thermo scientific

NanoDrop Micro-UV/Vis Spectrophotometer

NanoDrop One^{C} with NanoDrop QC Software

User Guide

269-342200 NanoDrop QC UG Revision A December 2019

ThermoFisher SCIENTIFIC

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http://www.nanodrop.com/Order.aspx

For Research Use Only. This instrument or accessory is not a medical device and is not intended to be used for the prevention, diagnosis, treatment or cure of disease.

WARNING Avoid an explosion or fire hazard. This instrument or accessory is not designed for use in an explosive atmosphere.

Contents

About the Spectrophotometer

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

The Thermo Scientific™ NanoDrop™ One^C is a compact, stand-alone UV-Visible spectrophotometer developed for micro-volume analysis of a wide variety of analytes. The patented sample retention system enables the measurement of highly concentrated samples without the need for dilutions.

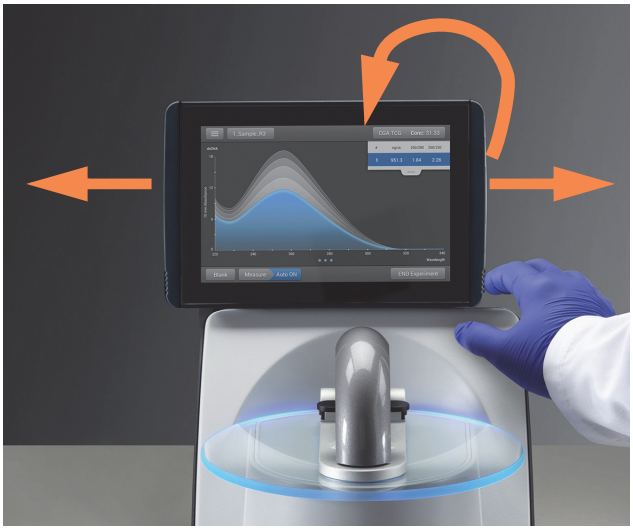
The NanoDrop One^C system comes with preloaded software and a touchscreen display. NanoDrop QC PC Control software can be installed on a local PC and used to control the instrument and view data. The instrument can be connected to an optional printer with a USB cable or to a remote printer through an Ethernet connection or wireless network.

NOTICE Before operating a NanoDrop One instrument, please read the safety and operating precautions and then follow their recommendations when using the instrument.

Features

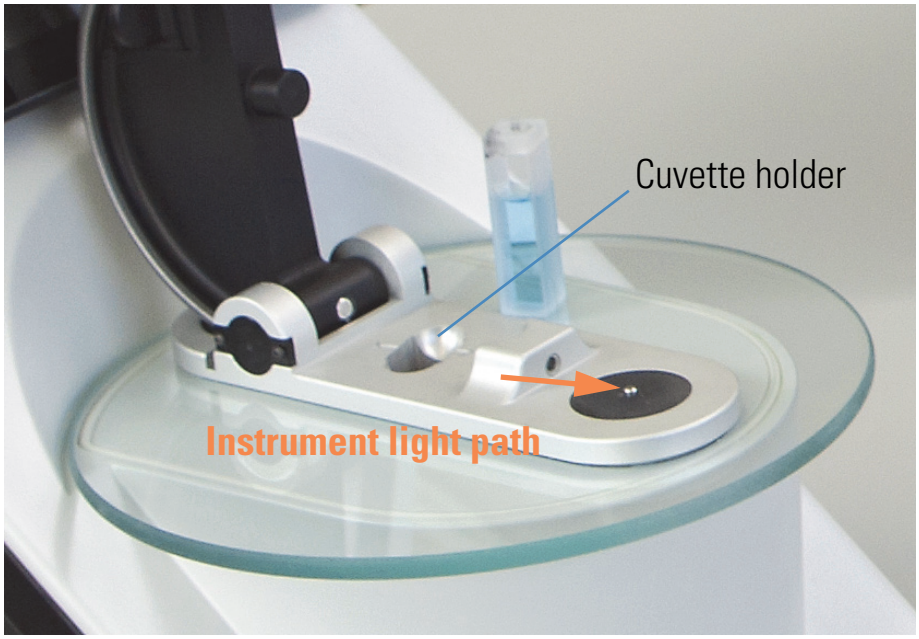
TheNanoDrop One^{C} spectrophotometer features the patented micro-volume sample retention system. The NanoDrop One^{C} also features a cuvette holder for analyzing dilute samples using standard UV-visible cuvettes.

Touchscreen



TheNanoDrop One^{C} comes with a built-in, 7-inch high-resolution touchscreen preloaded with easy-to-use instrument control software. The touchscreen can slide left or right to accommodate personal preference, and tilt forward or back for optimal viewing

Cuvette Holder



The NanoDrop One^{C} includes a cuvette holder for measuring dilute samples, colorimetric assays, cell cultures and kinetic studies. The cuvette system has these features:

- extended lower detection limits
- 37 °C heater option for temperature-sensitive samples and analyses
- micro-stirring option to ensure sample homogeneity and support kinetic studies

For details, see Measure a Sample using a Cuvette.

USB-A port

Two more USB-A ports are located on instrument back panel

Accessories

This section lists the accessories included for use with the NanoDrop One^{C}.

PR-1 Pedestal Reconditioning Kit

Specially formulated conditioning compound that can be applied to the pedestals to restore them to a hydrophobic state (required to achieve adequate surface tension for accurate sample measurements). The kit includes conditioning compound and applicators. For more information, see Reconditioning the Pedestals.

PV-1 Performance Verification Solution

Liquid photometric standard used to check instrument performance. For more information, see Performance Verification.

Instrument Detection Limits

Measurement Location	Pathlength (mm)	Upper Detection Limit (10 mm Equivalent Absorbance)
Pedestal	1.0	12.5
	0.2	62.5
	0.1	150
	0.05	300
	0.03	550
Cuvette	10	1.5
	5	3
	2	7.5
	1	15

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Instrument Set up

Register Your Instrument

Register your instrument to receive e-mail updates on software and accessories for the NanoDrop One^{C} instrument. An Internet connection is required for registration.

To register your instrument

1. Do one of the following:
   - From any PC that is connected to the Internet, use any web browser to navigate to our website.

On the website, locate NanoDrop One Registration and follow the instructions to register the instrument.

Update Software

Quickly and easily download and install the latest NanoDrop One software and release notes from our website. Follow the steps to update or upgrade the software on your local instrument and/or install or update the NanoDrop QC software on a personal computer (PC). An Internet connection is required to download software.

To install or update NanoDrop QC software on a PC

1. Insert the USB flash drive containing the installer software into an available USB port on your PC
2. Launch **Start.exe**. The software installer will run.

To install or update NanoDrop QC software on the instrument

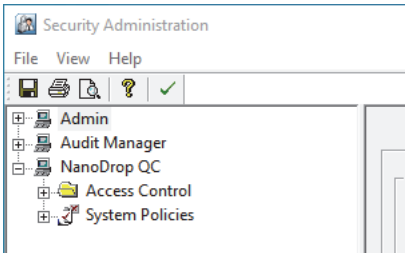
1. Copy the .zip file with the new software from your computer to a USB storage device. Do not attempt to unzip the folder.
2. Insert the USB device into any USB port on the NanoDrop One^{C} instrument.
3. From the instrument Home screen, tap **Settings** > **System** > **Update Software** and choose the latest version of software.

Setting Up User Account Control

User account control is managed using the Security Administration application. When you launch Security Administration, you will need to enter your Windows log-in information.

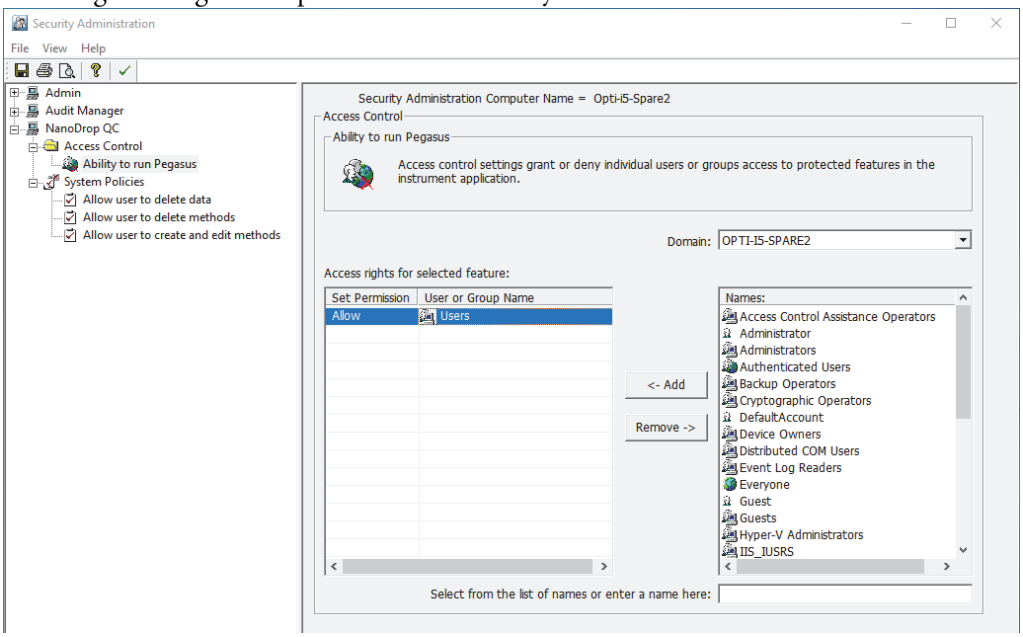
User Account Control

Launch the Security Administration application and select NanoDrop QC from the directory on the left to reveal **Access Control** and **System Policies**.



Access control

Access control is used to grant or deny individual users or groups access to protected features in the instrument application. Add and remove users and groups to the access list and set access rights using the drop-down for each entity.



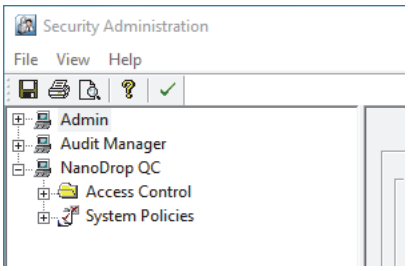
System policies

System Policies is used to set options that define the behavior of the client application. See "Security Administration Policies."

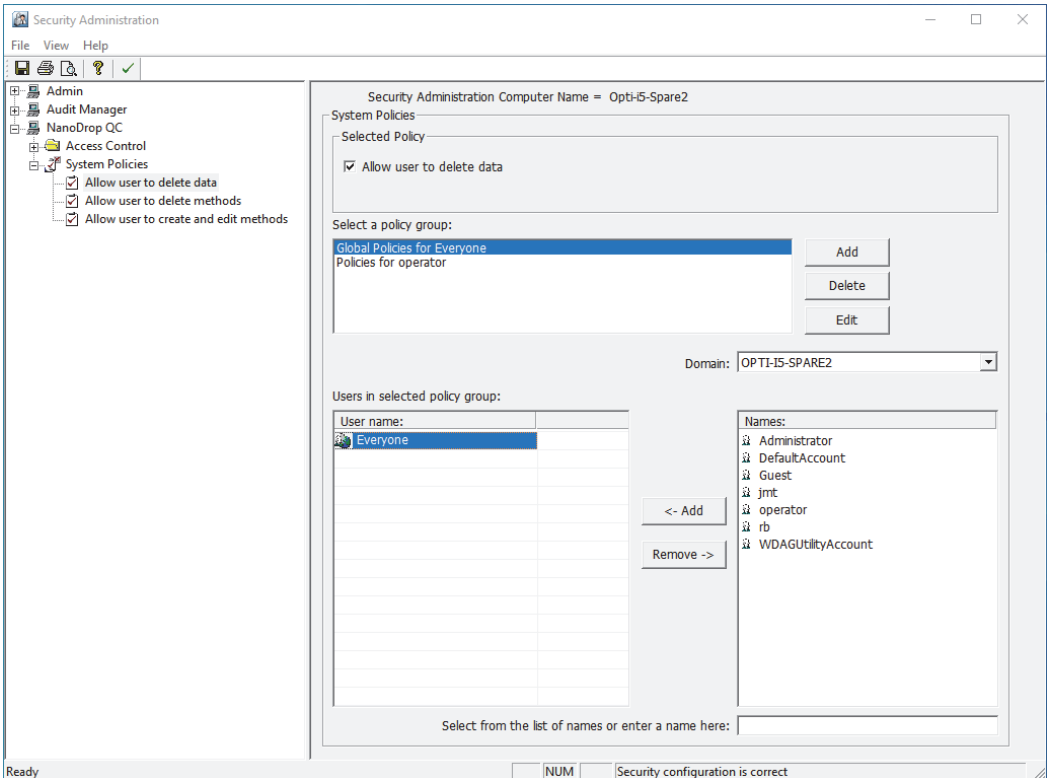
Security Administration Policies

System policies allow you to assign data and method creation and deletion and editing privileges for users and groups.

Launch the Security Administration application and select **NanoDrop QC** -> **System Policies**



You can add, delete, or edit policy groups and enable or disable the group's users permission to delete data. When you are finished, select **Save**. Changes will take effect the next time NanoDrop QC is launched. Changes made to the Security Administration policies are applicable to the local PC only and will not affect other computers on the network.



Technical Support

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E-mail: nanodrop@thermofisher.com
Website: www.thermoscientific.com/nanodrop

For International Support, please contact:

Contact your local distributor. For contact information go to:

http://www.nanodrop.com/Order.aspx

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.

3

Applications

Use the NanoDrop One^{C} to perform UV-Vis, Chemometrics, or your own custom measurements.

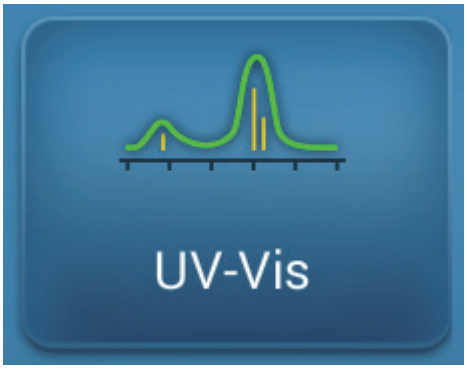
The UV-Vis application can be set up directly from the touchscreen and allows the instrument to function as a conventional spectrophotometer. Up to 40 wavelengths from 190 nm to 850 nm can be monitored and reported.

The Chemometrics application allows you to use your unique chemometrics method. The method is created using the NanoDrop QC PC Control software that is installed on your PC and then loaded into the instrument though a USB storage device. See the NanoDrop QC PC Control software to learn about Chemometric method features that are supported.

The Custom application provides additional flexibility for the method that you use with the instrument. See the NanoDrop QC PC Control software to learn about custom method features that are supported.

Measure UV-Vis

Measures the absorbance of any sample at up to 40 wavelengths across the ultra-violet (UV) and visible regions of the spectrum.



Measure UV-Vis

The UV-Vis application allows the instrument to function as a conventional spectrophotometer. Sample absorbance is displayed on the screen from 190 nm to 850 nm. Up to 40 wavelengths can be designated for absorbance monitoring and inclusion in the report. Automatic pathlength adjustment and a single-point baseline correction can also be used.

To make UV-Vis measurements

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.

Before you begin...

Before taking pedestal measurements with the NanoDrop One instrument, lift the instrument arm and clean the upper and lower pedestals. At a minimum, wipe the pedestals with a new laboratory wipe. For more information, see Cleaning the Pedestals.

To measure a sample using the UV-Vis application

1. From the Home screen, select **UV-Vis**.
2. Specify up to 40 wavelengths to monitor (or you can specify them later if desired) and whether automated pathlength adjustment, analysis wavelength, and baseline correction will be used.

3. Pipette 1–2 µL blanking solution onto the lower pedestal and lower the arm, or insert the blanking cuvette into the cuvette holder.

   Tip: If using a cuvette, make sure to align the cuvette light path with the instrument light path.

4. Tap **Blank** and wait for the measurement to complete.

   Tip: If Auto-Blank is On, the blank measurement starts automatically after you lower the arm. (This option is not available for cuvette measurements.)

5. Lift the arm and clean both pedestals with a new laboratory wipe, or remove the blanking cuvette.

6. Pipette 1-2 µL sample solution onto the pedestal and lower the arm, or insert the sample cuvette into the cuvette holder.

7. Start the sample measurement:

   – Pedestal: If Auto-Measure is On, lower arm; if Auto-Measure is off, lower arm and tap **Measure**.

   – Cuvette: Tap **Measure.**

   When the sample measurement is completed, the spectrum and reported values are displayed (see the next section).

8. When you are finished measuring samples, tap **End Experiment**.

9. Lift the arm and clean both pedestals with a new wipe, or remove the sample cuvette.

Best practices for UV-Vis measurements

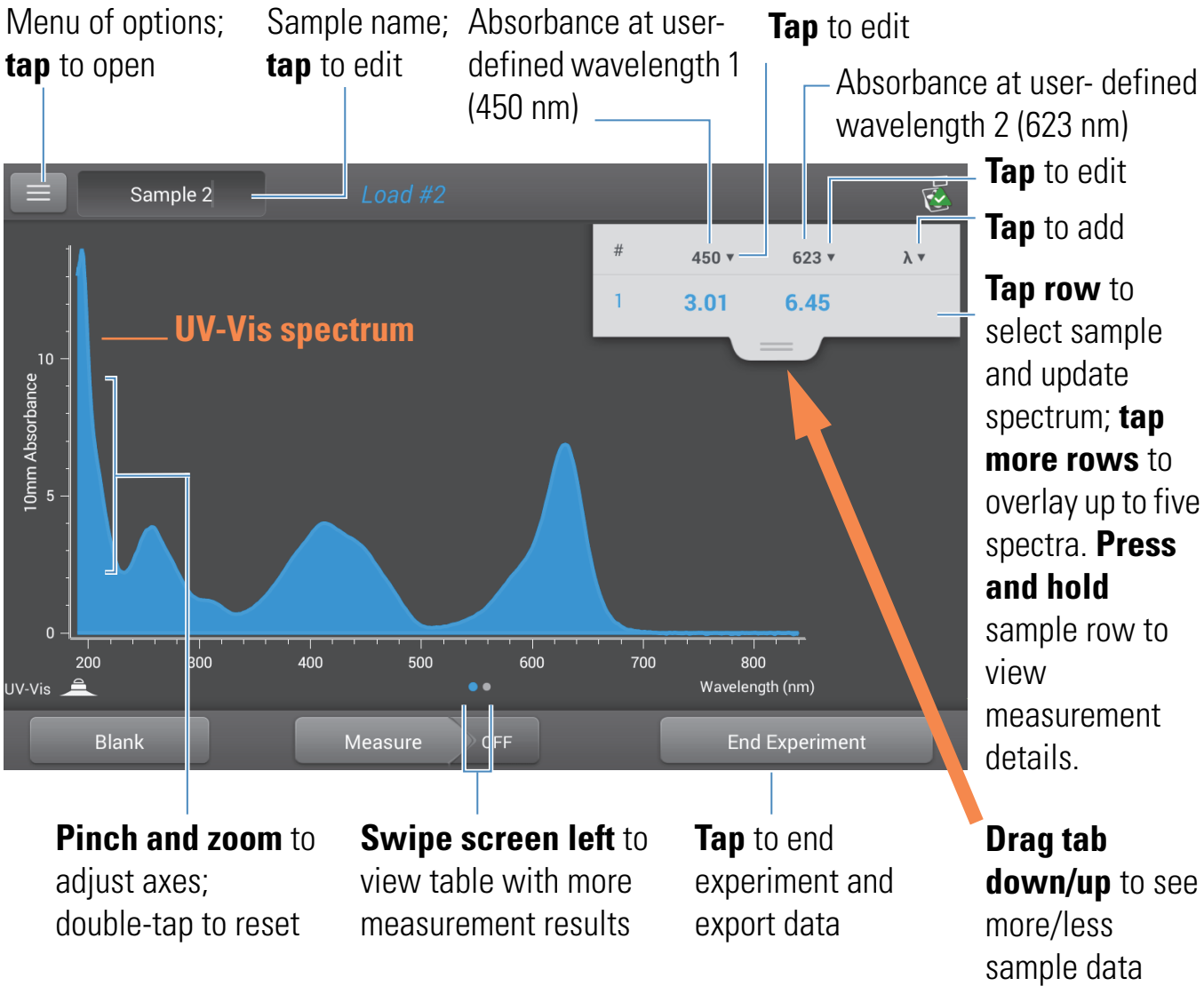
- Ensure the sample absorbance is within the instrument's absorbance detection limits.
- Blank with the same buffer solution used to re-suspend the analyte of interest. The blanking solution should be a similar pH and ionic strength as the analyte solution.
- Run a blanking cycle to assess the absorbance contribution of your buffer solution. If the buffer exhibits strong absorbance at or near an analysis wavelength, you may need to choose a different buffer or application. See Choosing and Measuring a Blank for more information.
- For micro-volume measurements:
  – Ensure pedestal surfaces are properly cleaned and conditioned.
  – Ensure samples are homogeneous before taking a measurement. Avoid introducing bubbles when mixing and pipetting.
  – Follow best practices for micro-volume measurements.
  – Use a 1-2 µL sample volume. See Recommended Sample Volumes for more information.

- For cuvette measurements (NanoDrop One^{C} instruments only), use compatible cuvettes and follow best practices for cuvette measurements.

UV-Vis Reported Results

UV-Vis measurement screen

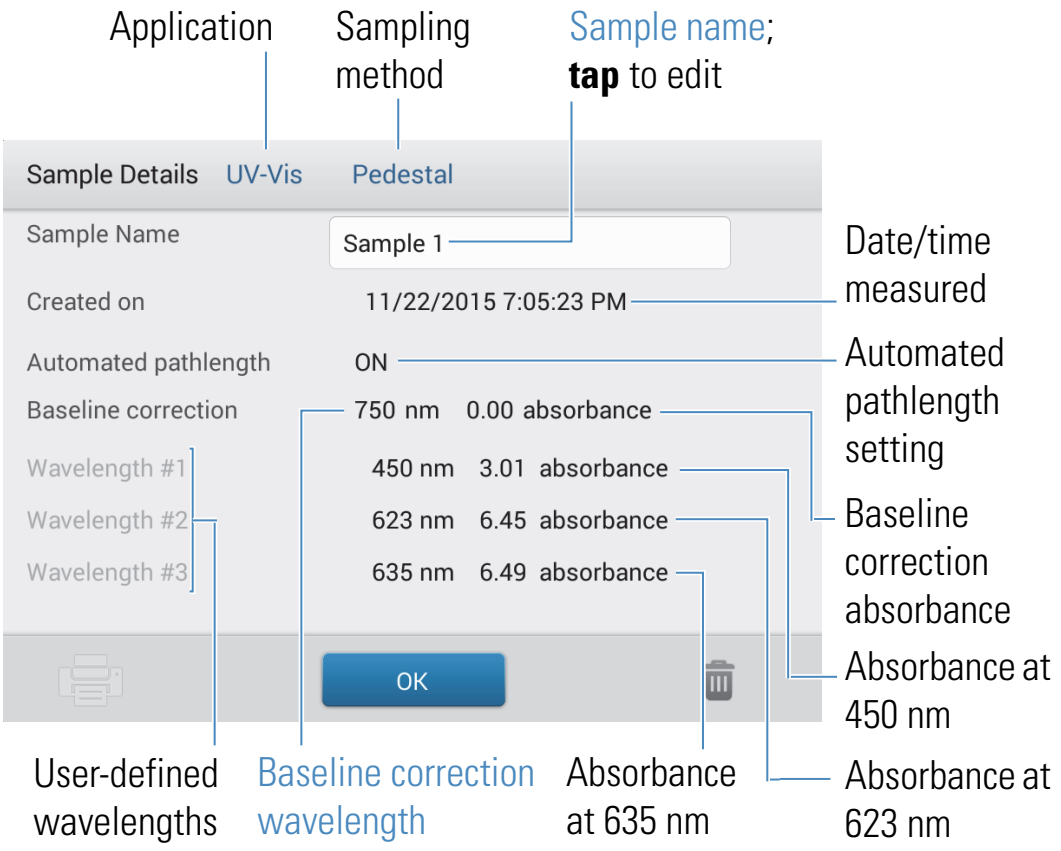
For each measured sample, this application shows the absorbance spectrum and a summary of the results. Here is an example as it appears on the local instrument display:



Note Micro-volume absorbance measurements and measurements taken with nonstandard cuvettes are normalized to a 10.0 mm pathlength equivalent.

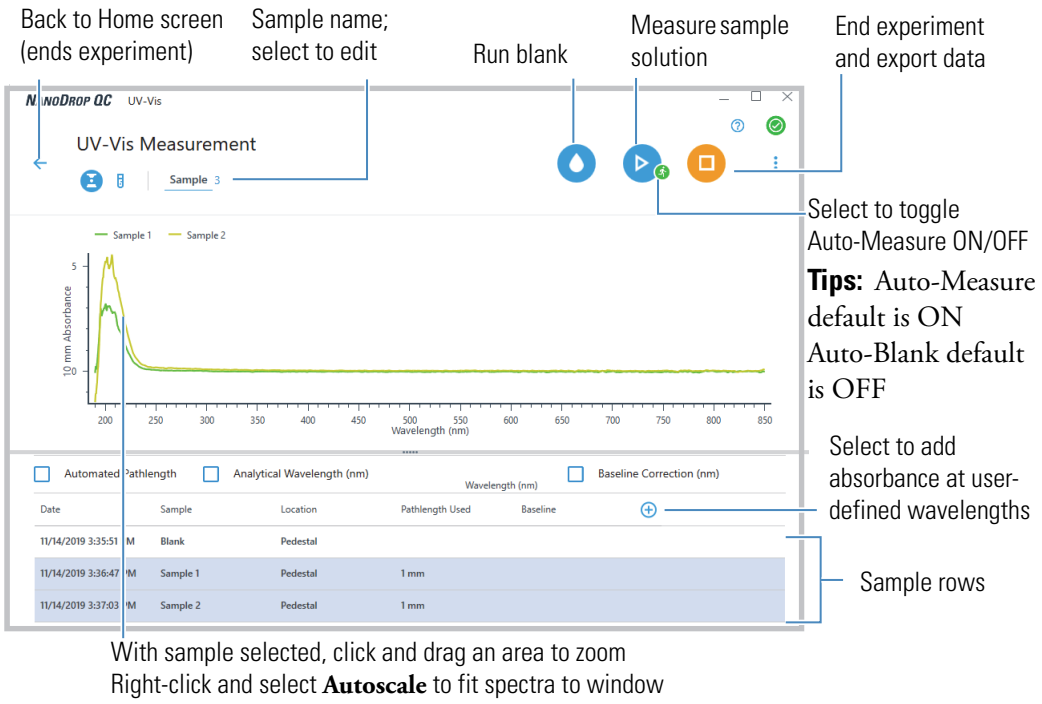
UV-Vis reported values

The initial screen that appears after each measurement (see previous image) shows a summary of the reported values. To view all reported values, press and hold the sample row. Here is an example:



Note Scroll up to display absorbance values for any additional user-defined wavelengths.

Below is an example of the measurement screen with reported values as it appears in the NanoDrop QC PC software:



Tips:

Click sample row to select sample and update spectrum

Shift-click multiple sample rows to overlay up to five spectra

Click a sample and hover locations on spectra to view measurement values

Settings for UV-Vis Measurements

To show the UV-Vis settings, from the Home screen, select **UV-Vis**.

