is purged, you can leave the purge on while you replace the windows to prevent ambient air from entering the spectrometer.

3 Maintenance

Installing or Replacing Hardware

2. Remove any sampling accessory from the instrument. See [Installing an Accessory](#).
3. Line up the three ribs in the window replacement tool with the notches in the rim of the installed window.



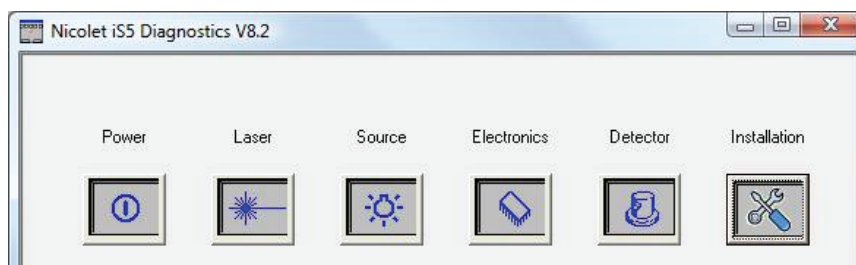
Note The window fittings are tight. Use one hand to stabilize the instrument and the other to remove the window.

4. Press firmly on the tool and turn it counterclockwise to loosen the window.
5. Remove the tool and continue loosening the window by hand until it releases.

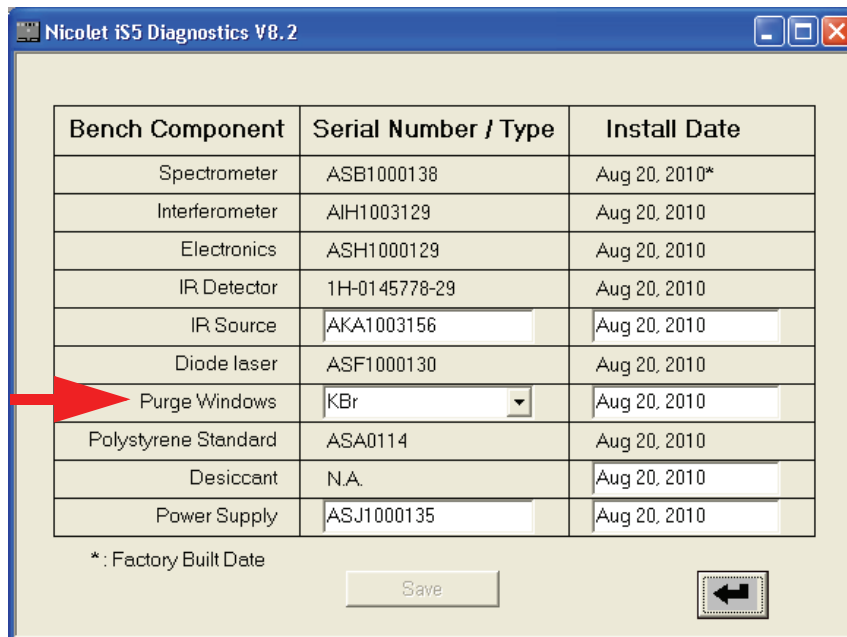
Note Be sure to use gloves to handle replacement windows and handle them by the rims. (Avoid touching the windows even when wearing gloves.)

6. Gently insert the new window into the opening and turn it clockwise until hand tight.
The window should screw in easily at the start; if it doesn't, remove the window and restart to avoid stripping the threads.
7. Using the window replacement tool, slowly and firmly turn the window as far as it will go (you will feel the O-ring compress fully when the window rim contacts the housing).
8. Turn on the instrument power and start OMNIC software.
9. Make sure the window type is properly configured in OMNIC software.

Choose **Advanced Diagnostics** in the Collect menu. The Diagnostics screen is displayed.



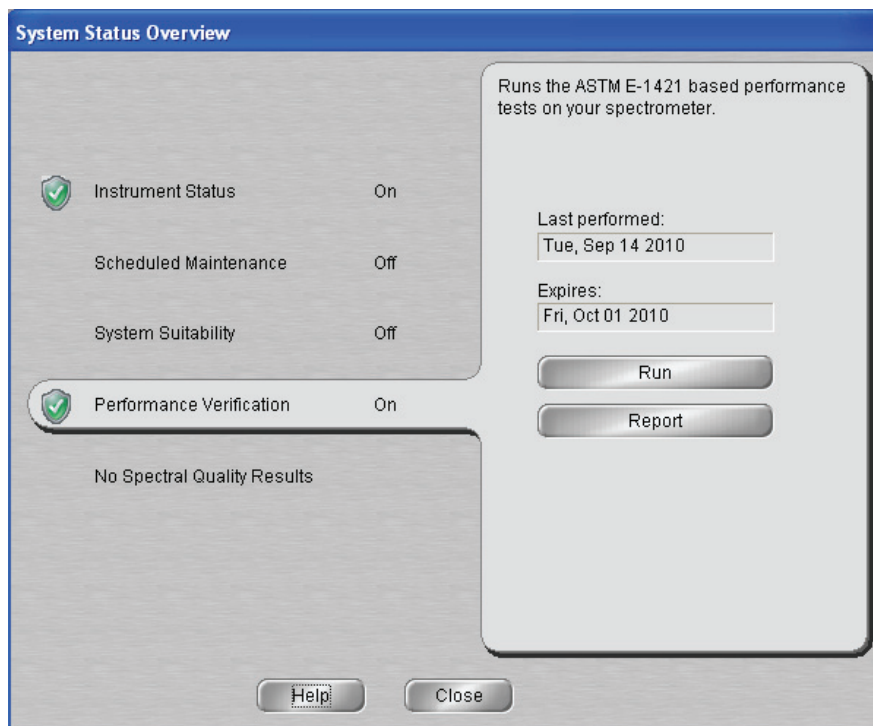
Click the **Installation** icon. A diagnostic information screen appears.



Select the **Purge Window** type (KBr or ZnSe), enter today's date and then click **Save**.

10. Make sure the system has been on for at least 15 minutes (one to six hours for best results), and then run the Performance Verification (PV) test.

From the OMNIC main screen, choose **View > System Status**. The System Status Overview dialog box is displayed.



3 Maintenance

Installing or Replacing Hardware

Click **Performance Verification** and then click **Run**.

11. Replace any accessories you removed earlier on the instrument.

Related Topics

[Troubleshooting](#)

Replacing the Power Supply

Time needed: 5 minutes or less

Tools needed: None

Note To order parts, call our Technical Support. See [Contacting Us](#).



CAUTION To avoid a shock hazard, do not:

- Attempt to remove the cover of the power supply.
- Allow liquid to run into the power supply or the back of the instrument.
- Block access to the power supply, AC power cord or power switch.

