Dynamica

HALO XB-10/VIS-20 /BIOmaster

Instruction manual

Accessories for Model HALO XB-10/VIS-20/BIOmaster UV-VIS Spectrophotometer

Revision : D01-201407

XB-10/BIOmaster/VIS-20/ENVmaster Spectrophotometer

Thank you for your purchase of Dynamica XB-10/BIOmaster/VIS-20/ENVmaster spectrophotometer. In order to ensure proper use and your safety, please read this manual carefully and keep it well before using the instrument.

Information contained in this manual is subject to change without notice for product appearance and technical data. Enquiries are welcome.

IMPORTANT

Precautions on Electromagnetic Wave Interference

（1）Possible Electromagnetic Wave Interference Caused by This Instrument

When this instrument is used in a residential area or an adjacent area thereto, it may cause interference to radio and television reception.

To prevent this, use the specified system connection cables in strict accordance with the instruction manual.

The instrument is designed to minimize possible electromagnetic wave interference caused by it if the specified cables are connected properly.

However, there is no guarantee that electromagnetic wave interference will not be caused by the instrument.

If the instrument does cause interference to radio or television reception, which can be determined by turning off and on the instrument, the user is encouraged to try to correct the interference by one or more of the following measures:

- Increase separation between the instrument and radio/TV receiver.
- Connect the instrument to an outlet on a circuit different from that to which the radio/TV receiver is connected.

（2）Possible Electromagnetic Wave Interference Affecting This Instrument

If this instrument is used near an intense electromagnetic source, interference noise may be given to the instrument to incur an adverse effect on its performance or functionality.

To prevent this, use the specified system connection cables in strict accordance with the instruction manual.

The instrument is designed to minimize possible electromagnetic wave interference affecting it if the specified cables are connected properly.

However, there is no guarantee that electromagnetic wave interference will not occur in this instrument.

If the instrument does incur electromagnetic wave interference, which can be determined by turning on and off possible sources of electromagnetic wave interference nearby, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the instrument.
- Increase separation between the instrument and possible sources of electromagnetic wave interference.
- Increase separation between the power cable of the instrument and possible sources of electromagnetic wave interference.
- Connect the instrument to an outlet on a circuit different from that to which

possible sources of electromagnetic wave interference are connected.

- Confirm that any other device connected with the instrument is not affected by electromagnetic wave interference.

Warranty on Product

The Model XB-10/BIOmaster/VIS-20/ENVmaster spectrophotometer is warranted to operate according to the specifications given in the instruction manual, provided it is used in accordance with the instructions described in the manual.

（1）Scope of Warranty

(a) Any parts which prove to be defective in design or workmanship during the warranty period will be repaired without charge.

(b) A substitute part may be used for repair, or replacement with an equivalent product may be made instead of repair.

(c) Such system components as a personal computer and printer to be updated frequently for improvement may not be available in original versions at the time of replacement.

（2）Warranty Period

One year from the date of initial installation.

（3）Availability of Technical Support Service

Technical support service for this instrument is available within regular working hours on workdays predetermined by us.

（4）Limitations and Exclusions on Warranty

Note that this warranty is void in the following cases, even if they occur within the warranty period.

(a) Failure due to operation at a place not meeting the installation requirements specified by us

(b) Failure due to power supply voltage/frequency other than specified by us or due to abnormality in power supply

(c) Corrosion or deterioration of the tubing due to impurities contained in reagent, gas, air or cooling water supplied by the user

(d) Corrosion of the electric circuits or deterioration of the optical elements due to highly corrosive atmospheric gas

(e) Failure due to use of hardware, software or spare parts other than supplied by us

(f) Failure due to improper handling or maintenance by the user

(g) Failure due to maintenance or repair by a service agent not approved or authorized by us

(h) After disposal of this instrument, or after its resale without our approval

(i) Failure due to relocation or transport after initial installation

(j) Failure due to disassembly, modification or relocation not approved by us

(k) Consumables, and failure of parts that have reached the end of specified useful life

(l) Failure of parts excluded from the warranty in the instruction manual or other documents

(m) Failure due to acts of God, including fire, earthquake, storm, lightning, social disturbance, riot, crime, insurrection, war (declared or undeclared), radioactive pollution, contamination with harmful substances, etc.

(n) Failure of the hardware, or damage to the system software, application software, data or hard disk due to computer virus infection

(o) Failure of the personal computer connected with the instrument, or damage to the system software, application software, data or hard disk due to power interruption or momentary power voltage drop caused by lightning or the like

(p) Failure of the personal computer connected with the instrument, or damage to the system software, application software, data or hard disk due to disconnection of main power to the personal computer without taking the specified normal shutdown procedure

（5）Disclaimer of Warranty

(a) Any express warranties other than the explicit conditions indicated in (1) are excluded from this warranty.

(b) Any other implied warranties of merchantability and fitness for a particular purpose are not included in this warranty. No liability is assumed for direct or indirect damages arising out of explicit or implied warranties.

(c) Oral or written information or advice given by our dealers, distributors, agents or employees without our express permission shall not create a warranty or in any way increase the scope of this warranty.

Installation, Relocation and After-sale Technical Service

Installation of this instrument shall be carried out by or under supervision of qualified service personnel of Techcomp or its authorized service agent.

Before installation of the instrument, the user shall make preparations for satisfying the installation requirements in accordance with the instruction manual.

If relocation of the instrument becomes necessary after initial installation (delivery), please notify your local sales representative or nearest service office of Dynamica.

Disposal this instrument

When you discard equipment, please check and discard a related statute etc. or ask the service section of Dynamica.

Other Precautions

（1）Handling of Chemicals and Samples

(a)The user is responsible for following relevant legal standards and regulations in handling, storage and discarding of chemicals and samples used in analytical operations of this instrument.

(b) Reagents, standard solutions and accuracy-control samples shall be handled, stored and discarded as instructed by the respective suppliers.

（2）Notice on Instruction Manuals

(a)Information contained in the instruction manuals furnished with the instrument is subjected to change without notice for product improvement.

SAFETY SUMMARY

CAUTION

For your safety please read the following precautions carefully before using the instrument.

General Safety Guidelines

- For safe handling of this product, please follow the instruction procedure in the manual for this product.
- Pay special attention to follow all the hazard warnings on the product and in the manual. Failure to do so can cause injury to you or damage to the product.
- After installation, please do not move the equipment. A vibration might affect the adjustment of the product.
- The hazard warnings, which appear on the warning labels on the product or in the manual, have one of the following alert headings consisting of an alert symbol and a signal word, DANGER, WARNING, or CAUTION.

DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. (It does not apply to this equipment.)

WARNING: Indicates a potentially hazardous situation that, if not avoided, can result in death or series injury.

CAUTION: Indicates a hazardous situation that, if not avoided, will or can result in minor to moderate injury, or serious damage to the product.

: The alert symbol shown precedes every signal word for hazard warnings, and appears in safety related descriptions in the manual.

In addition, the following “Attention” and “Note” are not directly related to the safety of a person:

△ Attention: It is used to present warnings, which are not directly related to personal injury hazards. It is used to indicate prevention against damage to the equipment.

◇ Note: This is used to indicate instructions that enable you to operate the equipment accurately and perform accurate measurements.

SAFETY SUMMARY (Continued)

General Safety Guidelines (Continued)

Before using

- Before using this product, please make sure you read and understand the instructions.
- Please keep this manual in a safe and easily accessible place so that you can use it when necessary.
- Please make sure to use this product properly and follow the instructions as specified in this manual.
- Please make sure to understand and follow the instructions regarding safety in this manual.
- If you do not follow the instructions in this manual, an inaccurate analysis may result or bodily injury may occur.
- Because of danger, please make sure not to modify or alter the product, make sure not to use unspecified parts, and make sure not to operate the equipment by removing/defeating the safety device(s).
- When using chemicals, please make sure to ventilate the room well. If there is not enough ventilation, it may be hazardous to your health.
- Although we have carefully considered the instructions written on the products and manuals, it is possible for an unexpected event to occur. When operating the equipment, aside from following the instructions, be very cautious.

SAFETY SUMMARY (Continued)

General Safety Guidelines (Continued)

Precautions for Installation • Maintenance • Relocation and After Sale Technical Service

- Before installation, confirm that there are no missing items or standard accessories. If there is something missing or damaged, or you have noticed any problems, please contact our nearest representative.

- Operating the equipment without a standard part can damage the equipment and cause safety concerns. If that occurs, please follow the instruction of the installer.

- Installation of this instrument shall be carried out by or under supervisions of qualified service personnel of Dynamica or its authorized service agent.

