



Thermo Scientific NanoDrop Products



# Revolutionary technology. Elegant simplicity.

Instruments for microvolume analysis of biomolecules

**Thermo**  
SCIENTIFIC

Thermo Scientific NanoDrop instruments have pre-programmed methods for simple nucleic acid and protein quantitation

## NanoDrop™ technology in a class by itself

### Thermo Scientific NanoDrop Instruments

NanoDrop™ instruments were the first microvolume UV-Vis spectrophotometers and fluorospectrometers designed specifically for the life science market. The patented sample-retention system\* enables direct measurement of 0.5 – 2  $\mu$ L samples without wasteful dilutions and expensive consumables. The innovative pedestal design and pre-programmed methods make the process as simple as pipette, measure, and wipe clean. Highly polished stainless steel pedestals ensure no sample carryover. By reducing sample waste and providing accurate results in seconds, NanoDrop instruments have fundamentally changed the way scientists analyze DNA, RNA and proteins.

With over 30,000 instruments in labs worldwide, NanoDrop instruments have become the recognized standard for microvolume instrumentation. Today, thousands of scientists rely on NanoDrop instruments to deliver accurate sample concentration and purity assessment for everything — from routine quality checks to evaluation of precious samples for demanding, downstream applications.

With a full range of innovative, simple, and powerful instruments — no matter what your application or throughput needs — there is a NanoDrop instrument that is right for you.

Pipetting 1  $\mu$ L onto pedestal



Measuring 1  $\mu$ L sample



### Realize the difference. Try any NanoDrop instrument for FREE.

Our trial program allows you to try an instrument in your lab with your own samples, completely free of charge. Once you have used a NanoDrop instrument, we are confident you will quickly realize the benefits of our revolutionary technology.

Visit [www.thermoscientific.com/nanodrop](http://www.thermoscientific.com/nanodrop) to request your free trial instrument or contact your local authorized NanoDrop dealer.

Our patented sample-retention system remains a groundbreaking technology in microvolume measurements. Only NanoDrop instruments use surface tension to contain a 1  $\mu$ L of sample between two optical fibers. With the instrument arm open, a sample is pipetted directly onto the pedestal. When the arm is lowered a column is formed, thus eliminating the need for cuvettes or other containment devices.

\*Patents US6628382 and US6809826



## Innovative design, maximum performance

### Thermo Scientific NanoDrop 2000c Spectrophotometer

#### Full-spectrum microvolume and cuvette measurements in a single instrument

The NanoDrop 2000c is a full-spectrum UV-Vis spectrophotometer, offering a complete solution by integrating both a patented sample-retention system for microvolume samples and a cuvette option. Dual sampling modes accommodate very low and very high-concentration samples. Our straightforward software displays a full-spectrum and tabulates results for easy data interpretation.

- Superior accuracy and reproducibility
- Microvolume sample size (0.5 – 2.0  $\mu$ L)
- Pipette directly onto the pedestal, measure and wipe clean
- Measurements take less than 5 seconds
- Cuvette position includes temperature control (37° C) and stirring for kinetics measurements
- Use quartz or disposable cuvettes
- Cell culture (OD600) measurements
- Customize methods, design reports and export data

### Thermo Scientific NanoDrop 2000 Spectrophotometer

#### Full-spectrum microvolume measurements

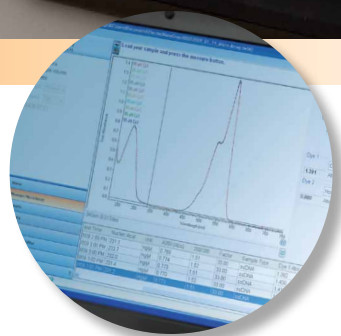
The NanoDrop 2000 is an alternate choice for labs that only need microvolume measurement capability. Using the same sample-retention system, the NanoDrop 2000 provides the same accuracy, full-spectrum analysis, and benefits as the NanoDrop 2000c, without the added flexibility and sensitivity of the cuvette option.



