Thermo Scientific NanoDrop One
Microvolume UV-Vis Spectrophotometers

Intelligent microvolume analysis

Pipette. Measure. Know.

Thermo
SCIENTIFIC

Proceed with confidence

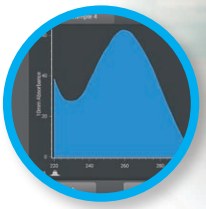
Trusted by scientists worldwide, the Thermo Scientific™ NanoDrop™ UV-Vis spectrophotometers fundamentally changed the way scientists evaluate nucleic acid and protein samples. With a patented sample-retention system* that enables direct measurements of 1 µL samples without dilutions, and pre-programmed methods designed specifically for life scientists, NanoDrop spectrophotometers have become indispensable in every laboratory.

Our next generation Thermo Scientific™ NanoDrop™ One microvolume spectrophotometers are pushing the boundaries once again with the Thermo Scientific™ Acclaro™ Sample Intelligence technology that helps you understand the quality of your sample before you use it in downstream applications, bringing you one step closer to success.

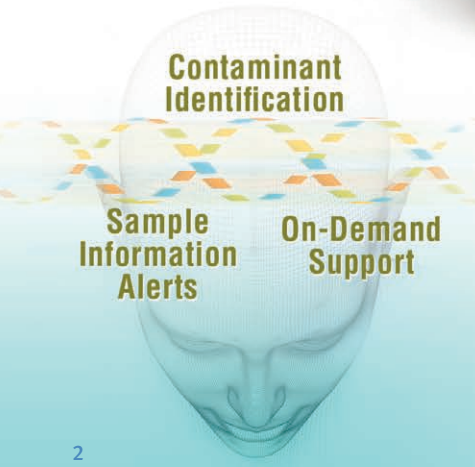
Pipette.

Measure.

Know.



* Patents US6628382 and US6809826



Introducing—

Acclaro Sample Intelligence Technology

- Employs spectral analysis algorithms to identify contaminants in the sample and report a corrected concentration.
- Ensures measurement integrity with an embedded sensor and digital image analysis that monitors for bubbles and other anomalies in the sample column.
- Provides instant feedback about sample quality with on-demand technical support for guided troubleshooting.

"Acclaro" is a Latin word meaning "to clarify".

Accelerate discovery with NanoDrop One technology

Walk-Up Convenience
A standalone unit with a high resolution touchscreen interface and local control features guided method analysis to save you time and bench space.

Minimal Sample Preparation
Powerful auto-range pathlength technology means accurate measurements for highly concentrated samples without the need for sample dilutions. No prior knowledge of sample concentration needed.

No Consumables Required
The patented NanoDrop sample-retention system enables direct microvolume measurements from 1–2 µL of sample. Eliminates the need for expensive slides or special accessories.

Acclaro Sample Intelligence
Identifies contaminants, monitors sample column for bubbles and provides feedback about sample quality with information to help with troubleshooting.

Fast and Easy Measurements
Ergonomic design with tilting and sliding screen accommodates both left- and right-handed users. Auto-Measure feature adds speed and convenience delivering results with full-spectral data in seconds.

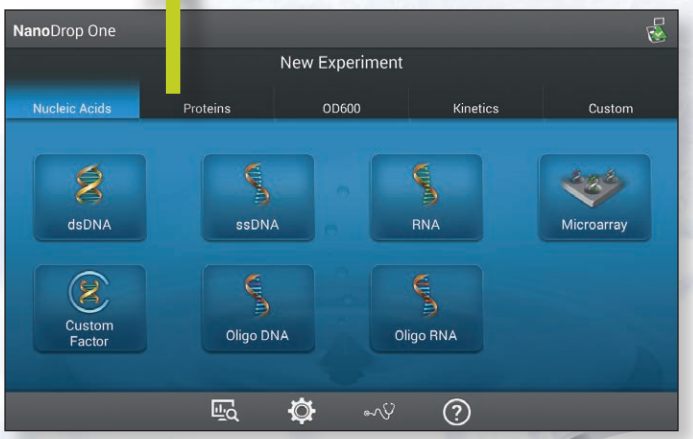
Versatile Data Management
Print results for your laboratory notebook using an optional thermal printer or tag and transfer data via USB, Ethernet, Wi-Fi or an external computer. Provides flexibility for extended analysis and electronic archiving.