- When relocation of this instrument becomes necessary after initial installation (delivery), please notify your local Dynamica sales representative or nearest Dynamica service office. Technical support service for this instrument is available from service agent approved or authorized by Dynamica within regular working hours or workdays.

- Please do not perform any other operations that are not included in the manual. If any problem occurs with the equipment, please contact the agent from whom you purchased it or the service department of Dynamica.

SAFETY SUMMARY (Continued)

⚠ WARNING: Poisoning from Organic Solvent Gas

Handling Organic Solvents

- The organic solvent vapor may be harmful to your health.

⚠ WARNING: Eye Injury from Organic Solvents

Handling Organic Solvents

- Please wear protective glasses when using organic solvents. If the organic solvent should get into your eye, flush your eye immediately under running water for at least 5 minutes while keeping your eyelids open. See a physician for appropriate treatment.

SAFETY SUMMARY (Continued)

WARNING: Electrical Shocks from Improper Grounding

- When wiring the personal computer, power supply for the thermostatic cell holder and the like, please make sure to use the 3-prong wire (with ground) provided.

WARNING：Electrical Shock from Contact

- High voltage is used inside of the equipment, be sure to turn off the unit before connecting the power cord.

CAUTION: Burns from high Temperature

- The lamp will become very hot during operation.
- Make sure that the instrument is switch off, the power cord is pulled off and the D2 lamp and the tungsten lamp is cooled off when replacing the lamp.

CAUTION： Fatigue due to Prolonged Work

- Viewing the display in your work can cause eye and physical fatigue if you continue to work in the same posture for extended periods.
- When working with the display for a prolonged period, for your health, make sure to take breaks for 10 to 15 minutes every hour in order to rest your eyes and body.

CAUTION：Indoor ventilation

- If using UV zero detection system in a small room for a long time, it may cause indoor nitrogen concentration increases and the oxygen concentration drops, which will affect human health.

Please install exhaust fan or open the windows frequently to maintain good indoor ventilation.

SAFETY SUMMARY (Continued)

Electricity

(a) The voltage for the Spectrophotometer system and personal computer must be a single-phase AC 100V to 240V; Variations in the voltage and noise generated in the power line will cause adverse effects on the spectrophotometer and may also cause accidents.

(b) Please make sure that grounding is provided together with the power supply wires, and make sure that it is connected with a grounding resistance of less than 4Ω. Defective grounding may not only cause lower resistance against noise from the outside but it can also cause the Mass Spectrometer and personal computer to generate static electricity, which may involve the danger of electrical shocks.

(c) A high voltage circuit is used inside the Spectrophotometer. Do not open the covers when this circuit is operational because of the danger from electrical shock.

Fire Extinguishers

(a) Do not smoke or use fire within 3 meters of the Spectrophotometer

(b) Make sure to keep a fire extinguisher near the Spectrophotometer at all times. Obtain an ABC Powder extinguisher that can be used for normal fires, oil fires, and electrical fires.

Functional characteristics

This series instrument includes 4 model number spectrophotometers. Model VIS-20 is traditonal visible spectrophotometer, ENVmaster is enhancement type spectrophotometer with method invocation mode, XB-10 is traditonal UV-VIS spectrophotometer, BIOmaster is UV-VIS spectrophotometer only for nucleic acid and protein detection.

Feature

Small and beautiful appearance	4.3 inches, 480×272 resolution, TFT colorful liquid crystal touch display screen size: like A3 paper, 400(w)×280(d)×160(h) mm weight: 4 kg
Easy operation	One-button operation interface into the measurement function High-speed wavelength wave, arrive to any specified wavelength within 1 second For VIS-20/EVNmaster spectrophotometer, when sampling interval 为is 0.2nm, its scanning speed is 2400nm/min Unique application method manager changes the original function-oriented operation method and user sample measurement method operation mode.
Energy saving and environmental protection	High conversion efficiency switching power supply, 100~240VAC voltage input, and complete riddance of low grid voltage VIS-20/EVNmaster spectrophotometer uses 2000 hours lifetime imported halogen lamp XB-10/BIOmaster spectrophotometer uses low-power, high brightness and 10^9 times lifetime pulses xenon lamp
More ports	Serial printer port connects thermal printer USB port connects PC SD card port saves data and measurement methods Options port connects and controls several options
More options	Auto 5-cell holder Auto sample sipper Flow cuvette holder Rectangular long-path cuvette holder, put 10,20, 30, 50, 100mm cuvette holder 100uL micro-cuvette holder Tube holder（only for VIS-20/ENVmaster） Electronic thermostat TC cuvette holder（only for XB-10/BIOmaster）

Appearance

Keypad

Though the instrument uses touch display screen, all operation will be acheived by touch screen. The purpose of setting the two shortcut key is to make easy operation.

BACK. Return to the previous menu.

MEASURE. Begin to a new measurement.

Operation environment

Power	Voltage: AC 100V～240V, Frequency :50/60Hz±1Hz, Capacity: more than 200W Grounding line resistance of 10Ω or less is required The input power mutations, without interference from other large electrical equipment
Operating temperature	5~35 Deg C In order to perform a measurement under the most stable condition, we recommend that the instrument is used in an air conditioned room of 20 ~ 25 Deg C. Storage temperature:－20～55 Deg C
Operating humidity	Less than 85%. Because it is optical equipment, in order to ensure it in good working condition, we recommend that the instrument is used under 30%～70% humidity. Storage humidity: less than 85%。
Workbench	Width: more than 550mm, Depth: more than 400mm, Load bearing: more than 15kg, horizontal and reliable workbench. If there are other auxiliary devices, it is necessary to enlarge workbench area. More than 200mm space at the both sides of the instrument, avoid being close to the wall. Height of the instrument: about 160mm. In order to easy operation, please choose suitable workbench.
Connect with other equipment	Connect with PC（additional optional software and computer）. Indirect specify type thermal printer（options）and other accessories. When main unit connects with above equipments, please swithch off the power of the main unit and other equipments. All grounding cords are in good condition and can be connected with the grounding line of the main unit.

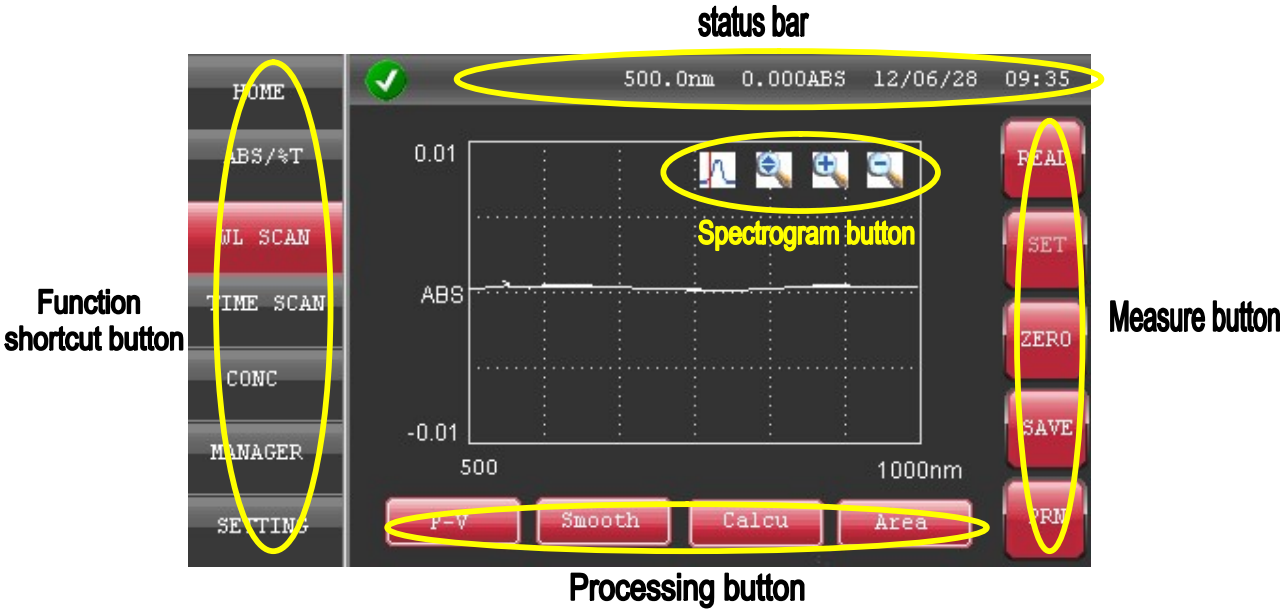
Specification (I)

