

Analytical and Measuring Instruments

2024 - 2025



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K LAB products

UV-Vis & Microvolume Spectrophotometer



Alpha

Alpha (190 to 1100 nm)

- Double-beam Type
- Spectral Bandwidth : 1.0 nm
- Measurable Range : -4 A to 4 A
- 8 Cell holder (Initially installed)
- Voice support



Alphalook

Alphalook (190 to 1100 nm)

- Array-type
- Spectral Bandwidth : 1.5 nm
- Measurement Time
Typical scan time: 1.5 s
Shortest scan time: 0.1 s



POP Series

POP (190 to 1100 nm)

- Single-beam Type
- Spectral Bandwidth : < 1.8 nm
- Measurable Range : -3 A to 3 A
- 7" Display
- 8 Cell holder (Initially installed)
- Voice support



NanoQ Plus

NanoQ Plus (190 to 850 nm)

- Xenon flash lamp
- Absorbance Accuracy
3% (at 0.97A at 302 nm)
- Maximum Concentration
27,500 ng/μL (dsDNA), 825 mg/mL (BSA)



MRX A2000

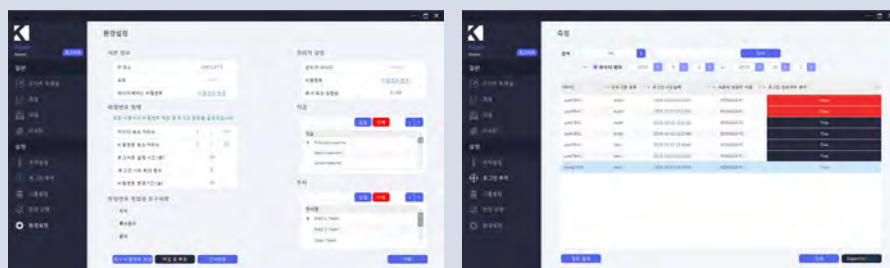
MRX A2000

- Microplate Reader
- Plates: 6-, 96-, 384-well plates
- Spectral Bandwidth: 2.9 nm
- Read-out range: 0 to 4.0 OD
- Reading speed: < 8 seconds (96 wells)
- Temperature control: up to 65 °C



*To be launched

- Microplate Reader (Multi-mode)
- Variable bandwidth spectrophotometer
- UV-Vis-NIR spectrophotometer
- PCR



Secure

Secure is Windows® PC software can manage, check and trace user activities(Login, measurement, print) at View. You need View(CFR mode included) to use Secure.

Alpha

Alpha is a double-beam method spectrophotometer and popular for its sophisticated design and remarkable performance.

Alpha grasps the quantitative characteristics such as concentration or purity by measuring absorbance or transmittance of a sample at a certain wavelength in the ultraviolet and visible ray ranges. Alpha can be used in a wide range of fields, from general analysis experiments to professional research, and ensures accurate measurement and excellent reproducibility, providing reliable results in various fields such as the environment, biotechnology, chemistry, etc.

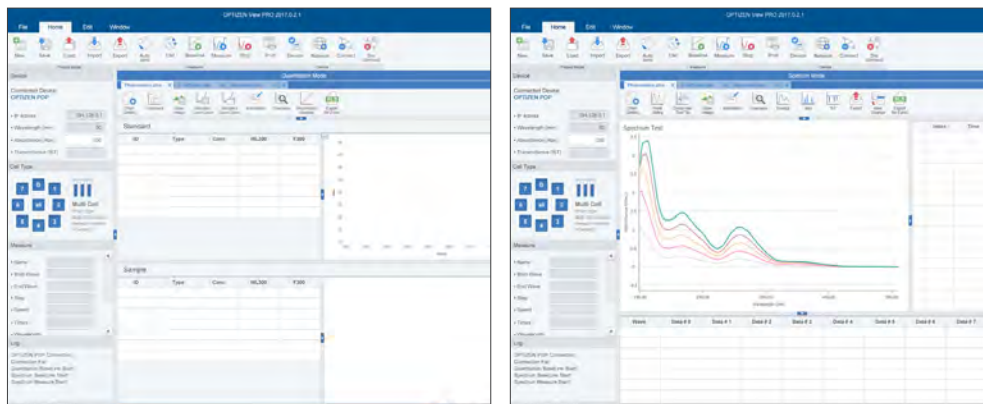


Alpha is a double-beam type spectrophotometer which improving the measurement error caused by instability of light source due to time gap between reference light and sample measuring light. Alpha divides light from a UV-Vis lamp and measures the reference and samples at once.



- 01 Built In Test is running when the power turns on.
- 02 Automatic measurement up to 8 samples with a multicell holder.
- 03 Easy and fast call up the previous datas and saving new datas in your favorites.
- 04 Link and control your device with your PC via a software, View.
- 05 Account management improve the security of the datas.
- 06 A wide range of accessory compatibility.
- 07 Voice support helping you to conduct tests easily.
- 08 64GB storage.
- 09 Direct printing from the device without a printer driver installation.
- 10 Available to check the device running hour, lamp warming up status, accumulated usage hours

View



View, PC-Interface software of Series, enables you to check and control the result of sample measurement in real time in Windows® environment and facilitate the general management related to the device and the measurement.

Specifications			
Photometrics System	Double-beam type	Baseline Stability	Less than 0.0003 Abs/hr
Light Source(s)	Tungsten Lamp / Deuterium Lamp		(700 nm, one hour after light source turned ON)
Detector	Silicon Photodiode	Baseline Flatness	< ± 0.0005 A
Spectral Bandwidth	Fixed - 1.0 nm (190 to 1100 nm) (Optional) Variable - 0.5, 1, 1.5, 2, 4 nm		(190 to 1,100 nm, one hour after light source turned ON)
Wavelength Range	190 to 1,100 nm	Photometric Repeatability	Less than ± 0.0002Abs at 0.5 Abs
Wavelength Display (setting)	0.05 nm		Less than ± 0.0006Abs at 1.0 Abs
Wavelength Accuracy	± 0.3 nm (For entire range) ± 0.1 nm (656.1 nm)		Less than ± 0.0010Abs at 2.0 Abs
Wavelength Repeatability	± 0.1 nm	Stray Light	Less than 1.00 % (198 nm KCl)
Wavelength Slew Rate	Approx. 25,000 nm/min		Less than 0.05 % (220 nm NaI)
Scanning Speed(Max)	6,000 nm/min		Less than 0.05 % (340 nm NaNO ₂)
Lamp interchange Wavelength	340 to 410 nm (Default 370 nm)	RMS noise	Less than 0.00005 Abs (700 nm)
Photometric Range	Absorbance: -4 A to 4 A	Monochromator	Czerny-Turner type with 1,200 lines/nm blazed grating
	Transmittance: 0% to 400%	Standard Cell Holder	Automatic Rotary type 8-position Multi-Cell Holder
Photometric Accuracy	± 0.002 Abs at 0.5 Abs	Operating System (OS)	Windows 10 (Embedded PC)
	± 0.004 Abs at 1.0 Abs	Display	8 inch color LCD with touch screen
	± 0.006Abs at 2.0 Abs	Control Options	Onboard with built-in touchscreen Optional - PC Software (View)
	(NIST930D/NIST1930 or equivalent)	Dimensions(W*D*H)	520 mm * 500 mm * 200 mm
Environmental requirements	Temperature: 15 °C to 35 °C	Power Requirement	AC 100-240 V, 50/60 Hz, 140 VA
	Humidity: 30 % to 80 %	Weight	14 kg
		PC Software	(optional) View for Windows

Alphalook

By using Photodiode array detector to collect and handle simultaneously all wavelength of a light in the range of UV-Vis, the device can reduce the analysis time and lower the error from the experiment.

PDA UV-Vis spectrophotometer can obtain an Ultraviolet-to-NIR broad spectrum at one time by using a simple and precise optical device and check the result value of the wavelength data that the user wants to see. In addition, the product can handle very conveniently a complicate sample or a lot of samples with a simple touch by using compatible accessories.



Alphalook is a spectrophotometer to measure the wavelength of the light from ultraviolet rays, visible rays to near-infrared rays(190 - 1100 nm) all together in real time by using Photodiode array. The device takes at most 2 seconds to measure all range of the wavelength and is suitable for checking repetitive wavelength analysis and dynamic characteristic of spectrum and performing quantitative analysis in the various range of wavelength. In addition, its exterior touch button enables to measure easily the sample and it can be compatible with Windows®-based PC.

