

Analytical and Measuring Instruments

- **LAB (Laboratory)**
UV-VIS Spectrophotometer
Water Analyzer
Microvolume Spectrophotometer(DNA/RNA, Protein, IgG, etc.)
- **HTS (High-throughput Screening)**
Microplate Reader(ELISA, Endotoxin and etc.)
High-throughput NIR Analyzer
- **PAT(Process Analytical Technology)**
UV Analyzer



K LAB Co., Ltd. offers a 25 months warranty on all our products.
We confidently guarantee the highest quality and durability.
Experience products you can trust with peace of mind!



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K LAB products

UV-Vis & Microvolume Spectrophotometer



POP (190 to 1,100 nm)

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



Alpha (190 to 1,100 nm)

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



MRX Series (190 to 1,100 nm)

- 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



NanoQ Plus (190 to 850 nm)

- Microvolume + Cuvette
- Abs Precision: 0.002 AU (0.5 mm path) or 1%
- Abs Accuracy: 3% @ 0.97A (302 nm)
- Pathlength: 0.03 – 1.0 mm
- Maximum Concentration
27,500 ng/μL (dsDNA), 825 mg/mL (BSA)



POP Vis+ (340 to 1,100 nm)

- Accuracy: $\leq \pm 1.5$ nm
- Reproducibility: $\leq \pm 0.1$ nm
- Spectral Resolution: 1.0 nm
- Accuracy
< ± 0.005 Abs at 0.0 to 0.5 Abs
- Linearity: < 0.5% to 2Abs @ 546 nm



NanoQ Lite+

- Microvolume + Cuvette
- Pedestal: 230 / 260 / 280 nm
Cuvette: 600 nm (OD600)
- Abs Precision: SD 0.002 or 2% CV
- Abs Accuracy: 3% @ 0.97A (302 nm)
- Max: dsDNA 1,500 ng/μL, RNA 1,200 ng/μL



Cuve Lite

- LEDs
- Cuvette Only (No Microvolume)
- Abs Precision: 0.004 AU
- Abs Accuracy: < 5% @ 1A
- Wavelength Range: 450, 540, 600,
one selected wavelength (customizable)



MRX N1 (900 to 2,500 nm)

- Double retro-reflector design
- 2-stage TE cooled InGaAs array
- SNR: 100,000:1 @ 60 s / 4 cm⁻¹
- Scan frequency: > 4 Hz @ 4 cm⁻¹
- Optical resolution: 0.66–5 nm @ 8 cm⁻¹
- Throughput: 96-well plate: ~200–540 s

Alpha

The luxuriously designed Alpha is a spectrophotometer that uses the double-beam method.

Alpha measures the transmittance and absorbance of samples in the UV and visible regions, enabling precise analysis of concentration and purity. From routine laboratory experiments to advanced research applications, it delivers excellent reproducibility and reliable results across environmental, biotechnology, and chemical fields.



Alpha features a double-beam optical system that simultaneously measures reference and sample beams, minimizing light source fluctuations and ensuring reliable data even during long-term measurements.

It supports photometric measurements, quantitation, full-spectrum scanning, and kinetic analysis, providing versatile performance for a wide range of research applications.



Convenience

- 01 Built-in self-diagnostic function
- 02 Favorite registration and recall of measurement settings and results
- 03 PC connectivity via VIEW software

Expandability

- 01 Displays instrument operating time, lamp warm-up status, and cumulative lamp usage
- 02 User login function for enhanced data security
- 03 Automatic measurement of up to 8 samples with the integrated multi-cell holder
- 04 64 GB internal storage capacity

Security / Management

- 01 Direct data printing via external printer connection
- 02 Voice guidance with adjustable volume
- 03 Compatible with various cell types with quick cell selection

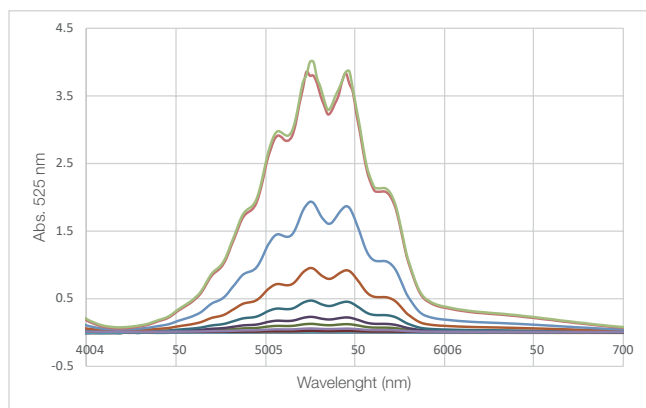


Figure. Absorption spectra of potassium permanganate (\$KMnO_4\$) at different concentrations

Measured over a wide concentration range of 0.03–265 mg/L, the results demonstrate Alpha's excellent stray light suppression, maintaining outstanding linearity without signal saturation even at a high absorbance of 3.9866 Abs.

