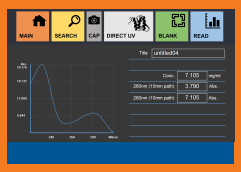
pg instruments

NV-200

NANO VOLUME **SPECTROPHOTOMETER**



OPERATION MANUAL

Analytical
Instruments
for
Science


Nano
UV-Vis Nano Spectrophotometer
NUCLEIC ACIDS
DNA
KINETIC
ACCOUNT
SEARCH
PROTEIN
SPECTRUM
POWER
SETUP
END POINT
OD600

Contents

Chapter 1 Introduction

1.1 Measurement Principle

The measurement principle of the NV-200 is based on the Lambert-Beer law. When the beam of collimated monochromatic light passes through a certain uniform colored solution, the absorbance of the solution is directly proportional to the concentration of the solution and the optical path which supplies the basis for the quantitative analysis. The Lambert-Beer law is described as following formula:

$$A=k\times b\times C$$

A — Absorbance of the analyte.
k — The absorption coefficient.
b — The path length in cm.
c — The analyte concentration.

1.2 Performance and Features

The performance and features of the NV-200 Bio-photometer are as follows:

Imported long service life UV-Visible light source (Xenon Flash Lamp), without pre-warming.

7 inches LCD touch screen, enables the measurement, data storage and transmission without computer.

Friendly operation system and graphic operation interface, enables easy operation.

High resolution CCD detector, enables fast detection in five seconds, with good repeatability and high accuracy.

Micro volume detection with less sample consumption as low as 1μL, enables high concentration sample measurement without dilution.

Powerful measurement functions such as nucleic acids measurement, protein measurement, kinetic measurement, spectrum measurement, end point measurement and OD600 measurement are available.

Two USB ports, enables data transmission by USB Flash Drive, instrument operation with mouse and keyboard.

The measurement results and graphs are clearly displayed, and the graph can be screen captured.

The data can be backed up and saved to USB Flash Drive, and the storage path is easy to search.

Convenient data search. History data can be reviewed according to title, time, or measurement item, which enables data to be easily exported and backed up.

High performance without maintenance. System upgrade is available with USB Flash Drive.

CUVETTE & MICROVOLUME MEASUREMENT

Samples in universal cuvette or microvolume can be measured.

EASY UPGRADES

The system can be upgraded with ease via USB Flash Drive.

MINIMUM MAINTENANCE

No recalibration or internal maintenance is needed.

1.3 Applications

The NV-200 instrument is designed for both cuvette and microvolume samples. The valid wavelength range is 190nm-1100nm. It's applied to fast detection of samples such as DNA, RNA and proteins. Universal sample measurement with cuvette is also available. With high accuracy and superb repeatability, it has special advantages in the fields of biochemistry analysis, teaching and scientific research.

1.4 Packing List

NO.	ITEM	QTY	NOTE
1	NV-200 spectrophotometer	1	
2	Pedestal Cover	1	Fig. 1-1
3	Black Block	1	Fig. 1-1
4	Cuvette	1	Fig. 1-1
5	Power Cord	1	
6	Power Adaptor	1	
7	User's Manual	1	

Pedistal cover **Black Block** **Cuvette**

Fig. 1-1

1.5 Product Design

The main structure of the NV-200 is shown in Fig. 1-2:

Fig. 1-2

The right side and back of B-600 Bio-photometer are respectively shown in Fig. 1-3 and Fig. 1-4:

Fig. 1-3

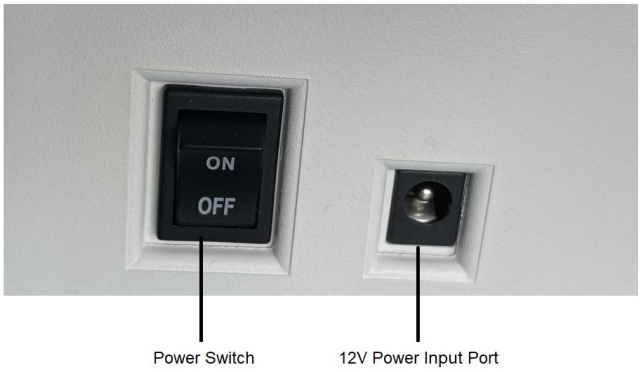


Fig. 1-4

1.6 Technical Specifications

General Specification

Light Source	Xenon Flash Lamp
Detector	CCD (2048 Pixels)
Wavelength Accuracy	±1 nm
Wavelength Range	190 nm – 1100 nm
Spectral Resolution	0.3 nm
Dimensions	230 mm × 290 mm × 220 mm (W × D × H)
Weight	3 kg
Operator Voltage	12 V DC
Power Consumption	18 W
Warranty	1 Year
LCD Touch Panel	7.0 inch

Micro Volume Specification

Absorbance Precision	1% (@100 ng/μL)
Absorbance Range	0 -300 Abs. (equivalent to 10 mm path length)
Detection Limit	2 ng/μL (dsDNA)
Maximum Concentration	15000 ng/μL (dsDNA)
Measurement Time	5 s
Minimum Sample Size	1 μL
Path Length	0.01 – 1.2 mm (Auto-ranging)

Cuvette Specification

Beam Height	8.5 mm
Absorbance Range	0.002 – 2.0 Abs.
Measurement Time	3 s

1.7 Maintenance

• Due to fixed modules and immovable parts, internal maintenance is not needed.

• Clean the exterior with a clean and dry wipe when there is a spill or contamination.

• **DO NOT** try to disassemble the instrument.

• Use an electric supply that conforms to industry standards.

• Place the instrument in a clean environment and away from other devices that vibrate (e.g. centrifuges)
.

• Test the general functions of the device – check buttons and the power switch.

• Confirm that the mechanical components are in good condition.

• Make sure accessories, cables, and positions are clean and intact.

• Calibration and update from the manufacturer is possible.

• It is recommended that the user keeps the instrument plugged in even when not in use.

Chapter 2 Basic Use

The basic operation process of the NV-200 is described in Fig. 2-1.