Alphalook's main characteristics

- Easy and quick measurement support using an external button
- Quartz coating protects optical components from contaminants
- Designed to operate independently in unstable power supply
- PDF and Excel compatibility of analyzed data
- Real-time measurement of the entire spectrum

01 Used for various application analysis

Alphalook is a professional analysis instrument for UV-VIS spectrophotometer used in various fields such as chemistry, life science, environment, pharmaceuticals, and food.

02 Reinforcing reliability of inspection

Fast and reliable measurement and analysis are possible even in confined spaces with high accuracy.

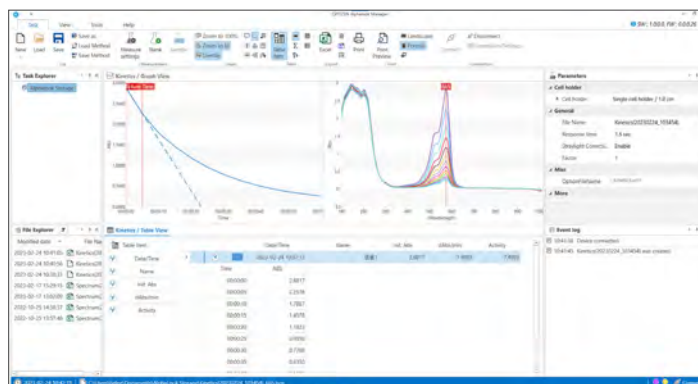
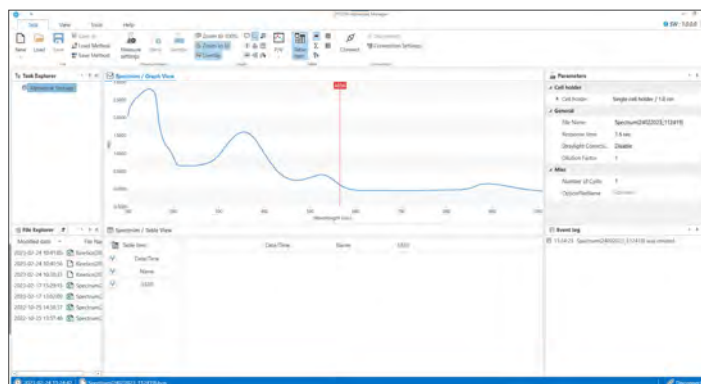
03 Intuitive user interface

It is convenient to manage and share measurement data by using Windows-based software.

04 Improved software performance

A simple standard curve using the measured spectrum and a data table can be created on the screen desired by the user.

Alphalook UI (Windows)



Specifications

Photometrics System	Array-type UV-Vis Spectrophotometer	Baseline Stability	< 0.001 Abs/h (RMS, after one hour warm-up)
Light Source(s)	Tungsten Halogen Lamp & Deuterium Lamp		
Detector	2048-element CMOS linear image sensor	Baseline Flatness	<0.001 Abs rms (After one hour warm-up)
Spectral Bandwidth	1.5 nm		
Wavelength Range	190 to 1100 nm	Standard Cell Holder	Single cell
Slit width	1 nm	Typical scan time	1.5 s
Stray light	< 1.00 % (at 198 nm with 1.2% KCl)	Shortest scan time	0.1 s
	< 0.10 % (at 220 nm with 0.1% NaI)	Time until next scan	0.1 s
	< 0.10 % (at 340 nm with 0.5% NaNO ₂)	Operating System (OS)	Windows (PC)
Wavelength Display (setting)	1 nm	Control Options	PC
Wavelength Accuracy	< ± 0.5 nm	Power Requirement	AC 100-240V, 50/60Hz, 220VA
Wavelength Repeatability	< ± 0.1 nm	PC Software	Alphalook Manager
Photometric Range	3 Abs	Dimensions(W*D*H)	590 mm * 320 mm * 210 mm
Photometric Display	Absorbance: -3 to 3 Abs	Weight	15.1 kg
	Transmittance: 0 to 100 %T	Other Interface	Ethernet
Photometric Accuracy	<± 0.005 Abs at 0.0 to 0.5 Abs (NIST SRM 930e)	Connectivity	RJ45 ethernet (PC)
	<± 0.01 Abs or ± 1% at 0.0 to 2.0 Abs (Ph. Eur)		USB A type * 1 (Charging only)
Photometric noise	< 0.0005 Abs rms		USB B type * 1 (Debugging & FW update)

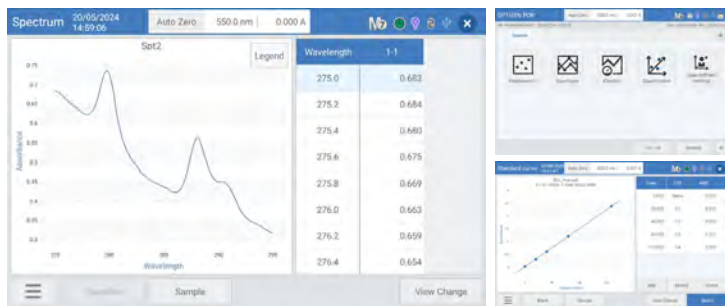
POP Series

POP equips K Lab's unique high resolution wavelength measurement mechanism.

POP Series are single-beam type spectrophotometers and ensure stable performance with a compact-size and reasonable price. The series are categorized into POP, POP-V according to the specification of the products.



POP offers four measurement modes (Photometric Mode, Quantitative Mode, Spectrum Mode, Kinetics Mode). You can choose a suitable mode depending on the purpose of the measurement. Its user-friendly UI, UX and SW expedite your tests.



- 01 A intuitive graphic type Help Service.
- 02 Easy and fast call up the previous datas and saving new datas in your favorites.
- 03 Link and control your device with your PC via a software, View.
- 04 Available to check the device running hour, lamp warming up status, accumulated usage hours.

- 05 Quick cell type icon on the main screen helping you to check and change cell type without entering a certain mode.
- 06 Automatic measurement up to 8 samples with a multicell holder. It can measure automatically lots of samples by using Multi Cell.
- 07 Voice support helping you to conduct tests easily.

Specifications		
Product Name	POP	POP-V
Photometrics System	Single-beam type	
Light Source(s)	Tungsten Halogen Lamp & Deuterium Lamp	Tungsten halogen lamp
	(Built-in light source auto interchanging motor)	
Detector	Silicon Photodiode	
Spectral Bandwidth	< 1.8 nm	< 1.8 nm
Wavelength Range	190 to 1100 nm	340 to 1100 nm
Wavelength Display (setting)	0.1 nm	
Wavelength Accuracy	<± 0.5 nm	
Wavelength Repeatability	<± 0.1 nm	<± 0.2 nm
Slew Rate	7,800 nm/min	
Scanning Speed	4,000 nm/min	
Photometric Range	Absorbance : -3 A to 3 A / Transmittance : 0% to 300%	
Photometric Accuracy	<± 0.003 Abs at 0.5 Abs	<± 0.005 Abs at 0.0 to 0.5 Abs
	<± 0.005 Abs at 1.0 Abs	<± 1% Abs at 0.50 to 2.0 Abs
	(NIST SRM 930e)	(NIST SRM 930e)
Photometric Repeatability	± 0.003 Abs	
Baseline Stability	0.001 Abs/h (700 nm, one hour after light source)	<0.002 Abs/h (700 nm, after one hour warm-up)
Baseline Flatness	<0.001 Abs rms (200 to 1,100 nm, after one hour warm-up)	<0.003 Abs rms (340 to 1,050 nm, after one hour warm-up)
Stray Light	< 0.05 % (at 220 nm with 0.1% NaI)	< 0.05 % (at 340 nm with 0.5% NaNO ₂)
	< 0.05 % (at 340 nm with 0.5% NaNO ₂)	
RMS noise	< 0.0002 Abs rms (at 700 nm)	
Monochromator	Czerny-Turner Monochromator	
Standard Cell Holder	Multi-cell (8 cells)	
Lamp Interchange Wavelength	340 to 410 nm (Default 370 nm)	-
Operating System (OS)	Android	
Display	7-inch (Resolution: 1280 x 800)	
Control Options	Stand-alone PC	
Dimensions(W*D*H)	433 mm * 381 mm * 180 mm	
Power Requirement	AC 100-240V, 50/60Hz, 140VA	
Weight	10.5kg	
PC Software	(optional) View for Windows	

QX Series

QX Series is equipped with excellent water quality analysis function.

QX is for scientists, facility managers, engineers, environment health experts and water treatment specialists to carry out the water quality analysis quickly and accurately. As the device provides several advantages such as the voice support and hundreds of pre-programmed methods, you can improve efficiency in your water analysis test.