Setting	Available Options	Description
Monitored wavelengths	Enter up to 40 wavelengths between 190 nm and 850 nm	**User-defined wavelengths to be measured and reported at run time**. Absorbance values for the first three entered wavelengths are displayed in the measurement screen. To see absorbance values for 8 monitored wavelengths, swipe left in the measurement screen to show the Data table. To see all monitored wavelengths, press and hold a sample row to show the Sample Details screen (scroll up to display absorbance values for any additional user-defined wavelengths). **Note**: If Baseline Correction is selected, all displayed absorbance values are the corrected values.
Analytical Wavelength	Any wavelength between 190 nm and 850 nm	This is the wavelength the software will use to determine the pathlength selection.
Automated Pathlength	On or Off (affects pedestal measurements only)	**Optional automated pathlength selection**. Allows the software to use the optimal (shorter) pedestal pathlength for high concentration samples to help prevent detector saturation (see Detection Limits for details). • When selected, the shorter pathlength is used when any wavelength between 220 nm and 850 nm has 10 mm equivalent absorbance value of 12.5 or higher. For wavelengths between 190 nm and 219 nm the change to the shorter pathlength occurs when any wavelength in this range has a 10 mm equivalent absorbance value of 10 or higher. • When deselected, the pedestal pathlength is restricted to 10 mm across all wavelengths. **Note**: In either case, displayed absorbance values have been normalized to a 10 mm pathlength equivalent.
Baseline Correction	On or off Enter baseline correction wavelength in nm or use default value (750 nm)	**Optional user-defined baseline correction**. Can be used to correct for any offset caused by light scattering particulates by subtracting measured absorbance 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.

Measure Chemometrics

Make chemometric measurements.

Measure Chemometrics

The NanoDrop One^{C} model instrument can be used to make chemometric measurements.

Note The instrument arm can be up during cuvette measurements, which allows you to add reagents to the sample solution if desired.

To make chemometric measurements

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 ans may cause permanent damage.

Chemometric methods can only be created on a personal computer running the NanoDrop QC PC Control software. If you want to run a chemometric method and store the measurement results on the instrument, the method must also reside on the instrument. (This is the only way to run a chemometric method if your instrument is not connected to the computer with an Ethernet cable.)

Load a chemometrics method

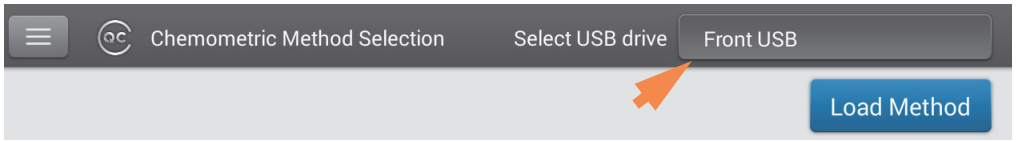
To measure a sample using a chemometrics method, you must first load the method onto the instrument.

To load chemometrics methods onto the instrument:

1. Export the method from the personal computer and copy the method file to the root of a portable USB device such as a memory stick.

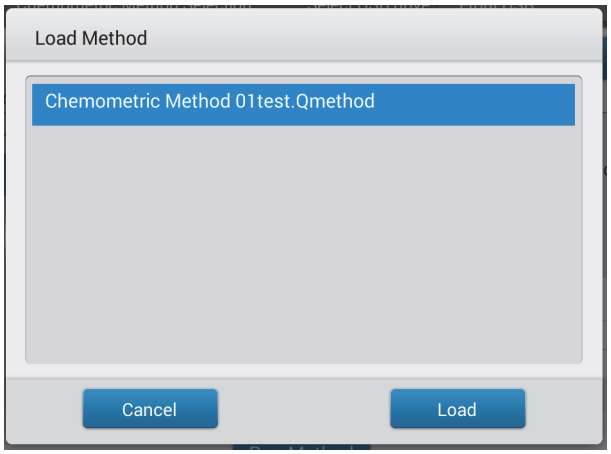
   Method files have a ".qmethod" filename extension.

2. Connect the USB device to one of the USB ports on the instrument.
3. From the Home screen, select the **Chemometric** Application icon
4. Use the list box at the top of the screen to indicate the USB port used.



5. Select **Load Method**.

   A message box shows the NanoDrop One methods available on the selected USB device.

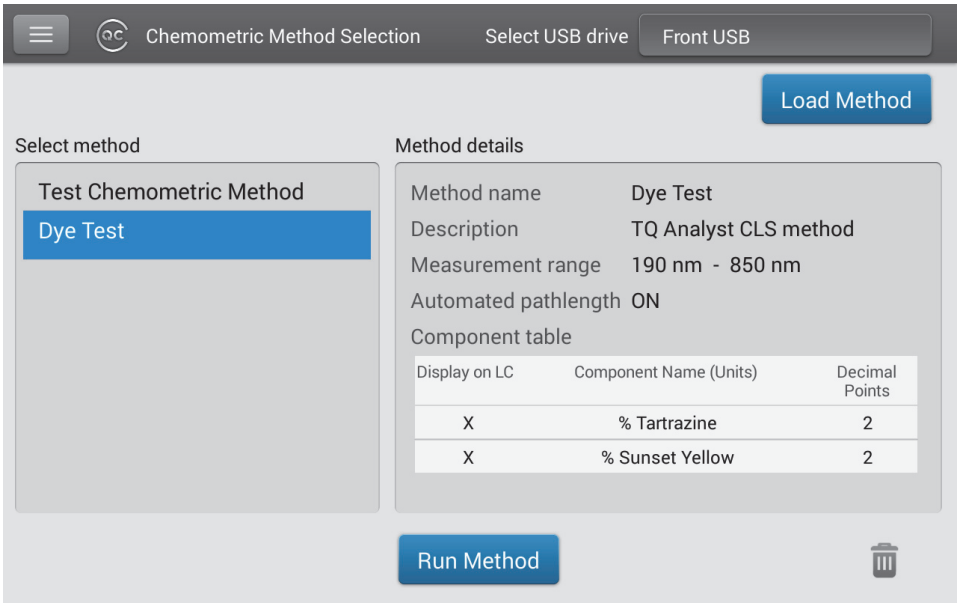


6. Select one or more method names in the Load Method box to select the methods to load.
7. Select **Load**.

To measure a sample using the chemometrics application

1. From the Home screen, select the **Chemometrics** icon.

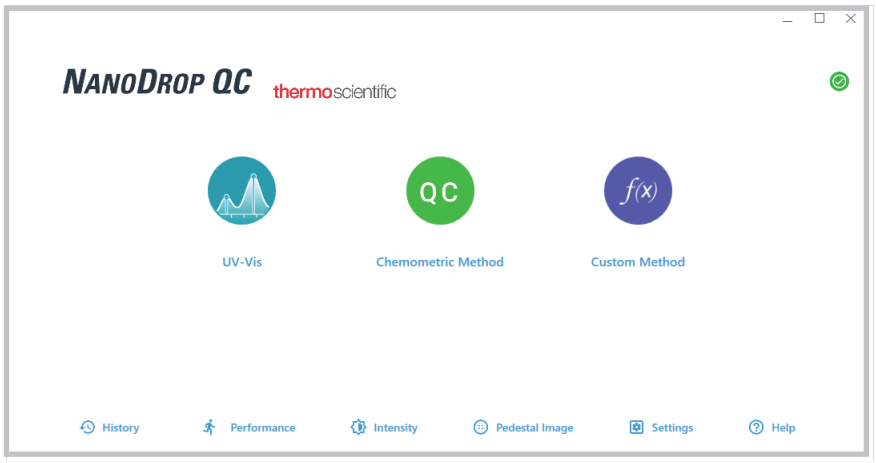
The Chemometrics Method Selection screen is displayed. If one or more chemometric methods exist in the currently selected Data Storage Location, they will be listed in the Select Method box. A description of the selected method appears in the Method Details box.



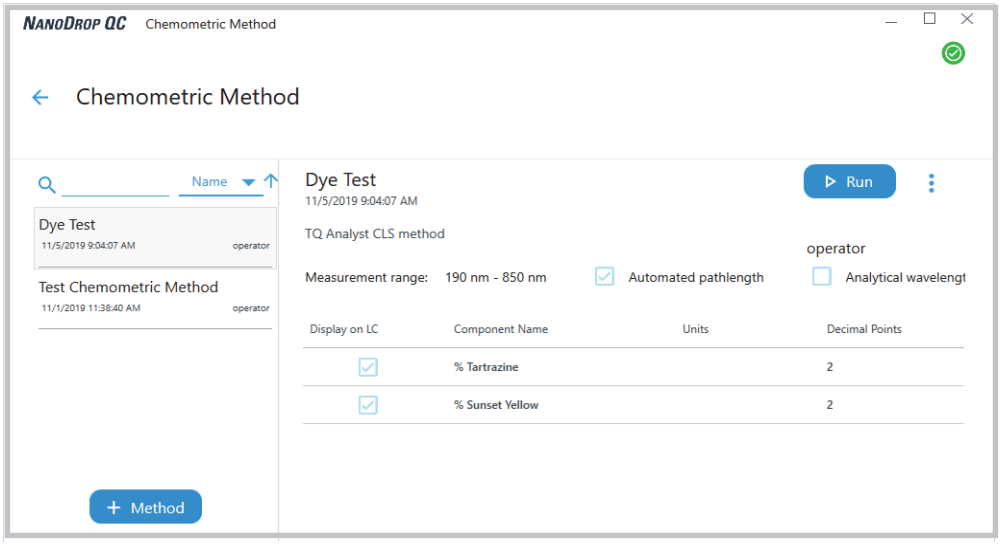
2. Select a method:
   - select an existing method by selecting the **method name** in the Select Method box.
3. Select **Run Method**.
4. Follow the on-screen instructions to measure a sample.

To measure a sample using the chemometrics application from the PC software

1. From the Home screen, select the **Chemometric Method** icon.



The Chemometrics Method Selection screen is displayed. If one or more chemometric methods exist in the currently selected Data Storage Location, they will be listed in the method selection pane below the search feature. Details of the selected method appears in the method details pane to the right.



2. Select a method:
   - select an existing method by selecting the **method name** in the method selection pane.
3. Select ▷ Run .

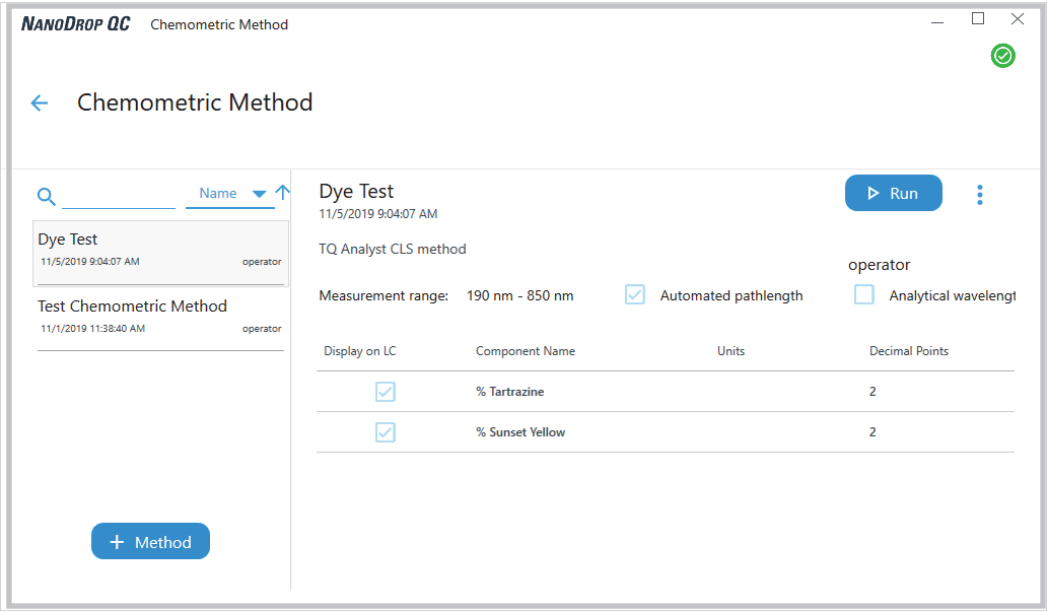
Follow the on-screen instructions to measure a sample.

Create Chemometrics Method

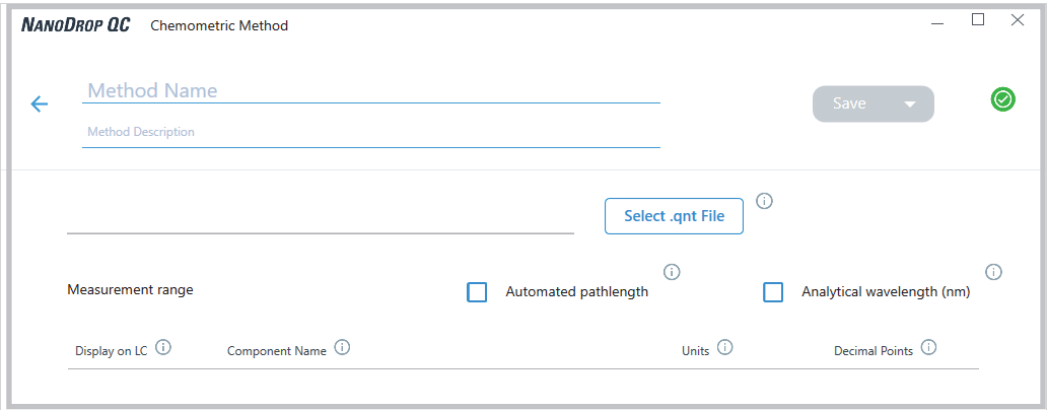
Chemometrics methods can be created only on the NanoDrop QC PC Control software. However, once the method is created, it can be saved in the NanoDrop One database on the local instrument, or in the NanoDrop QC database on the PC. To create a new Chemometrics method:

– From the NanoDrop QC software, select the **Chemometric Method** icon

– From the Chemometric Method Management pane, select + Method

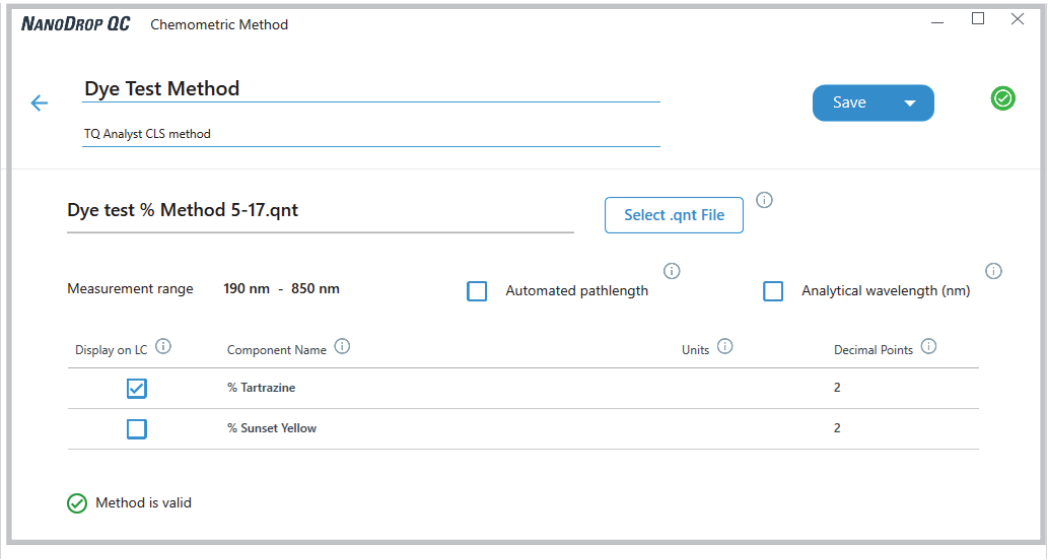


– Enter both a name and description for your chemometric method



– Select the quant method (.qnt fiile) you want to use

– Adjust the method settings as desired



– Select **Save**

> **Note** The method is saved in the currently selected Data Storage Location (local instrument or a connected PC).

– To run the method, select **Run Method**

Edit Chemometrics Method

Chemometrics methods can be edited only on the NanoDrop QC software. To edit an existing chemometrics method:

– From the NanoDrop QC software, select the **Chemometric Method** icon

– From the Chemometric Method Management screen, select the method you would like to edit from the list of loaded methods.

– From the drop-down menu ⋮ select **Edit.**

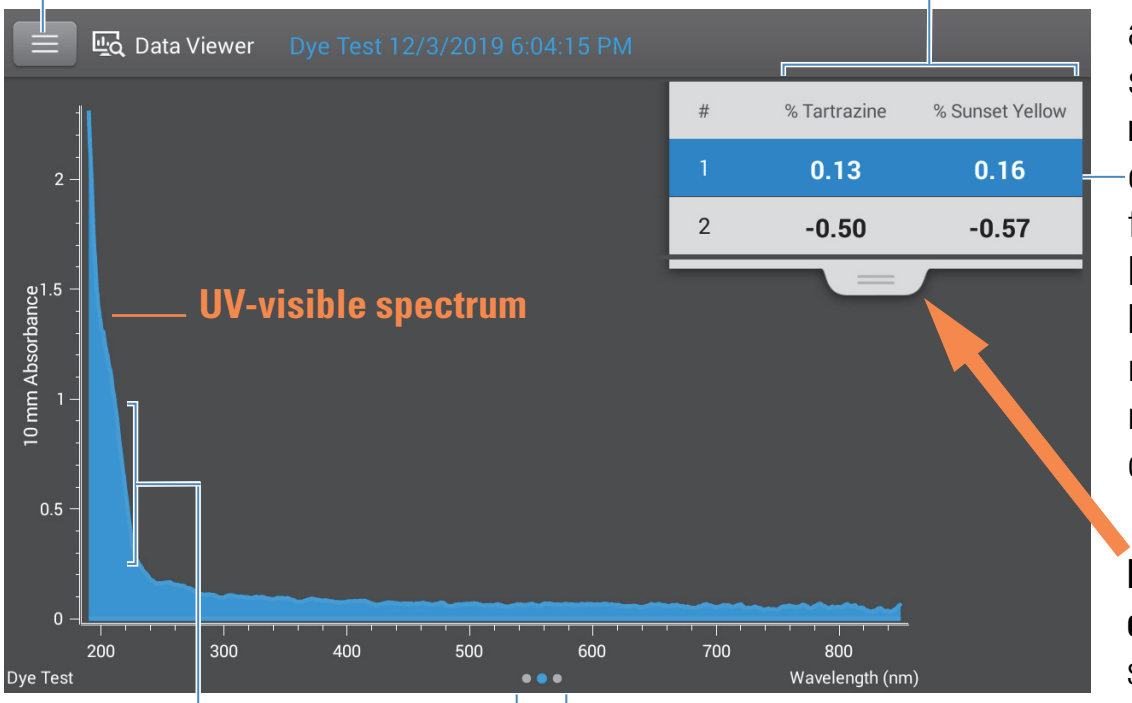
– Adjust the method settings as desired. You can select the components to be displayed on the LC.

– Select **Save**

Chemometrics Reported Results

Chemometrics method measurement screen (shown from Data Viewer)

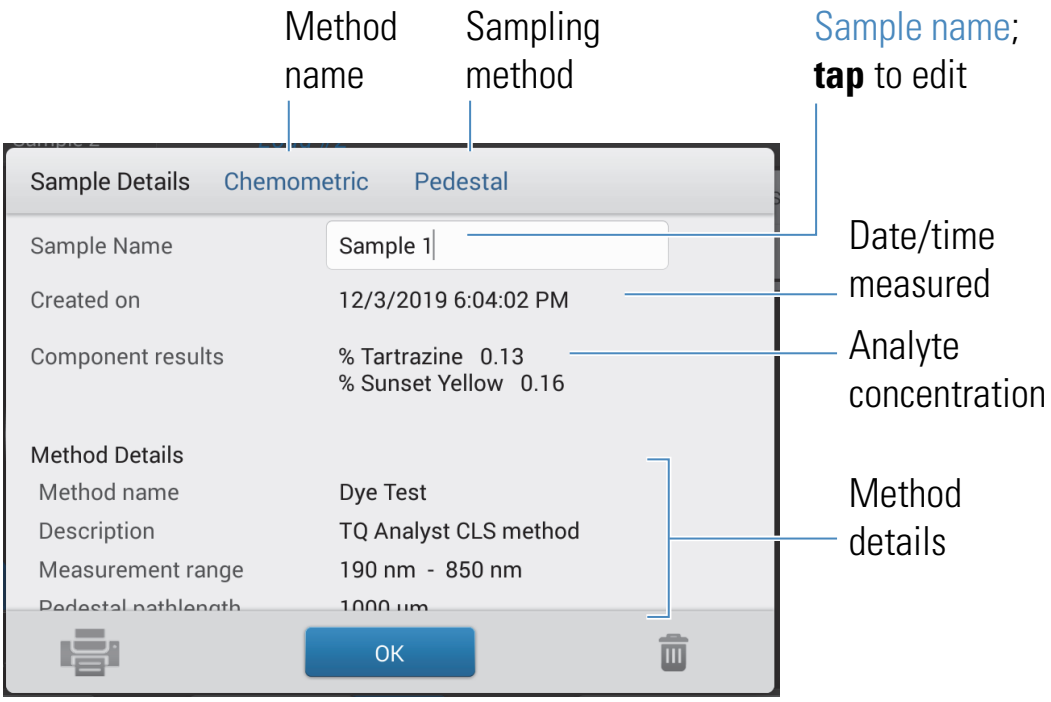
For each measured sample, this application shows the absorbance spectrum and a summary of the results. Here is an example:



Note Micro-volume absorbance measurements and measurements taken with nonstandard cuvettes are normalized to a 10.0 mm pathlength equivalent.

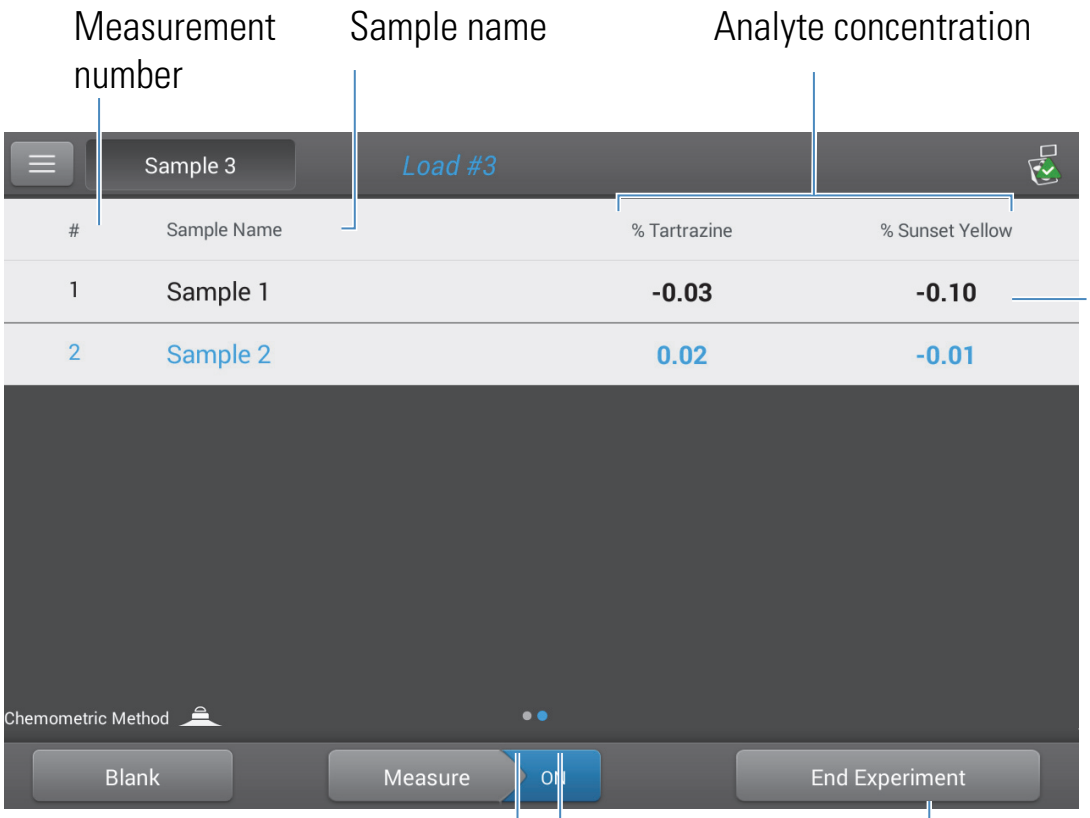
Chemometrics method reported values

The initial screen that appears after each measurement (see previous image) shows a summary of the reported values. To view all reported values, press and hold the sample row. Here is an example:



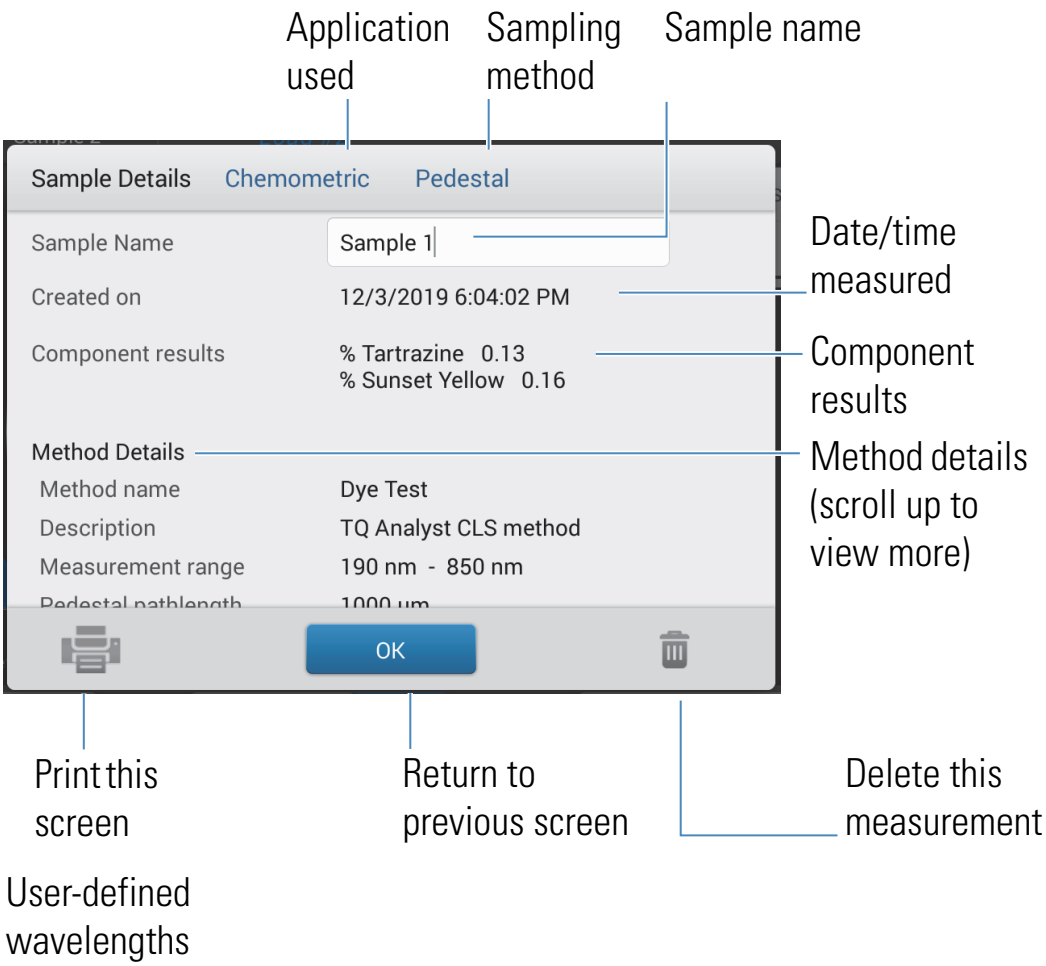
Data Table

To see the data table, swipe the rate measurement screen (see above) to the left. Each row in the table shows the absorbance values at all user-defined wavelengths at a given stage and time. Scroll down to see measurement information that is out of view. The image below highlights the available features.