Pedestal measurements



Cuvette measurements



Instant results

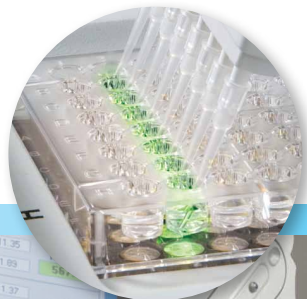
# Efficiency and unmatched accuracy

## Thermo Scientific NanoDrop 8000 Spectrophotometer

### Higher throughput, full-spectrum microvolume measurements

The NanoDrop 8000 Spectrophotometer delivers full-spectrum UV-Visible absorbance measurements for up to eight samples at one time. Use an eight-channel pipette to dispense samples from tubes or plates onto a linear array of pedestals, measure and wipe clean. The sample position illuminator visually indicates the current measurement row facilitating accurate and efficient pipetting to the pedestals. Displaying a full-spectrum for all samples, the NanoDrop 8000 is designed for higher throughput evaluation of precious samples when downstream requirements for sample QC are critical.

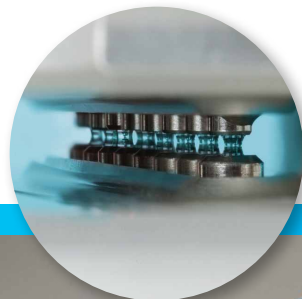
Sample position illuminator



Multi-sample loading



Multi-sample measurement



Full-spectral data for each sample

### The NanoDrop 8000 offers all the benefits of the trusted NanoDrop pedestal technology in a higher-throughput format for researchers working from tubes or plates

- Analyzes from one to eight samples at a time
- Full-spectral data is displayed for each sample (220 – 750 nm)
- Measures nucleic acid concentration and purity (2.5 – 3,700 ng/μL for dsDNA)
- Measures protein concentration and purity (0.15 – 100 mg/mL for BSA)
- User-friendly software that is easy to configure
- Pre-configured methods for colorimetric protein analysis
- Flexible options for exporting data and producing customized reports
- Custom method capability

NEW

## Thermo Scientific NanoDrop Lite Spectrophotometer

### Basic microvolume measurements

Meet the newest member of the NanoDrop instrument family. The NanoDrop Lite is a basic microvolume instrument which uses our patented sample-retention system to deliver the same exceptional accuracy and reproducibility as other NanoDrop instruments. Its compact design, with built-in controls and software, makes the NanoDrop Lite small enough to fit on any benchtop. It is designed for labs that already have a NanoDrop instrument or that share a NanoDrop instrument with other labs. The NanoDrop Lite is also ideal for labs that want the trusted NanoDrop technology, but don't need the full performance or spectral data of the NanoDrop 2000/2000c or NanoDrop 8000.

## Simple analysis, compact delivery

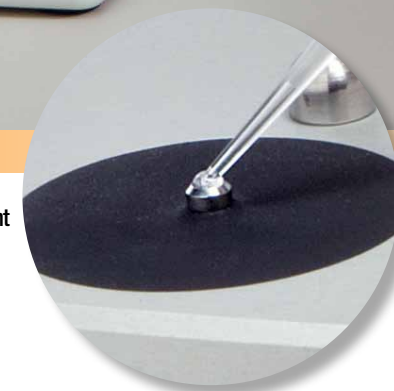
NanoDrop Lite shown  
docked to its equally  
compact printer



- Employs the unique NanoDrop microvolume sampling technology
- Delivers the accuracy and reproducibility expected from NanoDrop instruments
- Uses built-in controls and software — no computer required
- Offers an optional printer for cryogenic labels
- Measures nucleic acid concentration at 260 nm and purity using the 260/280 ratio
- Measures purified protein concentration at 280 nm



Pedestal measurement



# Fluorescence made compact and simple



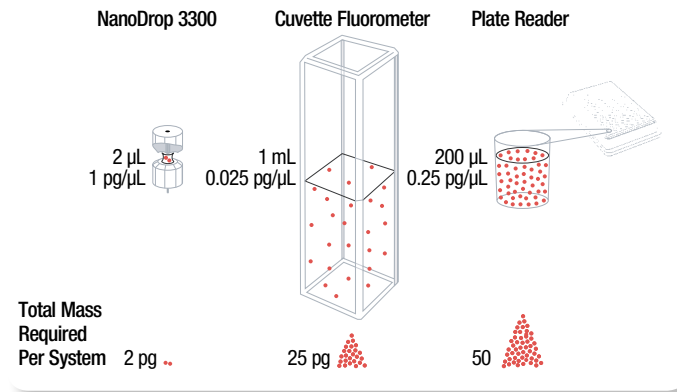
## Thermo Scientific NanoDrop 3300 Fluorospectrometer

