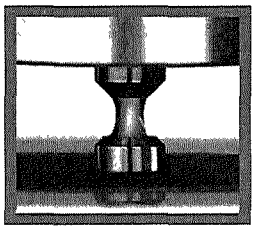
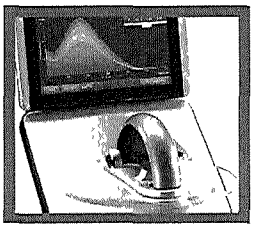
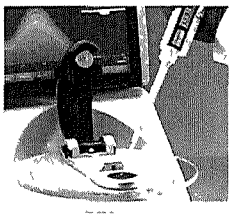
Learning Center



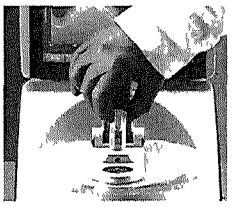
How the Instrument Works



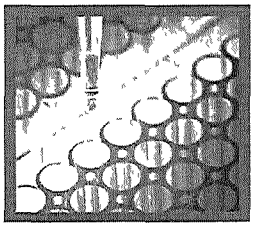
Set Up the Instrument



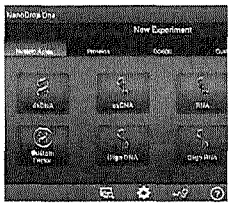
Measure a Micro-Volume Sample



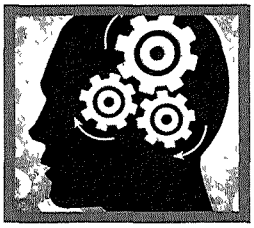
Measure using a Cuvette



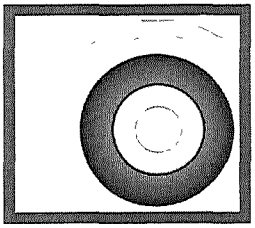
Prepare Samples and Blanks



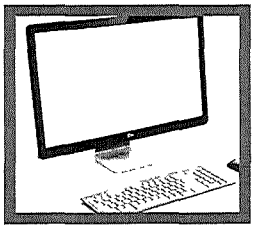
Basic Instrument Operations



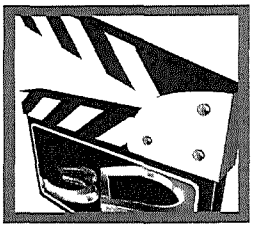
Acclaro Sample Intelligence



Instrument Settings

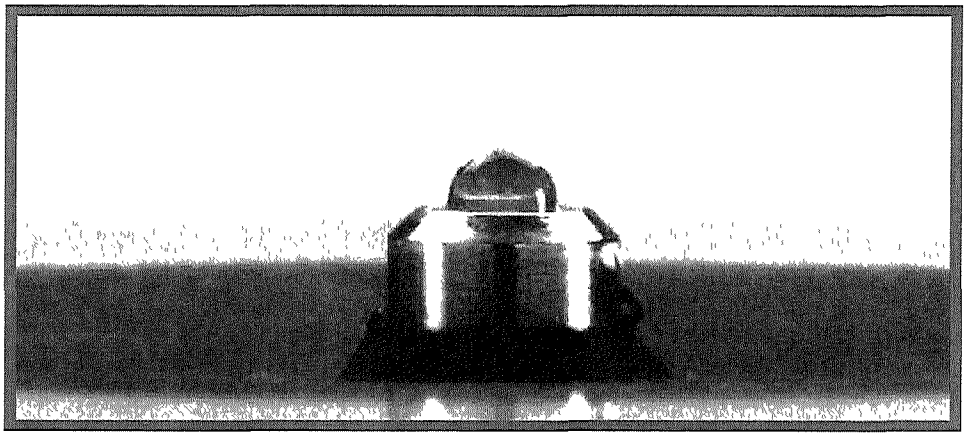


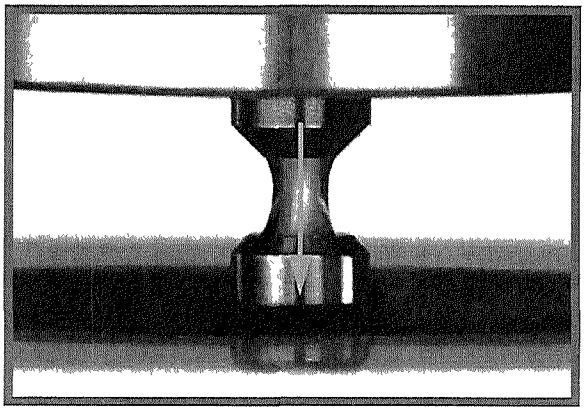
NanoDrop One Viewer



Multimedia

Micro-Volume Sampling—How it Works

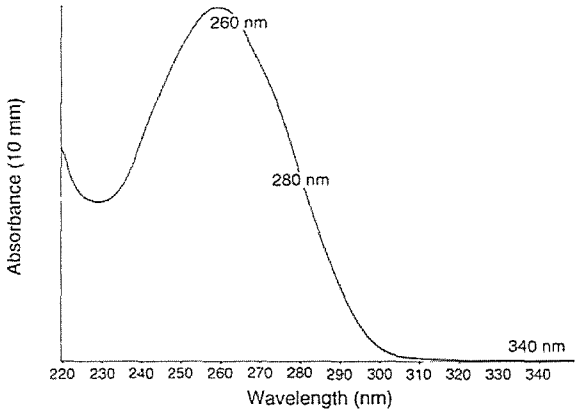




Surface Tension

The NanoDrop One spectrophotometer uses surface tension to hold a small volume of sample between two pedestals The patented sample retention system enables the measurement of highly concentrated samples without the need for dilutions

A fiber optic cable embedded in the upper pedestal leads to a xenon light source A second cable embedded in the lower pedestal leads to a detector When the instrument arm is down, the sample forms a liquid column, essentially bridging the gap between the two fiber optic cables



Absorbance Spectrum

The light passes through the liquid column to the detector, which generates a spectrum of absorbance versus wavelength The spectrum shows the amount of light absorbed by the molecules of the sample at each measured wavelength

Note To prevent evaporation, which affects measurement accuracy, close the arm quickly after you finish loading a sample or blank

The example at the left shows a typical absorbance spectrum taken of a nucleic acid sample. The spectrum is measured from 190 nm to 850 nm The displayed range may vary for each application

Sample Absorbance

$$\text{Absorbance} = -\log\left[\frac{\text{intensity}_{\text{sample}}}{\text{intensity}_{\text{blank}}}\right]$$

When the instrument is blanked, a reference spectrum is taken of the blanking solution and stored in memory For each sample measurement, the sample intensities along with the blank intensities are used to calculate the total absorbance of the sample according to the equation at the left

Beer-Lambert equation

$$A = \varepsilon \cdot b \cdot c$$

Sample Concentration

The Beer-Lambert equation (Beer's law) shown at the left is used to correlate sample absorbance with concentration

where

A = absorbance in absorbance units (A)

ε = wavelength-dependent molar absorptivity coefficient (or extinction coefficient) in liter/mol-cm

b = pathlength in cm

c = analyte concentration in moles/liter or molarity (M)

The pathlength is the distance between the two pedestals, which varies in real time during each measurement This auto-ranging pathlength technique produces accurate concentration results over a wide dynamic range

Baseline Correction

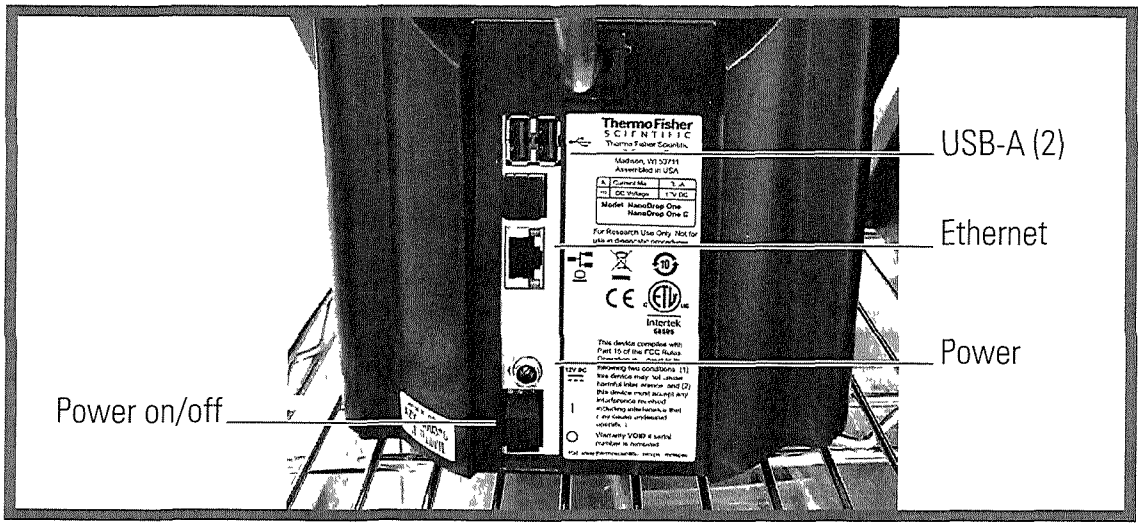
For some applications, the instrument can be set up to apply a baseline correction to each measurement to minimize any offset caused by light scattering particulates in the sample spectra The correction subtracts the absorbance value at a reference wavelength that is close to zero from the absorbance value at each wavelength across the spectrum, essentially "anchoring" the spectrum to zero absorbance units at the reference wavelength

Related Topics

- Instrument Models and Features
- Measure a Micro-Volume Sample

- Calculations for Nucleic Acid Measurements
- Calculations for Protein A280 Measurements

Set Up the Instrument



Connect Power

CAUTION Avoid shock hazard Each wall outlet used must be equipped with a ground The ground must be a noncurrent-carrying wire connected to earth ground at the main distribution box

Connect the provided power cord to a grounded wall outlet Tap here for more information

Connect an Accessory

To connect a compatible printer or other compatible accessory such as a USB keyboard and/or mouse to the instrument, use any USB port on the instrument (front, back-left or back-right) See Accessories for information about accessories compatible with the NanoDrop One instruments

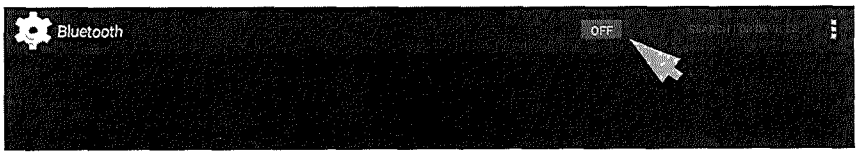
Set Up Bluetooth Connections

Use Bluetooth™ to connect the instrument to one or more Bluetooth (wireless) input devices such as a Bluetooth keyboard, mouse or barcode scanner

Note Make sure the device is labeled "Bluetooth" and not just "wireless." All Bluetooth devices are wireless but not all wireless devices will run with Bluetooth.

Set up Bluetooth connections on the instrument

- from instrument Home screen, tap (**Settings**)
- tap **System** tab
- tap **Bluetooth** (if Bluetooth is disabled, button in upper right is set to "Off" and no Bluetooth input devices are listed)

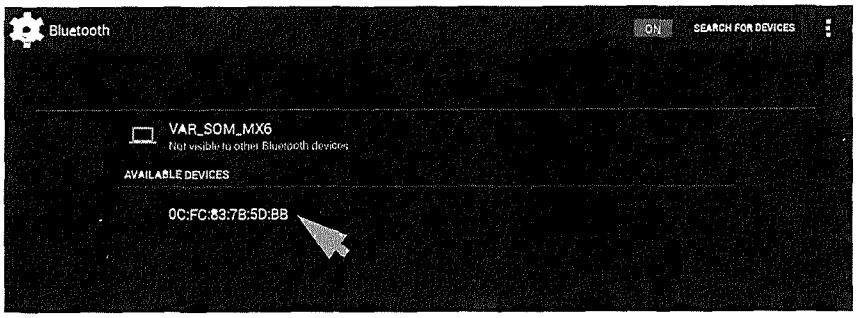


- tap **Off** button to enable Bluetooth connectivity (button turns blue, changes to "On" and software automatically searches for any available Bluetooth input devices)

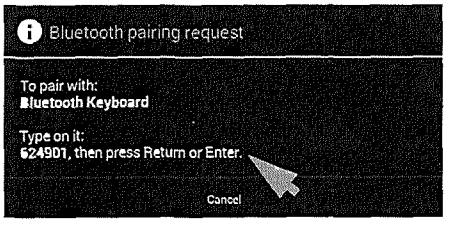
If no Bluetooth devices are found, after a few seconds the message "No nearby Bluetooth devices were found" is displayed

- to **add a Bluetooth device**, follow manufacturer instructions to pair the device (for example, you may need to hold down a button) and tap **Search For Devices** on instrument)

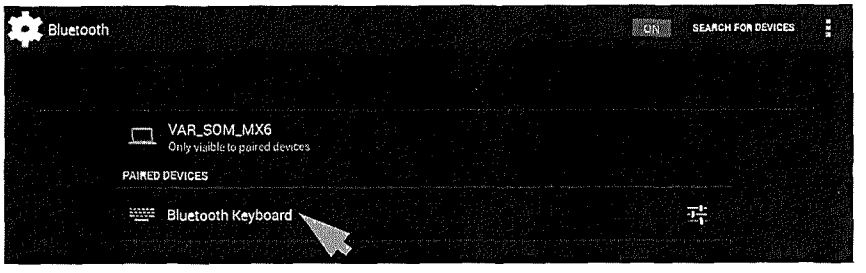
device name should appear in Available Devices list



– to pair device, ***tap its name*** in Available Devices list (a pairing request similar to the following may be displayed)

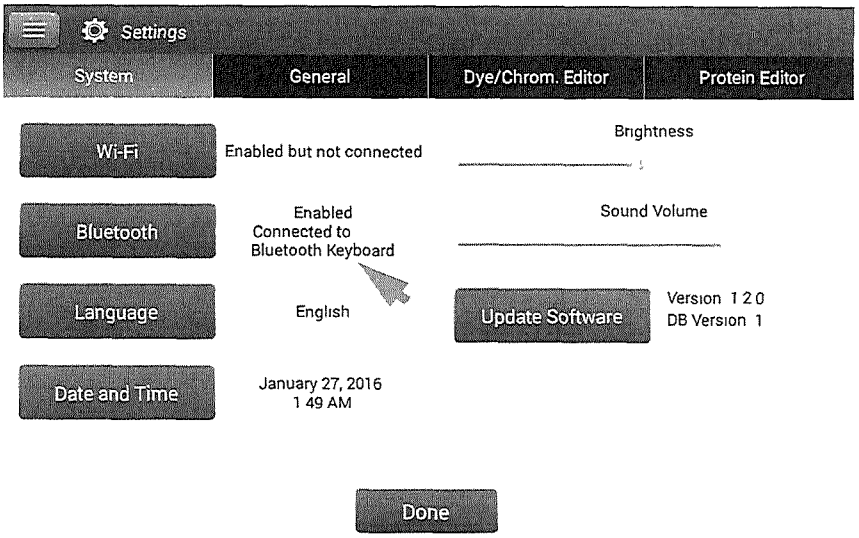


– **complete any instructions** to pair the device



Note If your Bluetooth device does not pair, restart the device and then repeat the steps above to pair it with the instrument (you may also try turning Bluetooth off and back on) After a device is paired, it remains paired even after the instrument is restarted.

– tap **Back** (Bluetooth status is displayed at right of Bluetooth button)



– repeat steps above to add another Bluetooth device or tap **Done** to close Settings

Deselect Bluetooth input device

You may want to stop using a Bluetooth device for input without disconnecting or unpairing it This allows others to easily reselect and use the device for input For example, if there are multiple connected and paired Bluetooth input devices such as a keyboard and a barcode scanner, follow these steps to select the devices to use or to deselect devices you don't want to use

– from instrument Home screen, tap 
– tap **System** tab
– tap **Bluetooth**
– to deselect a paired Bluetooth device such as a keyboard for input, tap its **Profiles** button 

– deselect **Use For Input** by clearing it's associated checkbox

– tap **Paired Bluetooth Device** in upper left to return to previous screen

– tap **Back** to return to System settings

– tap **Done** to close Settings

Note

- If no Bluetooth device is selected for input, the instrument relies on the integrated touchscreen keyboard for input
- To select the device again, follow the steps above and select the device's Use for Input checkbox.

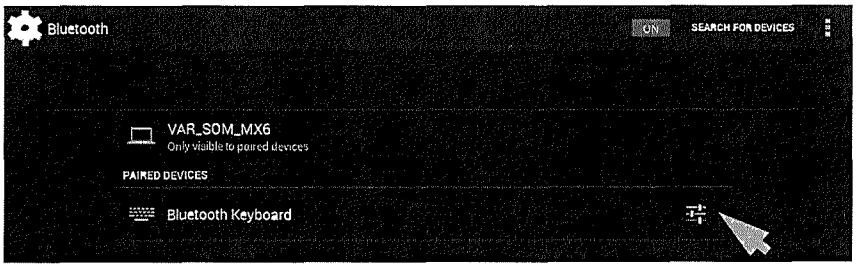
Disconnect Bluetooth device

– from instrument Home screen, tap 

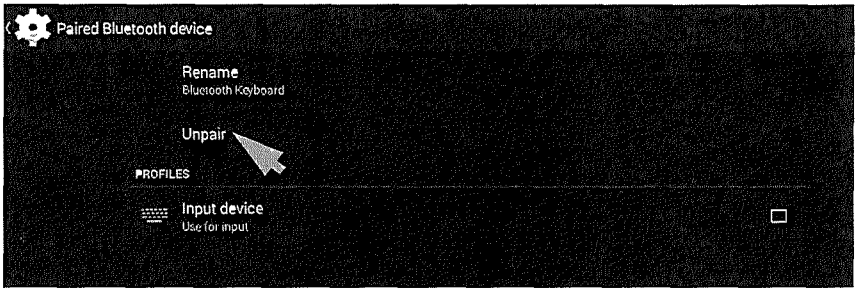
– tap **System** tab

– tap **Bluetooth**

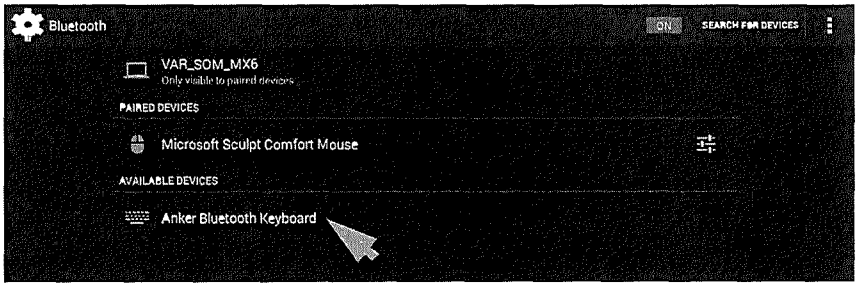
– to disconnect paired Bluetooth device, tap its Profiles button 



– tap **Unpair**



device is no longer listed under "Paired Devices" but remains in Available Devices list



– tap **Back** to return to System settings

– tap **Done** to close Settings

Set up Ethernet Connection

The instrument Ethernet port can be used to set up a wired connection between the instrument and a personal computer (or PC) The connected computer can then be used to store or view data acquired with the NanoDrop One instrument (NanoDrop One Viewer software must be installed on the computer)

Tools needed

- Standard (straight through) Ethernet cable (CAT5e or newer is recommended)

Note If the computer is an older model, you may need a crossover Ethernet cable instead Most newer model computers are designed to automatically detect and work with both cable types However, a straight through cable will provide best performance

Set up Ethernet connection

– connect Ethernet cable between Ethernet port on instrument back panel (see image above) and Ethernet port on computer

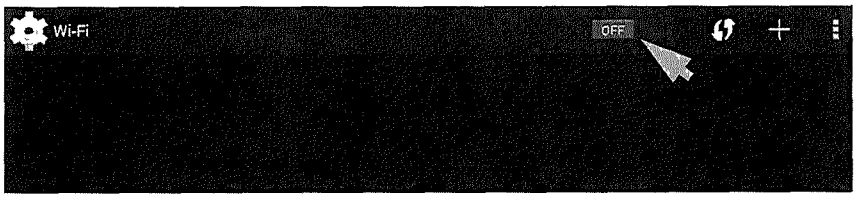
Set up Wireless Connections

Use Wi-Fi™ to connect the instrument to a remote computer through a wireless local area network (WLAN) The remote computer can then be used to store or view data acquired with a NanoDrop One instrument.

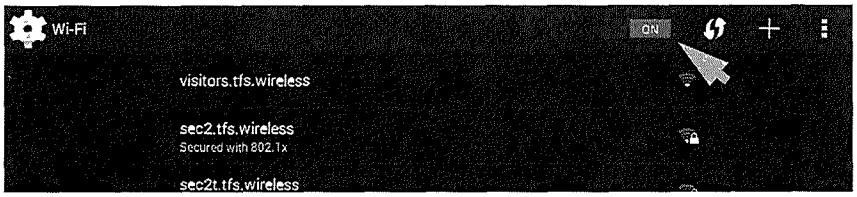
Note To store or view collected data on a connected computer using W-Fi, NanoDrop One Viewer software must be installed on the remote computer and the computer must be configured for Wi-Fi data storage. The instrument must also be connected to the remote computer's network host and have Wi-Fi enabled

Select Wi-Fi network on the instrument

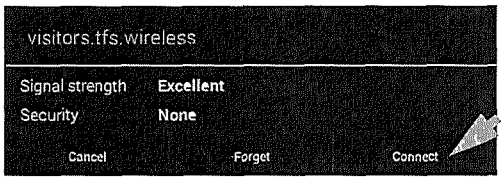
- from instrument Home screen, tap  (Settings)
- tap **System** tab
- tap **Wi-Fi** (if Wi-Fi is disabled, button in upper right is set to "OFF" and no wireless networks are listed)



- tap button to enable Wi-Fi and display available Wi-Fi networks

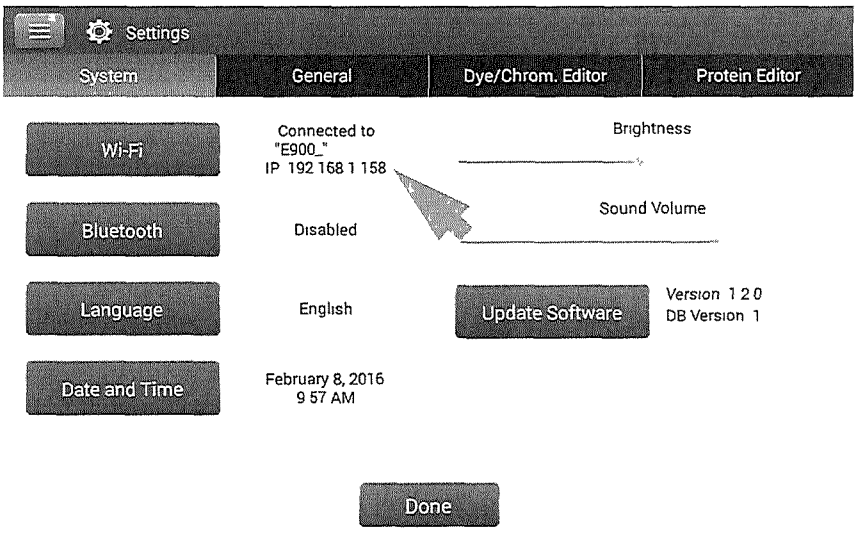


- select remote computer's Wi-Fi network host and tap **Connect** (here is an example)



– tap **Back** to exit Wi-Fi setup (if the connection is successful, the instrument is assigned an IP (Internet Protocol) address, which appears at the right of the Wi-Fi button as in the example below)

Note Some Wi-Fi networks may require an identity, password or other information before you can connect to them, or they may be anonymous (that is, you may have to search for them by name) For more information, see the system administrator at your work site

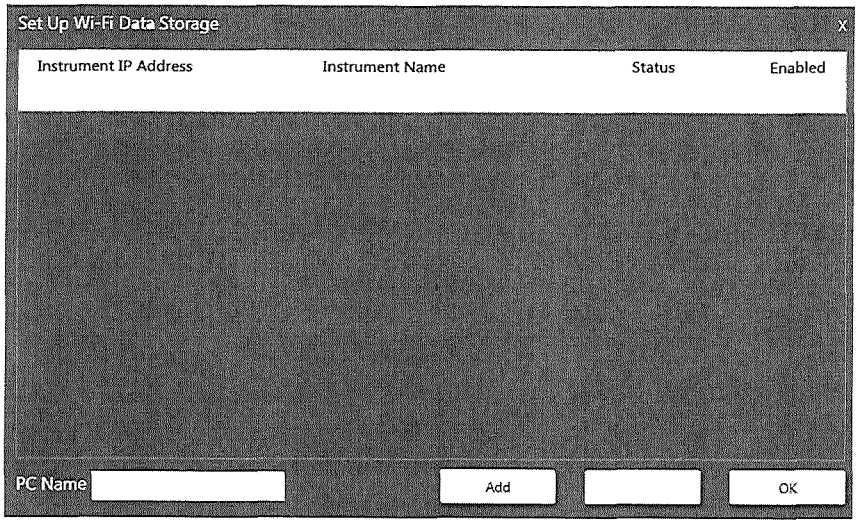


– record IP address (you will need to enter it on the remote computer in the next section)

– tap **Done** to exit Settings

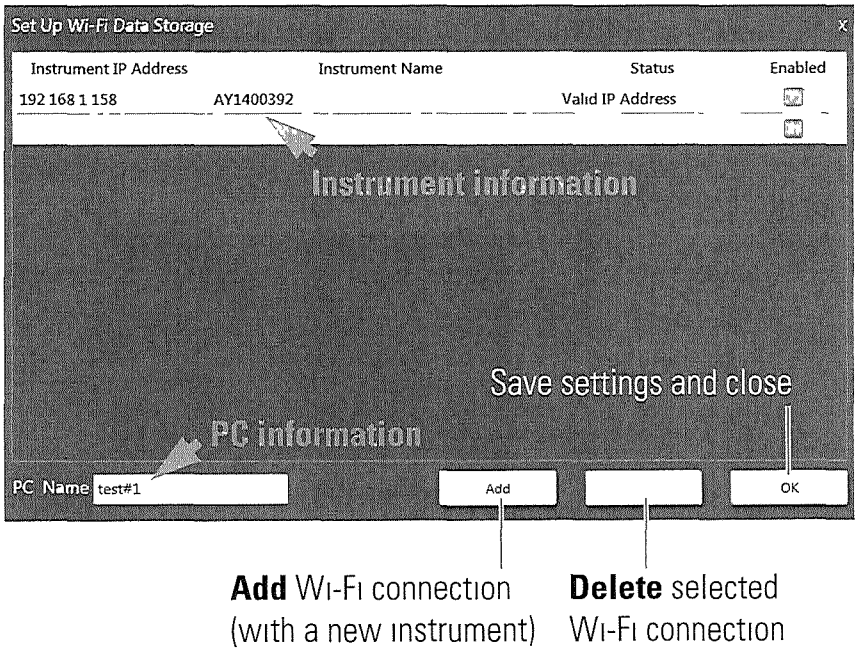
Configure Wi-Fi data storage on the remote computer

- from remote computer, open **NanoDrop One Viewer** software
- choose **File** (menu) > **Set Up Wi-Fi Data Storage** (the following screen is displayed)



- enter the following information
  - **Instrument IP address** (displayed on instrument in **Settings > System**, see previous section, if IP address is valid, **Status** column shows "Valid IP Address")
  - unique **Instrument Name** (in case there are multiple instruments in the same lab on the same network)
  - **PC Name**, such as the computer's assigned name or an invented name (the name you enter will appear in the "select a data storage location" list box on the instrument (see the next section)

– make sure the instrument's **Enabled** button is selected (see example below)



– to set up another instrument, tap **Add** and then repeat steps above

NOTICE You can add multiple Wi-Fi addresses to this list to make it easy to switch computers However, only one Wi-Fi connection should be enabled during data collection to ensure the data integrity

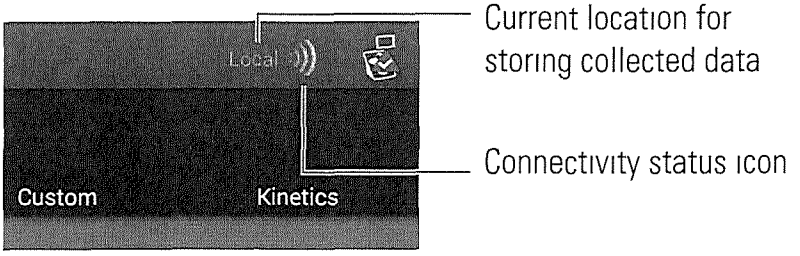
– to remove an item from the list, tap to select the row and then tap **Delete**

– when finished, choose **OK** to close Wi-Fi Data Storage setup

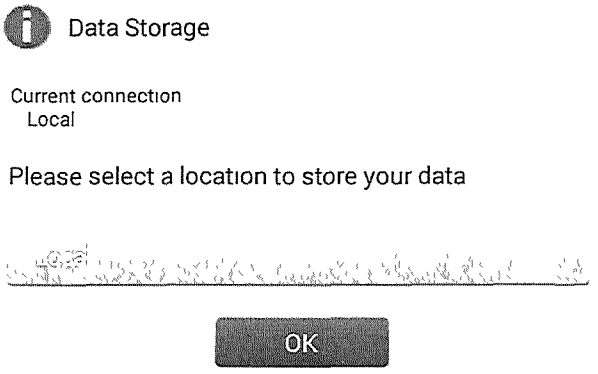
Select location for saving collected data

– from instrument Home screen, tap **Connectivity Status** icon 

Note The Connectivity Status icon is active, i e , blue, only when the instrument is connected to a personal computer (PC) with an Ethernet cable or through a properly configured wireless network, as in the example below



the Data Storage message box is displayed as in the example below

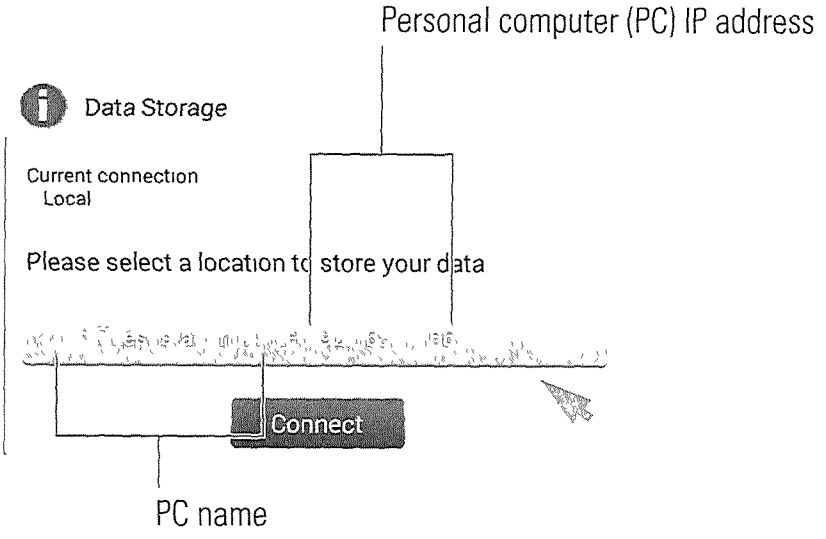


– select an available option below

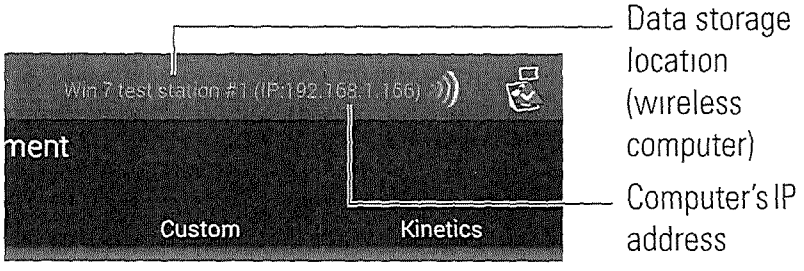
- to store all subsequently acquired measurement results only in the NanoDrop One database on the instrument, set Data Storage to **Local** (see example above)
- to store all subsequently acquired measurement results in the NanoDrop One Viewer database on a computer connected to the instrument with an Ethernet cable, set Data Storage to **Direct-Connect PC*** (see Set Up Ethernet Connection for details)
- to store all subsequently acquired measurement results in the NanoDrop One Viewer database on a computer connected to the instrument through a wireless network, set Data Storage to the **computer's assigned name*** (see Set Up Wi-Fi Connections for details)