QX series reduce the time for calibration and improve accuracy and precision. The convenient interface and automation function of QX series help you to perform easy, quick and precise experiments.

QX series' main characteristics

- Specialized for Water quality analysis
- Wide range of cell compatibility with All-in-one cell holder (compatible with 10 mm, 1 inch square cell, 16 mm, 25mm round cell)
- High speed wavelength scanning
- Supporting a network printer connection
- Voice support helping you to follow the test procedure.

- 01 All-in-one cell holder enabling you to use various types of cells conveniently and simply.
- 02 Easy and fast call up the previous datas and saving new datas in your favorites
- 03 Using Hach and Merck kit with pre-programmed methods (more than 150)
(*Refer to the table shown in right side.)
- 04 Supporting software update via online

Hach Method

Parameter	Range	Unit	
N, Nitrate HR TNT	0.0	30.0	mg/L
N, Total HR TNT	0	150	mg/L
N, Total LR TNT	0.0	25.0	mg/L
P. React. HR TNT	0.0	100.0	mg/L
Molybdenum HR AV	0.0	40.0	mg/L
P. Total HR TNT	0.0	100.0	mg/L
N, Ammonia Ness.	0.00	2.50	mg/L
P. React. Mo AV	0.0	45.0	mg/L
N, Nitrate MR AV	0.0	10.0	mg/L
N, Nitrate MR PP	0.0	10.0	mg/L
N, Nitrite HR PP	0	250	mg/L
Iron, FerroMo	0.00	1.80	mg/L
Iron, TPTZ	0.000	1.800	mg/L
Iron, TPTZ AV	0.000	1.800	mg/L
Manganese, LR	0.005	0.700	mg/L
Silica, HR	0.0	100.0	mg/L
Chloride	0.0	25.0	mg/L
Hydrazine	0	600	ug/L
Hydrazine AV	0	600	ug/L
N, Nitrate LR	0.00	0.50	mg/L
N, Nitrite LR AV	0.000	0.300	mg/L
N, Nitrite LR PP	0.000	0.300	mg/L
N, Nitrite LR TNT	0.000	0.500	mg/L
Iron, FerroVer	0.00	3.00	mg/L
Iron, FerroVer AV	0.00	3.00	mg/L
Perman. Index HR	4.50	15.00	mg/L
Aluminum Alumin.	0.000	0.800	mg/L
Hardness, Ca	0.00	4.00	mg/L
Hardness, Mg	0.00	4.00	mg/L
Ozone HR AV	0.00	1.50	mg/L
Ozone LR AV	0.00	0.25	mg/L
Ozone MR AV	0.00	0.75	mg/L

Merck Method

Parameter	Range	Unit	
Acid capacity CT to pH 4.3	0.40	8.00	mmol/L OH
Acid capacity CT to pH 4.3	20	400	mg/L CaCO3
Aluminium Test	0.10	1.20	mg/L Al
Aluminium Test	0.020	0.200	mg/L Al
Aluminium CT	0.02	0.50	mg/L Al
Aluminium CT	0.02	0.50	mg/L Al
Ammonium CT	0.010	2.000	mg/L NH4-N
Ammonium CT	0.010	2.000	mg/L NH4-N
Ammonium CT	0.01	2.58	mg/L NH4+
Ammonium CT	0.01	2.58	mg/L NH4+
Ammonium CT	0.010	2.000	mg/L NH3-N
Ammonium CT	0.010	2.000	mg/L NH3-N
Ammonium CT	0.01	2.43	mg/L NH3
Ammonium CT	0.01	2.43	mg/L NH3
Ammonium Test	0.05	3.00	mg/L NH4-N
Ammonium Test	0.03	1.50	mg/L NH4-N
Ammonium Test	0.010	0.500	mg/L NH4-N
Ammonium Test	0.06	3.86	mg/L NH4+
Ammonium Test	0.04	1.93	mg/L NH4+
Ammonium Test	0.013	0.644	mg/L NH4+
Ammonium Test	0.05	3.00	mg/L NH3-N
Ammonium Test	0.03	1.50	mg/L NH3-N
Ammonium Test	0.010	0.500	mg/L NH3-N
Ammonium Test	0.06	3.65	mg/L NH3
Ammonium Test	0.04	1.82	mg/L NH3
Ammonium Test	0.016	0.608	mg/L NH3
Ammonium CT	0.20	8.00	mg/L NH4-N
Ammonium CT	0.20	8.00	mg/L NH4-N
Ammonium CT	0.26	10.30	mg/L NH4+
Ammonium CT	0.26	10.30	mg/L NH4+
Ammonium CT	0.20	8.00	mg/L NH3-N
Ammonium CT	0.20	8.00	mg/L NH3-N

Humas Method

Parameter	Range	Unit	
HS-COD-UR	5	40	mg/L
HS-COD-LR	15	150	mg/L
HS-COD-MR	50	1500	mg/L
HS-COD(Mn)-L	0.6	20	mg/L
HS-COD(Mn)-U	0.2	3	mg/L
HS-TN-U	0.2	5	mg/L
HS-TN-L	2.5	20	mg/L
HS-TN-H	10	100	mg/L
HS-TN-L(CA)	1	50	mg/L
HS-TN-H(CA)	10	100	mg/L
HS-TP-L	0.01	3	mg/L
HS-TP-H	1	15	mg/L
HS-NO2(N)-L	0.1	1	mg/L
HS-NO2(N)-H	10	150	mg/L
HS-NO3(N)-H	1	15	mg/L
HS-NO3(N)-L	0.2	10	mg/L
HS-NO3(N)-CA	0.5	30	mg/L
HS-NH3(N)-L	0.2	6	mg/L
HS-NH3(N)-U	0.03	1	mg/L
HS-P04(P)-L	0.01	3	mg/L
HS-P04(P)-H	1	15	mg/L
HS-COD(Mn)-H	20	100	mg/L
HS-Mn	0	20	mg/L
HS-NH3(N)-H	2	60	mg/L
HS-Al	0.01	0.3	mg/L
HS-Al-DW	0.01	0.3	mg/L
HS-TOC-L	1.5	30	mg/L

• The listed water quality testing methods are partial contents.

Specifications

Photometrics System	Single-beam type	Baseline Stability	<0.001 Abs/h
Light Source(s)	Tungsten Halogen Lamp & Deuterium Lamp		(700 nm, after one hour warm-up)
	(Built-in light source auto interchanging motor)	Baseline Flatness	<0.001 Abs rms
Detector	Silicon Photodiode		(200 to 1,100 nm, after one hour warm-up)
Spectral Bandwidth	< 1.8 nm	Stray Light	< 0.05 % (at 220 nm with 0.1% NaI)
Wavelength Range	190 to 1100 nm		< 0.05 % (at 340 nm with 0.5% NaNO2)
Wavelength Display (setting)	0.1 nm	Monochromator	Czerny-Turner Monochromator
Wavelength Accuracy	<± 0.5 nm	Standard Cell Holder	All-in-one cell
Wavelength Repeatability	<± 0.1 nm	Lamp Interchange Wavelength	340 to 410 nm (Default 370 nm)
Slew Rate	7,800 nm/min	Operating System (OS)	Android
Scanning Speed	4,000 nm/min	Display	7-inch (Resolution: 1280 x 800)
Photometric Display	Absorbance : -3 A to 3 A	Control Options	Stand-alone, PC
	Transmittance : 0 % to 300 %	Dimensions(W*D*H)	433 mm * 381 mm * 180 mm
Photometric Range	3 Abs	Power Requirement	AC100 to 240 V, 50/60 Hz, 140 VA
Photometric Accuracy	<± 0.005 Abs at 0.0 to 0.5 Abs	Weight	10.5kg
	<± 1% Abs at 0.50 to 2.0 Abs	Preprogrammed Method	> 130 (Hach), > 480 (Merck)
	(NIST SRM 930e)	PC Software	(optional) View for Windows
Photometric Repeatability	± 0.003 Abs	Connectivity	RJ45 ethernet, USB A * 2, RS-232 * 2, USB * 1

NanoQ

Extremely fast and easy quantitative analysis of nucleic acid and protein by UV-Vis absorption spectrophotometry.

NanoQ Series measure micro-volume sample's concentration, namely nucleic acid (dsDNA, ssDNA, RNA), protein (Lysozyme, BSA, IgG) and equipped with more than 20 different measuring mode.

Note NanoQ Plus provides pedestal and cuvette mode, but NanoQ does not support cuvette mode.



Full Spectrum Analysis

NanoQ series measure the absorbance at a spectrum range of UV-Vis (190 - 850 nm) in seconds with an array type spectrophotometer technology using Xenon lamp and CMOS-sensor(2048 pixels). NanoQ series also provide various algorithms like Peak/Valley detection.