VIS-20/ENVmaster	
Wavelength range	320～1100nm
Wavelength controlled variable	0.2nm
Wavelength accuracy	±1nm
Wavelength repeatability	≤0.5nm
Transmittance accuracy	±0.5％T（NIST 930 Filter）
Transmittance repeatability	0.2％T
Baseline flatness	±0.002Abs（330～1090nm）
Noise level	≤0.0008Abs（500nm）
Baseline stability	≤0.0008Abs/h（500nm, 2 hours after power on）
Spectral bandwidth	6nm±1.2nm
Stray light	≤0.3％T
Wavelength scan speed	2400nm/min （0.2nm sampling interval, without filter switchover）
Wavelength move speed	To any specified position within 1 second
Light source	WI lamp
Detector	silicon photodiode
Display screen	4.3 inches, 480×272 colorful touch LCD screen
Printer	specified 80-column thermal printer（series port）
Metering mode	Single beam
Dimension	400（W）×280（D）×160（H）mm
Weight	About 4 kg
Power requirement	100~240V，（50/60Hz）
Power consumption	100VA（100V～240V，50/60Hz）

Specification（II)

XB-10/BIOmaster	
Wavelength range	190～1000nm
Wavelength controlled variable	0.2nm
Wavelength accuracy	±2nm
Wavelength repeatability	≤1nm
Transmittance accuracy	±1％T（NIST 930 Filter）
Transmittance repeatability	0.5％T
Baseline flatness	±0.005Abs（200～990nm）
Noise level	≤0.005Abs（250nm 处）
Baseline stability	≤0.005Abs/h（250nm, 2 hours after light on）
Spectral bandwidth	5nm±1nm
Stray light	≤0.5％T
Wavelength scan speed	300nm/min （0.2nm sampling interval, without filter switchover）
Wavelength move speed	To any specified position within 1 second
Light source	pulsed-xenon lamp
Detector	silicon photodiode
Display screen	4.3 inches, 480×272 colorful touch LCD screen
Printer	specified 80-column thermal printer（series port）
Metering mode	Single beam
Dimension	400（W）×280（D）×160（H）mm
Weight	About 4 kg
Power requirement	100~240V，（50/60Hz）
Power consumption	100VA（100V～240V，50/60Hz）

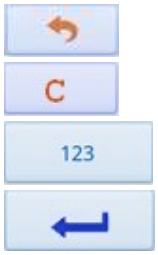
The operation interface



Function shortcut button	These buttons appear on every interface and can quickly switch to different measurement functions.
Measure button	These buttons appear on every measure interface. Measure basic operation.
Processing button	These buttons appear on scan interface. For the results of the scan data processing and according to different scaning characteristic, automatically varycorresponding processing ways.
Spectrogram button	These buttons appear on scan interface. For the results of spectrogram processing.
Status bar	These buttons appear on every interface. Show current time, wavelength and vaule（transmission or absorbance）. Click wavelength in the status bar, it will pop a digital input interface, then set up wavelength to achevie GOTO λ function. Click value in the status bar, it will pop a big font measure interface to achieve simpletransmittance and absorbance read function. The value in the status bar of VIS-20/ENVmaster spectrophotometer is real-time reading value of current wavelength. The value in the status bar of XB-10/BIOmaster spectrophotometer is the last time measured value.

Word input keypad

This keypad appears at the area where can input word, for example, sample name, user and document name.



BACK	close word input keypad
CLEAR	clear incorrect word
Word switchover	majuscule, lowercase, digit and sign
Enter	ensure input word

Digit input keypad

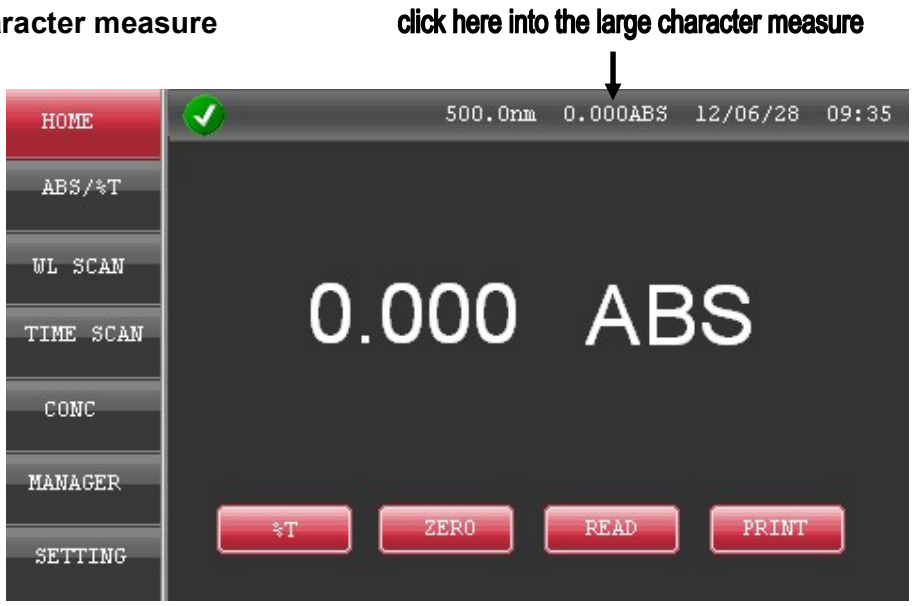
This keypad appears at the area where can input digit, for example, wavelength value and scanning time.

Main interface

Click icon into the corresponding measure interface

ABS/%T	wavelength photometric
WL SCAN	wavelength scanning
TIME SCAN	time scanning
CONC	concentration regression
MANAGER	measure method manger including data-saving（except VIS-20）
SETTING	parameter setting

Large character measure



This interface is used to measure single wavelength's absorbance or transmission. In any interface （non-execution of measure in the interface）, click value in the status bar into the large character measure.

%T button absorbance or transmission mode

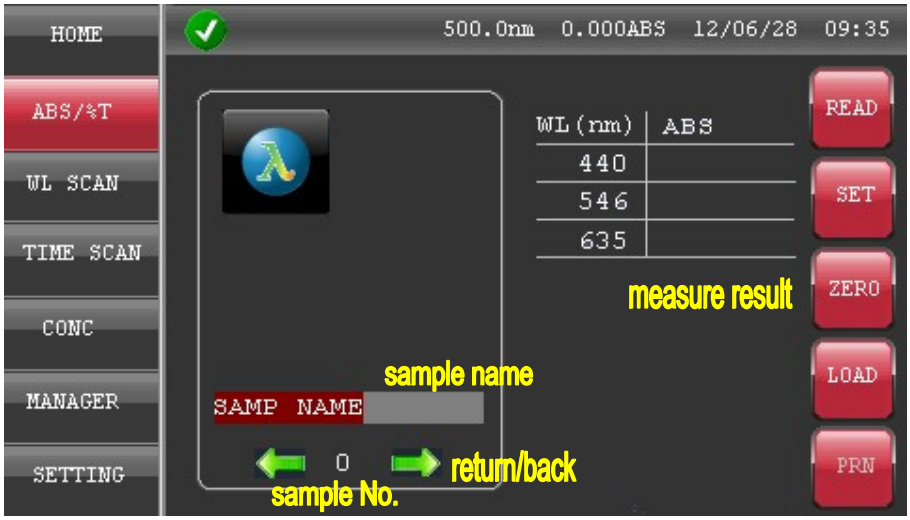
ZERO button zero absorbance（blank sample）

PRINT button print data

READ button only for XB-10/BIOmaster spectrophotometer, to start a new measure

In any interface（non-execution of measure in the interface）, click wavelength in the status bar, input wavelength, the instrument will move to the target wavelength.（GOTO λ function）

ABS/%T given wavelength photometric measure



The interface is used to measure specified wavelength's absorbance or transmission. The wavelength value is less than 6. Each measure document includes 200 (maximum) measure results.