Measurement Details

To view details for a measurement, from the absorbance measurement screen or data table, press and hold the measurement row. Here is an example:



Settings for Chemometric Measurements

Settings for chemometrics methods are defined by the quant method used. From the instrument Home screen, select **Chemometrics**, and select a mehtod from the list. The method details are displayed. Settings can be edited only from the NanoDrop QC software. In the PC Control software, you can select which components are displayed on the instrument and set significant figures for each component.

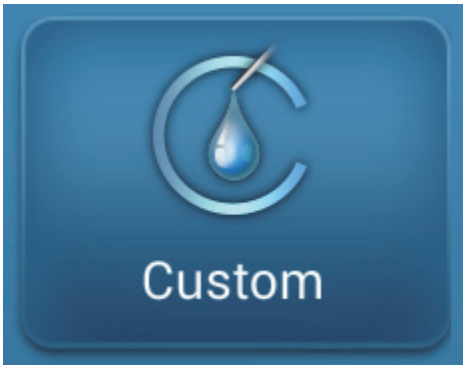
Measure Custom

Runs a custom measurement method created using NanoDrop QC software.

Measure Custom Method

Delete Custom Method

Reported Results



Measure using a Custom Method

Use the Custom application to run a user-defined method created using the NanoDrop QC software running on a personal computer. For more information, see "Create Custom Method" on page 35.

To load a custom method

Custom methods can only be created on a personal computer running the NanoDrop QC software. If you want to run a custom method and store the measurement results on the instrument, the method must also reside on the instrument. (This is the only way to run a custom method if your instrument is not connected to the computer with an Ethernet cable.)

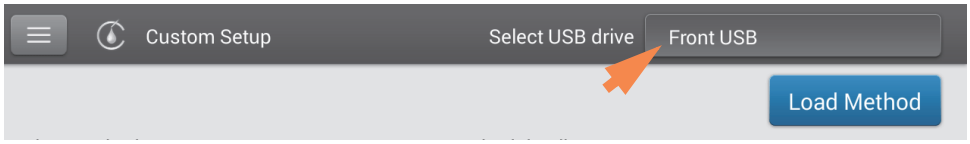
Load custom methods onto the instrument

1. Export the method from the personal computer and copy the method file to the root of a portable USB device such as a memory stick.

   Method files have a ".method" filename extension.

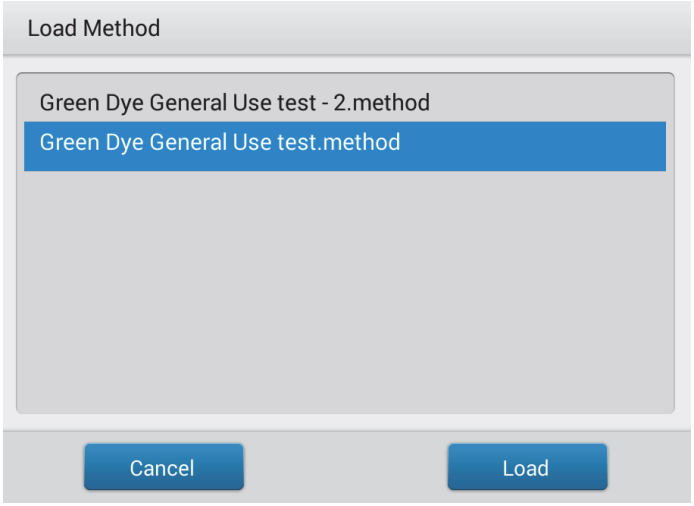
   Note Custom methods downloaded from the NanoDrop One website have a .zip filename extension and must be extracted using a third-party file decompression program before the software will recognize them as custom methods.

2. Connect the USB device to one of the USB ports on the instrument.
3. From the Home screen, select **Custom Method**.
4. Use the list box at the top of the screen to indicate the USB port used.



5. Select **Load Method**.

   A message box shows the NanoDrop One methods available on the selected USB device.



6. Select one or more method names in the Load Method box to select the methods to load.
7. Select **Load**.

To measure using a custom method

NOTICE

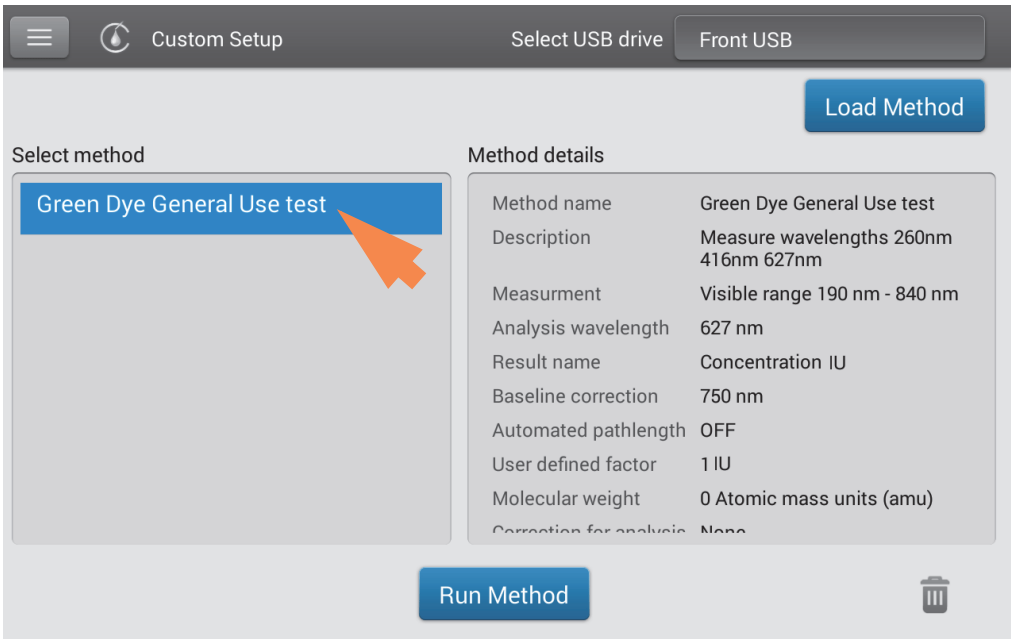
- Do not use a squirt or spray bottle on or near the instrument as liquids will flow into the instrument and may cause permanent damage.
- Do not use hydrofluoric acid (HF) on the pedestals. Fluoride ions will permanently damage the quartz fiber optic cables.

Before you begin...

Before taking pedestal measurements with the NanoDrop One instrument, lift the instrument arm and clean the upper and lower pedestals. At a minimum, wipe the pedestals with a new laboratory wipe. For more information, see Cleaning the Pedestals.

To measure a sample using a custom method using the local instrument interface

1. Make sure the method resides in same location as the database where you want to store the measurement results (see To Load a Custom Method for details).
2. From the Home screen, select **Custom Method**.
3. In the Select Method box, select to select the method to run.



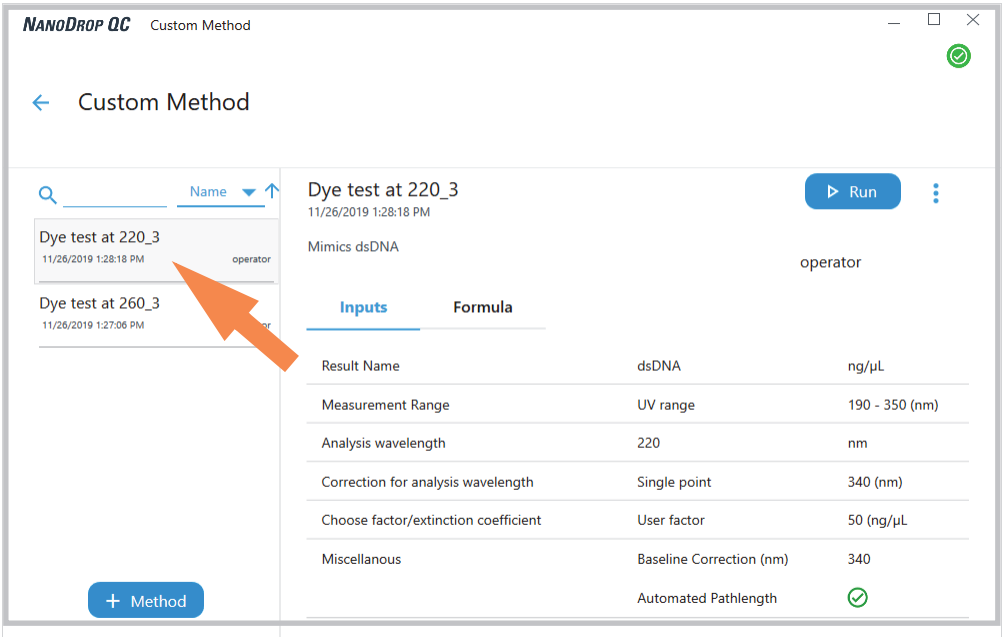
Information about the selected method appears in the Method Details box.

4. Select **Run Method**.
5. Follow the on-screen instructions to measure a sample.

To measure a sample using a custom method using the PC software

1. Make sure the method resides in same location as the database where you want to store the measurement results (see To Load a Custom Method for details).
2. From the Home screen, select **Custom Method**.

3. In the method selection pane, select to select the method to run.



Information about the selected method appears in the method details pane.

4. Select 

.
5. Follow the on-screen instructions to measure a sample.

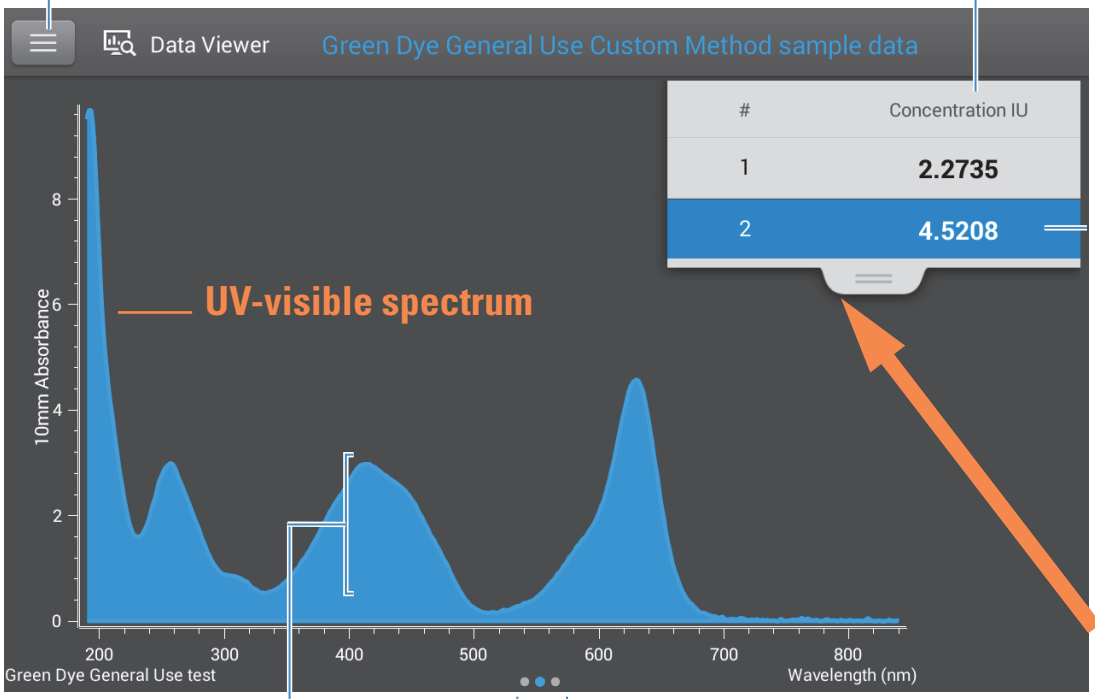
Delete Custom Method

– From Home screen, select **Custom Method**.
– In Select Method box, select a method to delete
– Select 

Custom Method Reported Results

Custom method measurement screen (shown from Data Viewer)

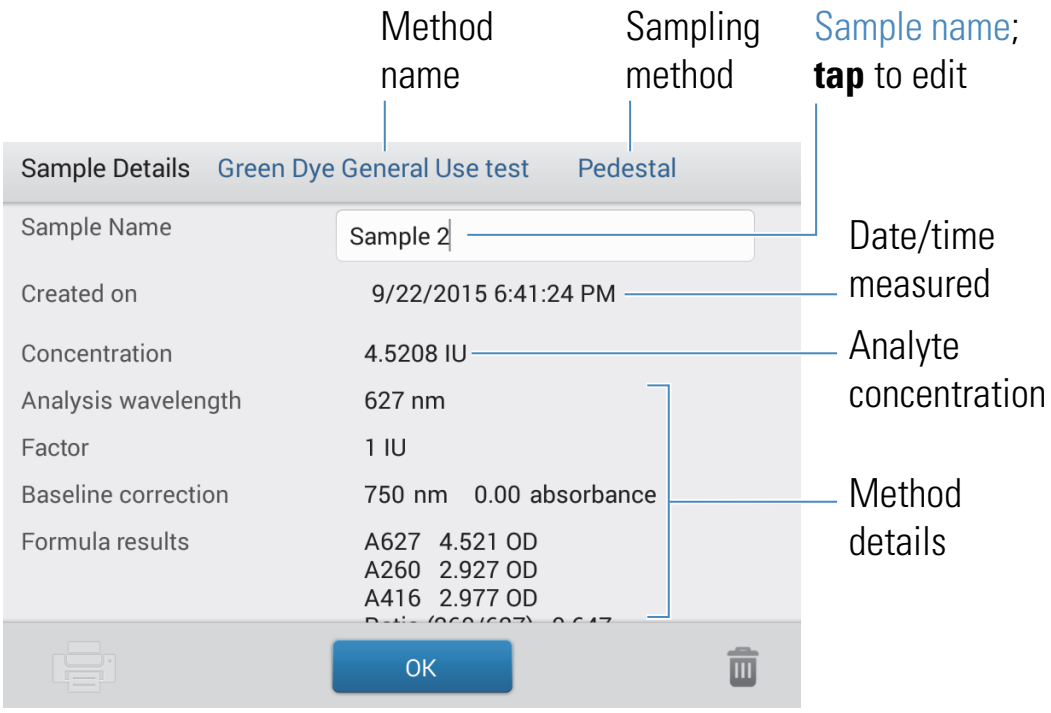
For each measured sample, this application shows the absorbance spectrum and a summary of the results. Here is an example:



Note Micro-volume absorbance measurements and measurements taken with nonstandard cuvettes are normalized to a 10.0 mm pathlength equivalent.

Custom method reported values

The initial screen that appears after each measurement (see previous image) shows a summary of the reported values. To view all reported values, press and hold the sample row. Here is an example:



Manage Custom Methods

The NanoDrop QC PC Control 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 the NanoDrop QC Home screen, select **Custom Method**

– in Manage Custom Methods screen, select + NEW METHOD and choose one of the following:

  – **Formula** (if your method will not have standards)

  – **Standard Curve** (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)

– 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)

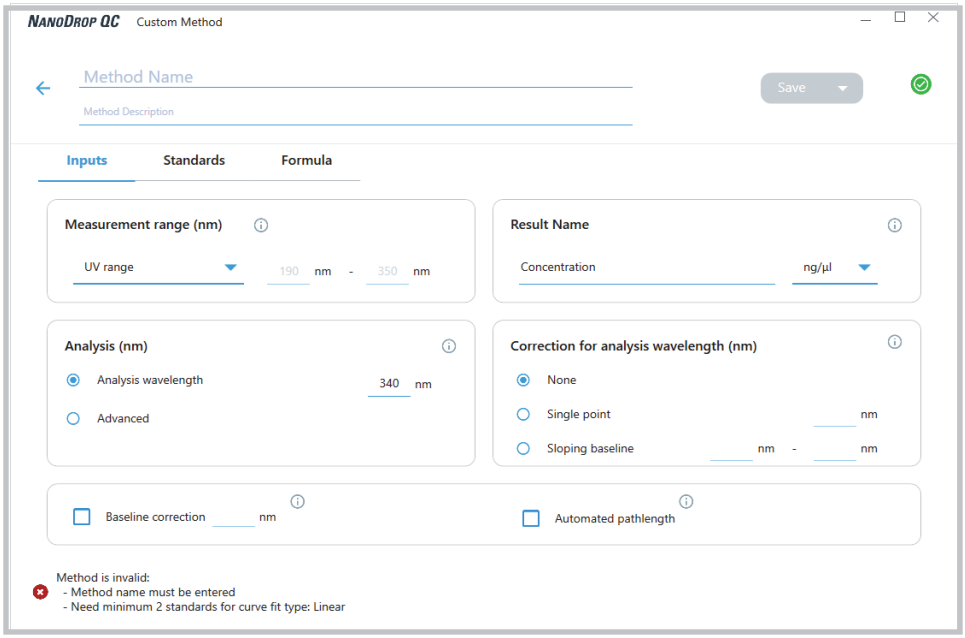
  – if method has standards, enter name and concentration of each standard and select the curve fit type

– enter or choose remaining custom settings as needed

– choose **Save**

Note If ⊗ appears at the bottom left of the screen 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 bottom, select **Close** to exit method setup



View or edit custom method

- select **Custom Method** (existing methods are listed in Select Method box along with their type (formula or standards) and Description
- From the Custom Method Management screen, select the method you would like to edit from the list of loaded methods.
- From the drop-down menu ⋮ select **Edit**
- View and adjust the method settings as desired
- Select **Save**

Custom method settings

These settings are available for creating custom methods.

Setting	Available Options
Result name	Enter descriptive name for calculated concentration result (for example, “Polymer A analysis”) and use adjacent drop down list to select appropriate unit. Result name appears as column heading for reported concentration value.
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 non-standard (other than 10 mm) cuvettes, the spectra are normalized to a 10 mm pathlength equivalent.
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
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)
	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**.

Setting	Available Options
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.
	• 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 ans at least one standard) – **2nd order polynomial:** Draws th 2nd order least squares polynomial using all measured standards (requires reference measurement and at least standards) – **3rd order polynomial:** Draws the 3rd order least squares polynomial using all measured standards (requires reference measurement and at least three standards)
Analysis wavelength (Standard curve methods only)	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).

Setting	Available Options
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.
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). **Note**s: 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, open the existing method, make your changes, then select **Save As** and enter a new name.

Copy custom method

- from the Custom Methods screen, select a custom method
- from the drop-down menu ⋮ choose **Edit**
- enter new **Method name** and **Description**
- select **Save As**
- Enter a filename for the method and click **Save**

You can now select the saved method and edit the **Description** and settings.

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 Load a Custom Method for details).

Export Custom Method

Export a custom method in order to run it and store the measurement results on the NanoDrop One^{C} instrument.

- from the Custom Methods screen, select a custom method
- from the kebab menu, choose **Export** (if method is invalid, an error message is displayed; errors must be fixed before method can be exported)
- choose **Save** (method is exported to method file (*.method filename extension) in proprietary format)

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

Import custom method

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

- from the Custom Methods screen, 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 Custom Methods screen, select a custom method from the list of available methods
- from the kebab menu, choose **Edit**
- edit method settings as desired
- choose **Save**

Delete custom method

- from Custom Methods screen, select a custom method from the list of available methods
- from the drop-down menu , choose **Delete**

after confirmation message, choose **Yes**

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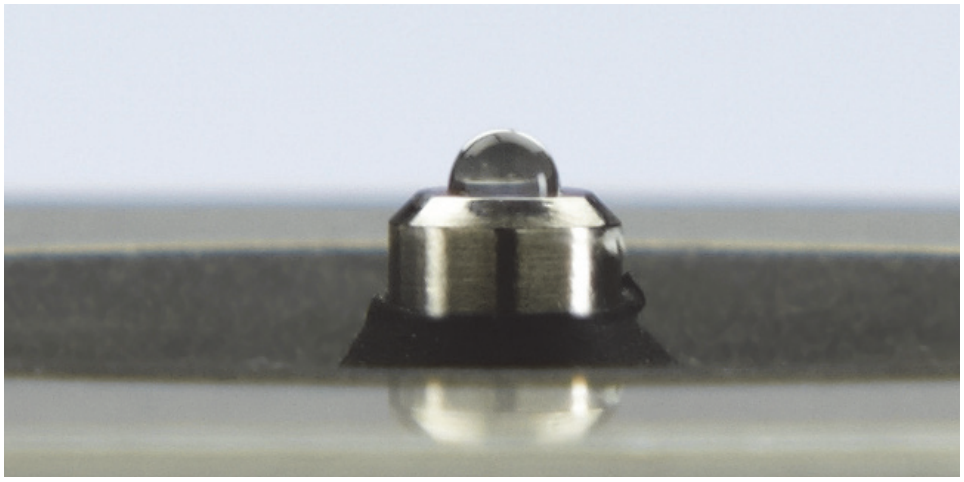
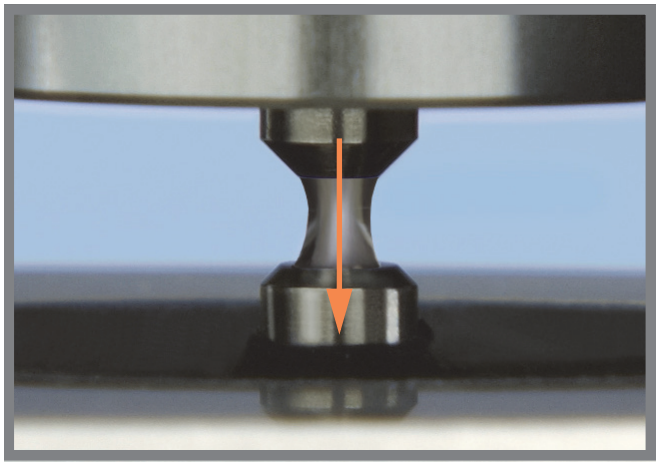
4

Learning Center

Contents

Micro-Volume Sampling—How it Works

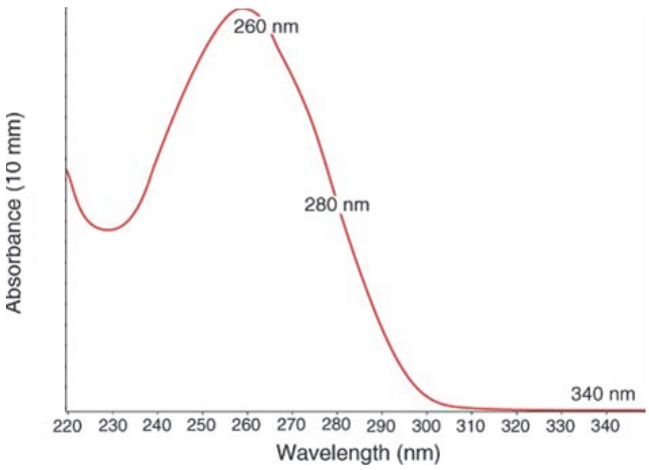




Surface Tension

The NanoDrop One^{C} 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

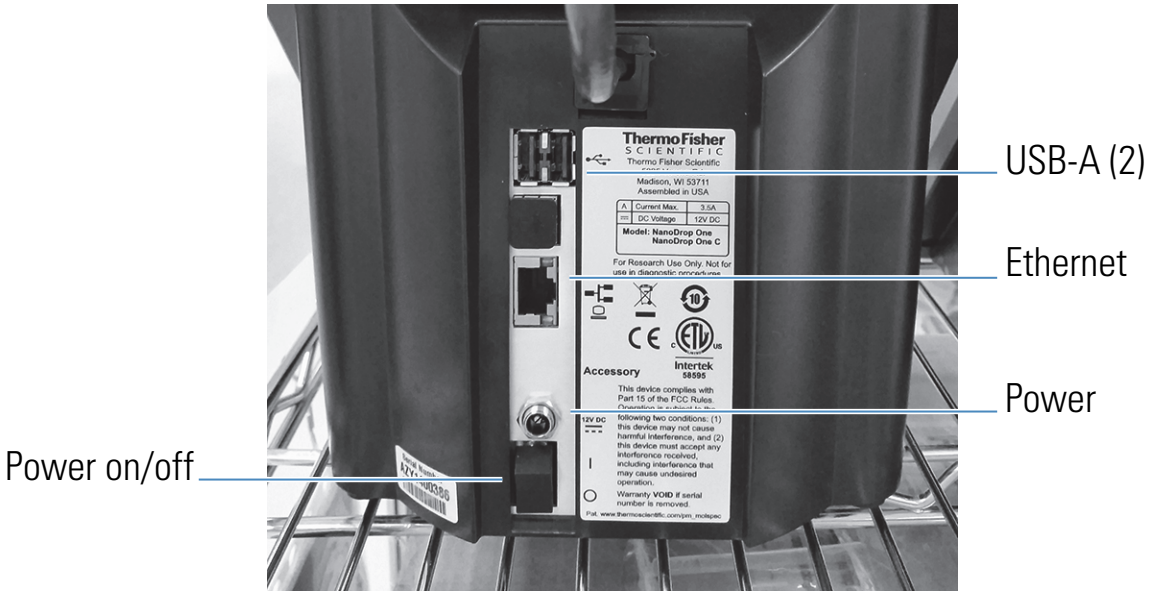
$$\text{Absorbance} = -\log\left[\frac{\text{intensity}_{\text{sample}}}{\text{intensity}_{\text{blank}}}\right]$$

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.

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.

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. See "Power Cords" on page 137 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.