Additional Cuvette Position
The Thermo Scientific™ NanoDrop™ One^{C} spectrophotometer adds experimental flexibility and increases the dynamic range. Use cuvettes to measure dilute samples and optical density of bacterial cultures or to perform kinetics experiments. Includes cuvette temperature control and stirring. Cuvette position can be used with instrument arm up or down.

Streamline your workflows

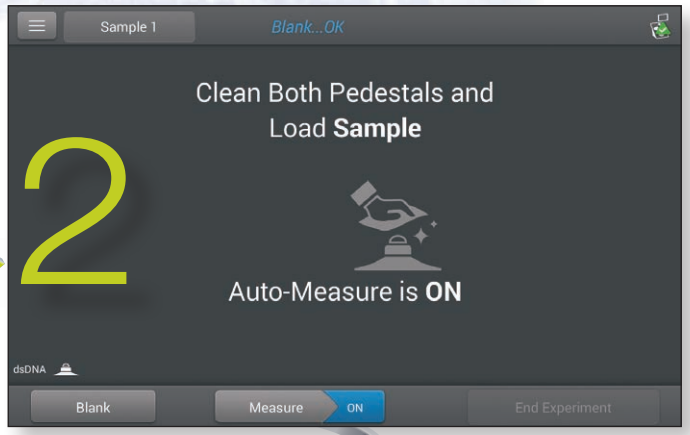
From method selection to final result, the NanoDrop One application-based software and high-resolution touchscreen display quickly guide you through each step of your analysis with relevant information and instant feedback. Accelerate your sample analysis and proceed with confidence to your next experiment.

1



Tap to select the application you need from the Home screen (Nucleic Acids Home screen shown).

2



After blanking, load 1–2 µL of your sample and lower the arm. Measurement results with full-spectral data will be displayed in seconds. Swipe left to view expanded data table.

Go

Stay up to date

For your convenience, software updates are always available on our website to keep you current. Simply visit our website and download the latest software version. Update software easily using a USB device.

Qualify nucleic acid samples

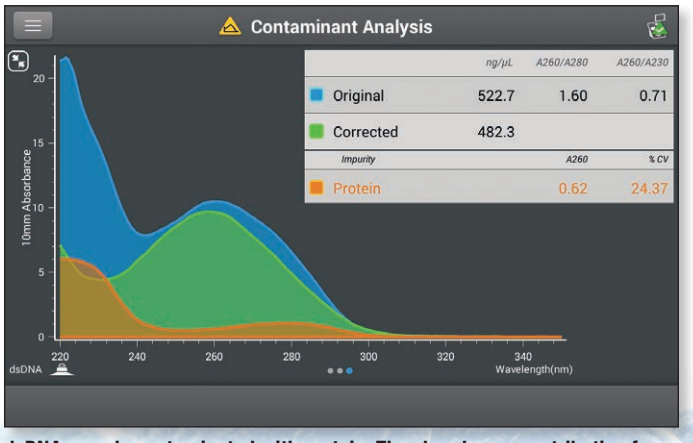
Accurate concentration and purity evaluation of RNA and DNA samples is critical to the success of your downstream experiments. Inadequate template loads and residual chemical reagents can lead to lengthy troubleshooting and costly delays. The NanoDrop One Acclaro Sample Intelligence technology delivers information on sample purity so that you can make informed decisions on sample use. Just tap the icons to learn more.

View multiple samples at once on your measurement screen. Here Acclaro has flagged dsDNA sample #3 for the presence of a contaminant.

