thermo scientific

Intelligent microvolume analysis

Pipette. Measure. Know.

NanoDrop One Microvolume
UV-Vis Spectrophotometers

Industriestrasse 12
CH-6210 Sursee
mail@witec.ch
T 041 250 53 57

witec
experts in life science products

Proceed with confidence

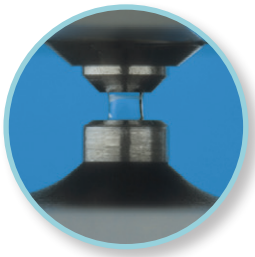
Trusted by scientists worldwide, the Thermo Scientific™ NanoDrop™ Microvolume UV-Vis Spectrophotometers fundamentally changed the way scientists evaluate nucleic acid and protein samples. With a patented sample-retention system* that enables direct measurements of 1 µL samples without dilutions, and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

Our next generation Thermo Scientific™ NanoDrop™ One 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.

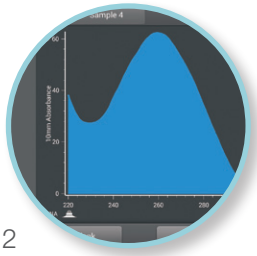
* Patents US6628382 and US6809826

Pipette.

Measure.



Know.



Accelerate discovery

Ensure experiment success with NanoDrop One technology

New features for today's scientists

- Stand-alone instrument with on-board control and high-definition touchscreen user interface
- Direct measurements from 1 to 2 µL of sample with auto-range pathlength technology
- Embedded applications for DNA, RNA, and protein quantification, full spectral data and purity ratios (260/280, 260/230)
- Sophisticated software identifies impurities in sample and delivers true analyte concentration
- Advanced connectivity with easy data transfer to PC or network via Wi-Fi, USB, or Ethernet
- Expanded dynamic range—measure up to 27,500 ng/uL dsDNA or 400 mg/mL IgG with no dilution
- Fast and easy with ergonomic screen design and Auto-Measure capability
- Comply with US FDA 21 CFR Part 11 regulation with Thermo Scientific™ Security Suite Software

NanoDrop One^C for experimental flexibility

The Thermo Scientific™ NanoDrop One^C Spectrophotometer offers both a microvolume pedestal and a cuvette position.

Use cuvettes to:

- Measure dilute samples
- Perform kinetics experiments
- Measure optical density of bacterial cultures

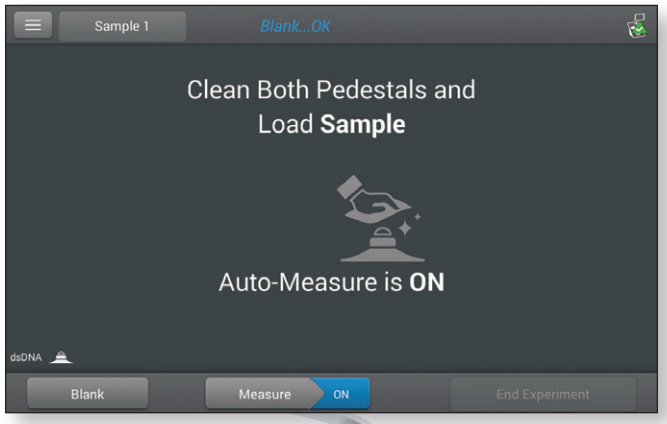
For your convenience:

- Includes temperature control and stirring
- Cuvette position can be used with the instrument arm up or down

Streamline DNA and RNA workflows

The NanoDrop One application-based software guides you through each step of your DNA and RNA measurements with instant feedback, so you can proceed with confidence to your next experiment.

Tap to select the application you need from the Nucleic Acids home screen



Blank with your buffer, then load 1 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.

Stay up to date

Software updates are always available to keep you current. Simply visit our **website**, download the latest software version and update on-board software easily using a USB device.

Know your sample

Powerful analysis with Acclaro Sample Intelligence technology

Accurate evaluation of RNA and DNA means knowing both the concentration and purity of a sample and is critical to the success of downstream experiments. The presence of impurities in samples can result in inconclusive results, lengthy troubleshooting, and costly delays.

