

Microvolume Spectrophotometer

NanoBio300

Features

- Adaptive range adjustment
- Measures nucleic acids, proteins, and full-spectrum absorbance
- Requires only 0.5~2 μ L of sample
- Fast detection: <3 seconds
- Spectral range: 190-850 nm
- Full touchscreen operation, 7-inch HD display
- Long-life light source (up to 10 years)
- No preheating; ready to use immediately
- High-performance fiber optic spectrometer
- Stable constant power light source
- Advanced algorithms and user-defined modeling
- Data interfaces: USB, Bluetooth, Wi-Fi

Application

- Research laboratories
- Hospitals and biochemical laboratories
- Biological laboratories
- Chemical laboratories
- Environmental testing

Model	Description
NanoBio 300	General-purpose, pulsed xenon lamp light source, full spectrum
NanoBio 300L	High-precision, long-life LED light source, OD600 cuvette

Description

The NanoBio 300 is an advanced Microvolume Spectrophotometer developed by Optosky. Covering a wavelength range from 190 to 850 nm, it is engineered based on Optosky's 20 years of experience in spectroscopic instruments. The NanoBio 300 integrates a high-performance fiber optic spectrometer and a pulsed xenon lamp (or long-life LED) from Hamamatsu, ensuring rapid and precise detection of nucleic acids and proteins. It features automatic range adjustment based on sample concentration, making it versatile for various sample concentrations with fully automated measurement. The spectrophotometer is user-friendly, requires only 0.5 to 2 μ L of sample, and eliminates the need for preheating, cuvettes, and sample dilution.

With its easy-to-use design, you simply pipette the sample onto the probe, close the lid, and measure. Post-measurement, samples can be wiped off or recovered. The NanoBio 300 is a key tool in many laboratories for nucleic acid detection, protein quantification, and other applications. The NanoBio 300L variant focuses on nucleic acid analysis with UV detection at 230 nm, 260 nm, and 280 nm. Equipped with an Android operating system and a 7-inch touchscreen, this portable spectrophotometer offers over 5 hours of battery life, and its data can be printed or exported via USB for convenience.



1. Parameter

Parameters	NanoBio 300	NanoBio 300L
Microvolume Mode		
Sample Size	0.5 ~ 2.0 μL	
Measurement Cycle	< 5s	
Optic Path Length	0.25 ~ 1.0mm ， Adaptive Range Adjustment Based on Sample Concentration	
Wavelength Range	190 ~850 nm	260nm 、 280nm
Light Source	Xenon flash lamp	Long-Life Narrow-Linewidth LED Light Source
Detector Type	2048 pixel linear CCD array	Ultraviolet Silicon Photodiode
Wavelength Accuracy	1 nm	1 nm
Wavelength Resolution	≤ 2 nm (FWHM at Hg 546 nm)	NA
Absorbance Precision	0.003 Abs(1mm)	
Absorbance Accuracy	1% （0.76 at 257 nm）	
Detection Limit	10ng/μL (dsDNA) 1.0mm Optical path	10 ng/μL (dsDNA) 1.0mm Optical path
Max Concentration	3600 ng/μL (dsDNA) @ 0.25 mm	3600 ng/μL （dsDNA）@ 0.25 mm
Absorbance Range	0.2 ~ 72A	0.2 - 72A
DNA range	10 ~ 3600ng/μL (dsDNA)	10-3600ng/μL
Cuvette mode		
Detection type	All	OD600
Optic Path Length	1mm 、 2mm 、 5mm 、 10mm （Standard）	
Capacity	3.5ml （10mm）	
Absorbance Range	0-4A(10mm)	
Minimum Height	5mm	
Temperature	37±0.5℃	
Rotating Speed	0-2000RPM/min	
Stirrer Size	3*6mm	
Others		
Surface Construction	304 stainless steel and quartz fiber	
Operation System	Android OS	

Panel Type	Multi-touch capacitive touch screen	
Panel Size	7 inches	
Panel Resolution	800 × 1080	
Endurance Time	5 hrs	
Li-ion Battery	60 Wh	
Operating Voltage	12V DC	
Power Consumption	9 W	7.5 W
Standby Power	1.5 W	1.5 W
Data interface	USB 、 Bluetooth、 WIFI	
Dimensions	286 × 196 × 227 mm (L×W×H)	
Weight	3.8 Kg	3. Kg

