

## Beyond Measure

Only Ultra has the power to adapt

# NanoDrop Ultra Microvolume UV-Vis Spectrophotometers and Fluorometers

# Analysis adapted to your lab environment

Thermo Scientific™ NanoDrop™ Microvolume UV-Vis Spectrophotometers have been trusted stalwarts in the laboratory for over 20 years. With four models from which to choose, and software add-ons to enhance performance and compliance, the NanoDrop Ultra family of spectrophotometers and fluorometers provides tailored analytical solutions from the research bench to the manufacturing line.



**All-in-one Absorbance and Fluorescence Analysis** – Obtain the most complete information about the concentration and quality of your DNA or RNA samples by making absorbance or fluorescence measurements on the NanoDrop Ultra pedestal.

**Elevated Sample Insight** – Software provides corrected concentration values **AND** identifies common impurities found in nucleic acid and protein samples. Software can even differentiate between DNA and RNA for samples of mammalian, bacterial, and plant origin.

**Streamlined Workflow** – A fully integrated qPCR recipe calculator saves time, optimizes efficiency, and achieves reliable results with precise reaction setup.

**Seamless Compliance, Assured Confidence** – Optional, user-friendly 21 CFR Part 11 software allows for secure data handling and meticulous tracking, with subsequent seamless integration into your LIMS environment using RESTful API.





# Two answers on one pedestal

Understand purity information and quantify highly concentrated samples without dilution, or assess dilute contaminated samples with the sensitivity and specificity of fluorescence—all on one device with the NanoDrop Ultra FL and NanoDrop Ultra<sup>C</sup> FL instruments.

**High Sensitivity** – Fluorescence exhibits greater sensitivity than absorbance-based quantification, with an ability to detect down to 0.1 ng/μL dsDNA.

**Sample Prep Calculator** – An integrated reagent calculator can help you determine the amounts of dye and buffer needed.



dsDNA Dynamic Range		
	Lower Limit (ng/μL)	Upper Limit (ng/μL)
NanoDrop Ultra Absorbance measurement	1	27,500
NanoDrop Ultra dsDNA BR Fluorescence kit	10	1,000
NanoDrop Ultra dsDNA HS Fluorescence kit	0.1	100

RNA Dynamic Range		
	Lower Limit (ng/μL)	Upper Limit (ng/μL)
NanoDrop Ultra Absorbance measurement	0.8	22,000
NanoDrop Ultra RNA HS Fluorescence kit	0.2	100

The NanoDrop Ultra fluorescence kits have been optimized for microvolume measurements. Performance of other fluorescence dyes / reagents on the microvolume pedestal cannot be guaranteed.

Description	Measurement Modes	Part Number
NanoDrop Ultra	Pedestal Absorbance	ND-Ultra-GL
NanoDrop Ultra <sup>C</sup>	Pedestal Absorbance, Cuvette Absorbance	ND-UltraC-GL
NanoDrop FL	Pedestal Absorbance, Pedestal Fluorescence	ND-UltraFL-GL
NanoDrop Ultra <sup>C</sup> FL	Pedestal Absorbance, Cuvette Absorbance, Pedestal Fluorescence	ND-UltraCFL-GL