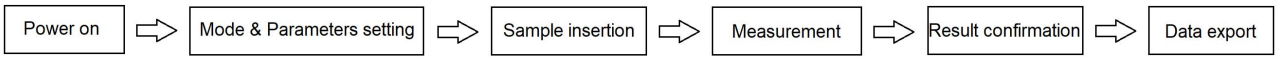


Fig. 2-1

Sample insertion of the two detection modes (Cuvette and Micro Volume Modes) are shown in Fig 2-2.

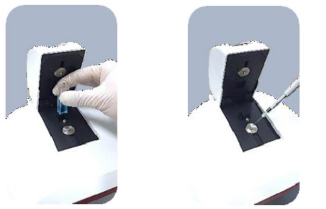


Fig. 2-2

2.1 Pedestal

Micro volume sample measurement includes the use of the Pedestal. The Pedestal has upper and lower pedestals. Targeted micro volume sample should be gently pipetted on the center top of the lower pedestal. T**he Black Block should always be inserted during the micro volume measurement**. The sample should be wiped off from both lower and upper pedestals with a dry and lint-free laboratory wipe after the measurement.

Procedure for Pedestal Cleaning

The brief process diagram is shown in Fig. 2-3.

Fig. 2-3

1. Open the upper cover of the instrument.
2. For standard cleaning, pipette 5 µl distilled water onto the lower pedestal.
   - Use 0.5M HCl instead of distilled water to clean dried proteins from the pedestal.
   - For decontamination, use a solution of 0.5% sodium hypochlorite (1:10 dilution) or other sanitizing solution instead. Then, repeat the process with distilled water.
3. Close the upper cover of the instrument and wait 3 minutes.
4. Open the upper cover of the instrument and wipe both the upper and lower pedestals with a dry and lint-free laboratory wipe.

Note: Do not use isopropyl alcohol or detergents for pedestal cleaning.

Procedure for Pedestal Reconditioning

1. Open the upper cover of the instrument.
2. Apply a tiny amount of the pedestal reconditioning compound to the surfaces of the upper and lower pedestals. Apply the compound in a very thin layer, making sure that it stays as even as possible.
3. Wait at least 30 seconds for the compound to dry completely.
4. Wipe away the compound with a clean, dry laboratory wipe. Make sure the compound is wiped away completely by rubbing the pedestal surfaces very thoroughly.

2.2 Cuvette

Cuvette measurement includes the use of a cuvette. The target sample should be prepared in a cuvette, and the cuvette should be gently inserted in the cuvette port for the measurement. **The lower pedestal should be covered by the Pedestal Cover during the cuvette measurement.** The direction of the light path during the measurement is indicated on the upper side of the port. The minimum volume of sample is 1 ml.

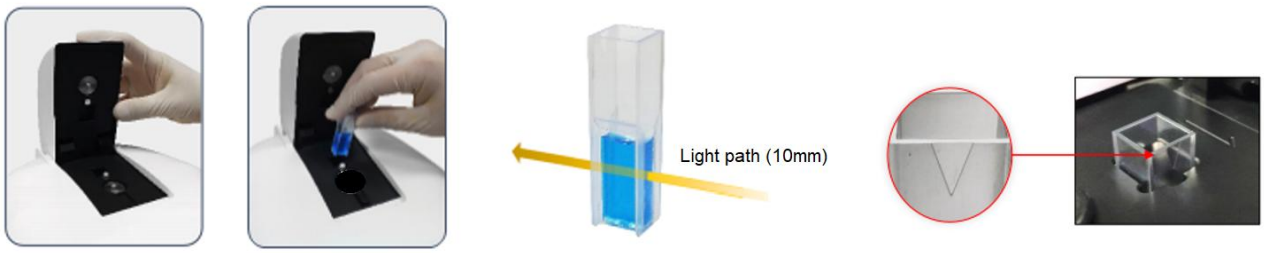


Fig. 2-4

Note: Make sure the V shape side is facing the same direction as the arrow on top.

Procedure for Cuvette Cleaning

1. Open the upper cover of the instrument.
2. Use a dry and lint-free laboratory wipe to wipe away any spills inside or around the cuvette port.
3. If there is excess lint or dust in or around the cuvette port, use air spray to clean out the cuvette port
4. Ensure cuvettes are clean and free of scratches before use.

Note: Do not squirt water or any other liquid into the cuvette port for cleaning.

2.3 Blank Calibration

Procedure for Blank Calibration of Micro Volume Measurement

1. Open the upper cover of the instrument.
2. Make sure the Black Block is inserted in the cuvette port.
3. Gently pipette the blank sample onto the lower pedestal and close the upper cover.
4. Touch the button “Blank” on the measurement interface to perform a blank calibration.
5. After completing the blank calibration, open the upper cover and wipe off the blank sample.

Procedure for Blank Calibration of Cuvette Measurement

1. Prepare the blank sample in a cuvette. The minimum volume of the sample is 1 ml.
2. Make sure the lower pedestal is covered with the Pedestal Cover.
3. Insert the cuvette in the cuvette port.
4. Touch the button “Blank” to perform blank calibration.
5. After completing the blank calibration, open the upper cover and remove the cuvette.

2.4 Keyboard

There is an internal keyboard function for the touch screen. However, users may prefer to use of their own keyboard and mouse by connecting them to the USB ports on the right side of the instrument. The keyboard (Fig. 2-5) will automatically open when any dialogue box (e.g. title) is touched. When the button “&123” that is located at the bottom left corner of the keyboard is touched, it will convert to the number and special symbols (Fig. 2-6). The keyboard can be minimised by touching the button “X” that is located at the upper right corner of the keyboard. The keyboard can be moved freely on the screnn.

Fig. 2-5

Fig. 2-6

Chapter 3 User Interface

3.1 Login

When the instrument is turned on, the Login interface will open as (Fig. 3-1) below. You can enter their ID, Password and select the button “Log In” to login, or you can login as a guest by selecting the button “Guest”, without entering the User ID and Password, for quick measurement.

Fig. 3-1

User ID	User ID of the account.
Password	Password of the account.
	Login as an account with specified ID.
	Login as a guest.