Measuring Mode : Nucleic Acid(dsDNA, ssDNA, RNA), Protein(Lysozyme, BSA, IgG), OD600, etc.

Measurement menu configuration		
	Menu	Factor
Nucleic Acid (ng-cm/μl)	dsDNA	50
	ssDNA	33
	RNA	40
	miRNA	33
	Custom	Input
Protein (g-cm/l)	BSA	1.5
	SA	1.49, 1.72
	IgG	0.71, 0.74
	IgE Human	0.65
	Lysozyme	0.38
	OD1	1
OD600	OD600	1

Specifications			
Product Name	NanoQ Plus	NanoQ	
Photometrics System	Microvolume & Cuvette Spectrophotometer	Microvolume Spectrophotometer	
Light Source(s)	Xenon flash lamp		
Lifetime	Up to 10 years		
Detector	2048-element CMOS linear image sensor		
Spectral Resolution	1.5 nm (FWHM at Hg 253.7 nm)		
Wavelength Range	190 to 850 nm		
Wavelength Display (setting)	1 nm		
Wavelength Accuracy	± 1 nm		
Baseline Correction Wavelength	Selectable (190 to 850 nm)		
Absorbance Precision	0.002 AU (0.5 mm path) or 1%		
Absorbance Accuracy	3% (at 0.97A at 302 nm)		
Measurement Time	Less than 8 seconds		
Microvolume	Minimum Sample Volume	1 µL	
	Pathlength	0.03 to 1.0 mm	
	Photometric Range	0.02 to 550 A (10mm equivalent)	
	Detection Range	2 - 27,500 ng/µL (dsDNA) / 0.06 - 825 mg/mL (BSA) / 0.03 - 400 mg/mL (IgG)	
	Pedestal Compartment Material	303 stainless steel and quartz fiber	
Cuvette	Photometric Range	0 to 2 A	-
	Display Range	0 to 3 A	-
	Detection Limit	0.2 - 150 ng/µl (dsDNA)	-
		0.006 - 5 mg/mL (BSA)	-
		0.003 - 2 mg/ml (IgG)	-
	Center Height (Z-height)	8.5 mm	-
Cell Types	12.5 x 12.5 mm (Outside dimension)	-	
CPU	Octa Core ARM® Cortex™-A53 Processor		
Storage	32 GB		
Glove Compatibility	Compatible with lab gloves		
Connectivity	4 x USB-A ports, Ethernet, RS232		
Display	7-inch (resolution: 1280 * 800)		
Operating System (OS)	Android		
Dimensions(W*D*H)	216 mm * 290 mm * 165 mm		
Weight	3.0 kg		

NanoQ Lite

NanoQ Lite is a micro-volume sample analyzer and popular for its compact size and sophisticated design.

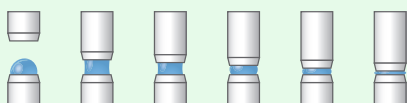
NanoQ Lite applies the Slope Algorithm, which is a light path optimization technique, and it enables measurement of a wide range of absorbance. Using three LEDs (260 nm, 280 nm, and 600 nm) and a single silicon photodiode, NanoQ Lite lowers the product cost drastically but maintaining the essential functions and performance level. NanoQ Lite offers the baseline correction function using an additional LED (360 nm).



Slope Algorithm

NanoQ Lite uses the Slope Algorithm to automatically determine the sample concentration to be "High", "Middle", or "Low" and set the optical path length for the measurement.

"Slope Algorithm" applies Beer's Law to improve the performance of measuring the concentration of the sample using the absorption change according to the change of the optical path length and the linearity. NanoQ Lite uses this algorithm to offer the high measurement performance in a wide concentration range.



Slope Algorithm

It is the technology to improve the measurement performance of the sample concentration using the absorption change according to the change of the optical path and the linearity.

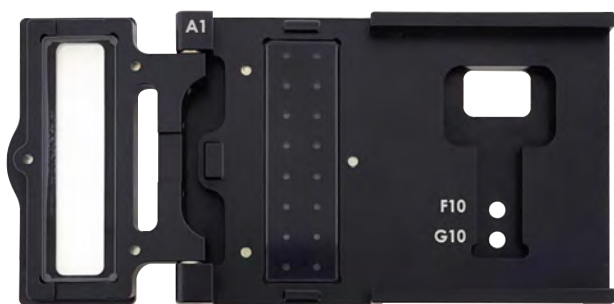
Measurement menu configuration		
	Menu	Factor
Nucleic Acid (ng-cm/μl)	dsDNA	50
	ssDNA	33
	RNA	40
	Other	Input
Protein (g-cm/l)	Protein	1
	BSA	1.5
	IgG	0.71
	Lysozyme	0.38
	Other	Input
OD600	OD600	1

Specifications			
Product Name	NanoQ Lite	Cuve Lite	
Photometrics System	Microvolume Spectrophotometer	Cuvette Spectrophotometer	
Light Source(s)	LEDs		
Lifetime	Up to 10 years		
Detector	Two Silicon photodiodes	Silicon photodiodes	
Spectral Resolution	≤ 8.0 nm		
Wavelength Range	Pedestal: 260, 280 / Cuvette: 600 nm	450, 540, 600, one selected wavelength (customizable)	
Wavelength Accuracy	± 1 nm		
Baseline Correction Wavelength	Pedestal: 360 nm	-	
Absorbance Precision	0.004 AU (0.5 mm path)		
Absorbance Accuracy	< 5% (at 1A at 260nm)		
Measurement Time	< 10 seconds		
Microvolume	Minimum Sample Volume	1 μ L	-
	Pathlength	0.1 to 0.5 mm	-
	Photometric Range	0.004 to 40 Abs	-
	Detection Limit	4 - 2,000 ng/ μ L (dsDNA)	-
		0.12 - 60 mg/mL (BSA)	-
		0.06 - 29 mg/mL (IgG)	-
Pedestal Compartment Material	303 stainless steel and quartz fiber	-	
Cuvette	Photometric Range	0 to 2 A	
	Display Range	0 to 3 A	
	Center Height (Z-height)	15 mm	
	Cell Types	12.5 x 12.5 mm (Outside dimension)	
CPU	ARM® Cortex-M series		
Display	4.3-inch, (resolution: 480 * 272 pixels)		
Touchscreen	Resistive touch		
Glove Compatibility	Compatible with lab gloves		
Storage	4 GB	200 Measurement data	
Operating Voltage	12 V (DC)		
Dimensions(W*D*H)	145mm * 190mm * 120mm		
Weight	1.4 kg	1.0 kg	

MRX Series

Microplate Reader MRX series can be used with 6 - 384 well plates and cuvettes, providing excellent measurement performance in the UV-VIS range.

MRX series can be used for chemical, biological or physical experiments. MRX series provides Endpoint, Kinetic, Spectral scanning, and Well area scanning modes with main functions such as incubation and shaking functions.



Microvolume Plates (Optional)

The dedicated microvolume plates for MRX A2000 are used for processing small quantities (2 μ L) of samples, especially DNA, RNA, proteins, and more. They typically consist of small wells designed to accommodate various experimental samples. These plates are used to precisely measure and analyze sample quantities. This enables accurate analysis with small sample volumes, enhancing research efficiency.