Measure buttons

READ begin to measure

SET parameter setting

ZERO zero absorbance（blank sample）

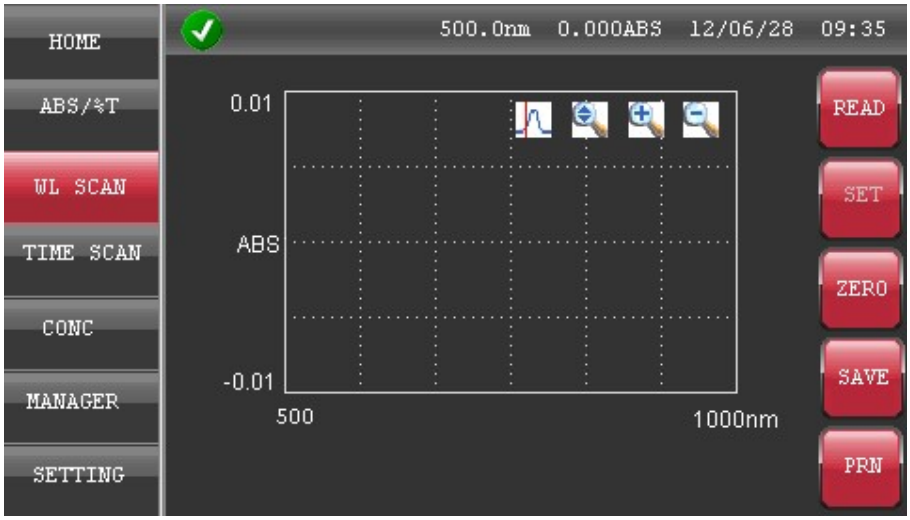
LOAD load original measure results or measure method document

PRN print data

ABS/%T given wavelength photometric parameter setting

DATA MODE	mode setting, including %T or ABS
PATHLENGTH	cuvette optical length, it can print, but cannot regulate absorbance value
SAMPLE NAME	sample name, less than 8 characters
WL NUMBER	wavelength quantity, less than 6
WL1~WL6	wavelength, wavelength value allow not sort
OK	finish parameter setting, back to measure interface automatically
Save	save parameter

Wavelength Scan



The interface is used to do wavelength scan measure of sample. It can scan the sample transmission, absorbance and the change between energy and wavelength (the purpose of energy scan is to judge the instrument current status）.

Functions: the peak value judge, smooth and constant computing, peak area calculation, spectrogram data point cursor tracking, spectrogram automatic and manual zoom of the scan results.

Measure buttons

READ begin to measure

SET parameter setting

ZERO zero baseline (blank sample)

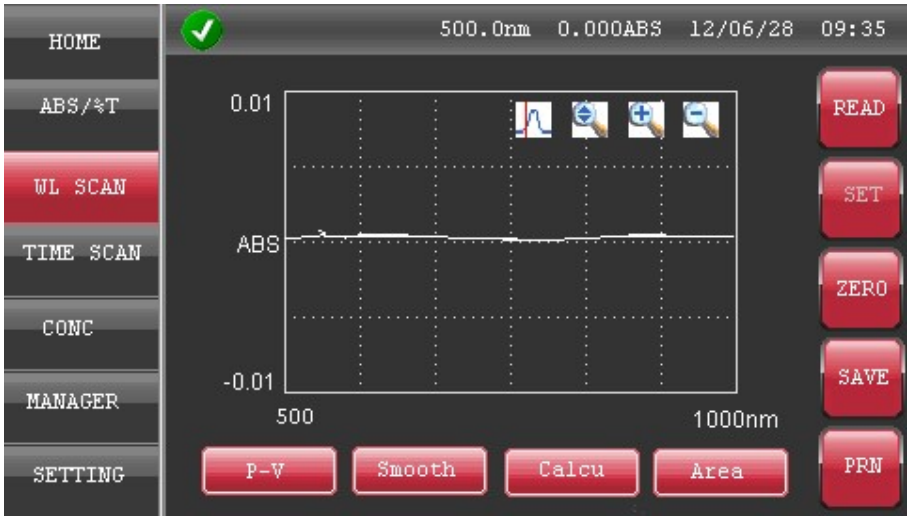
LOAD load original measure results or measure method document

PRN print data

Wavelength scan parameter setting

DATA MODE	mode setting, including %T or ABS
SAMPLE NAME	sample name, less than 8 characters
PEAK THRESHOL	sentenced peak threshold setting, the longitudinal axis is greater than the threshold value, the peak is displayed
START WL(nm)	scan initiative wavelength
END WL(nm)	scan end wavelength. The large wavelength values will automatically adjust to the wavelength end position
INTERVAL(nm)	scan interval. AUTO, 0.2nm, 0.5nm, 1nm, 2nm, 5nm. AUTO interval, when scan range is less than 500nm and time interval is 0.5nm. When scan range is more than 500nm and time interval is 1nm. Peak value judge, large wavelength interval adapts to judging flat peak, small one adapts to judge keen-edged peak.
Y-MAX	ordinate ceiling of spectrogram
Y-MIN	ordinate low of spectrogram, the instrument will automatically adjust the small value to the ordinate low position.
PATHLENGTH	cuvette optical length, it can print, but cannot regulate absorbance value
OK	finish parameter setting, back to measure interface automatically
Save	save parameter

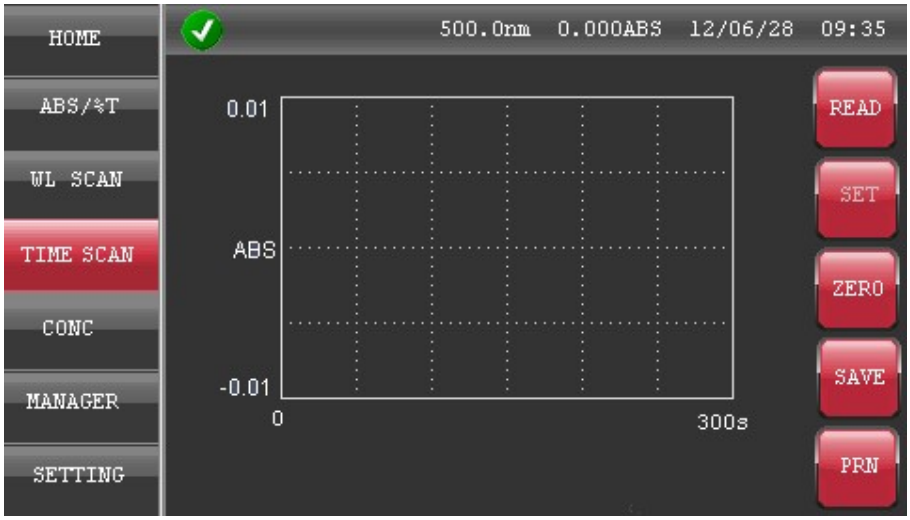
Wavelength scan results and data processing



Data processing buttons

P-V	peak value list button, according to the parameter setting threshold, show peak value larger than threshold
Smooth	Smooth function. Smooth the spectrogram, less than 6 smoothness
Calcu	Calculation function. Addition, subtraction, multiplication and division
Area	Peak area calculation function. According to the setting wavelength range, calculate peak area
	Digit tracking button. Show wavelength and value
	Automatic scaling button. According to measured value, adjust longitudinal coordinates to the proper range
	Spectrogram enlargement button. Zoom 15%
	Spectrogram diminution button. Reduce 15%

Time scan

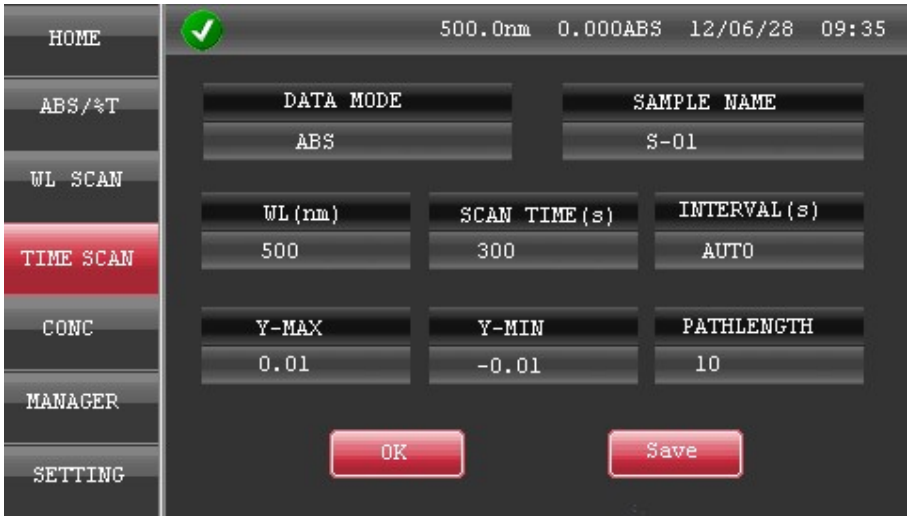


This interface is used to do time scan measure of sample under specified wavelength. It can scan the sample transmission, absorbance and the time.
Functions: dynamics calculation, smooth and constant computing, peak area calculation, spectrogram data point cursor tracking, spectrogram automatic and manual zoom of the scan results.