* The Ethernet and wireless options listed above will also store data on the instrument as a backup

Here is an example of a wireless configured destination computer selected for data storage



– tap **Connect** (or **OK** if connection had already been established) to close message box (new data storage location appears adjacent to Connectivity Status icon)



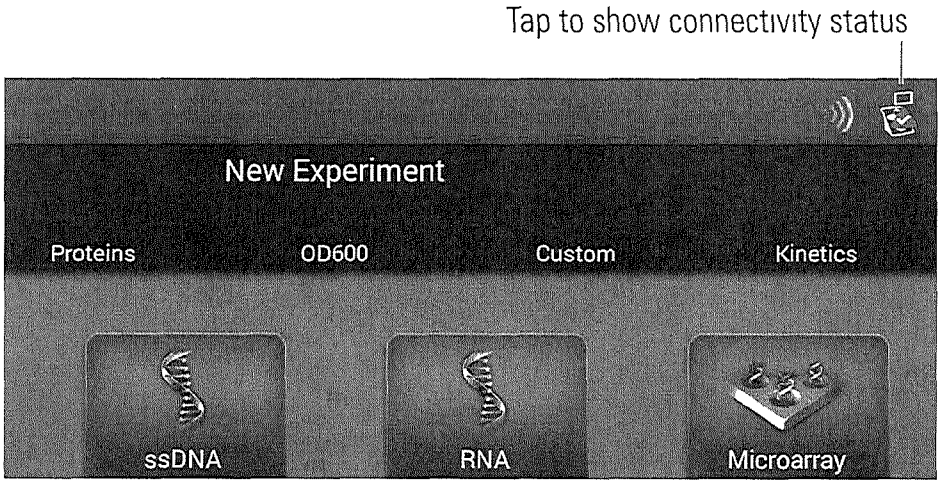
all subsequently acquired measurement results are saved in the NanoDrop Viewer database on the selected computer, and in the NanoDrop One database on the local instrument

Note

- The NanoDrop One Viewer software does not need to be running for data from the instrument to be saved there
- If the wireless or Ethernet connection is interrupted during a measurement, data storage switches back to the local instrument with no loss of data
- Custom methods and Kinetics methods must reside on the connected computer when the data are configured for remote storage.
- When the instrument is connected to a computer with an Ethernet cable or through a wireless network, the Data Viewer icon on the instrument Home screen is unavailable (You cannot use the instrument to view the NanoDrop One database on a connected computer,)

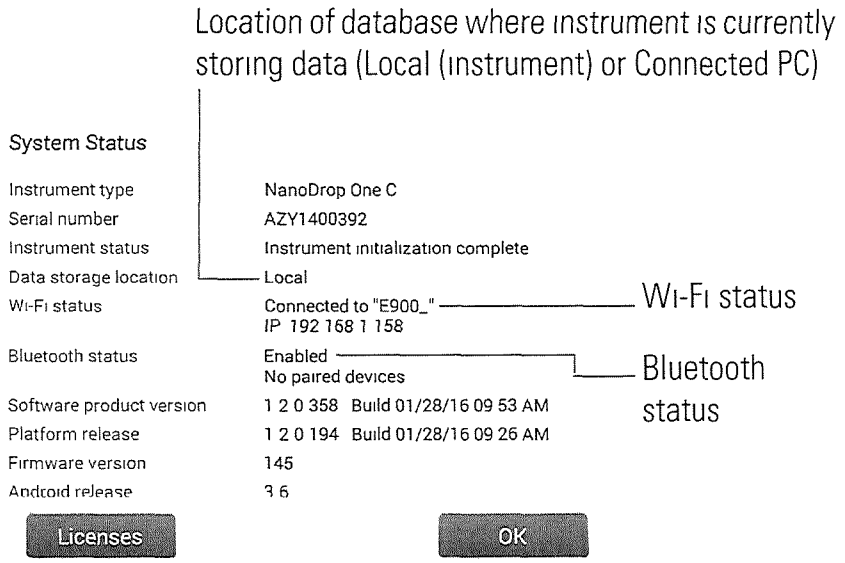
Assess Instrument Connectivity

Use the System Status icon at the top right of the instrument Home screen to quickly assess the instrument's connectivity status including Bluetooth, Ethernet and Wi-Fi



Show connectivity status

– tap  on instrument Home screen to open System Status box



– tap **OK** to exit System Status

Operating Specifications

The instrument operates reliably when the room environment meets these specifications

- operating temperatures 5 °C - 35 °C (41 °F - 95 °F)
- relative humidity (non-condensing) 20-80%

Locate the instrument away from air vents and exhaust fans to minimize evaporation

Note If operating the instrument at the low end of the recommended humidity range, use adequate sample volume to avoid evaporation

After the instrument is installed, you can leave it turned on

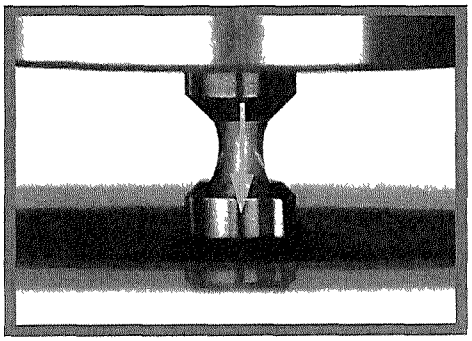
Related Topics

- Safety and Operating Precautions
- Instrument Models and Features

- Optional Accessories
- Instrument Settings

Measure a Micro-Volume Sample

The NanoDrop One spectrophotometer uses surface tension to hold a small volume of sample between two pedestals. The patented sample retention system enables the measurement of highly concentrated samples without the need for dilutions Tap here for details



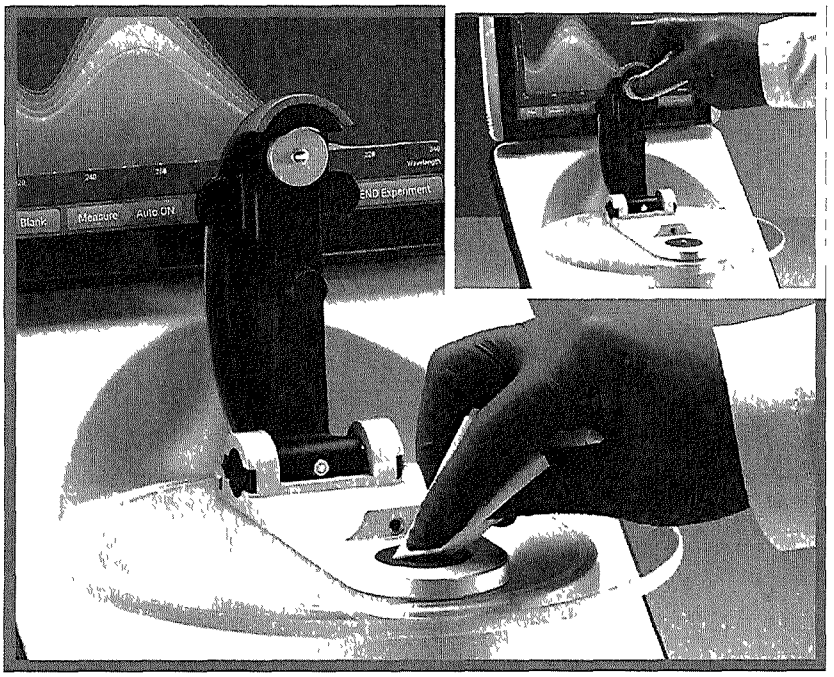
Supplies needed

- NanoDrop One or NanoDrop One^{C} spectrophotometer
- lint-free laboratory wipes
- calibrated precision pipettor (0–2 µL)
- sample material resuspended in appropriate buffer solution (see Preparing Samples)
- pure buffer solution for blanking instrument (see Choosing and Measuring a Blank or watch multimedia training What is a blank?)

Best practices for micro-volume measurements

Cleaning pedestals for daily operation

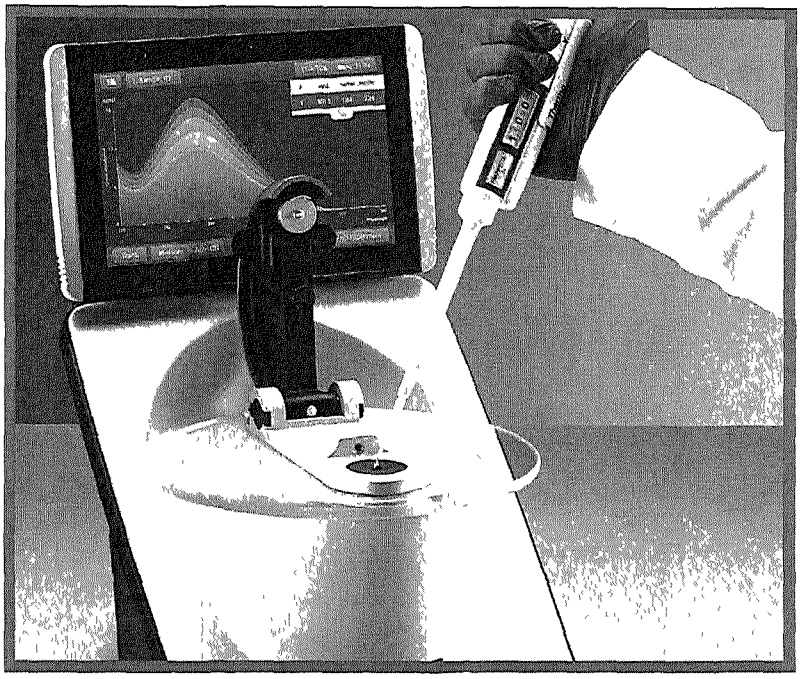
- Before first measurement, clean both pedestals with a new laboratory wipe
- Run a blanking cycle to verify pedestals are clean
- After each measurement, clean both pedestals with new wipe to prevent carryover
- After each set of measurements, clean pedestals with DI H2O (see Clean pedestals between users)
- Recondition pedestals periodically to maintain their hydrophobic property



Pipetting Samples

- Use recommended sample volumes to ensure proper liquid column formation
- Use calibrated precision pipettor (0–2 µL volume range) with well-fitting, low-retention precision tips to apply sample material to instrument for measurement

  If using low accuracy (0-10 µL) pipettor, use 2 µL sample volumes
- Use new tip for each blank and sample aliquot.
- Use new aliquot of sample for each measurement
- If solvents are used, make sure they are compatible with the pedestals (see "Compatible Solvents" in Hazardous Materials)



Recommended sample volumes

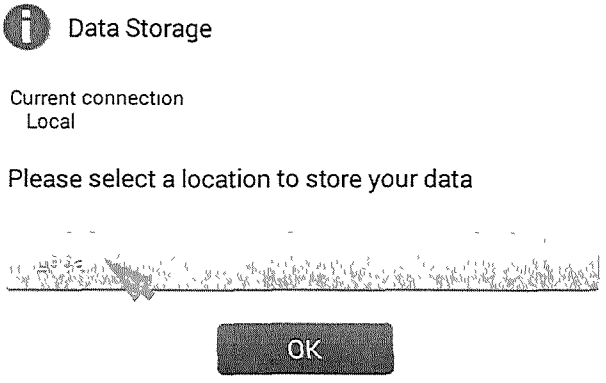
Application	Sample Volume
Nucleic acid (aqueous solution)	1 µL[a]
Purified protein	2 µL
Other protein applications such as Bradford or BCA	2 µL
Microbial cell suspensions	2 µL

[a] *Use 2 µL for samples that contain materials that may reduce surface tension such as a surfactant*

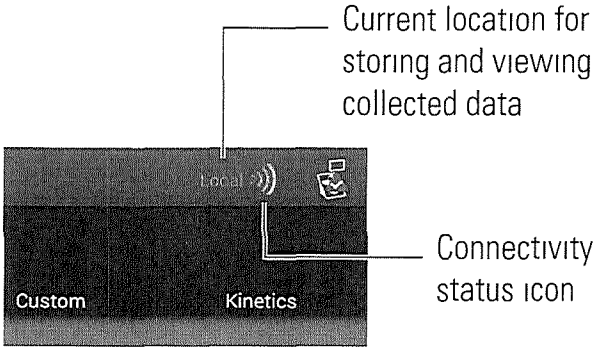
To measure a micro-volume sample

NOTICE

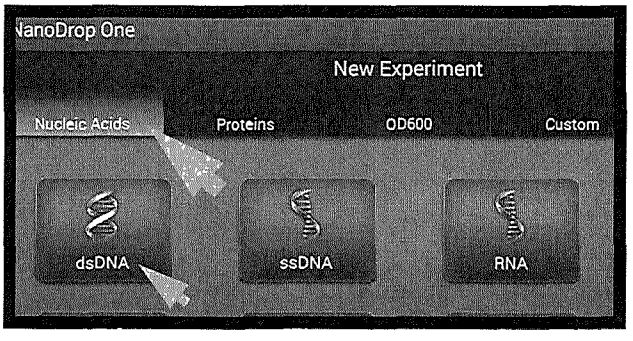
- Do not use a squirt or spray bottle on or near the instrument as liquids will flow into the instrument and may cause permanent damage
- Do not use hydrofluoric acid (HF) on the pedestals Fluoride ions will permanently damage the quartz fiber optic cables



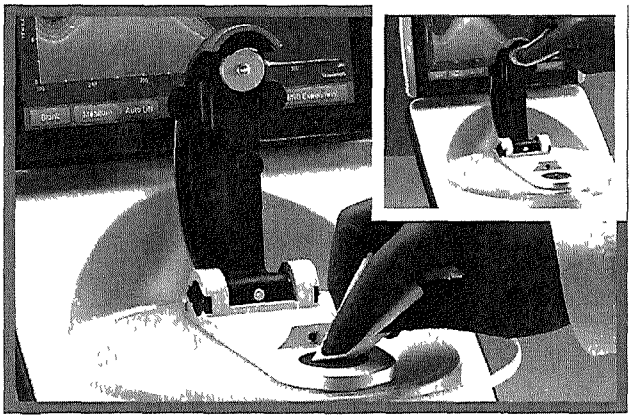
1 If the instrument has a working Ethernet or wireless connection to a personal computer (PC), the Connectivity Status icon is blue and shows the currently selected location for storing and viewing data collected with the instrument



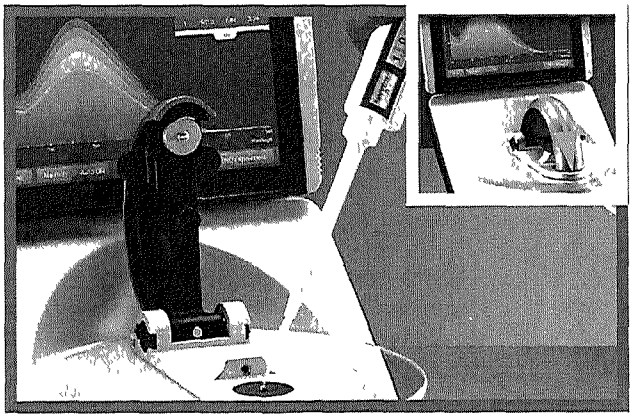
If the Connectivity Status icon is blue, **tap the icon** and set **Data Storage** to Local as shown at the left



2 From the instrument Home screen, select an application tab such as Nucleic Acids and tap an application name such as dsDNA or RNA



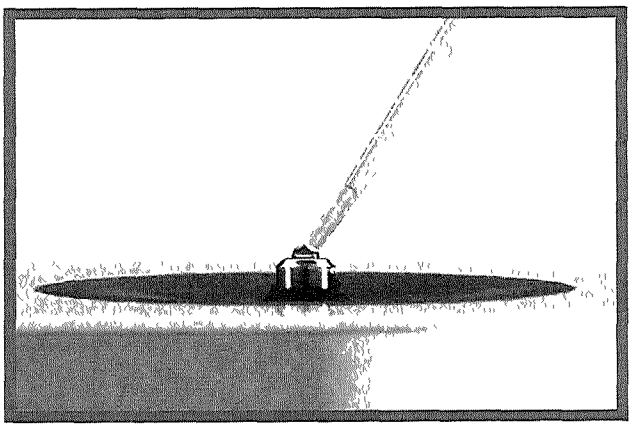
3 Lift the instrument arm and clean the upper and lower pedestals with new laboratory wipe



4 Measure a blank

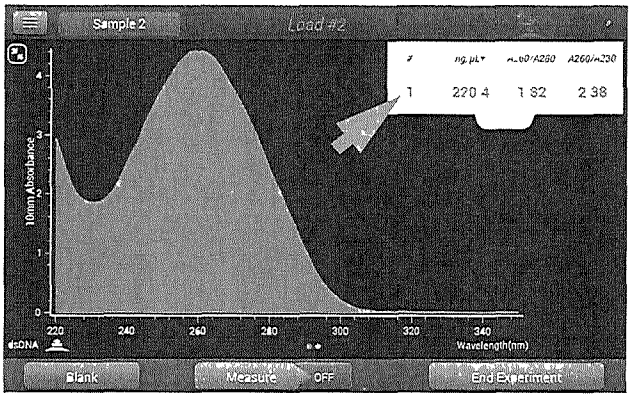
- Pipette 1–2 µL blanking solution onto the lower pedestal and quickly lower the arm
- Tap **Blank** and wait for the measurement to complete

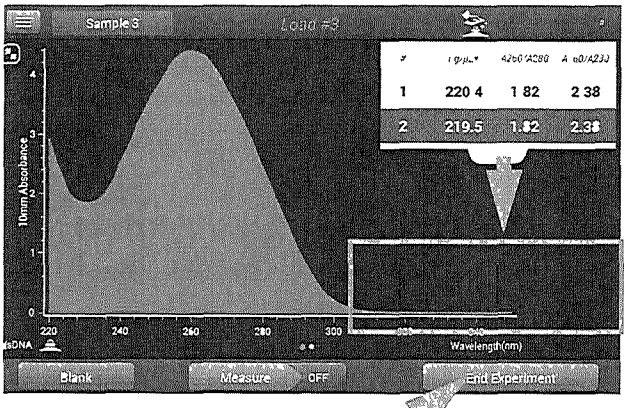
  Tip If Auto-Blank is On, blank measurement starts automatically after you lower the arm
- Lift the arm and clean both pedestals with a new laboratory wipe



5 Measure the first sample

- Pipette 1-2 µL sample solution onto the pedestal and quickly lower the arm (see Recommended Sample Volumes for more information).
- Start the sample measurement
  - if Auto-Measure is On, lower arm
  - if Auto-Measure is off, lower arm and tap **Measure**
- When the sample measurement is completed, the spectra and reported values are displayed





Tap to end experiment

If one of these symbols appears next to a sample ID, tap the symbol for any alerts or additional information about the measurement·

contaminant information available

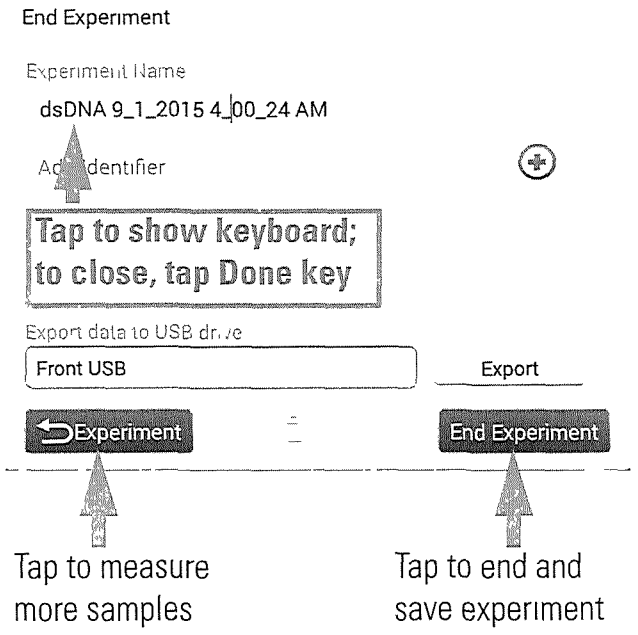
on-demand technical support available

invalid result

6 To measure another sample

- Lift the arm
- Clean both pedestals with new wipe
- Load the next sample and quickly lower the arm
- Start the sample measurement
- Wait for the measurement to complete

The new spectrum replaces the previous one on the spectral display and the new reported values appear under the previous ones in the table (Drag tab down to show both sets of data.)



7 When you are finished measuring samples
   - Tap **End Experiment**
   - Enter an experiment name (tap **Experiment Name** box, use displayed keyboard to type name, tap **Done** key), or leave the default experiment name
   - Tap End Experiment
   - Lift the arm and clean both pedestals with a new wipe

   If finished with the instrument for the day, clean the pedestals with DI H2O (see Clean pedestals between users).

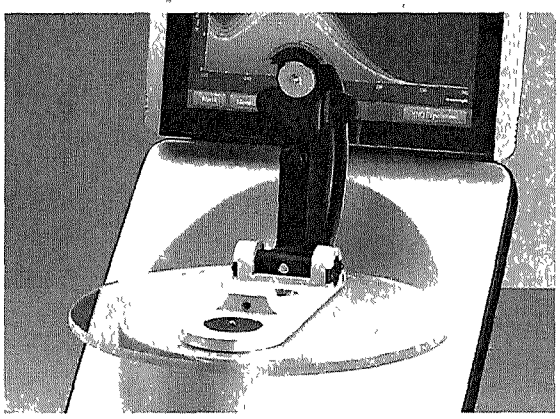
Acquired data are automatically saved in an experiment with the entered name In the default configuration, experiments are stored in a database on the local instrument according to acquisition date, experiment name, application used and any assigned labels (see Manage identifiers on the instrument)

Related Topics

- Micro-Volume Sampling—How it Works
- Absorbance Detection Limits
- Prepare Samples and Blanks
- Auto-Measure and Auto-Blank
- Acclaro Sample Intelligence
- Cleaning the Pedestals
- Search Experiment Database
- Export Data
- Measure a Sample Using a Cuvette

Measure a Sample Using a Cuvette

The NanoDrop One^C spectrophotometer includes a cuvette holder for measuring dilute samples, colorimetric assays, cell cultures and kinetic studies. The cuvette system offers an extended lower detection limit and an optional 37 °C heater and micro-stirrer.

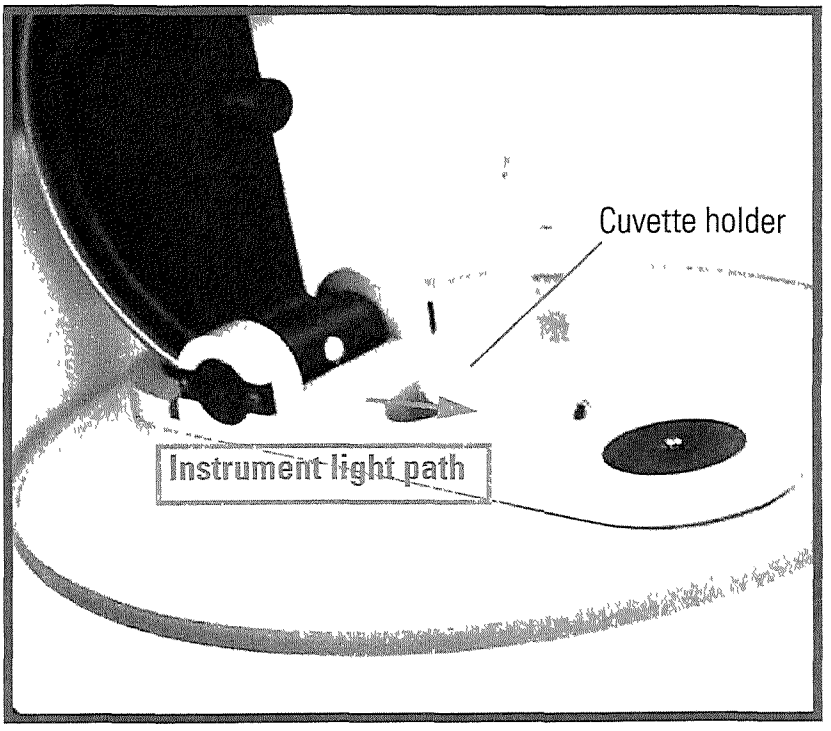


Supplies needed

- NanoDrop One^C spectrophotometer
- lint-free laboratory wipes
- two compatible cuvettes
- sample material resuspended in appropriate buffer solution (see Preparing Samples)
- pure buffer solution for blanking instrument (see Choosing and Measuring a Blank or watch multimedia training What is a blank?)

Best practices for cuvette measurements

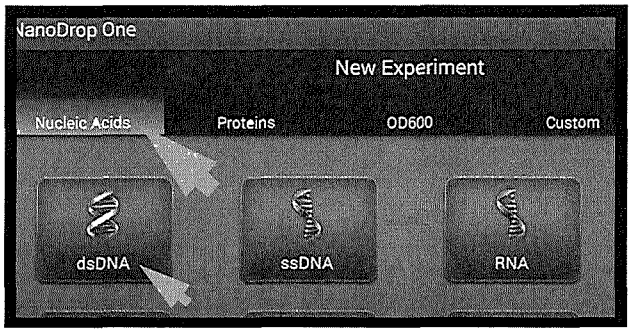
- The instrument arm can be up or down for cuvette measurements.
- Use 10 mm, 5 mm, 2 mm or 1 mm cuvettes up to 48 mm tall
- Clean and dry cuvette after each measurement.
- Use cuvettes that are free of scratches and avoid fingerprints which may affect results.
- Use quartz cuvettes or UV-grade plastic cuvettes to measure samples with analysis wavelengths in the UV range (<340 nm)
- Micro, semi-micro, and ultra-micro cuvettes should be masked
- Fill cuvettes with enough blanking or sample solution to cover instrument optical path (2 mm sample beam is 8 5 mm above cuvette bottom)
- Lift instrument arm and make sure cuvette holder is free of debris
- When inserting quartz or masked plastic cuvettes, align cuvette light path with instrument light path.



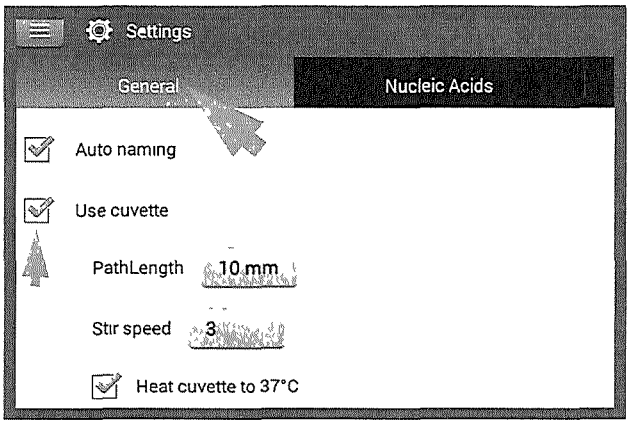
To measure a sample using a cuvette

NOTICE

- To prevent damage from spills, keep containers of liquids away from the instrument
- Do not use a squirt or spray bottle on or near the instrument as liquids will flow into the instrument and may cause permanent damage.



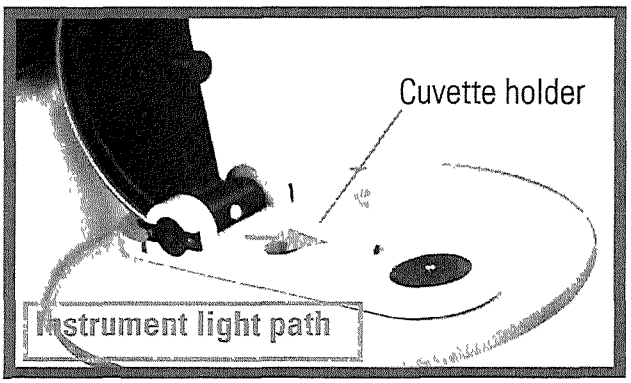
1 From the Home screen, select an application tab such as Nucleic Acids and tap an application name such as dsDNA or RNA



2 Specify the cuvette options

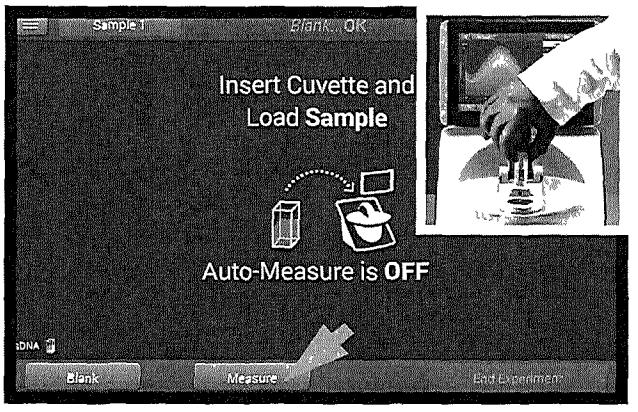
- From Home screen, tap (Settings)
- tap **General.**
- select **Use Cuvette.**
- set **Pathlength** to pathlength (width) of cuvette (see cuvette manufacturer for specifications)
- set stirrer and heater if desired
- tap **Done.**

See General settings for details.



3 Measure a blank

- Fill clean, dry cuvette with enough blanking solution to cover instrument optical path
- Lift instrument arm and insert blanking cuvette into cuvette holder, making sure to align light path of cuvette with light path of instrument.
- Tap **Blank** and wait for the measurement to complete



4. Measure a sample.
   - Fill clean cuvette to same height with sample solution
   - Replace blanking cuvette with sample cuvette, making sure to align light paths
   - Tap **Measure.**
   - Wait for measurement to complete
   - Remove cuvette
   - Clean cuvette according to manufacturer specifications

Related Topics

- Instrument Models and Features
- Absorbance Detection Limits
- Prepare Samples and Blanks
- Acclaro Sample Intelligence
- Instrument Settings
- Search Experiment Database
- Export Data
- Measure a Micro-Volume Sample

Prepare Samples and Blanks

Preparing Samples

- Isolate and purify samples before measuring them with the instrument Commercial sample isolation kits are available for these purposes, or use an in-house protocol. After purification, analyte of interest is typically dissolved in aqueous buffer solution before it is measured

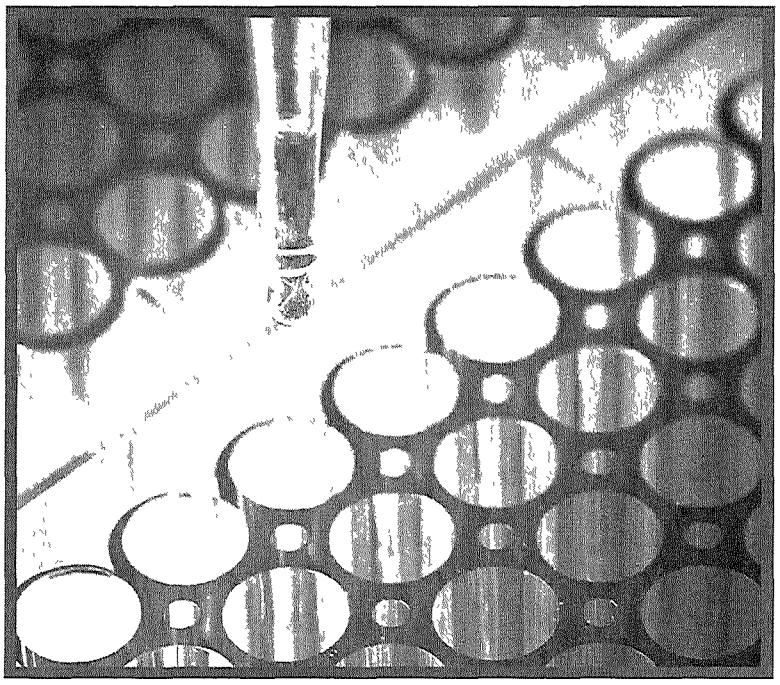
  Tip Any molecule that absorbs light at analysis wavelength will contribute to total absorbance value used to calculate sample concentration

- Ensure final analyte concentration is within instrument's absorbance detection limits

- For micro-volume measurements, gently (but thoroughly) vortex each sample before taking a measurement

  Tip Heat highly concentrated or large molecule nucleic acid samples, such as genomic or lambda DNA, to 63 °C (145 °F) before vortexing them

- Avoid introducing bubbles when mixing and pipetting For more information, watch multimedia training Effects of Bubbles in Samples.



