

BioSpec-nano

Shimadzu
Spectrophotometer for Life Science





Power of small.
BioSpec-nano

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Quick and Simple Nucleic Acid Quantitation

Drop-and-Click Analysis

To analyze a sample, just drop it onto the target and click the button. The instrument will perform measurement and wiping automatically.

1 μ L or 2 μ L Nucleic Acid Quantitation

Analysis can be performed with 1 μ L (pathlength: 0.2 mm) or 2 μ L (pathlength: 0.7 mm) samples.

Quick & Simple Operation

Blank measurement, sample measurement, output of reports as PDF or CSV files, and other basic operations are performed quickly and simply just by a click of a button.

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Drop-and-Click Analysis [1 μ L / 2 μ L samples can be mea

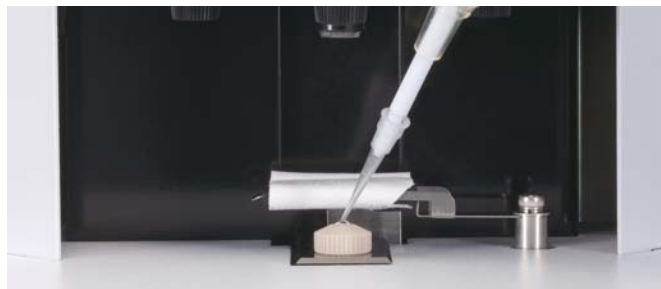
Just drop the sample onto the target and click the button. That's all there is to analysis. The instrument will perform everything else for you – sample mounting, measurement and wiping.
Liquid-contact parts no longer need to be wiped with a cloth.

1. Drop the sample.

Sample volume required for measurements are *:

1 μ L for pathlength 0.2 mm

2 μ L for pathlength 0.7 mm



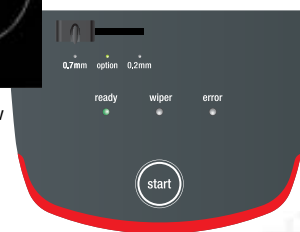
2. Start measurement.

Click the button with the mouse to start sample measurement.

You will find using the [start] button on the instrument handy when performing analyses with gloves on.



Button in software window



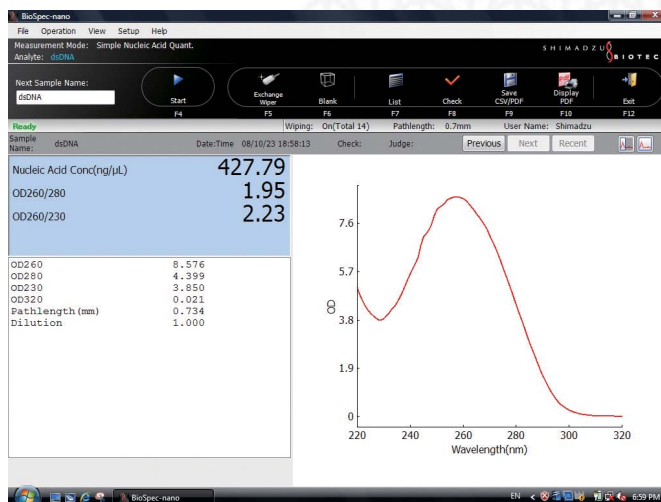
Instrument [start] button

Just click the button. And leave the rest up to the instrument.

3. Check the analysis results.

Analysis results are automatically displayed after measurement ends.

A series of samples can be analyzed while confirming spectra in the Detailed View Mode.



[Simple Nucleic Acid Quant. - Detailed View Mode]
[Measurement Sample: Purified dsDNA in Tris-EDTA (TE) buffer]

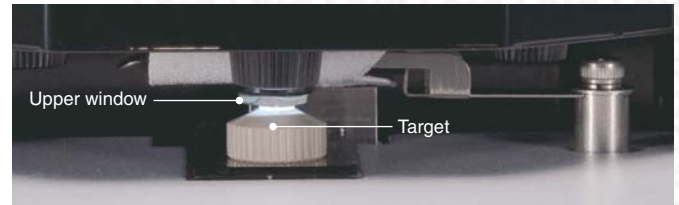
* If the surface tension of the sample is small, droplets might not be formed with a 1 to 2 μ L sample.

sured.]