3.2 Main interface

When user login is selected, the main operation window will open as (Fig. 3-2). You can access any measurement interface from the main interface.

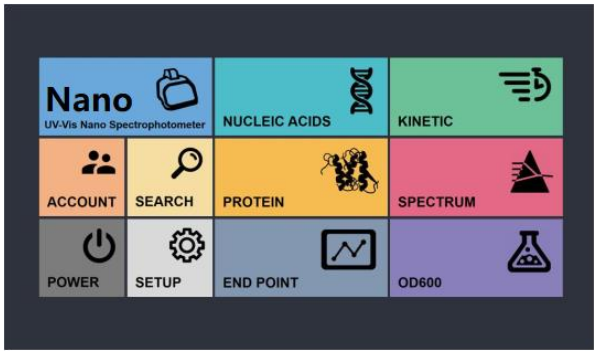


Fig. 3-2

NUCLEIC ACIDS	To enter Nucleic Acids measurement interface. (pg. 11)
PROTEIN	To open Protein menu. (pg. 12)
OD600	To enter OD600 measurement interface. (pg. 16)
END POINT	To enter End Point measurement interface. (pg. 16)
KINETIC	To enter Kinetic measurement interface. (pg. 17)
SPECTRUM	To enter Spectrum measurement interface. (pg. 17)
ACCOUNT	To open Account Settings window. (pg. 21)
SEARCH	To open Search window. (pg. 18)
SETUP	To open Setup window. (pg. 23)
POWER	To open Power Option window. (pg. 22)

3.3 Submenu

There are submenus located at the top of every measurement interface as (Fig. 3-3).

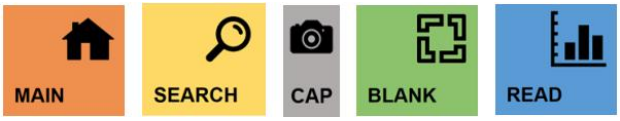


Fig. 3-3

MAIN	Return to the Main interface.
SEARCH	To open Search panel.
CAP	To capture current screen and save it in the USB Flash Drive if connected. (Refer to pg. 10)
BLANK	To perform blank calibration.
READ	To perform measurement according to the settings.

The button “Cap” is only used in the Nucleic Acids, Kinetics, Protein, and Spectrum interfaces. You may capture a screenshot of the screen by touching the button “Cap” in Nucleic Acids, Kinetic, Protein, Spectrum measurement interfaces, and save it as image files (.JPG) on a USB Flash Drive. The screenshot image files will be saved in the “Capture” folder.

Note: The USB Flash Drive must be plugged into one of the USB ports on the right side of the instrument before the capture operation.

3.4 Nucleic Acids Measurement

In the Nucleic Acids measurement interface (Fig. 3-4), you can measure nucleic acids samples. There are various options for Nucleic Acids measurement: dsDNA, ssDNA, RNA, and Oligo.

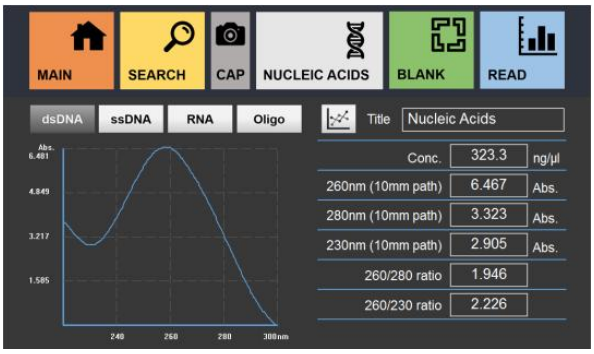


Fig. 3-4

dsDNA	To measure double-stranded DNA samples.
ssDNA	To measure single-stranded DNA samples.
RNA	To measure RNA samples.
Oligo	To measure Oligonucleotide samples.
	Overlay Button: To enter Overlay interface.
Title	Title of the measurement.
Conc.	Shows the concentration of the sample.
260nm (10mm path)	Shows the Abs. value at 260nm.
280nm (10mm path)	Shows the Abs. value at 280nm.
230nm (10mm path)	Shows the Abs. value at 230nm.
260/280 ratio	Shows the calculated ratio of Absorbance values at the wavelength of 260 and 280nm.
260/230 ratio	Shows the calculated ratio of Absorbance values at the wavelength of 260 and 230nm.

Procedure for Nucleic Acids Measurement

1. Enter Nucleic Acids measurement interface by touching the button “Nucleic Acid” in the Main interface.
2. Touch and select the measurement item required, dsDNA, ssDNA, RNA, and Oligo.
3. Input the title of the measurement.
4. Open the upper cover of the instrument.
5. Perform the blank calibration. (Refer to pg. 7)
6. Pipette microvolume of the target sample onto the lower pedestal and close the upper cover.
7. Touch the button “Read” to start the measurement.

8. Check the results on the screen. The resulting data will be saved automatically and can be searched in the search window.

Overlay with Nucleic Acids Measurement Results

Up to 5 results can be compared in the Overlay interface (Fig. 3-5). The Overlay interface is accessed by selecting the button "  " in the Nucleic Acids measurement interface. Follow procedure of Nucleic Acids measurement to proceed. Each measurement has different colors labeled for graph comparison. Each result will be saved individually, and multiple results can be loaded in the Search for comparison. You can return to the measurement interface by seelcting the button "  ".