Acclaro contaminant alert

Acclaro Sample Intelligence technology uses sophisticated mathematical algorithms to analyze your sample data so that you can be:

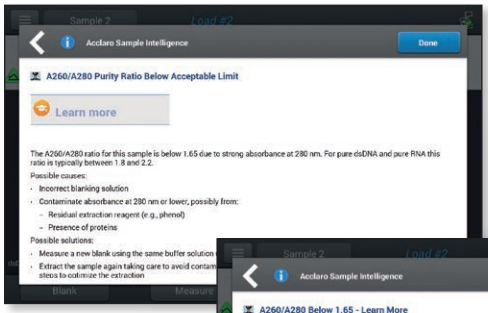
- Notified when contaminants such as phenol and protein are present in your sample.
- Provided with a corrected analyte concentration value.



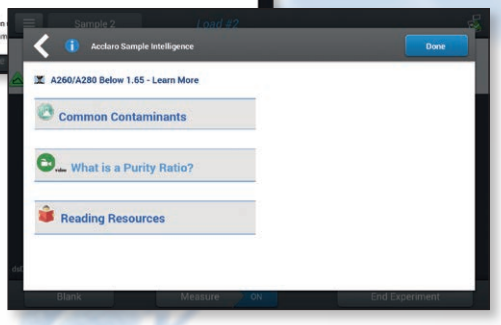
dsDNA sample contaminated with protein. The absorbance contribution from the protein (orange) is subtracted from the original result (blue) to obtain the corrected dsDNA concentration (green).

Acclaro information alert

Experience the convenience of having troubleshooting and technical support tools at your fingertips. Tap the information alert icon to explore Acclaro support tools.



The A260/A280 ratio of sample #3 is outside the acceptable range for pure DNA. Learn about possible causes and review recommended solutions.



Acclaro support tools present possible sample contaminants and show how each contaminant can alter the sample spectrum.

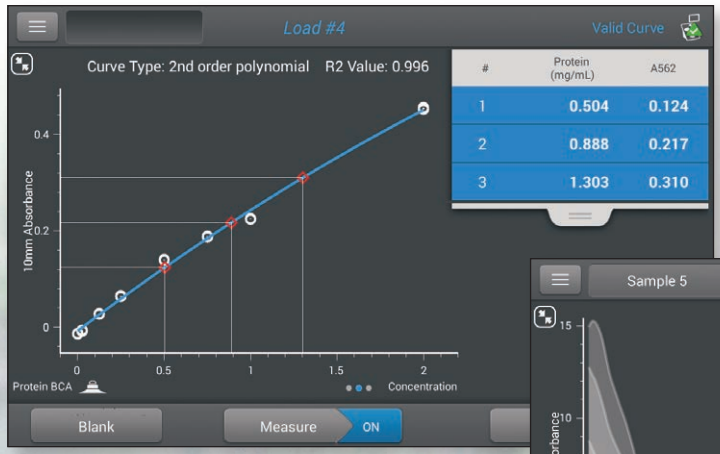
Is your DNA sample contaminated with protein? Learn how different concentrations of protein can affect sample spectra and purity ratios.

Evaluate protein samples effectively

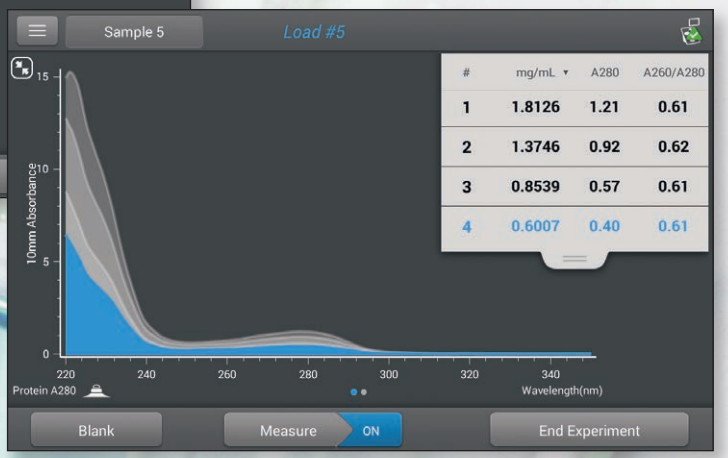
The NanoDrop One spectrophotometer quantifies protein samples accurately and reproducibly. Unlike nucleic acids that exhibit relatively consistent absorbance characteristics, proteins absorb light differently based on their amino acid composition. The NanoDrop One spectrophotometer guides you to high-quality results with a selection of protein applications and an intuitive Protein Editor guide, while powerful Acclaro Sample Intelligence technology delivers sample contaminant information.