Automatic Mounting and Wiping Function

(1) Automatic Mounting

The upper window automatically moves down, and a droplet with the specified pathlength is formed.



(2) Measurement

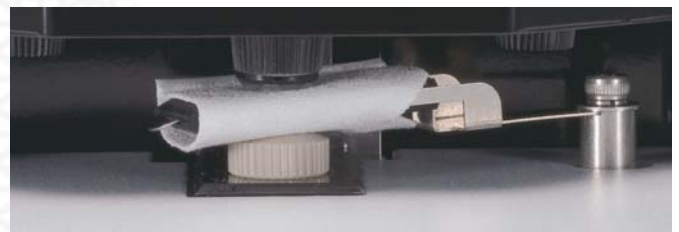
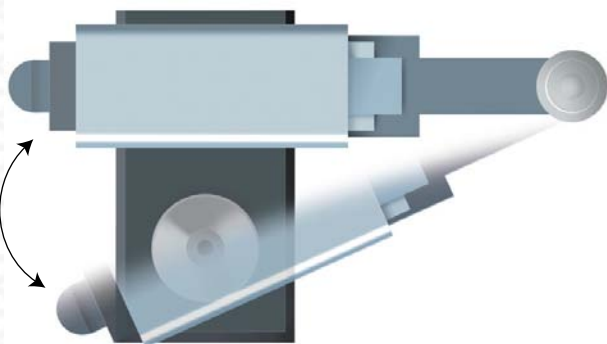
The Xenon flash lamp is lit for 3 seconds to perform spectrum measurement.

(3) Automatic Wiping

After measurement, liquid-contact parts (upper window and target) are automatically cleaned by the dedicated wiper. The utility life of the dedicated wiper is about 100 operations.*

The wiper features excellent water absorption and there is little influence from contamination.

* We recommend exchanging the wiper after each series of sample measurements or once per day.



Position of wiper arm during wiping

Quick & Simple Operation

Basic operations can be conveniently performed by clicking icons in the software or function keys on the instrument itself.

▶ Start

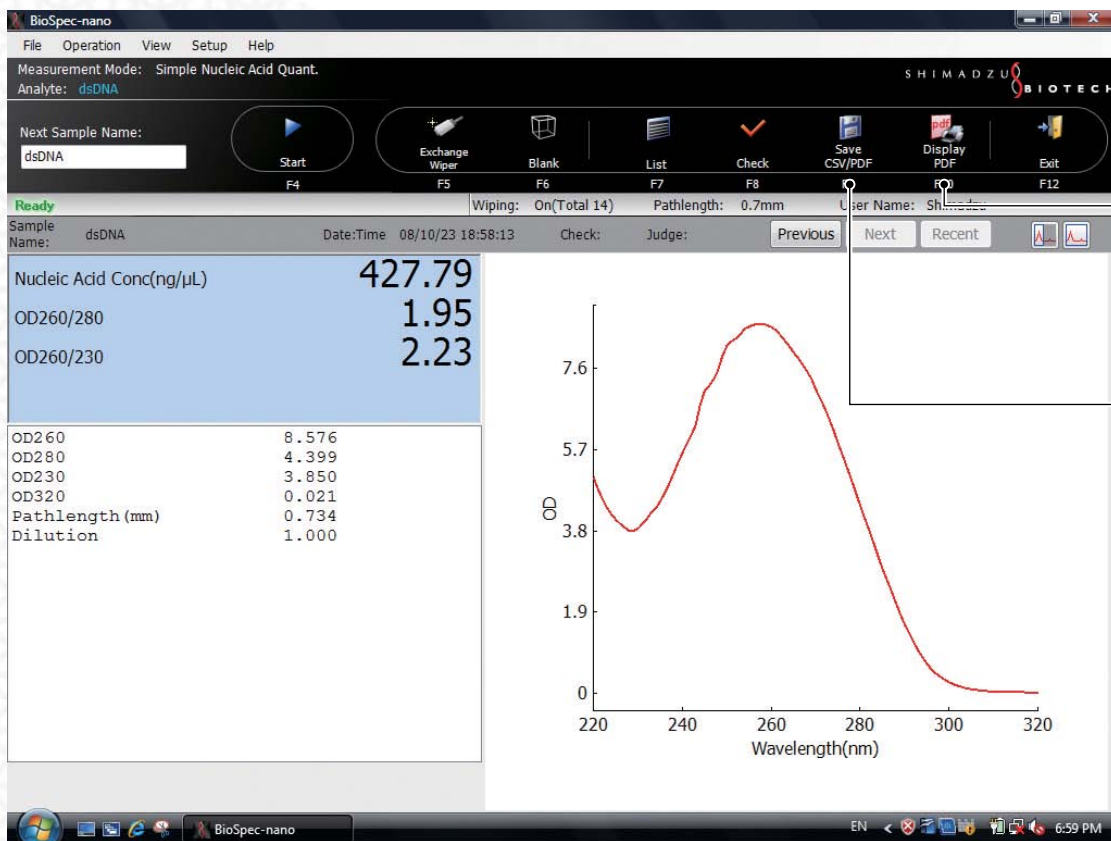
Starts sample measurement.