### Full-spectrum microvolume fluorescence measurements

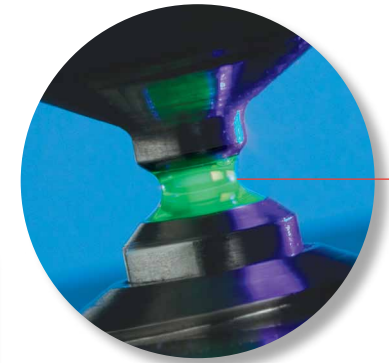
The NanoDrop 3300 Fluorospectrometer brings the sensitivity and selectivity of fluorescence spectroscopy to microvolume samples. Using our patented sample-retention system, the NanoDrop 3300 performs broad-spectrum fluorescence analysis in a versatile, high-performance instrument. The NanoDrop 3300 significantly lowers the mass detection limit more than an order of magnitude, compared to conventional fluorometers. It's a powerful instrument offering many benefits:

- Sample size as small as 1  $\mu\text{L}$ , conserves precious samples
- High performance LEDs replace filters for excitation
- Multiplex emission from multiple probes using the broad excitation white LED
- Easy-to-use software guides the novice fluorescence researcher with minimal training required
- Advanced instrument control for experienced spectroscopists

The NanoDrop 3300 lowers the mass detection limit more than an order of magnitude over conventional fluorometers. This capability is often more important than the ability to measure samples of low concentration.



dsDNA detection limits using fluorescence assay



Microvolume fluorescence analysis

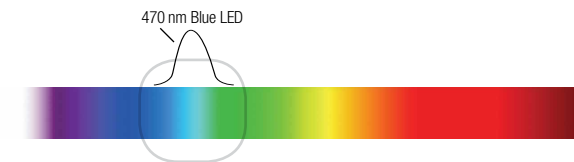
### UV LED max = 365 nm; Long pass filter at 400 nm

Example Applications:  
wt GFP and BFP mutants  
Hoechst  
4-MU  
Quantum Dots  
OPA



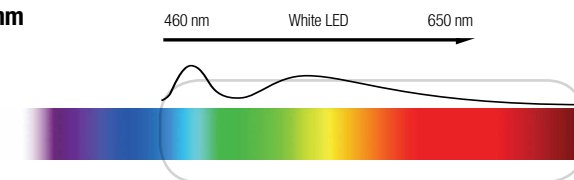
### Blue LED max = 470 nm

Example Applications:  
GFP mutants  
Fluorescein (FITC-FAM)  
DyLite 488® | AlexaFluor 488®  
PicoGreen® and RiboGreen®  
DyLite 550® | AlexaFluor 555®  
Quantum Dots  
SybrGreen  
FRET experiments



### White LED range = 460 – 650 nm

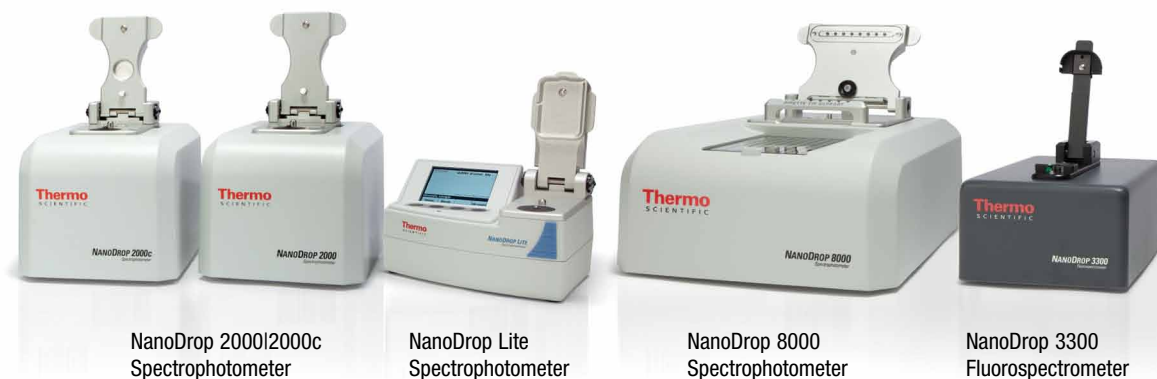
Example Applications:  
DyLite 550® | AlexaFluor 555®  
Cy3®, Cy 5®  
DyLite 550® | AlexaFluor 555®  
DyLite 650® | Alexa 647®  
Rhodamine  
Quantum Dots  
Molecular beacons