Measure buttons

READ	begin to measure
SET	parameter setting
ZERO	zero baseline (blank sample)
LOAD	load original measure results or measure method document
PRN	print data

TIME scan parameter setting



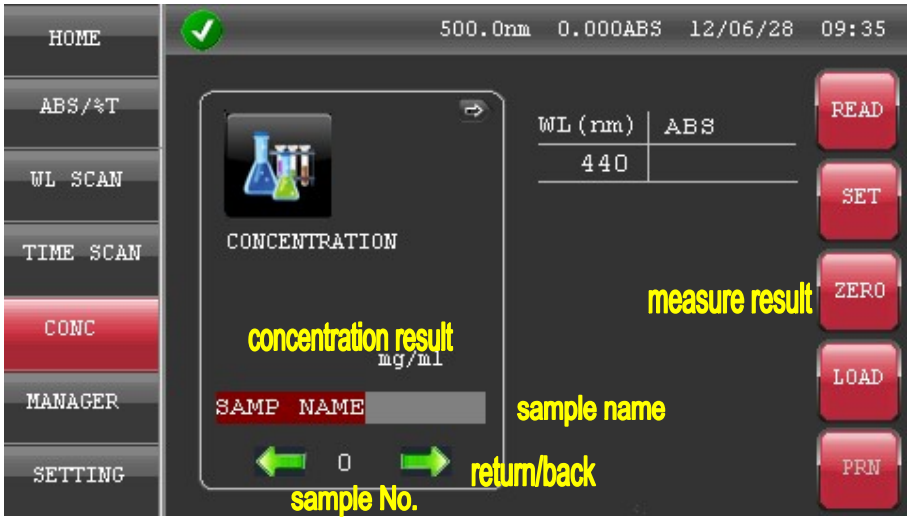
DATA MODE	mode setting, including %T or ABS
SAMPLE NAME	sample name, less than 8 characters
WL(nm)	scanning wavelength
SCAN TIME(s)	scan time. (unit: s). more than 60s, max: 60000s
INTERVAL(s)	scan interval. AUTO, 0.5s, 1s, 2s, 5s, 10s, 100s. AUTO interval, when scan time is less than 1000s, scan interval is 1s. When scan time is 1000-2000s, scan interval is 2s. When scan time is 5000-20000s, scan interval is 10s. When scan time is more than 20000s, scan interval is 100s.
Y-MAX	ordinate ceiling of spectrogram
Y-MIN	ordinate low of spectrogram, the instrument will automatically adjust the small value to the ordinate low position.
PATHLENGTH	cuvette optical length, it can print, but cannot regulate absorbance value
OK	finish parameter setting, back to measure interface automatically
Save	save parameter (SD card)

TIME scan results and data processing

Data processing buttons

Kinetics	Dynamics calculation function. According to setting time range, make dynamics calculation
Smooth	Smooth function. Make of spectrogram smooth processing
Calcu	Calculation function. Addition, subtraction, multiplication and division
Area	Peak area calculation function. According to the setting wavelength range, calculate peak area
	Digit tracking button. Show wavelength and value
	Automatic scaling button. According to measured value, adjust longitudinal coordinates to the proper range
	Spectrogram enlargement button. Zoom 15%
	Spectrogram diminution button. Reduce 15%

CONC concentration regression and measure

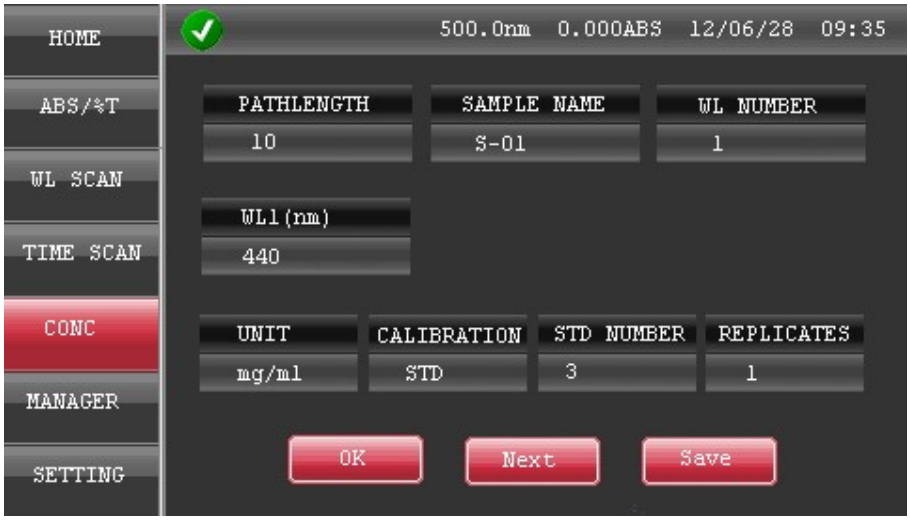


This interface is used to do concentration measure of specified wavelength. The specified wavelength quantity is less than 3. The concentration regression way is first-order linear regression. The sample quantity is less than 9. The times of standard sample average is less than 5. Regression spectrogram and mathematical equation is displayed. The concentration regression parameter can be input directly. Regression standard sample and measure document can be saved in the SD card. Each measure document includes 200 (maximum) measure results.

Measure buttons

READ	begin to measure
SET	parameter setting
ZERO	zero baseline (blank sample)
LOAD	load original measure results or measure method document
PRN	print data

CONC concentration regression and parameter setting (I)



SAMPLE NAME	Sample name, less than 8 characters
WL NUMBER (nm)	Measure wavelength number, less than 3
WL1~ WL3 (nm)	Wavelength, wavelength value allow not sort
UNIT	Standard concentration
CALIBRATION	Concentration calculation method. One is concentration regression according to standard sample, the other is concentration calculation according to regression equation parameters. According to different concentration calculation methods, parameter setting will make automatic adjustments.
STD NUMBER	Standard sample number. Less than 9.
REPLICATES	Standard sample average measure times. Less than 5.
OK	Finish parameter setting, back to measure interface automatically
Next	Next parameter setting interface
Save	save parameter (SD card)

CONC concentration regression and parameter setting（II）

If using standard sample regression calculation method（CALIBRATION , select STD）, it will show this parameter setting interface.

STD1~STD9: 9 standard sample concentration, concentration must be sorted (in general, sort ascending).

If using regression equation parameters to enter calculation method（CALIBRATION, select K-Factory）,it will show this parameter setting interface.

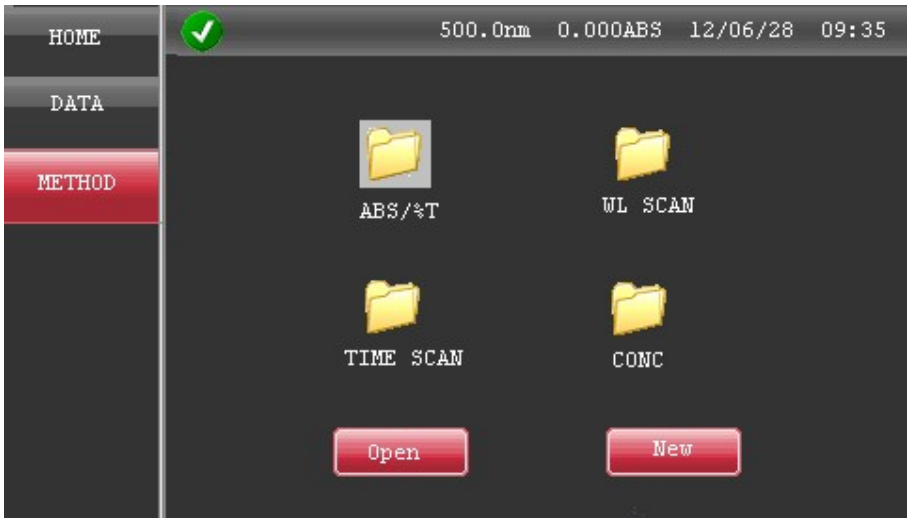
K1 Slope value of regression equation

K0 Intercept value of regression equation

OK Finish parameter setting, back to measure interface automatically

BACK Back to the prior setting interface

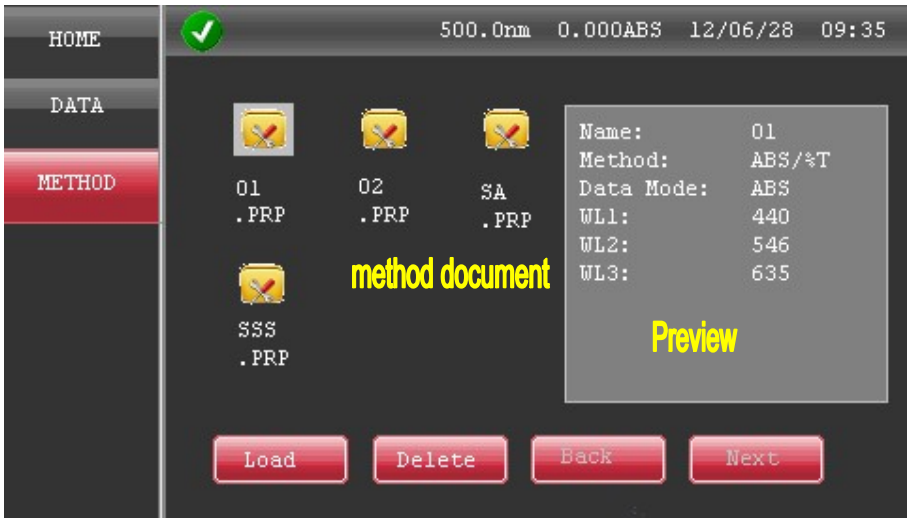
MANAGER interface (except VIS-20)



