

## Ultra-Microvolume UV-Vis Spectrophotometer

## NanoBio 200

### Features:

- Nucleic acids, Proteins, Cell Solution
- Sample volume per time: 0.5-2 $\mu$ l
- Fast Measure: <3s
- Broad Spectral Range : 190-850nm, optional : 190~1020nm
- Full Touch Screen Operate, Easy-to-Use;
- 7"HD capacitive touch screen;
- Long life span source up to 10 years
- Embedded high performance micro spectrometer
- High stability pulsed xenon light source
- Advanced algorithm;
- Self-built modeling function by user;
- USB data output;

### Application

- Scientific Research Lab
- Hospital
- Bio Lab
- Chemical Lab
- Environment Measure

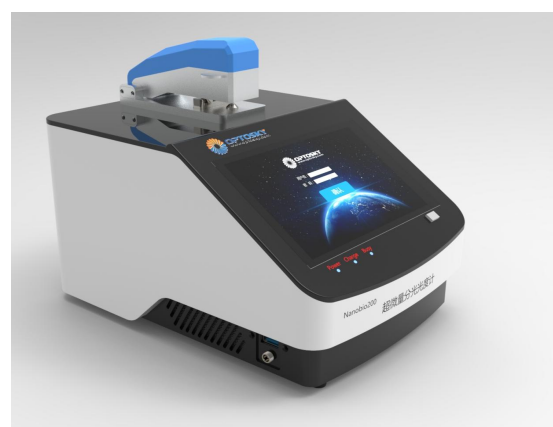
### Description:

NanoBio 200 is a full wavelength (190-850nm) ultra microvolume UV-Vis spectrophotometer, which is self-designed by Optosky. It bases on 20-year experience in developing spectrometer plus Hamamatscu pulsed xenon lamp, it's a successful spectrophotometer can fast measure nucleic acids, protein and cell solution. Meanwhile, its easy-to-use, sample volume requires only 0.5 ~ 2  $\mu$ l, it's not required preheating and it can fast clear out residue sample, no cuvette or other sample positioning fixture, no dilution etc.

NanoBio 200 Ultra microvolume spectrophotometer, easy-to-use, pipette directly onto the sample measure detect head, close it to start measure. It can directly wipe out residue sample or recycle after completing measure. NanoBio 200 has been common instrument of many labs.

NanoBio 200 ultra-microvolume spectrophotometer is mainly used to measure nucleic acids, protein. It uses high energy pulsed xenon light source give spectral measure of 230nm, 260nm, 280nm. It operate on Android software with 7 inch capacitive touch screen, it's not require to connect to PC but operate individually, built-in L-battery and it can output by USB, and it's convenient to make analysis and storage by users.

Model	Features
NanoBio200	General type
NanoBio200-2	Dual channel measurement, with cuvette measurement tank