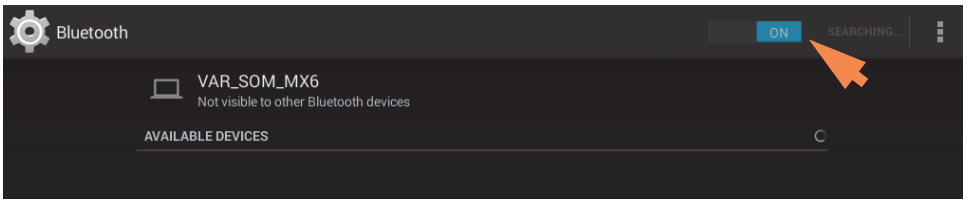
Set up Bluetooth connections on the instrument

– from instrument Home screen, tap (**Settings**)

– tap **System** tab

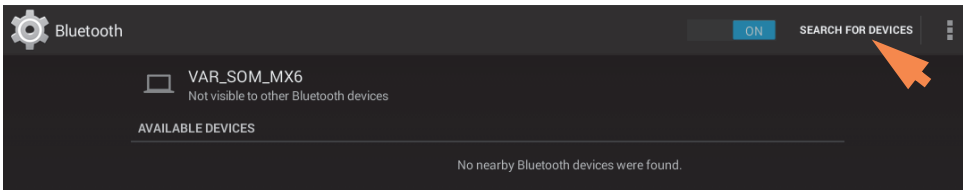
– tap **Bluetooth** (if Bluetooth is disabled, button in upper right is set to "Off" and no Bluetooth input devices are listed)

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

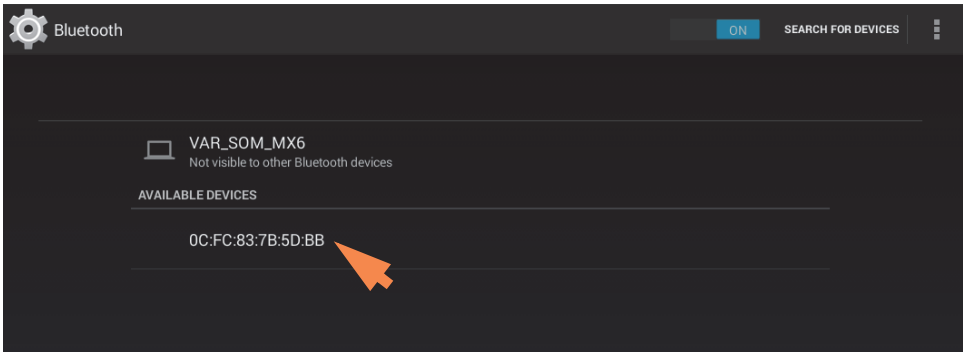


If no Bluetooth devices are found, after a few seconds the message "No nearby Bluetooth devices were found" is displayed

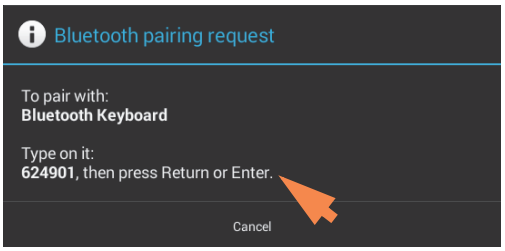
– to **add a Bluetooth device**, follow manufacturer instructions to pair the device (for example, you may need to hold down a button) and tap **Search For Devices** on instrument)



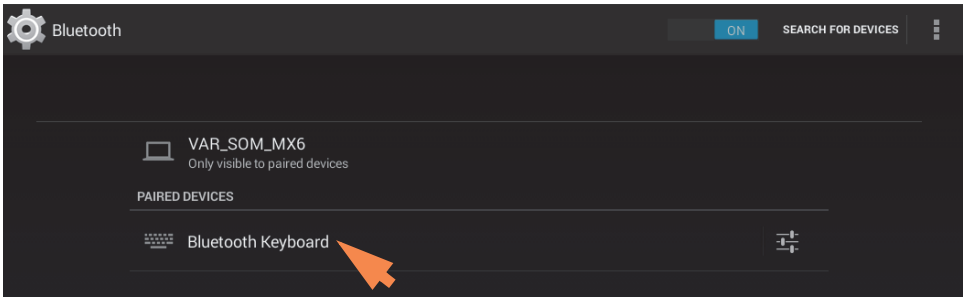
device name should appear in Available Devices list



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

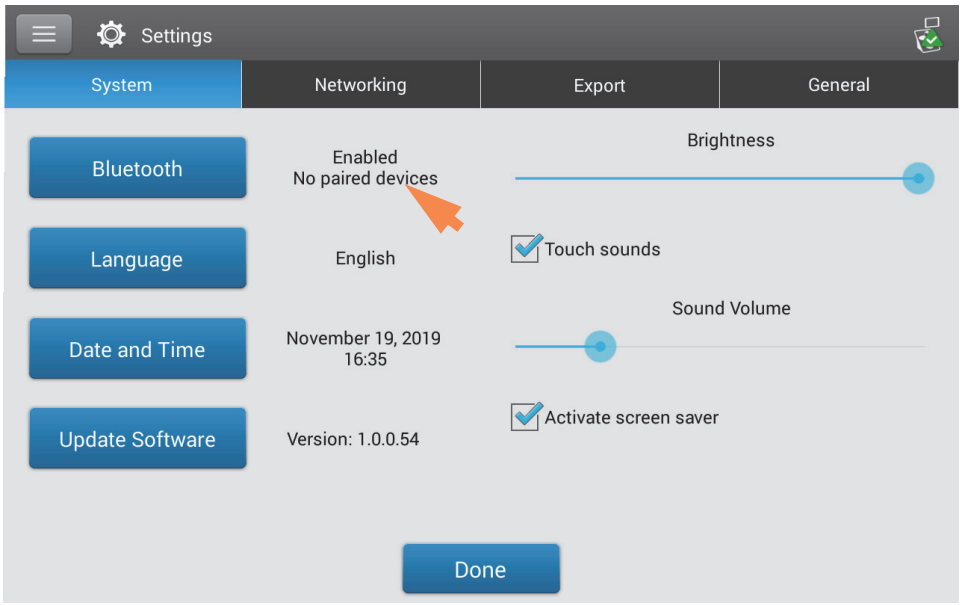


– **complete any instructions** to pair the device



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)

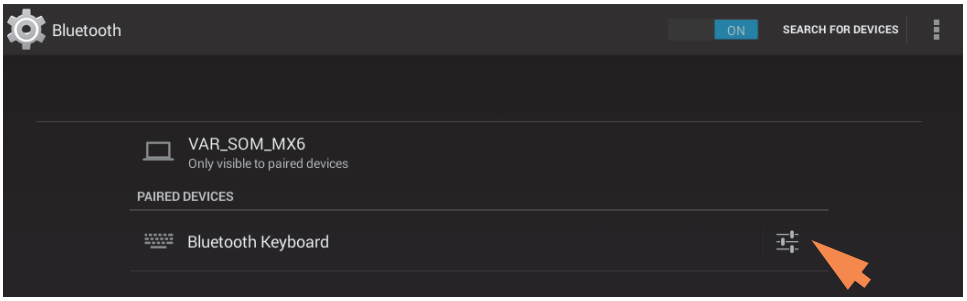


– repeat steps above to add another Bluetooth device or tap **Done** to close Settings

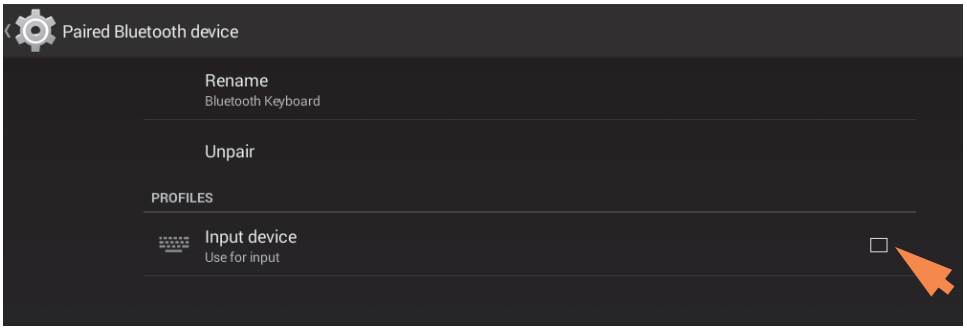
Deselect Bluetooth input device

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



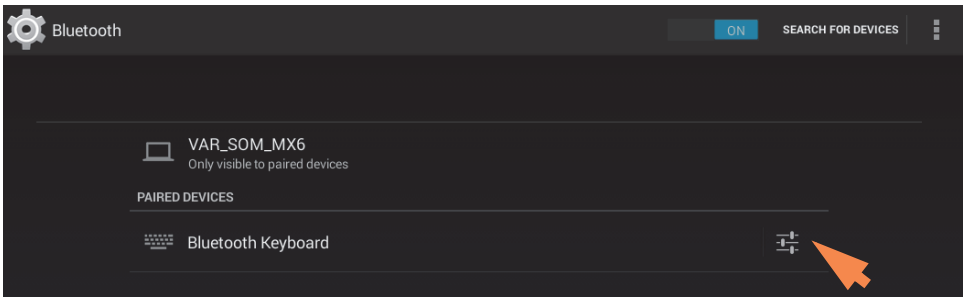
- tap **Paired Bluetooth Device** in upper left to return to previous screen
- tap **Back** to return to System settings
- tap **Done** to close Settings

Note

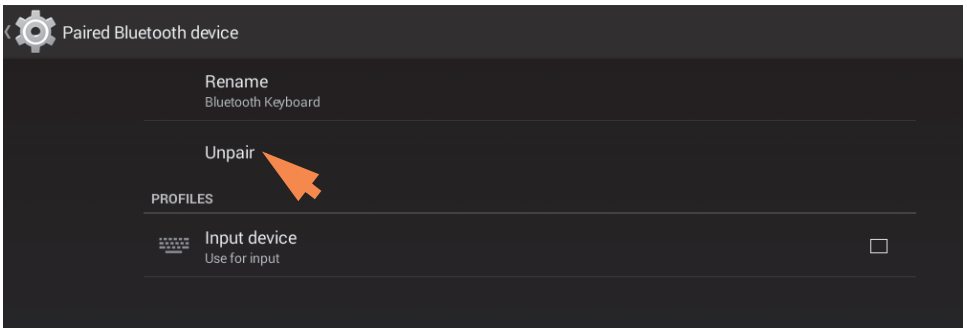
- If no Bluetooth device is selected for input, the instrument relies on the integrated touchscreen keyboard for input.
- To select the device again, follow the steps above and select the device's Use for Input checkbox.

Disconnect Bluetooth device

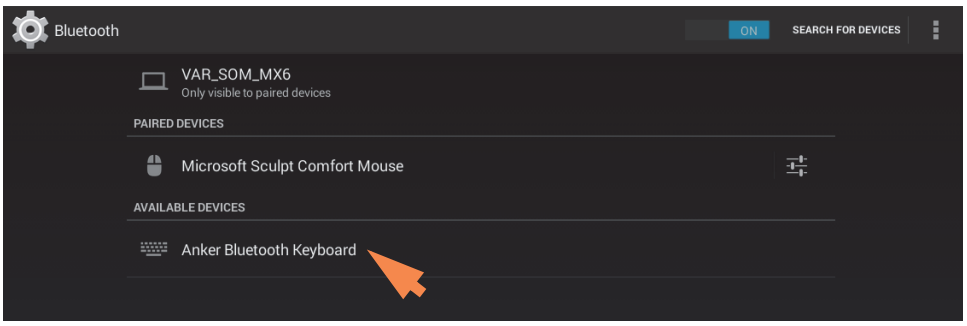
- from instrument Home screen, tap 
- tap **System** tab
- tap **Bluetooth**
- to disconnect paired Bluetooth device, tap its Profiles button 



- 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 either a personal computer (PC) or an active network wall jack.

If the instrument is connected to a network wall jack, you can export data files to a network location, for example, in order to transfer them to another computer. You can define multiple network paths that the operator can select when exporting data. See Export Settings for details.

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

– from instrument Home screen, tap 

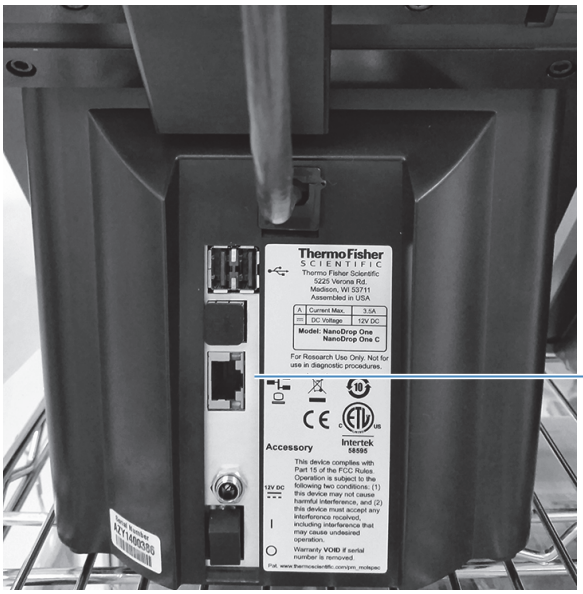
– tap **Networking** tab

– tap **Ethernet**

– select an Ethernet option and choose **OK**.

  - **Direct connection to a PC**. Select if you plan to connect an Ethernet cable between the NanoDrop One^{C} instrument and a personal computer.
  - **Connection to a network jack**. Select if you plan to connect an Ethernet cable between the NanoDrop One^{C} instrument and a network wall jack.

– connect one end of Ethernet cable to Ethernet port on instrument back panel



– connect other end of Ethernet cable to either the computer Ethernet port or an active network wall jack

Set up Wireless Connections

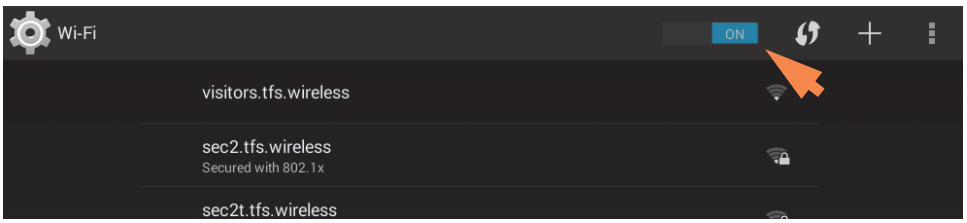
Select Wi-Fi network on the instrument

– from instrument Home screen, tap (Settings)

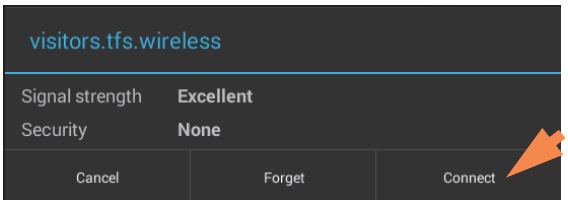
– tap **Networking** tab

– 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

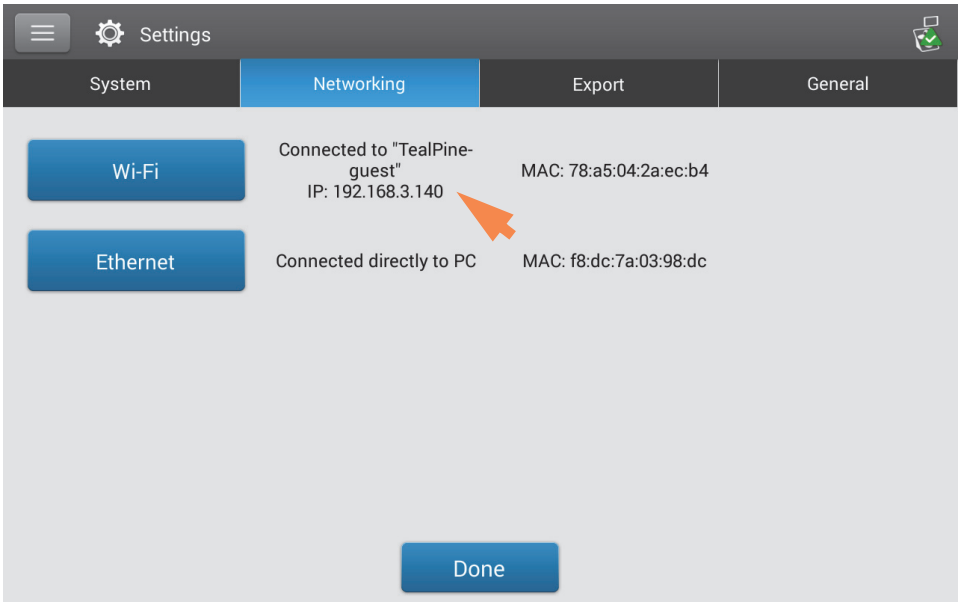


– select remote computer's Wi-Fi network host and tap **Connect** (here is an example)



– 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)

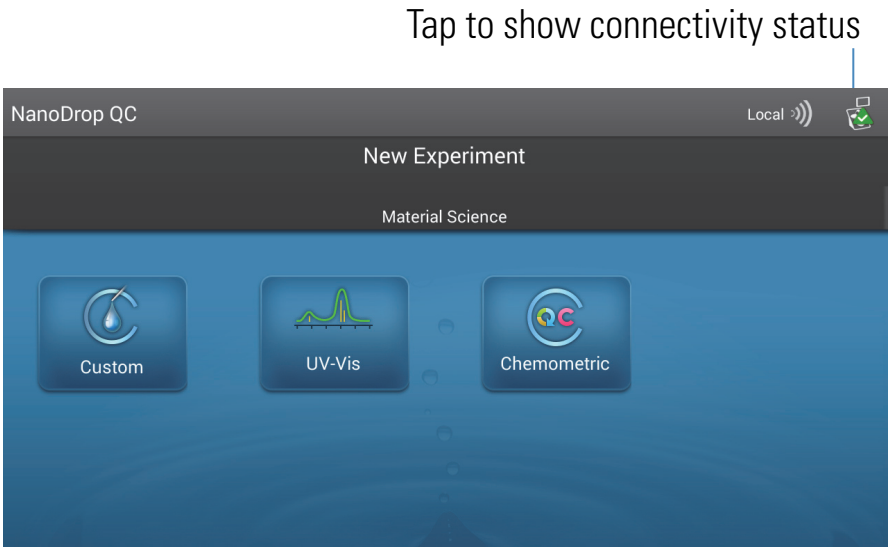
Note Some Wi-Fi networks may require an identity, password or other information before you can connect to them, or they may be anonymous (that is, you may have to search for them by name). For more information, see the system administrator at your work site.



– tap **Done** to exit Settings

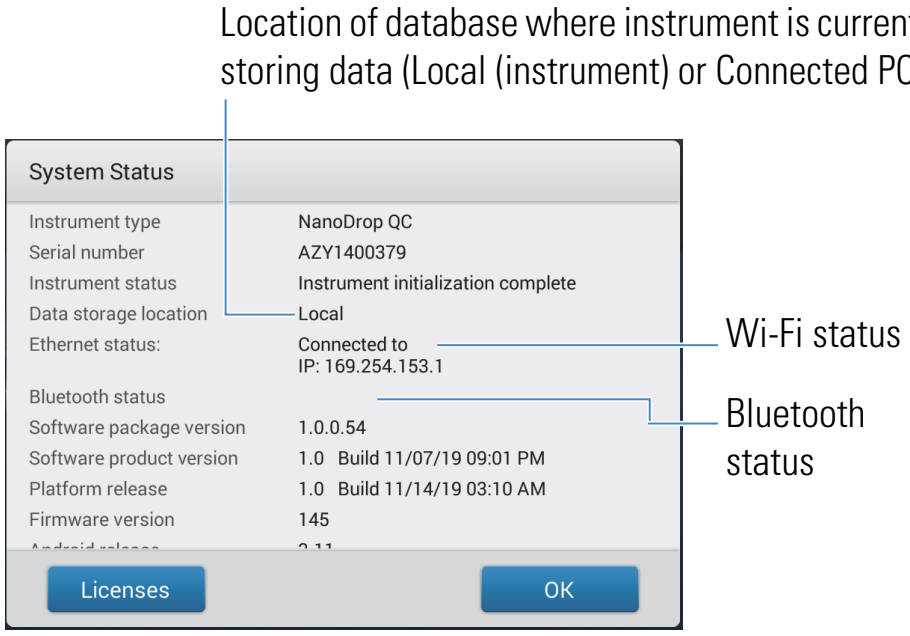
Assess Instrument Connectivity

Use the System Status icon at the top right of the instrument Home screen to quickly assess the instrument's connectivity status including Bluetooth 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%

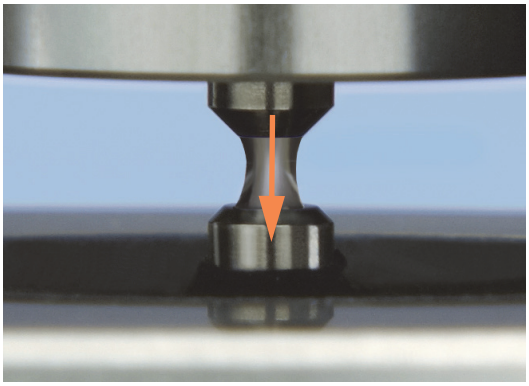
Locate the instrument away from air vents and exhaust fans to minimize evaporation.

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.

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).

To measure a micro-volume sample

NOTICE

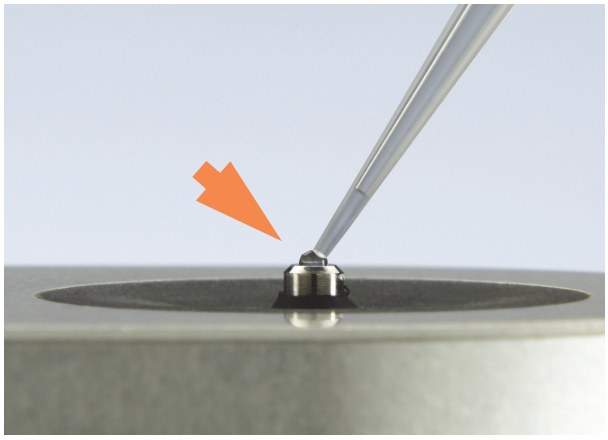
- Do not use a squirt or spray bottle on or near the instrument as liquids will flow into the instrument and may cause permanent damage.
- Do not use hydrofluoric acid (HF) on the pedestals. Fluoride ions will permanently damage the quartz fiber optic cables.

1. From the instrument Home screen, select an application: **UV-Vis**, **Chemometric**, or **Custom** Methods.

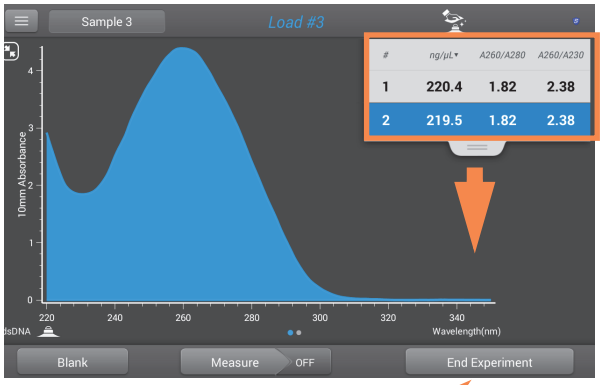
2. Lift the instrument arm and clean the upper and lower pedestals with new laboratory wipe.

3. 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



4. 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

5. 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.)

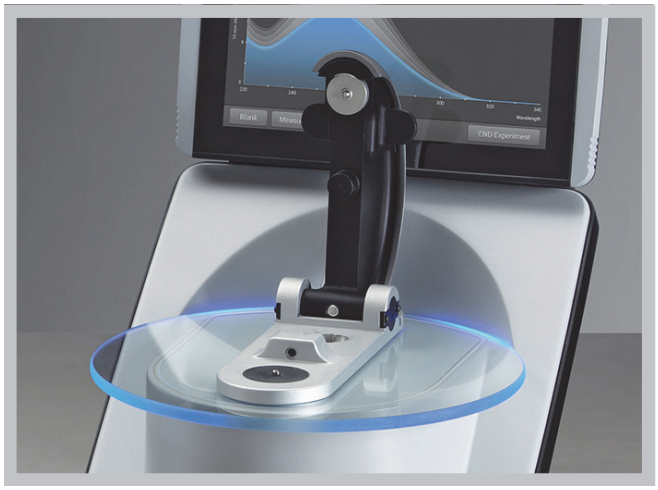
6. When you are finished measuring samples:
   - Tap **End Experiment** (see previous image)
   - Enter an experiment name (tap **Experiment Name** box to display keyboard), or leave the default experiment name
   - Tap End Experiment
   - Lift the arm and clean both pedestals with a new wipe

     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).

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.

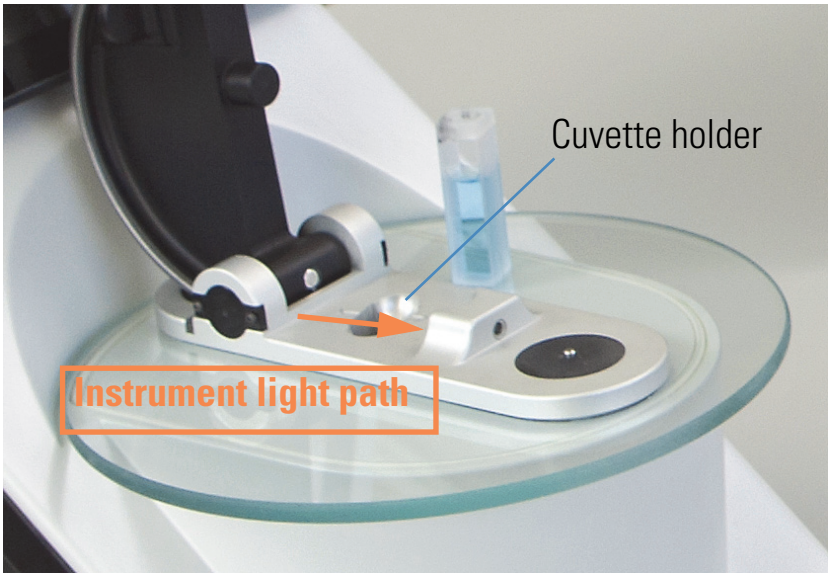


Supplies needed

- 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.

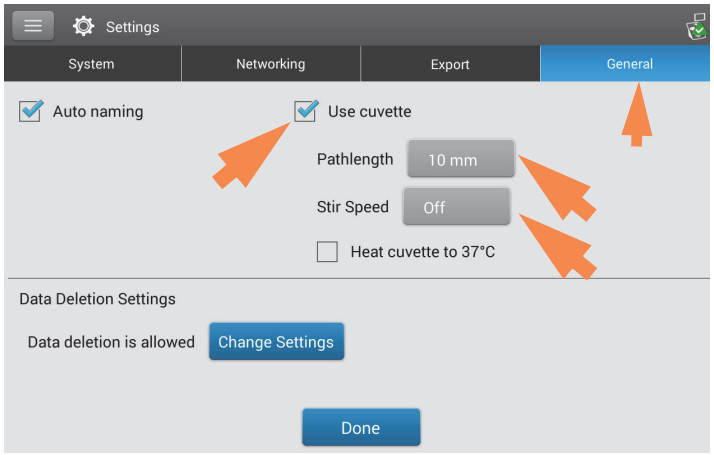


To measure a sample using a cuvette

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 ans may cause permanent damage.

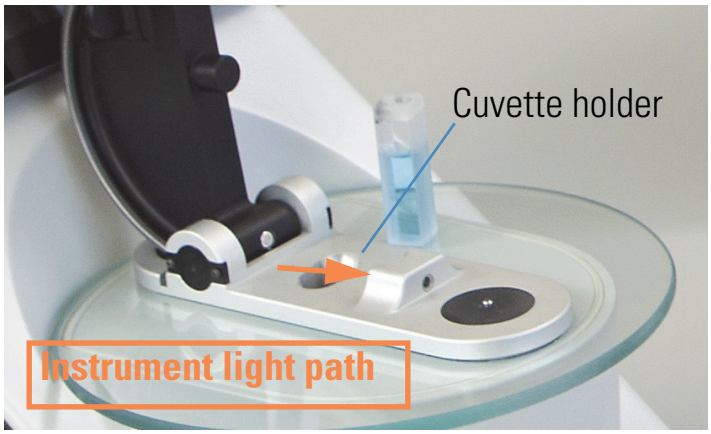
1. From the Home screen, select (Settings)



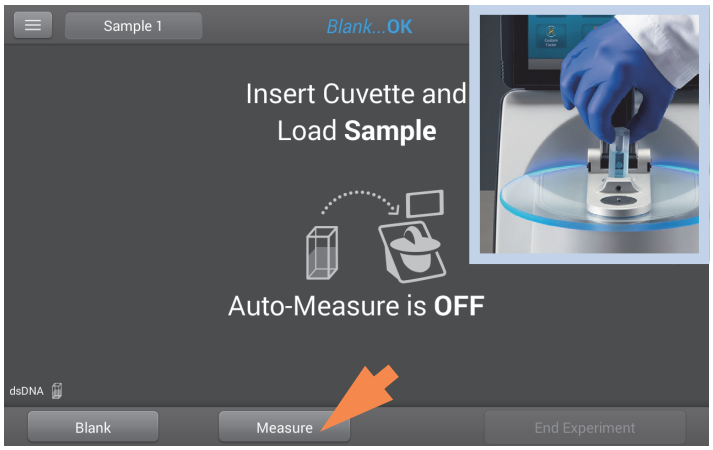
2. Specify the cuvette options:
   - Select **General**
   - Select **Use Cuvette**
   - Set **Pathlength** to pathlength (width) of cuvette (see cuvette manufacturer for specifications)
   - Set stirrer and heater if desired
   - Select **Done**

   See General settings for details.