This interface is used to manage sample measure methods. User can select and save measure methods. Preview and open previous measure methods. Use this function, user must load SD card. Measure methods and measure results document are saved in SD card.

METHOD	measure methods manger
ABS/%T	Given wavelength direct –reading method
WL SCAN	Wavelength scan method
TIME SCAN	Time scan method
CONC	Given wavelength concentration regression method
Open	Open selected measure method
New	Renew selected measure method

Method document manager interface (except VIS-20)



According to the selected method of the prior interface（method manager interface）, open method document. Each page will appear 6 method documents. Using this function, the user must load SD card. Method documents are saved in SD card.

Method document	display saved method document
Preview	display selected method document
Open	open selected method document
Delete	delete selected method document
Next	display method document at next page
Back	display method document at prior page

Method document type

*. PRP Given wavelength direct-reading method document

*. PRW Wavelength scan method document

*. PRT Time scan method document

*. PRC Given wavelength concentration regression direct-reading method document

Data document manager interface

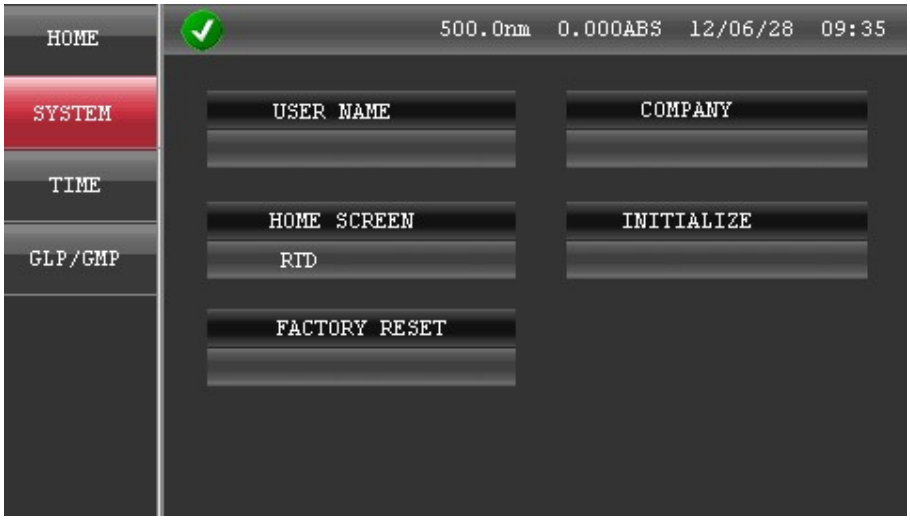
This interface is used to mange all method data document. Open or delete the measure data document . Each page displays 10 data document. Using this function, the user must load SD card. Measure data is saved in SD card.

DATA	measure data document manager interface
Open	open selected data document
Delete	delete selected data document
Next	display data at next page
Back	display data at prior page

Data document type

*. PGT	Given wavelength direct-reading data document
*. WSC	Wavelength scan data document
*. TSC	Time scan data document
*. CON	Given wavelength concentration regression and direct-reading data document

System setting interface



This interface is used to set up the system of the instrument.

SYSTEM	Enter into system parameter setting
TIME	Enter into time setting
GLP/GMP	Enter into performance self-check
USER NAME	Input operator name. Less than 20 characters
COMPANY	Input company name. Less than 20 characters
HOME SCREEN	Enter into specified measure interface. OFF, display main interface, do not enter into any measure interface.
RTD	enter into big font T%, A direct-reading interface.
ABS/%T	enter into given wavelength T%, A direct-reading interface.
WL SCAN	enter into wavelength scan interface.
TIME SCAN	enter into time scan interface.
INITIALZE	Initialize button. Click this button to initialize. Before clicking, the sample need be taken out of the chamber and remain empty state. During the process of initialization, the sample chamber must keep closing.
FACTORY RESET	Restored to the factory default settings. Sample name, operation name and company name in any interface will be empty.

Time setting interface

This interface is used to set up time. The instrument has power-down protection capacity (in general, about 96 hours). Switching off the instrument for 96 hours, the user need to reset time, but the setting data will be not lost.

YEAR	the last two digits
MONTH	month
DAY	date
HOUR	hour, 24-hour format
MINUTE	minute
FORMAT	date format,
YY/MM/DD	year/month/day; MM/DD/YY month/day/year; DD/MM/YY day/month/year

SETTING GLP/GMP performance self-check interface

This interface is used to check instrument's performance. Finishing test, it will display measure result automatically, and judge results. It meets to routine application standards.

NOISE	noise level test
STABILITY	stability test, preheating for 2 hours
BASELINE FLATNESS	baseline flatness test
HARDWARE	hardware self-check
Print	print test data、

BIOmaster interface

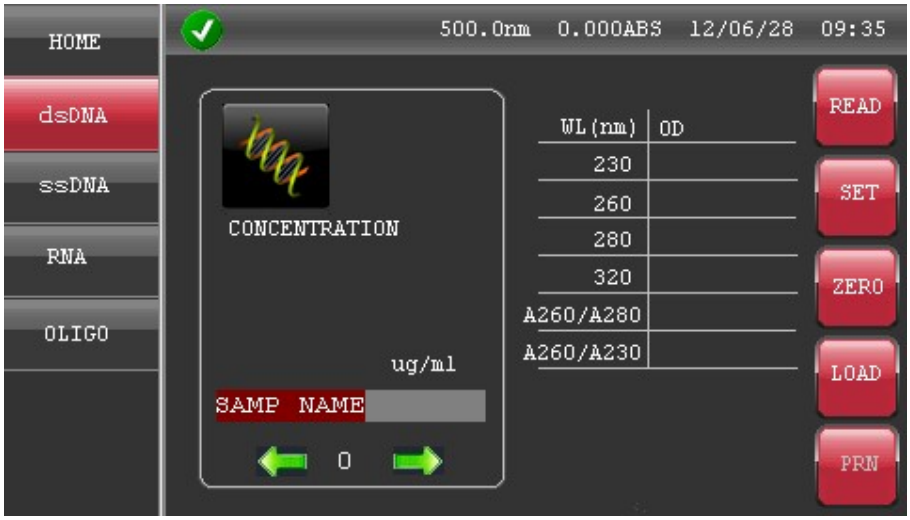
BIOmaster is only for analysis of nucleic acids and proteins. Besides the special funciton measure interface, it also own measure funcitions of traditonal spectrophotometer.

BIOmaster mian interface

Click the icon, enter into corresponding measure interface.

DNA/RNA	nucleic acids analysis
PROTEIN	protein determination
OD600	Bacterial cell culture measurement
SPECTRUM	Traditional spectrophotometer function
MANAGER	measure method manager including data-saved
SETTING	parameter setting

BIOmaster nucleic acids analysis interface



There are 4 methods in the DNA/RNA nucleic acids analysis interface, dsDNA, ssDNA, RNA, OLIGO. Click button to select measure method.