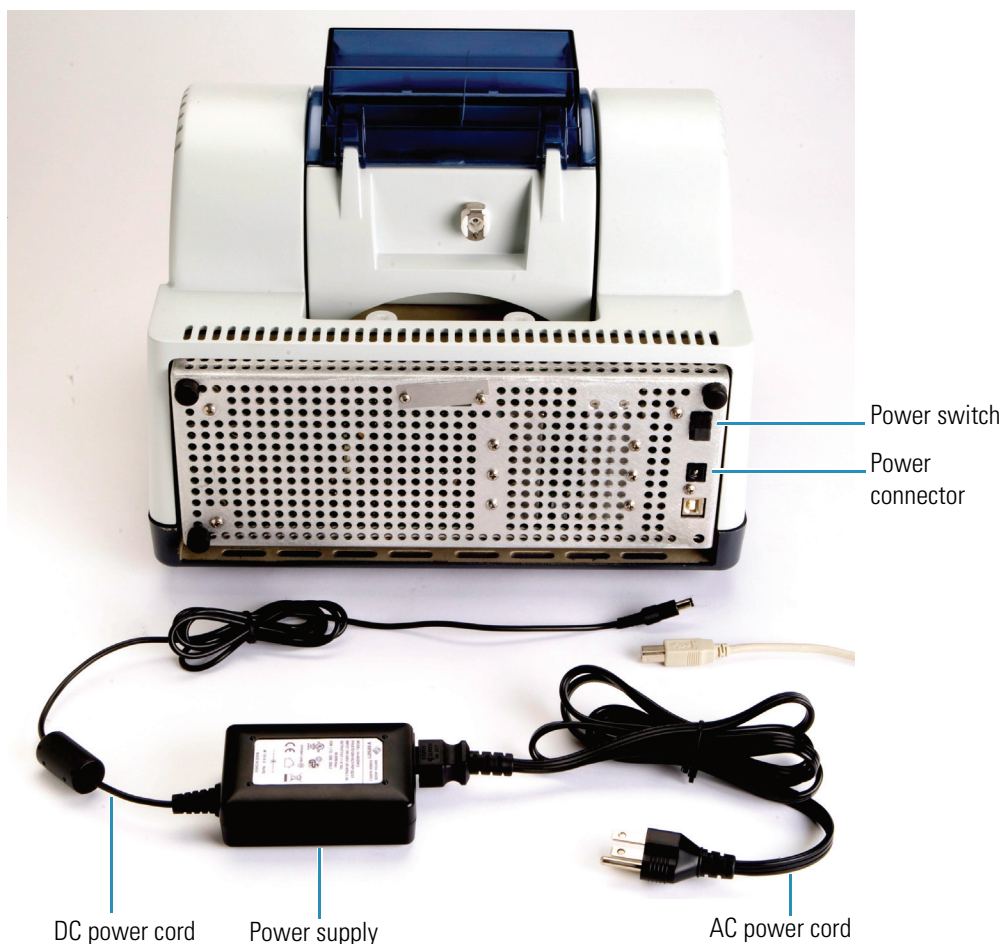


WARNING Before replacing the power supply, turn off the instrument. Replace the power supply only with replacement parts supplied by us.

❖ To replace the power supply

1. Turn off the instrument power. See [Turning the Power On and Off](#).

2. Disconnect the old power supply from the wall outlet or power strip and from the instrument power connector.



3. Disconnect the AC power cord from the power supply.

Note The power supply replacement kit does not include the AC power cord, which is specific for the location of your installed instrument. Save the cord and use it with the new power supply. If the power cord becomes damaged, call our Technical Support to order a new one. See [Contacting Us](#).

4. Connect your AC power cord to the new power supply.
5. Connect the power supply first to the instrument power connector and then to the wall outlet or power strip. The wall outlet you use must be equipped with a 3-wire line: live, neutral, and ground.



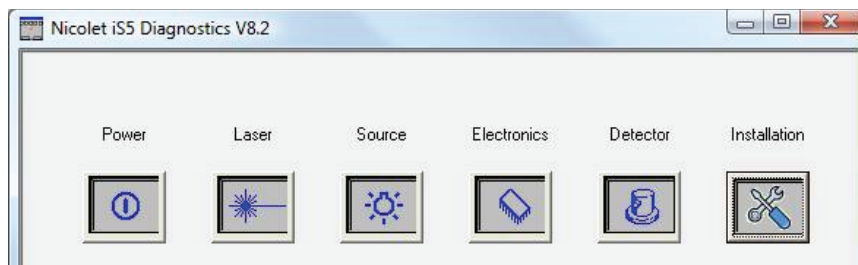
WARNING To ensure a good ground connection and avoid shock hazard, do not use an outlet that is connected to a conduit ground. The ground must be a noncurrent-carrying wire connected to earth ground at the main distribution box.

6. Turn on the instrument power.

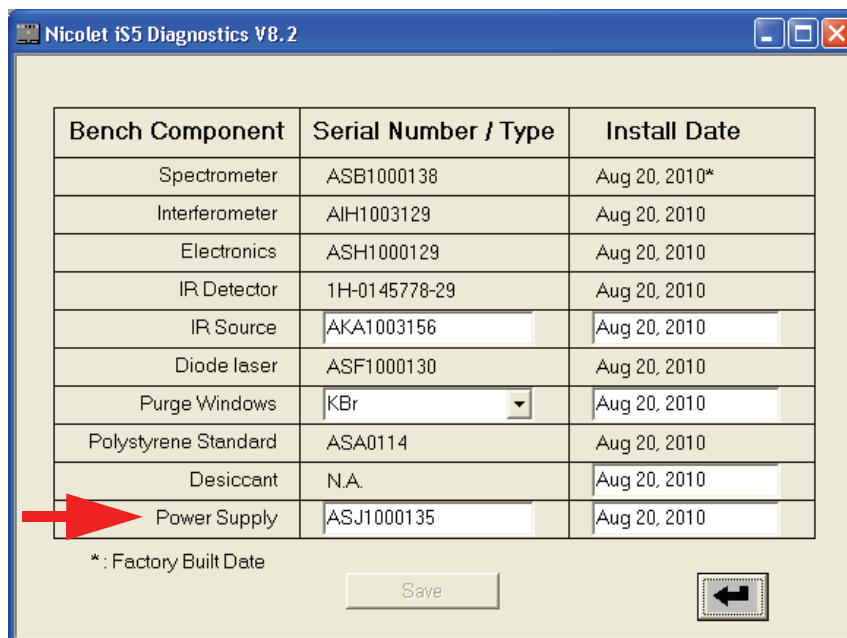
The blue power indicator on the main cover flashes while the instrument warms up and performs diagnostics (about 2 minutes) and then the indicator stays lit. If the instrument does not function normally, turn off the power and check the cable connections between the power supply, the instrument, and the wall outlet or power strip. If the connectors are seated properly and the instrument still does not function normally, contact Technical Support for assistance; see [Contacting Us](#).

7. Enter the serial number for the new power supply in OMNIC software.

Choose **Advanced Diagnostics** in the Collect menu. The Diagnostics screen is displayed.



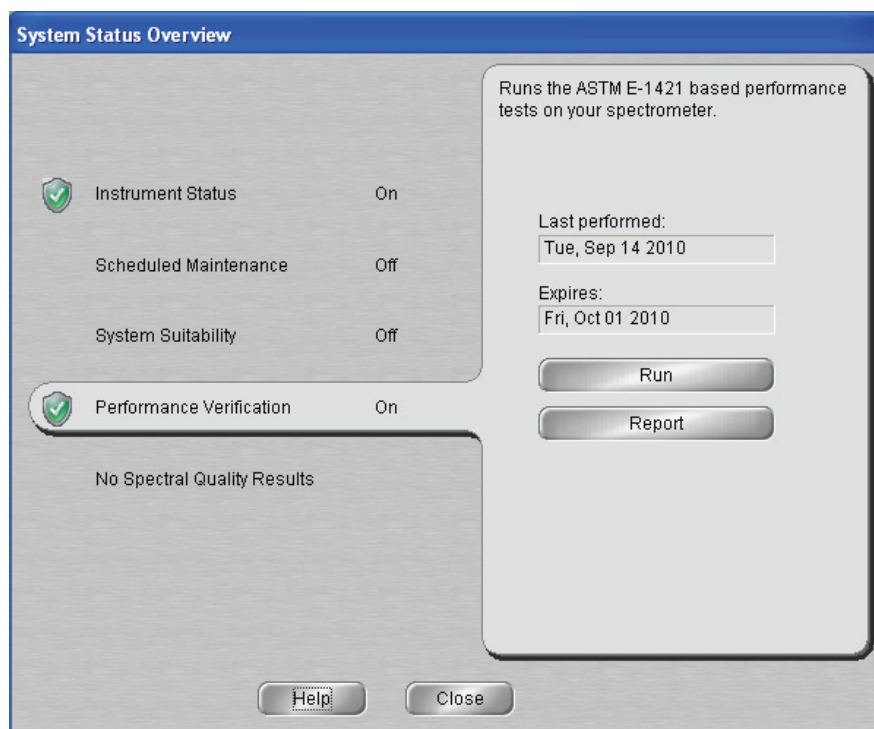
Click the **Installation** icon. A diagnostic information screen appears.