3. From the Home screen, select an application



4. 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



5. 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

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.

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

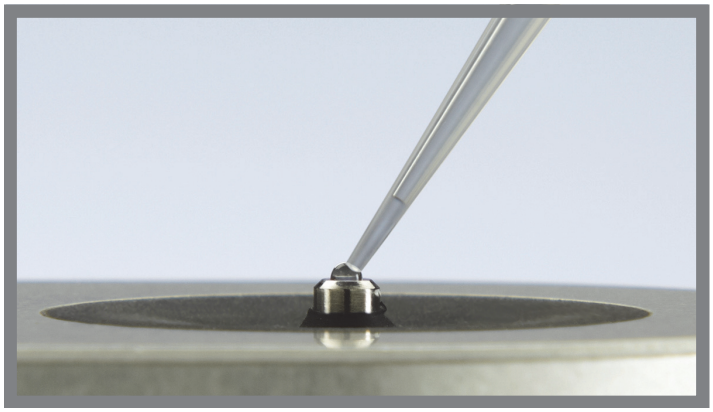
The buffer used to resuspend a sample analyte can contribute absorbance. Blanking minimizes any absorbance contribution due to the buffer components from the sample measurement. The resulting sample spectrum represents the absorbance of only the analyte of interest. For more information, watch the multimedia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

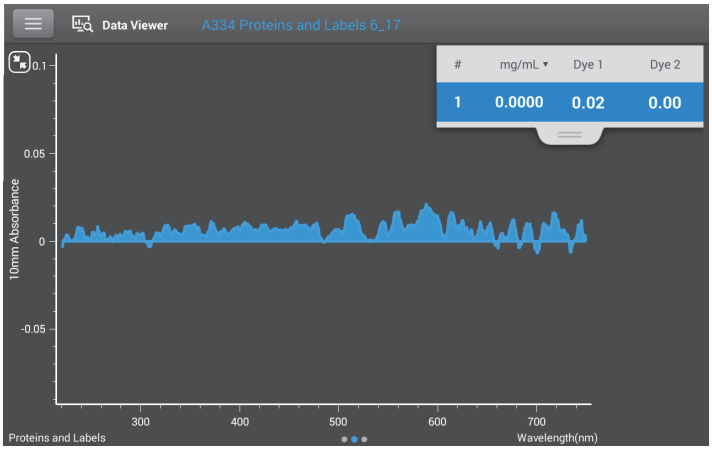
For best results:

- 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.





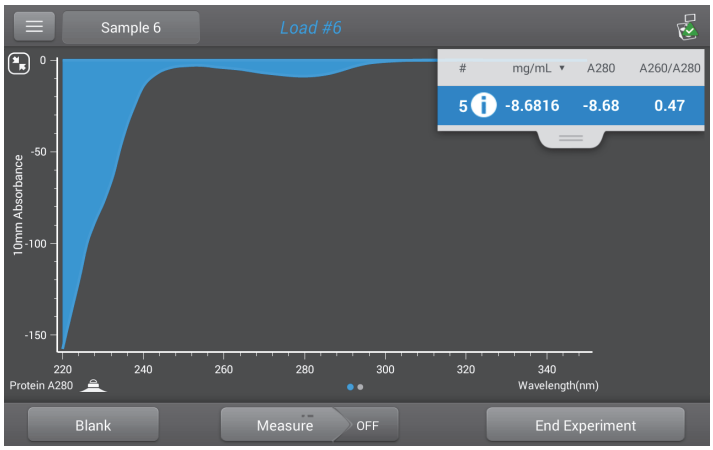
Good blanking buffer (measured abs < 0.04)

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.)

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.



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

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

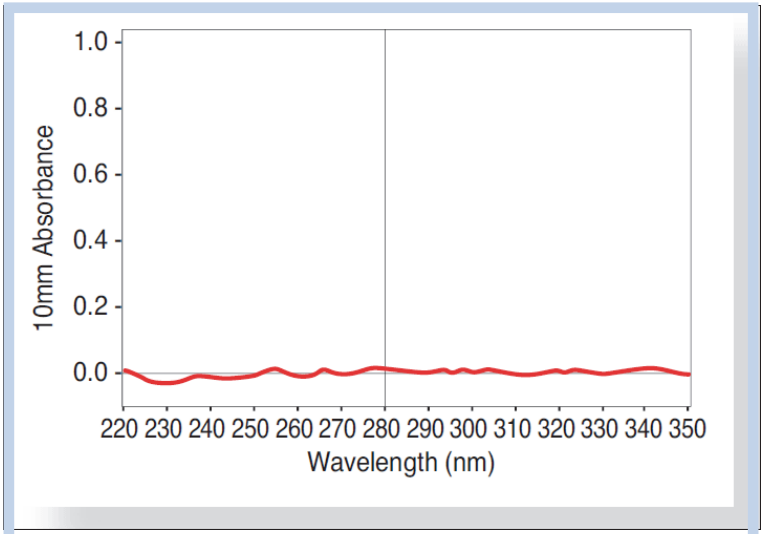
- Do not use a squirt or spray bottle on or near the instrument as liquids will flow into the instrument and may cause permanent damage.
- Do not use hydrofluoric acid (HF) on the pedestals. Fluoride ions will permanently damage the quartz fiber optic cables.

1. From the Home screen, select an application name.
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.

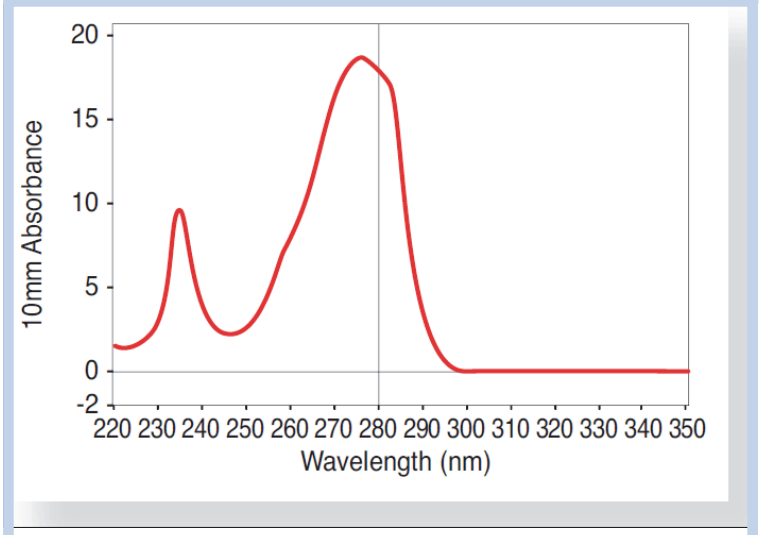
   The resulting spectrum should vary no more than 0.04 A from the baseline at the analysis wavelength.

   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

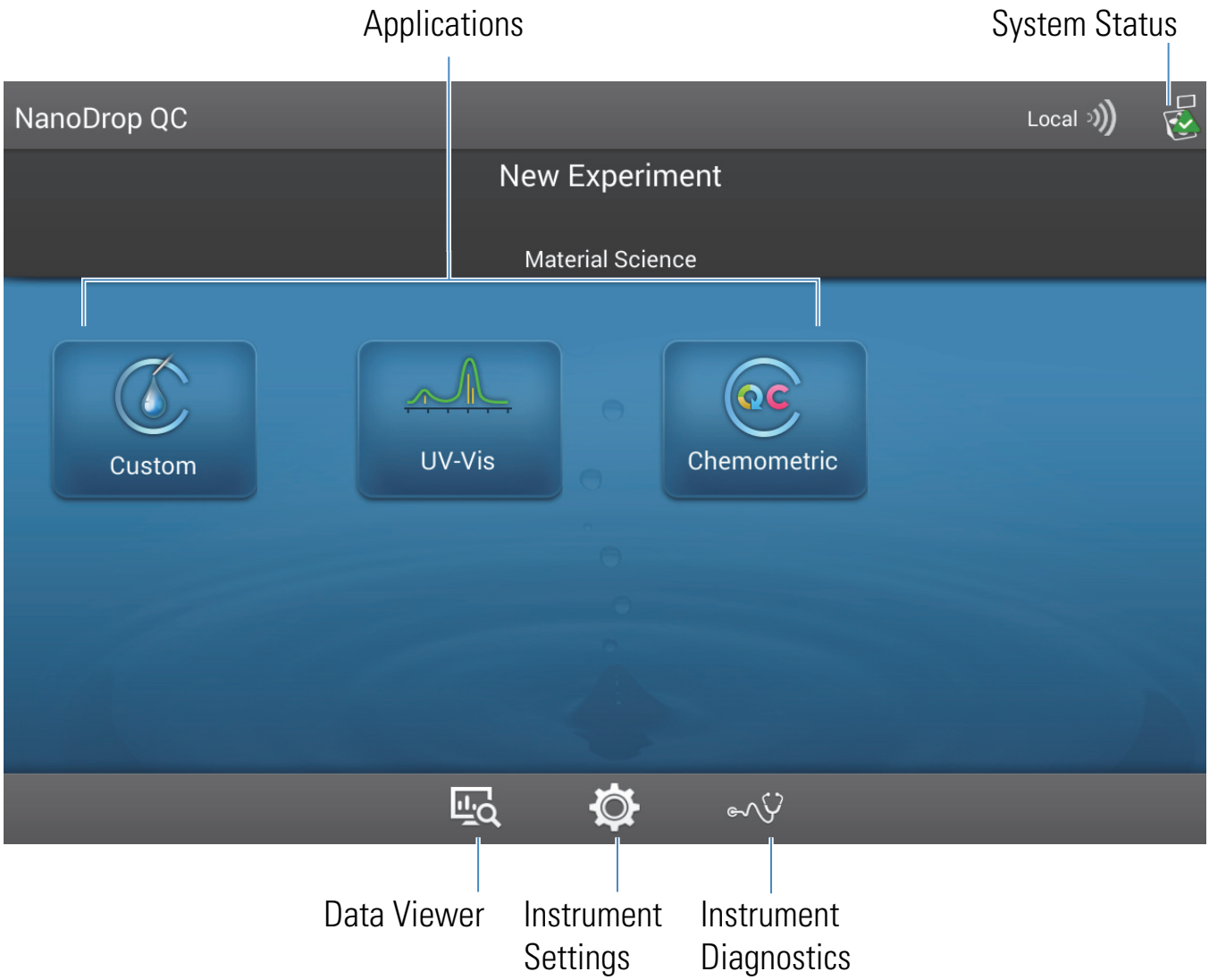


Example spectrum of buffer unsuitable for Protein A280 protein quantification

Basic Instrument Operations

NanoDrop One Home Screen

These operations are available from the NanoDrop One Home screen.

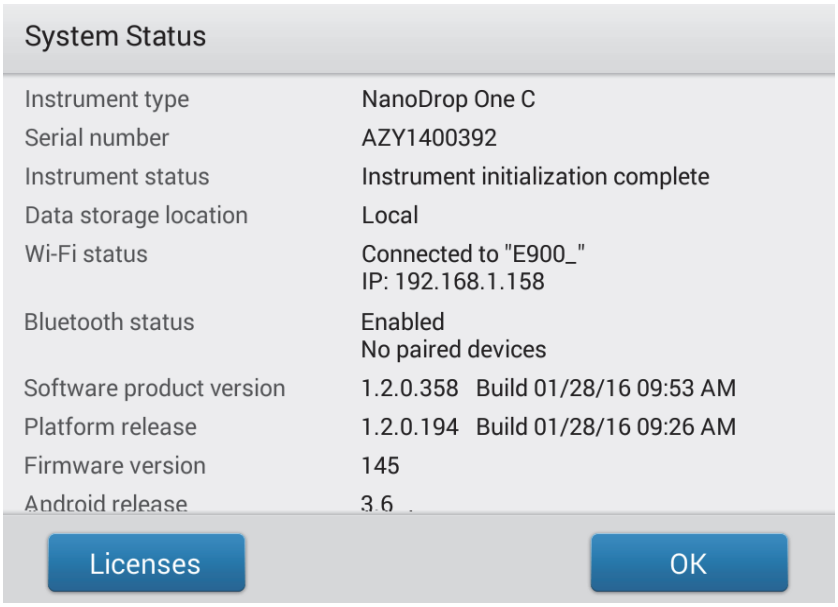


Applications

The NanoDrop QC software offers several configurable applications, which gives users full control of the measurement. See"Applications" on page 11 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^{C})
Serial number	Instrument serial number
Instrument status	Current status of the instrument
Data storage location	Indicates location of database set 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 package version	Version of instrument operating software installed
Platform release	Version of instrument platform software installed
Firmware version	Version of instrument firmware installed
Android release	Version of customized Android operating system software installed
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. See "Open Data Viewer" on page 82 for more information about the Data Viewer on the instrument.

Instrument Settings

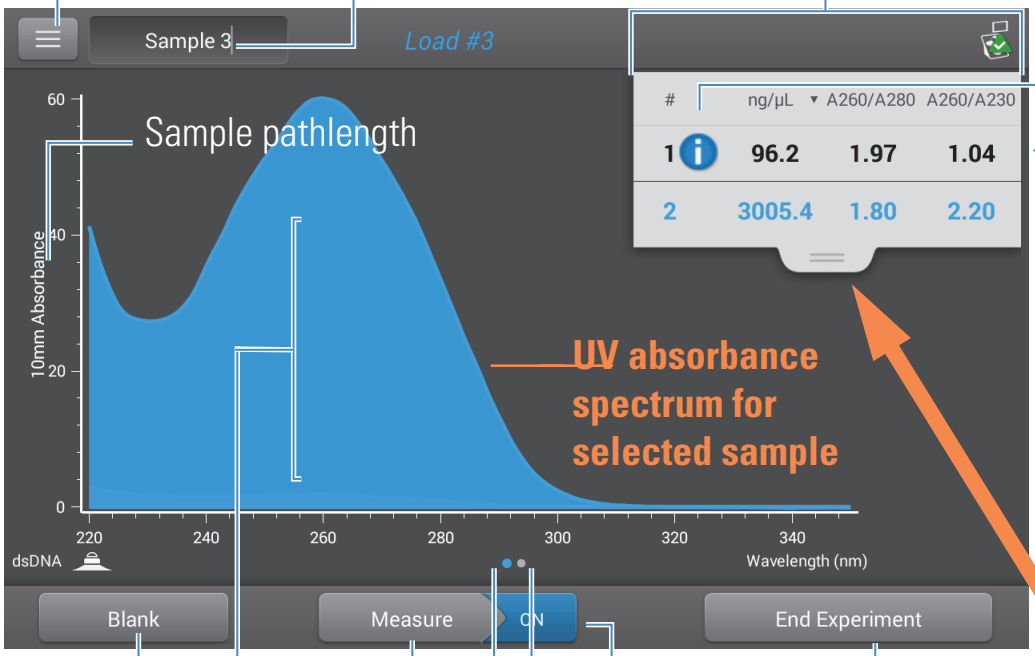
Tap  on the Home screen to access instrument settings for software updates, cuvette sampling, networking and more. See "Instrument Settings" on page 100 for detailed information about all available instrument settings.

Instrument Diagnostics

Tap  on the Home screen to verify instrument operation. Instrument diagnostics should be run periodically according to the recommended maintenance schedule. See "Instrument Diagnostics" on page 122 for information about how to run the available instrument diagnostics.

NanoDrop One Measurement Screens

These operations are available from any measurement screen within an Application.



Menu

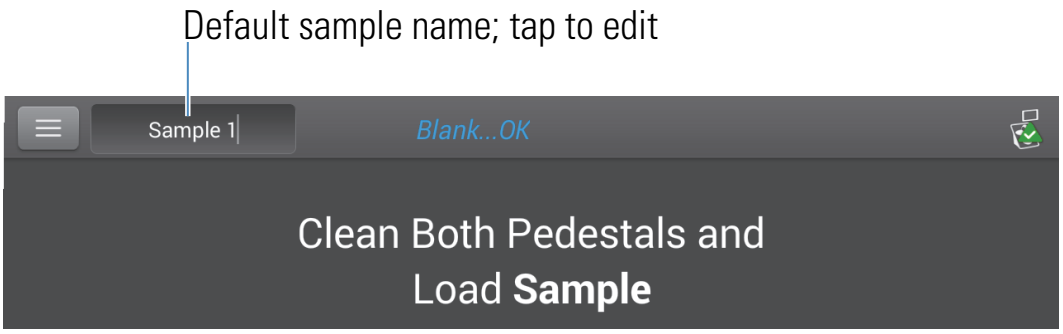
Tap  in any measurement screen to see the available menu options.

Home	Return to NanoDrop One Home screen
[application] Setup	View or change settings for selected application
Settings	View or change instrument settings **Note:** The Dye/Chrom. Editor and Protein Editor tabs appear in Settings only when the Settings tab is opened from the NanoDrop One Home screen or the Data Viewer.
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.

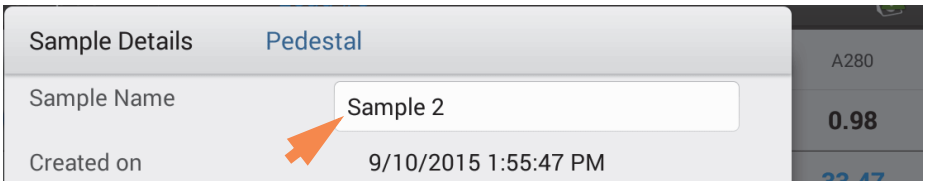
Edit default sample base name

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 to close keyboard
– tap **OK** to close Sample Details box

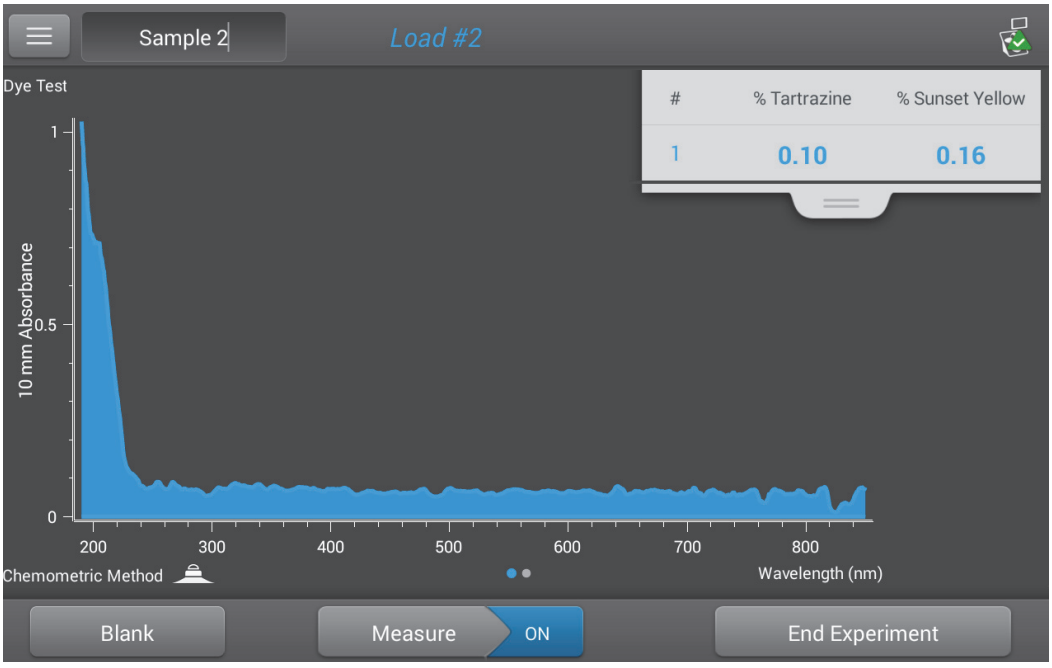
Measurement Results

The types of results that appear in the measurement screens depend on the selected application. For details, see the reported results section of that application in this guide:

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

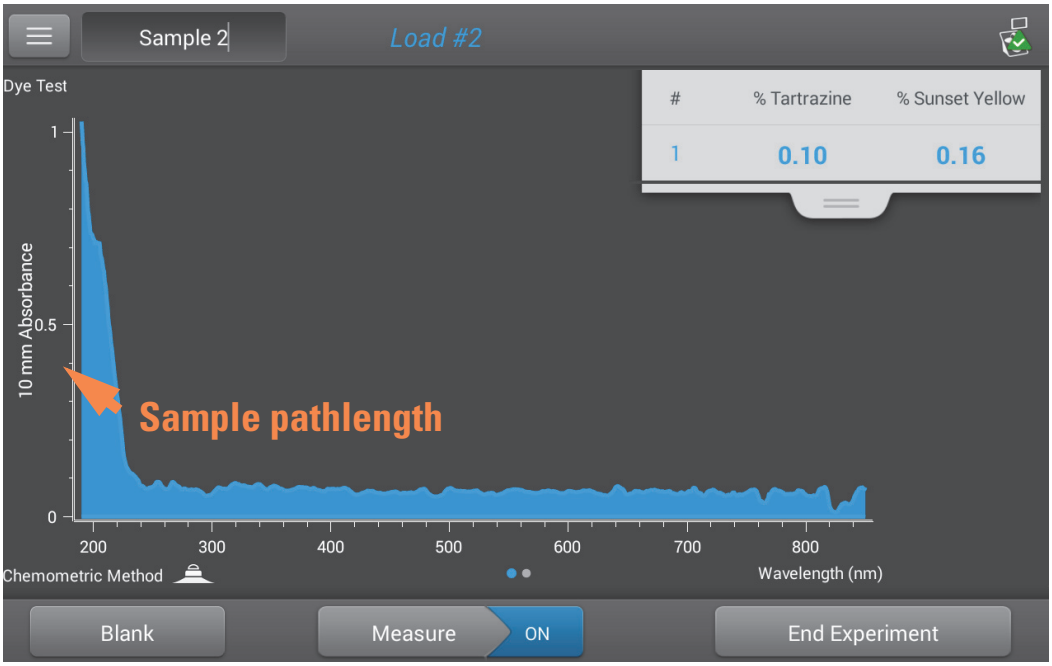
Absorbance Spectrum

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. Here is an example for a chemometric method.



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. Here is an example.



Blank Button

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 Button

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.

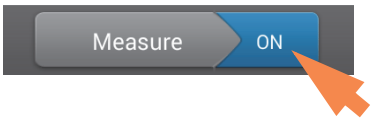
Auto-Measure and Auto-Blank Options

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.

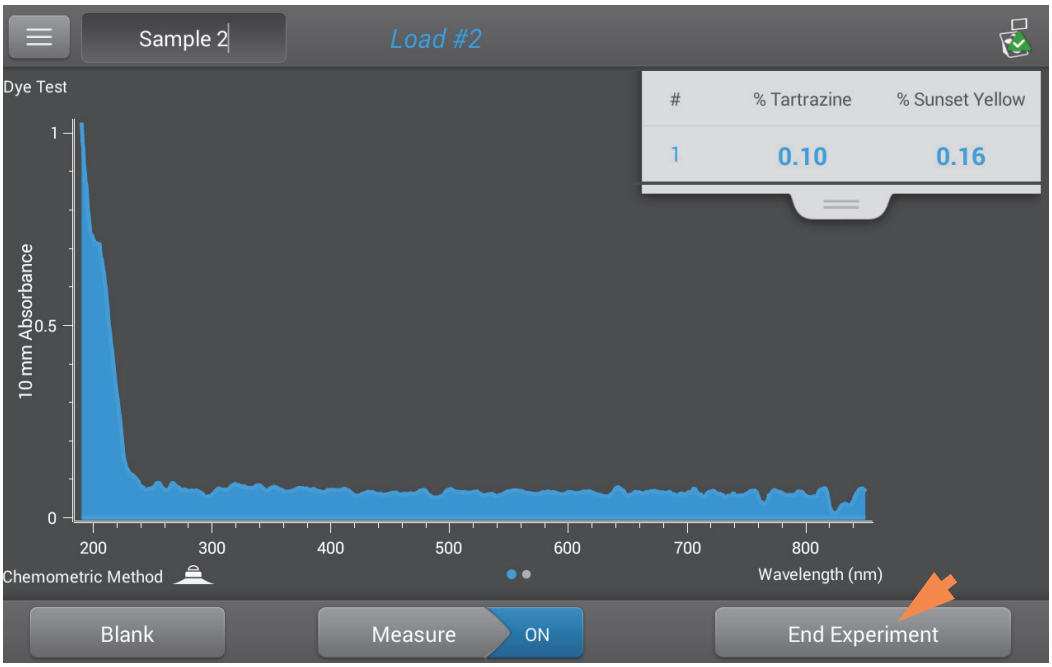


Auto-Blank

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

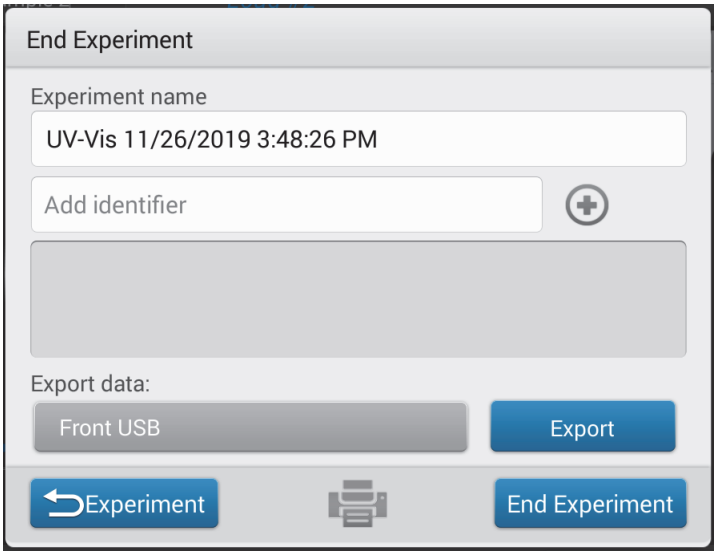
End Experiment Button

Tap **End Experiment** when you are ready to name and save your experiment, add a label to help you locate the experiment later or export the data.