🧽 Exchange Wiper

Moves the wiper arm to the exchange position so a new wiper can be attached. The wiping count is reset at each exchange of the wiper.

📦 Blank

Executes blank measurement.



[Simple Nucleic Acid Quant. - Detailed View Mode]
[Measurement Sample: Purified dsDNA in TE buffer]

Detail / List

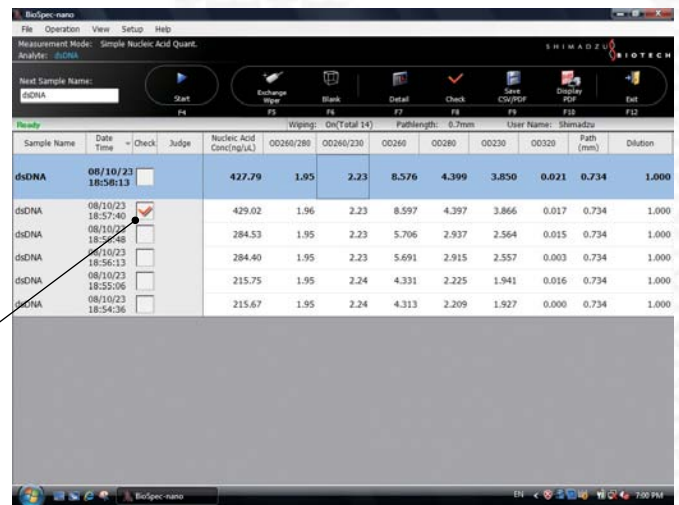
Toggles between the Detail and List view modes.

Detail

Displays the analysis results and spectrum of the sample currently selected.

List

Displays the analysis results of all samples in a table format.



[Simple Nucleic Acid Quant. - List View Mode]

Check

Marks analysis results of interest for review.

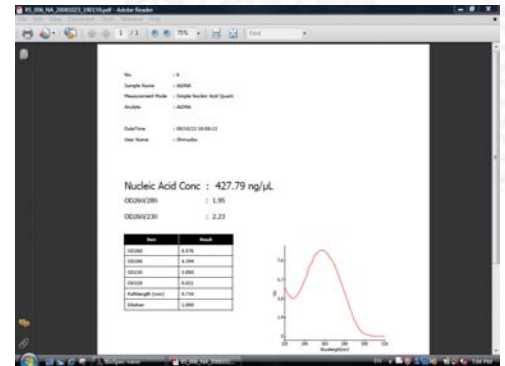


Exit

Exits the software.
Analysis results are automatically saved.

Display PDF

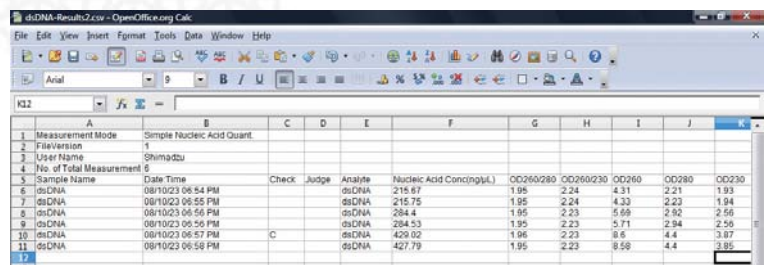
Converts analysis results to PDFs and displays them in Adobe Reader.