Type the serial number for the new power supply, enter today's date and then click **Save**.

8. Make sure the system has been on for at least 15 minutes (one to six hours for best results), and then run the Performance Verification (PV) test.

From the OMNIC main screen, choose **View > System Status**. The System Status Overview dialog box is displayed.



Click **Performance Verification** and then click **Run**.

Related Topics

[Troubleshooting](#)

Replacing the Source

Time needed: 25 minutes or less

Tools needed:

- A #1 Phillips head screwdriver (provided with the instrument)

Note To order parts, contact Technical Support; see [Contacting Us](#).



WARNING Before replacing the source, turn off the instrument. Replace the source only with replacement parts supplied by us.



WARNING The source becomes extremely hot while you are using the instrument. Always allow the source to cool for at least 10 minutes after it is turned off before you work with it.

3 Maintenance

Installing or Replacing Hardware

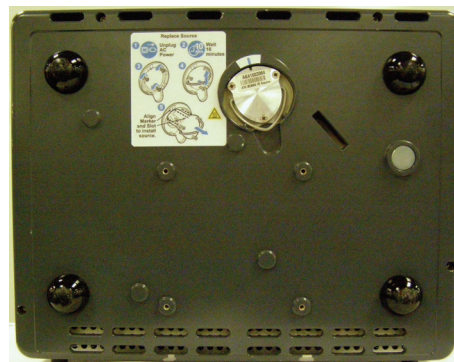
NOTICE Never touch a source element with your bare fingers. Skin oils or other deposits on the element will shorten its life. Always use clean finger cots, gloves, or clean laboratory tissue when handling a source element.

❖ To replace or change the source

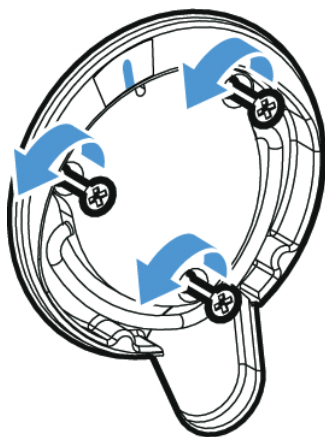
1. Turn off the instrument (see [Turning the Power On and Off](#)) and unplug its power cord.
2. Disconnect the cables from the back of the instrument.
3. If the spectrometer or an installed accessory is purged, disconnect the purge lines from the spectrometer and the accessory (quick connect fittings stop the flow automatically). See [Installing a Purge Kit](#) for more information.
4. Remove any installed accessories from the instrument (see [Installing an Accessory](#)).

Note Make sure at least 10 minutes have passed since you turned off the instrument before you perform the next step.

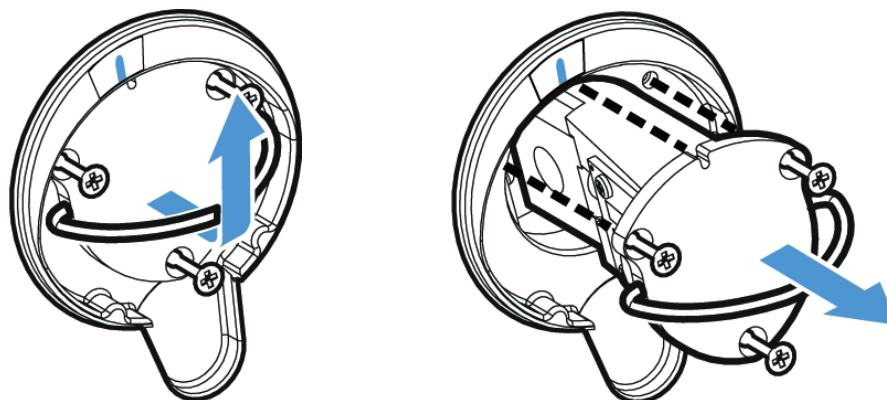
5. Carefully tip the instrument back until it rests on the four feet on the rear panel.



6. Use a #1 Phillips head screwdriver to loosen the three captive screws that hold the source in place.



7. Grasp the bale firmly and pull the source straight out of the instrument.



8. Record the serial number for the new source on a piece of paper. You will need to enter it after the source is installed.
9. Insert the new source.

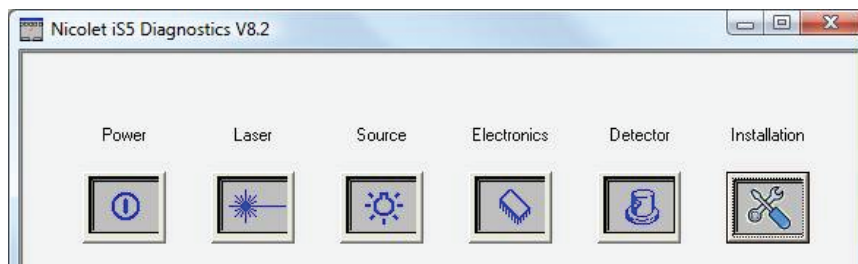
Make sure the three captive screws are straight and then slowly insert the source into the cavity until the source mount is flush with the instrument. Tighten the screws to secure the source and snap the bale into its storage position.
10. Carefully return the instrument to its upright position and reconnect the cables you removed.
11. If your instrument is not purged, replace the desiccant. See [Replacing the Desiccant](#) for instructions.



WARNING To ensure a good ground connection and avoid shock hazard, do not use an outlet that is connected to a conduit ground. The ground must be a noncurrent-carrying wire connected to earth ground at the main distribution box.

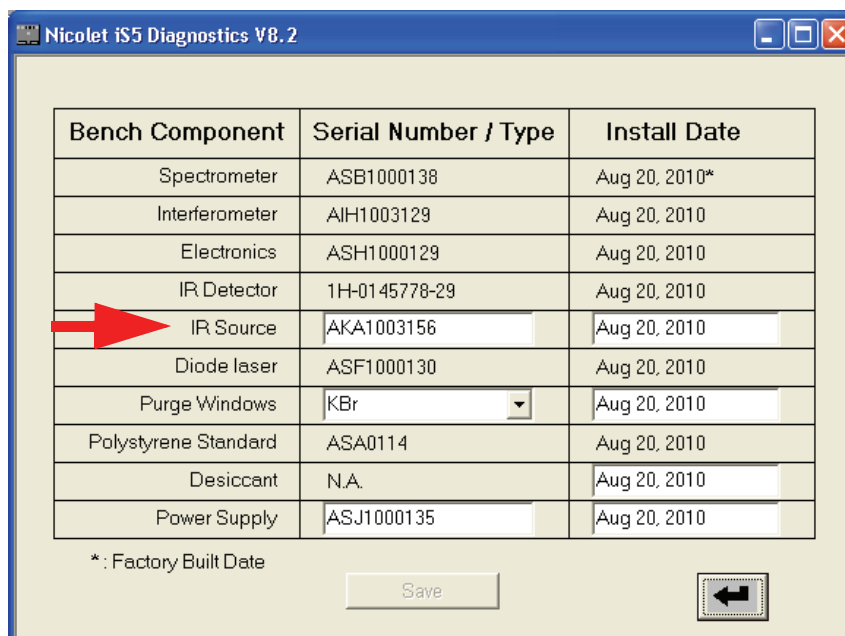
12. Plug in the power cord to the instrument, turn on the power switch and start OMNIC software.
13. Wait until the power indicator stops flashing.
14. Enter the serial number for the new source in OMNIC software.

Choose **Advanced Diagnostics** in the Collect menu. The Diagnostics screen appears.



Verify that the new source is working properly. (If it does not work properly, a red slash mark appears over the Source icon on this screen. Contact Technical Support for assistance; see [Contacting Us](#).)