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

After you tap End Experiment, the End Experiment box is displayed:

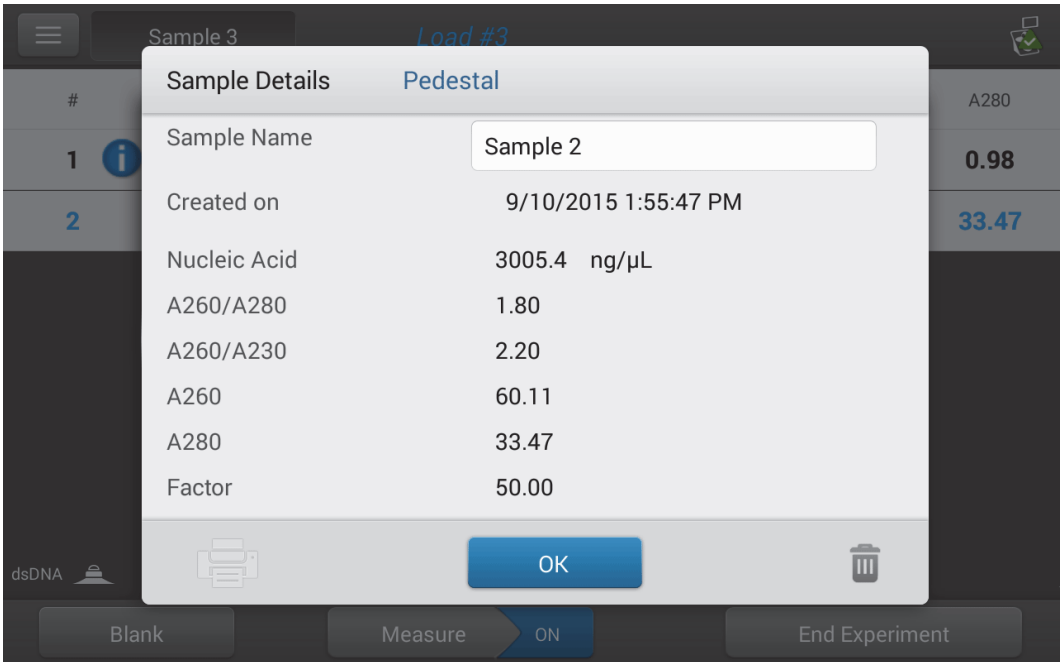


Available options:

Experiment Name	Enter a name for this group of measurements. The measurement results are saved in the selected database location using the entered experiment name.
Add Identifier	Enter a descriptive label to help you find this experiment later or to associate it with another experiment (see Manage identifiers on the instrument for details). Tap the **Add Identifier box** to display a keyboard to enter the label text. Tap the **Add Identifier button**  to add the label; tap the **Done** key to close the keyboard.
Export Data	Select an available location for exporting the measurements in this experiment. Experiments can be exported to a USB device connected to any USB port on the local instrument (front, back-left or back-right) or to a network location.
Export Button 	Allows you to select a file format for exporting the measurements in this experiment and then export the data to a USB device or network. Available export file formats: • comma-separated values spreadsheet (.csv) file • tab-separated values spreadsheet (.tsv) file (spectral data only) • NanoDrop QC (.sql) file The filename is the entered experiment name (see above). The file is stored in a folder named "NanodropOne" followed by the instrument serial number. (Use System Status to view your instrument serial number.)
Return To Experiment button 	Close the End Experiment box and display the results for the most recent measurement. From there you can add measurements to the current experiment and save it later.
Print button	Print measurement results for current experiment
End Experiment button 	End the experiment and save the measurement results using the entered experiment name. The experiment is saved in the selected database location.

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:

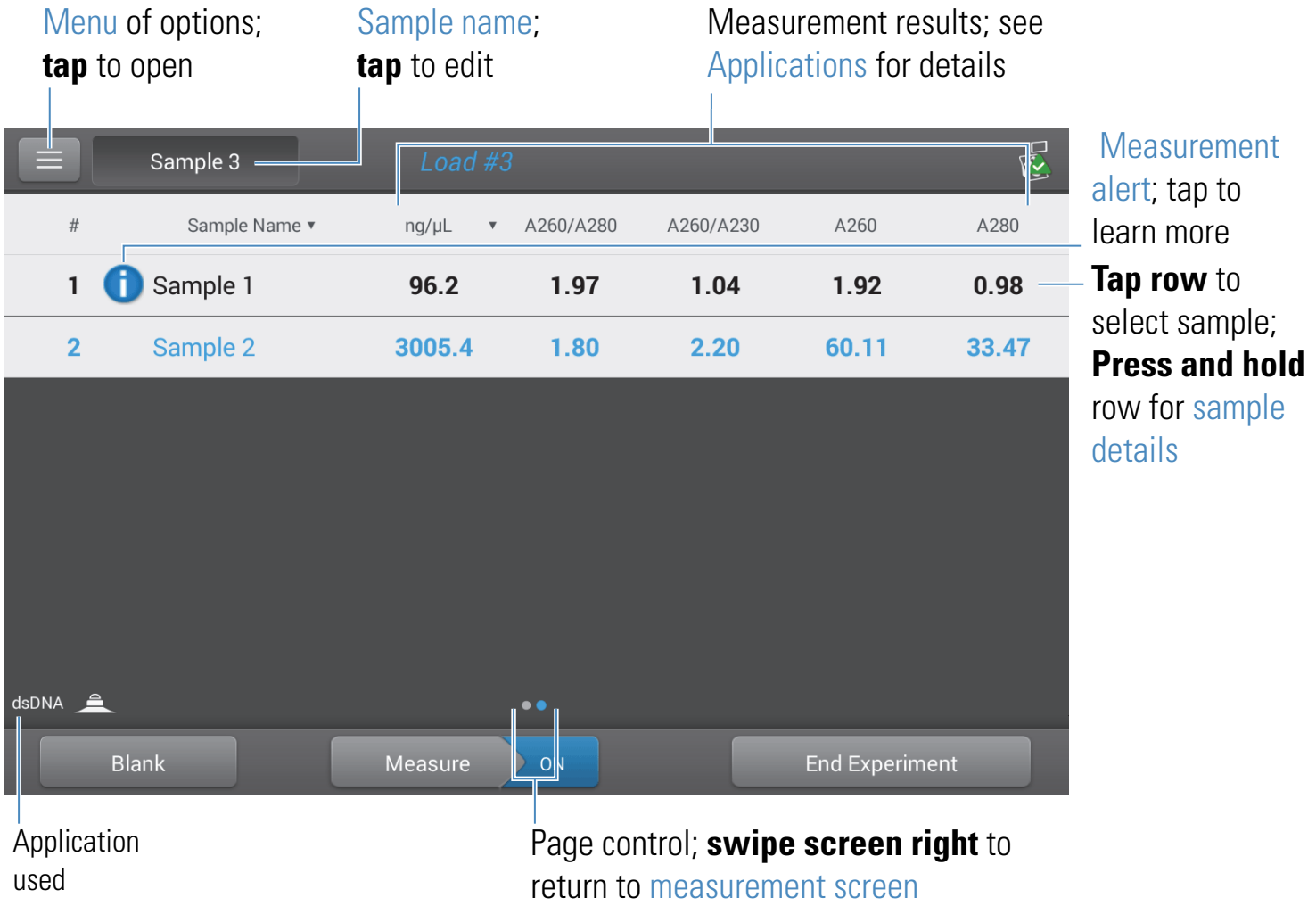


Information about the measured values displayed in Sample Details is provided in this Help system, under the application used to acquire the data.

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.



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^{C} database on instrument, tap  (Data Viewer) on instrument Home screen

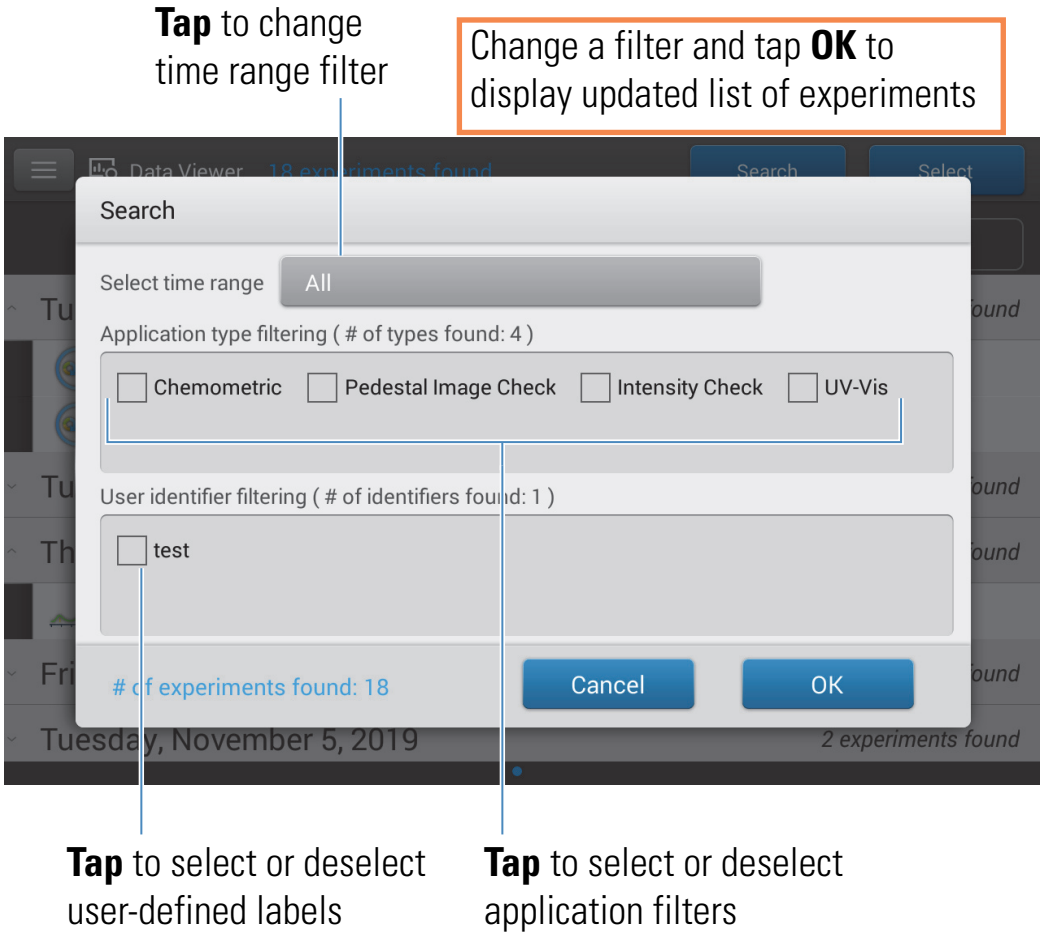
Menu

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:

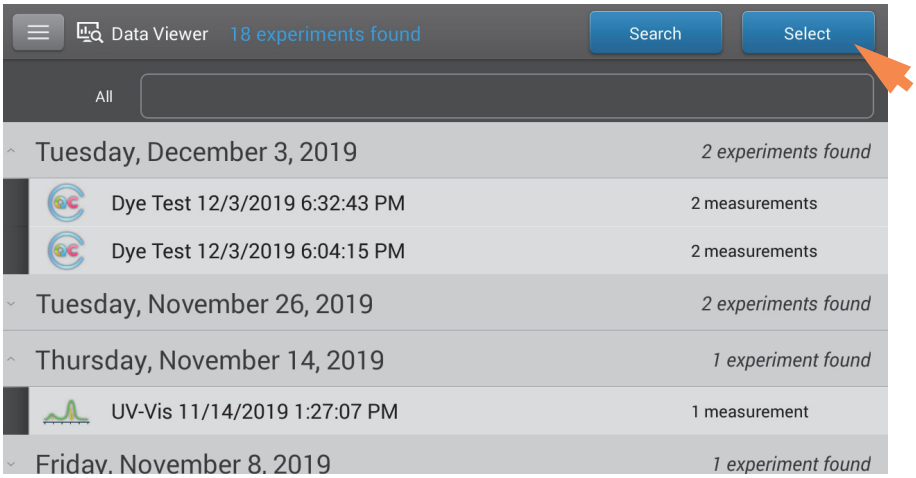


Export Selected Experiments

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

Export selected experiments

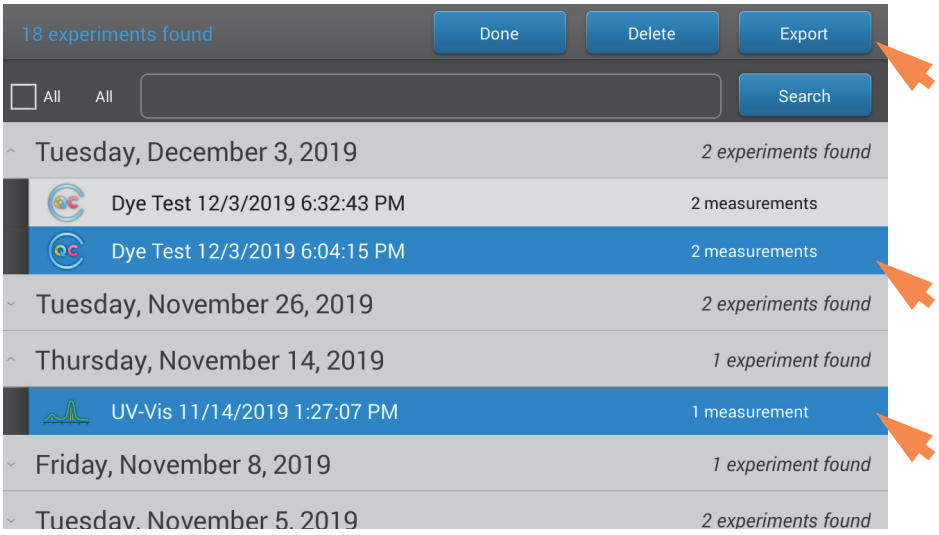
– open the Data Viewer and tap **Select**



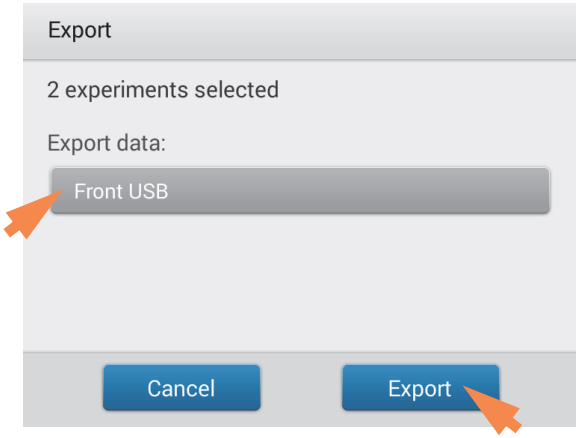
– tap **row** to list experiments acquired on that date, or use Search feature to find experiment

– tap to select one or more experiments to export (tap again to deselect an experiment; to select all experiments in database, select **All)**

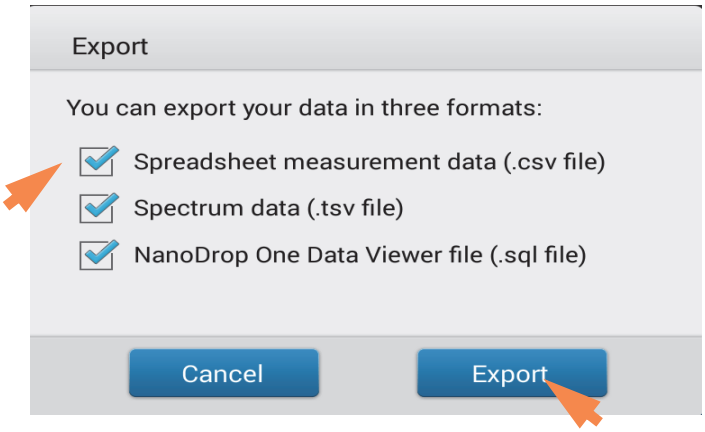
– tap **Export**



– set **Export Data** to an available export location (front, back-left or back-right USB port, or a network location) and select **Export**



– select one or more formats to export to (see "Export Selected Experiments" in General Operations for details) and 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.

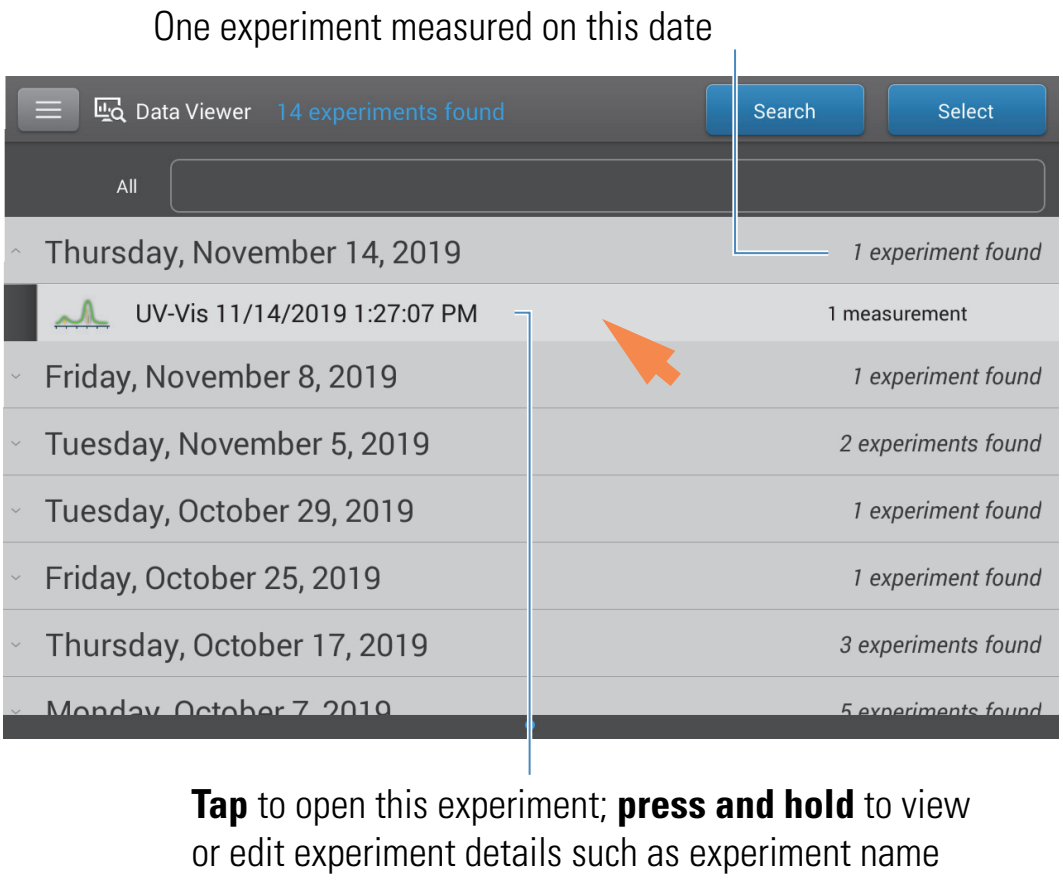
Open Experiment and View Associated Data

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

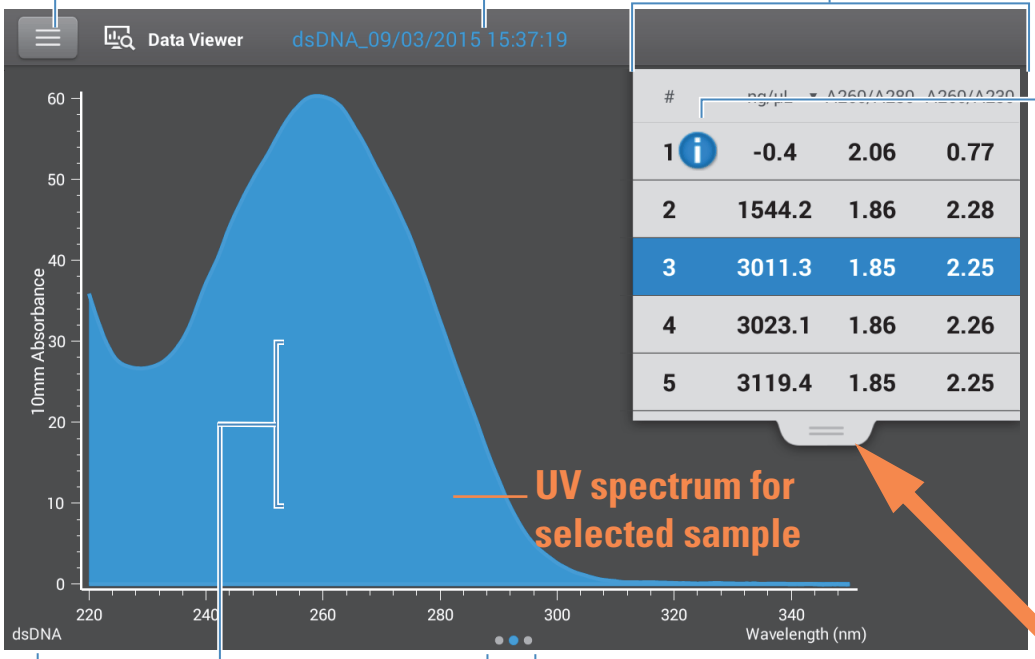
Here is an example:



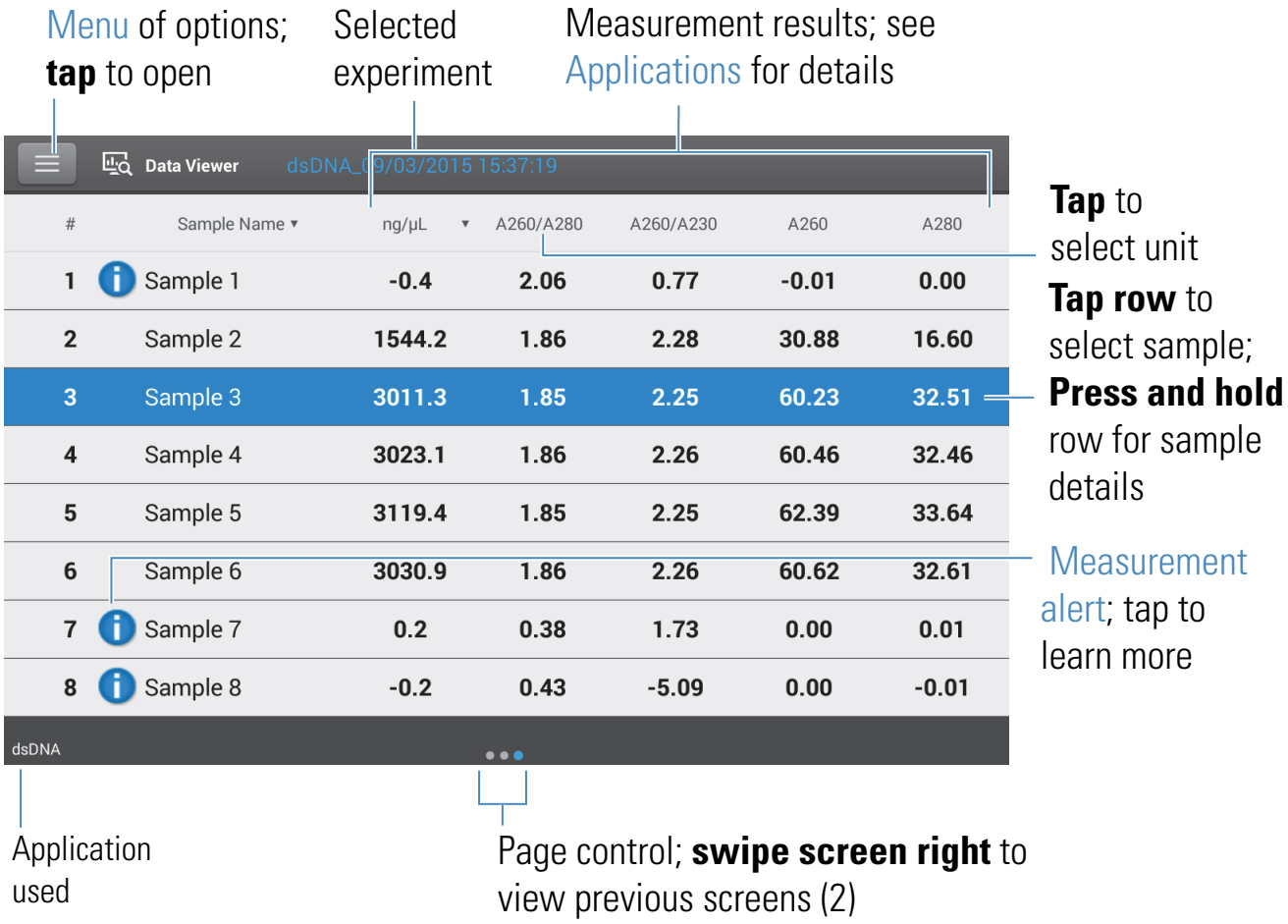
The Data Viewer provides measurement data as spectral data and data tables, similar to what you see after you complete a measurement.

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.



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 experiments
Print	Print plot or data table for selected measurement results; if no results are selected, prints all results in data table
Settings	View or change instrument settings
Disk Status	View remaining space available for storing measurement data on the instrument

NanoDrop One General Operations

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

Manage Identifiers (on the instrument)

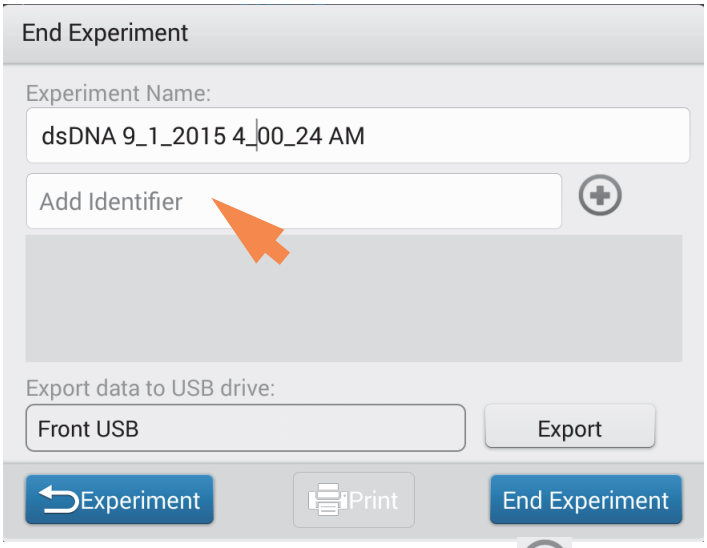
You can add one or more "identifiers" (i.e., labels or metadata tags) to an experiment to make the experiment easier to find. Labels can be added from the NanoDrop One software running on the instrument, or from the NanoDrop QC software installed on a personal computer (see Manage Identifiers on a PC).

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**

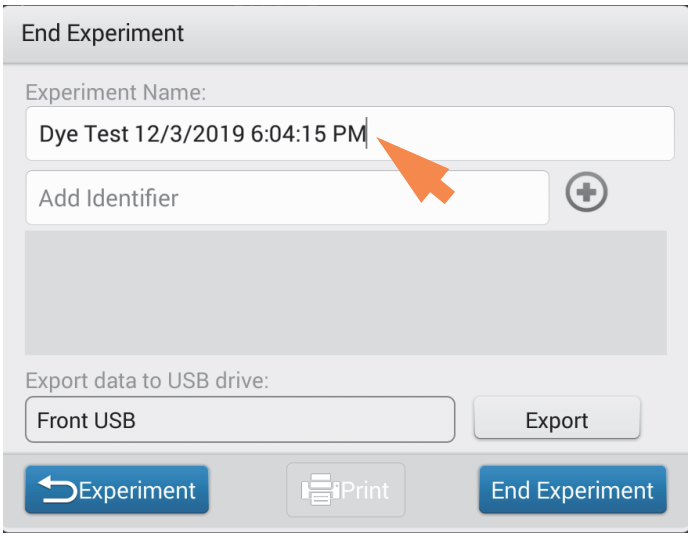
Edit Experiment Name

You can edit the experiment name when you save the experiment or afterwards from the Data Viewer.

