

|| Molecular Biology Instruments



01 Nano-100/Nano-300/Nano-400A/Nano-500 Micro-Spectrophotometer



Nano-100



Nano-400A



Nano-300



Nano-500

Description

1. User-friendly software, easy to use

It is easy to use, free software updates are available

2. Micro-volumes measuring

Only require 0.5~2 μ l sample to accurately determine nucleic acids, proteins

3. Fast and easy measurements

Turn on and instantly measure without lamp warm up time; Easy measurement within 8 sec

4. Long life's Xenon flash lamp

Xenon flash lamp, 10 flashes, up to 10 years, no dilutions and expensive consumables

5. No consumables required

Direct microvolume measurements from 1~2 μ L of sample. Eliminates the need for expensive accessories

6. No computer required and with touch screen (Nano-300, Nano-400A, Nano-500)

Nano-300, Nano-400A, Nano-500 is equipped with Android system operation

7. The Nano-100 / Nano-300 / Nano-500 are full range of wavelength (200-800nm) detection ability; The Nano-400A is a basic UV spectrophotometer specifically designed (only two types of wavelength 260nm and 280nm) for nucleic acids and proteins

8. Nano-500 also can be used to test the Fluorescence

For samples with concentrations below 2 ng/ μ l, fluorometric mode can be used, and the minimum detection limit can reach 0.5pg/ μ l

01 Nano-100/Nano-300/Nano-400A/Nano-500 Micro-Spectrophotometer

01

NANO-100 Highlights

1. Turn on and instantly measure without lamp warm up time;
Full scan capability from 200-800nm within 5 sec
2. Detects Nucleic Acids up to 4500ng/ul (dsDNA)
3. 3864-Element linear silicon CCD array
4. Need to connect computer
5. Software compatibility: WinXP, Win7, Win8

02

NANO-300 Highlights

1. Nano-300 is an improved Micro-Spectrophotometer based on Nano-100 with 200-800nm. It is added a function of bacterium cell concentration detection (OD600)
2. Android system, 7 inch touch screen, APP software, simple interface, easy to use
3. Equipped with HD touch screen, no need to connect PC
4. 2048-Element linear silicon CCD array detector
5. Turn on and instantly measure without lamp warm up time;
Full scan capability from 200-800nm within 6 sec
6. To detect the concentration of bacteria and microorganism are more convenient with the OD600 function
7. The data can be printed with built-in printer, and can output via USB for data analysis and storage
8. When the Nano-300 is idly left more than 5mins, it will switch off automatically. Then, the user can awake the machine by touching the screen



OD600 detection

03

NANO-400A Highlights

1. Nano-400A is a basic micro-volume UV spectrophotometer designed (only 3 types of wavelength: 260nm, 280nm and 365nm) for the measurement of nucleic acids and proteins
2. Android system operation, 7 inch touch screen no computer, APP software, simple interface, easy to use
3. To detect the concentration of bacteria and microorganism are more convenient with the OD600 function
4. Measures nucleic acid concentration at 260nm and purity using the ratio 260/280
5. Measure purified protein concentration at 280nm
6. The data can be printed with built-in printer, the data can output via SD-RAM Card and USB memory

04

NANO-500 Highlights

1. Nano-500 is designed base on nano-300:
 - A. To added the 0.05mm optical path length, and the highest detection concentration up to 15000ng/ul
 - B. To added the Fluorescence detection function, which can be used for accurate quantification of extremely low concentration nucleic acid with a lower limit of 0.5pg/ul
 - C. Automatic detect after put down the arm
2. The patented lifting motor structure makes the liquid column stretch more gentle, preventing the liquid column from breaking due to structural problems. In addition, the structure can effectively solve the instability of reading caused by high concentration sample, especially suitable for precise quantification of protein samples
3. Android system, 7-inch capacitive touch screen, intuitive APP software, simple and easy to use
4. To detect the concentration of bacteria and microorganism are more convenient with the OD600 function
5. With a 2048-Element linear CCD array detector, the detection and display can be completed in 6s
6. Equipped with HD touch screen, no need to connect computer.
7. Longer service life of optical component, intelligent identification of user usage. The light source will auto off after 5 minutes without any operation to extend service life
8. The result can be printed by a built-in printer or exported via USB for data analysis and storage

05

New fluorescence detection function for nano-500

Fluorescence detection combined with fluorescence quantitative analysis kit, able to accurately quantify DNA, RNA and protein concentration through the specific binding of fluorochrome with target material, and the minimum limit is 0.5pg/u(dsDNA). Nano-500 can be compatible with common fluorescence quantitative reagent to provide users with maximum convenience and minimum detection cost.