Note Samples dissolved in extremely volatile solvent such as hexane may work best with cuvette sampling option (NanoDrop One^{C} instruments only).

Choosing and Measuring a Blank

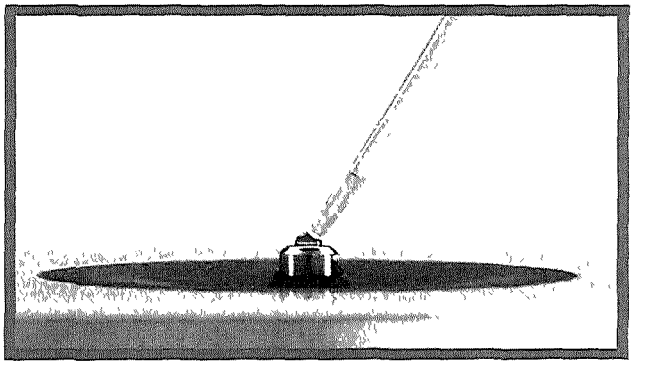
The buffer used to resuspend a sample analyte can contribute absorbance Blanking minimizes any absorbance contribution due to the buffer components from the sample measurement The resulting sample spectrum represents the absorbance of only the analyte of interest For more information, watch the multimedia training What is a blank?

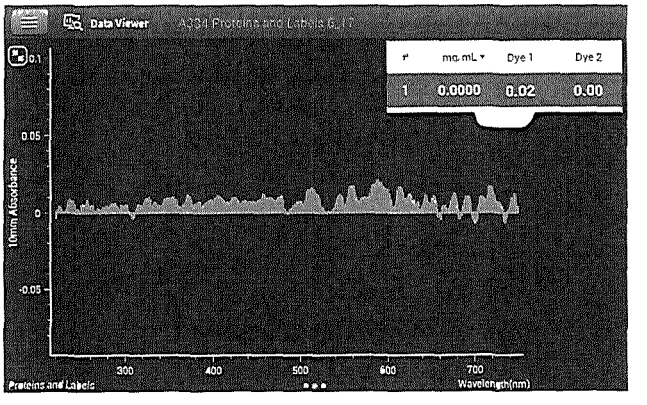
For best results:

- For most applications, blank with the same buffer solution used to resuspend the analyte of interest The blanking solution should be a similar pH and ionic strength as the analyte solution For details, see "To measure samples" in the application used
- Measure new blank before each set of samples It is not necessary to blank the instrument before each sample measurement unless the samples are dissolved in different buffer solutions
- Measure a new blank every 30 minutes
- Run a blanking cycle to assess the suitability of your blanking solution before using it to perform sample measurements For a quick demonstration, watch the multimedia training Evaluating a Blanking Solution for Suitability

  The resulting spectrum should vary no more than 0 04 A (10 mm equivalent) across the spectrum, especially at the analysis wavelength as in the example at the right

  If the resulting spectrum is greater than 0 04 A around the analysis wavelength, that buffer solution may interfere with the sample analyses, especially for low concentration samples See below for details.

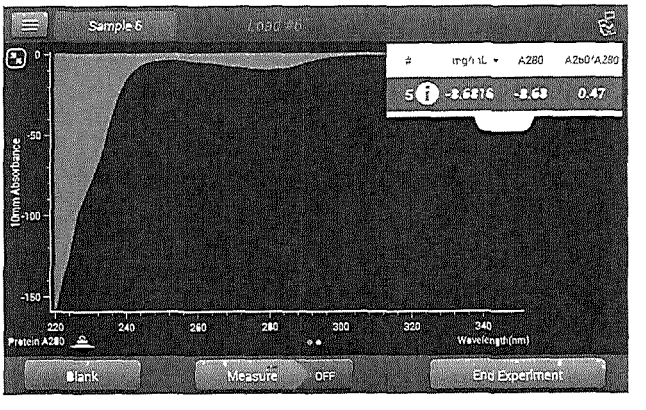




Good blanking buffer (measured abs < 0.04)

Problems associated with blanking

- Residual sample was left on pedestal or in cuvette before blank measurement was performed (Resulting sample spectra may exhibit negative absorbance values, indicating blank had more absorbance than sample in that region of spectrum)
- Blank measurement exhibits higher absorbance than unknown sample at analysis wavelength (If buffer used as blank differs in composition from that used to resuspend sample, measurement results will be incorrect)
- Sample was inadvertently used to blank instrument (Resulting sample spectra may exhibit negative absorbance values or, in some cases, resemble a mirror image of a typical pure nucleic acid or protein spectrum as in example at right)



Protein sample solution used to blank instrument results in "mirror image" spectrum

Solutions for blanking problems

- Thoroughly clean and/or recondition both pedestals and then
  - rerun blanking cycle, or
  - measure new blank using new aliquot of appropriate buffer solution, then measure new aliquot of unknown sample
- For most applications, blank with the same buffer solution used to resuspend the analyte of interest The blanking solution should be a similar pH and ionic strength as the analyte solution For details, see "To measure samples" in the application used
- If blanking problems persists, use an application that may be more suitable such as a fluorescence assay using the NanoDrop 3300 or a colorimetric assay if measuring proteins

Run a Blanking Cycle

Run a blanking cycle to verify the following

- instrument is operating normally (with flat baseline)
- pedestals are clean (i e , no dried-down sample material on pedestals)
- absorbance contribution of buffer solution you plan to use for sample analyses

Supplies needed

- lint-free laboratory wipes
- calibrated precision pipettor (0–2 µL)
- buffer solution for evaluation

❖ To run a blanking cycle

For quick demonstration, watch multimedia training Evaluating a Blanking Solution for Suitability.

NOTICE

- Do not use a squirt or spray bottle on or near the instrument as liquids will flow into the instrument and may cause permanent damage
- Do not use hydrofluoric acid (HF) on the pedestals Fluoride ions will permanently damage the quartz fiber optic cables

1 From the Home screen, select an application tab such as Nucleic Acids and tap an application name such as dsDNA or RNA

2 Lift the instrument arm and clean the upper and lower pedestals with new laboratory wipe

3 Measure a water blank
   - Pipette exactly 1 µL deionized water (DI H_2O) onto the lower pedestal and lower the arm
   - Tap **Blank** and wait for the measurement to complete
   - Lift the arm and clean both pedestals with new laboratory wipe

4 Measure the buffer solution·
   - Pipette 1-2 µL buffer solution onto the pedestal and lower the arm
   - Start the sample measurement
      - if Auto-Measure is On, lower arm
      - if Auto-Measure is off, lower arm and tap **Measure**
   - Wait for measurement to complete

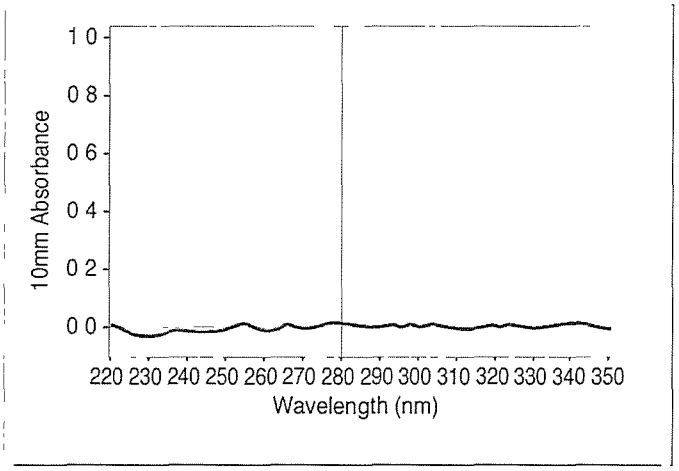
   The resulting spectrum should vary no more than 0 04 A from the baseline at the analysis wavelength (260 nm for nucleic acids, 280 nm for proteins)

   If your spectrum does not meet these criteria, repeat steps 2–4

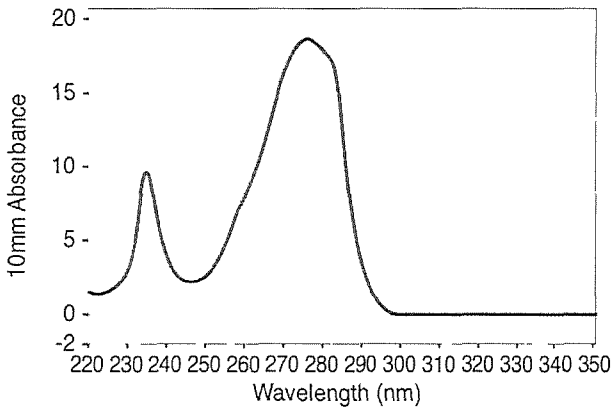
   If spectrum is still outside specifications, see Solutions for Blanking Problems

5 When you are finished with the blanking cycle, tap **End Experiment**

6 Lift the arm and clean both pedestals with a new wipe



Example spectrum of buffer suitable for Protein A280 protein quantification



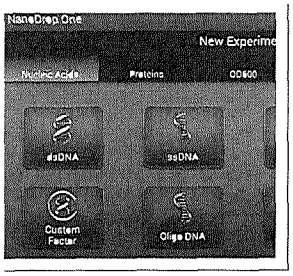
Example spectrum of buffer unsuitable for Protein A280 protein quantification

Related Topics

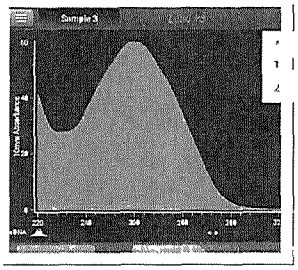
- Absorbance Detection Limits

- Effects of Bubbles in Samples
- What is a Blank?
- Evaluating a Blanking Solution for Suitability
- Maintaining the Pedestals
- Measure a Micro-Volume Sample
- Measure a Sample Using a Cuvette

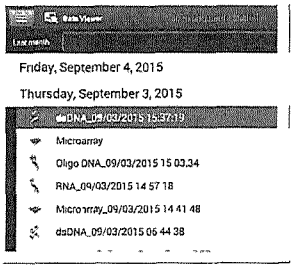
Basic Instrument Operations



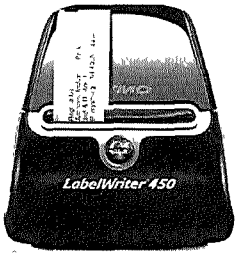
Home Screen



Measurement screens



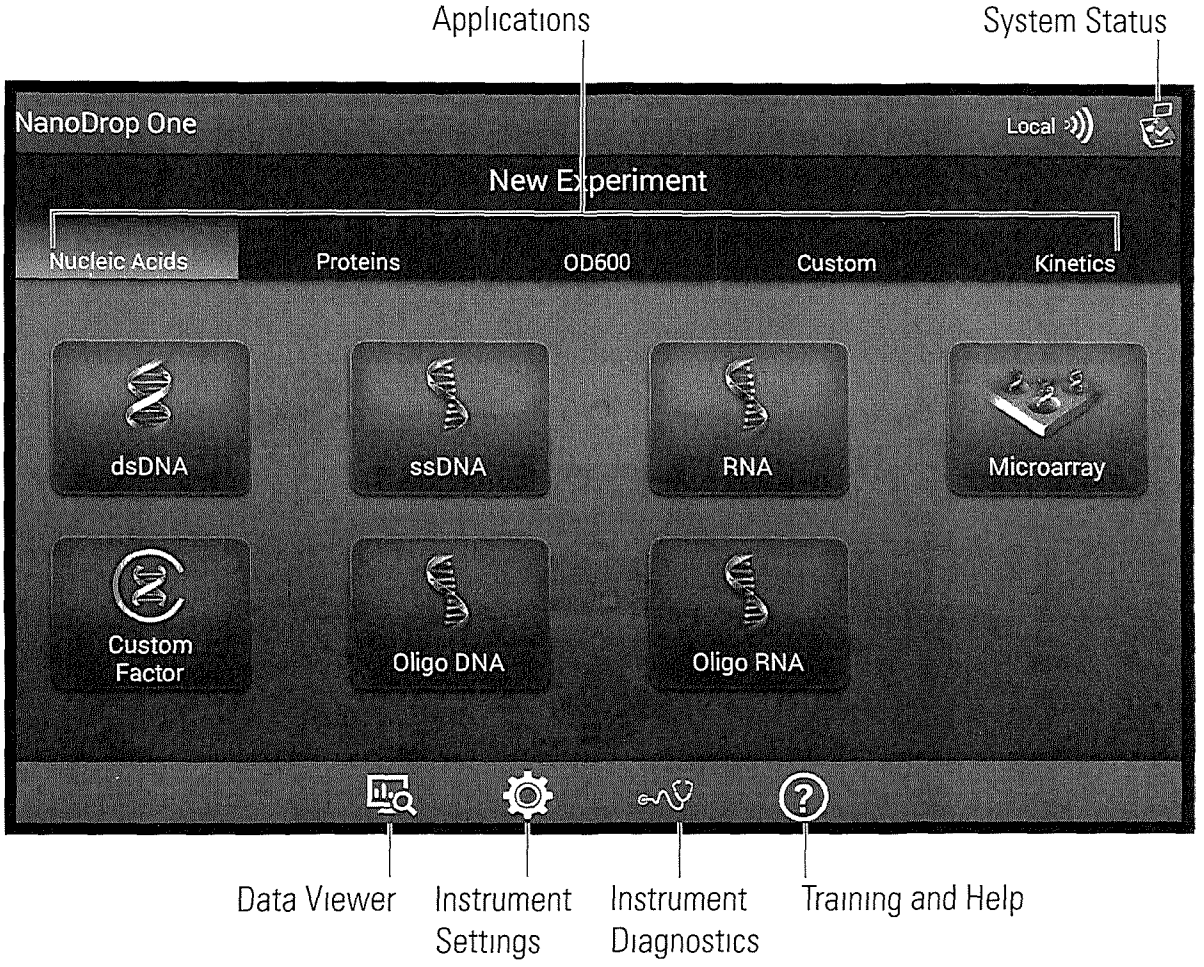
Data Viewer



General Operations

NanoDrop One Home Screen

These operations are available from the NanoDrop One Home screen



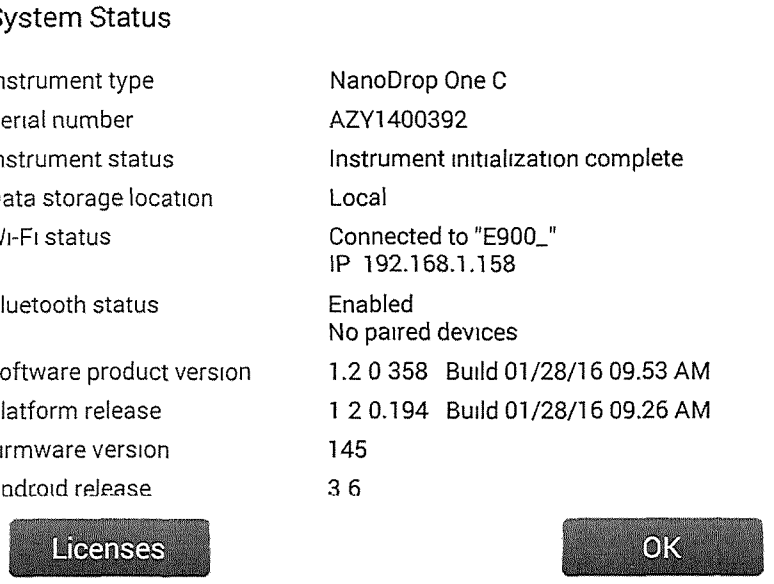
Applications

The NanoDrop One offers a broad range of applications for measuring samples with the instrument To select an application, tap an **Application tab** such as Nucleic Acids and then tap an **application name** such as dsDNA

Tap here for detailed information about each available application

System Status

Tap  on the instrument Home screen to open the system status box. Here is an example



The available information is described below

Instrument type	Instrument model (NanoDrop One or NanoDrop One^{C})
Serial number	Instrument serial number
Instrument status	Current status of the instrument
Data storage location	Indicates location of database where instrument is currently storing data These options are available • Local (instrument) • Connected PC* (personal computer connected through Ethernet cable or wireless network) * the Ethernet and wireless options listed above also store data on the instrument as a backup
Wi-Fi status	Status of WiFi connections for the instrument ("Connected to .", "Enabled and not connected" or "Disabled")
Bluetooth status	Status of Bluetooth connections for the instrument ("Connected to. ", "Enabled-[list of any paired devices]" or "Disabled")
Software product version	*Version of NanoDrop One software installed*
Platform release	Platform release to support NanoDrop One instruments

Firmware version	Version of instrument firmware installed
Android release	Custom version of Android release
Android version	Version of Android operating system software installed

Data Viewer

Tap  on the Home screen to view any data acquired earlier today, last week, last month, last six months, last year or in a specific date range. Tap here for more information about the Data Viewer on the instrument.

Note The instrument will only allow you to view data in its local NanoDrop One database. When the instrument is connected to a computer with an Ethernet cable or through a wireless network, the Data Viewer icon on the instrument Home screen is unavailable.

Instrument Settings

Tap  on the Home screen to access general instrument settings such as WiFi and using cuvettes. Tap here for detailed information about all available instrument settings.

Instrument Diagnostics

Tap  on the Home screen to verify instrument operation. Instrument diagnostics should be run periodically according to the recommended maintenance schedule. Tap here for information about how to run the available instrument diagnostics.

Training and Help

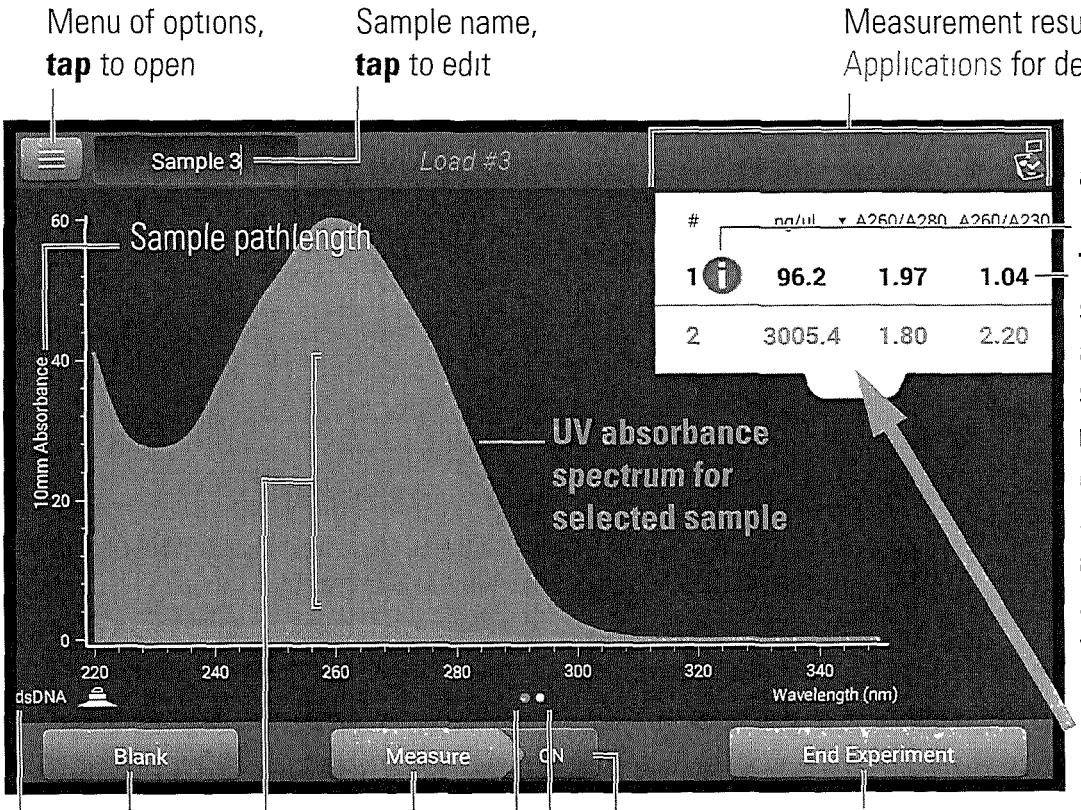
Tap  on the Home screen to access this Help system. The NanoDrop One software comes with comprehensive embedded training and support. Tap here for information on how to navigate the available information.

Related Topics

- Applications
- Set Up the Instrument
- NanoDrop One Data Viewer
- Instrument Settings
- Instrument Diagnostics
- About this Help System
- Measure a Micro-Volume Sample
- Measure a Sample Using a Cuvette

NanoDrop One Measurement Screens

These operations are available from any measurement screen within an Application



Menu

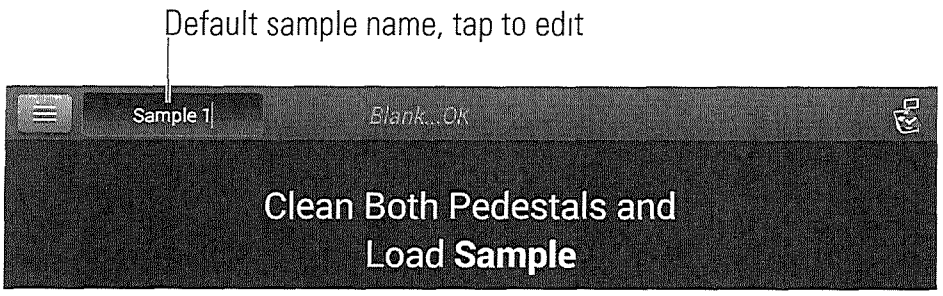
Tap ☰ in any measurement screen to see the available menu options

Home	Return to NanoDrop One Home screen
[application] Setup	View or change settings for selected application
Settings	View or change instrument settings
Print	Print selected measurement results

Sample Name

Tap the Sample Name field in any measurement screen to edit the sample name

When Auto-Naming is On (see General Settings), each sample is automatically assigned a sample name using the default base name followed by a unique number starting with "1 " The first time this appears is after the first blank measurement and before the first sample measurement in each experiment as shown below



In this example, the first sample would be named "Sample 1" followed by "Sample 2," etc You can edit the default base name and overwrite any sample name

Note If you edit the sample base name during an experiment when Auto-Naming is selected, the assigned sample ID numbers restart

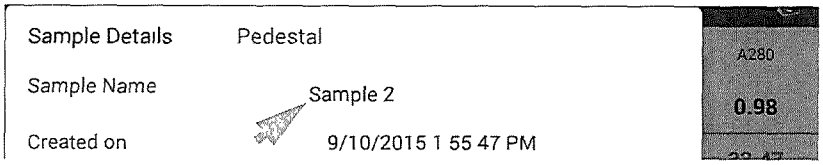
Edit default sample base name

After you measure a blank and before the first sample is measured:

- tap **Sample Name** field to display keyboard
- enter new base name
- tap **Done** key

Edit sample name

- from Home screen, tap  to open Data Viewer
- select experiment
- **swipe left** to show data table
- press and hold **sample name** to show Sample Details box
- tap **Sample Name** field to display keyboard



- enter new sample name
- tap **Done** key

Measurement Results

The types of results that appear in the measurement screens depend on the selected application For details, see

Applications > [application group] > Measure [application name] > Reported Results

Here is an example for dsDNA

Absorbance Spectrum

For each measured sample, each application shows the UV or UV-visible absorbance spectrum and a summary of the results The vertical axis shows absorbance in absorbance units (A) The horizontal axis shows wavelength in nm

Sample Pathlength

All applications display the sample pathlength along the spectrum's vertical axis Micro-volume absorbance measurements and measurements taken with nonstandard cuvettes are normalized to a 10 0 mm pathlength equivalent

Measurement Alerts

The Acclaro Sample Intelligence technology built into the NanoDrop One instruments provides important features to help you assess sample integrity Tap a Sample Intelligence icon in the software to view its associated information For more information, tap a link below

contaminant analysis is available to help qualify a sample before use in downstream applications

on-demand technical support is available for measurements that are atypical or very low concentrations

invalid-results alert

Blank

Tap **Blank** to measure a blank for the selected experiment

A blank must be measured before each group of similar samples The blank solution is typically the pure buffer that was used to resuspend the sample For more information, see Choosing and Measuring a Blank

Measure

Tap **Measure** to measure a sample for the selected experiment

Samples must be properly isolated and prepared before they can be measured with the instrument and the concentration must be within the instrument's absorbance detection limits For more information, see Preparing Samples and Measure a Micro-Volume Sample or Measure a Cuvette Sample and Absorbance Detection Limits

Note The **Measure** button is enabled after a valid blank measurement is completed

Auto-Measure and Auto-Blank

Speed up sample analysis with the NanoDrop One Auto-Measure and Auto-Blank features, which cause the instrument to start the measurement immediately after you lower the instrument arm. These options eliminate the need for repetitive Measure or Blank operations for large batches of samples

Note Auto-Measure and Auto-Blank are available for micro-volume measurements only

Auto-Measure

To select or deselect Auto-Measure, from any sample measurement screen, tap the **On** or **Off** button at the right of the Measure button

Auto-Blank

To select or deselect Auto-Blank, from any blank measurement screen, tap the **On** or **Off** button at the right of the Blank button

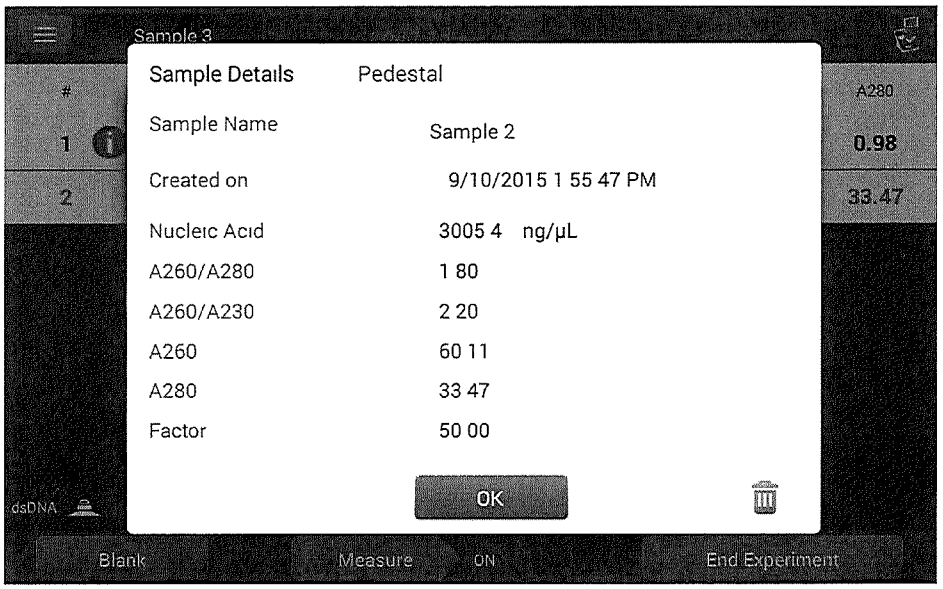
End Experiment

Tap **End Experiment** when you are ready to name and save your experiment, add a label to help you locate the experiment later (see Manage identifiers on the instrument), or export the data

Note The **End Experiment** button is enabled after the first sample measurement is completed

Sample Details

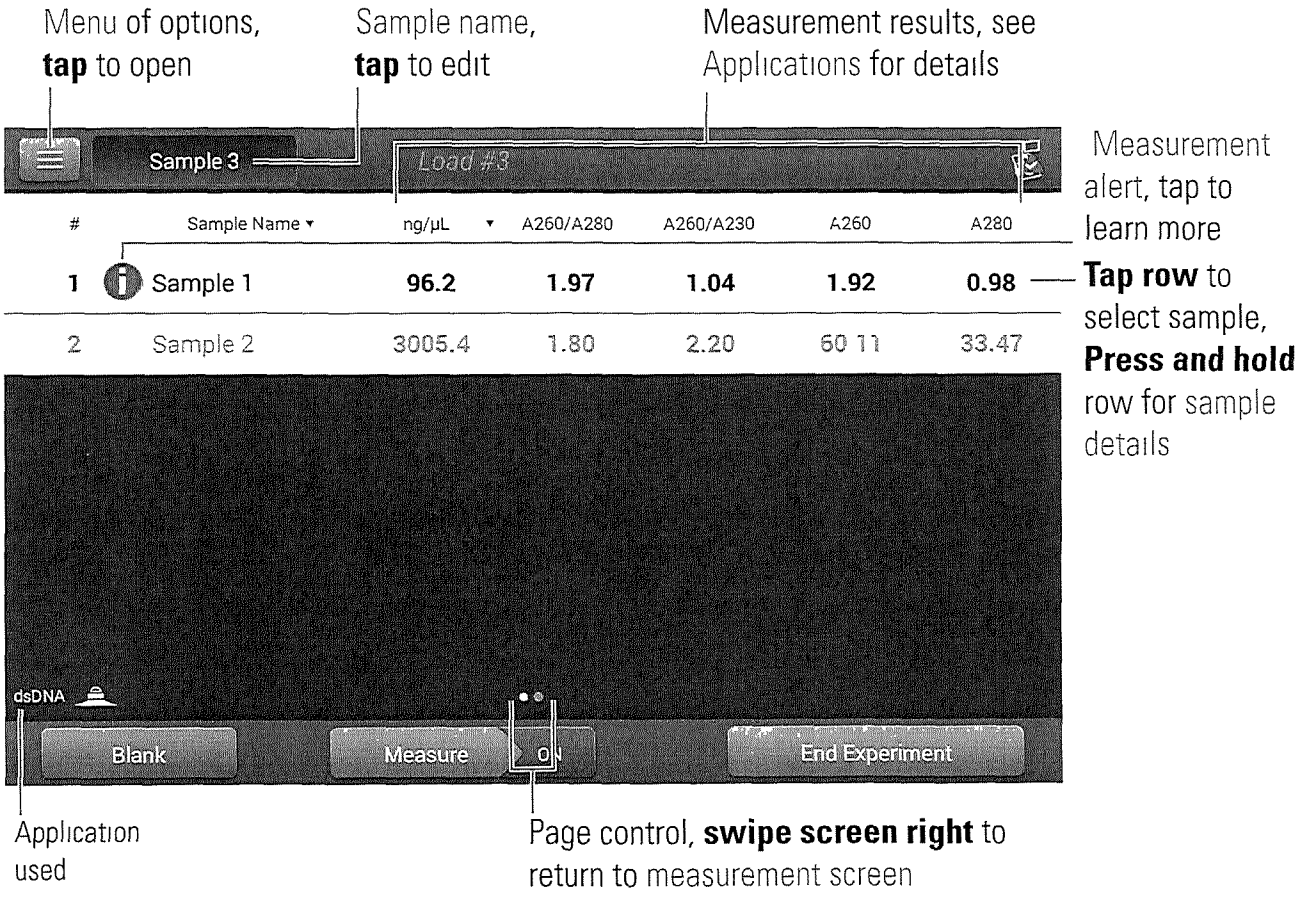
Press and hold a **sample row** in any measurement screen or data table to show the sample details, which include all available measurement results and associated details for the selected sample. Here is an example



Note You can also edit the sample name from the Sample Details box

Data Table

Swipe left in any measurement screen to see the data table for the current experiment. The data table contains the measurement results for all samples in the experiment. The image below highlights the available features.



