



Micro-  
Spectrophotometer —  
Nano-500

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NB-12-0058

## Micro-Spectrophotometer — Nano-500

Cat# NB-12-0058



### Description

Nano-500 is an advanced model of micro UV VIS spectrophotometer based on Nano-300, with full range of wavelength (200-800 nm). It is with an added new function of bacterium cell concentration measurement (OD600) in a cuvette. The Nano-500 only requires 0.5-2  $\mu$ l sample to measure nucleic acids, proteins as quickly as Nano-300. Nano-500 come with a 7 inch touch screen and integrated Android operating system, with no computer required. It is an ideal equipment for a biology laboratory to make life science research more efficient.

### Features

- Patented motor lifting structure to prevent liquid column fracture due to structural problems, increasing the detection stability
- Standard OD600 detection function
- Android system, 7-inch capacitive touch screen
- High-resolution CCD array detector, 6 s can complete detection and display results
- Long life pulse xenon lamp light source
- The detection data can be transferred to the computer through USB, which is convenient for data processing and analysis. The built-in printer can print the data directly

## Handling

### Perfect Fusion of Micro-detection and Fluorescence Detection

- Add 0.05 mm optical path to make nucleic acid concentration detection up to 15000 ng/μl. The detection result is stable with the motor lifting structure.
- Added fluorescence detection function, can accurately measure DNA samples below 5ng/μl. With the corresponding detection kit, the detection limit can reach 0.5pg/μl (dsDNA).
- The automatic detection function is added, and the instrument automatically starts concentration detection when the detection arm is lowered, which greatly improves detection efficiency.

Fluorescence detection combined with fluorescence quantitative analysis kit, able to accurately quantify the concentration of DNA, RNA and protein through the specific binding of fluorochrome with target material, and the minimum limit is 0,5 pg/μL (dsDNA), Nano-500 can be compatible with common fluorescence quantitative reagent to provide users with the maximum convenience and minimum detection cost.



Fluorescence Detection Mode (Can Be Customized)			
Model	Channel	Excitation wavelength	Emission wavelength
Nano-500U (optional)	UV	365±20 nm	420~480 nm (60 nm)
Nano-500 (standard)	Blue	460±20 nm	525~570 nm (45 nm)
Nano-500G (optional)	Green	525±20 nm	575~640 nm (65 nm)
Nano-500R (optional)	Red	625±20 nm	670~725 nm (55 nm)

Fluorescence Detection Mode - Specification	
Light source	LED
Dynamic range	5 orders of magnitude
Linear dynamic range	R <sup>2</sup> ≥ 0,995
Detector	Photodiode
Repeatability	≤ 1,5 %
Stability	≤ 1,5 %
Sensitivity	dsDNA: 0.5 pg/μL
Measurement speed	3 s (once)

### Applications of Different Fluorescence Channels

Channel	Excitation wavelength	Common reagent	Application
UV channel	365±20 nm	Hoechst 33258, 4-MU, EnZCheK Caspase	Nucleic acid quantification, plant GUS reporter gene detection, apoptosis detection
Blue channel	460±20 nm	PicoGreen <sup>®</sup> , oligreen, RiboGreen <sup>®</sup> , GFP, Protein, Fluorescein	dsDNA, ssDNA, GFP, gene detection, fluorescein detection, protein quantification
Green channel	525±20 nm	Rhodamine, Cy3, RFP Vybrant Cytotoxicity	Rhodamine detection, Cy-3 fluorescence labeling detection, RFP gene detection, cytotoxicity detection
Red channel	625±20 nm	Cy5, Quant-iT RNA	Cy-5 fluorescence labeling detection, RNA quantification

### Unique Advantages

In the process of sample detection, when the sample concentration is high or the sample is viscous, the determination by micro-spectrophotometer will often result in the failure of liquid column tension or even the direct fracture of liquid column, which will directly affect the results of detection. In addition, when the sample concentration is high, some tiny bubbles are easily generated in the sample. When these bubbles are in the detection light, the detection results are not stable.

Finally, because the stepper motor generates the liquid column in a gentler process, there will be less loss in the detection of the liquid. If the customer's sample is very precious and needs to be recycled, stepper motor is more suitable for sample recovery. Nano-500 adopts the patented sample stretching technology and the optical path length accuracy reaches 1 $\mu$ m, which effectively solve the problems above and makes the test results more stable and reproducible.

## Specifications

- Model Nano-500
- Wavelength range 200-800 nm
- Minimum sample size 0.5-2.0  $\mu$ l
- Path length 0.05 mm, 0.2 mm, 1.0 mm
- Light source Xenon flash lamp
- Detector type 2048-Linear CCD array
- Wavelength accuracy 1 nm
- Spectral resolution  $\leq 3$  nm
- Absorbance precision 0.003Abs
- Absorbance accuracy 1 % (7.332Abs at 260 nm)
- Absorbance range 0.04 - 300A
- Detects nucleic acid up to 2-15000 ng/ $\mu$ l (dsDNA)
- Measurement time <6 S
- Data output USB
- Sample pedestal material Aluminum alloy and Quartz fiber
- Operating voltage DC 24 V 2 A
- Operating power 25 W
- Standby power 5 W
- Dimension (WxDxH)mm 208 $\times$ 320 $\times$ 186
- Weight 3.6kg
- Software compatibility Android system

### OD600nm measurement

- Light source LED
- Wavelength range 600 $\pm$ 8 nm
- Absorbance range 0-4 A

### Fluorescent detection

- Sensitivity dsDNA : 0.5 pg/ $\mu$ l
- Linear dynamic range  $R^2 \geq 0.995$
- Repeatability  $\leq 1.5$  %