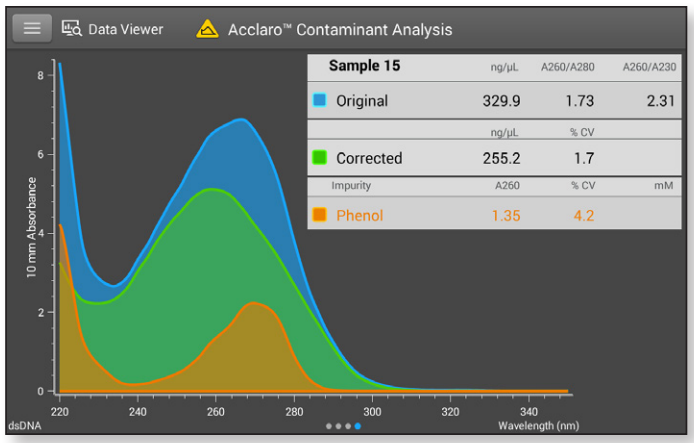
The NanoDrop One Acclaro Sample Intelligence technology provides you with information about your sample in three different ways:

1 Acclaro Contaminant Identification

...uses sophisticated mathematical algorithms to identify contaminants in samples (for example phenol, guanidine salts and protein in nucleic acids), quantify the contaminant contribution to the total sample absorbance and calculate the true analyte concentration.

This dsDNA sample is flagged by Acclaro.
The software has:

- Identified phenol as the contaminant
- Calculated the contribution of phenol to the total A260
- Calculated the “true” dsDNA concentration in the sample (corrected)



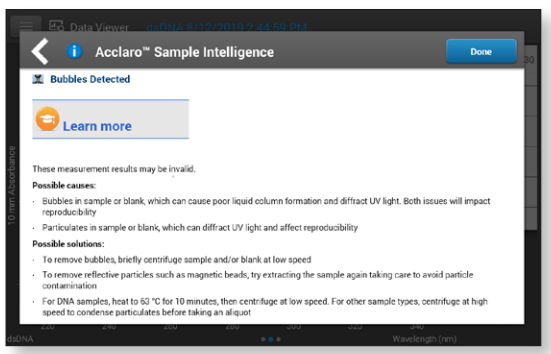
dsDNA sample contaminated with phenol. The absorbance contribution from the phenol (orange) is subtracted from the original result (blue) to obtain the corrected dsDNA concentration (green).

2 Acclaro Information Alerts

...flag problem samples and deliver on-demand technical support and guided troubleshooting.

3 Embedded camera

...and digital image analysis monitor for intrinsic bubbles and other anomalies in the sample column ensuring measurement integrity.