# Confidence your sample is clean

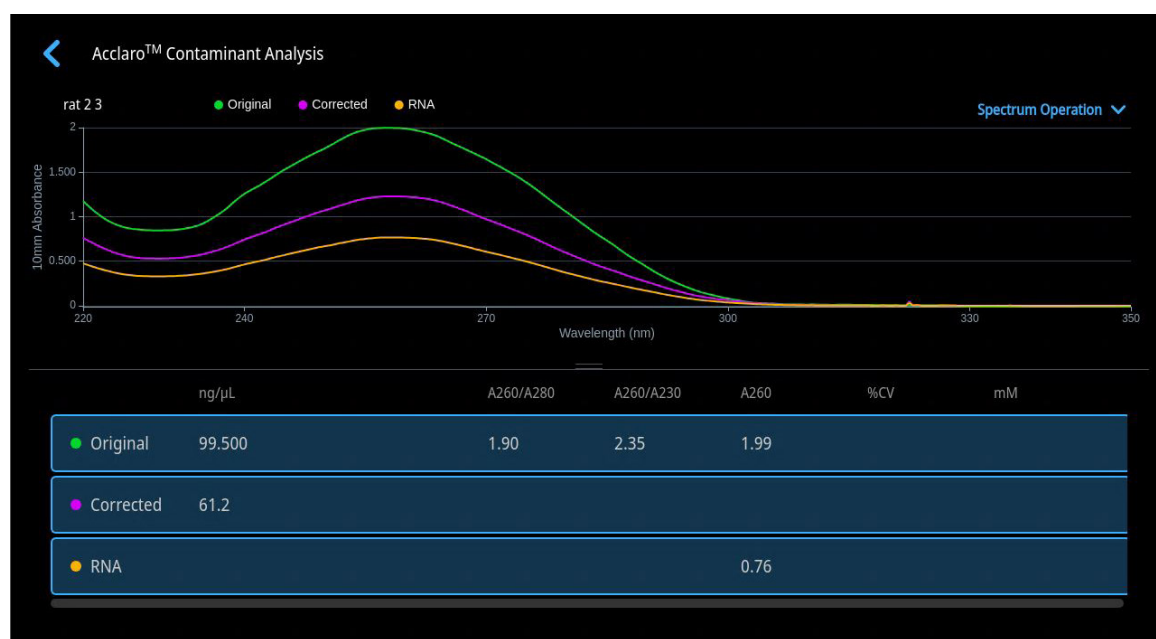
Common sample contaminants such as phenol or guanidine salts can falsely elevate your apparent sample concentration or inhibit downstream reactions. That's why purity ratios alone can't tell the whole story about whether your sample is clean enough for your research. Thermo Scientific™ Acclaro™ Sample Intelligence Technology can recognize multiple undesired substances, and it can even identify when DNA is contaminating an RNA sample.

**Contaminant Detection & Analysis** – Acclaro offers a comprehensive evaluation of sample purity and it can correct sample absorbance, empowering users to confidently identify, quantify, and mitigate contaminants. Plant and bacteria DNA and RNA differentiations are now available for researchers, scientists, and professionals in fields such as agriculture, plant biology, microbiology, and genetic engineering.

**Sample Integrity Insight** – The technology provides real-time alerts when bubbles are detected in a sample, which if unnoticed could lead to inaccurate measurements.

## Contaminants Identified

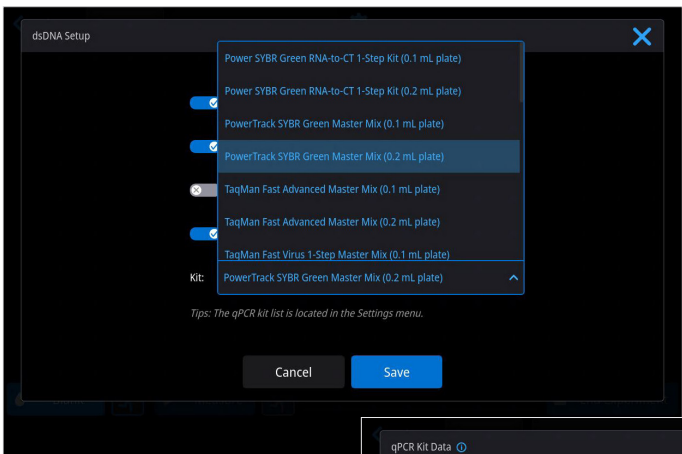
dsDNA	RNA	Protein A280
Protein	Protein	DNA
Phenol	Phenol	
Guanidine HCL	Guanidine Isothiocyanate	
Mammalian RNA	Mammalian DNA	
Plant RNA	Plant DNA	
Bacteria RNA	Bacteria DNA	



Acclaro Contaminant Software Screen. Software identified RNA contaminating a dsDNA sample and provides a corrected dsDNA concentration.