## Choose the NanoDrop instrument that's right for you

		Full-Spectral Data	Pre-Programmed Methods for Nucleic Acids	Measures Nucleic Acid 260/280 Ratio	Measures Nucleic Acid 260/230 Ratio	Pre-Programmed Methods for Protein	Measures Purified Protein A280	Pre-Programmed Methods for Colorimetric Assays (i.e. BCA)	Measures Fluorescently-Labeled Samples	Custom Methods Editor	PC Based	Built-in Cuvette Mode	Qualification Procedures IQ/OQ	User Calibration Verification
UV-Vis	NanoDrop 2000c	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
UV-Vis	NanoDrop 2000	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
UV-Vis	NanoDrop Lite		✓	✓		✓	✓							✓
UV-Vis	NanoDrop 8000	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Fluorescence	NanoDrop 3300	✓	✓			✓			✓	✓	✓			

Still cannot decide? See more detailed product information at [www.thermoscientific.com/nanodrop](http://www.thermoscientific.com/nanodrop) or contact your local authorized NanoDrop dealer.



## Why do thousands of scientists consider NanoDrop instruments essential to their work?

**Microvolumes:** NanoDrop instruments allow you to analyze samples as small as 0.5  $\mu$ L.

**Superior Technology:** The NanoDrop patented sample-retention system is one of a kind with proven performance in thousands of instruments.

**Fast and Easy:** Pipet your sample onto the pedestal, measure, then wipe clean. Highly polished stainless steel pedestals ensure no sample carryover. Yes, it really is that simple.

**Low Cost of Ownership:** No specialty wipes, expensive plates, cuvettes, caps or custom tips required.

**Small Footprint:** Ultra-compact instrument design saves laboratory space. Portability combined with superior performance allows the introduction of this technology to new workflows and applications.

**User-friendly Software:** Packed with features, but easy to use. Minimal training is needed. Software updates available on our website.

**Outstanding Technical Support:** Our technical support experts are life science specialists with extensive experience in microvolume analysis. Detailed technical information and advice is also available on our website.