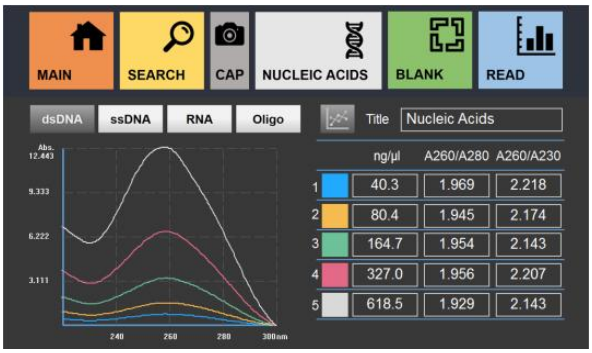


Fig. 3-5

3.5 Protein Measurement

In the main operation interface, select the button "Protein" to open Protein menu (Fig. 3-6). This allows choice and access to various measurement options: Bradford, Lowry, BCA, Biuret, others and Direct UV

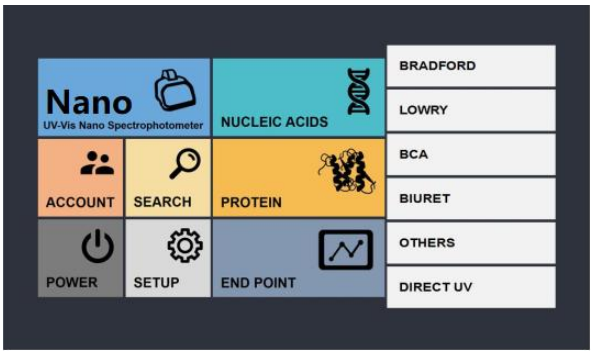


Fig. 3-6

To close the menu, just select the button "Protein", or select the button "Nano".

BRADFORD	To enter Bradford measurement interface. (pg. 143)
LOWRY	To enter Lowry measurement interface. (pg. 14)
BCA	To enter BCA measurement interface. (pg. 14)
BIURET	To enter Biuret measurement interface. (pg. 14)

OTHERS	To enter Others measurement interface, where you can set up the wavelength. (pg. 14)
DIRECT UV	To enter Direct UV measurement interface. (pg. 15)

3.5.1 Standard Curve

There is Standard Curve interface in Bradford, Lowry, BCA, Biuret, and Others under Protein measurement. It is necessary for the Standard Curve to be set before performing the measurements. Select the button “Standard Curve” to open the standard curve measurement interface (Fig. 3-7). Up to 5 concentration points of standard samples can be measured to generate the standard curve. However, the standard curve will be shown after completing measurements of 3 standard samples. you can also save, open, and reset the standard curve data by selecting the buttons “Open”, “Save”, and “Reset”

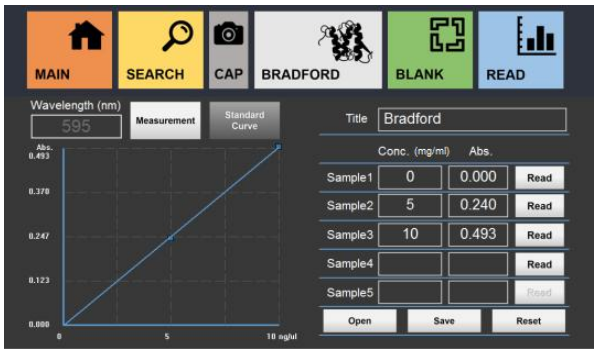


Fig. 3-7

Measurement	To enter the measurement interface. It is default when any protein measurement option is select.
Standard Curve	To open the standard curve interface for a standard curve setting. You can reset or load a standard curve for the measurement, or save current standard curve data.
Conc. (mg/ml)	The concentrations (mg/ml) of Sample 1 to Sample 5.
Read	To collect the measurement Abs. values of Sample 1 to Sample 5.
Abs.	Shows the Abs. values of Sample 1 to Sample 5.
Reset	Reset all the values in the standard curve interface.
Wavelength (nm)	Shows the wavelength of the current measurement.
Open	To open the saved standard curve data.
Save	To save the current standard curve data and its settings.

Procedure for Standard Curve Measurement

1. Prepare at least 3 standard samples with different concentration to produce a standard curve.
2. Calibrate the blank. (Refer to pg. 8)
3. Insert the target standard sample in a cuvette. (Minimum Volume: 1ml)
4. Touch the button “ Read ” to measure.
5. When the measurement is complete, remove the sample.
6. Repeat the steps 3-5, and measure at least 3 standard samples.

3.5.2 Bradford, Lowry, BCA, Biuret, and Others

Besides Direct UV, there are various options for protein sample measurement (Fig. 3-8 - Fig. 3-12): Bradford, Lowry, BCA, and Biuret with certain measurement wavelength, and Others with a wavelength option. They have almost the same operation steps. In those measurement interfaces, You should establish a standard curve before the sample measurement.