# Automated calculation of reaction volumes

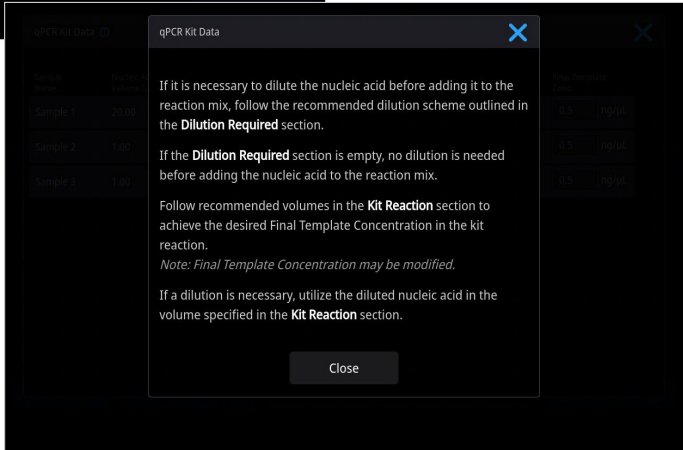
Determining a desired sample concentration is just the beginning, and calculating how much sample goes into your downstream reaction can be tedious. Use the built-in library of kits, or add your favorite, to let the software run the math for you. The qPCR recipe calculator suggests how to prepare the reaction based on your sample's concentration.



Choose your kit from the dsDNA Setup page.



Software guides you to prepare your qPCR reaction.



Tools tip walk you through how to read prior table.

# Archive options for all

By connecting your NanoDrop Ultra spectrophotometer or fluorometer to a network, you can easily save data in your preferred location—whether that's the cloud, a network hard drive, or a laboratory information management systems (LIMS).

**Export to the cloud** – Export data directly to popular cloud storage services like Microsoft OneDrive, Google Drive, and Thermo Fisher Connect.

**Direct LIMS integration** – Send data directly into your LIMS with the assistance of an integrated RESTful API.

**View data your way** – Customize and preview the information included in the data file prior to export to ensure it meets any downstream needs.

Data Export & Report

Layout Preview

Select the data you would like to export.

Customized report ☒ .tsv ☐ .csv

NanoDrop Ultra experiment data ☐ .ndu ☐ TQ

Select the elements you would like to add.

☒ Application name ☒ Serial number ☒ Report data ☒ Spectral data

Export through:

USB DISK(Front USB Port)

Cancel Export

Export data in multiple file formats and select the type of data exported.

Data Export & Report

Layout Preview

#	Date	Sample Name	ng/μL	A260/A280	A260/A230	A260/A260
1	11/14/2024 3:48:18 PM	TE 1	-0.038	1.718	-0.962	-0.0
2	11/14/2024 3:48:38 PM	TE 2	-0.013	1.515	-0.277	-0.0
3	11/14/2024 3:49:09 PM	TE 3	0.017	4.030	0.365	0.00
4	11/14/2024 3:49:28 PM	DNA 0A 1	0.015	0.511	0.218	0.00
5	11/14/2024 3:49:35 PM	DNA 0A 2	-0.124	1.572	0.388	-0.0
6	11/14/2024 3:49:42 PM	DNA 0A 3	0.040	1.956	0.254	0.00
7	11/14/2024 3:49:49 PM	DNA 0A 4	-0.052	1.023	-11.135	-0.0

Cancel Export

Preview option lets you see what your data file will contain.



View the Report page prior to printing or export directly to .pdf.