## 1 Working Principle

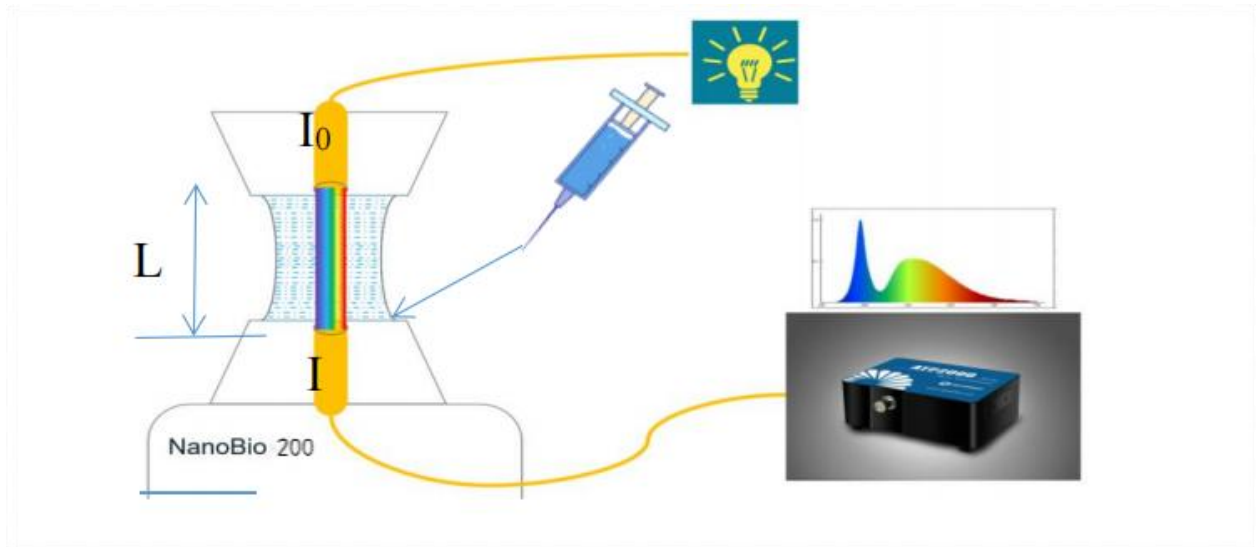


Fig 1 NanoBio 200 Working Principle

The working principle of spectrophotometer is mainly based on Lambert-Beer law. First, use our pipetting gun to draw 0.5-2 $\mu$  L of our sample and place it on our lower base to form a small liquid bead. Then, press our upper base downward to form a liquid column and click to test. At this point, the broad wavelength light  $I_0$  from our light source passes through the liquid column, and the light intensity  $I$  passing through the sample will be recorded. Each substance has its own specific wavelength of absorption, and the amount of the absorption of a specific wavelength is proportional to the concentration of the substance, i.e.

Lambert-beer (Lambert-Beer) law.

$$A = \epsilon L c$$

In the formula:

$A$ —Absorbance,  $A = -\log I/I_0$ ;

$\epsilon$ —Absorptivity ;

$L$ —Optical path Length (optical path);

$c$ —Concentration;

The wavelength of selective absorption of light by a substance and the corresponding absorption coefficient are the physical constants of the substance. When the absorption coefficient of a pure substance is known under certain conditions, the same conditions can be used to match the tested substance into a solution and determine its absorbance, and the content of the substance in the tested substance can be calculated from the above formula.

## 2 Performance

Parameters	Specifications
Sample Volume	0.5 - 2.0 $\mu$ L
Measurement Cycle	~ 3 seconds
Optic Path Length	1.0 mm (0.5, 0.25 and 0.05mm is optional) Nanobio200-2 has an additional 10mm range
Wavelength Range	190 ~850 nm, 190~1020nm optional
Light Source	Xenon flash lamp
Detector Type	2048 pixel linear CCD array
Wavelength Accuracy	1 nm
Wavelength Resolution	$\leq$ 2 nm (FWHM at Hg 546 nm)
Absorbance Precision	0.003 Abs
Absorbance Accuracy	1% (0.76 at 257 nm)
Minimum Detection Limit	2 ng/ $\mu$ L (dsDNA)
Max Concentration	15,000 ng/ $\mu$ L (dsDNA)
Absorbance Range	0.04 ~ 300 (10 mm)
DNA range	2 ~ 4500ng/ul (dsDNA) 2 ~ 15000ng/ $\mu$ L (Optional)
Surface Construction	303 stainless steel and quartz fiber
Operation System	Android OS
Screen Type	Capacity Touch Panel
Screen Size	7"
Screen Resolution	800 X 1080
Built-in Li-battery span	6 hrs
Li-ion Battery capacitor	60 Wh
Operating Voltage	12V DC
Power Consumption	9 W
Standby Power	1.5 W
Data interface	USB, Bluetooth, WIFI
Dimensions	290 X 210 X 220 mm
Weight	3.2kg

## 3 Application Fields

NanoBio 200 UV-VIS spectrophotometer, effective wavelength range is 190-850nm (190~1020nm optional), can be in the ultraviolet, visible, near infrared spectral region for qualitative and quantitative analysis of samples; NanoBio 200 instrument has the advantages of simple structure, fast detection, suitable for the analysis of nucleic acid, protein. NanoBio 200 has special advantages in scientific research laboratories, hospitals, biological laboratories, chemical laboratories, environmental testing and other fields.

## 4 NanoBio 200