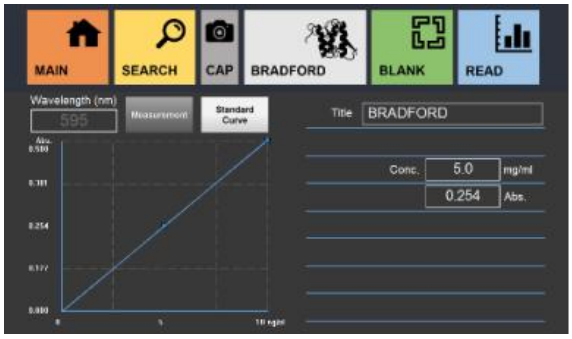


Fig. 3-8

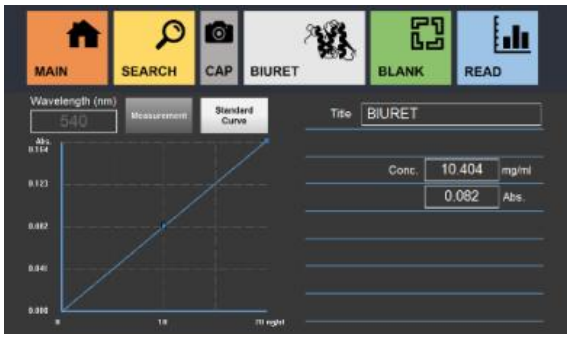


Fig. 3-9

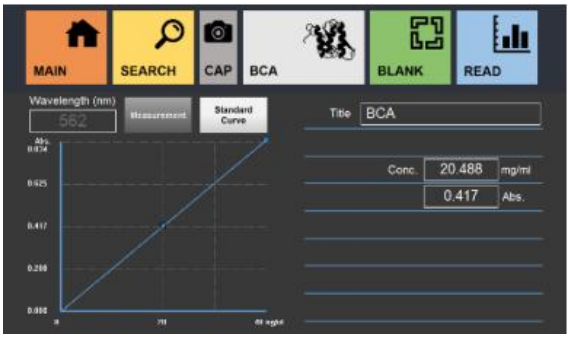


Fig. 3-10

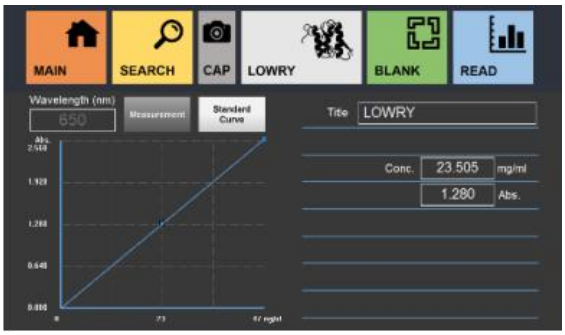


Fig. 3-11

Fig. 3-12

Title	Title of the measurement.
Conc.	Shows the concentration of the sample.
Abs.	Shows the Abs. value of the sample.
Wavelength	Shows the wavelength of the current measurement. (In Others, protein measurement interface, You can set the measurement wavelength)

Procedure for Protein Samples Measurement

1. Enter selected protein measurement interface through the protein menu.
2. Input the title of the measurement.
3. Calibrate the blank. (Refer to pg. 8)
   (In Others protein measurement, you should set the wavelength before calibrating the blank)
4. Produce the standard curve. (Refer to pg. 13)
5. Insert the target sample in a cuvette. (Minimum Volume: 1ml)
6. Select the button “Read” to start the measurement.
7. Check the results on the screen. The resulting data will be saved automatically and can be searched in the search window.

3.5.3 Direct UV

Direct UV measurement is based on the UV absorption properties of proteins. Unlike other protein sample measurements, the standard curve is not necessary for Direct UV measurement.

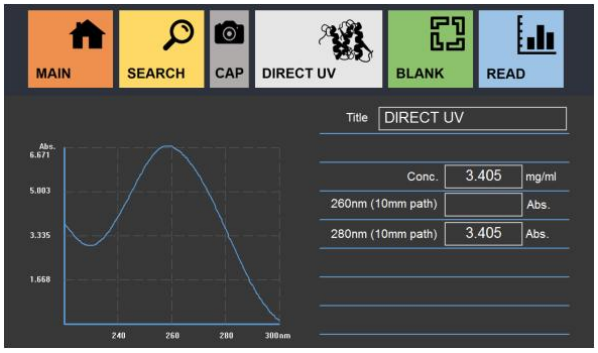


Fig. 3-13

Title	Title of the measurement.
Conc.	Shows the concentration of the sample.
260nm (10mm path)	Shows the Abs. value at 260nm.
280nm (10mm path)	Shows the Abs. value at 280nm.

Procedure for Direct UV Measurement

1. Select the Direct UV measurement interface (Fig. 3-13).
2. Input the title of the measurement.
3. Calibrate the blank. (Refer to pg. 7)
4. Pipette microvolume of the target sample onto the lower pedestal and close the upper cover.
5. Select the button “Read” to start the measurement.
6. Check the results on the screen. The resulting data will be saved automatically and can be searched in the search window.

3.6 End Point and OD600 Measurement

End Point and OD600 measurement is to perform spectrometry measurements on samples such as cell cultures.

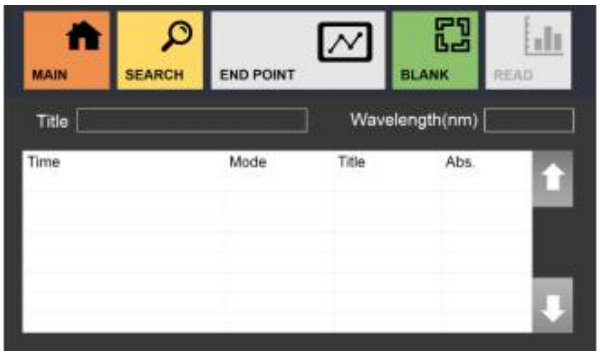


Fig. 3-14

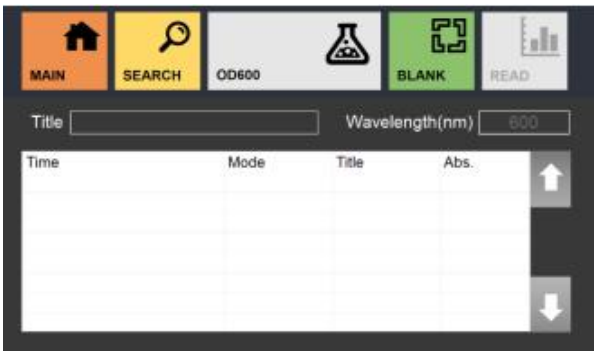


Fig. 3-15

Title	Title of the measurement.
Wavelength	Shows the wavelength of the current measurement. (In End Point measurement interface, user can set the measurement wavelength)
Time	Shows the list of measurement times.
Mode	Shows the list of detection mode of the measurements.
Title (in the data sheet)	Shows the list of measurement titles.
Abs.	Shows the list of measurement Abs. values.

Procedure for END Point and OD600 Measurement

1. Open END Point or OD600 measurement interface (Fig. 3-14 or Fig. 3-15).
2. Input the title of the measurement.
3. Calibrate the blank. (Refer to pg. 8)
   (In End Point interface, you should set the wavelength before calibrating the blank)
4. Insert the target sample in a cuvette. (Minimum Volume: 1ml)
5. Select the button “Read” to start the measurement.
6. Check the results on the screen. The resulting data will be saved automatically and can be searched in the search window.

3.7 Kinetic Measurement

Kinetic measurement is to perform multiple spectrometry measurements, on samples, at a specified wavelength over a selected time.