Tap to select the application you need from the Proteins Home screen.

- For direct A280 quantitation of purified proteins, choose the most suitable extinction coefficient among the pre-defined protein sample types. Or personalize your pre-programmed sample types by creating and saving "your protein" in the Protein Editor.
- Detect DNA and phenol contaminants in your sample to ensure better accuracy in direct A280 measurements.
- Quantify peptides or proteins that lack Tryptophan and Tyrosine residues by monitoring the peptide bond absorbance at 205 nm.
- Verify protein labeling efficiency with the Proteins and Labels application that determines the protein concentration (A280) as well as the fluorescent dye concentration.
- Select your favorite assay from a menu of pre-programmed colorimetric protein assays: Bradford, BCA, Lowry and Thermo Scientific™ Pierce™ 660 nm Protein Assay.



Total protein concentration for three samples shown as red squares on a BCA assay standard curve.



Four different purified protein samples were measured using the Protein A280 application.

ASSAYS	DIRECT A205*	DIRECT A280	COLORIMETRIC ASSAYS
Sample Type	Purified peptides and proteins that lack amino acids absorbing at 280 nm (e.g., tryptophan and tyrosine)	Purified proteins that contain aromatic amino acids	Any protein sample including uncharacterized protein mixtures and cell lysates.
Buffer Compatibility	Not suitable for buffers with strong UV absorbance (e.g., RIPA)	Not suitable for buffers with strong UV absorbance (e.g., RIPA)	Some assays are sensitive to detergents, reducing agents and other buffer properties (refer to manufacturers guidelines).
Other	Monitors the absorbance of the peptide bond	Need to know MW and extinction coefficient or E1% to calculate concentration	Signals of proteins vary. Protein standard must have similar signal (i.e., extinction coefficient) to the sample protein.
Preparation Time	None	None	Requires standard curves. Protein standards and samples need to be incubated with reagent solutions. Incubation time varies between assay methods.

** Scopes RK., (1974) Measurement of protein by spectrophotometry at 205 nm. Anal. Biochem. 59 (1):277-82.*

Explore the capabilities

NanoDrop One technology goes beyond sample quantitation. Create and save custom analysis methods, run a kinetics experiment, or generate bacterial growth curves using the OD600 application. As your needs evolve, the NanoDrop One spectrophotometer evolves with you.

When you need more

Custom Methods

- Use pre-configured custom methods to analyze samples such as nanoparticles, chlorophyll, hemoglobin, and more.
- Create new custom methods to analyze your special samples and save the methods for future use.
- Use the UV-Vis application to monitor multiple wavelengths simultaneously from 190 to 850 nm.

OD600

- Use the pedestal or the cuvette to monitor growth of bacterial cultures. Enter the cell number conversion factor to automatically convert the 600 nm value into #cells/mL.

Kinetics

- Create, edit and save custom methods for time-based kinetic measurements using the cuvette option of the NanoDrop One^{C} spectrophotometer.

Do more with accessories

Select accessories that simplify life in the lab.

Productivity Kits

- Everything you need to get started: Thermo Scientific™ Finnpipette™ F1 0.2–2.0 µL single channel pipette, PV-1, PR-1 kit, microfiber screen wipe, and USB device. NanoDrop One^{C} kit also includes micro stir bars and quartz cuvette.

DYMO® LabelWriter® 450 Printer

- Print measurement results.

IQ/OQ Kit

- Achieve compliance to industry quality standards for installation and operational qualification.

Mobilize your data

Modern laboratories expect their lab bench tools to support digital connectivity and data management. The NanoDrop One spectrophotometer with local control provides all the modern data processing and data transfer options you need.

- Prefer to analyze data at your desk? Transfer your data seamlessly – tag and transport your data to a PC or Network via USB, Ethernet or Wi-Fi** for electronic archiving or printing.
- Print results for your laboratory notebook using an optional printer.
- Connect your keyboard or mouse when greater flexibility is desired.