Related Topics

- Measure Nucleic Acids
- Measure Proteins
- Instrument Settings
- Print Data
- Acclaro Sample Intelligence

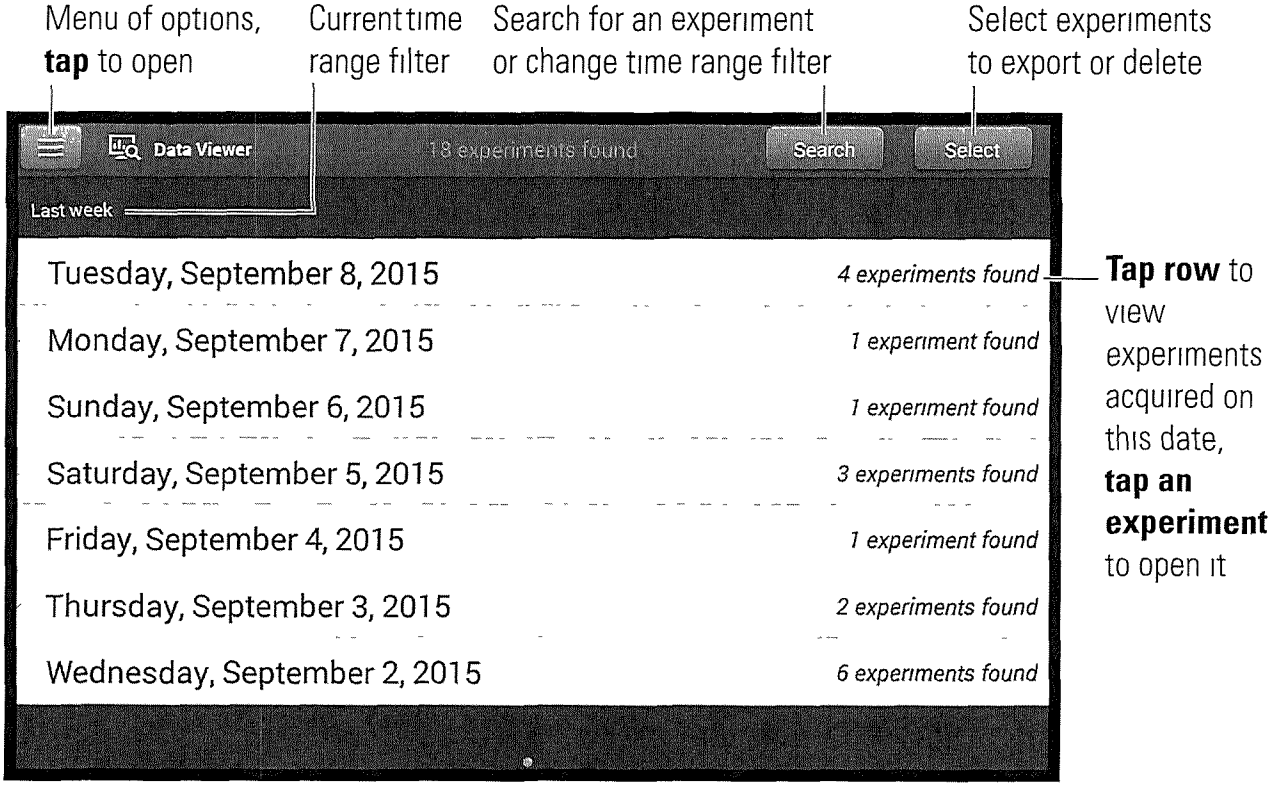
- Prepare Samples and Blanks
- Search Experiment Database
- Export Data
- Measure a Micro-Volume Sample
- Measure a Sample Using a Cuvette

NanoDrop One Data Viewer

The Data Viewer opens the database that stores sample data measured with the instrument The data are saved according to acquisition date, experiment name, application used and any assigned labels (see Manage Identifiers)

From the Data Viewer, you can locate and select any experiment to see the measurement data it contains, or export selected experiments to a variety of locations and formats

These operations are available from the Data Viewer



Open Data Viewer

Whether you collect one sample or many in a row, after you choose End Experiment, the acquired data are automatically saved in an experiment with an experiment name In the default configuration, experiments are stored in the NanoDrop One database on the local instrument according to acquisition date, experiment name, application used and any assigned labels

Use the Data Viewer to open the database on the local instrument in order to view acquired spectra and associated data from any experiment at any time

Open instrument database of measurement results

- to open NanoDrop One database on instrument, tap  (Data Viewer) on instrument Home screen

Note The Data Viewer icon is not available on the instrument Home screen when the instrument is connected to a computer with an Ethernet cable or through a wireless network (see Setting Up the Instrument for details)

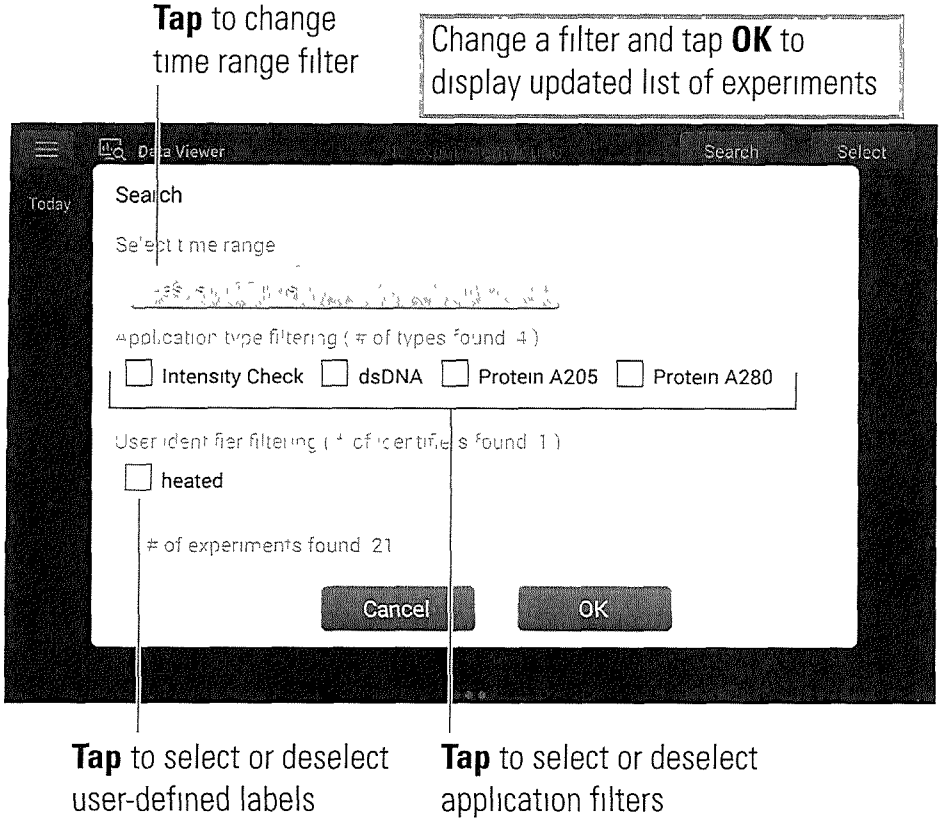
Menu

Tap  in the Data Viewer to see the available menu options

Home	Return to NanoDrop One Home screen
Settings	View or change instrument settings
Import	Import data from a USB flash drive
Disk Status	View remaining space available for storing measurement data on the instrument

Search Experiment Database

Tap **Search** in the Data Viewer to search the selected database for an experiment or to change the time range or other search filters The database is filtered using the current settings in the Search box. Filters include time range, application type and any user-defined labels (see Manage Identifiers for information about adding and deleting labels) Here is an example



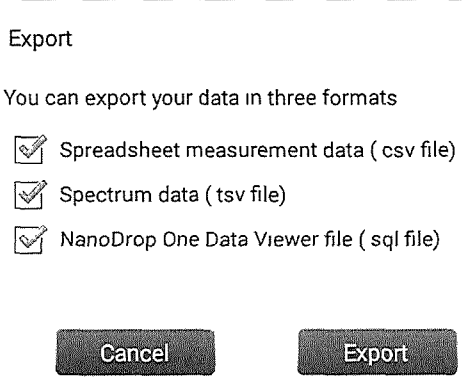
Export Selected Experiments

Use **Select** in the Data Viewer to select experiments to be exported

Export selected experiments

- tap **row** in Data Viewer to list experiments acquired on that date, or use Search feature to find experiment
- insert USB memory device into available USB port on instrument (front, back-left or back-right)
- tap **Select**

- tap to select one or more experiments to export (tap again to deselect an experiment)
- tap **Export**
- select one or more formats to export to (see "Export Data" in General Operations for details)



- tap **Export**
- after "Export Success" message, tap **OK**

Delete Selected Experiments

Use **Select** in the Data Viewer to select experiments to be deleted

Delete selected experiments

- tap **row** in Data Viewer to list experiments acquired on that date, or use Search feature to find desired experiment
- tap **Select**
- tap to select one or more experiments to delete (tap again to deselect an experiment)
- tap **Delete** and **OK**

NOTICE Deleted data cannot be recovered

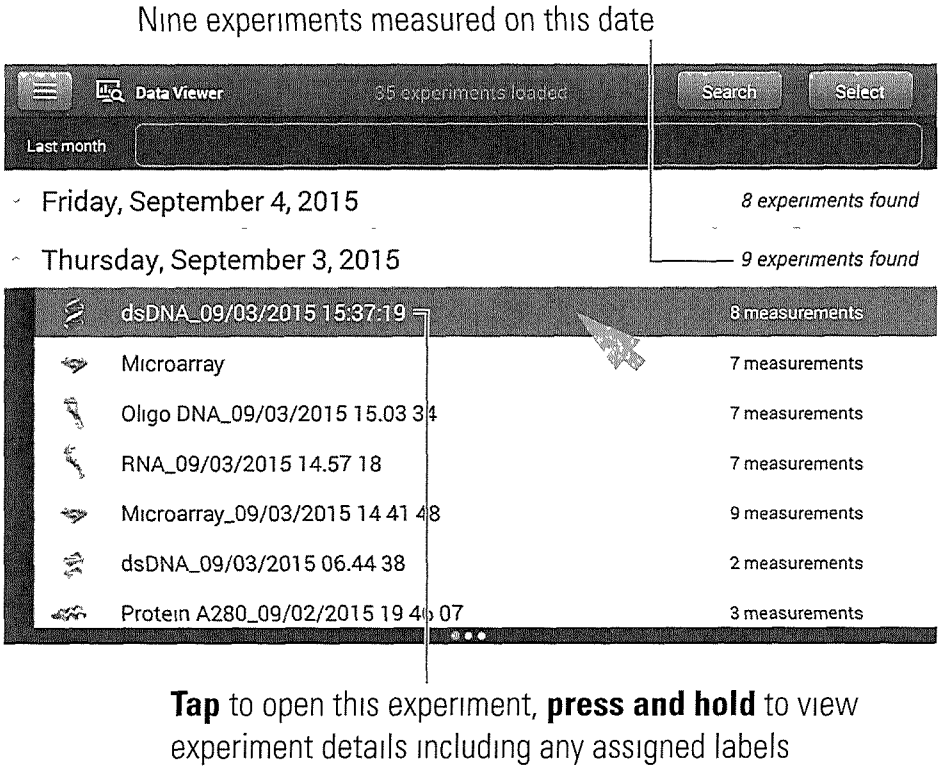
Open Experiment and View Associated Data

Use the Data Viewer to locate and open any experiment to see the measurement data it contains

Open an experiment

- tap **row** in Data Viewer to list experiments acquired on that date, or use Search feature to find desired experiment
- tap **experiment name** to open the experiment

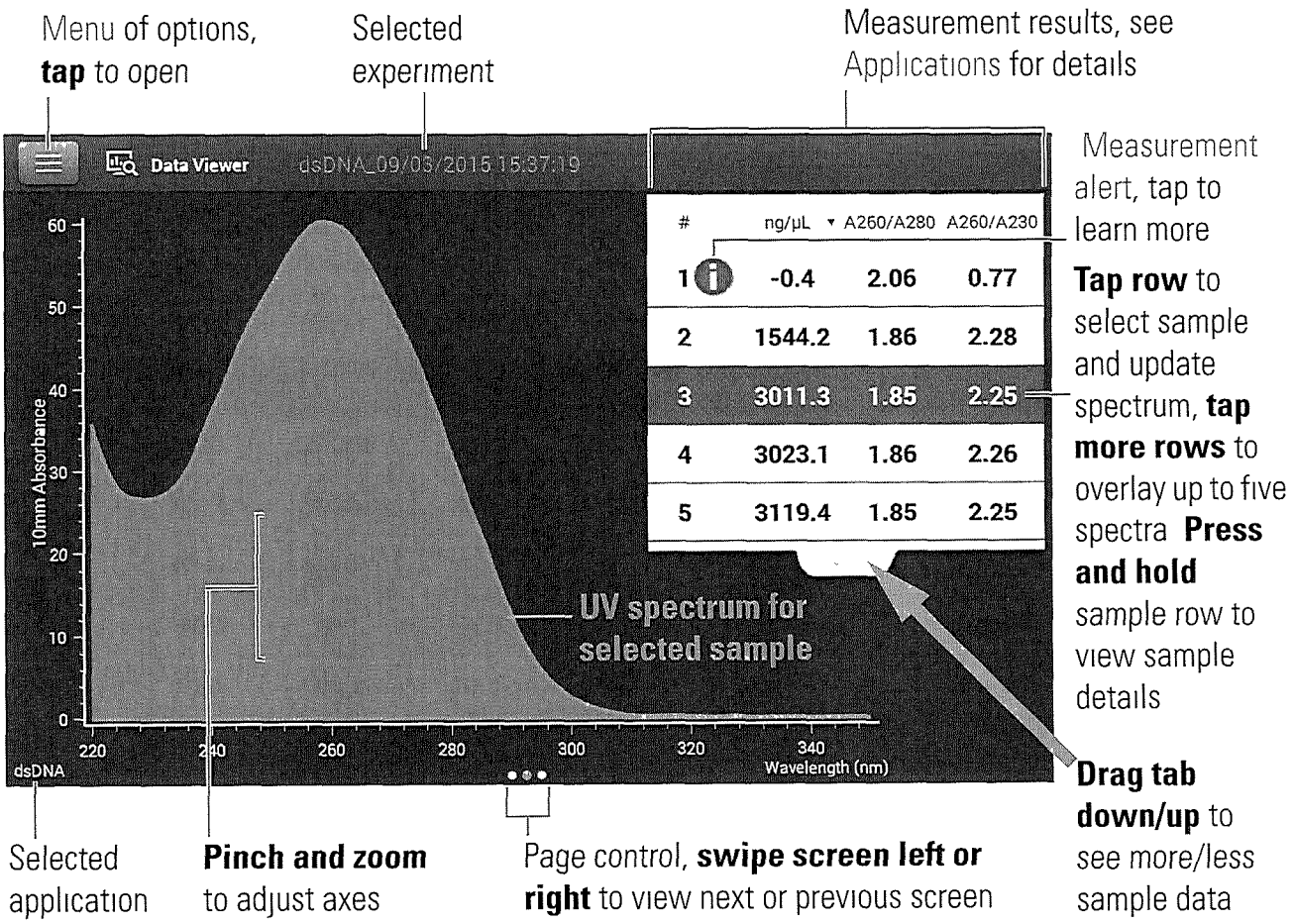
Here is an example



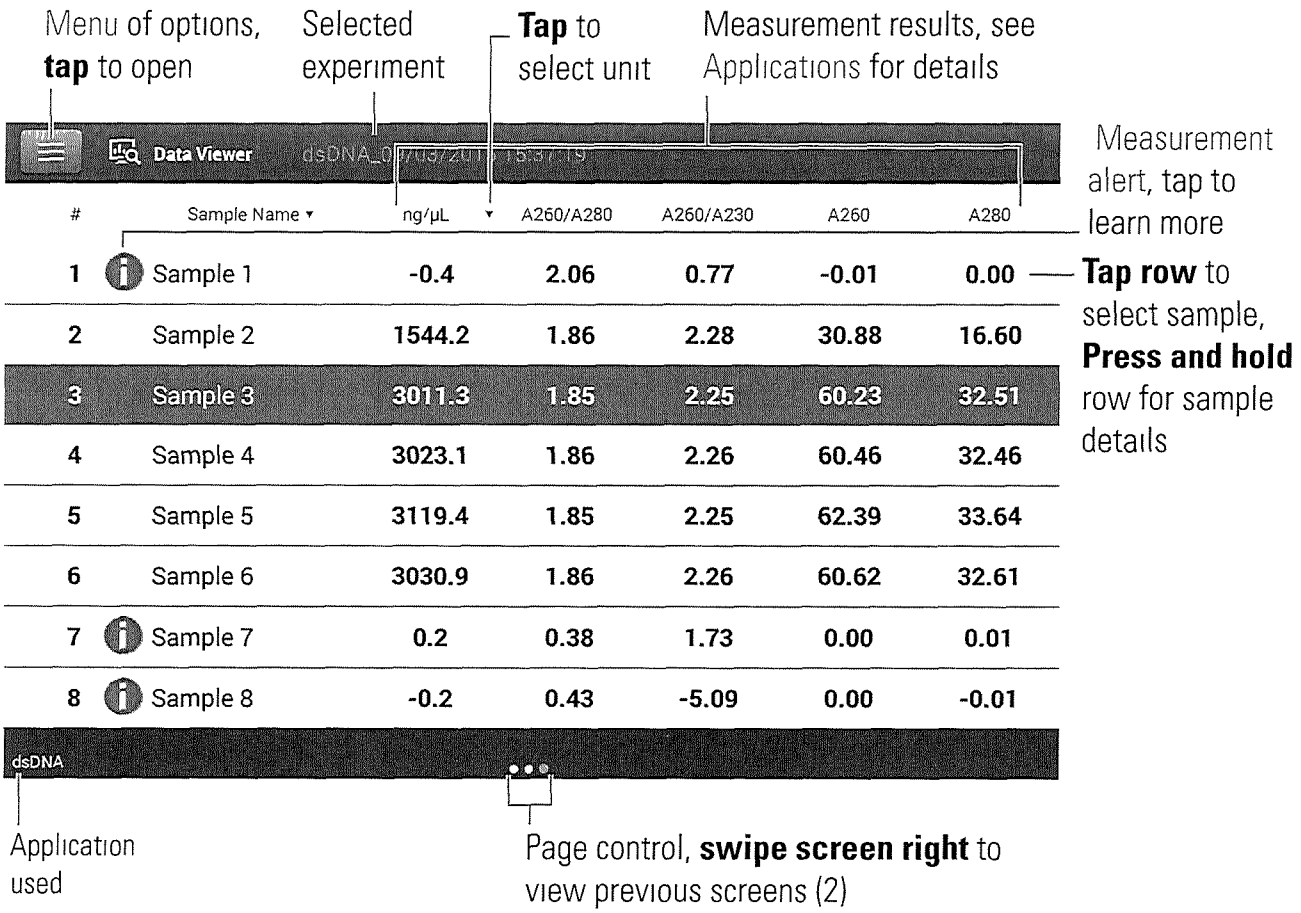
The Data Viewer provides measurement data as spectral data and data tables, similar to what you see after you complete a measurement

Note The data shown are dependent upon the application used to measure the samples (nucleic acids in these examples) For more information, see the application details

Spectral data—
After you open an experiment, the software shows the UV or UV-visible absorbance spectrum and a summary of the associated data for the first sample measurement, much like it appears during a measurement The image below describes the available features



Data Table—
Swipe left in any Spectral Data screen to see the data table for the current experiment The data table contains the measurement results for all samples in the experiment The image below describes the available features



#	Sample Name	ng/µL	A260/A280	A260/A230	A260	A280
1	Sample 1	-0.4	2.06	0.77	-0.01	0.00
2	Sample 2	1544.2	1.86	2.28	30.88	16.60
3	Sample 3	3011.3	1.85	2.25	60.23	32.51
4	Sample 4	3023.1	1.86	2.26	60.46	32.46
5	Sample 5	3119.4	1.85	2.25	62.39	33.64
6	Sample 6	3030.9	1.86	2.26	60.62	32.61
7	Sample 7	0.2	0.38	1.73	0.00	0.01
8	Sample 8	-0.2	0.43	-5.09	0.00	-0.01

dsDNA

Menu

Tap from any Spectral Data or Data Table screen to see the available menu options

Home	Return to NanoDrop One Home screen
Manage Identifiers	Add or delete labels for selected experiment to make it easier to find (see Manage identifiers on the instrument)
Export	Export selected experiment to USB device
Print	Print selected measurement results (Print option appears only when one or more measurements results are selected in Data Table)

Settings	View or change instrument settings
Disk Status	View remaining space available for storing measurement data on the instrument

Related Topics

- Instrument Settings
- Search Experiment Database
- Export Data
- Print Data

NanoDrop One General Operations

These operations are available from any measurement screen or from the Data Viewer

Manage Identifiers (on the instrument)

You can add one or more "identifiers" (i e , labels or metadata tags) to an experiment to make the experiment easier to find Labels can be added from the NanoDrop One software running on the instrument, or from the NanoDrop One Viewer software installed on a personal computer (see Manage Identifiers on a PC)

Use the Data Viewer to add labels to experiments, assign existing labels, view assigned labels and remove or delete labels on the instrument You can filter the list of experiments in the Data Viewer based on one or more user-defined labels

Label new experiment when you save it

- after the last sample has been measured, tap 

- in End Experiment box, tap **Add Identifier** field
- use displayed keyboard to enter label and tap 
- tap **Done** key
- tap **End Experiment**

Label experiment in Data Viewer

- from Home screen, tap  to open Data Viewer
- tap to open an experiment
- tap  and choose **Manage Identifiers**
- in Manage Identifiers box, tap **Add Identifier** field
- use displayed keyboard to enter label and tap 
- tap **Done** key
- tap **OK**

View assigned labels for an experiment

- from Home screen, tap  to open Data Viewer
- press and hold selected experiment to see Experiment Details

Find labeled experiments

- from Home screen, tap  to open Data Viewer
- tap **Search**
- in Search box, select date range, select application (only applications that have associated data are shown), select one or more identifiers from scrollable list and tap **OK**

Remove a label

- from Home screen, tap  to open Data Viewer
- tap to open an experiment
- tap  and choose **Manage Identifiers**
- in Manage Identifiers box, select label and tap 
- tap **OK**

Export Selected Measurements

You can export measurement data from one or more experiments when you save the experiment, or afterwards from the Data Viewer

Note Data exported during a save are still saved to a database (local or remote, depending on the Data Storage setting, see Select location for saving or viewing collected data for more information).

Measurement data can be exported in three formats

- as a comma-separated values (csv) file, containing the measurement results and details
- as a tab-separated values (tsv) file, containing x,y coordinates for every spectral data point
- as a NanoDrop One Viewer (sql) file, containing spectra and measurement results that can be imported to the NanoDrop One Viewer software running on a personal computer

The filenames are the same as the experiment names The files are stored in a folder named "NanodropOne" followed by the instrument serial number (Use System Status to view instrument serial number)

If you select multiple experiments for export in the CSV and TSV formats, each exported experiment has a corresponding CSV and TSV file. If the SQL option is also selected, the exported SQL file contains all the selected experiments

Use any spreadsheet or word processing application to open a CSV or TSV file. Here is an example of several sample measurement results in CSV format·

	A	B	C	D	E	F	G	H	I	J
1	Date	Sample Name	Nucleic Acid	A260/A280	A260/A230	A260	A280	Nucleic Acid Factor	Baseline (nm)	
2	4/21/2015 15 37	Sample 1	0 3	0 7	0 56	0 01	0 01	33	340	
3	4/21/2015 15 42	Sample 2	0 37	0 94	0 86	0 01	0 01	33	340	
4	4/21/2015 15 44	Sample 3	0 43	0 98	0 74	0 01	0 01	33	340	
5	4/21/2015 15·44	Sample 4	0 18	2 1	0 83	0 01	0	33	340	
6	4/21/2015 15 45	Sample 5	0	0 07	0 02	0	0	33	340	
7	4/22/2015 8 57	Sample 6	-0 52	2 11	0 66	-0 02	-0	33	340	
8										

Note The types of data exported are dependent upon the application used to measure the samples (nucleic acids in this example) For more information, see the application details

The SQL file can be opened only using our NanoDrop One Viewer software, and only after the file has been imported.

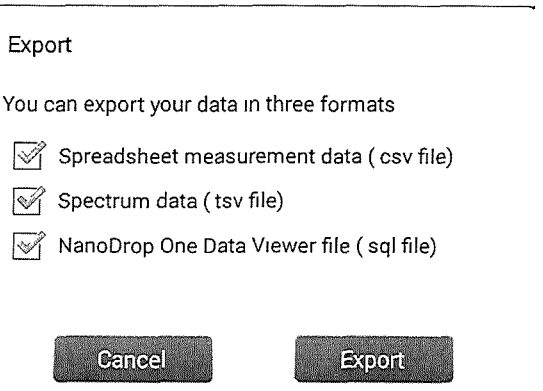
Data can be exported to a USB device connected to any USB port on the local instrument (front, back-left or back-right), and then transferred to any computer that has an installed spreadsheet or word processing application (for CSV and TSV files) or the NanoDrop One Viewer application (for SQL files)

Export data at end of experiment

– insert USB memory device into available USB port on instrument (front, back-left or back-right)

- when finished measuring samples, tap 

- from End Experiment box, tap Export
- select one or more formats to export to (see above for details)

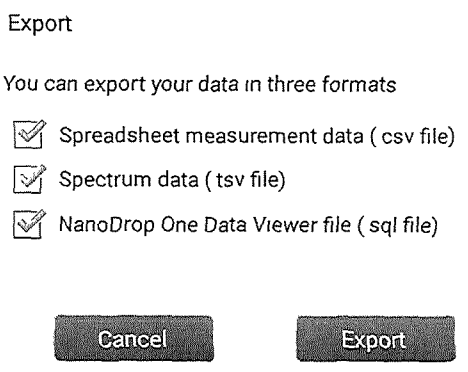


- tap **Export**
- after "Export Success" message, tap **OK**
- remove USB device
- tap **End Experiment**

Export data from Data Viewer

- from Home screen, tap  to open Data Viewer
- tap **row** in Data Viewer to list experiments acquired on that date, or use Search feature to find experiment
- insert USB memory device into available USB port on instrument (front, back-left or back-right)
- tap **Select**
- tap to select one or more experiments to export (tap again to deselect an experiment)
- tap **Export**

– select one or more formats to export to (see above for details)



– tap **Export**

– after "Export Success" message, tap **OK**

Delete Selected Measurements

You can delete a sample measurement from any experiment

NOTICE Deleted data cannot be recovered

Delete data from any measurement screen

– press and hold sample row to open Sample Details box

– tap 

Delete data from Data Viewer

– from Home screen, tap  to open Data Viewer

– tap **row** in Data Viewer to list experiments acquired on that date, or use Search feature to find desired experiment

– press and hold sample row to open Sample Details box

– tap 

Print Selected Measurements

Connect a compatible printer to the instrument to quickly print measurement results, including spectral data and sample details, to include in a laboratory notebook or post on a bulletin board

Print data from any measurement screen

- after you have measured a sample, display the measurement results to be printed such as the spectral data or data table (see NanoDrop One Measurement Screens)
- tap to select one or more sample rows to print (tap again to deselect a sample row)
- tap  and choose  **Print**
- in the Print Information box, choose **OK**

One label is printed for each selected measurement

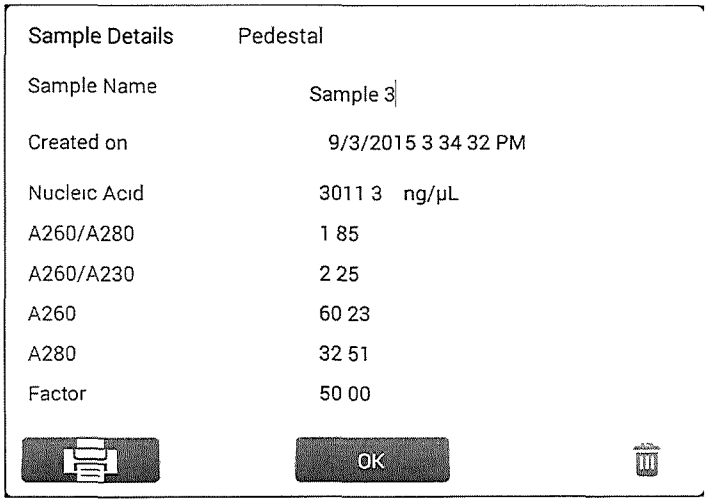
Print data from Data Viewer

- from Home screen, tap  to open Data Viewer
- tap **row** in Data Viewer to list experiments acquired on that date, or use Search feature to find desired experiment
- tap **experiment name** to open the experiment
- from the spectral data or data table in any measurement screen or from the Data Viewer, tap to select one or more sample rows to print (tap again to deselect a sample row)
- tap  and choose  **Print**
- in the Print Information box, choose **OK**

One label is printed for each selected measurement

Print sample details

– from the spectral data or data table in any measurement screen or from the Data Viewer, press and hold sample row to open Sample Details box



– tap 

– in the Print Information box, choose **OK**

One label is printed for this measurement

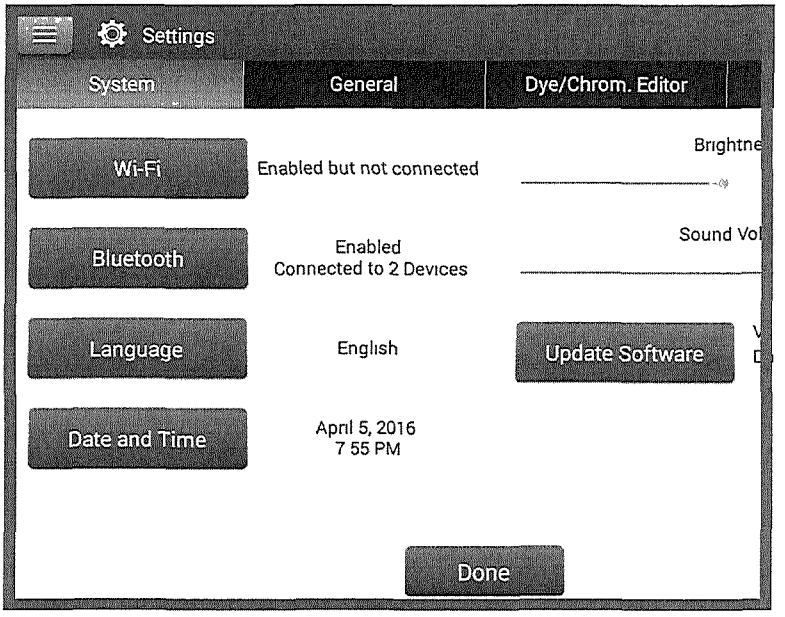
Related Topics

- Instrument Settings
- NanoDrop One Data Viewer
- Search Experiment Database
- Select Experiments to Export or Delete
- Open Experiment

Instrument Settings

View or change instrument settings

- from Home screen, tap
- -or-
- from any measurement screen or the Data Viewer, tap and choose **Settings**



These instrument settings are available

System Settings

These options are available

Wi-Fi	Set up wireless local area network (WLAN) connection on the instrument
Bluetooth	Set up Bluetooth connections to wireless input devices for the instrument such as a wireless keyboard, mouse or barcode scanner
Language	Select language for displaying NanoDrop One software and for any connected input device such as a keyboard, mouse or barcode scanner **Notice** Changing the language requires a software restart

Date and Time	**Automatic date & time**: synchronize instrument date and time with available network
	Automatic time zone synchronize instrument time zone with available network
	Set date manually set instrument date (this option is disabled when Automatic Date & Time is selected)
	Set time manually set instrument time (this option is disabled when Automatic Date & Time is selected)
	Select time zone manually select instrument time zone (this option is disabled when Automatic Time Zone is selected)
	Use 24-hour format use 24-hour time format
	Choose date format choose an available date format
Brightness	Adjust brightness of instrument touchscreen
Sound Volume	Adjust volume of instrument touchscreen
Update Software	Update NanoDrop One software via USB device connected to instrument, if connected USB device contains multiple eligible update files, you can choose which files to update (see Update Software for details)
	Version version of NanoDrop One instrument operating software currently installed on this instrument
	Database version version of NanoDrop One database on this instrument