Stray light caused by scattering and diffraction in optical components can reduce linearity and introduce measurement errors, particularly in high-absorbance analysis.

Alpha employs a dual stray-light suppression design, combining a dedicated Stray Light Trap that absorbs scattered light with a rotating Filter Wheel that physically blocks unwanted light.

This design ensures stable baselines and a high signal-to-noise ratio (S/N), minimizing signal distortion.

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 1,100 nm)		(190 to 1,100 nm, one hour after light source turned ON)
	(Optional) Variable - 0.5, 1, 1.5, 2, 4 nm	Photometric Repeatability	Less than ± 0.0002 Abs at 0.5 Abs
Wavelength Range	190 to 1,100 nm		Less than ± 0.0006 Abs at 1.0 Abs
Wavelength Display (setting)	0.05 nm		Less than ± 0.0010 Abs at 2.0 Abs
Wavelength Accuracy	± 0.3 nm (For entire range)	Stray Light	Less than 1.00 % (198 nm KCl)
	± 0.1 nm (656.1 nm)		Less than 0.05 % (220 nm NaI)
Wavelength Repeatability	± 0.1 nm		Less than 0.05 % (340 nm $NaNO_2$)
Wavelength Slew Rate	Approx. 25,000 nm/min	RMS noise	Less than 0.00005 Abs (700 nm)
Scanning Speed(Max)	6,000 nm/min	Monochromator	Czerny-Turner type with 1,200 lines/nm blazed grating
Lamp interchange Wavelength	340 to 410 nm (Default 370 nm)	Standard Cell Holder	Automatic Rotary type 8-position Multi-Cell Holder
Photometric Range	Absorbance: -4 A to 4 A	Operating System (OS)	Windows 10 (Embedded PC)
	Transmittance: 0% to 400%	Display	8 inch color LCD with touch screen
Photometric Accuracy	± 0.002 Abs at 0.5 Abs	Control Options	Onboard with built-in touchscreen
	± 0.004 Abs at 1.0 Abs		PC Software (View)
	± 0.006 Abs at 2.0 Abs	Dimensions(W*D*H)	520 mm * 500 mm * 200 mm
	(NIST930D/NIST1930 or equivalent)	Power Requirement	AC 100-240 V, 50/60 Hz, 140 VA
Environmental requirements	Temperature: 15 °C to 35 °C	Weight	14 kg
	Humidity: 30 % to 80 %	PC Software	(Optional) FDA 21 CFR Part 11 compliance S/W (Secure)

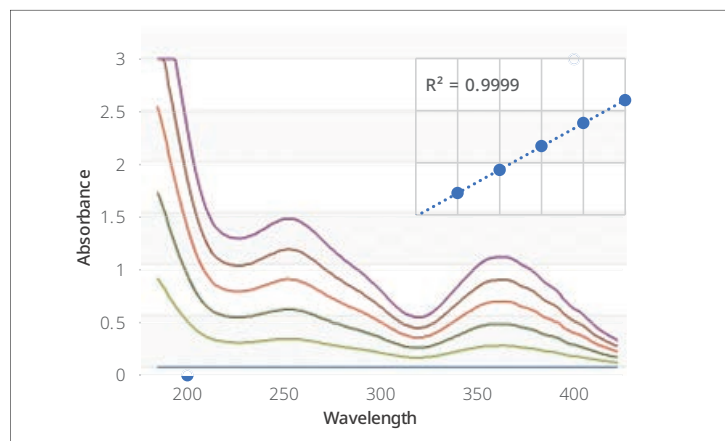
POP Series

POP chooses our unique high resolving power wavelength measurement mechanism.

The POP series is a single-beam UV-Vis spectrophotometer that offers stable performance, a compact footprint, and cost-effective operation. Depending on the specifications, the series is available in two models: POP and POP-V. It provides four measurement modes—Photometric, Quantitation, Spectrum, and Kinetics—allowing users to select the appropriate mode according to their analytical needs.



POP maintains excellent linearity over an absorbance range of 0–3 Abs, enabling accurate concentration determination through standard curve generation. Calibration using SRM 930a (0–100 mg/L) at 350 nm shows a high R^2 value, with a slope of 0.0107 consistent with the absorbance coefficient (ϵ_a).