[PDF Display Output Example]

Save CSV/PDF

Saves analysis results to CSV or PDF files. CSV files can be edited in Microsoft Excel or other spreadsheet software.



CSV File Output Example

Stress-free Nucleic Acid & Labeled Nucleic Acid Quantitation

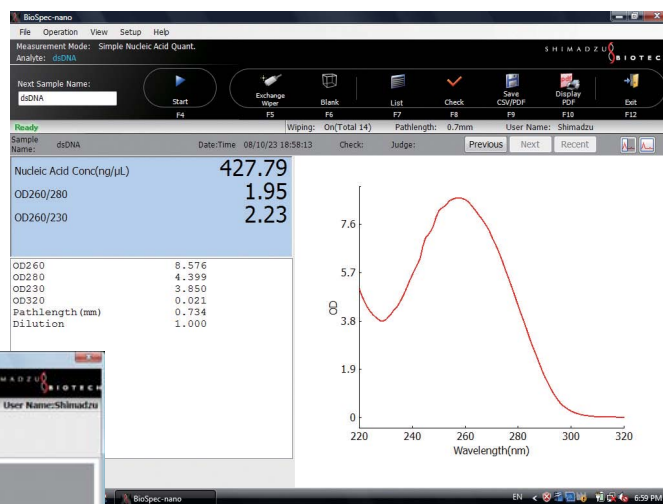
Simple Nucleic Acid Quantitation Mode

For the quantitation of RNA, dsDNA, ssDNA, and OligoDNA.

The nucleic acid concentration and OD ratio (OD260/280 and OD260/230) are calculated.



[Analysis Setting Windows - Simple Nucleic Acid Quant.]



[Simple Nucleic Acid Quant. - Detailed View Mode]
[Measurement sample: Purified dsDNA in TE buffer]

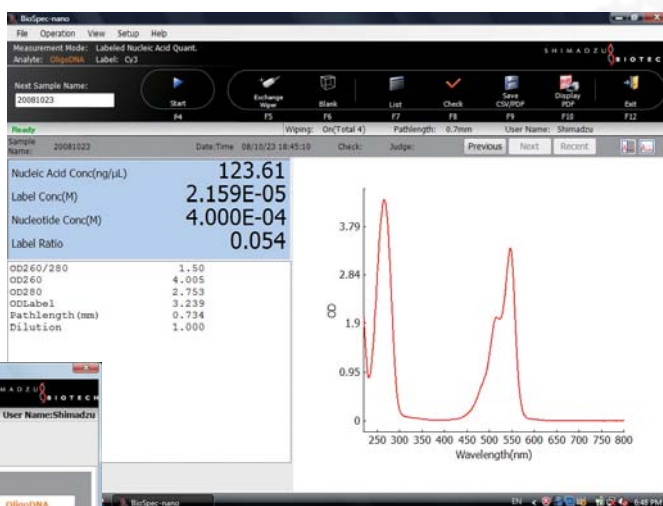
Labeled Nucleic Acid Quantitation Mode

For the quantitation of nucleic acids (RNA, dsDNA, ssDNA, OligoDNA) labeled by Cy3, etc.

The nucleic acid concentration, label concentration, nucleotide concentration, and labeling ratio are all calculated.



[Analysis Setting Windows - Labeled Nucleic Acid Quantitation]

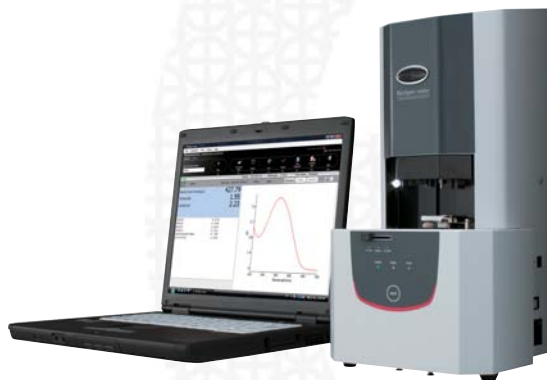
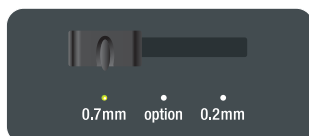