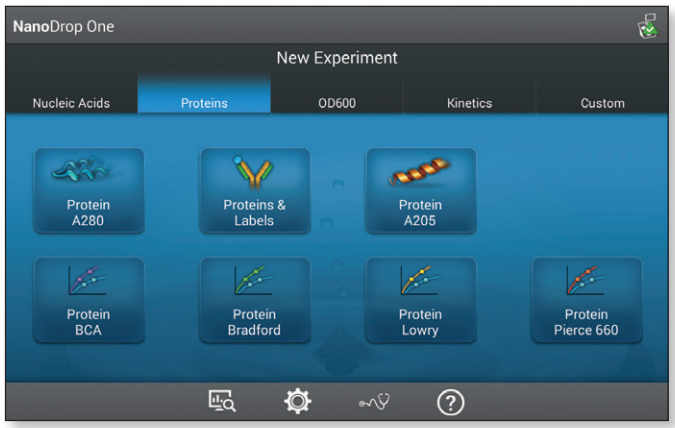


Evaluate protein samples effectively

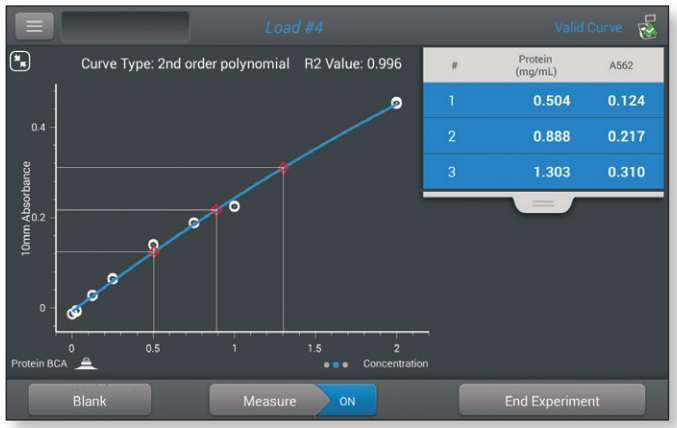
Unlike nucleic acids which exhibit relatively consistent absorbance characteristics, each protein absorbs light differently based on its amino acid composition. Use the NanoDrop One Spectrophotometer to quantify your protein samples accurately and reproducibly. With simple workflows, an intuitive Protein Editor and applications to suit all needs, the NanoDrop One Spectrophotometer guides you to high-quality results.

Multiple protein applications

- **Protein A280** for the quantification of purified protein samples
- **Protein A205** for the quantification of peptides and proteins that lack Tryptophan and Tyrosine residues
- Protein **Colorimetric Protein Assays**: select from a menu of pre-programmed assays (Bradford, BCA, Lowry and Thermo Scientific™ Pierce™ 660 nm) or create a custom method
- Verify protein labeling efficiency with the **Proteins and Labels** application that determines the carrier protein and the fluorescent dye concentrations.
- The **Acclaro Contaminant Identification technology** informs how much nucleic acid may be contaminating your protein sample, delivers true protein concentration



Tap to select an application from the Proteins Home screen.



BCA assay results: total protein concentration (three red squares) and standard curve

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	Protein-to-protein variation. Upper and lower detection limits vary between methods.
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

Improve your laboratory's productivity and expand your collaborations with connected laboratory instruments that accelerate your research. The NanoDrop One Microvolume UV-Vis Spectrophotometer comes equipped with features that help you connect, export, print and view data, so that you can move one step closer to discovery.

Advanced connectivity

The NanoDrop One Spectrophotometer brings enhanced connectivity to the center of your workflow.

- **Choices for exporting data**—transfer results with a USB, Wi-Fi or Ethernet connection to your PC or connect to Thermo Fisher Connect's cloud-based platform to securely upload and store your data
- **View, organize and share data on a PC**—view and organize experiments using the NanoDrop One PC Viewer software
- **Printer options**—print results directly from the instrument via Ethernet, Wi-Fi, or USB
- **24/7 access to data**—view and share data anytime, anywhere from any device when you store data on the Thermo Fisher Cloud using the Free NanoDrop Cloud App

Connect via WiFi or Ethernet

- **Networked or shared drives**
- **PC**
- **Printers**

Print data

- **DYMO® and external printers**

Export data

- **PC (NanoDrop One Viewer Software)**
- **Shared drives**
- **USB**
- **Thermo Fisher Connect NanoDrop Cloud App**

View data

- **Modern browsers**
- **Mac® & PC**
- **Mobile iOS, Android™ & Windows® devices**

When you need more

- Use the UV-Vis application to monitor multiple wavelengths simultaneously
- Create new custom methods to analyze your special samples
- Download custom methods from our website to quantify gold nanoparticles, chlorophyll, glucose, hemoglobin, and more
- Monitor bacterial growth on the pedestal or with a cuvette using the OD600 application
- Run time-based kinetic experiments on the NanoDrop One^{C} Spectrophotometer

Custom Methods **OD600** **Kinetics**

thermo scientific

Technical specifications

Instrument Control		Built-in touchscreen
Minimum Sample Volume		1 µL
Limit of Detection	dsDNA (RNA)	Pedestal: 2.0 (1.6) ng/mL Cuvette: 0.2 (0.16) ng/uL
	BSA (IgG)	Pedestal: 0.06 (0.03) mg/mL Cuvette: 0.006 (0.003) mg/mL
Maximum Concentration	dsDNA (RNA)	Pedestal: 27,500 (22,000) ng/mL
	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		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 (Pedestal position only)	13-400-518
NanoDrop One[C] spectrophotometer (Pedestal and cuvette positions)	13-400-519
Accessories and Consumables	
NanoDrop One Productivity kit	13-400-516
NanoDrop One[C] Productivity kit	13-400-517
PR-1 Reconditioning Compound kit	PR1KIT
PV-1 Performance Verification solution	13-400-515

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