General Settings

These options are available

Auto-naming	Assign sample names automatically using base name followed by unique number starting with "1 " Uses default ("Sample") or user-specified base name For details, see Sample Name

Use cuvette

Select cuvette sampling mode (available for NanoDrop One^{C} instrument model only) When selected, these additional options are available

Pathlength Enter cuvette pathlength (width) before taking blank or sample measurements with cuvettes (see cuvette manufacturer for cuvette specifications)

Stir Speed If using automatic stirring, drop micro-stir bead into sample cuvette and set Stir Speed (levels 1 through 9 correspond with range from 10 RPM to 850 RPM with controlled ramping from zero)

Heat cuvette to 37 °C: Select this option if sample cuvettes require heating Cuvette heater increases from room temperature to 37 °C at rate of 5 °C/minute

Dye/Chrom. Editor

Use the Dye/Chromophore Editor to add a custom dye to the list of available dyes in Microarray Setup or Proteins & Labels Setup. You can also specify which dyes are available in that list

Protein Editor

Use the Protein Editor to add a custom protein to the list of available proteins in the Protein A280 application

Related Topics

- Set Up the Instrument
- Update Software
- Measure a Sample Using a Cuvette
- Set Up Ethernet Connection
- Dye/Chromophore Editor
- Protein Editor

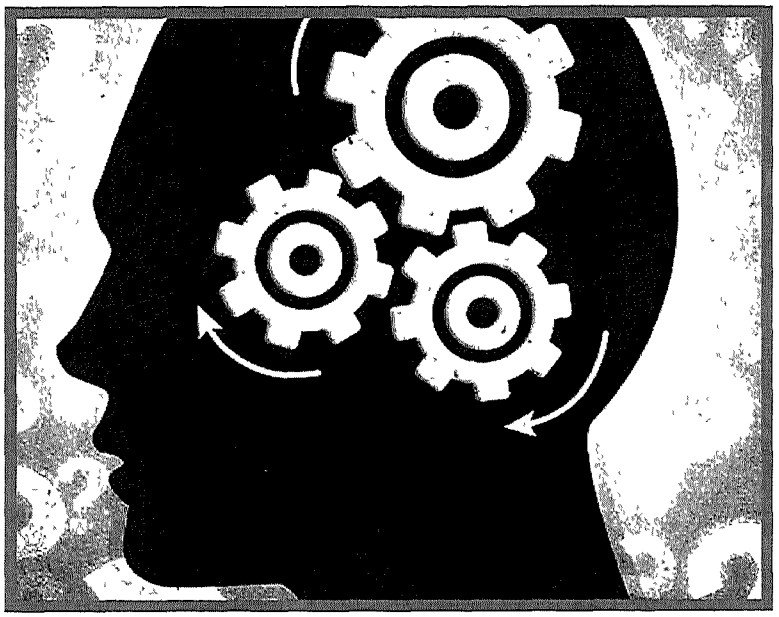
Acclaro Sample Intelligence

The Thermo Scientific™ Acclaro™ Sample Intelligence technology built into the NanoDrop One instruments provides these exclusive features to help you assess sample integrity

 contaminant analysis to help qualify a sample before use in downstream applications

 on-demand technical support for measurements that are atypical or very low concentration

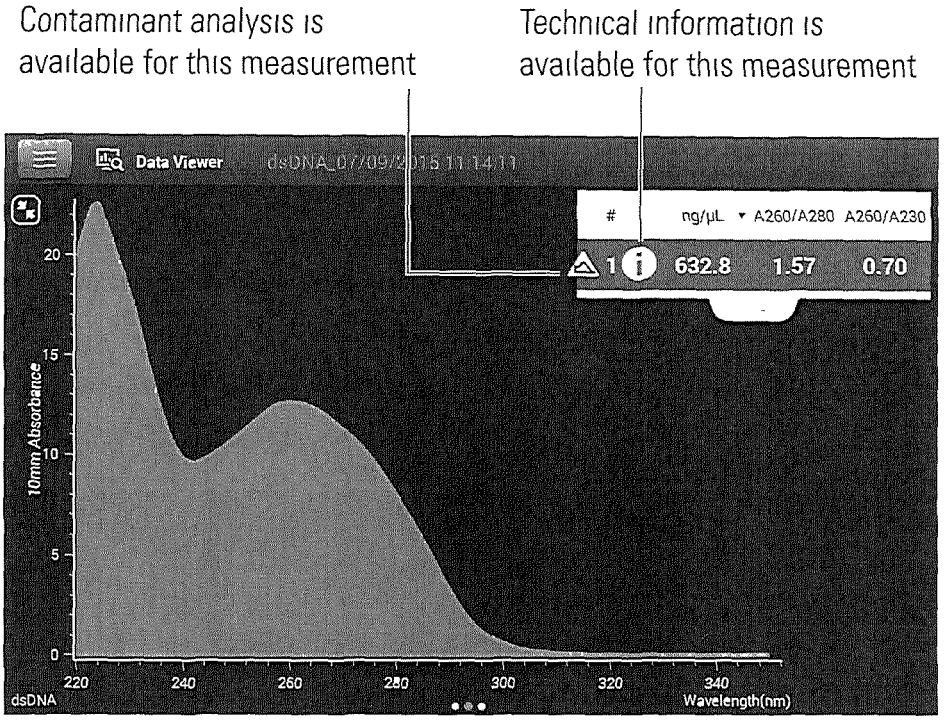
 invalid-result alerts (a column sensor monitors for the presence of bubbles or reflective particles that can compromise measurement results)



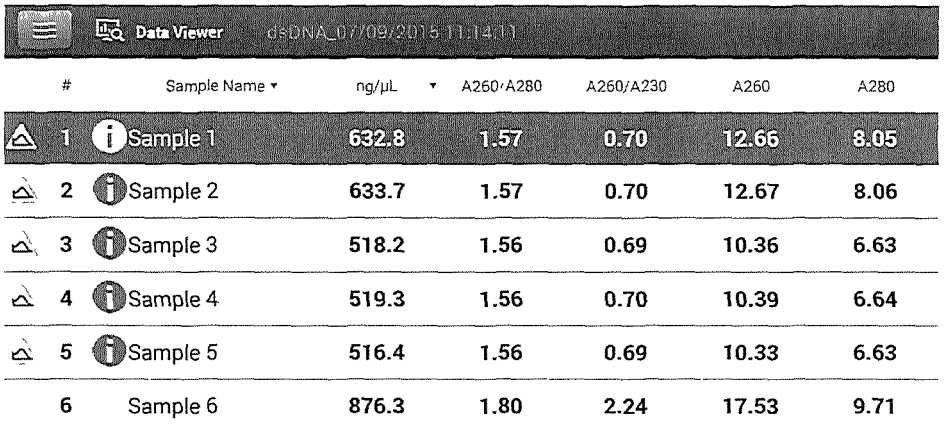
Use these embedded resources to quickly troubleshoot possible problem measurements and make informed decisions on whether to use, re-purify or take other actions with an atypical sample result The Sample Intelligence feature also serves as a resource for further study and a learning tool for new or novice users

View Acclaro Sample Intelligence Information

Measurements that include a contaminant analysis or technical information are flagged automatically (see examples below) Tap the icon to review the associated data or information



The icons appear next to the measurement results (see above), and in the data table, as well as the Data Viewer (see below).



#	Sample Name	ng/µL	A260/A280	A260/A230	A260	A280
1	Sample 1	632.8	1.57	0.70	12.66	8.05
2	Sample 2	633.7	1.57	0.70	12.67	8.06
3	Sample 3	518.2	1.56	0.69	10.36	6.63
4	Sample 4	519.3	1.56	0.70	10.39	6.64
5	Sample 5	516.4	1.56	0.69	10.33	6.63
6	Sample 6	876.3	1.80	2.24	17.53	9.71

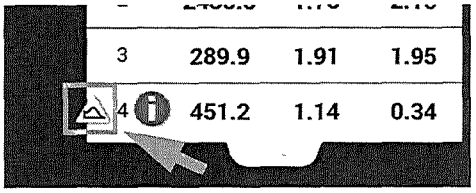
The icons are active in all three places, the information remains with the data indefinitely, even after it has been exported

Contaminant Analysis

For the dsDNA, RNA and Protein A280 applications, the NanoDrop One software automatically initiates a spectral analysis for several known contaminants during the measurement Examples of known contaminants include

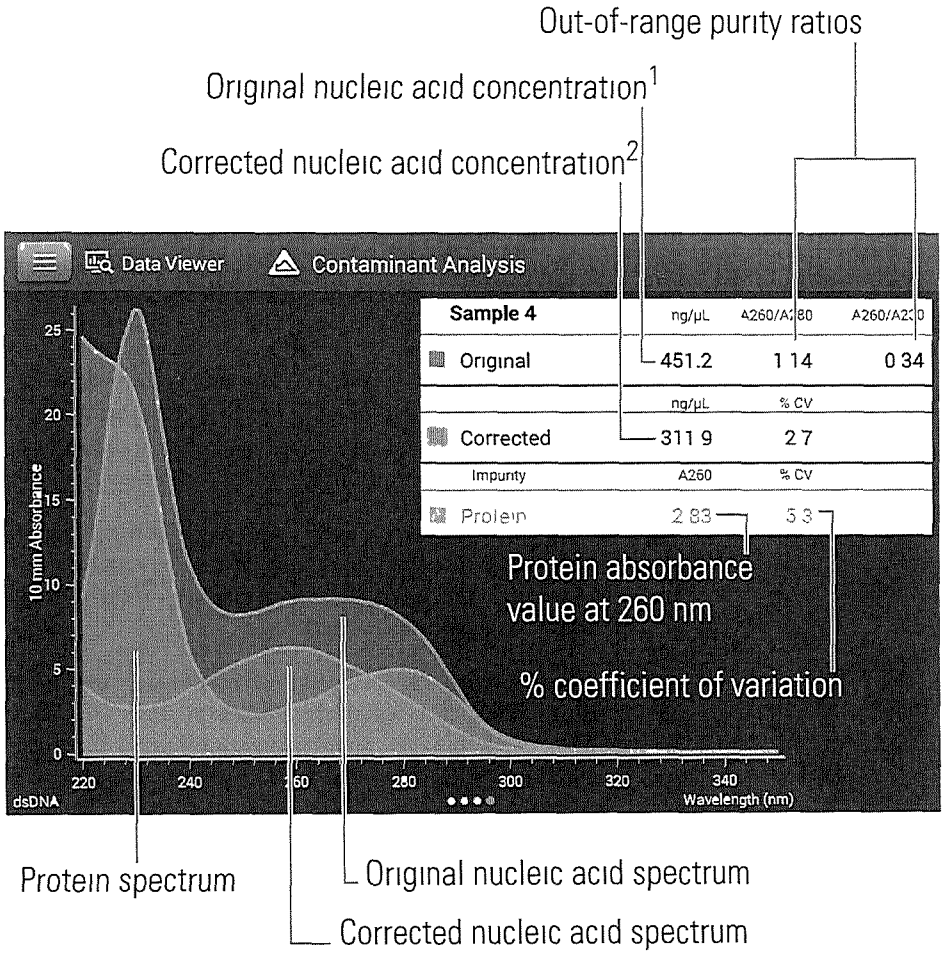
- for dsDNA and RNA measurements
  - in the analysis region protein and phenol
  - also detects presence of guanidine HCl and guanidinium isothiocyanate
- for protein measurements
  - in the analysis region nucleic acids and phenol

If contaminants are identified in a sample, the "Contaminant Analysis" icon appears to the left of the measurement results.



Tap the icon to view the contaminant analysis and associated information

Here is an example of results from a nucleic acid contaminant analysis that contains enough protein contaminant to affect the measurement results



[1] Based on total sample absorbance (sample plus contaminant)

[2] Based on corrected sample absorbance (sample minus contaminant)

Since proteins absorb light near the analysis wavelengths for nucleic acid (230 nm, 260 nm, and 280 nm), the presence of protein in the nucleic acid sample shown above has pushed the A260/A280 and A260/A230 ratios out of range and caused the reported nucleic acid concentration to be higher than the real value The software identifies the impurity (protein), and reports the following

- baseline-corrected absorbance due to protein (2 83) at the analysis wavelength (260 nm)
- % coefficient of variation for the measurement result (uncertainty x 100/measurement result = 5.3%, a high %CV indicates the measurement result is close to the instrument detection limit or there is an interfering component)

- original nucleic acid concentration (451 2 ng/µL), which is based on the total baseline-corrected absorbance (sample plus contaminant) at the analysis wavelength
- corrected nucleic acid concentration (311 9 ng/µL), which is based on the corrected absorbance (sample minus contaminant) at the analysis wavelength

Theory behind contaminant analysis

UV and UV-visible absorbance measurements are used to quantify nucleic acid and protein samples at 260 nm and 280 nm, respectively. The analysis is based on the fact that the total absorbance of a mixture solution at a given wavelength is the sum of the absorbance values of each component in the mixture

An ongoing challenge of this method is that a number of materials used in the extraction process can absorb in various regions across the spectrum When these contaminants are present in a sample, they can interfere with the analysis by artificially inflating the absorbance at the wavelength of interest, which causes the analyte concentration to be overestimated

Traditionally, purity ratios are used to detect the presence of contaminants that could affect downstream applications. However, purity ratios do not always provide a complete picture of possible contamination When a purity ratio falls outside the expected range, the spectral profile is often examined qualitatively

Our Acclaro technology applies a quantitative approach to contaminant analysis Through sophisticated mathematical algorithms, Acclaro analyzes the spectral data to identify probable contaminants in a sample and removes any contribution due to the contaminant from the sample result This results in a more accurate concentration value of the analyte of interest and a more qualitative analysis of the level of contamination

Since the spectrum of a pure compound is unique to that compound, a mixture spectrum of mostly known materials that have few interactions can be mathematically broken down into its component spectra and the components identified The contaminant analysis algorithm uses a narrow spectral region (220-285 nm) around the analysis wavelength (260 nm for nucleic acids, 280 nm for proteins) to determine any absorbance contribution from possible known contaminants (protein or nucleic acid, and phenol) that absorb in that region The entire spectrum is analyzed to determine the presence of other possible contaminants such as guanidine HCl and/or guanidinium isothiocyanate, which are common reagents used for nucleic acid purification

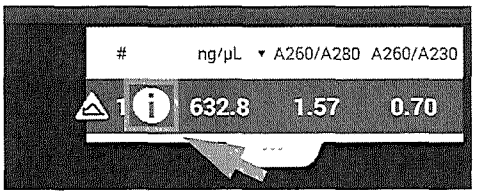
Note Achieving consistent, high quality contaminant analysis results is dependent on the quality of the measured sample spectra, which is dependent on the maintenance status of the instrument For more information, see Maintenance Schedule.

On-Demand Technical Support

For the dsDNA and Protein A280 applications, the NanoDrop One software monitors all sample measurements for the presence of contaminants or other anomalies that may affect the measurement. Examples of monitored characteristics include

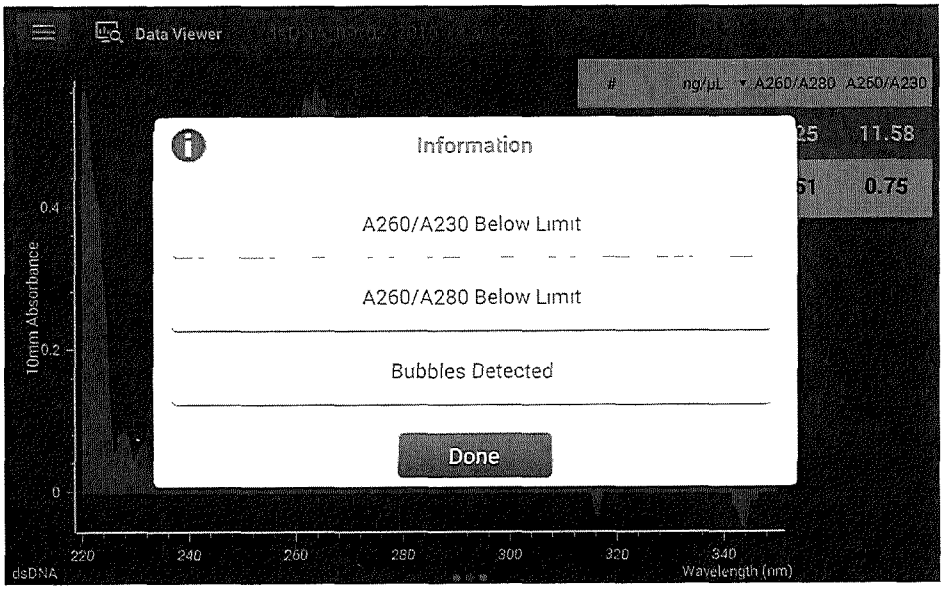
- absorbance ratios, which indicate the presence of compounds that may interfere with sample measurements (also referred to as "purity ratios") For more information, watch the multimedia training What is a Purity Ratio?
- bubble check, which looks for bubbles or other reflective materials in a sample or blank For more information, watch the multimedia training Effects of Bubbles in Samples

If technical information is available, the "information" icon appears to the left of the measurement results

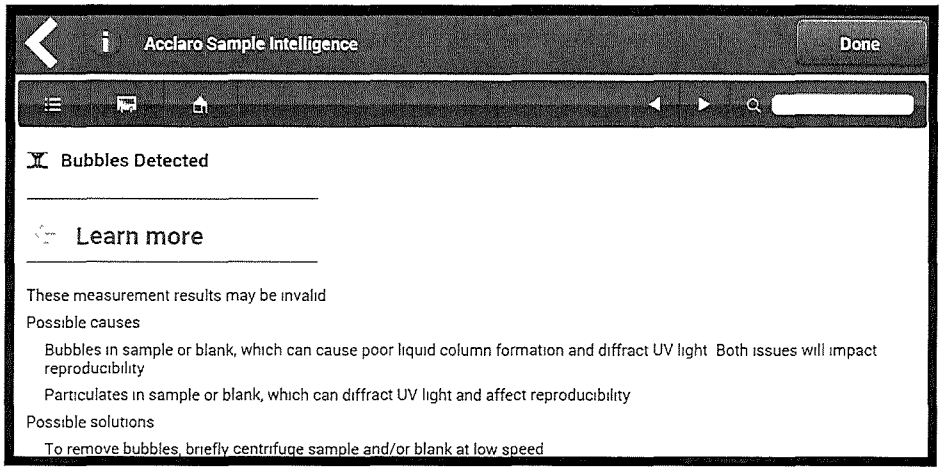


Tap the icon to view the information

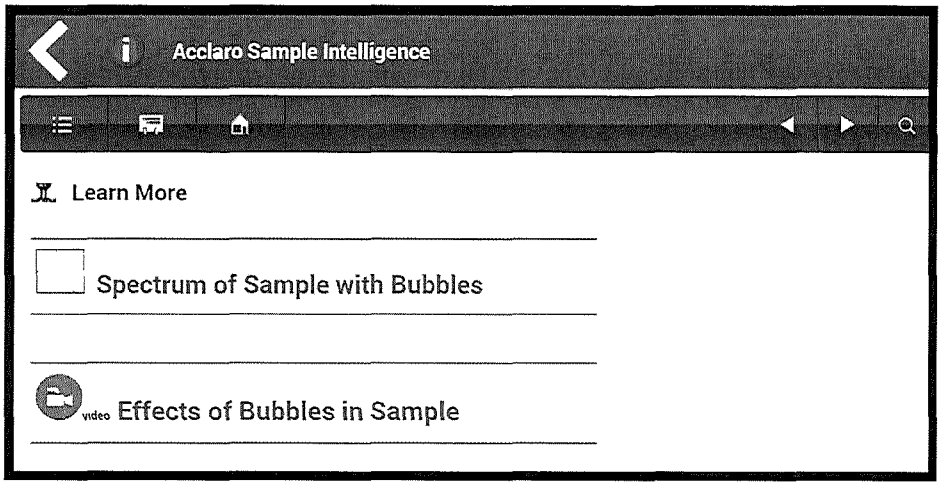
Here are results from a nucleic acid analysis for which two measured purity ratios are below the expected value and the sample contained enough bubbles to possibly affect the measurement results



Tap an information button for more information Here is the information provided for the bubble error



Tap **Learn More** for the next level of information which, for this example, includes a link to a multimedia training video.



Invalid-Results Alerts

The NanoDrop One software uses an embedded image sensor to monitor all measurements for conditions (such as a broken liquid column) that are likely to invalidate the measurement results.

After an invalid-results alert, the Invalid Results icon X is displayed and the measurement is stopped. See *Troubleshooting for more information*

Related Topics

- NanoDrop One Measurement Screens
- NanoDrop One Data Viewer
- Maintenance Schedule
- Maintaining the Pedestals
- Troubleshooting

NanoDrop One Viewer Software

The NanoDrop One Viewer software gives you the flexibility to work with data acquired with the NanoDrop One instrument at your location and convenience. Use the Viewer software to:

- view or print data acquired using the NanoDrop One instrument on any personal computer
- create, edit, import, and delete custom measurement methods
- easily search the NanoDrop One Help system for information

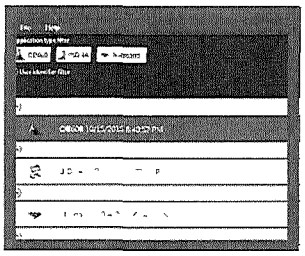
Data can be imported from the instrument at any time (see Import Data from the Instrument below), or saved directly on a connected computer after each measurement is completed (see "Set Up Ethernet Connections" or "Set Up Wi-Fi Connections" in Set Up the Instrument for details).

Install the Viewer software

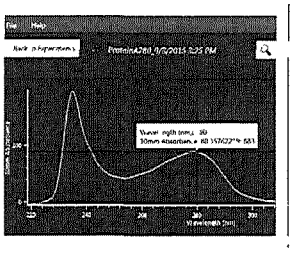
The Viewer software can be installed on any computer running the Windows™ operating system software. See our website for compatible versions of Windows software.

❖ To download and install the Viewer software

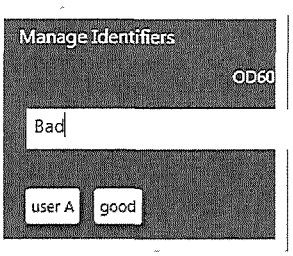
1. From a compatible PC that is connected to the Internet, use any web browser to navigate to our website.
2. On our website, locate NanoDrop One software downloads, select to download NanoDrop One Viewer software and follow the instructions to download and run the installer.



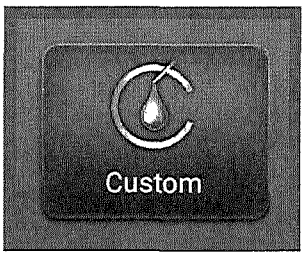
Home Screen



Manage Data



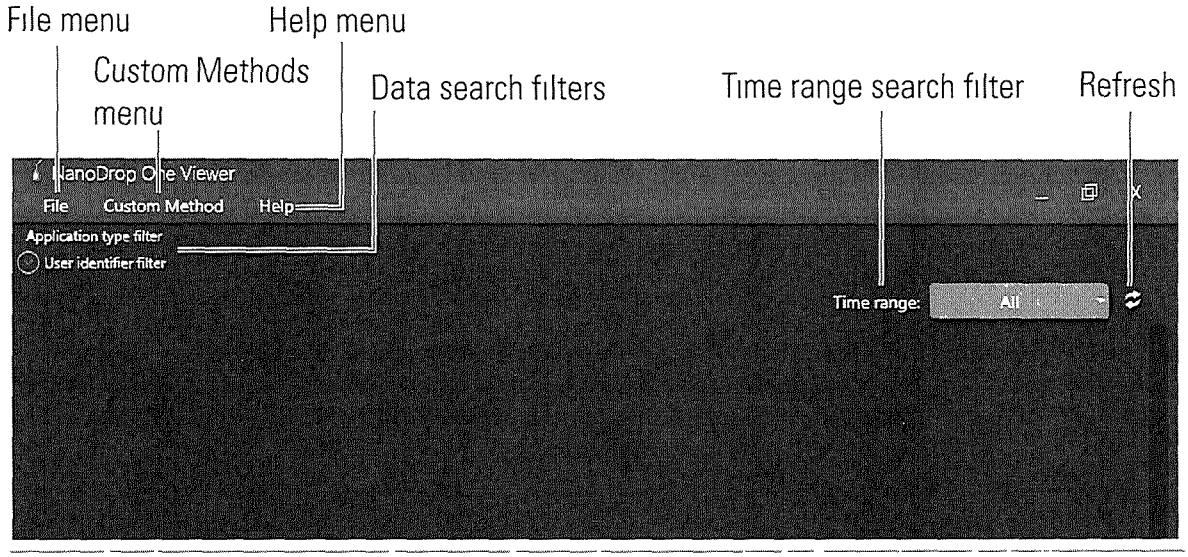
Manage Identifiers



Manage Custom Methods

Viewer Home Screen

After you install the Viewer software, it opens with a blank screen if there are no custom methods or saved or imported data in its database These operations are available from the Viewer Home screen



File Menu

File menu options.

Import Data	For importing experiments from the instrument
Set Up Wi-Fi Data Storage	Set up this computer as a potential data storage location for samples measured with the instrument (see "Set Up Wi-Fi Connections" in Set Up the Instrument for more information)
Exit	Closes the Viewer software

Custom Methods Menu

Custom Methods menu option

Manage Custom Methods	For creating, importing, editing and deleting custom methods, which can be used to acquire data with the instrument using the available custom settings

Help Menu

Help menu options

NanoDrop One Website	Opens a local web browser, if available, and navigates to the NanoDrop One website
Help	Displays the full NanoDrop One Help system including detailed information about the instrument, the NanoDrop One software, and the Viewer software
About	Displays version numbers for the NanoDrop One Viewer software

Data Search Filters

Filters for searching the Viewer database on this computer based on the application used or any user-assigned identifiers To turn off the data search filters, make sure none of the buttons are selected For more information, see Search Viewer Database

Time Range Search Filter

Filter for searching the Viewer database by experiment acquisition date (for example, last six months or in a specific date range) To turn off the time range filter, set it to **All** For more information, see Search Viewer Database

Refresh 

Updates the list of experiments and measurement results in the Viewer software after new data have been imported

Right-Click Menu

Right-click an experiment for these additional menu options

Export Experiment	Export spectra and results for selected measurements in several formats
Manage Identifiers	Add user-defined labels to experiments, view assigned labels and remove or delete labels
Experiment Details	Display information about the open experiment including application type, date and time measured, number of measurements, instrument serial number, software and firmware version numbers, and any assigned labels
Delete Experiment	Delete selected experiment **Notice** Deleted data cannot be recovered.

Manage Experiments and Associated Data

Use the Viewer software to open and view stored spectra and associated data from any experiment that was either exported from the instrument and then imported to the PC, or saved directly on the PC immediately after the measurement. Experiments are stored in a database on the computer according to acquisition date, experiment name, application used and any assigned labels

Import Experiments

You can import data acquired with the NanoDrop One instrument to the NanoDrop One Viewer software installed on a personal computer, in order to view or print the data at your location and convenience

Note

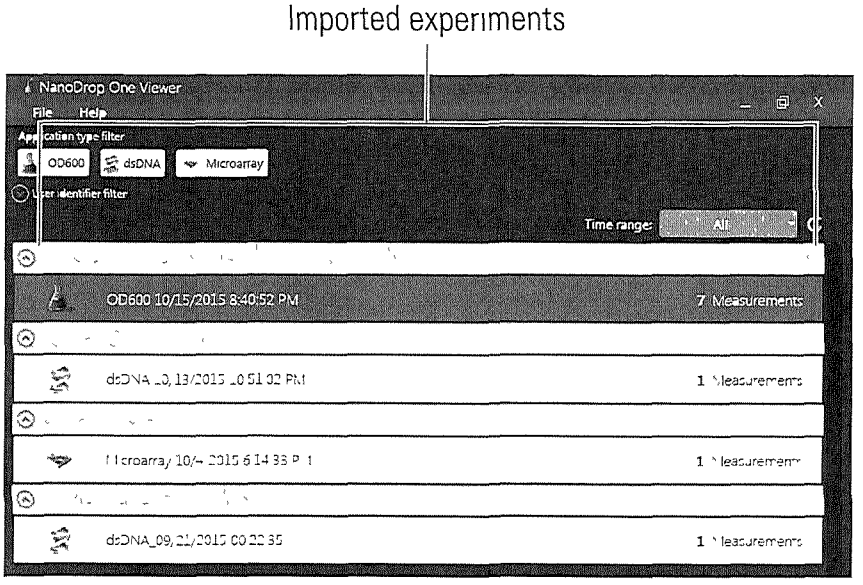
- The data must first be exported from the instrument in the database (SQL) format to a portable USB memory device (see "Export Data" in General Operations for details)
- To learn how to save data directly on a personal computer after each measurement is completed, see "Set Up Ethernet Connections" or "Set Up Wi-Fi Connections" in Set Up the Instrument.