- 01 Quantitative analysis of nucleic acids and proteins, ELISA, microbial growth experiments with selectable wavelengths in the range of 200 – 1100 nm.
- 02 Various workflows available in Endpoint, Kinetic, Spectral scanning, and Well area scanning modes.
- 03 Compatible with 6 – 384 well plates
- 04 Micro-volume Plate enabling quantitative analysis of nucleic acids without dilution.
- 05 Temperature control up to 65°C and condensation control for temperature-sensitive assays.
- 06 3 types of shaking mode: Linear, orbital and double orbital.
- 07 Cuvette measurement available. (optional)



- Endpoint or Kinetic ELISA
- Nucleic acid, protein direct quantification
- Microbial growth assays
- Cytotoxicity assay
- Cell proliferation assay
- Spectral scanning

Configurations

MRX B2000	Shaking
MRX A2000 (MR)	Shaking, Incubating
MRX A2000 (MRC)	Shaking, Incubating, Cuvette measurement

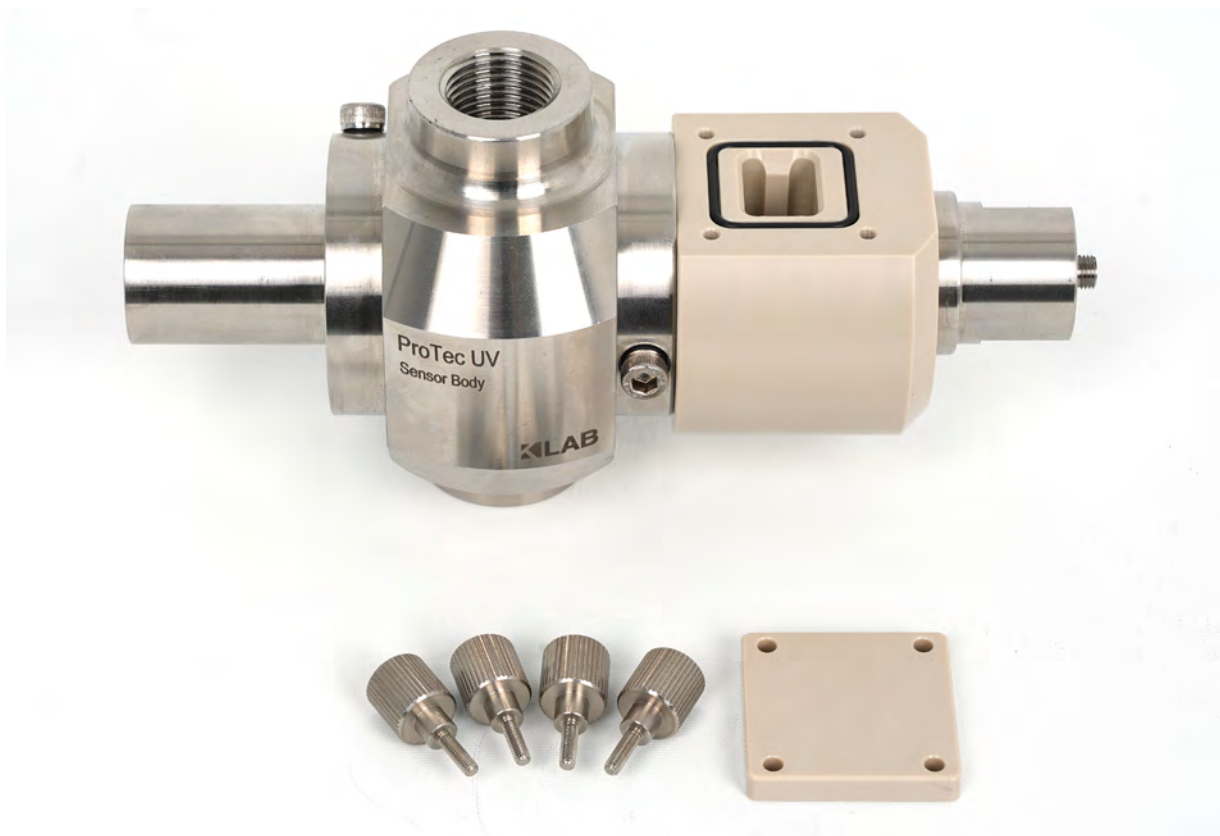
Specifications

Detection modes	UV-Vis absorbance
Light source	Xenon flash
Detector	Photodiode
Wavelength selection	Monochromator
Wavelength range	190 to 1,100 nm / 1 nm increments
Bandwidth	2.9 nm
Linearity @ 450 nm	< 1% from 0 to 2.5 OD
Accuracy @ 450 nm	< 3% at 2.5 OD
repeatability @ 450 nm	at 2 OD: $\pm 0.5\%$
OD repeatability	< 0.5% at 2.0 OD
Read-out range	0 to 4.0 OD
Resolution	0.0001 OD
Pathlength correction	yes
Wavelength accuracy	± 1.5 nm
Wavelength repeatability	± 0.2 nm
Stray light	0.03 % at 230 nm
Measurement speed (from A1 back to A1)	8 seconds with 96-well plate
Shaking	Linear, orbital, double orbital
Read methods	Endpoint, Kinetic, Spectral scanning, Well area scanning
Microplate types	6-, 96-, 384-well plates
Incubation range	From ambient + 2 °C to 65 °C
User interfaces	PC software
Connections	Ethernet port
Power	110/220 V, 50/60 Hz
Weight	12 kg
Dimensions(W*D*H)	340 mm * 410 mm * 225 mm

ProTec UV Sensor

ProTec UV Sensor is a single channel Process UV Absorption sensor with a lamp reference channel applied.

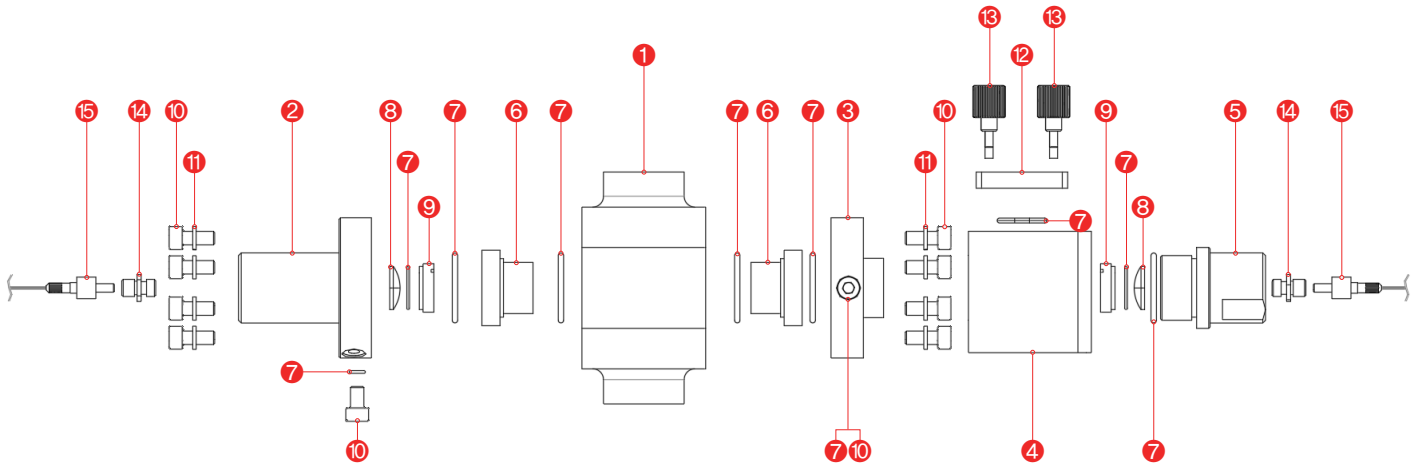
It is designed for inline process monitoring and ensures accurate concentration measurements and reproducibility and linearity. When measuring data, it compensates for fluctuations in the intensity of light by simultaneously measuring the intensity of light from the lamp with the PD of the reference channel.



Depending on the needs, users can choose from a variety of wavelengths such as 254, 280, 290, 300, 313 nm, and optical pathlength in the range of 1 – 160 mm. This makes it applicable to Aromatic compound detection, protein concentration, and other demanding applications.

The use of sapphire as optical windows provides high hardness and resistance to chemical corrosion. It also offers a variety of line sizes and process connections and wetted materials to facilitate connection to process equipment.

- Inline real-time process monitoring
- Compensation for fluctuations in light intensity using reference channel
- Provides various line sizes and process connection methods (line size, process connection)
- Wetted materials



Number	Part Name	Material	Q'TY
1	UV SENSOR BODY	STS316L	1
2	SENSOR COVER 1	STS316L	1
3	SENSOR COVER 2	STS316L	1
4	FILTER HOUSING	PEEK	1
5	FIBER TUBE	STS316L	1
6	WINDOW	sapphire	1
7	O-RING	VITON,EPDM	10
8	LENS	-	2

Number	Part Name	Material	Q'TY
9	LENS FIX	STS316L	2
10	BOLT	STS304	18
11	WASHER	STS304	18
12	FH COVER	PEEK	1
13	HAND BOLT	STS304	4
14	CONNECTOR	STS304	2
15	FIBER	-	2

Specifications	
Measurement principle	1-Channel Absorption of light
Measurement wavelength [nm]	260, 280, 360, ... others on request
Light source	LED
Detector	Silicon photodiode (hermetically sealed)
Reference detector	Silicon photodiode (hermetically sealed)
Optical pathlength	0.1 - 200 mm
Material	Stainless steel KS D 2706 STS316L / PEEK
Line size	10, 15A, ... others on request
Process connection	3/8", 1/2" PT, ... others on request
Process pressure	0.01-60 bar (0.15-870 psi)
Window	Sapphire
Window gaskets	Viton® (FDA), EPDM

ProTec UV Converter

ProTec UV Converter is a single channel UV Absorption Sensor Converter with a lamp reference channel applied.