Edit experiment name at end of experiment

- when finished measuring samples, tap 

– enter a name for this group of measurements in the Experiment Name box



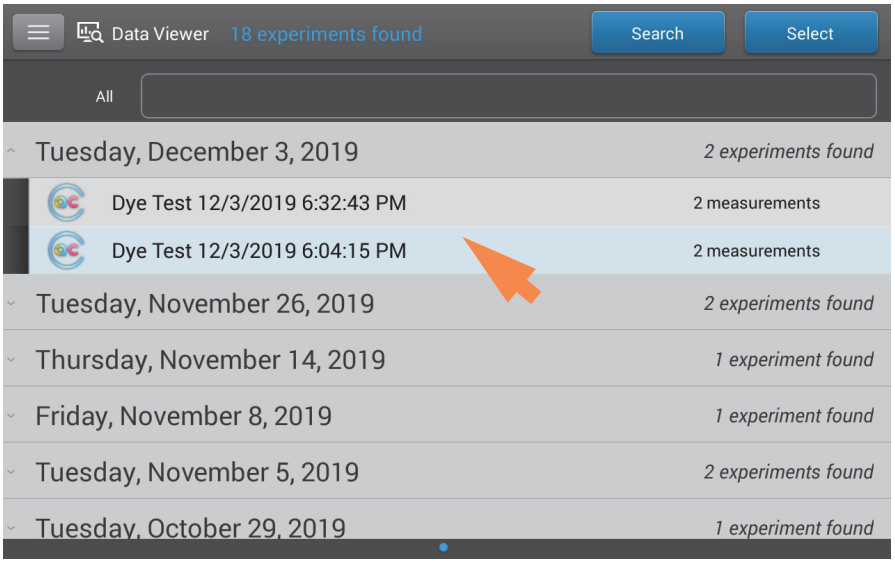
– tap **End Experiment**

Edit experiment name from Data Viewer

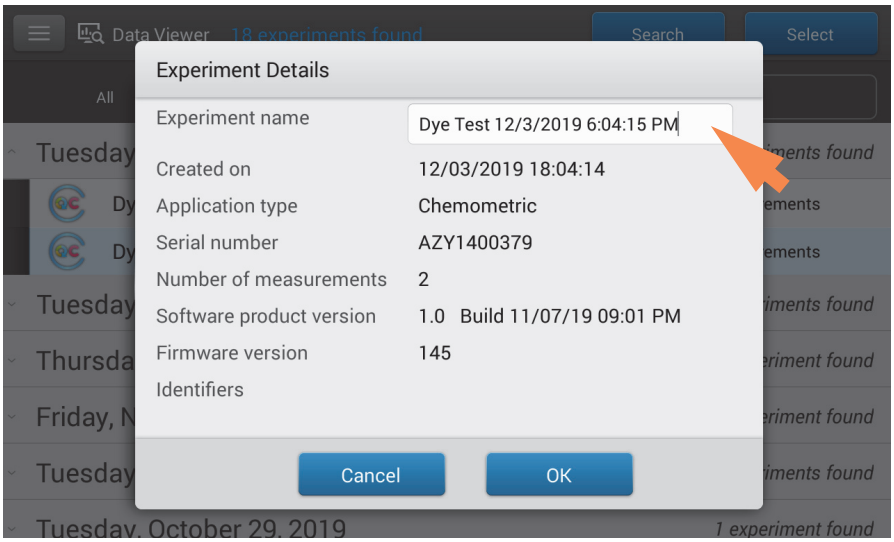
– from Home screen, tap  to open Data Viewer

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

– press and hold experiment name to open experiment details box



– tap **Experiment Name** field to display keyboard



– enter new experiment name

– tap **Done** key to close keyboard

– tap **OK** to close Experiment Details box

Export Selected Experiments

You can export measurement data 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 four formats:

- as comma-separated values (.csv) files containing the measurement results and details for each exported experiment
- as tab-separated values (.tsv) files containing x,y coordinates for every spectral data point for each exported experiment
- as NanoDrop QC (.sql) files containing spectra and measurement results for each exported experiment

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:

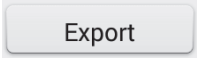
	A	B	C	D	E	F	G	H	I	J
1	Date	Sample Name	Nucleic Acid	A260/A280	A260/A230	A260	A280	Nucleic Acid Factor	Baseline (nm)	
2	4/21/2015 15:37	Sample 1	0.3	0.7	0.56	0.01	0.01	33	340	
3	4/21/2015 15:42	Sample 2	0.37	0.94	0.86	0.01	0.01	33	340	
4	4/21/2015 15:44	Sample 3	0.43	0.98	0.74	0.01	0.01	33	340	
5	4/21/2015 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.

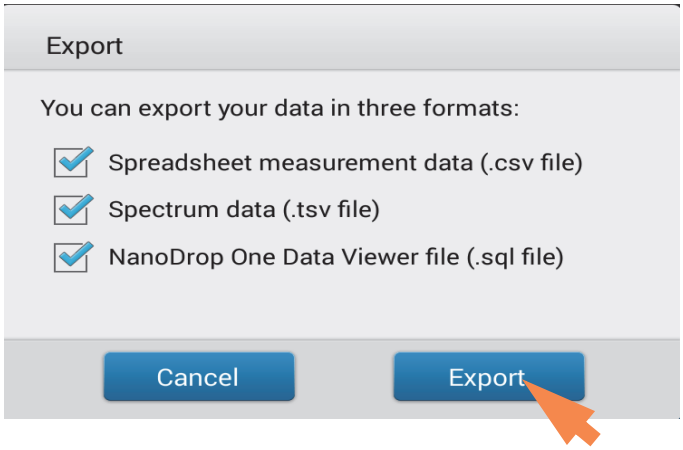
Data can be exported to a USB device connected to any USB port on the local instrument (front, back-left or back-right) or to a network location. If you select multiple experiments for export, each exported experiment has a corresponding file. The filenames are the same as the experiment names. The files are stored in a folder named "NanodropOne" followed by the instrument serial number. (Use System Status to view your instrument serial number.)

Export data at end of experiment

- when finished measuring samples, tap 

- from End Experiment box, set **Export Data** to an available export location (front, back-left or back-right USB port, or a network location)
- tap 

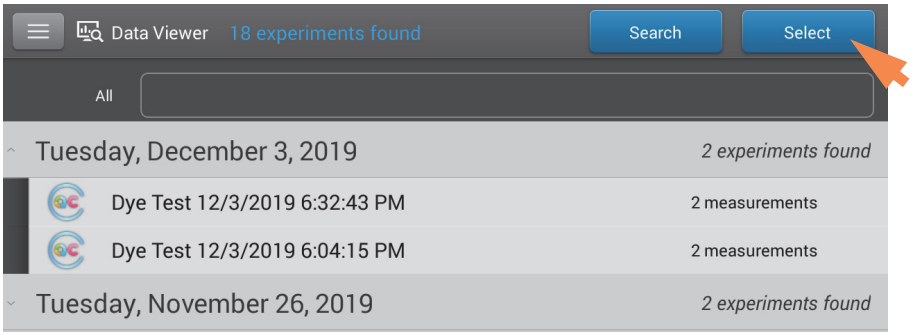
- from Export box, select one or more formats to export to (see above for details) and tap **Export**



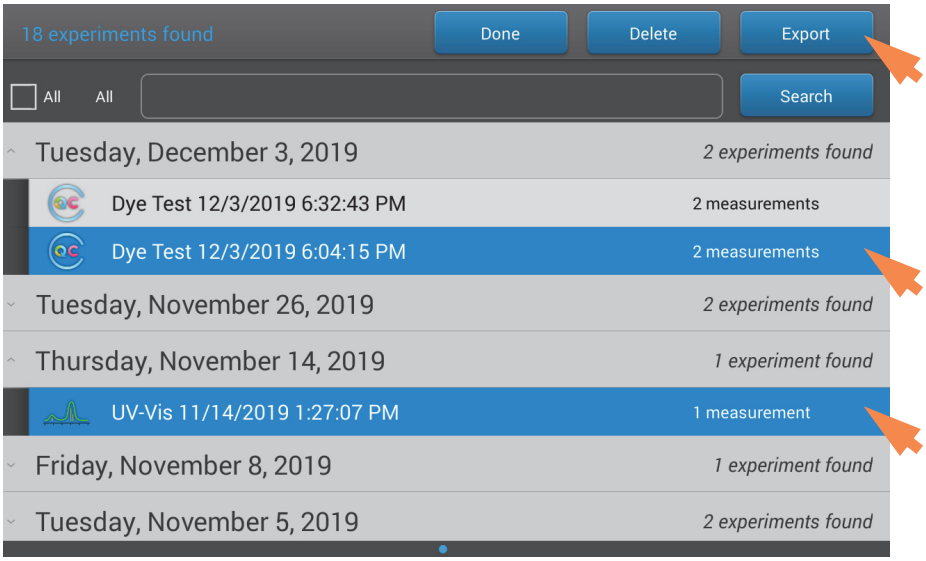
- after "Export Success" message, tap **OK**
- tap **End Experiment**

Export data from Data Viewer

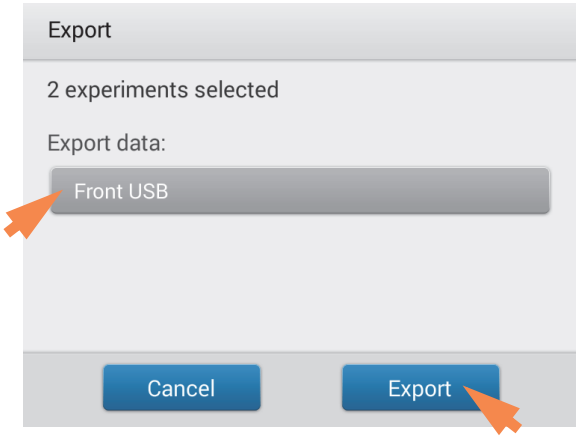
- from Home screen, tap  to open Data Viewer
- tap **Select**



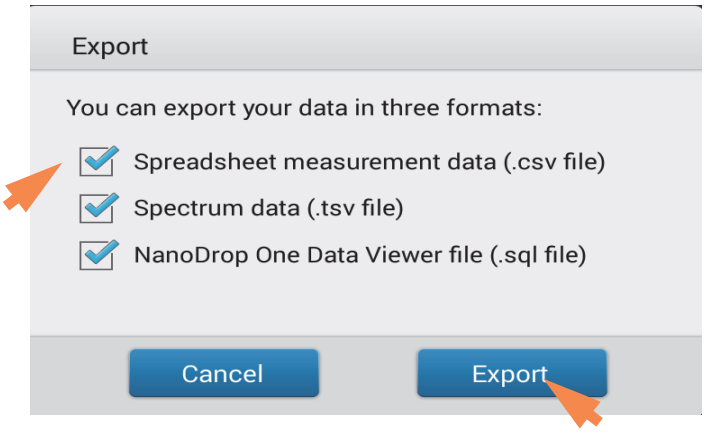
- tap **row** to list experiments acquired on that date, or use Search feature to find experiment
- tap to select one or more experiments to export (tap again to deselect an experiment; to select all experiments in database, select **All)**
- tap **Export**



– set **Export Data** to an available export location (front, back-left or back-right USB port, or a network location) and tap **Export**



– select one or more formats to export to (see above for details) and tap **Export**



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

Delete Selected Measurements

You can delete selected sample measurements from any experiment, or all the measurements in the database.

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

Print Selected Measurements

Connect a compatible printer to the instrument to quickly print measurement results, including spectral data, standard curves, data tables, sample details and diagnostic results. You can print to a USB printer (label or full service) or to a remote printer through an Ethernet connection or wireless network.

Note

- To select a printer, from the Print Preview window, choose **Printer Options** and select an available printer.
- To add a printer, from the Print Preview window, choose **Printer Options > Manage Printers**.
- A wireless printer or the device it is connected to must be available on the same wireless network as the instrument. The wireless printer must also have its wireless function enabled.
- Full service printer options are not available if you have a label printer connected. Disconnect the label printer to access the full service printer options.

Print data from any measurement screen

- after you have measured a sample, display the measurement results to be printed such as the spectral data, standard curve, data table or sample details (see NanoDrop One Measurement Screens)
- if printing spectral data or the data table, tap to select one or more sample rows to print (tap again to deselect a sample row); if no results are selected in data table, all results will be printed
- tap  and choose  **Print**

– choose **OK** to confirm

– in the Print Preview window, make sure the correct printer is selected and set other print options as desired such as paper size and orientation ("Auto" setting is recommended), margin and alignment to adjust the image in the preview window

> **Note** The software saves the print settings each time you print.

– choose **Print**

If a label printer is connected to the instrument, the software prints one label for each selected measurement. If a full service printer is connected, the selected measurement screen 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

– swipe left or right to select the type of data to print (spectral data, standard curve or data table)

– tap to select one or more sample rows to print (tap again to deselect a sample row); if no results are selected in data table, all results will be printed

– tap  and choose  **Print**

– choose **OK** to confirm

– in the Print Preview window, make sure the correct printer is selected and set other print options as desired such as paper size and orientation ("Auto" setting is recommended), margin and alignment to adjust the image in the preview window

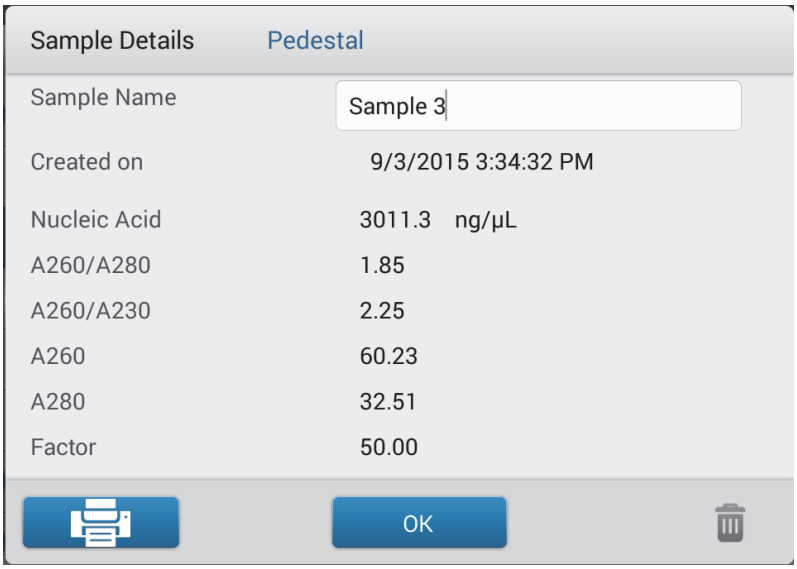
> **Note** The software saves the print settings each time you print.

– choose **Print**

If a label printer is connected to the instrument, the software prints one label for each selected measurement. If a full service printer is connected, the selected measurement screen 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 Preview window, make sure the correct printer is selected and set other print options as desired such as paper size and orientation ("Auto" setting is recommended), margin and alignment to adjust the image in the preview window

> **Note** The software saves the print settings each time you print.

– choose **Print**

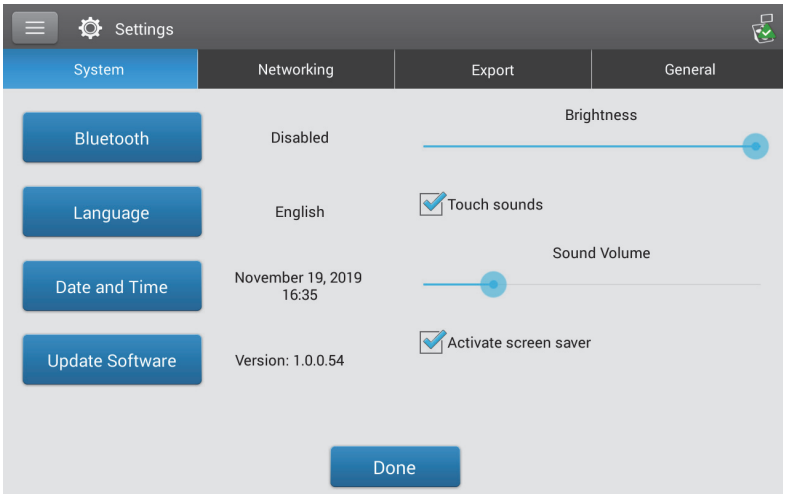
If a label printer is connected to the instrument, the software prints a label for the selected measurement. If a full service printer is connected, the selected sample details screen is printed.

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:

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)

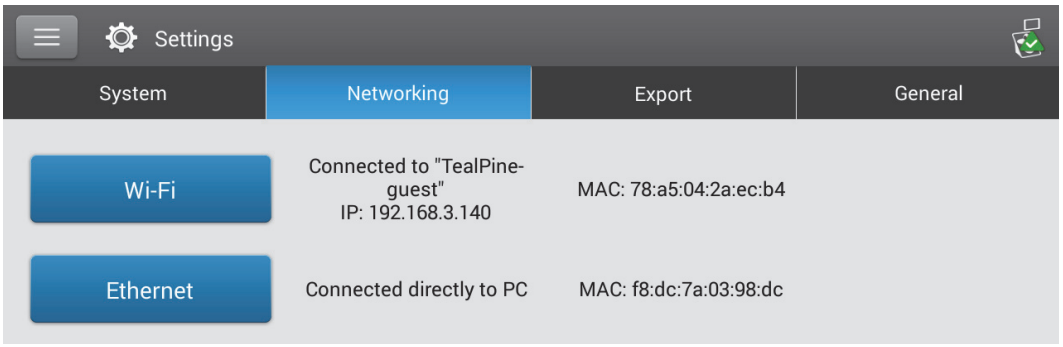
Use 24-hour format: use 24-hour time format

Choose date format: choose an available date format

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 operating software currently installed on this instrument
Brightness	Adjust brightness of instrument touchscreen
Touch Sounds	Provide audible feedback after each interaction with the touch pad
Sound Volume	Adjust volume of instrument touchscreen
Activate Screen Saver	Launch a screen saver application when the instrument has been idle for 30 minutes. To reactivate the instrument, tap the touch pad.

Network Settings

Use this tab to specify a Wi-Fi or Ethernet connection for the instrument.

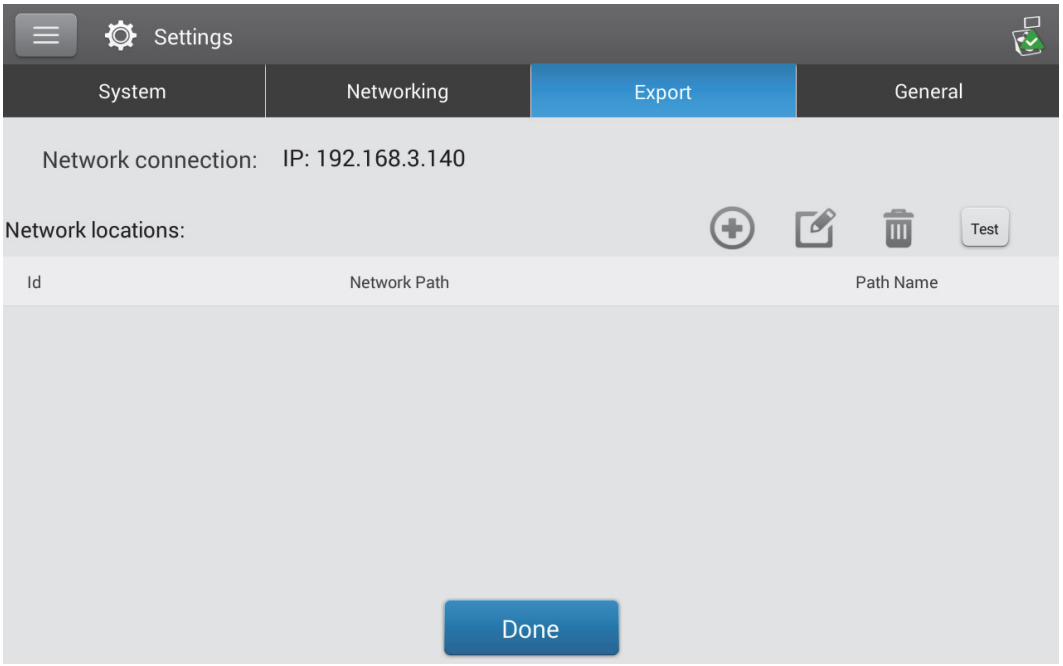


These options are available:

Wi-Fi	Set up wireless local area network (WLAN) connection on the instrument
Ethernet	Set up Ethernet (wired) local area network (LAN) connection between the instrument and a personal computer or network wall jack.

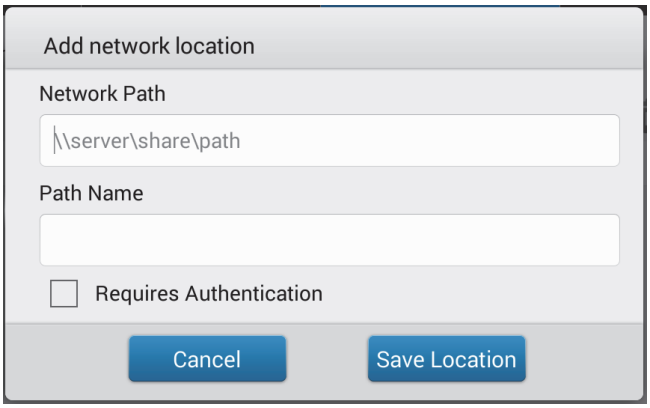
Export Settings

Use this tab to specify one or more network paths for exporting acquired data when the instrument is connected to a network (connection can be wired or wireless). Network paths defined here will appear in the Export Data list box when exporting data, from both the Data Viewer and the End Experiment box after you complete a measurement.



These options are available:

Add — Add a network location:



To add a network location

- Enter a valid network path
- In the **Path Name** box, enter a descriptive name for this network location. The entered name will appear in the Export Data list box when exporting acquired data from the instrument.
- Select **Requires Authentication** if the network path requires a user name and password
- Tap **Save Location**

  If the entered network path is valid, its name is displayed in the Network Locations list on the Export Settings tab.

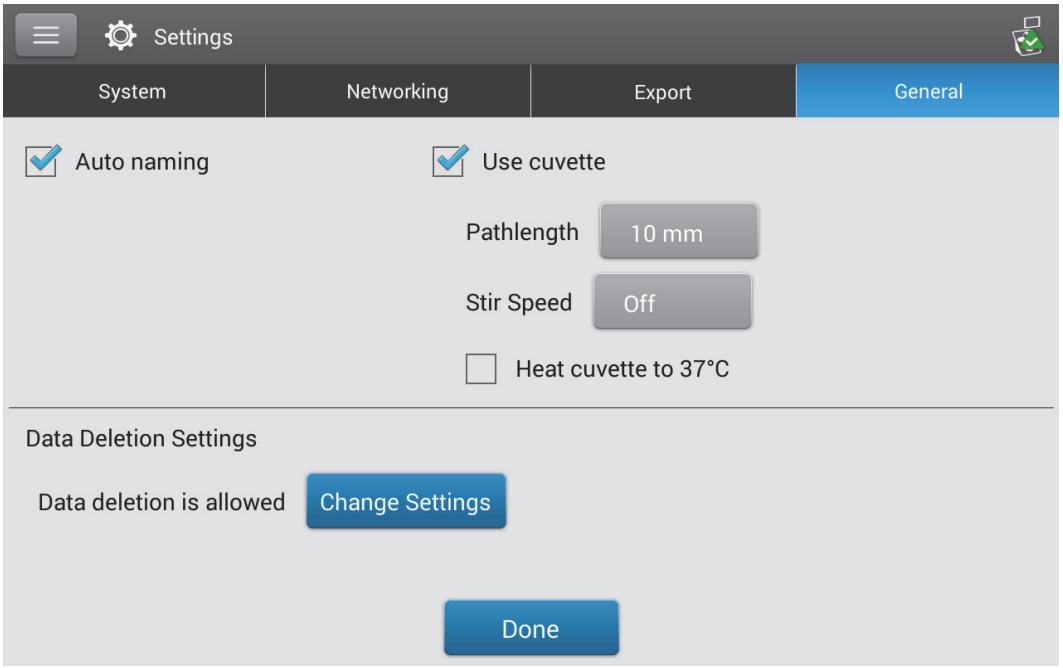
Edit — Edit network path, path name or authentication setting for selected network location

Delete — Delete selected network location

Test — Test connection for selected network location

General Settings

Use this tab to specify one or more network paths for exporting acquired data when an Ethernet cable is used to connect the instrument to an active network wall jack. Network paths defined here will appear in the Export Data list box when exporting data, from both the Data Viewer and the End Experiment box after you complete a measurement.



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:

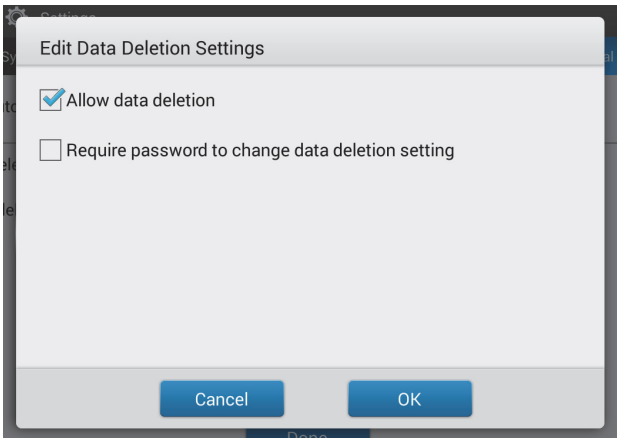
Pathlength: Enter cuvette pathlength (width) before taking blank or sample measurements with cuvettes (see cuvette manufacturer for cuvette specifications)

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.

Data Deletion Settings

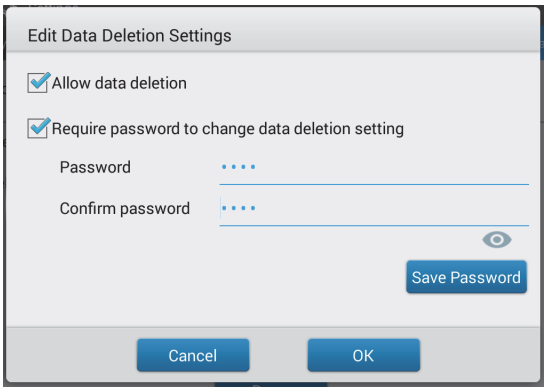
Tap **Change Settings** to edit the data deletion settings. You can enable or disable data deletion and set password requirements. For details, see "Data Deletion Settings."



Data Deletion Settings

Select or de-select the **Allow Data Deletion** checkbox to allow or disallow deletion of instrument data and both custom and chemometric methods.

You can select **Require password to change data deletion** and set your password to secure deletion settings.

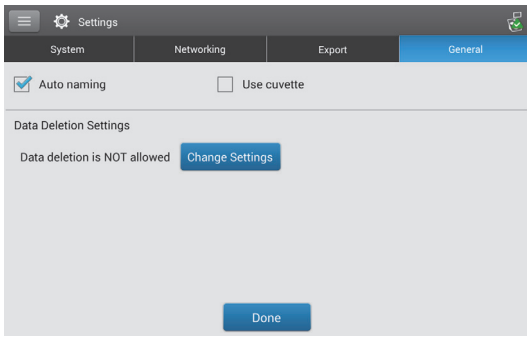


Enter your desired password and select **Save Password**.

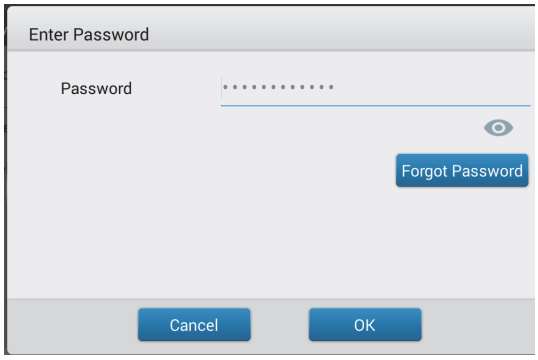
You have the option to save a password reset key to a USB drive. Saving a password reset key to a USB drive allows you to reset the password in the event you do not remember or have access to your password.