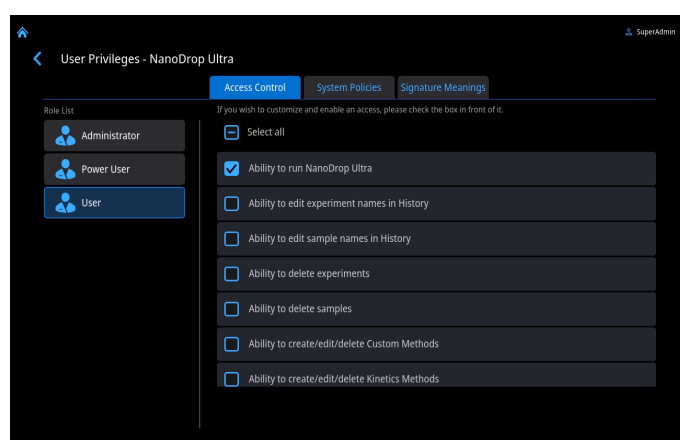
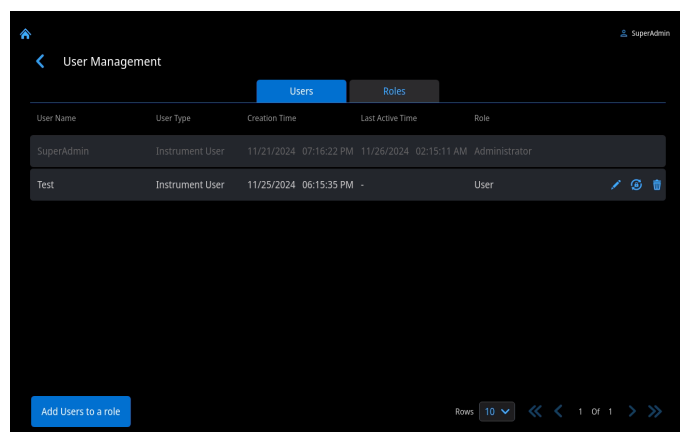
# 21 CFR Part 11 compliance made easy

Optional Thermo Scientific™ SciVault™ 2 Software installs on either the instrument or a companion PC and gives labs the tools they need to comply with US FDA 21 CFR Part 11.

**Compliance made easy** – SciVault 2 software integrates into the NanoDrop Ultra software user interface and controls user account access, digital signatures, and audit logs.

**On-board options** – The software can be run directly on the local instrument through on-board user account management, or you can connect your instrument to your domain to use your Windows account management.

**Centralized solution** – Install SciVault 2 software on a central computer to control privileges and view audit logs across multiple NanoDrop Ultra instruments in different labs.



## Accuracy beyond expectations

Thermo Scientific™ Acclaro™ Pro Software delivers exceptional spectrophotometric accuracy when you need it. With the bundle purchase, new versions of the most popular measurement applications are unlocked from the factory, providing  $\pm 5\%$  Error throughout the absorbance dynamic range.

**Accurate high-concentration measurements** – Obtain absorbance measurements within 5% error up to 550 Abs (10 mm equivalent) – up to 400 mg/mL IgG or 18,000 ng/μL ssDNA.

**Quick dilution-free process** – Take triplicate measurements on the pedestal in under 2.5 minutes.

**Enhanced calibration** – Bundle purchases receive an additional calibration from the factory, ensuring the instrument provides exceptional accuracy within the Acclaro Pro applications.

Description	Part Number
NanoDrop Ultra Acclaro Pro Bundle	ND-Ultra-AP-GL
NanoDrop Ultra <sup>c</sup> Acclaro Pro Bundle	ND-UltraC-AP-GL
NanoDrop FL Acclaro Pro Bundle	ND-UltraFL-AP-GL
NanoDrop Ultra <sup>c</sup> FL Acclaro Pro Bundle	ND-UltraCFL-AP-GL