ProTec UV Converter is a microcontroller-based photometric converter that can be applied to ultraviolet and visible light absorption sensors (ProTec UV Sensor). User convenience has been improved by applying a 7-inch color touch display and menu-based UI. Measured values are expressed through text or graphs, and a data log function is provided to check the trend of the measured values.



- 01 It is possible to create a calibration curve through 8 linear tables and slope+offset input, so it is possible to measure and apply various kinds of samples.
- 02 Analog input/output connection is possible using the panel connector, and multiple analog and relay outputs are provided.
- 03 Measurement results such as absorbance, transmittance, and concentration are output to the analog terminal in real time. Through this, it is possible to control the production process using PLC.
- 04 Up to 20,000 data logs are stored inside the equipment for quality assurance and factory management. Saved data can be transferred to a PC via Ethernet.

- Real-time Photometric Converter
- Data log recording for quality control (up to 20,000 data)
- Easy installation using Optical Fiber
- 2 analog outputs for PLC connection
- Data PC transmission through Ethernet
- Easy maintenance
- Explosion-proof case (Optional)



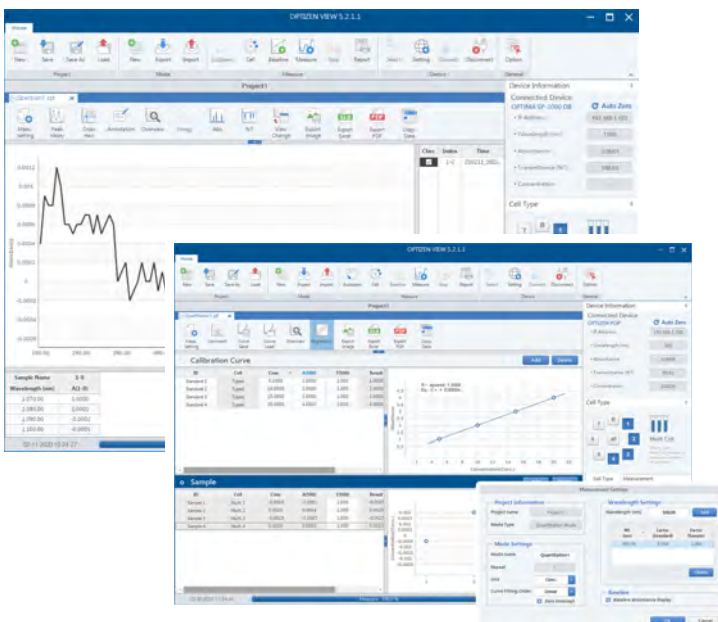
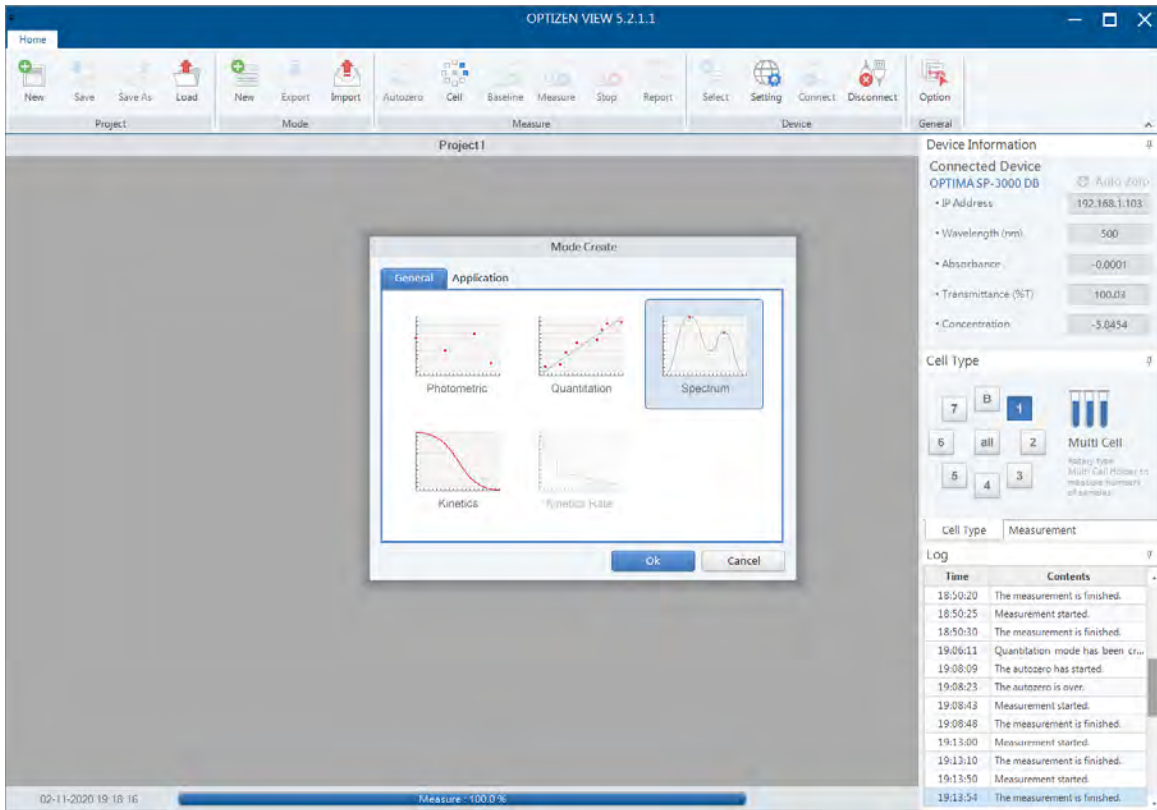
Number	Port name	Description	Value
1	LIGHT SOURCE	LED Light Source Output	Radiated Power < 15 mW
2	DETECTOR	Light Detect Sensor Input	Spectral range : 190 nm to 1100 nm
3	mAIO_CHx	0/4 - 20 mA Input/Output	Load Resistance < 600 Ω
4	REL_OUT	Relay contact (SPST/SPDT)	2 A at 30 VDC / 0.2 A at 250 VAC
5	ETHERNET	Ethernet TCP/IP port	Cat5e
6	RS232	RS-232 Serial comm. port	Receiver input : -25 V to 25 V
7	AC INPUT	220 VAC Power input	90 VAC to 260 VAC / 47 Hz to 63 Hz

Specifications	
Product name	ProTec UV Converter
Housing material	Steel (Powder coated)
Display	7 inches (Resistive touch screen)
Display resolution	800 x 480 pixels (Color)
mA-inputs/outputs	"4 channels (4-20mA or 0-20mA) Load: 100-600 Ohm"
Relay outputs	4 independent software-configurable SPDT relay contacts
Interface	RS232/Ethernet
Supply Voltage	Selectable (115-230V AC 60Hz / 12V DC)
Power Consumption	Max. 12W

View

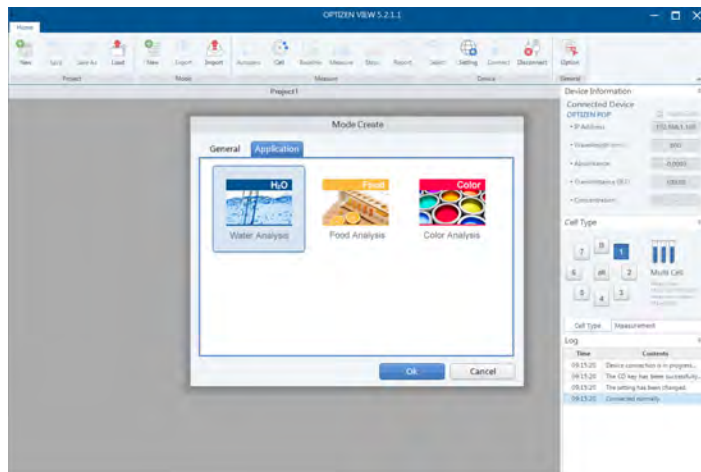
Compatible devices: Alpha, POP, QX

View is a Windows-based PC software for operating compatible devices and manage data via your PC. View selectively opens its measurement mode according to its compatible models. Nevertheless, it generally offers 4 different mode; Photometric Mode to measure absorbance(Abs) or transmittance(%T), Quantitation Mode to manage calibration curve and measure the concentration of unknown samples, Spectrum Mode to check the spectrum of a certain wavelength band, and Kinetic Mode to check the change in absorbance(or transmittance) over time at a specific wavelength.