Import experiments to Viewer software

- connect portable USB memory device with exported SQL file to personal computer that has NanoDrop One Viewer software installed
- from Viewer software, choose **File > Import Data**
- navigate to portable USB device, select exported SQL file and choose **Open**

Note By default, exported SQL files are stored on the USB memory device in a folder named "NanodropOne" followed by the instrument serial number

– the NanoDrop One experiments stored in the SQL file are added to the Viewer Home screen Here is an example



Search Viewer Database

A list of experiments that match the current filter settings appears on the Viewer Home screen Filters include time range, application type and any user-defined labels (see Manage Identifiers on a PC for information about adding and deleting labels)

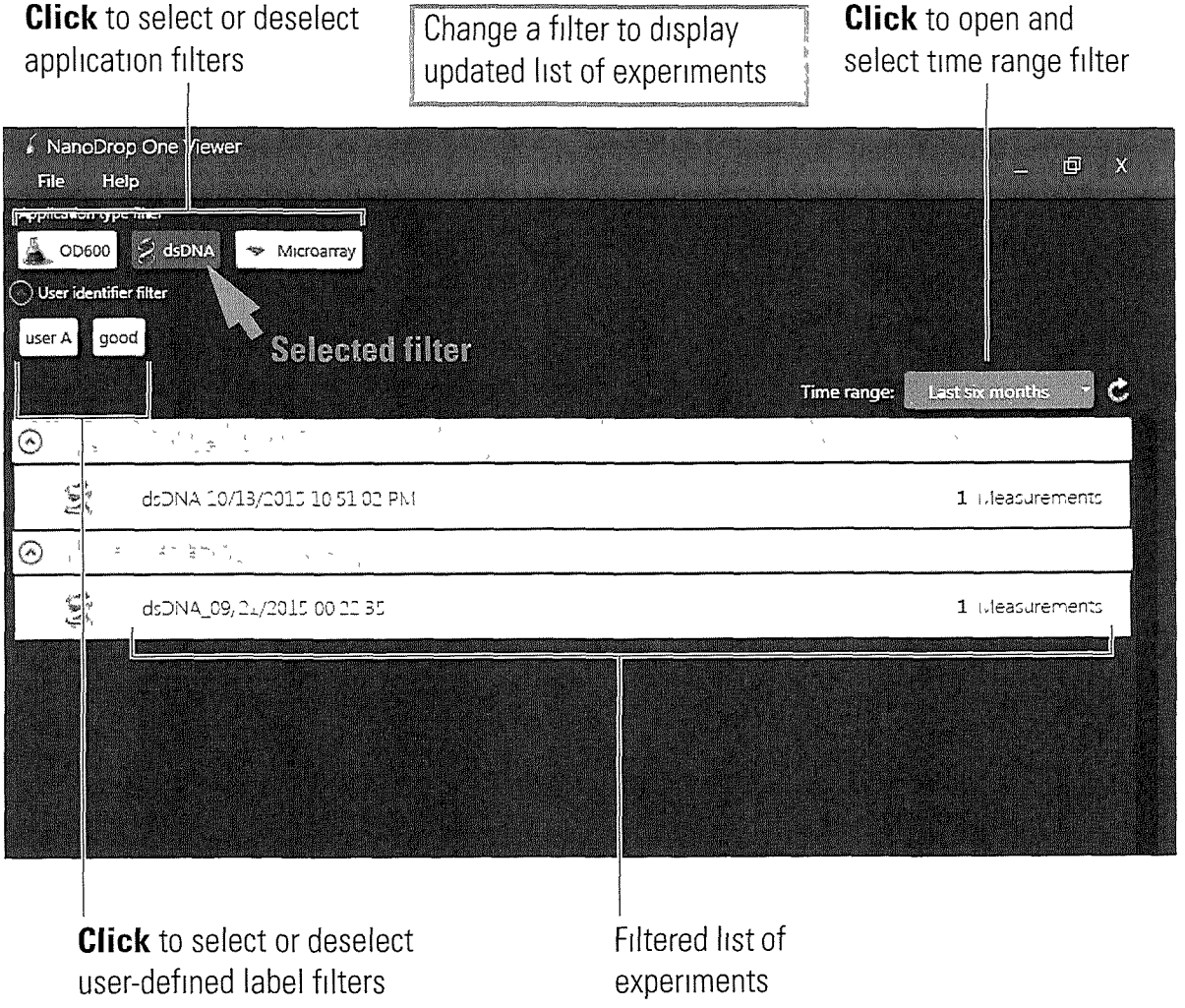
Search experiment list

To search the experiment list, change a filter setting on the Viewer Home screen The list is updated automatically These filters are available

- **Application type** Only applications that have associated experiments in the Viewer database are available To list only the experiments acquired using the OD600 application, for example, select **OD600** under the Application Type filter (selected filter buttons are blue) To turn off the Application Type filter, make sure none of the buttons are selected

- **User identifier** Only labels assigned to experiments in the Viewer database are available To list only the experiments that contain the "Good" label, for example, select **Good** under the User Identifier filter (selected filter buttons are blue) To turn off the User Identifier filter, make sure none of the buttons are selected
- **Time range** To list only the experiments acquired during a particular date range (during the last six months, for example), select the date range from the drop down list To turn off the time range filter, set it to **All**

Here is an example of database filtering



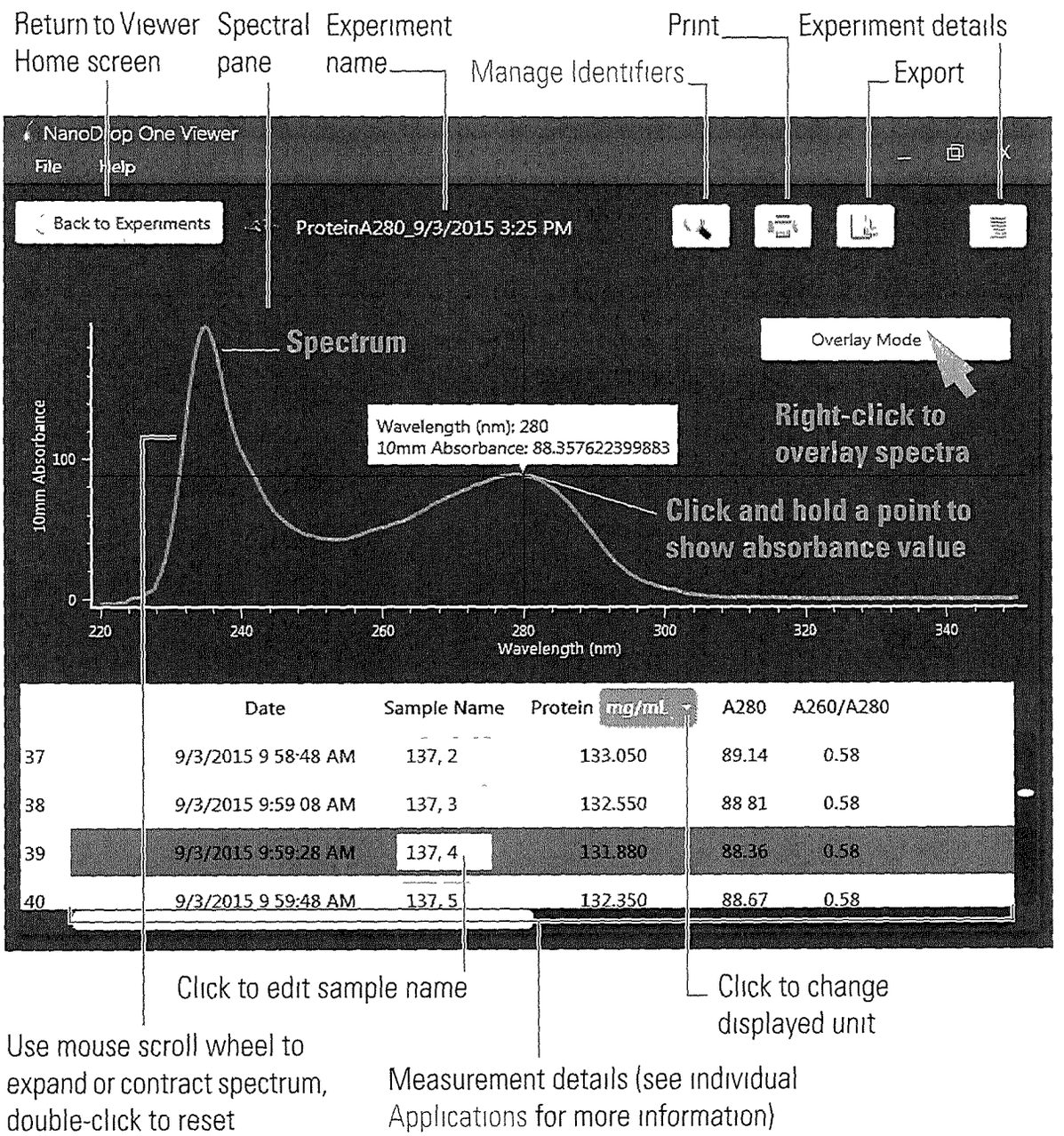
Open Experiment and View Associated Data

Use the Viewer software to open experiments stored in the Viewer database in order to view, print or export the spectra and associated data The Viewer Home screen shows a list of experiments that match the current filter settings

Open experiment

- use available filters to locate the experiment (see Search Viewer Database for details)
- double-click the experiment name in the filtered experiment list (the experiment opens and the software displays the measurement screen)

These options are available from the Viewer measurement screen



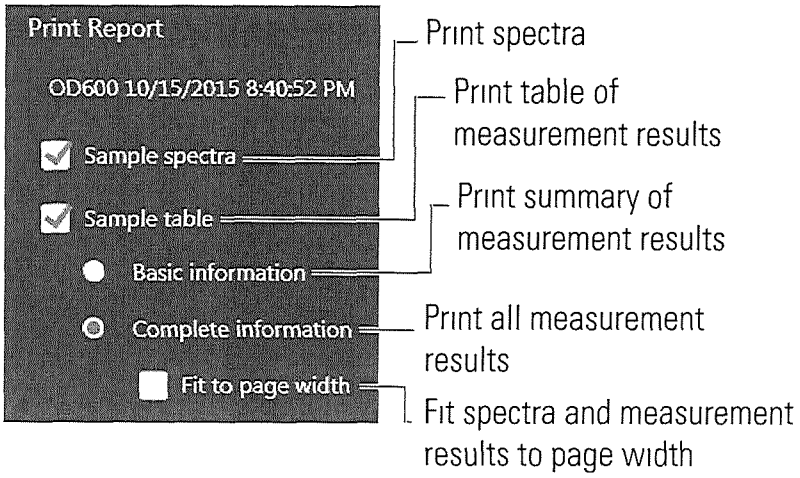
Print Data

You can print selected measurements in an open experiment using standard Windows print tools

Print selected measurements

- open the experiment
- click to select a measurements to print (use Shift+click, or click and drag, to select sequential measurements, use Ctl+click to select nonsequential measurements)
- click 

  The Print Report window is displayed with a preview of the first page, along with these options·



  These standard Windows Print options are also available:

  - Page Setup (to select paper size and adjust margins and page orientation)
  - Print Preview (allows all pages to be previewed)
- click **Print**
- select a printer
- click **Print**

Export Data

You can export spectra and results for selected measurements to these formats

- measurement results only to comma-separated values spreadsheet (csv) file
- spectral data only (absorbance value at each wavelength) to tab-separated values spreadsheet (tsv) file
- spectral data to tsv file and measurement results to csv file
- NanoDrop One database (sql) file containing spectra and measurement results that can be opened from the instrument or from the NanoDrop One Viewer software
- spectral data to xml spreadsheet (xml) file

The filenames are the same as the experiment names Use any spreadsheet or word processing application to open a CSV, TSV or XML file The SQL file can be opened only using our NanoDrop One Viewer software, and only after the file has been imported The XML file can also be opened with an XML reader application

Export selected measurements

- open the experiment
- click to select a measurement to export (use Shift+click to select sequential measurements, use Ctl+click to select nonsequential measurements)
- click 
- in Export Experiments box.
  - navigate to a location for saving the exported data
  - set **Save As Type** to the desired format (see above for descriptions of available options)
- choose **Save**

Note The Export Data feature is unavailable in the NanoDrop One Viewer software when the computer is connected to the instrument with an Ethernet cable

Delete Data

You can delete an experiment from the Viewer database

Delete selected experiment

- use available filters to locate the experiment (see Search Viewer Database for details)
- right-click the experiment name in the filtered experiment list
- choose **Delete Experiment**

NOTICE *Deleted data cannot be recovered*

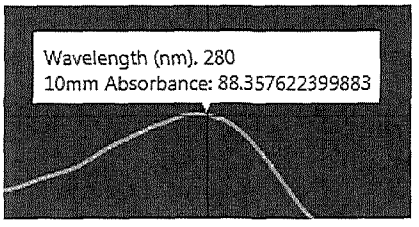
Find Absorbance Values on a Spectrum

You can easily view the absorbance value that corresponds with any wavelength in a displayed spectrum

Find absorbance values on a spectrum

- open the experiment
- select the measurement
- click and hold the point on the displayed spectrum

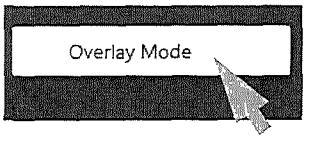
  The wavelength and corresponding absorbance value are displayed in a popup box



Note You can also drag the mouse along the spectrum's X-axis to display absorbance values sequentially

Overlay Spectra

If you want to display the spectra for all measurements in the experiment layered on top of each other in the spectral pane, open the experiment, right-click the spectral pane and select **Overlay Mode** The spectra are displayed in a variety of colors



Note To display multiple selected spectra layered on top of each other without using Overlay Mode, simply select the measurements in the open experiment

Expand or Contract Displayed Spectra

After you open an experiment, you can use the **scroll wheel on your mouse** to expand or contract a displayed spectrum or spectra along the X- and Y-axis

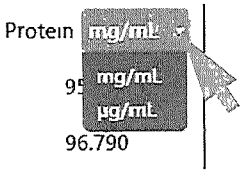
To reset both axes, double-click the spectral pane

Change Concentration Unit

Many applications offer a choice of concentration units

Change concentration unit for selected experiment

- open the experiment
- use the drop down menu, if available, in the measurement table to change the displayed unit



After the unit is changed, all reported concentration results are recalculated to comply with the new unit.

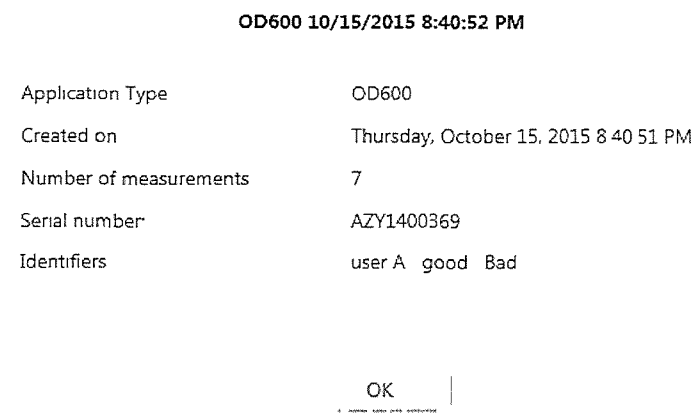
View Experiment Details

You can display information about the open experiment including application type, date and time measured, number of measurements, instrument serial number and any assigned labels

View experiment details

- open the experiment
- click 

Here is an example



Manage Identifiers on a PC

You can add one or more "identifiers" (i e , labels or metadata tags) to an experiment to make the experiment easier to find Labels can be added from the NanoDrop One software running on the instrument (see Manage identifiers on the instrument), or from the NanoDrop One Viewer software installed on a personal computer

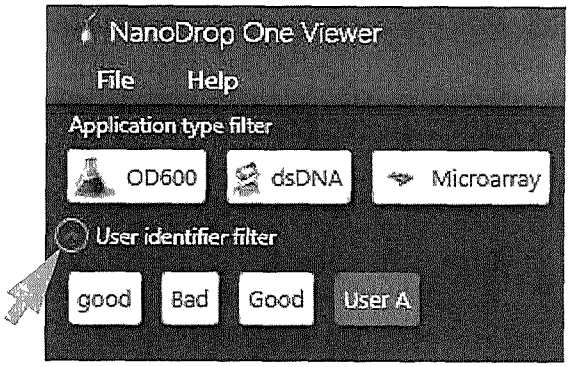
Use the Viewer software to add labels to experiments, assign existing labels, view assigned labels and remove or delete labels on a personal computer You can filter the list of experiments based on one or more user-defined labels.

Show or Hide User Identifier Filter Buttons

The user identifier filters can be shown or (if you have a lot of them) hidden to allow more space for the experiment list

Show User Identifier filter buttons

– click the adjacent arrow so the arrow points up



Hide User Identifier Filter buttons

– click the adjacent arrow so the arrow points down

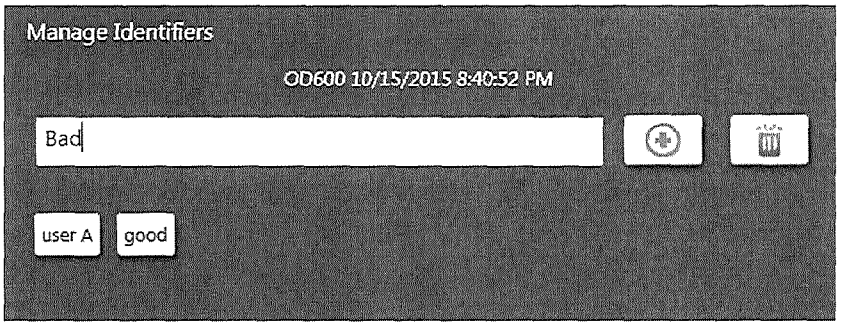
Label Experiment in Viewer

You can use the Viewer software to add user-defined labels to experiments The list of experiments can then be filtered based on those labels (see Find labeled experiment for details)

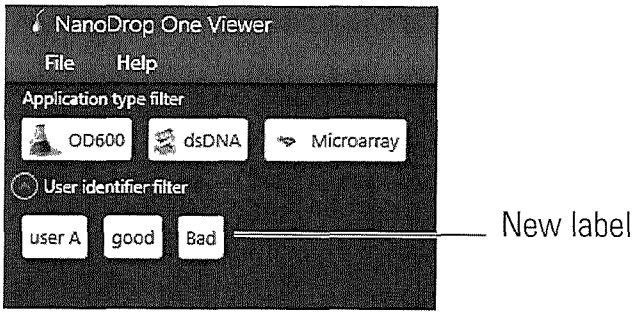
Add new label to experiment

– from Viewer Home screen, right-click experiment in experiment list and choose **Manage Identifiers**

– in Manage Identifiers box, enter label and tap  or press Enter key (new label appears below entry box)



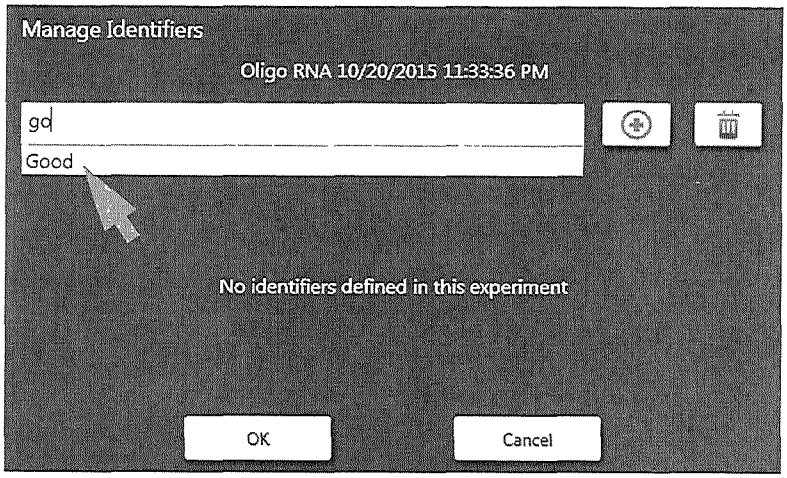
– choose **OK** (new label appears in User Identifier Filter group on Viewer Home screen)



Assign existing label to experiment

– from Viewer Home screen, right-click experiment in experiment list and choose **Manage Identifiers**

– in Manage Identifiers box, start typing existing label name (actual name of existing label appears below entry box)



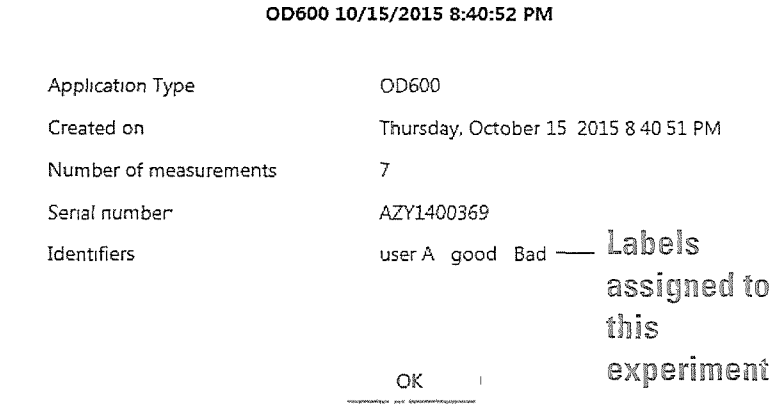
– select auto-filled existing label and choose **OK** (existing label is added to selected experiment)

View Labels Assigned to an Experiment

You can use the Viewer software to see all the user-defined labels assigned to an experiment

View assigned labels

- from Viewer Home screen, right-click experiment in experiment list and choose **Experiment Details**



- choose **OK**

Find Labeled Experiments

You can use the Viewer software to find experiments with assigned user-defined labels The database is automatically filtered using the current filter settings

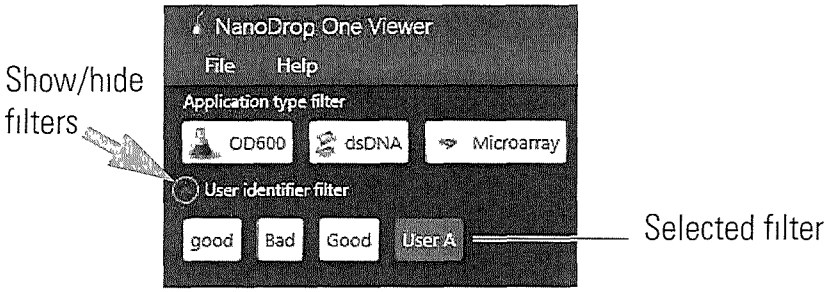
Find experiments that have a particular user-defined label

from Viewer Home screen, set search filters

- deselect any **Application Type filters**, if desired, so the experiments acquired with all applications are listed
- set Time Range filter, if desired (only experiments acquired in selected range are listed)

– click each **User Identifier filter** button to select it (selected filter buttons are blue)

(if the buttons are hidden, click the adjacent arrow to show them)



The list of experiments is filtered and updated automatically so only experiments that match the selected filters are listed

Remove a Label

You can use the Viewer software to easily remove a user-defined label from an experiment A removed label remains in the User Identifier Filter list if it is still assigned to other experiments

Remove a label

– from Viewer Home screen, right-click experiment in experiment list and choose **Manage Identifiers**

– in Manage Identifiers box, select one or more label buttons (selected label buttons are blue)

– tap  (selected label(s) no longer appear below entry box)

– choose **OK**

Note To delete a user-defined label from the software, you must remove it from all the experiments it is assigned to

Manage Custom Methods

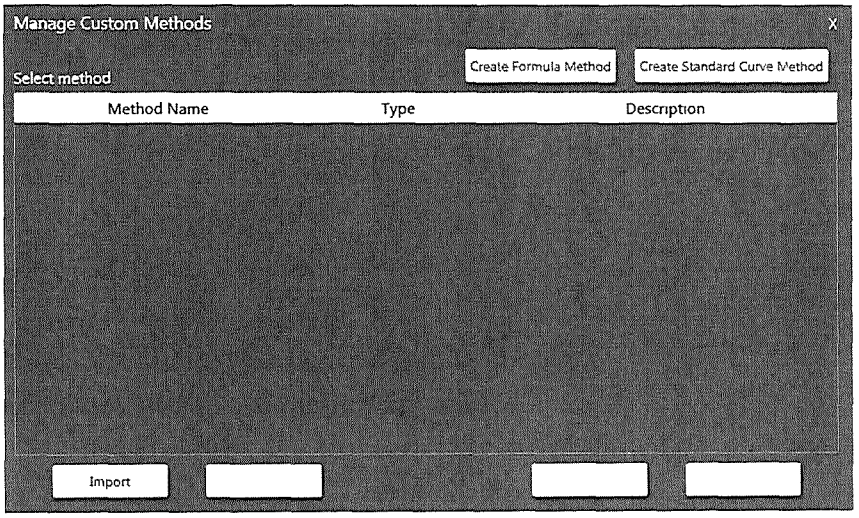
The Viewer software is your tool for creating and managing custom methods, which contain user-defined settings that can be used to acquire data with the instrument Custom methods can be made with or without standards

Create Custom Method

Create method to be used for sample measurements with user-defined settings.

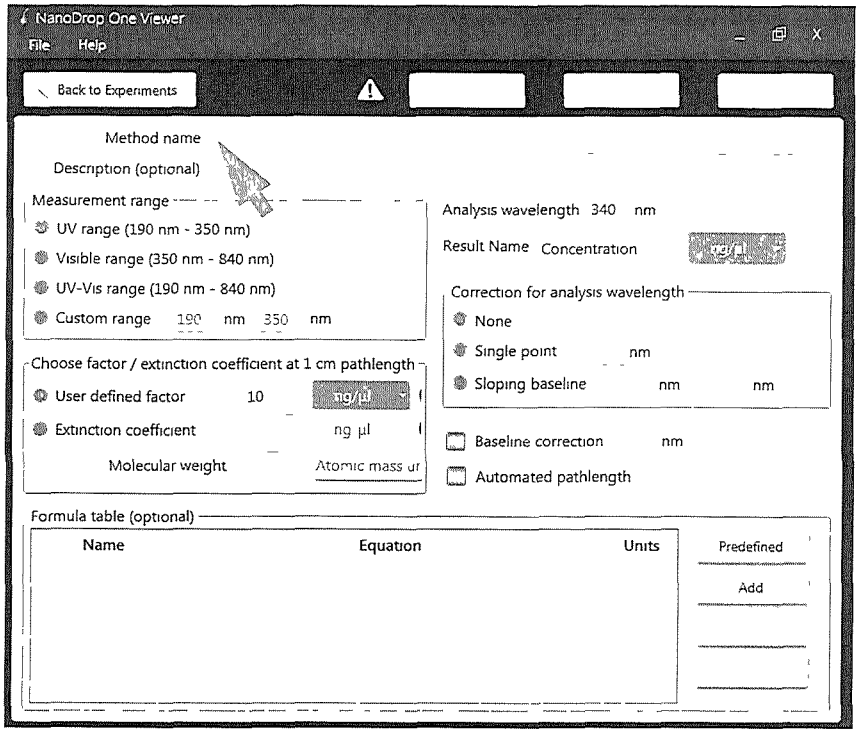
Create new custom method

- from Viewer Home screen, choose **Custom Methods** (menu) > **Manage Custom Methods**



- in Manage Custom Methods box, choose one of the following.
  - **Create Formula Method** (if your method will not have standards)
  - **Create Standard Curve Method** (if your method will have standards)

– in the setup window, enter **Method Name** (this name appears in the Custom Setup box on the instrument after the method has been transferred there)

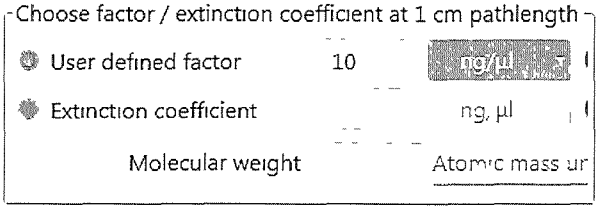


Custom Method Setup for Create Formula Method selection

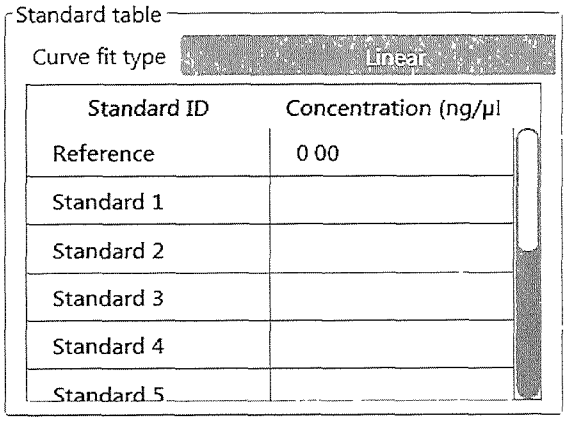
– enter detailed **Description** of method, if desired

– specify how to calculate and report the method results

  – if method does not have standards, specify factor or extinction coefficient of analyte (enter "1" to report absorbance measurements only)



- if method has standards, enter name and concentration of each standard and select the curve fit type



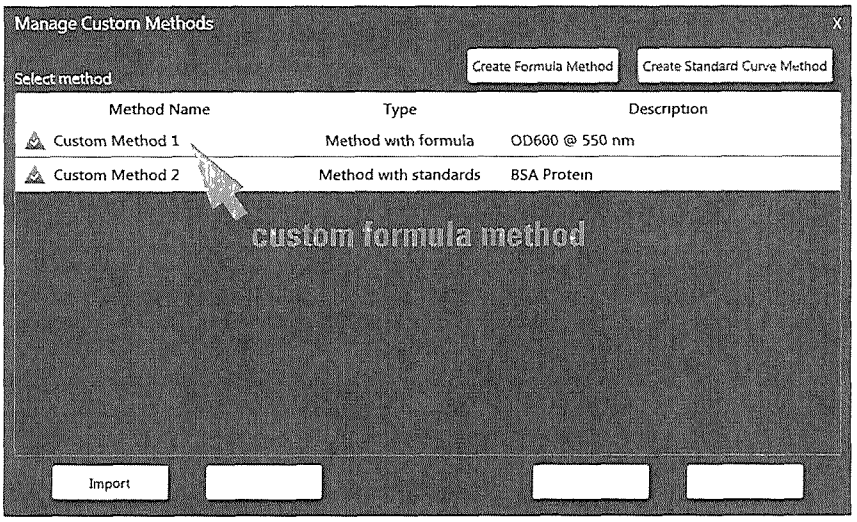
- enter or choose remaining custom settings as needed (see below)
- choose **Save**

Note If this icon ⚠ appears next to the Save button instead of a green check mark icon, the method is invalid because it contains an error Hover your mouse over the icon for suggested solutions

if the method has a green check mark icon at the top, tap **Close** to exit method setup

View or edit custom method

– choose **Custom Methods** (menu) > **Manage Custom Methods** (existing methods are listed in Select Method box along with their type (formula or standards) and Description

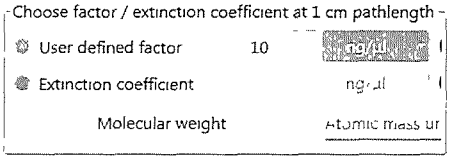


Custom method settings

These settings are available for creating custom methods

Setting	Available Options
Measurement range	Select spectral range in which method will acquire data Available options: • Ultra-violet only (190 nm - 350 nm) • Visible only (350 nm - 850 nm) • Ultra-violet and visible (190 nm - 850 nm) • Custom (specify starting and ending point in nanometers) **Notes** • If a Baseline correction and/or Analysis wavelength correction are used, make sure your selected spectral range includes your specified baseline correction and/or analysis correction wavelength • For micro-volume absorbance measurements and measurements taken with nonstandard (other than 10 mm) cuvettes, the spectra are normalized to a 10 mm pathlength equivalent
Analysis wavelength	Monitor absorbance at specified wavelength (enter the wavelength in nanometers) **Note** The specified wavelength must fall within the selected measurement range The measurement results or the concentration will be calculated automatically using the absorbance value at the specified wavelength and applying the selected method type (factor or standard curve).
Result name	Enter descriptive name for calculated concentration result (for example, "Nucleic Acid") and use adjacent drop down list to select appropriate unit Result name appears as column heading for reported concentration value

Setting	Available Options
Factor or Extinction coefficient at 1 cm pathlength (Formula methods only)	Specify whether to use factor or extinction coefficient to calculate concentration result



- **User-defined factor** Enter **factor** for 1 cm pathlength and use adjacent drop down list to select appropriate **unit**. Equation below shows how factor is used to calculate sample concentration

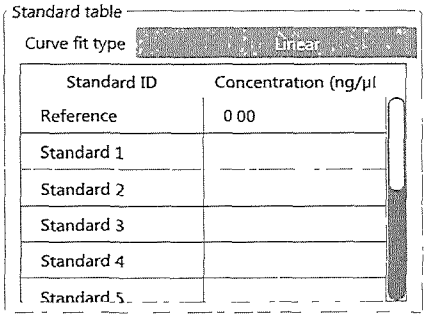
$$c = (A * f) / b$$

where
c = analyte concentration
A = absorbance in absorbance units (A)
f = factor (typically 1/**ε**, where **ε** = wavelength-dependent molar absorptivity coefficient, or extinction coefficient)
b = pathlength in cm (determined at measurement time, then normalized to 10 mm (1 cm) pathlength equivalent)

- **Extinction coefficient and molecular weight**. Enter **extinction coefficient** for 1 cm pathlength and use adjacent drop down list to select appropriate **unit** Equation below shows how extinction coefficient is used to calculate sample concentration

$$c = A / (\varepsilon * b)$$

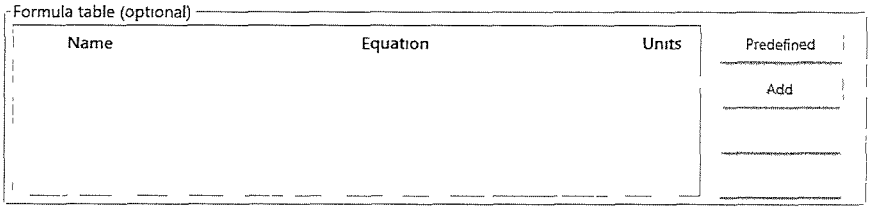
where
c = analyte concentration
A = absorbance in absorbance units (A)
ε = wavelength-dependent molar absorptivity coefficient (or extinction coefficient)
b = pathlength in cm (determined at measurement time, then normalized to 10 mm (1 cm) pathlength equivalent)