Fluorescence mode

Code	Light	Excitation Filters	Emission Filters
Nano-500U (optional)	UV	365±20nm	420-480nm (60nm)
Nano-500 (standard)	Blue	460±20nm	525-570nm (45nm)
Nano-500G (optional)	Green	525±20nm	575-640nm (65nm)
Nano-500R (optional)	Red	625±20nm	670-725nm (55nm)

Specification

Light source	LED
Dynamic range	Five orders of magnitude
Linear Dynamic Range	R ² >0.995
Detector	Photodiode
Repeatability	<1.5%
Stability	<1.5%
Sensitivity	dsDNA: 0.5ng/ml
Measurement speed	3s (Once)

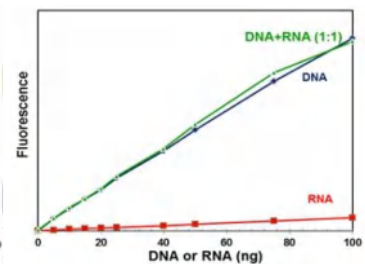
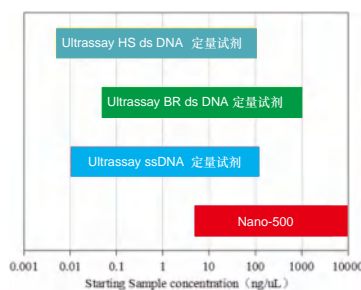
Application of different fluorescence channel

Channel	Excitation Filters	Normal kits	Applications
UV channel	365±20nm	Hoechst 33258, 4-MU, EnZCheK Caspase	Nuclear acid quantification, Plant GUS reporter gene detection, Poptosis detection
Blue channel	460±20nm	PicoGreen®, oligreen, RiboGreen®, GFP, Protein, Fluorescein, Quant-iT™	dsDNA, ssDNA, RNA quantification, GFP gene detection, Fluorescein detection, Protein detection
Green channel	525±20nm	Rhodamine, Cy3, RFP Vybrant Cytotoxicity	Rhodamine detection, Cy-3 fluorescence labeling detection, RFP gene detection, Cell activity position detection
Red channel	625±20nm	Cy5, Quant-iT RNA	Cy-5 fluorescence labeling detection, RNA quantification

Fluorescence detection features

Fluorescence detection is able to precise quantification the concentration of DNA, RNA, protein with the high sensitive fluorescence analysis kits. The related fluorochrome could be emission the optical wave which waveband is larger than absorbing light, only when combined with the target molecule in the sample, after absorbed a certain optical wave, to quantify the intensity of this fluorescent. Then, confirm the target material contents according to the standard curve

Compare to the Nano-300, added function of fluorescence detection is available to increase the lower limit (see the left draw) of sample detection. In addition, even there is the RNA existing in the sample when doing the DNA detection, the fluorescence still with the strong specificity (see the right draw)



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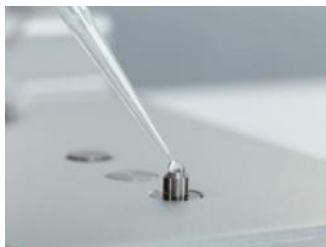
Nano-300 and Nano-500 Capabilities

- Wide spectral range (200-800nm) for measuring a variety of samples types:
 - DNA and RNA (260nm)
 - Purified protein (280nm)
 - Industrial dyes (490nm)
 - Gold nanoparticles (520nm)
 - Colorimetric protein assays (BCA 562nm, Bradford 595nm Modified Lowry 650nm)
 - Optical Density measurements (OD600)
- 2048-Element linear silicon CCD array
- To calculate sample purity ratios: A260/A280, A260/A230
- User-friendly software includes custom methods and data export capabilities



07

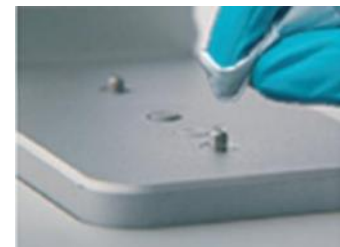
Easy Handling:



■ Adding sample

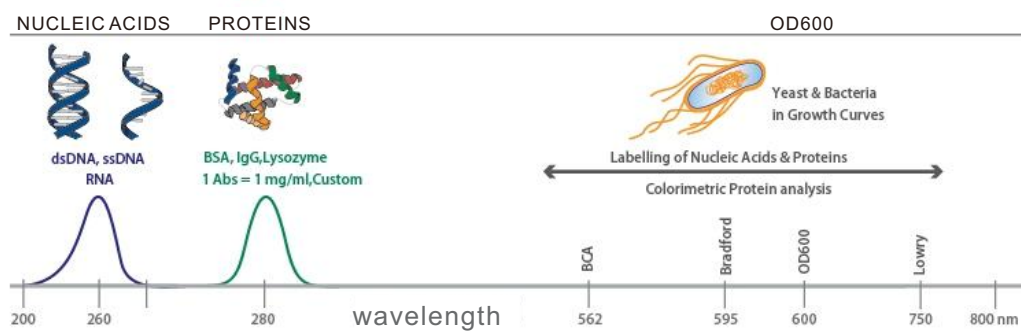


■ Measuring sample



■ quick and easy cleaning

Applications



Ordering information

No.	Description
UB-11060-00	Nano-500 Micro-Spectrophotometer, DC24V 5W (Standard)
UB-11070-00	Nano-500U Micro-Spectrophotometer, DC24V 5W (Optional)
UB-11080-00	Nano-500G Micro-Spectrophotometer, DC24V 5W (Optional)
UB-11090-00	Nano-500R Micro-Spectrophotometer, DC24V 5W (Optional)

Specification

Type	Nano-100	Nano-300	Nano-400A	Nano-500
Wavelength Range	200-800nm	200-800nm	260nm, 280nm	200-800nm
Minimum Sample Size	0.5-2.0µl	0.5-2.0µl	1-2.0µl	0.5-2.0µl
Path Length	0.2mm 1.0mm	0.2mm 1.0mm	0.5mm	0.05mm 0.2mm 1.0mm
Light Source	Xenon flash lamp	Xenon flash lamp	UV LED	Xenon flash lamp
Detector Type	3864-Linear CCD array	2048-Linear CCD array	UV-sillion photocell	2048-Linear CCD array
Wavelength Accuracy	1nm	1nm	—	1nm
Spectral Resolution	≤3nm (FWHM at Hg546nm)	≤3nm (FWHM at Hg546nm)	—	≤3nm (FWHM at Hg546nm)
Absorbance Precision	0.003Abs	0.003Abs	0.005Abs	0.003Abs
Absorbance Accuracy	1% (7.332Abs at 260nm)	1% (7.332Abs at 260nm)	1% (7.332Abs at 260nm)	1% (7.332Abs at 260nm)
Absorbance Range	0.02 - 90A	0.02 - 100A	0.02 - 50A	0.02 - 100A
Detects Nucleic Acid up to	2-4500ng/ul (dsDNA)	2-5000ng/ul (dsDNA)	10-2500ng/ul (dsDNA)	2-15000ng/ul (dsDNA)
Measurement Time	<8S	<5S	<8S	<6S
Data Output	Connect PC	USB	USB	USB
Sample Pedestal Materia	Aluminum alloy and Quartz fiber			
Operating Voltage	24V DC	24V DC	24V DC	24V DC
Operating Power	20W	25W	25W	25W
Standby Power	5W	5W	5W	5W
Dimension (W x D x H)mm	200 x 250 x 166	210 x 268 × 181	210 x 280 x 181	210 x 310 × 181
Weight	2.6kg	2.8kg	3.5kg	2.8kg
Software Compatibility	WinXP, Win7, Win8	Android System	Android System	Android System
Fluorescent detection				
Sensitivity	—	—	—	dsDNA: 0.5pg/ul
Linear Dynamic Range	—	—	—	R ² >0.995
Repeatability	—	—	—	< 1.5%
OD600nm Measurement				
Light Source	—	LED	LED	LED
Wavelength Range	—	600±8nm	600±8nm	600±8nm
Absorbance Range	—	0-4A	0-4A	0-4A

Ordering information

No.	Code	Description
01	UB-11010-00	Nano-100 Micro-Spectrophotometer, DC24V 5W
02	UB-11020-00	Nano-300 Micro-Spectrophotometer, DC24V 5W
03	UB-11050-00	Nano-400A Micro-Spectrophotometer, DC24V 5W
04	UB-11021-01	Cuvette for Nano-300, Nano-400A and Nano-500