# The specifications

	NanoDrop 2000   2000c	NanoDrop Lite	NanoDrop 8000
<b>Instrument Type</b>	Spectrophotometer	Spectrophotometer	Spectrophotometer
<b>Instrument Control</b>	Computer software	Local control	Computer software
<b>Minimum Sample Size</b>	0.5 µL	1 µL	1 µL
<b>Sample Number</b>	1	1	up to 8
<b>Pathlength(s)</b>	0.05, 0.1, 0.2 and 1.0 mm, auto-ranging	0.5 mm	0.1, 0.2 and 1.0 mm, auto-ranging
<b>Light Source(s)</b>	Xenon flash lamp	Light emitting diodes	Xenon flash lamp
<b>Excitation Maxima of LEDs</b>		N/A	
<b>Detector Type</b>	2048-element linear silicon CCD array	Silicon photodiode	2048-element linear silicon CCD array
<b>Wavelength Range</b>	190 – 840 nm	260 and 280 nm	220 – 750 nm
<b>Wavelength Accuracy</b>	±1 nm	N/A	±1 nm
<b>Spectral Resolution</b>	≤ 1.8 nm (FWHM at Hg 253.7 nm)	< 8.0 nm	≤ 3 nm (FWHM at Hg 546.1 nm)
<b>Typical Measurement Reproducibility</b>	0.002*	0.002*	0.003*
<b>Absorbance Accuracy**</b>	3% (at 0.74 Abs at 350 nm)	3% (at 1.05 Abs at 260 nm)	3% (at 0.74 Abs at 350 nm)
<b>Absorbance Range (10 mm equivalent)</b>	Pedestal: 0 – 300 Abs Cuvette: 0 – 1.5 Abs	0 – 30 Abs	0 – 75 Abs
<b>Fluorescence Range</b>		N/A	
<b>Lower Limit of Detection</b>	Pedestal: 2 ng/µL (dsDNA) 0.10 mg/mL (BSA) Cuvette: 0.4 ng/µL (dsDNA) 0.01 (BSA)	4 ng/µL (dsDNA) 0.12 mg/mL (BSA)	2.5 ng/µL (dsDNA) 0.15 mg/mL (BSA)
<b>Maximum Concentration</b>	Pedestal: 15,000 ng/µL (dsDNA) 400 mg/mL (BSA)	1,500 ng/µL (dsDNA) 45 mg/mL (BSA)	3,700 ng/µL (dsDNA) 100 mg/mL (BSA)
<b>Measurement Time</b>	< 5 seconds	< 5 seconds	< 20 seconds
<b>Footprint</b>	14 x 20 cm	16 x 11.5 cm	24 x 32 cm
<b>Weight</b>	2000: 2.0 kg 2000c: 2.1 kg	0.8 kg	3.4 kg
<b>Sample Pedestal Material of Construction</b>		303 stainless steel and quartz fiber	
<b>Cuvette Position</b>	Optional stirring: 150 – 850 rpm Heating: 37 ± 0.5°C z-height: 8.5 mm	N/A	N/A
<b>Operating Voltage</b>	12 V (DC)	6 V (DC)	12 V (DC)
<b>Operating Power Consumption</b>	12 – 18 W	18 W	30 W
<b>Standby Power Consumption</b>	5 W	< 2.5 W	6 W
<b>Software Compatibility</b>	Professional versions of Windows® XP (32 bit) Service Pack 2 or later; Windows® Vista™ (32 bit); Windows® 7 (32 bit and 64 bit)	Local control only	Professional versions of Windows® XP (32 bit) Service Pack 2 or later; Windows® Vista™ (32 bit); Windows® 7 (32 bit and 64 bit)

\* SD of 10 individual measurements at 0.74 Abs

\*\* Absorbance expressed at Abs/mm measured at 25°C

All NanoDrop instruments are approved to CE and UL/CSA standards.

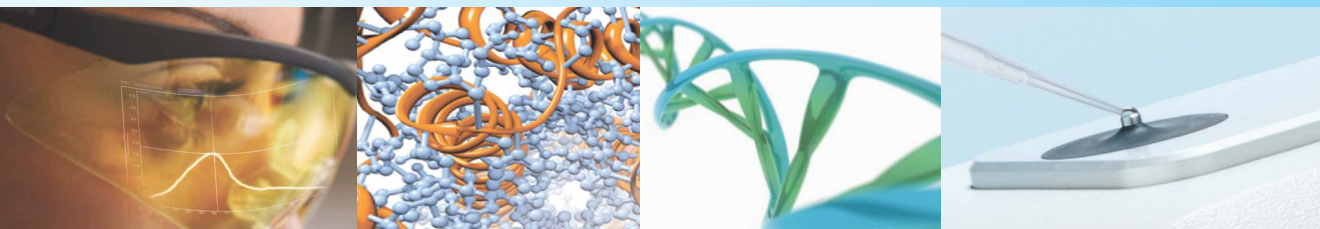
NanoDrop 3300
Fluorospectrometer
Computer software
1 µL
1
N/A
Light emitting diodes
UV: 365 nm, Blue: 470 nm, White: 460 – 650 nm
2048-element linear silicon CCD array
400 – 750 nm
±1 nm
≤ 8.0nm (FWHM at Hg 546.1 nm)
< 5% CV (10 nM fluorescein)
N/A
N/A
> 4 orders of magnitude fluorescein
< 1 fmol fluorescein
N/A
2 – 10 seconds
14 x 20 cm
1.5 kg
303 stainless steel and quartz fiber
N/A
5 V (DC)
2 W
1 W
Professional versions of Windows® XP (32 bit) Service Pack 2 or later; Windows® Vista™ (32 bit); Windows® 7 (32 bit and 64 bit)





## Thermo Scientific NanoDrop Products

Instruments for microvolume analysis of biomolecules



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