Click the **Installation** icon. A diagnostic information screen appears.

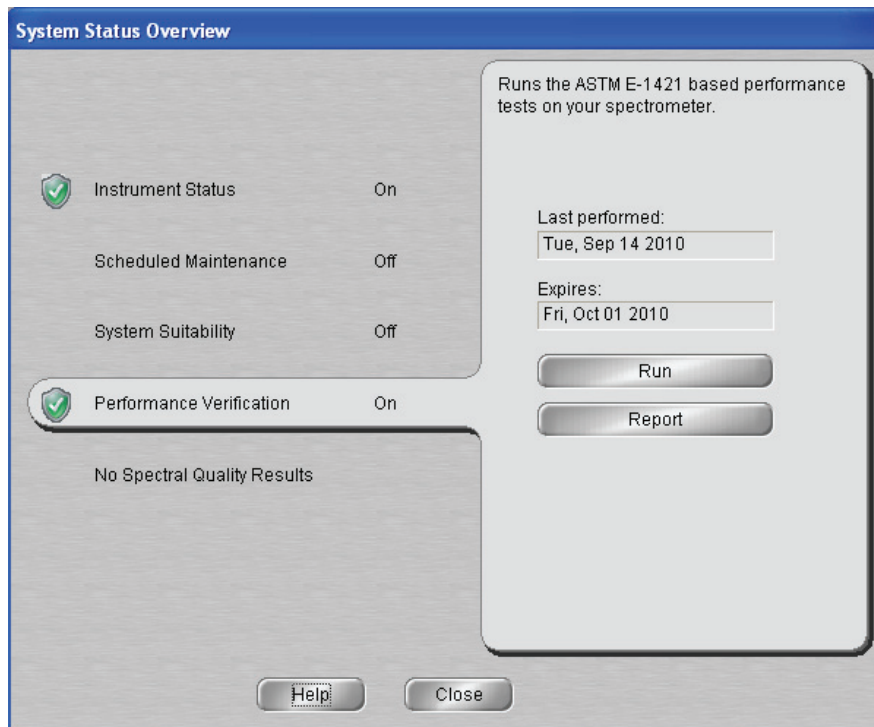


Type the serial number for the new source (recorded in step 8), enter today's date and then click **Save**.

15. Make sure the system has been on for at least 15 minutes (one to six hours for best results), and then align the instrument (see [Aligning Your Spectrometer](#)).

16. Run the Performance Verification (PV) test.

From the OMNIC main screen, choose **View > System Status**. The System Status Overview dialog box is displayed.



Click **Performance Verification** and then click **Run**.

17. Replace any accessories you removed earlier.
18. If the system is purged, reconnect the purge lines.

Related Topics

[Troubleshooting](#)

Maintaining Your Instrument

Contents

- [Cleaning Your Instrument](#)
- [Static Electricity Precautions](#)
- [Checking the Humidity Indicators](#)
- [Replacing the Desiccant](#)
- [Regenerating the Desiccant](#)
- [Checking and Changing the Purge Gas Filter](#)

Cleaning Your Instrument

If the outside of the instrument needs cleaning, turn it off (see [Turning the Power On and Off](#)) and disconnect the power supply. Then use a soft cloth that is damp (not wet) and a mild soap to clean the outside of the instrument.



CAUTION To avoid a shock hazard, do not allow liquid to run into the power supply or the back of the instrument.

NOTICE Do not use harsh detergents, solvents, chemicals or abrasives; these can damage the finish. Do not allow liquid to contact any windows in the sample compartment.

NOTICE Windows can be scratched and ruined very easily. Do not touch or attempt to clean them. Dust will not affect the signal, but fingerprints can degrade the performance of the instrument and permanently damage mirrors or windows. If you wish to remove dust from a mirror or window, blow it off with a gentle stream of clean, dry air or nitrogen. Never allow any liquid to come into contact with a window or optical component in the instrument.

Related Topics

[Static Electricity Precautions](#)

Cleaning the iD1 Transmission Accessory

If the outside of the accessory needs to be cleaned, remove the accessory from the instrument, and use a soft, damp (not wet) cloth and a mild soap to clean it. Do not use harsh detergents, solvents, chemicals or abrasives (since they can damage the finish), and do not allow liquid to contact any windows (such as those in the sample compartment). When you are finished cleaning the accessory, allow it to dry, and then reinstall it in the instrument.

Static Electricity Precautions

Critical components in the instrument can be permanently damaged by static electricity. To help prevent such damage, follow these recommendations:

NOTICE Before you disconnect the power supply, always discharge any static electricity you may have accumulated by touching the perforated metal shield over the power supply.

NOTICE Do not touch any printed circuit board in the instrument (such as the circuit board on the detector).

NOTICE Do not remove replacement components from their protective packaging until you are ready to install that component in the instrument.

Related Topics

[Electrical and Communication Cabling](#)

[Troubleshooting](#)

Checking the Humidity Indicators

The instrument is tightly sealed and its optical components are protected by desiccant that absorbs water vapor. The instrument can also be purged with dry air or nitrogen (see [Installing a Purge Kit](#)).

NOTICE We recommend maintaining seal and desiccation and/or purging the instrument at all times. Equipment damage due to failure to maintain seal and desiccation and/or purge is not covered under the warranty. If you have questions about this requirement, call Technical Support; see [Contacting Us](#).

Follow these steps to monitor the humidity level inside the instrument.

Contents

- [Checking Humidity When the Instrument is Powered Off](#)
- [Checking Humidity When the Instrument is Powered On](#)

Related Topics

[Replacing the Desiccant](#)

[Regenerating the Desiccant](#)

[Installing a Purge Kit](#)

[Troubleshooting](#)

Checking Humidity When the Instrument is Powered Off

A paper indicator lets you know when to change the desiccant when the instrument is powered off.



As long as the humidity indicator on the instrument is blue, the desiccant is not saturated and does not need replacement. When the desiccant becomes saturated, the humidity indicator turns pink and then light pink or almost white. This means you must replace the desiccant and the humidity indicator. See [Replacing the Desiccant](#) for instructions.

NOTICE Check the paper humidity indicator at least once a month when the instrument is powered off.

Related Topics

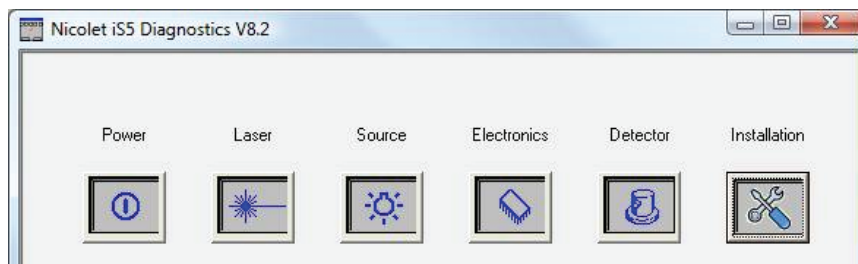
[Checking the Humidity Indicators](#)

Checking Humidity When the Instrument is Powered On

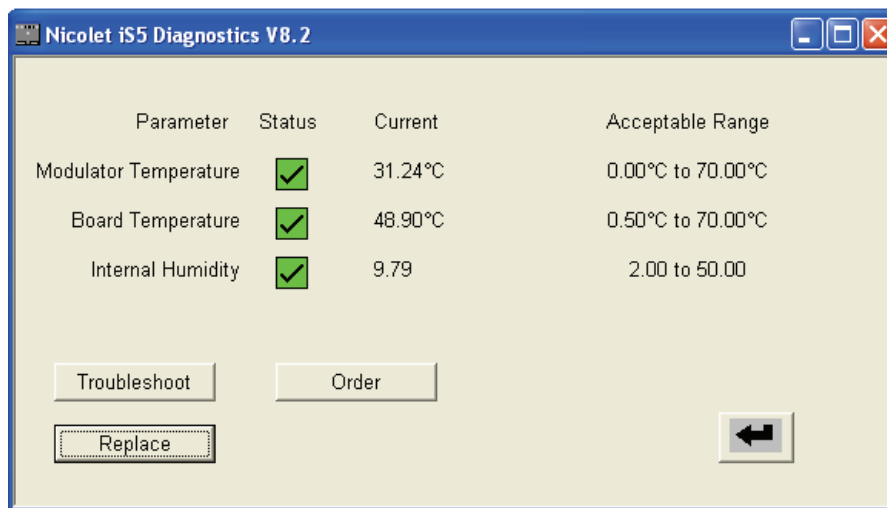
When the instrument is powered on, an internal sensor closely monitors the humidity level inside the instrument and alerts you when the humidity is high.