- 01 Project tool enabling to manage various types of modes at once.
- 02 Monitoring window immediately checking the current wavelength or measured value.
- 03 Graph and table functions for easy analysis of complex spectral data like peak/valley, crosshair, tooltip, etc.
- 04 Providing a function to analyze the absorbance change rate and enzyme activity value according to the enzyme reaction by measuring the change in absorbance over time.
- 05 Decimal control possible for absorbance transmittance and concentration.
- 06 Providing easy and convenient report generation and printing functions.
- 07 Multilingual UI support. (English, Chinese, Korean)
- 08 Provides export function in various formats (Excel, PDF, Data Copy, HTML)
- 09 FDA 21 CFR Part 11 Compliance (*Secure must be purchased separately)

Application Mode



View provides three application modes: Water analysis, food analysis, and color analysis.

*Water analysis mode is available for a fee.

Water analysis mode (optional)

- This mode enables water quality analysis using calibration information for water quality analysis.
 - A separate tab is provided for each water quality assay kit manufacturer. (Hach, Merck, Humas)
 - Provides the ability to judge the validity of measurement results.
 - Individual calibration curves can be created with customization.
- *Measurement kit must be purchased separately.

Food Analysis Mode(DOBI, Wine, Olive Oil)

DOBI of palm oil

- Provides DOBI (Deterioration of Bleachability Index) value measurement and discrimination function.
- Calculates DOBI value based on absorbance measured at 446 nm and 269 nm.
- The concentration of Carotene in the oil can be displayed when entering the weight of the sample.

Wine

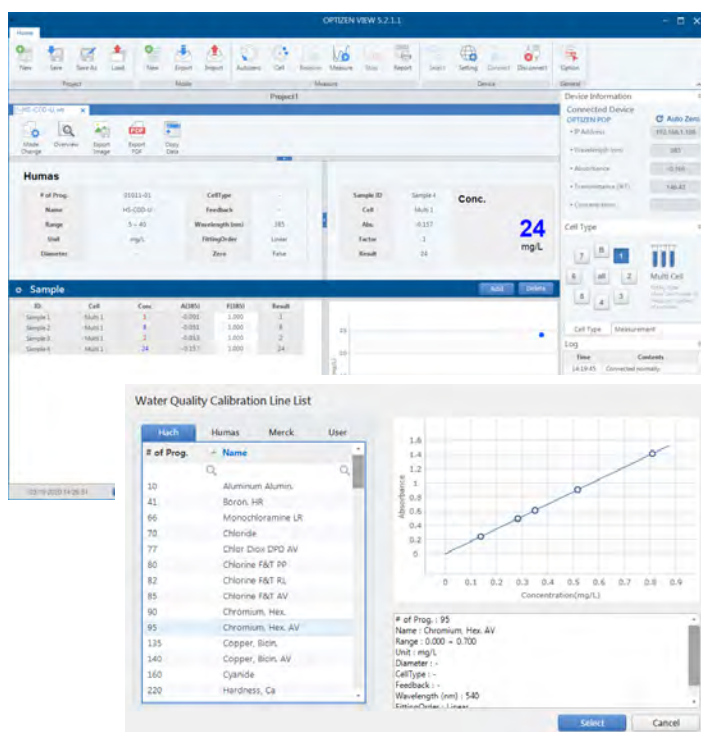
- Provides a mode to measure Wine Color Intensity and Wine Hue.
- Wine Color Intensity – Calculated as the sum of absorbance in Violet, Green, and Red, and checks the darkness of the wine.
- Wine Hue – Calculated as the ratio of absorbance in the Violet and Green areas, and checks the tone of the wine

Olive Oil

- Provides a function to determine whether each oil meets the standard of each level. (Extra virgin olive oil / Virgin olive oil / Refined olive oil)
- Meets EEC / 2568/91 (1991) and EEC / 2472/97 (1997) regulations.

Color Analysis Mode

- Yellowness is an indicator of overall degradation, pollution and combustion from light, chemical exposure and processing.
- Yellowness Index (YI E313) can be measured in Color Analysis mode.



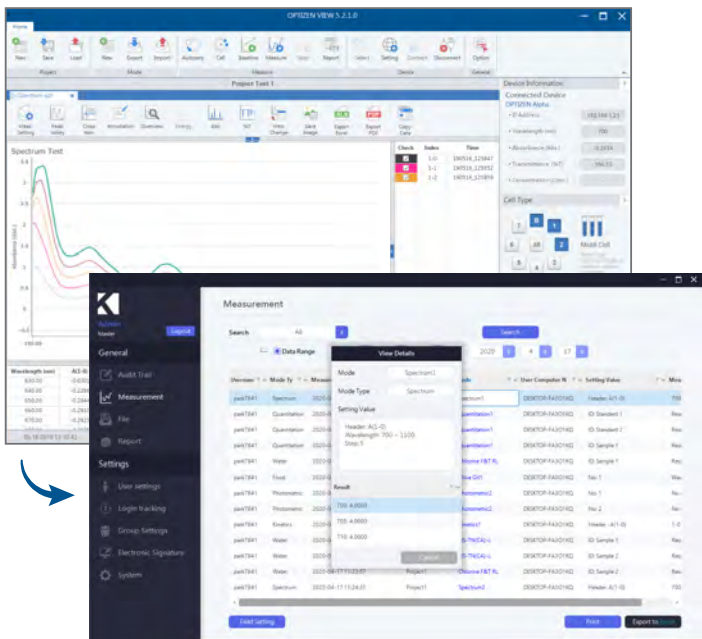
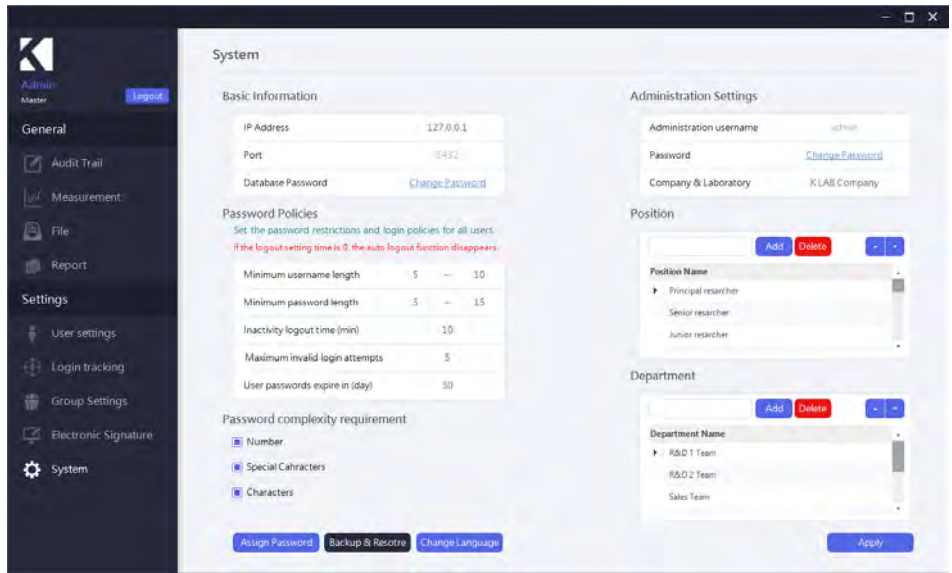
Minimum Specifications	Recommended Specifications
Windows® 7, 8, 10	Windows® 8, 10
Intel® Pentium® D or AMD Athlon 64 X2	Intel® Core 2 Duo E6600(2.4 GHz) or AMD Athlon 64 X2 5000+ (2.6 GHz) or more
NVIDIA® GeForce; 6800(256 MB) or ATI Radeon X1600 Pro(256 MB) or more	NVIDIA® GeForce; 8800 GT(512 MB) or ATI Radeon HD 4850(512 MB) or more
2 GB RAM	4 GB RAM
1 GB or more free hard drive space	1 GB or more free hard drive space
Minimum 1920 * 1080 display resolution	Minimum 1920 * 1080 display resolution

Secure

Meets 21 CFR Part 11 Compliance and Audit Trail Features

Secure provides a convenient and simple feature that automatically records and monitors all activities of users so that the data is saved in View. Secure contains 21 CFR Part 11 guidelines from the U.S. FDA enforcing users to store and protect electronic records and conduct electronic signatures. This is to secure the integrity of records and the reliability of medicines and to prevent inappropriate data manipulation by tracking and keeping important data (analysis information, analysis reports, records related to the operation of analysis equipment, etc.).