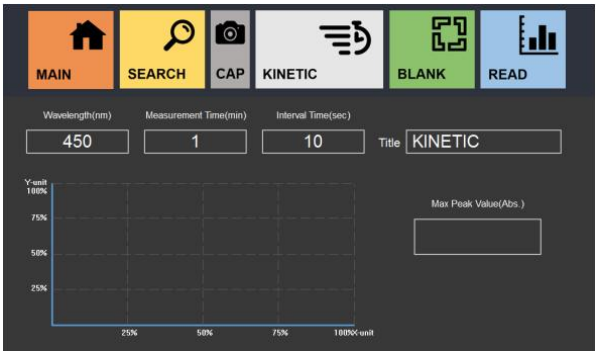


Fig. 3-16

Title	Title of the measurement.
Wavelength (nm)	Wavelength of the measurement between 200 - 1100 nm.
Measurement Time (min)	Total measurement time.
Interval Time (sec)	Interval time between detections.

Procedure for Kinetic Measurement

1. Select Kinetic measurement interface (Fig. 3-16).
2. Input the title of the measurement.
3. Set the wavelength, measurement time and interval time.You can calculate the detection amount by dividing measurement time with interval time and taking the integer as the result. (e.g. if the measurement time is set to 1 minute, and interval time is set to 9 seconds, then there will be a total of 6 detections.)
4. Calibrate the blank. (Refer to pg. 8)
5. Insert the target sample in a cuvette. (Minimum Volume: 1ml)
6. Select the button “Read” to start the measurement.
7. Check the results on the screen. The resulting data will be saved automatically and can be searched in the search window.

3.8 Spectrum Measurement

Spectrum measurement is to perform spectrometry measurements within a specified wavelength range.

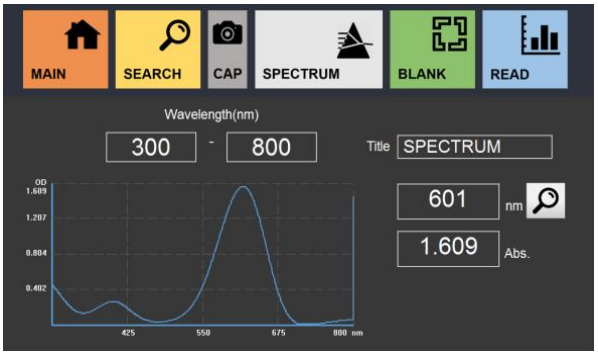


Fig. 3-17

Title	Title of the measurement.
Wavelength (nm)	Input the wavelength range.
	Search Abs value under the specified wavelength.

Procedure for Spectrum Measurement

1. Select the Spectrum measurement interface (Fig. 3-17).
2. Input the title of the measurement.
3. Set the wavelength range.
4. Calibrate the blank. (Refer to pg. 8)
5. Insert the target sample in a cuvette. (Minimum Volume: 1ml)

6. Select the button “Read” to start the measurement.
7. Check the results on the screen. The resulting data will be saved automatically and can be searched in the search window.

3.9 Search

Access the Search window from any measurement interface or the main interface. All the saved data can be searched in Search window. There are various options for search. Select the dates or choose the keywords of the title for the search.

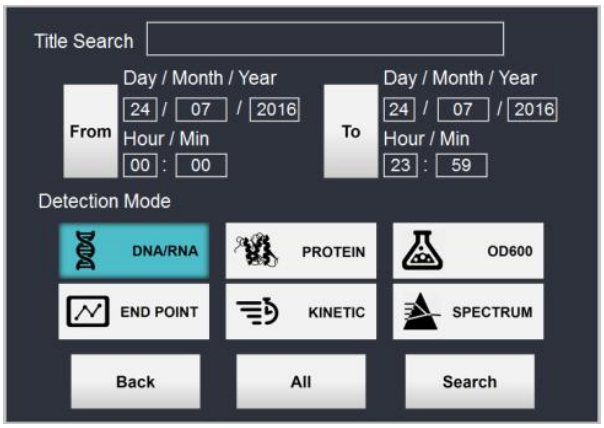


Fig. 3-18

Title Search	To find data under the title by matching keywords.
Date & Time	To find data under specified dates and times. You can load a calendar by touching buttons “From” and “To” and select the date.
Detection Mode	To find data under the selected detection mode.
Back	Go back to previous page.
All	To find all the data under the selected detection mode.
Search	To find all the data having properties of specified dates, title, and detection mode.

Search list window (Fig. 3-19) is accessible by touching the button “Search” or “All” in Search window. In this page, check the detailed information of data, edit their titles, delete the selected data, and transfer the data to a USB Flash Drive in FAT format. You can also select data to delete, or transfer, or check the overlay comparison between data. Selected data are checked. Select to check selected or all the data by touching the button “ ” on the left of required row or the top row in the page. Furthermore, you can go back to the previous search window and come back to deselect all the data in the entire list of searched data.

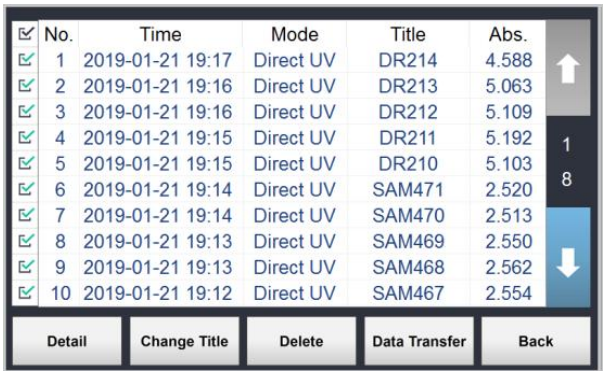


Fig. 3-19

Detail	To load detailed information of the selected data.
Change Title	Open a Change Title to change the title of the selected data.
Delete	Delete the selected data.
Data Transfer	Transfer the displayed list to USB Flash Drive. The USB Flash Drive must be in FAT format.
Back	Go back to previous page.
/	Select or deselect all the data on the page.

3.9.1 Overlay in Search

Up to 5 results can be compared in the Overlay window. It is opened by selecting multiple data from Nucleic Acids and Spectrum search list windows and selecting the button “Detail”. Each measurement has different color labele for graph comparison (Fig. 3-20, Fig. 3-21). In Spectrum Overlay window, the data must share the same wavelength.