❖ To check the internal humidity indicator

1. From the OMNIC software main screen, choose **Advanced Diagnostics** in the Collect menu. The Diagnostics screen appears.



2. Click the **Electronics** icon. An information screen appears.



3. Verify that the current Internal Humidity value is between 2 and 50%.

Note When the internal humidity is above 50%, OMNIC software displays a message to replace the desiccant (see [Replacing the Desiccant](#)) or increase the purge flow (see [Setting the Purge Gas Controls](#)). If the humidity is above a critical level, the System Status will report an instrument failure.

Related Topics

[Checking the Humidity Indicators](#)

Replacing the Desiccant

If your instrument is not equipped with a purge kit, or the purge is off, you must monitor the humidity level inside the spectrometer. Replace the desiccant when the paper humidity indicator turns pink (can be light pink or almost white) or the software displays a message that the internal humidity is above 50%. Replace the paper humidity indicator each time you replace the desiccant.

Time needed: 5 minutes or less

Tools needed:

- Desiccant replacement kit (or desiccant canisters that have been regenerated)
- A #1 Phillips head screw driver
- A #2 Phillips head screw driver
- Gloves, finger cots, or laboratory tissue (to handle the humidity indicator)

Note To order parts, contact Technical Support; see [Contacting Us](#).



WARNING Before opening the desiccant compartment, turn off the instrument power, unplug the power cord and remove all accessories and samples from the system. Entry of flammable liquids or gases into the desiccant compartment is an explosion hazard. If such entry occurs, contact us immediately and do not apply power to the instrument until the condition has been corrected.

NOTICE Make sure nothing falls into the instrument while the desiccant cover is removed.



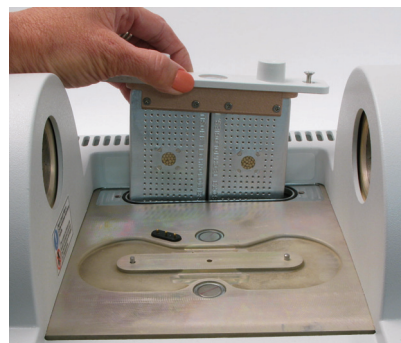
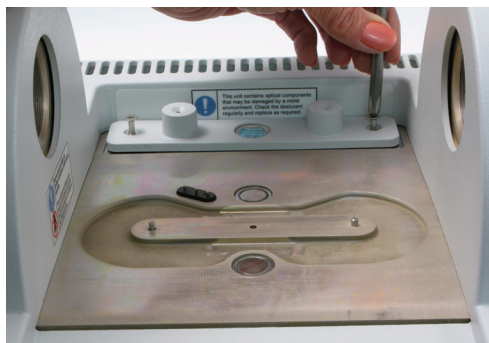
WARNING Replace the desiccant only with replacement parts supplied by us.

❖ **To replace the desiccant**

1. Turn off the instrument (see [Turning the Power On and Off](#)) and unplug the power cord.
2. Remove any installed accessory and all samples from the instrument (see [Installing an Accessory](#)).

Note You can use either desiccant cartridge (with or without the purge connector) to maintain the required humidity when the instrument is powered off. The illustrations below show the nonpurged version of the desiccant cartridge. To see the purged version, see [Installing a Purge Kit](#). The instructions for replacing the desiccant canisters are the same for both cartridges.

3. Use the #2 Phillips head screw driver to loosen the two captive screws from the desiccant cartridge, and lift the cartridge straight up and out of the instrument.

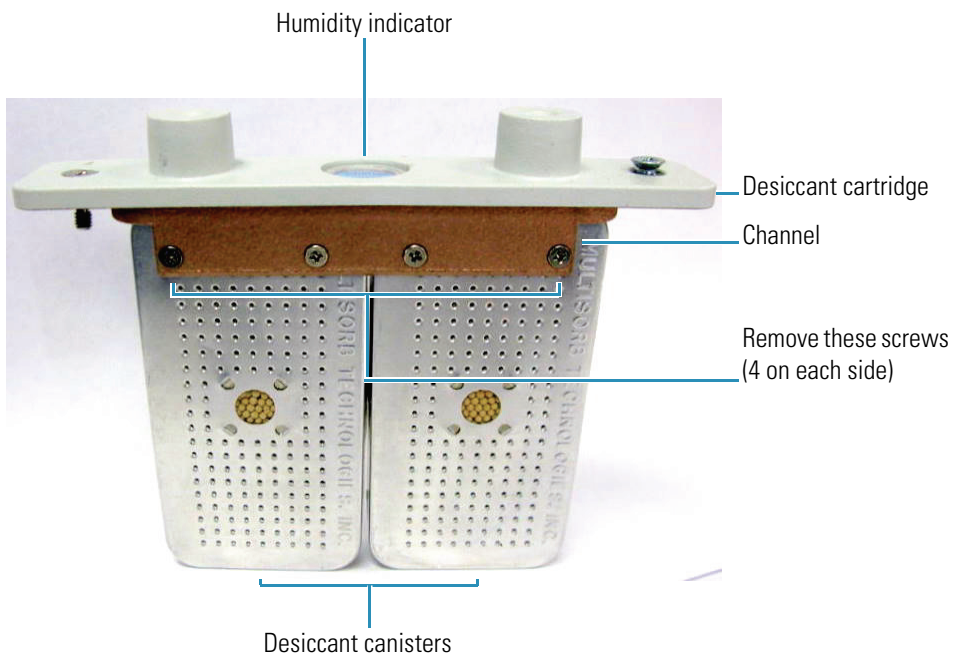


4. Remove the large O-ring.



Note Be careful not to drop the sealing O-ring into the desiccant compartment.

5. Use the #1 Phillips head screw driver to remove the eight screws that hold the two saturated desiccant canisters to the desiccant cartridge.





WARNING The contents of the desiccant canisters (hydrated metal aluminosilicate molecular sieve) could be harmful if ingested. If you discard the saturated desiccant canisters, make sure they are properly disposed of.

6. Turn the desiccant cartridge upside down and peel the old humidity indicator off the window.

NOTICE Always wear lab gloves or finger cots, or use laboratory tissue, when handling a new humidity indicator. Oil or moisture from skin can discolor the indicator.

7. Open the sealed packet that contains the new desiccant (must be sealed to maintain the desiccant) and remove the new humidity indicator.
8. Turn the desiccant cartridge upside down and press the blue indicator onto the window so that the flat edges of the indicator are aligned with the edges of the cartridge. The text should be visible through the window when you turn the cartridge right side up.

NOTICE Make sure that the indicator is pressed tightly against the window so that it does not come loose in the desiccant compartment when you reinstall the cartridge.

9. Install the new desiccant canisters. See the previous illustration for this step.

Insert each canister into the channel of the desiccant cartridge. Line up the screw hole in the cartridge with the corresponding hole in the canister and then insert and gently tighten each screw, first on one side of the cartridge and then the other, until all the screws are finger tight. Be careful not to overtighten the screws.

Repeat for the other canister.

10. Insert the desiccant cartridge into the spectrometer so that the text on the humidity indicator can be read by someone standing in front of the instrument.