What is 21 CFR Part 11?
 Pharmaceutical companies must comply with GMP* and GMP places emphasis on electronic records and electronic signatures. To this end, special requirements for electronic records and electronic signatures have been established as Part 11 in 21 CFR by the U.S. FDA.
 *Good Manufacturing Process mandatory for all processes such as manufacturing and shipping products in order to manufacture excellent and safe drugs



- 01 System verification, record creation, record protection, access control, audit trail (registration, change, event occurrence, operator action, login/out, electronic signature), operation check, authority check, document encryption, etc. can be checked.
- 02 Electronic signatures are unique to each individual and verify an individual's identity prior to registration. In addition, to prevent illegal use of IDs and passwords, electronic signatures are made based on IDs and passwords.
- 03 It supports an audit trail on users to log in and log out in Window based PC software for auditing and tracking user activities such as login, measurement, storage, reporting, etc, performed in View.
- 04 Provides Checksum function to detect damage and deformation of measurement data.
- 05 Provides user management, user-specific group, authorization functions.

*In order to use Secure, it operates normally only on a PC in which View (CFR Mode) software is installed.

21 CFR Part 11 Implementation

The table below introduces 21 CFR Part 11 compliance by item through Secure.

Part 11	21 CFR Part 11	Yes/No	Secure
11.10(a)	Validation of systems to ensure accuracy, reliability, consistent intended performance, and the ability to discern invalid or altered records.	Yes	<p>While the customer is responsible for developing a verification protocol suitable for the system, K LAB provides IQ, OQ and PQ services. The device is equipped with a function that can verify its performance. Standard materials or recalibration services are available.</p> <p>We use a system that requires an Username and Password so that only authorized users can access the system.</p> <p>Checksums are included to clarify the origin of the data or to prevent tampering. Unauthorized checksums are denied to access.</p>
11.10(b)	The ability to generate accurate and complete copies of records in both human readable and electronic form suitable for inspection, review and copying by the agency. Persons should contact the agency if there are any questions regarding the ability of the agency to perform such a review and copying of the electronic records.	Yes	<p>Secure enables historical measurement results, reports and audit trails. Print and export utilities are also provided to facilitate this.</p> <p>The system can make accurate and complete copies of all records. In particular, all methods and data files created by View are stored in the database as intact files in their original format.</p> <p>Methods and data files contain electronic records, data, methods, audit trail records, operator IDs and electronic signatures. Secure can load them at any time in the form of copies of the original data for FDA review or inspection.</p>
11.10 (i)	Determination that persons who develop, maintain or use electronic record/electronic signature systems have the education, training and experience to perform their assigned tasks.	Yes	<p>Records of K LAB staff's training and recruitment can be verified during on-site audits after the verification process.</p> <p>In addition, all relevant K LAB staff have been trained on regulatory requirements.</p> <p>It is the responsibility of the user organization to ensure that users of the system have received education, training, and experience consistent with their duties.</p> <p>K LAB provides basic guidance training for system users during product installation process. Training courses are also available for administrators and users.</p>
11.50 (a)	Signed electronic records shall contain information associated with the signing that clearly indicates all of the following: The printed name of the signer; The date and time when the signature was executed; and The meaning (such as review, approval, responsibility, or authorship) associated with the signature.	Yes	<p>Secure results provide electronic signature function. Electronic signature displays include:</p> <ul style="list-style-type: none"> · User username, signer's full name · The signer's title or profile · The date and time the signature was applied. · Significance (criticism, approval, responsibility, author) with respect to the signature; <p>All signatures are saved with the resulting file and cannot be changed.</p>
11.50 (b)	The items identified in paragraphs (a)(1), (a)(2), and (a)(3) of this section shall be subject to the same controls as for electronic records and shall be included as part of any human readable form of the electronic record (such as electronic display or printout).	Yes	<p>Electronic signatures appear on View results reports and can be displayed or printed electronically.</p>
11.70	Electronic signatures and handwritten signatures executed to electronic records shall be linked to their respective electronic records to ensure that the signatures cannot be excised, copied, or otherwise transferred to falsify an electronic record by ordinary means.	Yes	<p>You must have a verified user username and password to enter your signature in View. Electronic signatures are always stamped on electronic records and cannot be transferred from one record or file to another.</p>
11.100 (a)	Each electronic signature shall be unique to one individual and shall not be reused by, or reassigned to, anyone else.	Yes	<p>The View Signing and Authorization Tool requires two separate proofs of identity: a unique Username and Password. Each user must have a unique and valid user username and password.</p>
11.200 (a) (1)	Employ at least two distinct identification components such as an identification code and password.	Yes	<p>View's signature and authentication tools require two separate proofs of identity: a unique user username and password. Each user must have a unique and valid username and password. No user can share the same user username/password combination.</p>

This table is a simple reference material excerpted to help users understand. For more information, please contact us.

ACCESSORIES

Compatibility with various accessories provides the perfect solution for each laboratory and experimental environment.



Multi Cell Holder

The multi cell holder to be able to measure automatically a great volume of sample.

(*) Compatible Products

8 Cell holder

- Alpha (*Initially installed)
- POP (*Initially installed)
- POP-V (*Initially installed)



Micro Volume Cell Holder

The single cell holder available, in case that sample's volume is below 500 μL .

Optical Path Length: 10 mm
Center Height: 15 mm

(*) Compatible Products

- POP
- POP-V
- Alpha



Round Cell Holder

The single cell holder available, when using circle cell to analyze a sample.

Test Tube Diameter: 16 mm / 25 mm
Test Tube Height: max. 100 mm

(*) Compatible Products

- POP
- POP-V
- Alpha



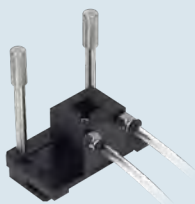
Long Path Cell Holder

The single cell holder is used, when measuring after lengthening a light path in order to analyze a low density sample.

Optical Path Length: 50 - 100 mm

(*) Compatible Products

- POP
- POP-V
- Alpha



Temperature Cell Holder (Water/Oil Circulator Type)

This is used to control the temperature of the cell holder by using a temperature circulatory device.

Tubing Size: 6 mm

(*) Compatible Products

- POP
- POP-V
- Alpha



Film Cell Holder

The single cell holder available for measuring the solid sample for a light to pass through such as an optical film or a slide glass.

Sample Size: max. 100 mm(H) x 70 mm(W)
Sample Thickness: max. 5 mm

(*) Compatible Products

- POP
- POP-V
- Alpha



Sipper

It is possible to perform automatic suction and measurement of liquid samples, and it has a built-in function to automatically correct the amount of suction, enabling accurate and stable sample processing.

Flow rate range: 0.035~570
Speed range: 0.5~150 rpm
Speed resolution: 0.1 rpm (0~100 rpm), 1 rpm (100~600 rpm)

(*) Compatible Products

- POP
- POP-V
- Alpha

OPEN LAB

K LAB provides training courses to increase laboratory efficiency and improve equipment operation, and problem-solving skills.



Join product training and transform your lab operations at OPEN LAB. By operating various analysis devices, OPEN LAB supports quality services, analysis methods and analysis solutions that can satisfy customers. Also, OPEN LAB explains the theory of devices so that there is no inconvenience in using our devices.

We are striving to provide various and systematic training programs for customers, such as operation training, maintenance training to react to various trouble shootings, etc. application experts, scientists, and researchers work together to help optimize workflow and results for productivity.

1. Education Outline

- 1) Organizer: K LAB
- 2) Target: Users and Distributors
- 3) Place
 - Offline Training: Training is conducted in OPEN LAB, and it comes with various training manuals.
 - Online Training: You can experience face-to-face training through ZOOM or Google Meet in real time.
 - * What you need for online education:
 - Computer or other device to view the Webex meeting
 - Telephone or ability to call in via your computer
 - Microphone – USB headset/earbuds with microphone
- 4) Certificate provided upon completion or training.



2. Customized Training

A customized, onsite or online course allows you to train your entire team together, without having to organize travel.

3. How to apply for training

Contact each sales representative

Product Training

Product Overview
Installation Qualification(IQ) & Operational Qualification(OQ)
Maintenance and Customer Service

Maintenance Training

Basic Level - Disassembly, replacement, re assembly and calibration
Intermediate Level - Diagnosis and solving the problem
Professional Level - Alignment
Master Level - Fixing all parts

*If you need training outside of the curriculum, please contact us.

K LAB (KOREA) CO.,LTD.

Address

(34014) 94-23, Techno 2-ro, Yuseong-gu, Daejeon, Republic of Korea

URL

www.klab.im/english

Telephone / Fax

+82 . 42 . 932 . 7586 / +82 . 42 . 932 . 7589

Contact

sales@klab.im



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