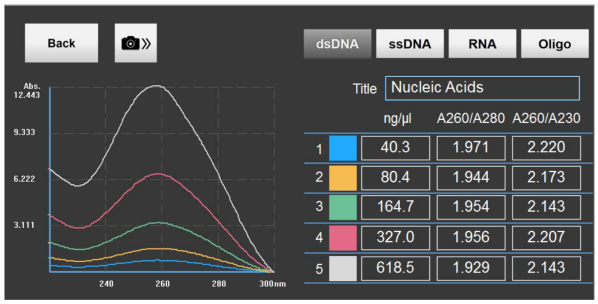


Fig. 3-20

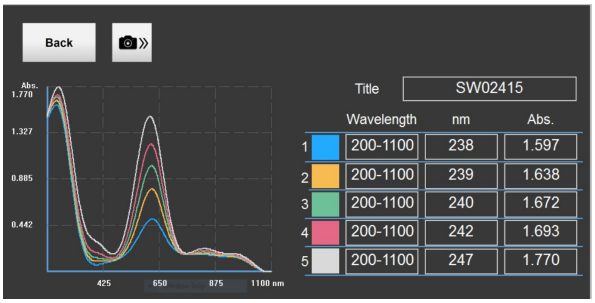


Fig. 3-21

Back	Go back to previous page.

3.9.2 Data Transfer

Selected data or entire data on the list can be saved as .csv (Microsoft Excel) file in USB Flash Drive by selecting “data Transfer” in the search list panel. For this process, a USB Flash Drive must be plugged into one of the USB ports on the right side of the instrument. The transferred files will be saved. Please refer to Fig. 3-24 on pg. 20 for detailed location of the files. Nucleic Acids, Kinetic, spectrum and Direct UV will include Raw Data for each measurement in Raw Data folders.

Procedure for Data Transfer

1. Plug a USB Flash Drive in one of the USB ports on the right side of the instrument.
2. Load files to be transferred in Search panel.
3. Select the data to be transferred on the search list. (Skip this step if you are transferring the entire data on the search list)
4. Select the button “Data transfer” to open the transfer option window (Fig. 3-22).
5. Select “All” to transfer all the data on the list or “Selection” to transfer the selected data.
6. Input a name for the transferred file (Fig. 3-23).
7. Find the files in main folder (Fig. 3-24). Each file will be titled as the name input during the process

Fig. 3-22

Fig. 3-23

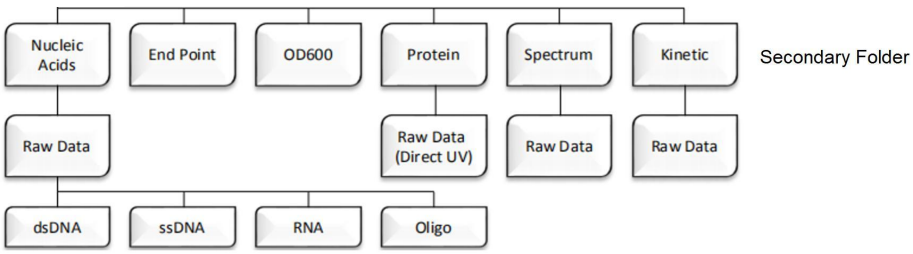


Fig. 3-24

	A	B	C	D	E	F	G
1	Transfer File Name : NUCLEIC ACIDS						
2	User : HanJae						
3	Mode : Nucleic Acids						
4							
5	Time	SubMode	Title	Conc.	260nm.	280nm.	230nm.
6	2016-07-24 19:27	RNA	RNA01	1.9	0.039	0.02	0.002
7	2016-07-24 19:27	dsDNA	dsDNA01	2.1	0.043	0.021	0.003
8	2016-07-24 19:28	ssDNA	ssDNA01	2.7	0.054	0.03	0.005

Nucleic Acids

	A	B	C	D
1	Transfer File Name : END POINT			
2	Mode : End Point			
3	User : HanJae			
4				
5	Time	Title	Waveleng	Abs.
6	2016-08-25 1:33	End Test C	600	0.278
7	2016-08-25 1:35	End Test C	567	0.548

End Point

	A	B	C	D
1	Transfer File Name : KINETIC			
2	Mode : Kinetic			
3	User : HanJae			
4				
5	Time	Title	Waveleng	Max Peak
6	2016-08-25 1:18	Kinetic Te	500	0.001
7	2016-08-25 1:20	Kinetic Te	500	0.282

Kinetic

	A	B	C
1	Transfer File Name : OD600		
2	Mode : OD600		
3	User : HanJae		
4			
5	Time	Title	Abs.
6	2016-08-25 1:35	OD Test 0	0.265
7	2016-08-25 1:38	OD Test 0	0.276
8	2016-08-25 1:39	OD Test 0	3.346

OD600

	A	B	C	D
1	Transfer File Name : SPECTRUM			
2	Mode : Spectrum			
3	User : HanJae			
4				
5	Time	Title	Waveleng	Max Peak
6	2016-08-25 1:31	Spec Test	250-500	0.183
7	2016-08-25 1:31	Spec Test	250-500	0.239

Spectrum

	A	B	C	D	E
1	Transfer File Name : PROTEIN				
2	Mode : Protein				
3	User : Master				
4					
5	Time	SubMode	Title	Conc.	Abs.
6	2016-08-26 2:55	Bradford	BRADFOR	1.003	19.6
7	2016-08-26 2:56	BCA	BCA	0.62	30.099

Protein

Fig. 3-25

3.10 Account Setting

Access the Account window by touching the button “account” in the main interface. In Account window, you can swap the current account, create a new account, edit the selected account, or delete the selected account (Fig. 3-26). Master account cannot be deleted. However, its password can be changed in the Setup window.