Reset Instrument password

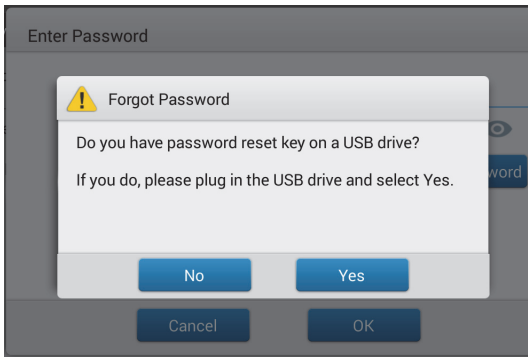
1. From General Settings, select **Change Settings**



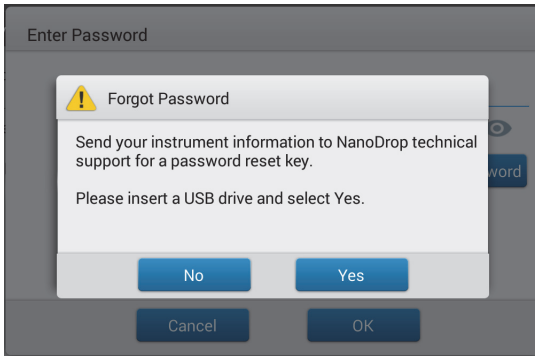
2. Select **Forgot Password**



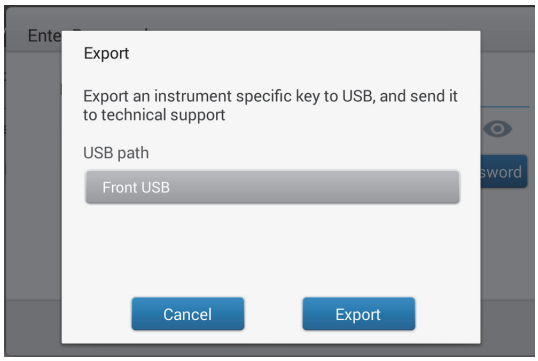
3. Implement password key
   - If you have a USB with a password key, insert the USB drive into the instrument and select **Yes**. The password is reset and you will be now be able to enter a new password.
   - If you do not have a password key, select **No**. Continue to step 4



4. With a USB drive inserted into the instrument, select **Yes**.



5. Select **Export**. This will generate a file for you to send to NanoDrop support so they can provide you with a password reset key.



PC Control Software

Control your NanoDrop One^{C} from a PC through Wi-Fi™ or Ethernet LAN with the PC Control software. You can store or view data acquired with a NanoDrop One instrument on the PC, as well as change instrument settings, and create or edit custom and chemometrics methods.

PC Control Home Screen overview

Figure 1. PC Control Home Screen

Select your application from the icons just as you would with the NanoDrop One^{C} instrument Home Screen.

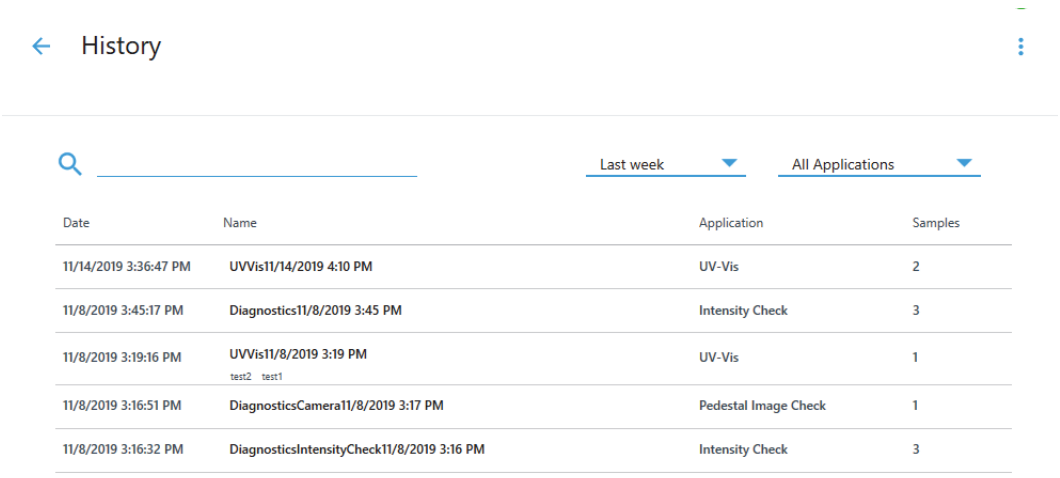
Control options

Figure 2. Control options

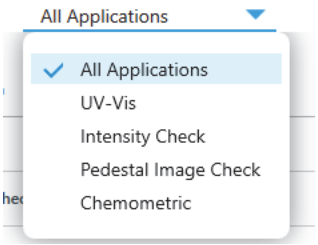
History:	View data stored locally. Filter by date or application.
Performance:	Performance verification process using PV-1 solution. See "Performance Verification" on page 124
Intensity:	Run an intensity check for the cuvette or pedestal. See "Intensity Check" on page 122.
Pedestal Image:	Run a pedestal image check. See "Pedestal Image Check" on page 130.
Settings:	Set security server location and path if desired. See "User Account Control" on page 8
Help:	View help

History

The History option functions similarly to the instrument Data Viewer. You can view all experiments performed from the local PC.

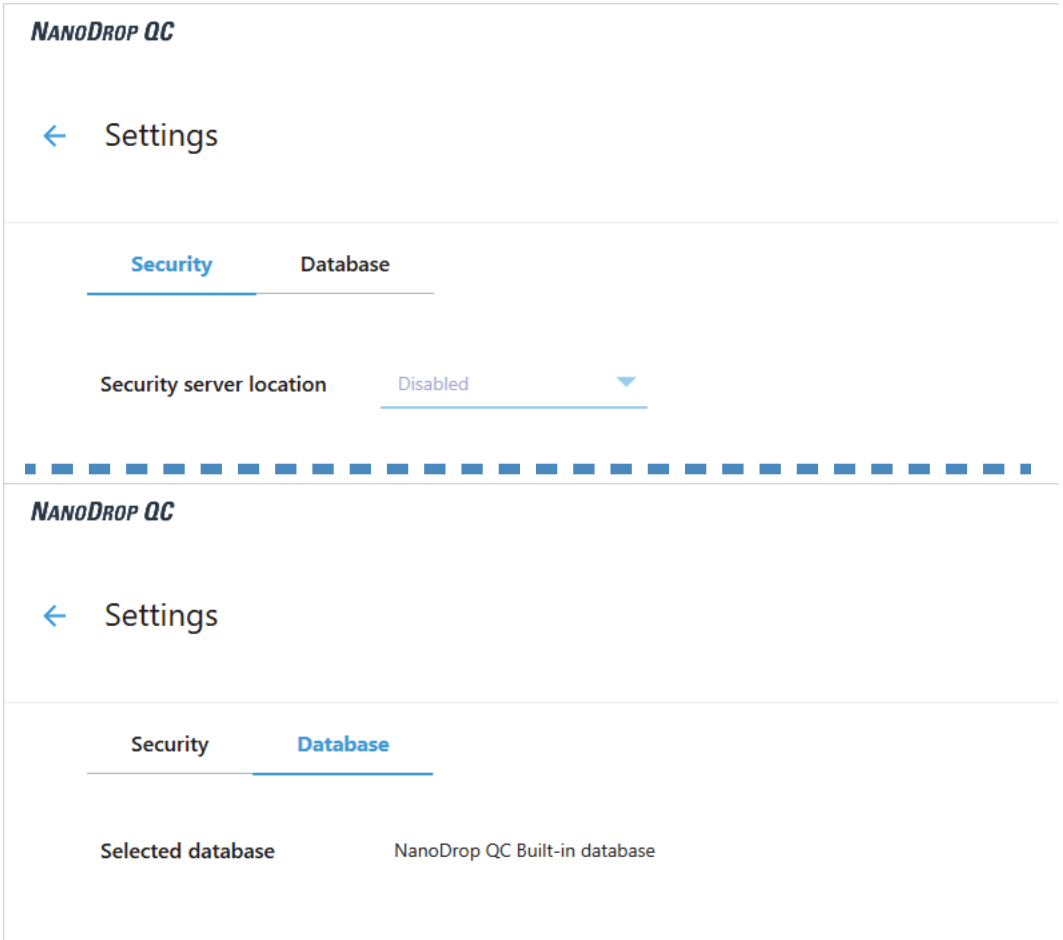


You can search history by name, filter by date, and filter by application.



Settings

Use settings to modify security settings and view the selected database



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5

Maintenance

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.

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.

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

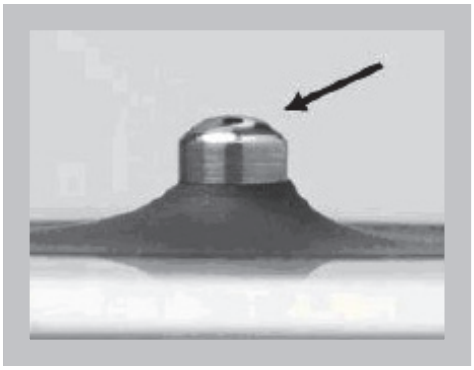
1. Lift the arm and clean both pedestals with a new laboratory wipe.
2. Pipette 3–5 µL DI H_2O onto the lower pedestal.
3. Lower the arm and wait 2–3 minutes.
4. Lift the arm and clean both pedestals with a new wipe.

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.

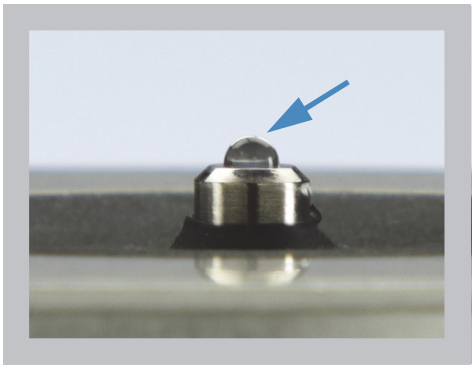
Reconditioning the Pedestals

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)

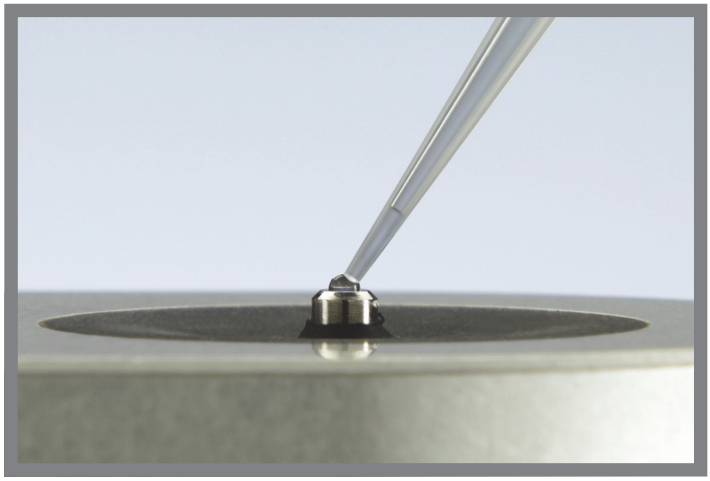


Properly conditioned pedestal
(droplet beads up)

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.

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

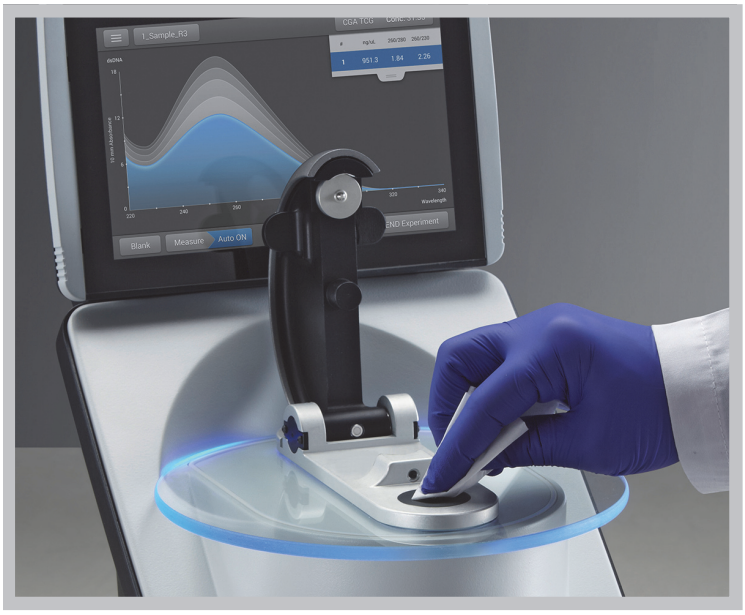
- Do not use hydrofluoric acid (HF) on the pedestals. Fluoride ions will permanently damage the quartz fiber optic cables.
- To prevent damage from spills, keep containers of liquids away from the instrument.
- Do not use a squirt or spray bottle on or near the instrument as liquids will flow into the 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.

Maintaining the Cuvette Sampling System

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

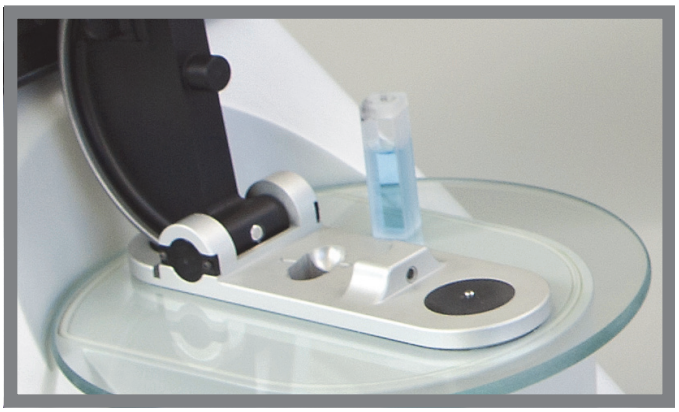
Note Clean and dry cuvettes after each measurement. Use cuvettes that are free of scratches and avoid fingerprints which may affect results.

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.



Instrument Diagnostics

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

Intensity Check

Performance Verification

Pedestal Image Check

Diagnostics can be performed using the NanoDrop One^{C} instrument or the PC Control software. **Intensity Check**, **Performance Verification**, and **Pedestal Image Check** are all accessible from the PC Control software Home screen:

Figure 3. Control options

History:	View data stored locally. Filter by date or application.
Performance:	Performance verification process using PV-1 solution
Intensity:	Run an intensity check for the cuvette or pedestal
Pedestal Image:	Run a pedestal image check
Settings:	Set security server location and path if desired
Help:	View help

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. The test is automatically performed using the pedestal and the cuvette optical paths.

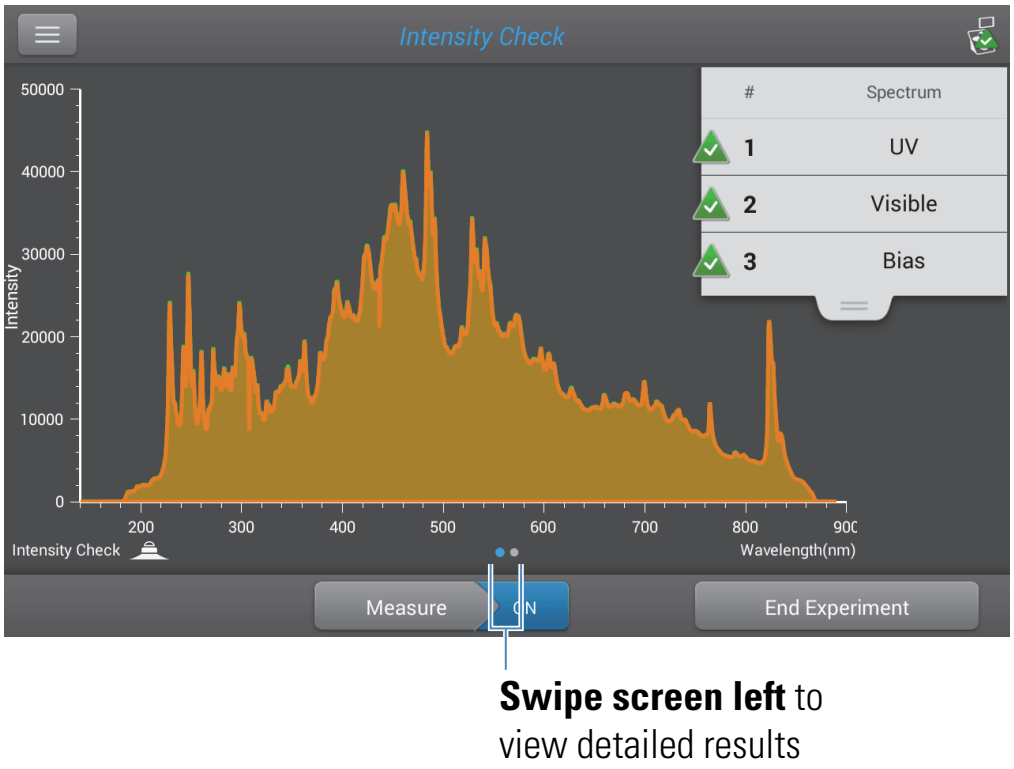
Supplies needed

- 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. Remove any cuvette from the cuvette holder.
3. Lower the arm.
4. From the instrument home screen, tap  (Diagnostics) and then tap **Intensity Check**. If you are using the PC Control software, from the Home screen, select **Intensity**.
5. On the instrument, Tap **Measure** and wait for the measurements to complete.

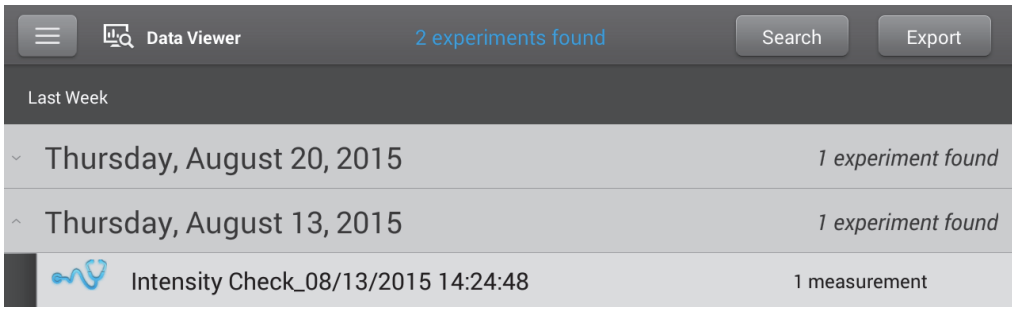
   Here is an example of a typical intensity check result screen.



Swipe screen left to view detailed results

   If you are using the PC Control software, select **Run**.
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.

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.

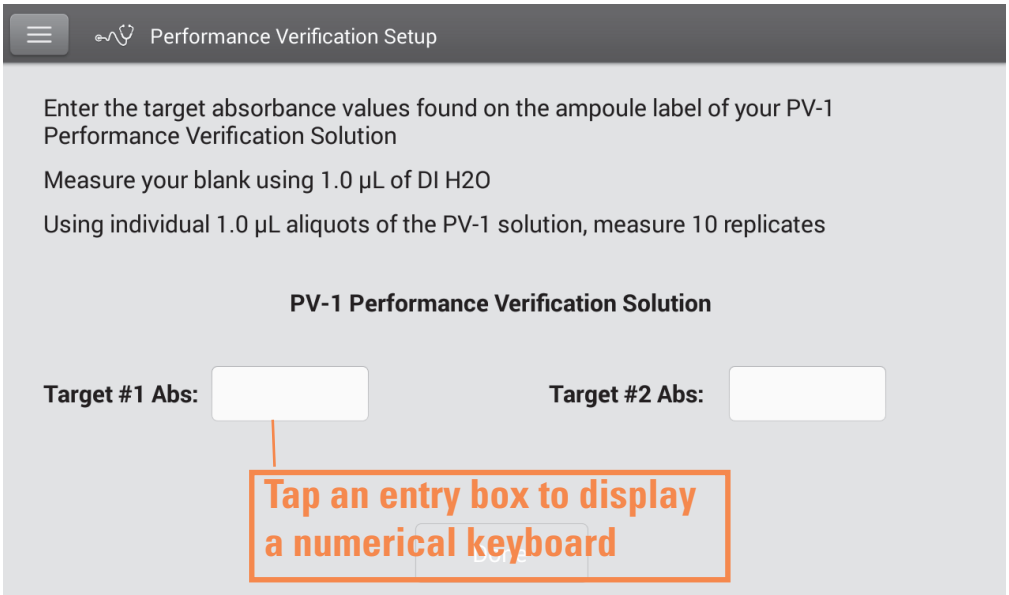
Before you begin

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**. If you are using the PC Control software, from the Home screen, select **Performance**.

   A message asks for target absorbance values.

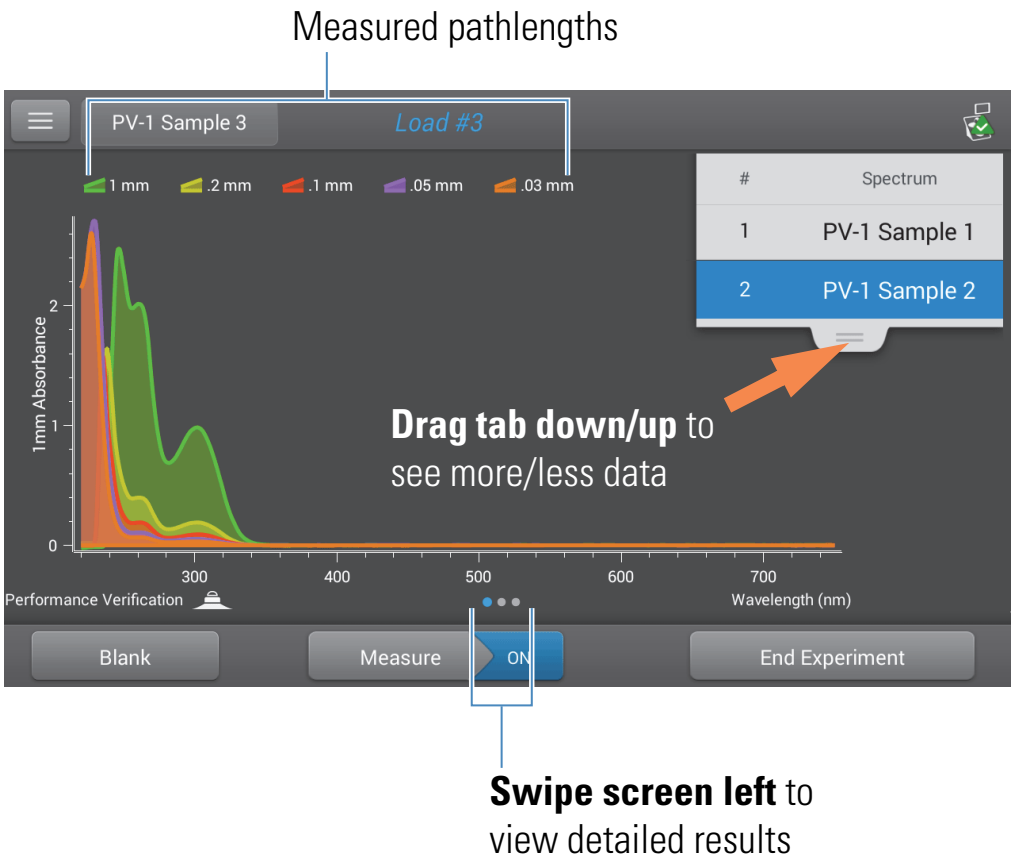


2. Enter each lot-specific target absorbance value from the label on the PV-1 ampoule in its associated entry box and then tap **Done**.
3. Lift the instrument arm and clean the upper and lower pedestal with a new laboratory wipe.
4. Pipette 1 µL DI H_2O onto the lower pedestal, lower the arm and tap **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** or from the PC Control software, select **Run**.

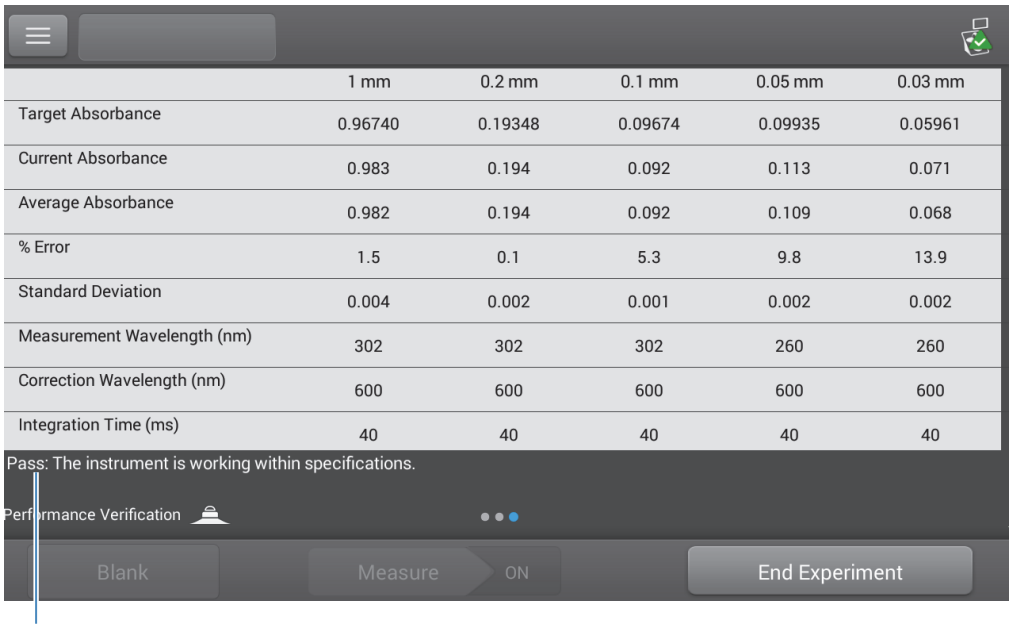
After the measurement, the software displays the results. Here is an example of the performance verification result screen.



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.

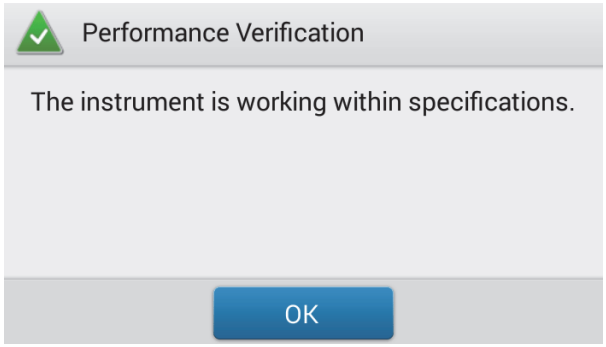
   After each measurement, a new sample result is added to the display. Swipe the screen left to see a summary of the 10 sample results.

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



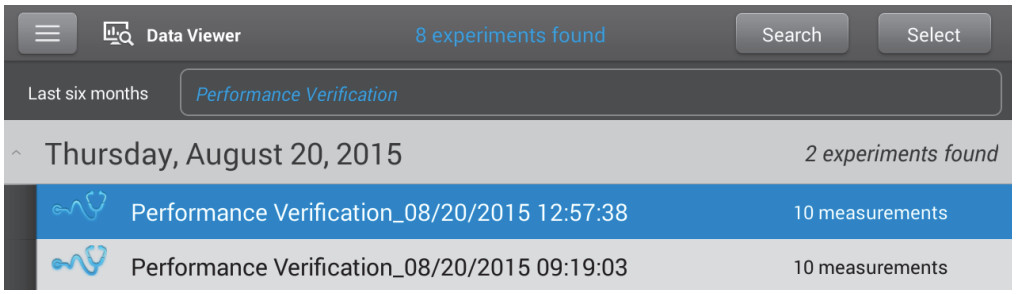
Performance test result

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



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.

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**. If you are using the PC Control software, from the Home screen, select **Pedestal Image**.
4. Tap **Measure** or select **Run.**

   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.

Safety and Operating Precautions

Contents

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.