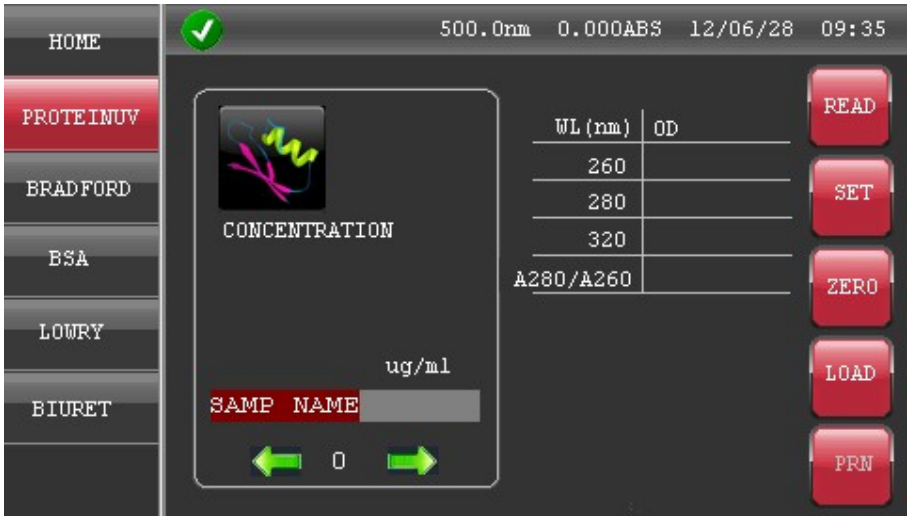
Measure buttons

READ	being to measure
SET	parameter setting
ZERO	zero absorbance (blank sample) at all setting wavelength point
LOAD	load original measure results or measure method document
PRN	print data

BIOmaster nucleic acids parameter setting interface

FACTOR	regulate parameters
BACKGROUND	background calibration
PATHLENGTH	optical length of cuvette（optical length is less than 10mm）
DI-FACTOR	dilution factor
UNIT	concentration units
SAMPLE NAME	sample name
OK	Finish parameter setting, back to measure interface automatically
Save	save parameter (SD card)

BIOmaster protein analysis interface



There are 5 analysis methods in protein determination interface, PROTEINUV, BRADFORD, BSA, LOWRY, BIURET. Click button to select measure methods.

PROTEINUV functions

Measure buttons

READ	begin to measure
SET	parameter setting
ZERO	zero absorbance (blank sample) at all setting wavelength point
LOAD	load original measure results or measure method document
PRN	print data

BIOmaster protein analysis interface

PROTEINUV parameter setting interface

A280 FACTOR	correction factor at 280nm position
A260 FACTOR	correction factor at 260nm position
PATHLENGTH	optical length of cuvette（optical length is less than 10mm）
BACKGROUND	background calibration
PROTEIN	select measure methods
DI-FACTOR	dilution factor
UNIT	concentration units
SAMPLE NAME	sample name
OK	Finish parameter setting, back to measure interface automatically
Save	save parameter (SD card)

BIOmaster protein analysis interface

select parametre of MOLAR EXT C (self-defining) protein measure method in PROTEINUV parameter setting interface

WL(nm）	Wavelength value
MOLAR EXT C	Molar extinction conefficient correction factor
MOLECULAR W	Molecular weight molecular weight. According to the two correction factors, calculate correction factor at A280 FACTOR automatically
OK	Finish parameter setting, back to measure interface automatically
Back	Back to the prior parameter setting interface

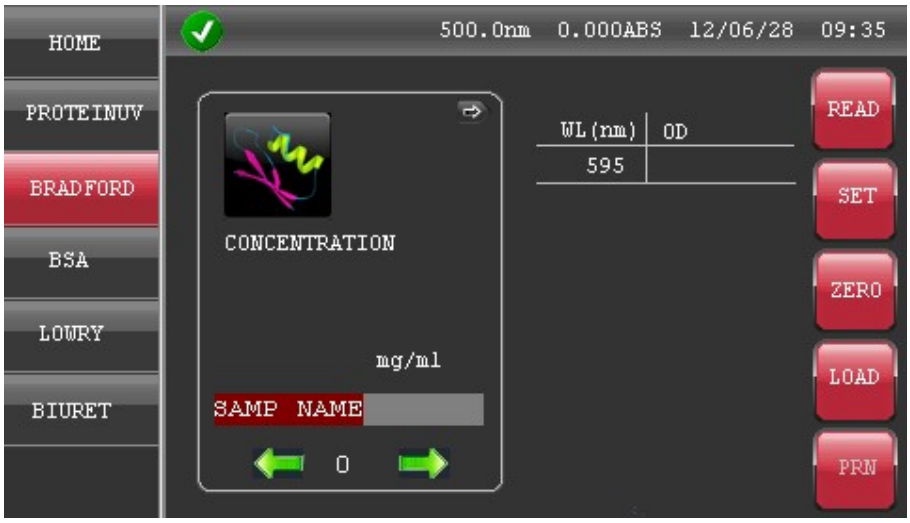
BIOmaster protein analysis interface

select parametre of EXT COEFF (self-defining) protein measure method in PROTEINUV parameter setting interface

WL(nm)	Wavelength value
EXT COEFF	Extinction conefficient correction factor. According to the correction factors, calculate correction factor at A280 FACTOR automatically
OK	Finish parameter setting, back to measure interface automatically
Back	Back to the prior parameter setting interface

BIOmaster protein analysis interface

BRADFORD measure interface



Measure buttons

READ	begin to measure
SET	parameter setting
ZERO	zero absorbance (blank sample) at all setting wavelength point
LOAD	load original measure results or measure method document
PRN	print data

BIOmaster protein analysis interface

BRADFORD parameter setting interface

WL(nm)	Wavelength value
PATHLENGTH	optical length of cuvette（optical length is less than 10mm）
CALIBRATION	concentration regression way
STD NUMBER	concentration standard sample number
REPLICATES	measure times
DI-FACTOR:	dilution factor
UNIT	concentration units
SAMPLE NAME	sample name
OK	Finish parameter setting, back to measure interface automatically
Save	save parameter (SD card)

BIOmaster protein analysis interface

CALIBRATION（concentraton）standard sample setting interface in BRADFORD parameter setting interface

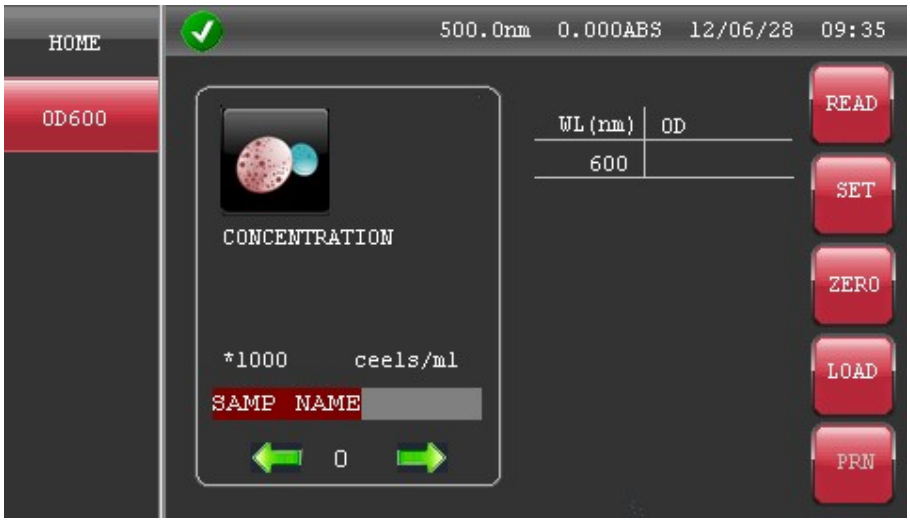
STD1~3 standard sample concentration setting（According to the number of concentration in the upper layer interface, it will display corresponding setting）

OK Finish parameter setting, back to measure interface automatically

Save save parameter (SD card)

BIOmaster bacterial cell culture measurement interface

OD600 measure interface



Measure buttons

READ	begin to measure
SET	parameter setting
ZERO	zero absorbance (blank sample) at all setting wavelength point
LOAD	load original measure results or measure method document
PRN	print data

BIOmaster bacterial cell culture measurement interface

OD600 parameter setting interface (I)

WL(nm)	Test wavelength
PATHLENGTH	optical length of cuvette (optical length is less than 10mm)
UNIT	concentration units
SAMPLE NAME	sample name
OK	Finish parameter setting, back to measure interface automatically
Save	save parameter (SD card)