[Labeled Nucleic Acid Quant. - Detailed View Mode]
[Measurement Sample: OligoDNA labeled by Cy3 in TE buffer]

Outstanding Analysis Range & Measurement Reproducibility

Secure Analysis / High Measurement Accuracy

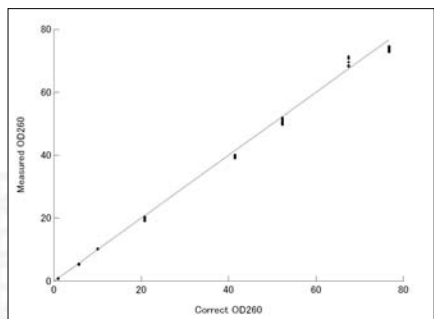
The optimum pathlength for the sample concentration can be selected using the instrument lever.



* Laptop PC is sold separately.

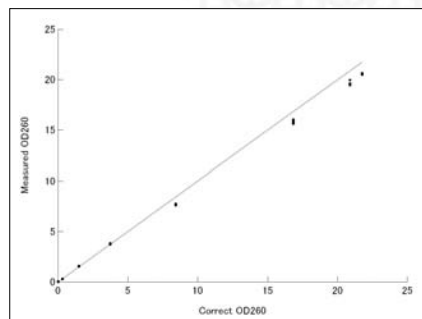
Pathlength: 0.2 mm

Example of analysis at 1 μL *



Pathlength: 0.7 mm

Example of analysis at 2 μL *



Pathlength: 5 mm

The 5 mm pathlength cell and 5 mm cell adapter are required separately.

The optional 5 mm pathlength cell and its adapter are placed over the target for use as shown below.

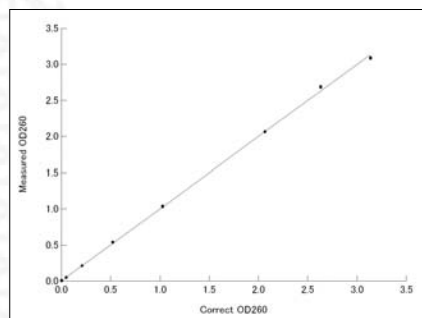


5 mm pathlength cell
(sample volume: 2 mL)
(P/N: 208-92258)

5 mm cell adapter
(P/N: 206-26513)



Example of analysis at 2 mL*



* All of the analysis example data are provided for reference only.
1 OD corresponds to 50 ng/ μL dsDNA.
Sample: Purified dsDNA
Buffer: TE
Ten measurements were performed at each point.

BioSpec-nano Specifications

Hardware Specifications

Item	Specification
Measuring wavelength range	220 to 800 nm
Spectrum band width	3 nm
Wavelength accuracy	±1 nm
Pathlength	0.2 mm, 0.7 mm (manual selection)
Photometric range	0 to 1.5 Abs
Photometric value unit	OD (Optical Density), absorbance converted with 10 mm pathlength
Option cell	Available (pathlength: 5 mm, sample volume: 2 mL) Pathlength lever switched to Option (5 mm) position
Sample volume	1 µL min. (pathlength: 0.2 mm) 2 µL min. (pathlength: 0.7 mm)
Light source	Xenon flash lamp
Monochrometer	Holographic grating

Item	Specification
Detector	Photo diode array
Auto wiping function	Provided
Sample mount function	Auto
Spectrum measuring time	3 sec
Quantitation range (OD, dsDNA concentration)	Pathlength 0.2 mm, 1 to 75 OD 50 to 3,700 ng / µL Pathlength 0.7 mm, 0.3 to 21 OD 15 to 1,000 ng / µL Optional 5 mm pathlength cell, 0.04 to 3 OD 2 to 150 ng / µL
Power requirements	AC 100 V / 120 V / 220 V / 230 V / 240 V, 50 / 60 Hz, 40 VA
Ambient temperature, humidity	18 to 28 °C, 40 to 80 % (without dew condensation)
Dimensions	Width 210 mm x Depth 214 mm x Height 417 mm
Weight	7 kg