2. Working Principle

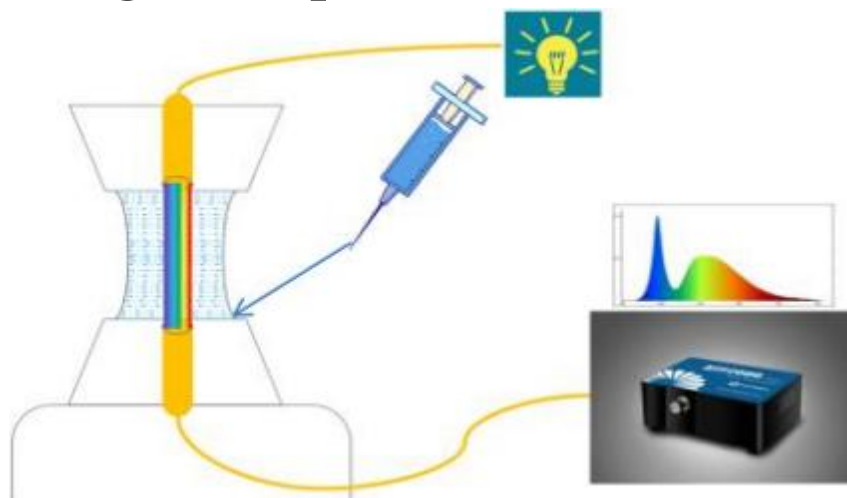


Figure 1: Schematic Diagram of the NanoBio300 Ultra-Micro Spectrophotometer

The working principle of a spectrophotometer is based on the Lambert-Beer Law. First, using our pipette, a sample of 0.5-2 μL is placed on the lower pedestal to form a small droplet. Then, the upper pedestal is pressed down to form a liquid column. When detection is initiated, the broadband light I_0 emitted from our light source passes through the liquid column. The intensity of light I that passes through the sample is recorded. Each substance has a specific absorption wavelength, and the amount of light absorbed at this particular wavelength is proportional to the concentration of the substance, according to the Lambert-Beer Law.

$$A = \epsilon L c$$

Where:

- A is the absorbance of the substance, where $A = -\log I/I_0$;
- ϵ is the molar absorptivity coefficient of the substance;
- L is the path length of the light (optical path length);
- c is the concentration of the substance.

The selective absorption wavelength of the substance and its corresponding absorption coefficient are physical constants of the substance. Once the absorption coefficient of a pure substance under specific conditions is known, the concentration of the substance in a sample solution can be determined by measuring its absorbance under the same conditions and applying the formula above.

3. Application

NanoBio 300 Microvolume spectrophotometer, the effective wavelength range is 190~850nm, can conduct qualitative and quantitative analysis of samples in the ultraviolet, visible, and near-infrared spectral regions; NanoBio 300 instrument has a simple structure and fast detection, and is suitable for trace amounts of nucleic acids, proteins, etc. The analysis of samples has special advantages in scientific research laboratories, hospitals, biological laboratories, chemical laboratories, environmental testing and other fields.

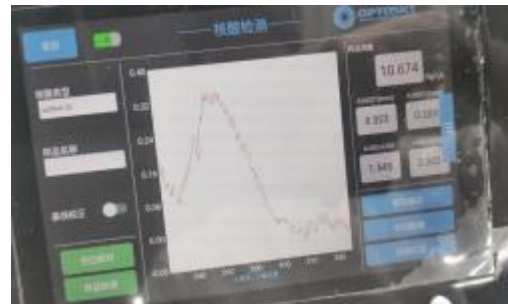
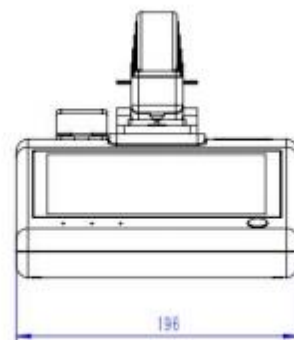
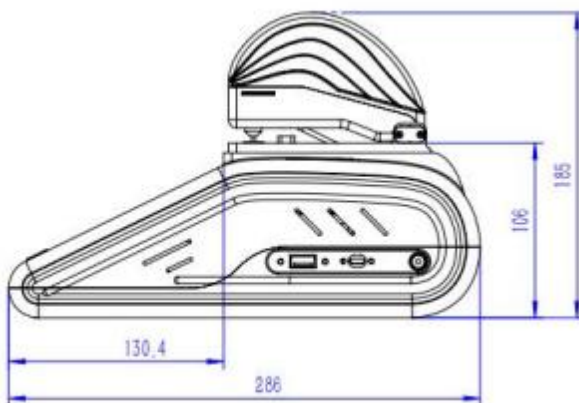


Figure 2 NanoBio 300 Microvolume Spectrophotometer testing DNA and protein samples at customer company

4. Dimensions



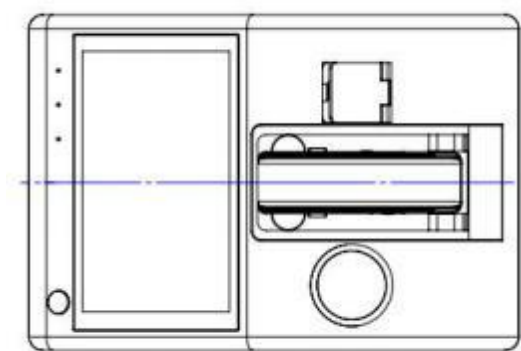


Figure 3 NanoBio 300 Micro-Volume Spectrophotometer Dimensions