# Technical Specifications

## NanoDrop Ultra Microvolume UV-Vis Spectrophotometers and Fluorometers

Pedestal Absorbance Specifications		
(NanoDrop Ultra, NanoDrop Ultra <sup>c</sup> , NanoDrop Ultra FL, NanoDrop Ultra <sup>c</sup> FL)		
Minimum sample volume		1 µL
Limit of Detection	dsDNA (RNA)	1 (0.8) ng/µL
	BSA (IgG)	0.03 (0.02) mg/mL
Maximum Concentration	dsDNA (RNA)	27,500 (22,000) ng/µL
	BSA (IgG)	820 (400 mg/ml)
Measurement Repeatability <sup>1</sup>		Typical: 0.002 A (1.0 mm path) or 1%CV, whichever is greater
Photometric	Range	0.02 - 550 Abs (10 mm equivalent)
	Accuracy <sup>2</sup>	3% at 0.97 A, 302 nm
Pathlengths		1.0 mm, 0.2 mm, 0.1 mm, 0.05 mm, 0.03 mm auto-ranging
Measurement & Data Processing Time		≤ 7 sec
Acclaro Pro	Measurement Repeatability	< 3% CV
	Measurement & Data Processing Time	≤ 30 sec

<sup>1</sup> SD of 10 individual samples measured at 0.97 A

<sup>2</sup> Absorbance expressed at Abs/mm at 25°C

Cuvette Absorbance Specifications		
(NanoDrop Ultra <sup>c</sup> , NanoDrop Ultra <sup>c</sup> FL)		
Limit of Detection	dsDNA (RNA)	0.2 (0.16) ng/µL
	BSA (IgG)	0.006 (0.003) mg/mL
Maximum Concentration	dsDNA (RNA)	27,500 (22,000) ng/µL
	BSA (IgG)	2 (1) mg/mL
Photometric	Range	0.004 - 1.5 Abs (10 mm equivalent)
Pathlengths		10 mm, 5 mm, 2 mm, 1 mm
Beam Height (Z-Height)		8.5 mm
Temperature Control		37.0 °C ± 0.5 °C
Stirring		9 speeds

Fluorescence Specifications	
(NanoDrop Ultra FL, NanoDrop Ultra <sup>c</sup> FL)	
Minimum sample volume on pedestal	2 µL
LEDs	Blue (max ~470 nm) and Red (max ~635 nm)
Excitation Filters	Blue (430-495 nm) and Red (600-645 nm)
Detector	2048-element CMOS linear image sensor
Measurement & Data Processing Time	≤ 20 sec for Blue LED; ≤ 40 sec for Red LED



## System Specifications

### (NanoDrop Ultra, NanoDrop Ultra<sup>c</sup>, NanoDrop Ultra FL, NanoDrop Ultra<sup>c</sup> FL)

Light Source (Absorbance)		Xenon flash lamp
Detector		2048-element CMOS linear image sensor
Wavelength	Range	190 - 850 nm
	Accuracy	± 1 nm
Resolution (Spectral Bandwidth)		≤ 1.8 nm (FWHM at Hg 254 nm)
On-board Control	Operating System	Custom Linux
	CPU	1.6 GHz Quad Core
	Display	10.1" high definition, color display
	Internal Storage	64 GB; approximately 500,000 dsDNA measurements
	Glove Compatibility	Lab gloves
	Audio	Built-in Speaker
	Connectivity	2x USB-A Ports, 1x USB-C Port, Ethernet, Bluetooth <sup>3</sup> , Wi-Fi <sup>3</sup>
US FDA 21 CFR Part 11 Compliance		Comply using optional SciVault software installed on instrument or PC
Accessory support		Mouse, keyboard, barcode reader, printer
Dimensions; arm up [W x D x H]		12.6 x 7.1 x 11.0 in (32 x 18 x 28 cm)
Weight		Approximately 9.0 lbs (4.1 kg)
Power consumption		7W at Idle; 11 - 18W at Working Conditions
Battery (not currently available from Thermo Fisher Scientific)		Supports USB-C battery (75Wh yields approximately 8 hrs of runtime)
Warranty		2 years
PC operating system requirements for optional software		Windows® 10 or Windows® 11
Language Support		Chinese, French, Italian, German, Japanese, Korean, Polish, Spanish, English

<sup>3</sup> Requires additional USB dongle, included with instrument



## Notes

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Learn more at [thermofisher.com/nanodropultra](http://thermofisher.com/nanodropultra)

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