Setting	Available Options
	Notes • Refer to product literature for information about factors and extinction coefficients for specific materials • To set up a method that reports absorbance measurements only, select Factor or Extinction Coefficient with the factor or extinction coefficient set to "1" • If specified unit for factor or extinction coefficient is based on mass (such as mg/mL) and specified unit for calculated result is based on molarity (such as pmol/µL) or vice versa, enter **molecular weight** and use adjacent drop down list to select appropriate **unit**
Standards (Standard curve methods only)	Define the standards:  • Enter name and analyte concentration of each standard and a reference, if desired – Depending on the Curve Type setting, a standard curve can be generated using two or more standards (The software **allows a reference and up to 7 standards**) – **All reference and standards solutions** should be in the same buffer used to resuspend the samples plus the same volume of reagent added to the samples – **First standard** can be a reference measurement The reference solution should contain none of the analyte of interest (The reference measurement is not the same as a blank measurement) – **Concentration values for standards** can be entered in any order but the standards must be measured in the order in which they were entered, however, best practice dictates that standards be measured from the lowest concentration of the standard analyte stock to the highest – **Concentration range of the standards** must cover the dynamic range of the assay and the expected range of the unknown samples Sample analyte concentrations are not extrapolated beyond the concentration of the highest standard For more information, see Working with Standard Curves

Setting	Available Options
	• Select curve fit type Specify type of equation used to create standard curve from standard concentration values. Available options – **Linear** Draws the linear least squares line through all measured standards (requires reference measurement and at least one standard) – **Interpolation** Draws a series of straight lines to connect all measured standards (requires reference measurement and at least one standard) – **2nd order polynomial** Draws the 2nd order least squares polynomial using all measured standards (requires reference measurement and at least two standards) – **3rd order polynomial** Draws the 3rd order least squares polynomial using all measured standards (requires reference measurement and at least three standards)
Baseline correction	Select this option to correct offset caused by light scattering particulates by subtracting the absorbance at a specified baseline point Then specify wavelength for baseline correction **Note** Software subtracts absorbance value at specified baseline correction wavelength from absorbance values at all wavelengths in sample spectrum As a result, absorbance of sample spectrum is zero at specified baseline correction wavelength
Analysis wavelength correction	Use this option to specify absorbance correction at analysis wavelength only Available options • **None.** No correction at analysis wavelength • **Single point** Enter wavelength for analysis correction (Absorbance value at specified analysis correction wavelength is subtracted from absorbance value at analysis wavelength. Corrected value is used to calculate sample concentration) • **Sloping baseline** Enter two wavelengths that define sloping baseline for analysis correction. (Absorbance value of sloping baseline at analysis wavelength is subtracted from absorbance value at analysis wavelength Corrected value is used to calculate sample concentration)

Setting	Available Options
Automated pathlength	Affects micro-volume measurements only • When Automated Pathlength is selected, software selects the optimal pathlength (between 1 0 mm and 0 03 mm) based on sample absorbance at the analysis wavelength For example, when sample absorbance at the analysis wavelength is less than or equal to 12.5 (10 mm pathlength equivalent), the optimal longer pathlength is used When sample absorbance is greater than 12 5, the optimal shorter pathlength is used Recommended for samples that are highly absorbing at the analysis wavelength (This option may cause reduced sensitivity when the sample spectra have a large absorbance peak that is not at the analysis wavelength) **Note** When the analysis wavelength is between 190 nm and 219 nm, the optimal longer pathlength is used when sample absorbance is less than or equal to 10 (10 mm pathlength equivalent), and the optimal shorter pathlength is used when sample absorbance is greater than 10 • When Automated Pathlength is deselected, the software uses a 1 mm pathlength regardless of the sample absorbance This can cause detector saturation (resulting in jagged peaks) for highly absorbing samples (e g , ~15 A at 10 mm pathlength equivalent)

Setting	Available Options

Formula table (optional)	Use the Formula table to specify additional reported results, such as a purity ratio, for each sample
	 
	
	Available options
	• **Predefined.** Select from a list of predefined formulas, which can be used as is or edited, and choose **Add** The predefined formula is listed in the Formula Table
	• **Add** Create formula for current method Available options.
	  • **Formula Name** Enter a name for the formula After a measurement, the name is reported in Data Table and Sample Details screens
	  • **Formula.** Enter valid formula (see below for rules and examples) After a measurement, the measured or calculated value is reported in Data Table and Sample Details screens
	  • **Unit.** Enter unit for reported result After a measurement, the unit is reported in Data Table and Sample Details screens
	• **Edit** Edit selected formula for current method
	• **Delete** Delete selected formula from current method

Formula rules	Custom formulas can include the following operators and functions • **Path()** Returns sample pathlength in cm • **A(nm)** Returns sample absorbance at specified wavelength (for example, enter A(650) to add the measured absorbance at 650 nm to your equation) • **Operators** + (add), - (subtract), * (multiply), / (divide). • **Functions** Log(x), Pow(x,y) **Notes** Follow these additional rules for all languages • Use period "." decimal separators for floating point and double-floating point numbers • Use comma "," list separators (for example, "POW(2,8)") • Do not use comma "," group separators for large numbers (for example, enter 1000 rather than 1,000)

Copy Custom Method

To create a custom method that is similar to an existing one, save the existing method with a new name and then edit the new method

Copy custom method

- from Manage Custom Methods box, select custom method
- choose **Edit**
- choose **Save As**
- enter new **Method name** and **Description** (optional)

Run Custom Method

If you want to run a custom method and store the measurement results on the instrument, the method must also reside on the instrument (see To Load a Custom Method for details) (This is the only way to run a custom method if your instrument is not connected to the computer with an Ethernet cable or through a wireless network)

Note If the computer is connected to the instrument with an Ethernet cable or through a wireless network, custom methods can reside on the computer and the measurement results will be stored in the NanoDrop One Viewer database on that computer For more information, see "Set Up Ethernet Connection" or "Set Up Wi-Fi Connections" in Set Up the Instrument

Export Custom Method

Export a custom method in order to run it and store the measurement results on the NanoDrop One instrument

- from Manage Custom Methods box, select custom method

Note If this icon ⚠ appears next to the method name in the Manage Custom Methods box, the method is invalid because it contains an error Hover your mouse over the icon for suggested solutions

- choose **Export** (if method is invalid, an error message is displayed, errors must be fixed before method can be exported)
- in Export Custom Method box, choose **Save** (method is exported to method file (* method filename extension) in proprietary format, default folder is "C:\[user name]\My Documents\Thermo\NanoDrop One")

  To transfer the method to the NanoDrop One instrument, copy the method file to a USB memory device and then load the method (see To Load a Custom Method for details)

Import custom method

Import a custom method back to a computer running the NanoDrop One Viewer software in order to edit the method settings

- from Manage Custom Methods box, choose **Import**
- locate and select " method" file
- choose **Open** (imported method is added to end of Select Method list)

Edit custom method

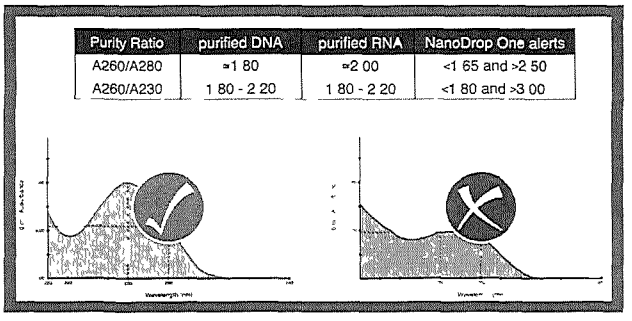
Edit a custom method in order to change the method settings

- from Manage Custom Methods box, select custom method
- choose **Edit**
- edit method settings as desired
- choose **Save**

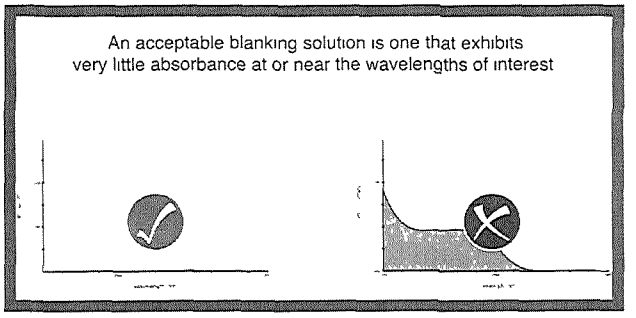
Delete custom method

- from Manage Custom Methods box, select custom method
- choose **Delete**
- after confirmation message, choose **Yes**

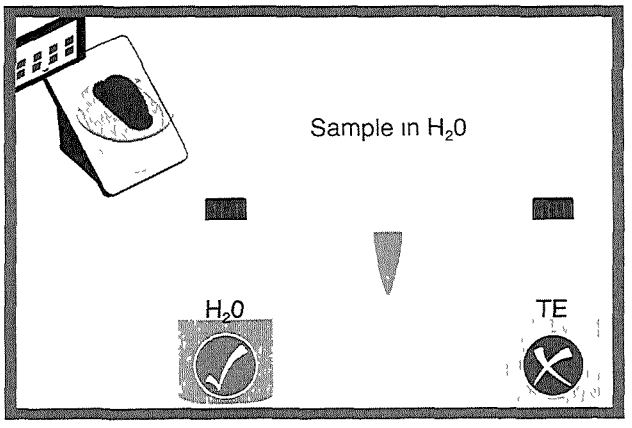
Multimedia



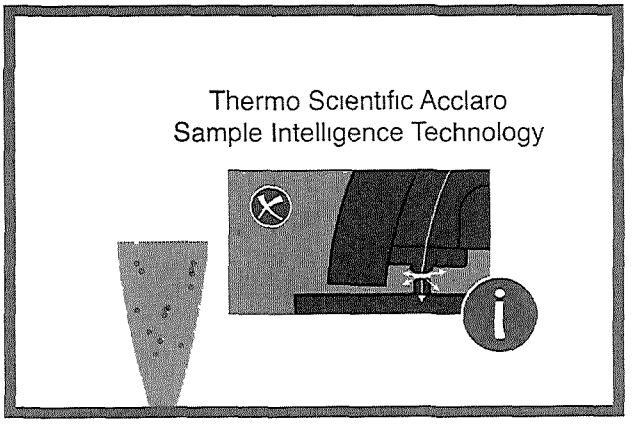
What is a Purity Ratio?



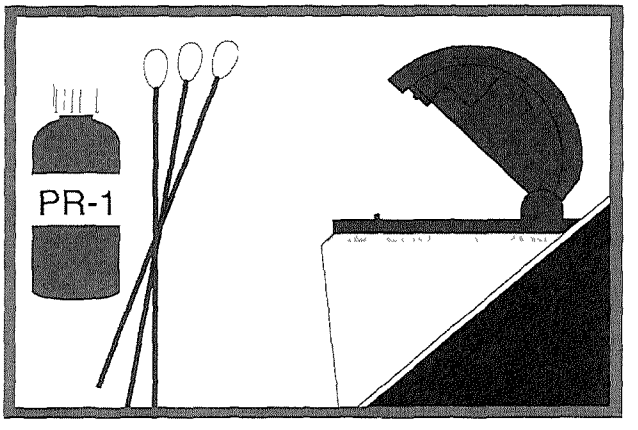
Evaluating a Blanking Solution for Suitability



What is a Blank?

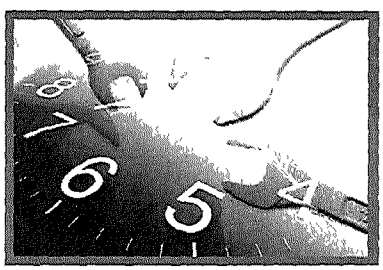


Effects of Bubbles in Samples

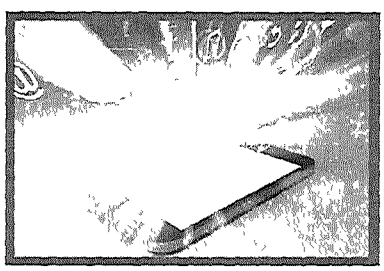


Pedestal Cleaning and Reconditioning

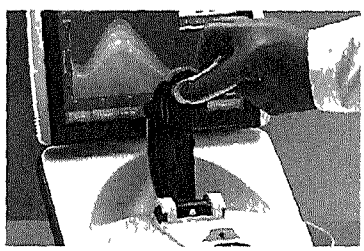
Maintaining Your Instrument



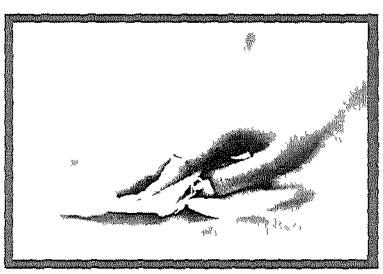
Maintenance Schedule



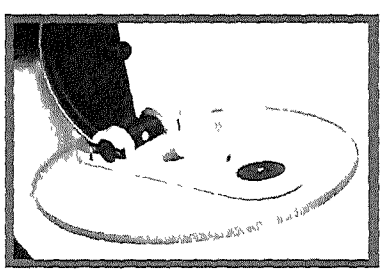
Clean Touchscreen



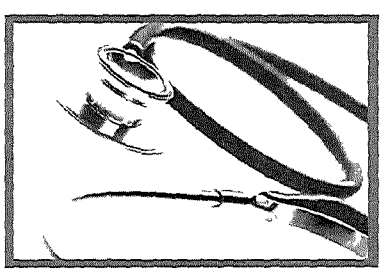
Maintain Pedestals



Decontaminate



Cuvette System

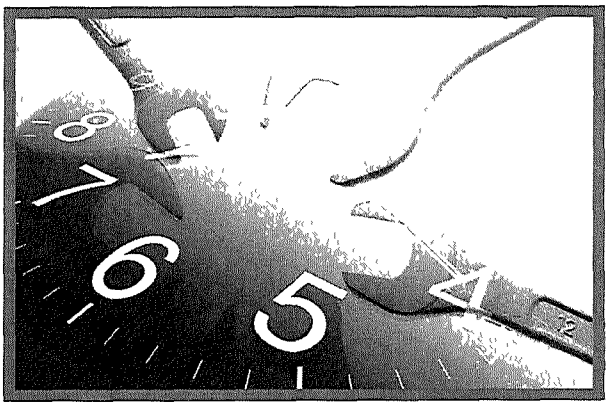


Instrument Diagnostics

Maintenance Schedule

Daily Maintenance

- Clean pedestals with deionized water



Periodic Maintenance

- Clean touchscreen
- Clean pedestals with 0 5M HCl
- Recondition pedestals

Every 6 Months

- Recondition pedestals
- Run Intensity Check
- Run Performance Verification
- Run Pedestal Image Check

If you are experiencing an issue with your system, refer to the troubleshooting information. If the issue persists, contact us. If you are outside the U S A and Canada, please contact your local distributor

If your instrument requires maintenance or repair, contact us or your local distributor

Cleaning the Touchscreen

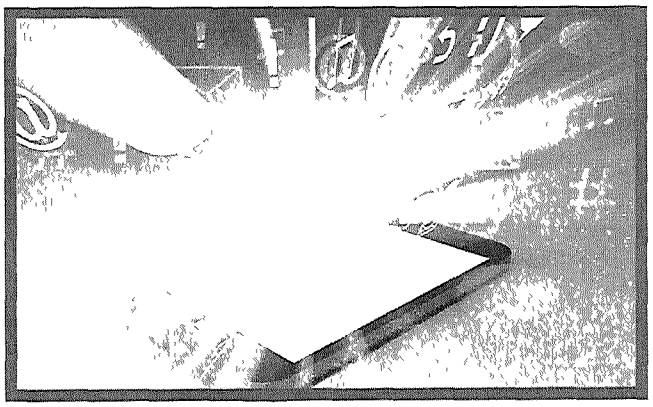
NOTICE To avoid causing permanent damage to the touchscreen, do not

- clean the touchscreen with abrasive material such as paper towel
- apply excessive pressure
- spray liquid directly onto the touchscreen
- apply lubricant to the touchscreen slide mechanism

To clean the touchscreen

Gently wipe the touchscreen with a soft, lint-free cloth such as microfiber

If necessary, use a cleaner intended for glass LCD displays and follow the manufacturer's recommendations

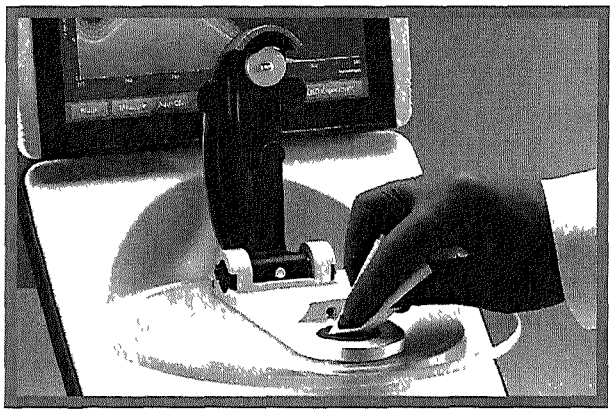


Related Topics

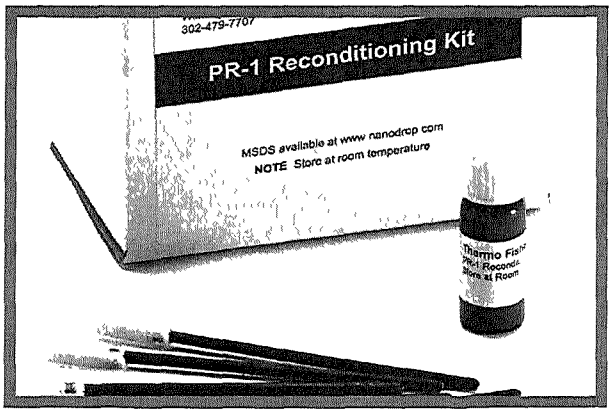
- Clean Pedestals
- Recondition Pedestals
- Decontaminate Instrument

Maintaining the Pedestals

The pedestals require periodic maintenance to maintain measurement integrity Time lines and procedures for cleaning and reconditioning the pedestals are provided below



Clean Pedestals



Recondition Pedestals

Cleaning the Pedestals

To avoid carryover and cross contamination, clean the pedestals before the first blank or sample measurement and at the end of each measurement Additional cleaning (see below) or reconditioning may be required for periodic maintenance

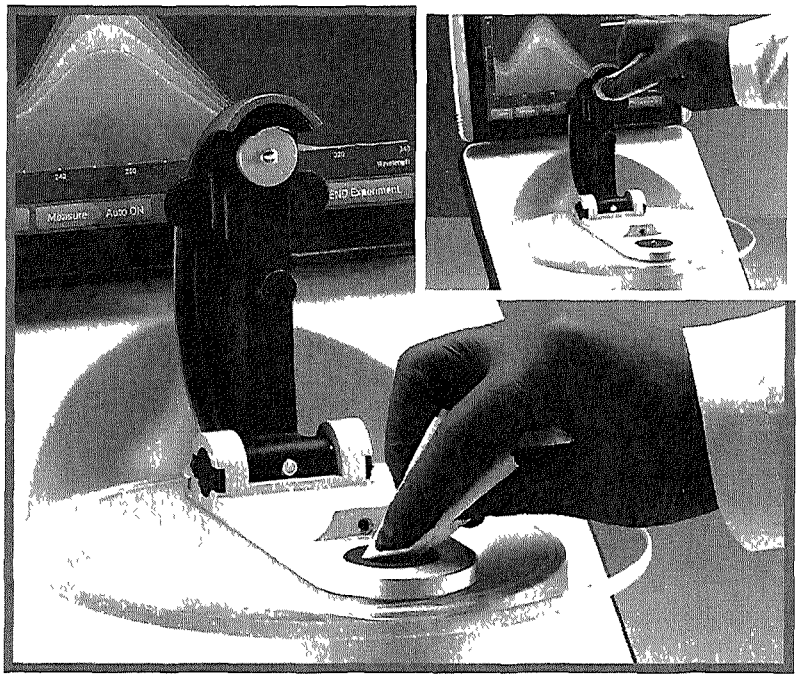
NOTICE

- Do not use hydrofluoric acid (HF) on the pedestals Fluoride ions will permanently damage the quartz fiber optic cables
- To prevent damage from spills, keep containers of liquids away from the instrument
- Do not use a squirt or spray bottle on or near the instrument as liquids will flow into the instrument and may cause permanent damage
- Do not attempt to remove the diaphragm around the lower pedestal as it is permanently affixed to the instrument
- Do not allow HCl, alcohol, bleach, acetone or any other solvent to remain on the diaphragm for more than one minute or it may loosen the seals If the diaphragm becomes loose, contact us

Note Solutions containing detergent or isopropyl alcohol may uncondition the pedestals. If these are required for sample analyses, follow immediately with 3–5 µL DI H_2O.

Supplies needed

- lint-free laboratory wipes
- deionized water (DI H_2O)
- for thorough cleaning, PR-1 kit or 0 5M HCl



To clean the pedestals between measurements

Lift the instrument arm and clean the upper and lower pedestal with a new laboratory wipe

To clean the pedestals between users

1 Lift the arm and clean both pedestals with a new laboratory wipe

2 Pipette 3–5 µL DI H_2O onto the lower pedestal

3 Lower the arm and wait 2–3 minutes

4 Lift the arm and clean both pedestals with a new wipe.

Tip When thorough cleaning is required (for example, to remove dried sample left on the pedestals), substitute 0 5M HCl for the DI H2O in the procedure above and follow with 3-5 µL DI H2O You can also recondition the pedestals using PR-1 compound

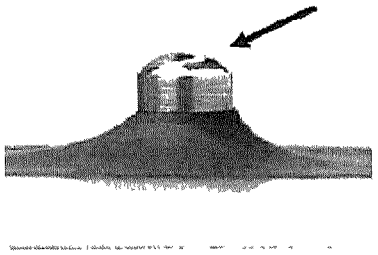
Related Topics

- Recondition Pedestals
- Clean Touchscreen
- Decontaminate Instrument

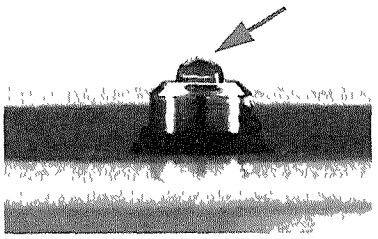
Reconditioning the Pedestals

The pedestal surfaces may lose their "conditioned" properties over time, especially after measurements with isopropyl alcohol or solutions that contain surfactants or detergents such as the Bradford reagent. An unconditioned pedestal causes droplets on the lower pedestal to "flatten out," preventing proper formation of the liquid column when the arm is lowered The resulting spectrum may look "rough" or "jagged."

If samples flatten out on the pedestal (rather than "beading up" or forming a rounded droplet) or the liquid column breaks during a measurement, recondition the pedestals



Unconditioned pedestal
(droplet flattens out)

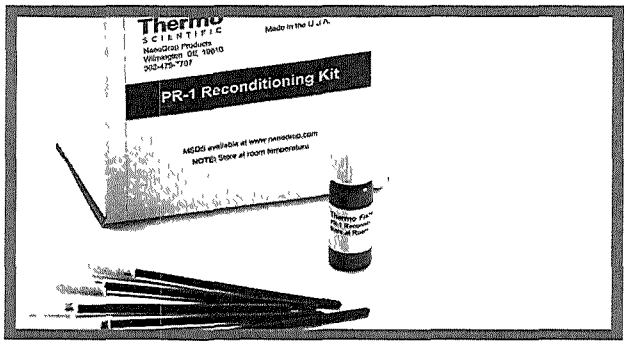


Properly conditioned pedestal
(droplet beads up)

Supplies needed

- lint-free laboratory wipes
- PR-1 pedestal reconditioning kit (available from us or a local distributor)
- calibrated precision pipettor (0-2 µL)
- canned air

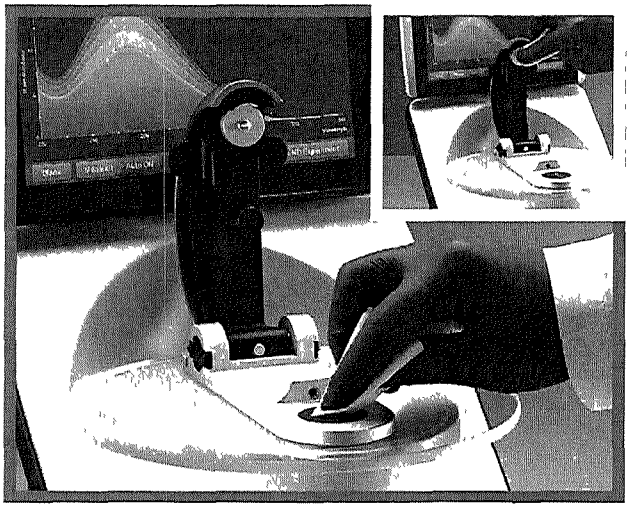
To recondition the pedestals



1 Open the container of PR-1 compound and use the provided applicator to remove a pin-head sized amount of the compound

2 Apply a thin, even layer of reconditioning compound to the surface of the upper and lower pedestal

Wait 30 seconds for the PR-1 compound to dry



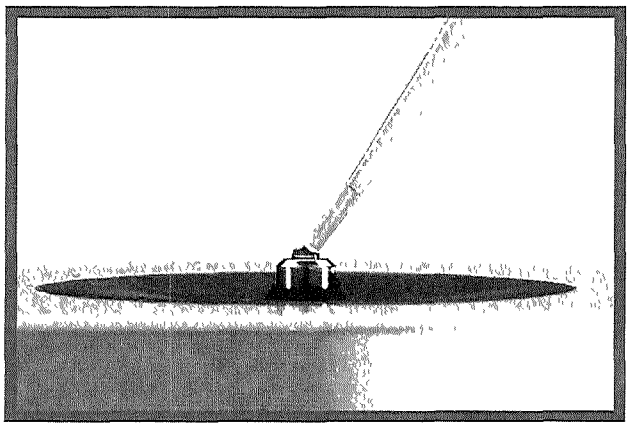
3 Fold a clean laboratory wipe into quarters and use it to vigorously buff the surface of each pedestal

Notice Support the instrument arm with one hand while you buff the upper pedestal to avoid damaging the arm

Tip: Black residue on the wipe is normal

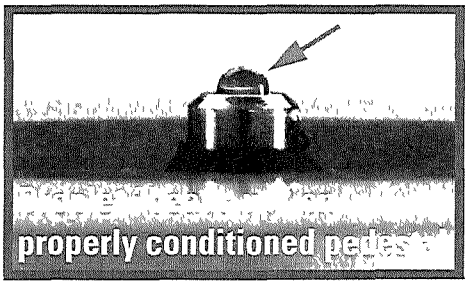
4. Repeat step 3 with a new folded wipe until all residue is removed and the pedestals buff clean

5 Use canned air to remove any paper residue from the pedestals



6 Pipette 1 µL DI H_2O onto the lower pedestal

The DI H_2O should "bead up" or form a rounded droplet



Tip The PR-1 pedestal reconditioning compound is the easiest way to recondition the pedestals. If you don't have a PR-1 kit, follow these steps:

1 Lift the instrument arm and pipette 3 µL 0.5M HCl onto the lower pedestal

2 Lower the arm and wait 2–3 minutes

3 Lift the arm and clean both pedestals with a new laboratory wipe

4 Pipette 3 µL DI H_2O onto the lower pedestal

5 Lower the arm and wait 2–3 minutes.

6 Lift the arm and clean both pedestals with a new wipe.

NOTICE. Support the instrument arm with one hand while you buff the upper pedestal to avoid damaging the arm

7 Fold a clean laboratory wipe into quarters and use it to vigorously buff the surface of each pedestal at least 50 times

8 Use canned air to remove any paper residue from the pedestals.

Related Topics

- PR-1 Pedestal Reconditioning Kit
- Clean Pedestals
- Clean Touchscreen
- Decontaminate Instrument

Decontaminating the Instrument

Decontaminate the instrument after measurements with samples that contain hazardous materials and before returning the instrument to us for maintenance or repair.

Note If your instrument requires maintenance or repair, contact us or your local distributor

NOTICE

- Do not use hydrofluoric acid (HF) on the pedestals Fluoride ions will permanently damage the quartz fiber optic cables
- To prevent damage from spills, keep containers of liquids away from the instrument
- Do not use a squirt or spray bottle on or near the instrument as liquids will flow into the instrument and may cause permanent damage
- Do not attempt to remove the diaphragm around the lower pedestal as it is permanently affixed to the instrument
- Do not allow HCl, alcohol, bleach, acetone or any other solvent to remain on the diaphragm for more than one minute or it may loosen the seals If the diaphragm becomes loose, contact us

Supplies needed

- lint-free laboratory wipes
- deionized water (DI H_2O)
- 0 5% sodium hypochlorite solution (1 10 dilution of commercial bleach, freshly prepared)
- pipettor

To decontaminate the pedestals

1 Lift the instrument arm and clean the upper and lower pedestal with a new laboratory wipe.

2 Pipette 2–3 µL diluted bleach solution (see Supplies needed) onto the lower pedestal

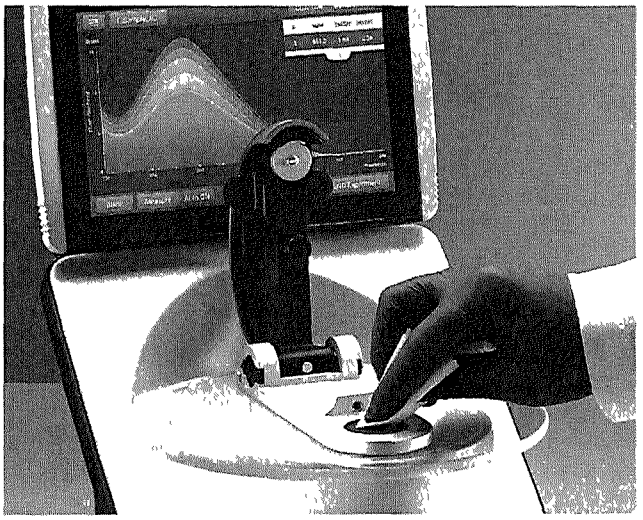
3 Lower the arm and wait 2–3 minutes

4 Lift the arm and clean both pedestals with a new wipe

5 Pipette 3–5 µL DI H_2O onto the lower pedestal

6 Lower the arm and wait 2–3 minutes

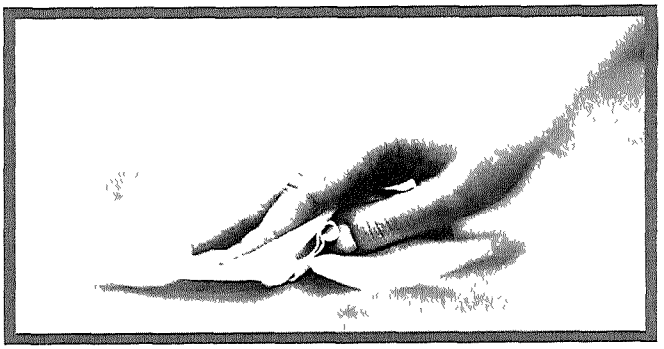
7. Lift the arm and clean both pedestals with a new wipe



To decontaminate the instrument surfaces

1 Dampen a clean, soft cloth or laboratory wipe with the diluted bleach solution (see Supplies needed) and use it to gently wipe the outside surfaces of the instrument

2 Use a clean cloth or wipe dampened with DI H_2O to remove the bleach solution



Related Topics

- Clean Pedestals
- Recondition Pedestals
- Clean Touchscreen

Maintaining the Cuvette Sampling System

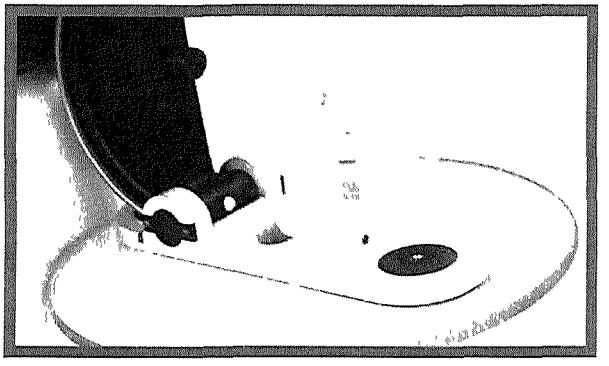
The cuvette sampling system is included only with the NanoDrop One^C model instrument For information about compatible cuvettes, see Measuring a Sample using a Cuvette

Note Clean and dry cuvettes after each measurement Use cuvettes that are free of scratches and avoid fingerprints which may affect results

NOTICE Do not use a squirt or spray bottle on or near the instrument as liquids will flow into the instrument and may cause permanent damage.