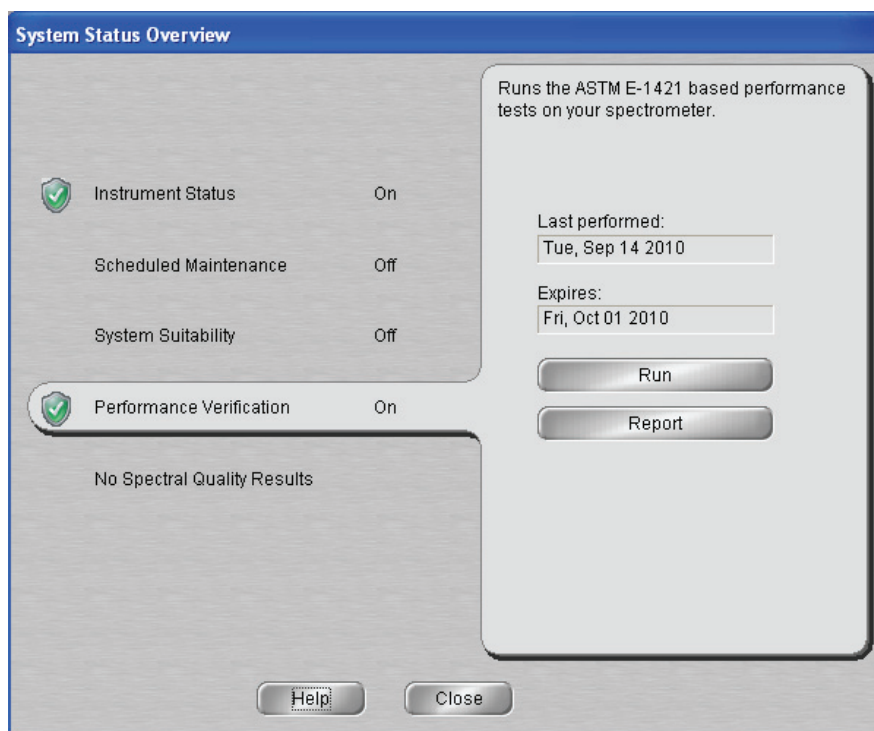
Make sure the cartridge is seated properly over the O-ring and then secure it using the two screws.



WARNING To ensure a good ground connection and avoid shock hazard, do not use an outlet that is connected to a conduit ground. The ground must be a noncurrent-carrying wire connected to earth ground at the main distribution box.

11. Plug in the power cord to the instrument and turn on the power.
12. Make sure the system has been on for at least 15 minutes (one to six hours for best results), and then run the Performance Verification (PV) test.

From the OMNIC main screen, choose **View > System Status**. The System Status Overview dialog box is displayed.



Click **Performance Verification** and then click **Run**.

13. Replace any accessories you removed earlier.

Related Topics

[Checking the Humidity Indicators](#)

[Regenerating the Desiccant](#)

[Installing a Purge Kit](#)

Regenerating the Desiccant

When the desiccant canisters must be replaced, you can contact us to order new desiccant canisters (see [Contacting Us](#)), or you can dry and reuse the saturated canisters according to the following instructions.

Time needed: 3 hours

Tools needed:

- Vented oven
- Insulated cloth or hot pad

Note If you need to replace the humidity indicator, you must order new desiccant canisters. A new humidity indicator is included with the new desiccant canisters.

NOTICE If you are going to dry and reuse saturated desiccant canisters, make sure you have fresh desiccant canisters you can place in the instrument while the saturated canisters dry.

NOTICE Do not leave canisters in the oven for more than three hours and do not exceed a temperature of 150 °C (about 300 °F).

NOTICE Make sure the insulated cloth or hot pad you use to handle the regenerated desiccant canisters is not contaminated with substances that could be absorbed by the desiccant and subsequently released into the instrument.

❖ **To regenerate the desiccant**

1. Place the saturated desiccant canisters in a vented oven at 150 °C (about 300 °F) for three hours.



WARNING To avoid a burn hazard, use an insulated cloth or hot pad to handle the heated desiccant canisters, and always wait until the canisters have cooled to room temperature before reinstalling them in the instrument.

2. Use an insulated cloth or hot pad to remove the desiccant canisters from the oven.

Allow the canisters to cool on the hot pad or cloth, and do not attempt to handle or install them until they have cooled to room temperature. As soon as the canisters reach room temperature, however, you must either install them in the instrument or seal them in an airtight container or bag. Otherwise, they will absorb moisture from the air in the room and quickly become saturated again.

Related Topics

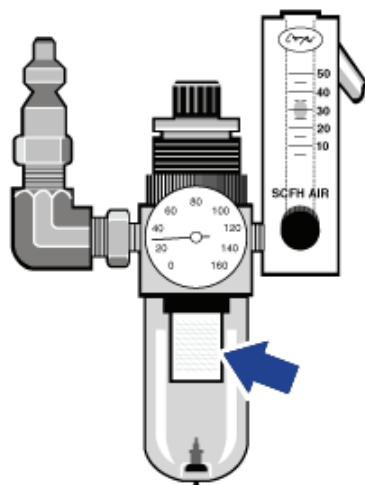
[Checking the Humidity Indicators](#)

[Replacing the Desiccant](#)

[Installing a Purge Kit](#)

Checking and Changing the Purge Gas Filter

Check the purge filter occasionally to make sure it is clean and dry. (The illustration below shows where the purge filter is located.)



If the filter is clean and white, it does not need replacement. If the filter is yellow, or otherwise discolored, or if it is contaminated with debris or foreign particles, replace the filter.

NOTICE We recommend maintaining seal and desiccation and/or purging the instrument at all times. Equipment damage due to failure to maintain seal and desiccation and/or purge is not covered under the warranty. If you have questions about this requirement, please contact us.

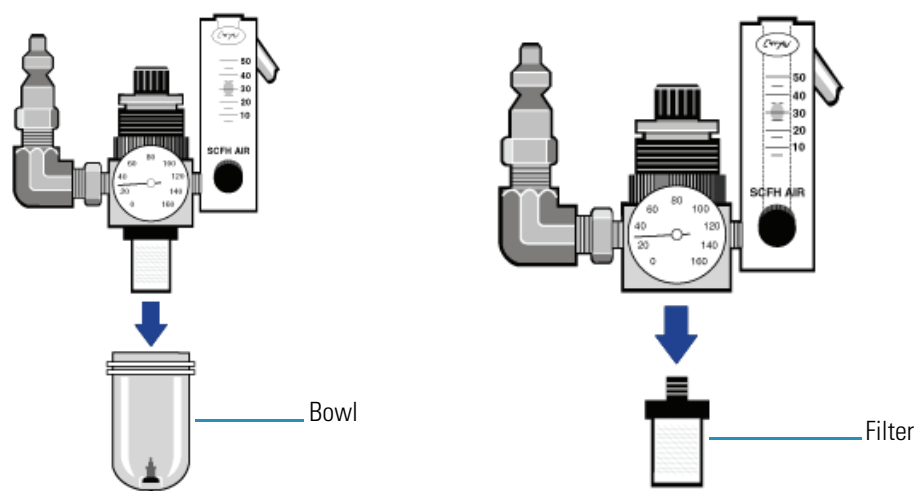
Time needed: 5 minutes or less

Tools needed: None

Note To order parts, contact Technical Support; see [Contacting Us](#).

❖ **To change the purge gas filter**

1. Turn off the purge gas at the main valve. Do not turn down the flowmeter or the pressure regulator.
2. Remove the plastic bowl that houses the filter and then remove the filter. (You can unscrew them both by hand.)



3. Install the new filter and then reinstall the bowl.
4. Open the main valve to turn on the purge flow to the instrument.

Note You may notice increased levels of water and carbon dioxide in spectra collected immediately after you have had the purge gas turned off. If this interferes with your data, wait 15 to 60 minutes until purge is completely re-established.