Software Specifications

Item	Specification
Analysis mode	Simple nucleic acid quantitation, labeled nucleic acid quantitation
Simple nucleic acid quantitation	Nucleic acid concentration (RNA, dsDNA, ssDNA, OligoDNA) calculation OD ratio (OD260 / 280, OD260 / 230) calculation
Labeled nucleic acid quantitation	Nucleic acid concentration (RNA, dsDNA, ssDNA, OligoDNA), nucleotide concentration calculation Label concentration, labeling ratio calculation OD ratio (OD260 / 280) calculation
Label management	Label registration (up to 8 new labels), edit, deletion Default labels (Cy 3, Cy 5, Alexa Fluor 546, Alexa Fluor 647)
Analysis results display	Detailed view (displays the focused sample analysis results and spectrum) List view (displays analysis results of all samples)

Item	Specification
Analysis data judgement	OD ratio (OD260 / 280, OD260 / 230), OD 800 judgement
PDF output	Analysis results (detailed view, list view) saved in PDF file
CSV output	Analysis results (detailed view, list view), spectra data saved in tab delimited text
User management (Multiple user mode)	Multiple user or single user mode selected at the time of installation User management: User registration, edit, deletion Login: User name, password entry Data saved in respective folders

PC Requirements for BioSpec-nano

Item	Specification
OS	Windows Vista Business SP1 Windows XP Professional SP2/SP3
CPU	1.6 GHz or higher processor
System memory	512 MB or larger (1 GB or larger when using Windows Vista)
Hard disk capacity	40 GB or larger
Display resolution	1024 x 768 pixels or above
USB2.0 port	1 port or more (for connecting the instrument), 2 ports or more when using a USB printer
Printer	Printer compatible with the system used
Disk drive	DVD-ROM or CD-ROM drive

* A separate PC is required.

Consumables

P/N	Part Name
206-25901	Wiping paper (highly absorbent wiper, 100 sheets/set)



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Introducing a "Power of Small Series" Product

Power of small.

Microchip Electrophoresis System for DNA/RNA Analysis

MultiNA

The MultiNA replaces agarose gel electrophoresis achieving outstanding quality of data along with ease of use.



Features of the MultiNA

High-speed Automatic Operation for up to 120 Analyses

High Resolution

Fragments that are difficult to separate by agarose gel electrophoresis can be resolved.

High Sensitivity

Sensitivity approximately 10 times greater than gel images with ethidium bromide staining.

High Reproducibility

High reproducibility is achieved by the automated mixing and co-migration of internal markers.

MultiNA Viewer Software

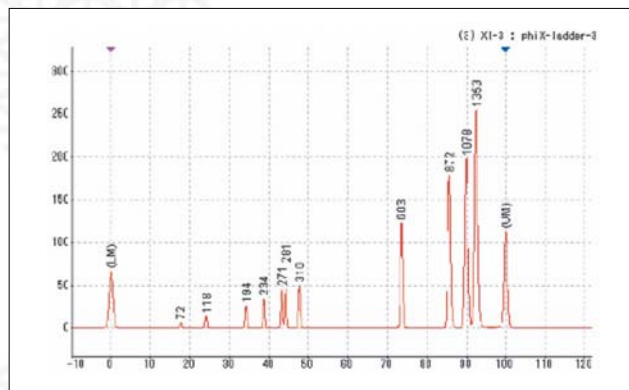
- Gel images of up to 120 analyses can be displayed. The electropherogram overlay function facilitates comparison of samples.
- "Size values" and "concentration" are displayed for each fragment peak. A function for exporting data to CSV file also is supported.
- Gel images and electropherogram can be saved in CSV or image file format.

Outstanding Ease of Use

- Automated washing of all lines and microchips at the end of each analysis schedule.
- Ethidium Bromide is not used.

Example of Analysis Using the DNA-1000 Kit

The sample is separated into 271 bp and 281 bp fragments in ϕ x 174 DNA Hae III digests (Promega, end concentration 10 ng/ μ L) is separated fully, which is difficult to separate with agarose gel electrophoresis.



Power of small.

Small, but powerful.
Small, and easy to use.

Shimadzu's superb range of laboratory
tools embraces the power of small.



JQA-0376

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