To maintain the cuvette sampling system

- Keep the instrument arm closed when the instrument is not in use
- Use canned air to remove any dust from the cuvette holder
- Clean up any spills inside the cuvette holder with a new laboratory wipe



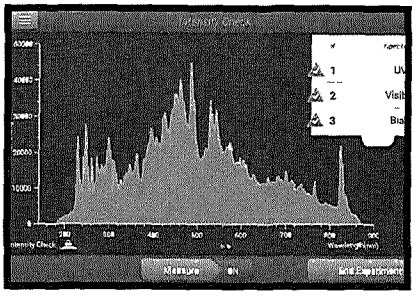
To clean and maintain cuvettes, follow the recommendations of the cuvette manufacturer

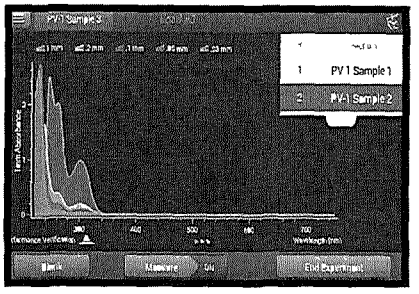
Related Topics

- Measure Cuvette Sample
- Best Practices for Cuvette Measurements

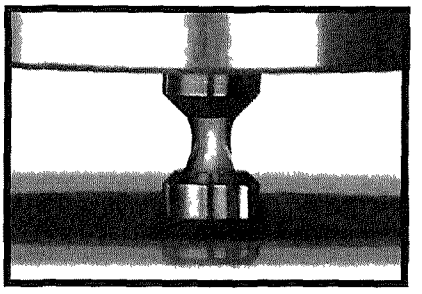
Instrument Diagnostics

Every 6 months, run the following performance and quality checks to verify instrument operation


Intensity Check



Performance Verification


Pedestal Image Check

Intensity Check

Run Intensity Check every 6 months to verify operation of the instrument's internal components. The test measures the intensity of light from the xenon source through the instrument to verify that throughput, wavelength accuracy, and bias are within specifications If the instrument has a cuvette holder (NanoDrop One^{C} model only), the test is automatically repeated using the cuvette optical path

Supplies needed

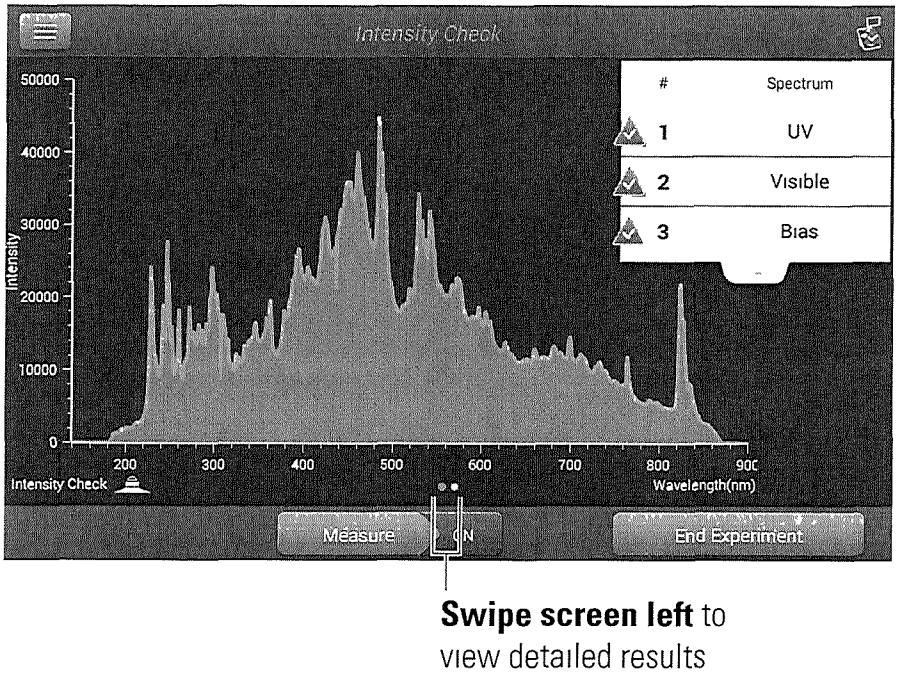
- lint-free laboratory wipes

To run intensity check

1. Lift the instrument arm and clean the upper and lower pedestal with a new laboratory wipe
2. For the NanoDrop One^{C} model instrument, remove any cuvette from the cuvette holder
3. Lower the arm
4. From the instrument home screen, tap  (Diagnostics) and then tap **Intensity Check**

5 Tap **Measure** and wait for the measurements to complete

Here is an example of a typical intensity check result screen

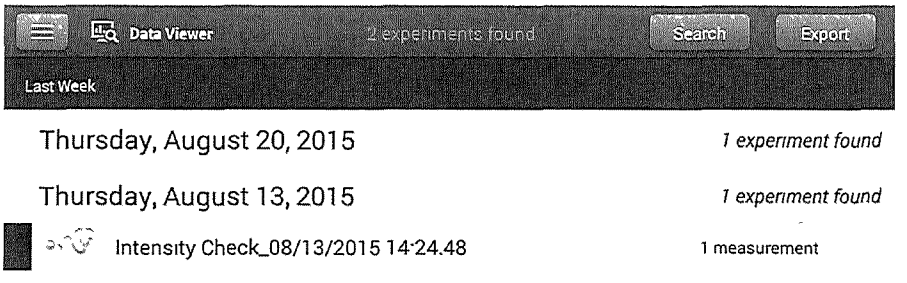


Swipe screen left to view detailed results

6 To rerun the intensity check, tap **Measure**

7 When finished, tap **End Experiment**

After the test is completed, the results are available from the Data Viewer (see example below) See Manage identifiers on the instrument for details



To interpret intensity check results

If one of these indicators

- UV
- Visible
- Bias

has an adjacent yellow triangle instead of the green check marks shown above, clean the pedestals with deionized water and then repeat the Intensity Check

If a yellow triangle appears next to the Bias indicator, make sure the room is within the temperature specifications for the instrument

If the Intensity Check fails again, contact us

Related Topics

- Performance Verification
- Pedestal Image Check

Performance Verification

Run Performance Verification every 6 months to confirm pathlength accuracy is within specifications.

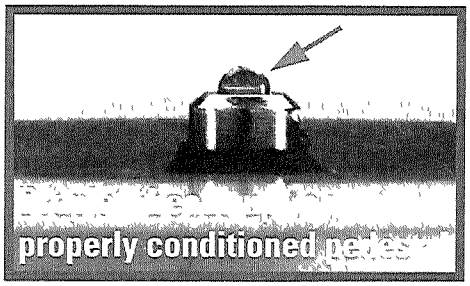
Supplies needed

- lint-free laboratory wipes
- deionized water (DI H_2O)
- calibrated precision pipettor (0–2 µL)
- PV-1 performance verification solution (liquid photometric standard available only from us or a local distributor)
- laboratory gloves

Note The PV-1 solution comes in a single-use ampoule Before you open the ampoule, shake it vigorously and then allow the liquid to collect in the bottom portion of the ampoule After the ampoule is opened, its contents must be used within one hour Pipette directly from the ampoule; do not transfer the solution

Before you begin

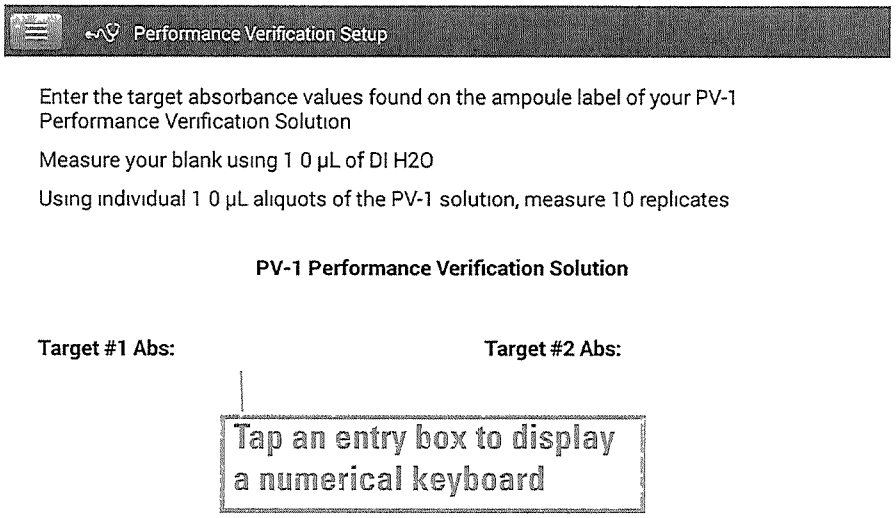
First make sure the pedestals are properly conditioned. To test pedestal conditioning, clean the pedestals with a new laboratory wipe, then pipette 1 µL DI H_2O onto the lower pedestal The droplet should "bead up" as shown below If it does not, recondition both pedestals



To run performance verification

1 From the instrument home screen, tap  (Diagnostics) and then tap **Performance Verification**

A message asks for target absorbance values



2 Enter each lot-specific target absorbance value from the label on the PV-1 ampoule in its associated entry box and then tap **Done**

3. Lift the instrument arm and clean the upper and lower pedestal with a new laboratory wipe

4 Pipette 1 µL DI H_2O onto the lower pedestal, lower the arm and tap **Blank**

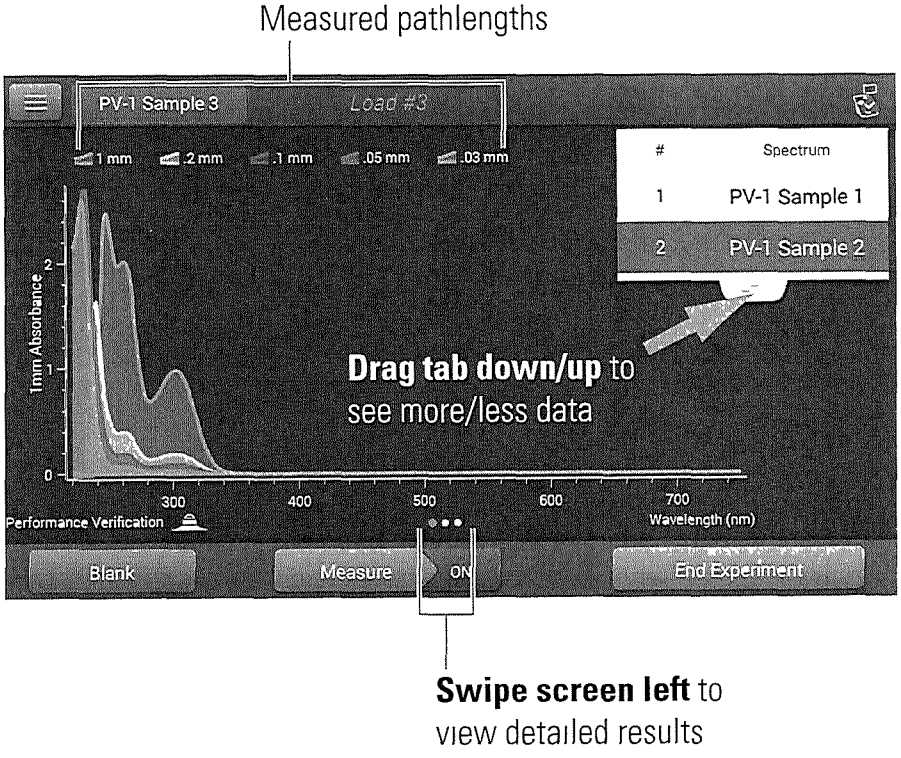
5 Lift the arm and clean both pedestals with a new wipe

Note Vigorously shake the ampoule of PV-1 solution, allow the liquid to collect in the bottom portion of the ampoule and then follow standard practices to open it

6 Pipette 1 µL PV-1 solution onto the lower pedestal and start the sample measurement

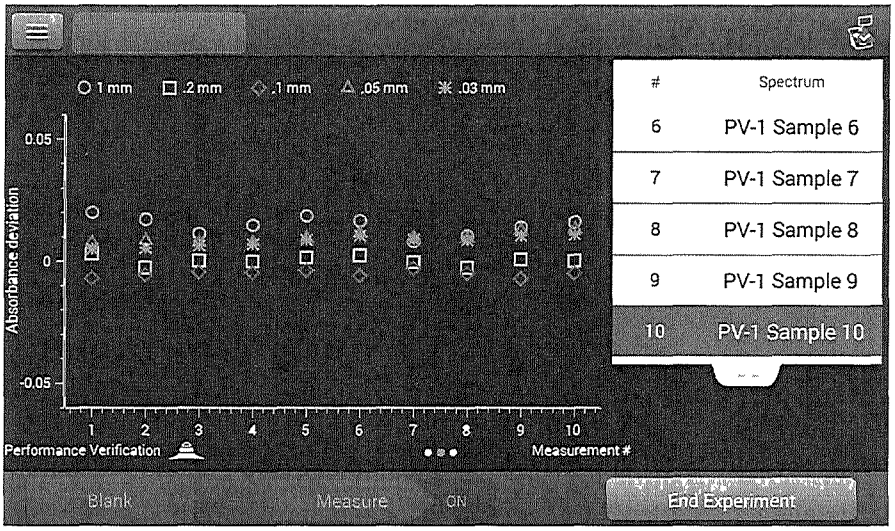
- If Auto-Measure is On, lower arm
- If Auto-Measure is off, lower arm and tap **Measure**

After the measurement, the software displays the results Here is an example of the performance verification result screen

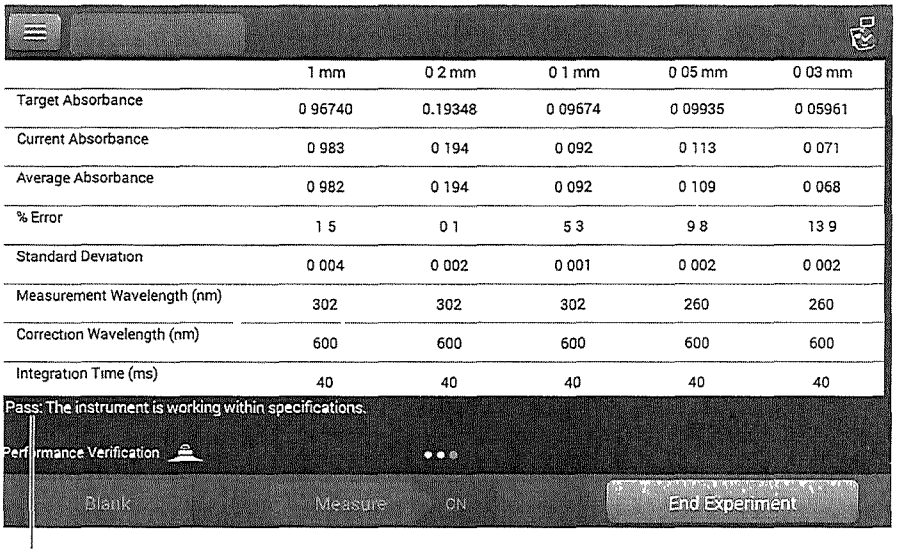


7 Repeat step 6 to measure the PV-1 solution nine more times using a new 1 µL aliquot for each measurement and cleaning both pedestals after each measurement

After each measurement, a new sample result is added to the display Swipe the screen left to see a summary of the 10 sample results



Swipe left again to see additional measurement details, along with the overall test result



	1 mm	0 2 mm	0 1 mm	0 05 mm	0 03 mm
Target Absorbance	0 96740	0.19348	0 09674	0 09935	0 05961
Current Absorbance	0 983	0 194	0 092	0 113	0 071
Average Absorbance	0 982	0 194	0 092	0 109	0 068
% Error	1 5	0 1	5 3	9 8	13 9
Standard Deviation	0 004	0 002	0 001	0 002	0 002
Measurement Wavelength (nm)	302	302	302	260	260
Correction Wavelength (nm)	600	600	600	600	600
Integration Time (ms)	40	40	40	40	40

Performance test result

After the tenth measurement, a message indicates whether the instrument passed or failed performance verification

Performance Verification

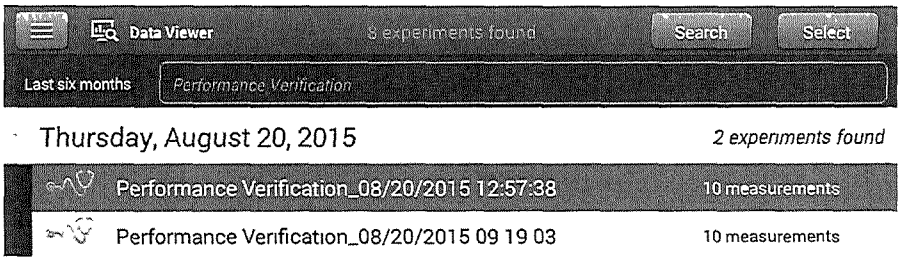
The instrument is working within specifications

OK

8 If the instrument failed, immediately repeat step 6 using ten 2 µL aliquots of the PV-1 solution

9 When finished, tap **End Experiment** and clean the pedestals with 3–5 µL DI H_2O

After the test is completed, the results are available from the Data Viewer (see example below) See Manage identifiers on the instrument for details



To interpret performance verification results

If your instrument failed performance verification and you repeated ten measurements using 2 uL aliquots, contact us

Related Topics

- PV-1 Performance Verification Solution
- Intensity Check
- Pedestal Image Check

Pedestal Image Check

Run the Pedestal Image Check periodically to verify the instrument's column sensor which monitors for possible errors such as an empty column or bubbles in a sample The Pedestal Image Check can be used for routine quality control purposes It also provides important diagnostic information if a detection system component fails

Supplies needed

- lint-free laboratory wipes

To run pedestal image check

1 Lift the instrument arm and clean the upper and lower pedestal with a new laboratory wipe

2 Lower the arm

3 From the instrument home screen, tap  (Diagnostics) and then tap **Pedestal Image Check**

4 Tap **Measure**

The instrument runs a series of tests to check pedestal position and image quality After the measurements are completed, the results are displayed A green check mark indicates the instrument passed the Pedestal Image Check

5 When finished, tap **End Experiment**

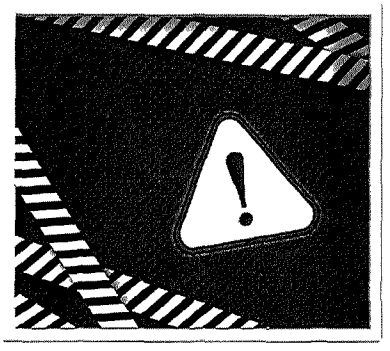
To interpret pedestal image check results

If the Pedestal Image Check displays a yellow triangle instead of the green check mark, follow the on-screen instructions to fix any possible problems Then rerun the Pedestal Image Check If the instrument fails again, contact us

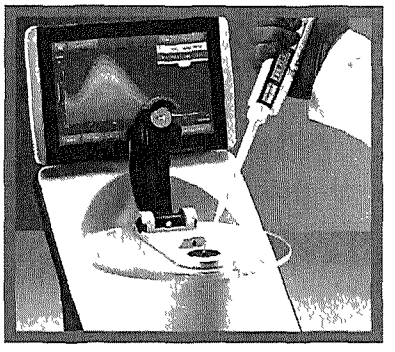
Related Topics

- Performance Verification
- Intensity Check

Safety and Operating Precautions



Safety Information



Operating Precautions

NOTICE Be sure that all persons operating this system read the safety manual first

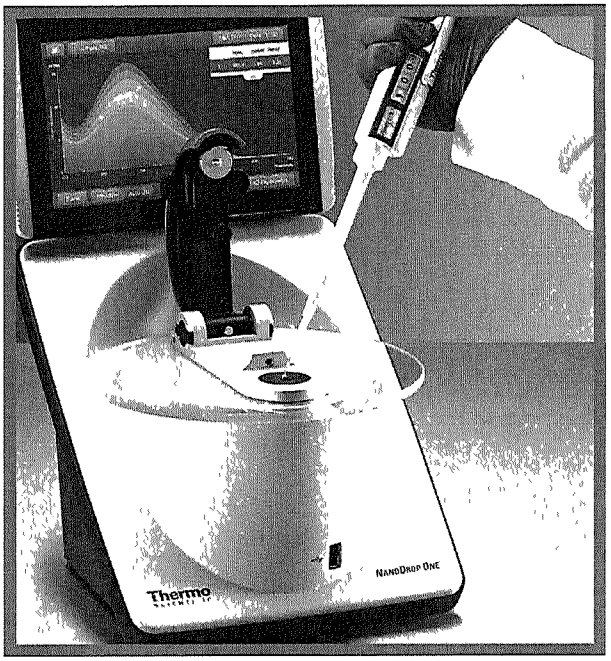
Operating Precautions

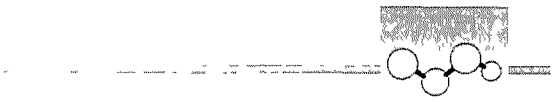
CAUTION Do not remove the instrument cover. Removing the cover exposes the operator to sharp edges and delicate fiber optic cables The instrument warranty is void if the cover has been removed

NanoDrop One spectrophotometers are designed to operate indoors in an environment that meets our specifications For details, see the site preparation guide for your instrument

Follow these precautions to avoid damaging your NanoDrop spectrophotometer during use

- Use a grounded power cord appropriate for your electrical service If the supplied power cord is incompatible or if it becomes damaged, contact us
- Do not remove the instrument cover
- The plate below the arm assembly is made of heat tempered glass The LCD display uses heat treated, chemical tempered glass Both are rugged and difficult to break However, should either the plate or display become cracked or broken, contact us for replacement
- Use solvents that are compatible with the instrument (see Hazardous Materials)
- Do not use hydrofluoric acid (HF) on the pedestals Fluoride ions will permanently damage the quartz fiber optic cables
- To prevent damage from spills, keep containers of liquids away from the instrument
- Do not use a squirt or spray bottle on or near the instrument as liquids will flow into the instrument and may cause permanent damage
- Do not attempt to remove the diaphragm around the lower pedestal as it is permanently affixed to the instrument
- Do not allow HCl, alcohol, bleach, acetone or any other solvent to remain on the diaphragm for more than one minute or it may loosen the seals If the diaphragm becomes loose, contact us





Safety Information

Before operating a NanoDrop One instrument, please read the safety information and follow its recommendations for the system

Safety and Special Notices

In many cases, safety information is displayed on the instrument itself The symbol indicates that there is additional safety information in the documentation and failure to heed the safety precautions could result in injury

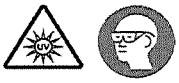
WARNING Indicates a hazardous situation which, if not avoided, could result in death or serious injury

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

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

Note Contains helpful supplementary information

The following table lists some of the safety symbols and their indications that may appear in the user documentation

Symbols	Indication
	This is a mandatory action symbol It is used to indicate that an action shall be taken to avoid a hazard
	This is a prohibition symbol The graphic in this symbol is used to alert the user to actions that shall not be taken or shall be stopped
	This is the general warning sign Failure to heed the safety precautions could result in personal injury
	**Avoid shock hazard** If you see either of these symbols, there is a risk of electrical shock in the vicinity Only qualified persons shall perform the related procedures
	**Avoid fire hazard** Do not test flammable or explosive samples Read and follow the associated instructions carefully
	**Avoid eye injury** If you see these symbols, there is a risk of exposure to ultraviolet light, which can harm your eyes if safety glasses are not worn
	**Avoid Biohazard** This icon informs of a biological hazard in the area Read and follow the associated instructions carefully.
	**Avoid chemical burns** This symbol alerts you to possible skin irritation Wear gloves when handling toxic, carcinogenic, mutagenic, or corrosive or irritant chemicals Use approved containers and proper procedures to dispose of waste

Symbol	Description
	Alternating current
	Earth terminal or ground
	Direct current
	Protective conductor terminal
	Frame or chassis terminal
	Fuse
	Power on
	Power off

When the System Arrives

WARNING Avoid personal injury If this equipment is used in a manner not specified in the accompanying documentation, the protection provided by the equipment may be impaired

CAUTION Avoid personal injury Perform *only* those procedures described in the documentation If there are other problems, contact us Any other service must be performed by trained personnel

CAUTION Avoid shock hazard Do not remove the cover of the instrument All service to the instrument must be performed by trained personnel

When the instrument arrives, check the exterior of the shipping box for signs of damage If damage is apparent, contact us or your local distributor for instructions

- Move the shipping box to the installation location at least 24 hours before installation.

NOTICE

- Inside the shipping box, the instrument is sealed in a plastic bag to keep the unit dry
- Allow 24 hours for the instrument to reach room temperature before opening the bag If the bag is opened before the instrument reaches room temperature, moisture could condense on the optical components and cause permanent damage

- Keep the instrument upright at all times

The warranty will not cover

- Damage due to improper moving techniques.
- Damage due to removing the sealed plastic bag before the instrument has come to room temperature

Note It is important to have all system utilities installed before the instrument arrives Utility installations must comply with all local building and safety codes

Lifting or Moving the Instrument

To avoid risk of injury, use proper lifting techniques when lifting or moving the instrument or other system components

Electrical Requirements and Safety

Power supplied to the system must be from dedicated, uninterrupted sources Power must be free of voltage dropouts, transient spikes, frequency shifts, and other line disturbances that impair reliable performance

If you suspect power quality problems at your site, or if your system will be installed in a heavy industrial environment, we recommend a power quality audit before installation Contact us or your local electrical authority for more information

CAUTION Avoid shock hazard

- Only a qualified person using the appropriate measuring device shall check the line voltage, current and frequency
- Only our trained and certified service representatives shall attempt to service a component that carries this symbol

- If a protective cover on a system component appears damaged, turn off the system and secure it against any unintended operation Always examine the protective cover for transport stresses after shipping.
- Even after this instrument has been disconnected from all voltage sources, capacitors may remain charged for up to 30 seconds and can cause an electrical shock
- Do not allow liquid to run over or into any surface where it may gain entry into the instrument
- Do not attempt to remove the cover of the instrument

Grounding

CAUTION Avoid shock hazard. Each wall outlet used must be equipped with a ground The ground must be a noncurrent-carrying wire connected to earth ground at the main distribution box

Power Cords

Be sure to use an appropriate grounded power cord for your electrical service If the power cord received is not appropriate for the electrical system in your location, or if the power cord becomes damaged, contact us

Power Line Conditioning Accessories

A UPS reduces the probability of a system shutdown if power is lost elsewhere in the building Power line conditioners (which ensure that your service is free from sags, surges or other line disturbances) also are available in the U S A from us for 120 volt operation Line conditioners for 220 volt operation can be purchased locally Contact technical support for information about power conditioners and UPS

Electrical Service Specifications

The following table lists the specifications for electrical service Contact our service representative in your area if you have questions about the requirements

Requirements	Specifications
Input current	5 0 A (max)
Input voltage	100-240 VAC
Line frequency	50-60 Hz
Line disturbances	Sags, surges or other line disturbances must not exceed 10% of input voltage (even for a half cycle)
Noise	< 2 V (common mode) < 20 V (normal mode)

Power Consumption

Generally, 50% more power should be available than the entire system (including accessories) typically uses Maximum power consumption and heat dissipation specifications for the spectrometer and accessories are shown below The values are approximate

Item	Power Consumption	Max Heat Dissipation
instrument	60 W	205 Btu/hr

Fire Safety and Burn Hazards

NOTICE Do not position the instrument so that it is difficult to operate the power switch or access the power supply and power cord

To avoid a burn injury and the risk of fire or explosion

- Use caution when testing flammable or explosive samples (see the "Hazardous Materials" section)
- Never block any of the vents on the instrument or its power supply
- Only use exact replacement power supplies from us

Optical Safety

This instrument was designed with a protective housing to prevent user exposure to ultraviolet light

WARNING Avoid personal injury. Never look at the lamp while illuminated

Hazardous Materials

Many standard spectroscopy methods are based on the use of solvents Others involve corrosive samples or pressurized samples in a gaseous state

Volatile Solvents and Flammable Samples

CAUTION Avoid personal injury Do not leave solvents or flammable samples near the instrument Be sure that the workspace is properly ventilated.

Compatible Solvents

Most solvents typically used in life science laboratories are compatible with the fiber optic pedestals of all NanoDrop spectrophotometers However, the high vapor pressure properties of some solvents may not be conducive to small volume measurements when using the pedestal for measurements on any of the NanoDrop instruments If you are measuring samples with high vapor pressures, use an instrument with provision for measuring samples in cuvettes

The following solvents are compatible for use on the **pedestals** of all NanoDrop instruments

NOTICE Spillage of these solvents on surfaces other than the pedestals may damage the instrument

- methanol
- ethanol
- n-propanol
- isopropanol
- butanol
- acetone
- ether
- chloroform
- carbon tetrachloride
- DMSO
- DMF
- acetonitrile
- THF
- toluene
- hexane
- benzene
- sodium hydroxide
- sodium hypochlorite (bleach)
- dilute HCl
- dilute HNO_3
- dilute acetic acid

It is recommended that all corrosive solvents be wiped from the pedestal immediately upon completion of a measurement It is also recommended that the user end a series of measurements with a dH_2O sample to ensure that solvents are not inadvertently left on the pedestal

The diaphragm around the pedestal of the NanoDrop is permanently affixed to the instrument Do not attempt to remove the diaphragm or break the seal Avoid prolonged exposure of the diaphragm to HCl, alcohol, bleach, acetone or other solvents as the adhesive securing the seal may be affected If the seal comes loose please contact us

NOTICE All forms of Hydrofluoric Acid (HF) are incompatible as the fluoride ion will etch the fiber optic cable

Biohazard or Radioactive Materials and Infectious Agents

Biological samples such as tissues, body fluids, infectious agents, and blood of humans and other animals have the potential to transmit infectious diseases Wear appropriate protective equipment Individuals should be trained according to applicable regulatory and organization requirements before working with potentially infectious materials Follow your organization's Biosafety Program protocols for working with and/or handling potentially infectious materials

WARNING Reduce the risk associated with potentially infectious samples

- Do not spill samples on any of the instrument components
- If spill occurs, disinfect the external surfaces immediately following your laboratory protocols

Instruments, accessories, components or other associated materials should not be disposed of and may not be returned to us or other accessory manufacturers if they are contaminated with biohazard or radioactive materials, infectious agents, or any other materials and/or conditions that could constitute a health or injury hazard to employees. Contact us if you have questions about decontamination requirements

About this Help System

Conventions Used

Safety precautions and other important information use the following format

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

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

Note Contains helpful supplementary information

Tip Provides helpful information that can make a task easier

Trademark Information

DYMO and LabelWriter are either trademarks or registered trademarks of Newell Rubbermaid in the United States and/or other countries

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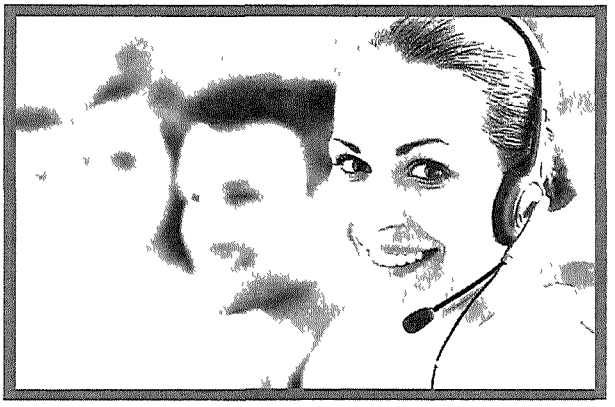

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