Related Topics

[Installing a Purge Kit](#)

[Setting the Purge Gas Controls](#)

Replacing the Laser

The laser in your instrument is not user-replaceable. If you suspect there is a problem with the laser, contact Technical Support for assistance; see [Contacting Us](#).

Related Topics

[Troubleshooting](#)

Replacing the Detector

The detector in your instrument is not user-replaceable. If you suspect there is a problem with the detector, contact Technical Support for assistance; see [Contacting Us](#).

Related Topics

[Troubleshooting](#)

Replacing the Electronics Module

The electronics module in your instrument is not user-replaceable. If you suspect there is a problem with the electronics module, contact Technical Support for assistance; see [Contacting Us](#).

Related Topics

[Troubleshooting](#)

Replacing Fuses

The fuses in your instrument are in the power supply and are not user-replaceable. If the fuses blow, you must replace the power supply (see [Replacing the Power Supply](#)). If you need assistance, contact Technical Support; see [Contacting Us](#).

Related Topics

[Replacing the Power Supply](#)

[Troubleshooting](#)

Troubleshooting

Contents

- [Using the Troubleshooting Topics](#)
- [Hardware Problems](#)
- [Error Messages](#)

Using the Troubleshooting Topics

The troubleshooting topics will help you solve problems with the instrument. These topics are divided as follows:

[Hardware Problems](#) contains topics that address specific hardware problems you may encounter. Each topic lists steps you can take to try to resolve the problem.

[Error Messages](#) contains topics that deal with error messages you may see. Each topic lists steps you can take if you see such error messages.

To expedite and assist in problem diagnosis, please be prepared to send us a copy of your diagnostics log file. The diagnostic log includes a history of important system parameters and events that occur during system operation. To copy the diagnostics log to your Windows desktop, start OMNIC software and choose **File > Copy Diagnostics File to Desktop**. Attach this file to an e-mail message to our Technical Support group. See [Contacting Us](#) for our e-mail addresses.

Note If you are having a problem with applications or software, refer to the electronic or printed software documentation that came with your system.



WARNING When performing any of the procedures in the troubleshooting topics, always follow the safety precautions included in this document or Help system and in any of the other documentation that came with your instrument.

Hardware Problems

Contents

- [Spectral Peaks Appear Shifted in Wavenumber Axis](#)
- [Fails Laser Frequency Verification](#)
- [The Power Indicator Does Not Light When You Turn on Your Instrument](#)
- [The Power Indicator Blinks Continuously](#)
- [The System Scans Normally but the Signal Intensity Is Low](#)
- [The Spectra Have Noise Spikes](#)
- [The Baseline Is Not Stable](#)
- [The Alignment Fails](#)
- [Data Cannot Be Collected \(or Other Software Problems\)](#)

Spectral Peaks Appear Shifted in Wavenumber Axis

1. Peak position, band shape and intensity can all be affected by special sampling techniques such as ATR or specular reflection. To determine if this is the problem, remove your accessory and collect a known sample in transmission. Compare the peak positions in the transmission spectrum with the peak positions in the ATR or other spectrum.
2. Run laser verification. See [Verifying the Laser Frequency](#).
3. Contact Technical Support for assistance; see [Contacting Us](#).

Fails Laser Frequency Verification

1. Laser verification requires some water vapor to be present in the sample compartment. If laser verification fails, remove any accessory from the spectrometer, breath slowly into the sample compartment and immediately rerun laser verification.
2. If laser verification fails again, contact Technical Support for assistance; see [Contacting Us](#).

The Power Indicator Does Not Light When You Turn on Your Instrument

1. Turn the instrument off and check the connections between the instrument and the power supply.
2. Make sure the power cord is securely connected to the power supply and the power supply is connected to a properly grounded and working outlet.

3. Check the power cord descriptions and part numbers to make sure the power cord is appropriate for your local AC power source. Order a new power cord if necessary.
4. Check the ground prong on the power cord. If the ground prong has been removed or is defective, replace the power cord.
5. Contact Technical Support for assistance; see [Contacting Us](#).

The Power Indicator Blinks Continuously

1. The iS5 power indicator blinks for two minutes after power up while the instrument runs internal diagnostic tests. If the power indicator continues to blink after two minutes, there is a problem with the internal temperature or humidity.
2. Open Experiment Setup and click the Diagnostic tab. Click the status icon that has a red slash for details.
3. If the internal humidity is too high, see [The Humidity Is Too High](#).
4. If the internal temperature is out of specification, see [The Instrument Temperature Is Out of Specification](#).
5. Contact Technical Support for assistance; see [Contacting Us](#).

The System Scans Normally but the Signal Intensity Is Low

1. Make sure nothing is blocking the light beam.
2. Make sure any accessories you are using are installed and aligned correctly. (For more information, see the instructions that came with the accessory.)
3. Open Experiment Setup, click the Bench tab and make sure the DTGS detector is selected.
4. Click the Diagnostic tab in Experiment Setup, and then click **Align**.
5. If the signal is still low, select **View Reference Detector** on the Diagnostic tab. If the interferogram appears, you may have a problem with the IR detector. Contact Technical Support for assistance.
6. Open Experiment Setup, click the Diagnostic tab, click the **Source** icon and check that the source current and voltage are within specifications.
7. Remove any accessories from the instrument and check KBr sample compartment windows for damage due to condensation (the surface will be cloudy). Contact Technical Support for assistance if they are not clear or appear to be damaged.
8. Check the sample compartment windows for contaminants.
 - a. Collect a transmission background and sample spectrum without an accessory in the sample compartment.

- b. Remove the sample compartment windows (see [Replacing Sample Compartment Windows](#)).
 - c. Collect a background and sample spectrum.
 - d. Compare the two sample spectra. If there are significant differences between the spectra, the sample compartment windows may be contaminated. Replace the windows.
9. Compare the single beam spectrum you just collected to an archived single beam spectrum from this instrument.
- If the overall amplitude is low, you may need to replace the source (see [Replacing the Source](#)).
- If the shape of the spectrum is distorted, align the spectrometer (click **Align** on the Diagnostic tab in Experiment Setup).
- If the spectrum has strong artifacts or peaks, the spectrometer's internal optics may be contaminated. Contact Technical Support for assistance.
10. Contact Technical Support for assistance; see [Contacting Us](#).

The Spectra Have Noise Spikes

1. It is normal for sample spectra to be noisy in the high and low wavenumber regions compared to the region around 2000 cm^{-1} . This is because the black body energy of the source drops off dramatically below 1000 cm^{-1} and decreases slowly above 3000 cm^{-1} . To improve the ratio of signal to noise, increase the number of scans.
2. If noise spikes are apparent below 1000 cm^{-1} , you may have a disturbance due to external vibration or acoustic noise. Move the instrument to a location that is free of vibration and/or acoustic noise.
3. If sharp spikes are apparent throughout the spectra, you may have problems from electrical noise.
 - a. Remove any potential sources of electrical noise emission such as computers or other lab equipment.
 - b. Your power supply or USB cable may be picking up electrical noise from other equipment or cables. Reposition the power supply or USB cable.
 - c. Your AC power source may contain electrical noise. See the Preparing Your Site guide on your documentation disk for electrical specifications. You may need an AC power conditioner.
 - d. Your power supply may be failing. Replace the power supply.
 - e. Contact Technical Support for assistance; see [Contacting Us](#).

The Baseline Is Not Stable

1. Minimize the acoustic noise inside the instrument. If the instrument has the purge option, lower the purge flow rate until the baseline is stable.
2. Open Experiment Setup, click the Diagnostic tab, and then click **Align**.
3. Make sure the environmental conditions (especially vibration) meet the requirements listed in the Preparing Your Site guide on your documentation disk.
4. Make sure the ambient temperature is not changing dramatically.
5. Check the humidity indicator and replace the desiccant and indicator if needed.
6. Make sure the ambient humidity is not changing dramatically. If it is, consider adding the purge option (see [Installing a Purge Kit](#)).
7. If the power to the instrument was recently turned on, allow 1 to 6 hours for the temperature to completely stabilize.