*** Wi-Fi model not available in certain countries – see our website for details.*

Evaluate a NanoDrop instrument in your lab for FREE

Our trial program allows you to try an instrument in your lab with your own samples. Visit www.thermoscientific.com/nanodrop to request your free trial instrument, or contact your local authorized NanoDrop dealer.

Technical Specifications

Instrument Control		Built-in touchscreen
Minimum Sample Volume		1 µL
Limit of Detection	dsDNA	Pedestal: 2.0 ng/µL Cuvette: 0.2 ng/µL
	BSA (IgG)	Pedestal: 0.06 (0.03) mg/mL Cuvette: 0.006 (0.003) mg/mL
Maximum Concentration	dsDNA	Pedestal: 27,500 ng/µL
	BSA (IgG)	Pedestal: 820 (400) mg/mL
Measurement and Data Processing Time		8 seconds
Measurement Repeatability[1]		Typical: 0.002 A (1.0 mm path) or 1%CV, whichever is greater
Wavelength	Range	190–850 nm
	Accuracy	±1 nm
Photometric	Range (10 mm equivalent)	Pedestal: 0–550 A Cuvette: 0–1.5 A
	Accuracy[2]	3% at 0.97 A, 302 nm
Resolution (Spectral Bandwidth)		≤1.8 nm (FWHM at Hg 254 nm)
Pathlength		0.030 to 1.0 mm auto-ranging
Light Source		Xenon flash lamp
Detector		2048-element CMOS linear image sensor
Dimensions (W × D × H)		20 × 25.4 × 32.3 cm (8 × 10 × 12.7 in.)
Weight		3.6 kg (7.9 lbs.)
Operating Voltage		12 V (DC)
Power Consumption		Operating: 12–18 W Standby: 5 W
Stirring (cuvette only)		9 speeds
Temperature Control (cuvette only)		37 °C

[1] SD of 10 individual measurements at 0.97 A
[2] Absorbance expressed at Abs/mm at 25 °C
[3] Only available on instruments with Wi-Fi/Bluetooth support

On-Board Control	Operating System	Android™
	CPU	Quad Core ARM® Cortex™-A9 Processor
	Display	7-inch, 1280 × 800 high-definition color display
	Touchscreen	Multipoint capacitive touch
	Gesture Recognition	Single point, single point hold, swipe and pinch
	Glove Compatibility	Compatible with lab gloves
	Internal Storage	32 GB flash memory
	Audio	Built-in speaker
Connectivity	Three USB-A ports, Ethernet, Bluetooth® and Wi-Fi[3]	
PC Software Requirements	Windows® 7 and 10, 64 bit	
Accessory Support	DYMO LabelWriter 450 printer, Bluetooth keyboard, mouse and barcode reader	
Applications Support	Nucleic Acid A260, A260/A280, A260/A230 and Labeled Nucleic Acids; Protein A280 and A205, Protein Pierce 660, Protein Bradford, Protein BCA, Protein Lowry, Labeled Proteins, OD600, Kinetics, UV-Vis, and Custom Methods	
Language Support	Chinese, French, German, Japanese, Korean, Polish, Spanish, English	

Ordering Information

Instruments	Part Number
NanoDrop One spectrophotometer	ND-ONE-W[4]
NanoDrop One[C] spectrophotometer	ND-ONEC-W[4]
Accessories and Consumables	
NanoDrop One Productivity kit	ND-PP1
NanoDrop One[C] Productivity kit	ND-PP1C
Dymo LabelWriter 450 printer with labels	PNTR-LW400
PR-1 Reconditioning Compound kit	CHEM-PR1-KIT
PV-1 Performance Verification solution	CHEM-PV-1

[4] Wi-Fi model not available in all countries. Please contact your NanoDrop distributor to confirm the correct part number in your region.

For research use only. Not for diagnostic purposes.
All NanoDrop instruments are approved to CE and UL/CSA

www.thermoscientific.com/nanodrop

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