BIOmaster bacterial cell culture measurement interface

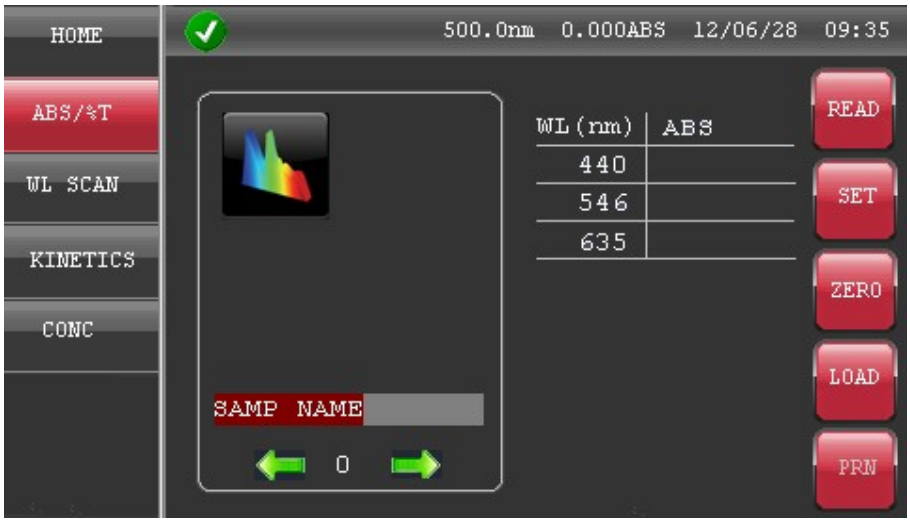
OD600 parameter settinginterface (II)

When select UNIT cells/ml, it will display above parameter setting interface

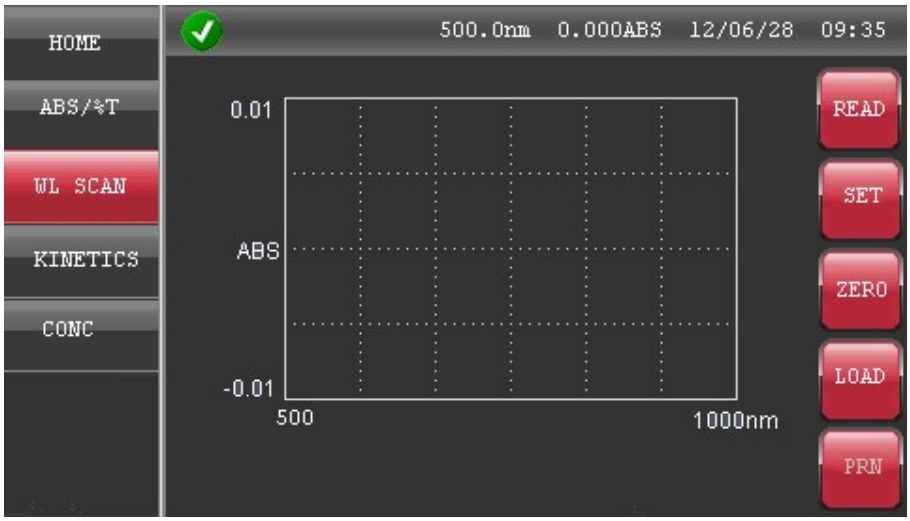
WL(nm)	Test wavelength
PATHLENGTH	Optical length of cuvette (optical length is less than 10mm)
UNIT	Concentration units
SAMPLE NAME	Sample name
FACTOR	Correction factor
MULTIPLIER	Multiple
OK	Finish parameter setting, back to measure interface automatically
Save	Save parameter (SD card)

BIOmaster spectrum interface

ABS/%T given wavelength photometry direct-reading measure interface

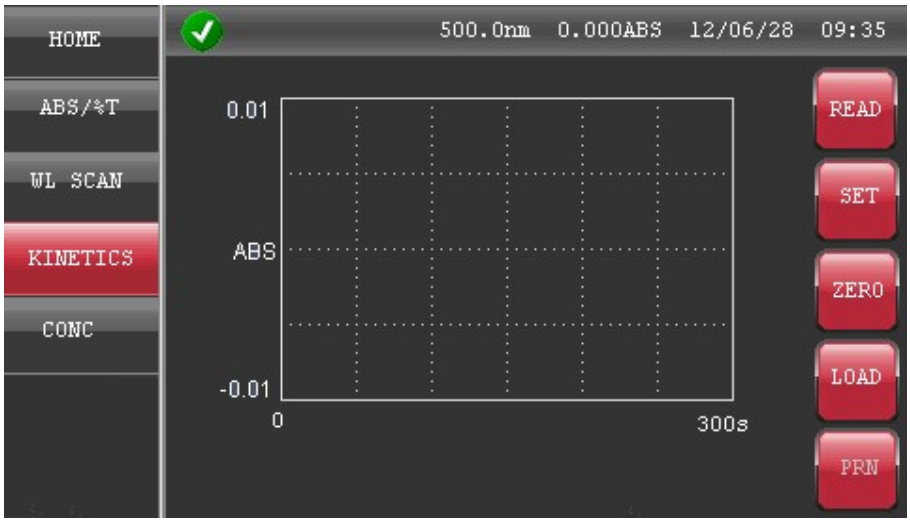


Wavelegnth scan interface

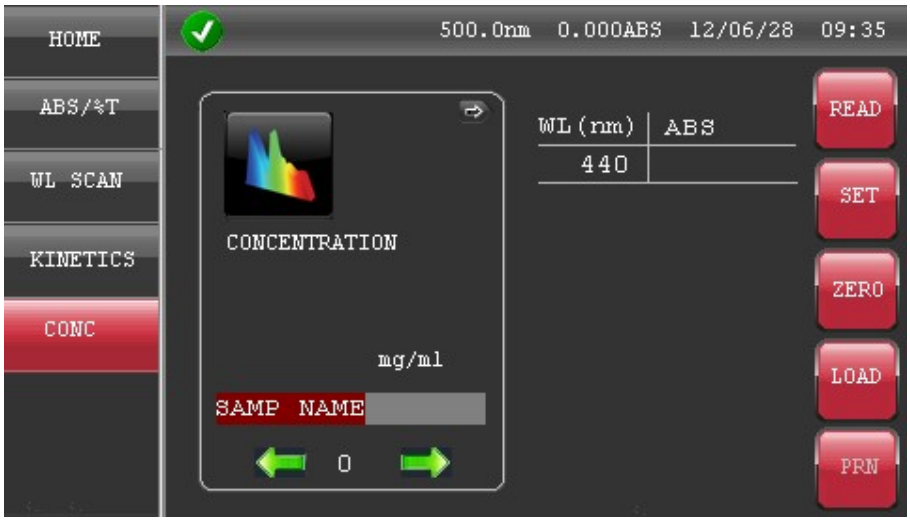


BIOmaster spectrum interface

KINETICS dynamics measure interface



CONC concentration regression and mesure interface



Accessories interface

The instrument can automatically recognize three accessories with the automatic control functions. Auto sample sipper, auto 5-cell holder, electronic thermostat TC holder（only for XB-10/BIOmaster）.

Remark: When installing accessories, the power of the instrument must keep off.

Install and recognize auto 5-cuvette holder interface

Click 5 cell, display 5-cell holder setting interface.

CELL NUM SETUP　cuvette number. Less than 5 （1~5）

GOTO CELL　specified cuvette position

Install and recognize auto sample sipper interface

Click Sipper, display auto sample sipper setting interface.

SIP TIME (s)	sample sipper time（UNIT: second）
DELAY TIME (s)	delay time between sample sipper and measure
PURGE TIME (s)	suck air after finishing measure, This feature is primarily used to separate the two samples in the pipeline. In order to recycle sample.

Install and recognize electronic thermostat TC holder interface (only for XB-10/BIOmaster)

Click 

, display temperature setting interface.

TEMPERATURE (℃) setting control temperature

TEMP CONTROL turn on or off temperature control function

The HALO Range

UV-VIS Spectrophotometers

Livingston

Dynamica Scientific Limited

Kirkton Campus, 4 Bain Square, Livingston, United Kingdom, EH54 7DQ

P: +44(0)1908 211 900

F: +44(0)1908 211 909

Email: info@dynamica-eu.com

Web: www.dynamica-eu.com

Australasia

Dynamica Pty Ltd

ABN 16 126 043 052

PO Box 3278 Prahran East Victoria 3181, Australia

P: +61 3 8540 5988

F: +61 3 8540 5981

Email: info@dynamica.com.au

Web: www.dynamica.com.au

Asia

Dynamica (Asia) Limited

Room 607, Yen Sheng Centre

64 Hoi Yuen Road, Kwun Tong

Kowloon, Hong Kong

P: +852 3583 1581

F: +852 3583 1580

Email: info@dynamica-asia.com

Web: www.dynamica-asia.com