Note If you are using purge and the accessory cover was recently opened (or a service representative opened the main cover), allow the instrument to equilibrate for 1 to 6 hours after the cover is closed.

8. Open Experiment Setup and click the Bench tab. Click the **Laser** icon and check the laser indicators. If a laser measurement is out of tolerance, contact Technical Support for assistance.
9. Contact Technical Support for assistance; see [Contacting Us](#).

The Alignment Fails

1. Make sure the instrument is scanning. (Open Experiment Setup, click the Diagnostic tab and check that an interferogram appears in the window.) If no interferogram appears, click **Reset Bench**, and then click **Align**. If the interferogram reappears, check that the Max readout for the interferogram peak is at least 0.1 Volts.
2. If no interferogram appears after alignment, select **View Reference Detector** on the Diagnostic tab. If the interferogram appears, you may have a problem with the IR detector.
3. Check the sample compartment windows for damage. Contact Technical Support for assistance if they are not clear or appear to be damaged.
4. Open Experiment Setup and click the Diagnostic tab. If one of the status indicators has a red slash through it, click the indicator and follow the on-line instructions to resolve the problem.
5. Open Experiment Setup, click the Diagnostic tab, and then click **Reset Bench**.

6. Make sure the system has been on for at least 15 minutes (one hour for best results), and then click **Align** on the Diagnostic tab.
7. Make sure any accessories are installed according to the instructions that came with them.
8. Contact Technical Support for assistance; see [Contacting Us](#).

Data Cannot Be Collected (or Other Software Problems)

1. Make sure the system has completed the initialization period (about 2 minutes after you power it up). During initialization, the blue power indicator on the front of the instrument flashes and the OMNIC Collect menu is disabled.
2. Open Experiment Setup, click the Diagnostic tab, and then click **Reset Bench**.
3. Close OMNIC software. Turn off the instrument power. Wait a few seconds and then turn on the instrument power. Restart OMNIC software.
4. Shut down the computer and turn off the instrument power. Check the data cable. If it is damaged, replace it. If the cable is loose or disconnected, reconnect it. Turn the on the instrument power. Then turn on the computer and restart OMNIC software.
5. Contact Technical Support for assistance; see [Contacting Us](#).

Error Messages

Contents

- [The Computer Cannot Communicate With the Instrument](#)
- [The Instrument Temperature Is Out of Specification](#)
- [OMNIC Cannot Communicate With the Detector](#)
- [The Instrument Is Not Scanning](#)
- [The Laser Voltage Is Out of Specification](#)
- [The Source Voltage Is Out of Specification](#)
- [The Power Supply Voltages Are Out of Tolerance](#)

The Computer Cannot Communicate With the Instrument

Check that the computer USB port supports USB version 2.0 and the cable between the computer and the spectrometer is a high speed USB cable. See “Computer Requirements for FT-IR and FT-Raman Systems” on your documentation disk for details.

6. Open Experiment Setup, click the Diagnostic tab, and then click **Reset Bench**.

7. If the problem continues, close OMNIC software and turn off the instrument power. Wait for a few seconds, and then turn on the instrument power. Restart OMNIC software.
8. If the Power indicator on the instrument does not light, make sure the power supply is connected to the instrument and a properly grounded wall outlet or power strip.
9. Turn off the computer and then turn off the instrument power. Check the USB data cable. If the cable is damaged, replace it. If the cable is loose or disconnected, reconnect it.
10. Turn on the instrument power. Turn on the computer and restart OMNIC software.
11. Remove any USB computer accessories that may be interfering with communication with the spectrometer.
12. Close any applications that might interfere with OMNIC software.
13. Contact Technical Support for assistance; see [Contacting Us](#).

The Instrument Temperature Is Out of Specification

1. Make sure nothing is placed on top of the instrument and air can flow freely around it.
2. The ambient temperature may be too high. The ambient temperature should be between 18 °C and 35 °C (64 °F and 95 °F). Allow 1 to 6 hours for the spectrometer to come to temperature equilibrium.
3. Contact Technical Support for assistance; see [Contacting Us](#).

OMNIC Cannot Communicate With the Detector

If OMNIC software cannot communicate with the detector, contact Technical Support for assistance; see [Contacting Us](#).

The Instrument Is Not Scanning

Note After 1 hour without data collection activity, the interferometer automatically stops scanning. Any subsequent data collection activity will cause the interferometer to begin scanning again.

1. Turn on the instrument power (if it is not already on).
2. Start OMNIC software.
3. Make sure the system has been on for at least 15 minutes (one hour for best results), and then align the instrument (open Experiment Setup, click the Diagnostic tab, and then click **Align**). If the instrument does not resume scanning, proceed to the next step.

4. Turn off the power to the computer and the instrument. Leave the power off for 15 seconds. Turn on the instrument power. Turn on the computer and restart OMNIC software. If the instrument does not resume scanning, proceed to the next step.
5. Select **View Reference Detector** on the Diagnostic tab.

If the instrument scans normally (an interferogram should appear in the window in the Experiment Setup dialog box), the problem is probably related to the sample or the detector. Make sure that the sample compartment beam is not blocked, and check the Diagnostic tab of the Experiment Setup dialog box to make sure the detector is recognized. If it is not, contact Technical Support for assistance; see [Contacting Us](#).

6. Check all of the status indicators on the Diagnostic tab of the Experiment Setup dialog box. Click any indicator that has a red slash through it to view diagnostic information about the component.

If the laser frequency is outside the specified range, contact Technical Support to have the electronics module replaced. If the laser voltage or current is outside the specified range, contact Technical Support for assistance.

If the temperature is not in the acceptable range, make sure the cooling vents on the back of the instrument are not blocked and nothing is stacked on top of the instrument. Maintain at least 30 cm (12 in) of clearance behind the instrument and 64 cm (25 in) of clearance above the table. Make sure the ambient temperature is between 18 °C and 35 °C (64 °F and 95°F).

7. Contact Technical Support for assistance; see [Contacting Us](#).

The Laser Voltage Is Out of Specification

1. Remove any accessories or samples from the sample compartment.
2. Open Experiment Setup, click the Diagnostic tab, and then click **Align**.
3. Contact Technical Support for assistance; see [Contacting Us](#).

The Source Voltage Is Out of Specification

1. Make sure the source is properly seated in its holder, and the source holder is properly seated in the instrument.
2. Replace the source. See [Replacing the Source](#).
3. Contact Technical Support for assistance; see [Contacting Us](#).

The Power Supply Voltages Are Out of Tolerance

1. Open Experiment Setup, click the Diagnostic tab, and then click the **Power** icon. Check that the current value for +12 Volt is within specifications. If it is out of the specified range, replace the power supply.

2. If other values on the Power diagnostic screen are out of their specified ranges, contact Technical Support for assistance; see [Contacting Us](#).

The Humidity Is Too High

1. If the instrument is equipped with an optional purge kit, check that the purge gas flow is set properly; see [Setting the Purge Gas Controls](#) for details.
2. Check the humidity indicator and replace the desiccant and indicator; see [Replacing the Desiccant](#) for instructions.

The Laser Temperature Is Out of Specification

1. Make sure the room temperature is between 18 °C and 35 °C (64 °F and 95 °F), and allow the instrument adequate time to stabilize.
2. Contact Technical Support for assistance; see [Contacting Us](#).

The Interferometer Temperature Is Out of Specification

1. Make sure the room temperature is between 18 °C and 35 °C (64 °F and 95 °F), and allow the instrument adequate time to stabilize.
2. Contact Technical Support for assistance; see [Contacting Us](#).

The Laser Frequency Is Out of Specification

1. Open Experiment Setup, click the Diagnostic tab, and then click **Align**.
2. Click **Laser Verification** on the Diagnostic tab.
3. Contact Technical Support for assistance; see [Contacting Us](#).

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