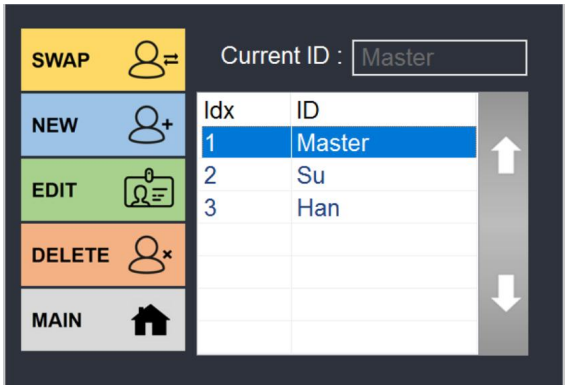


Fig. 3-26

Current ID	Shows ID of current login account.
SWAP	Swap between the current account to the selected account.
NEW	Create a new account.
EDIT	Edit ID and passwords of selected account.
DELETE	Delete the selected account.
MAIN	Return to the main interface.

3.11 Power Panel

Access the Power window (Fig. 3-27) by touching the button “Power” in the main interface. You can put the instrument in a sleep mode or turn off the system in Power window.

NOTE: IT IS VERY IMPORTANT to turn off the power by selecting the button “Off” in Power window after using the instrument. When it is completely shut down, turn off the power switch at the back of the instrument. If the power is forcibly turned off by the power switch without software shutdown, the recovery mode from the OS might occur during the reboot. You can select the screen design for the sleep mode. (Refer to pg. 25)

Fig. 3-27

SLEEP	To put the system in a sleep mode.
OFF	Turn off the system.
MAIN	Return to the main interface.

3.12 Setup

Access the Setup panel (Fig. 3-28) by selecting the button “Setup” in the main interface. You can set the time, update the interface, change Master Password, check System Information, and calibrate the instrument.

NOTE: Setup is not recommended for users to access and change features without manufacturer’s supervision.

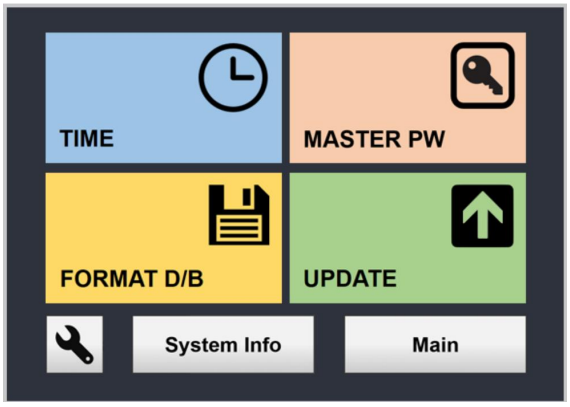


Fig. 3-28

TIME	Change the time in the system.
UPDATE	Update the interface.
FORMAT D/B	Delete all the data in the system, however, the accounts will remain.
Calibration	Adjust the setting of the system. **DO NOT CHANGE THE SETTINGS** without manufacturer's supervision.
MASTER PW	Change the master password.
System Info	Show the system information.

3.13 Time Setup

When using the device for the first time, set the time and date.

Setup window (Fig. 3-29) by selecting the button " TIME " in the Setup window. Insert the current time and date, then select the button "Okay" to save the settings.

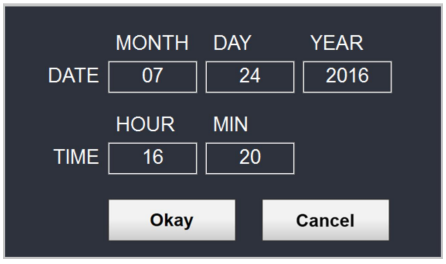


Fig. 3-29

3.14 Update

This chapter demonstrates how the UI can be updated.
Requirements (Fig. 3-30):

Instrument

Update File

USB Flash Drive

Fig. 3-30

Procedure for Update

1. Download the update file. (Make sure you extract the file if it is provided in a .zip file)
2. Create a folder in a USB Flash Drive.
3. Transfer the file to the folder.
4. Connect the USB Flash Drive to one of the USB ports on the right side of the instrument.
5. Select the button “Setup” in the main interface and open the setup window(Fig. 3-28).
6. Select the button “Format D/B ” to proceed with the data format. (Make sure the data is saved by retreiving the Data Transfer (refer to pg. 20))
7. Select the button “Update” to update the User Interface. It takes about 1 minute. DO NOT Turn off the instrument or try other functions in the user interface during the update.
8. The User Interface will automatically restart in the new version.

3.15 Calibration

The system uses standard path lengths to measure the sample’s optical density on the pedestal or through a cuvette. In case of an OD value increase due to various issues, the OD values can be adjusted. It is not recommended for users to make such changes, but they are nonetheless available when such functionality is necessary.

Procedure for Calibration

1. Open the Setup window (Fig. 3-28) by selecting the button “Setup” in the main interface.
2. Select the button “” at the left bottom corner to open the Calibration window (Fig. 3-31).
   NOTE: Users must login as Administrator to gain access to the Calibration panel.
3. Microvolume OD values can be adjusted in the box under Nano, and Cuvette OD values can be adjusted in the box under Cuvette.

4. These values can be adjusted from -1000 to 1000 and adjustment of 1 unit corresponds to OD value of 0.001.
5. For instance, to increase the OD value by 0.01, input 10 in the value field, and to decrease the OD value by 0.05, input -5 in the value field, then select the button “Okay”.

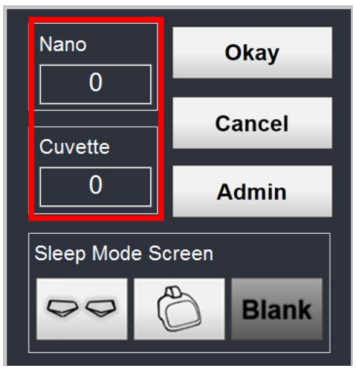


Fig. 3-31

3.16 Sleep Mode Screen Selection

The display can be changed during Sleep Mode. There are 3 designs: The Eyes, The Instrument, and Blank (Fig. 3-32).

Fig. 3-32

Procedure for Sleep Mode Screen Selection

1. Open the Setup panel (Fig. 3-28) by selecting the button “Setup” in the main interface.
2. Select the button “” at the left bottom corner to open the Calibration panel (Fig. 3-31).
3. Select the sleep mode screen of your choice and select the button “Okay”.

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