User Experience

- 01 Intuitive graphical help for easy operation, even for beginners
- 02 Quick menu icons allow users to check and change cell type without entering measurement modes
- 03 Voice guidance with adjustable volume for experimental guidance

Efficiency

- 01 Favorite function for quick access to measurement data and analysis settings
- 02 Integrated multi-cell holder enables automatic measurement of multiple samples

Management

- 01 Instrument control and PC connectivity via dedicated VIEW software
- 02 Real-time monitoring of lamp warm-up status and cumulative usage time for optimal operation

D2-Lamp : 62.79 (Hour)
W-Lamp : 62.79 (Hour)
Uptime : 0.04 (Hour)

⌚ White : before lamp warm up
🟢 Green : after lamp warm up (1 hour)

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 1,100 nm	340 to 1,100 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% NaNO2)
	< 0.05 % (at 340 nm with 0.5% NaNO2)	
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

We recommend QX Series, which provides an excellent water quality analysis function.

QX is designed for environmental researchers, facility managers, environmental engineers, and water treatment professionals to perform essential water quality analyses quickly and accurately. Featuring voice guidance and hundreds of pre-programmed water testing methods, QX enables simple and reliable analysis of key parameters such as COD, TN, and TP.



Equipped with a high-precision Czerny–Turner monochromator and advanced signal processing technology, QX delivers a fast scanning speed of up to 4000 nm/min and a spectral bandwidth (SBW) of ≤ 1.8 nm.

It ensures low noise and high photometric accuracy (± 5 mAbs or 1%) with excellent repeatability (within ± 3 mAbs). Each instrument is performance-verified using NIST SRM 935a and SRM 930e standard reference materials.

Measurement results of SRM 935a in 0.001 M perchloric acid solution (60 mg/L)

Wavelength	235.0	257.0	313.0	350.0
Certified Value	0.7472	0.8637	0.2935	0.6411
Measured(Mean)	0.740	0.856	0.292	0.641
Measured(Std)	0.000	0.000	0.000	0.000

Measurement results of SRM 930e

Wavelength	440.0	465.0	546.1	590.0	635.0
Certified Value	1.0218	0.9610	0.9983	1.0938	1.0738
Measured(Mean)	1.022	0.961	0.998	1.094	0.074
Measured(Std)	0.000	0.000	0.000	0.000	0.000

User Experience

- 01 Dedicated water analysis functions with pre-installed methods for major test kits
- 02 Instant analysis by simply selecting built-in methods without complex setup

Convenience

- 01 All-in-one cell holder allowing the use of multiple cell types without holder replacement
- 02 Wide cell compatibility (10 mm / 1-inch square cells, 16 mm / 25 mm round tubes)
- 03 Voice guide function providing step-by-step instructions for test procedures

Efficiency

- 01 Favorite function for quick access to frequently used methods and measurement data
- 02 Convenient data printing and reporting via network printer connectivity
- 03 Online software updates to maintain the latest features

KW(K LAB Water) 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

M 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+

Hu 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-PO4(P)-L	0.01	3 mg/L
HS-PO4(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

- The listed water analysis methods represent only a portion of the available methods.
- For detailed information, please contact K LAB Co., Ltd.

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 1,100 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 (KW Mode), > 480 (M Mode)
	(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

The M mode and Hu mode incorporate independent calibration curves designed for compatibility with reagent specifications manufactured by Merck and Humas, respectively. Merck and Humas are registered trademarks of their respective owners. K LAB Co., Ltd. is not affiliated with or endorsed by these trademark holders.

POP Vis+

POP Vis+ is a compact, cost-effective visible spectrophotometer designed for routine absorbance measurements in the visible range.

POP Vis+ focuses on delivering essential performance and high usability for routine measurements, education, and QC environments rather than high-resolution spectral analysis.

Its compact design and interchangeable cells provide flexibility for educational labs, QC testing, and field experiments. With broad cell compatibility and a cost-effective design, POP Vis+ enhances laboratory efficiency.



POP Vis+ features a high-precision photodiode detector and a stray light suppression design, delivering stable absorbance performance across the entire visible spectrum.

It ensures excellent reproducibility and reliable data even during repetitive routine analyses.

An intuitive touch-based UI and wide cell compatibility reduce preparation time and improve operational efficiency.

With its practical design, POP Vis+ is well suited for education, quality control (QC), environmental, and food analysis applications.

- Enables measurement of various sample formats with a single instrument
 - 16 mm test tubes, 1-inch square cells, 1-inch round cells
 - 10 × 10 mm square cuvettes, 10 × 50 mm rectangular cuvettes
- Compact form factor to maximize laboratory bench space efficiency
- Cost-effective solution for establishing a visible-range measurement environment
- Optimized for concentration analysis, fixed-wavelength absorbance measurements, and color change monitoring

Efficiency

- 01 Fast verification instrument supporting the main UV-Vis spectrophotometer
- 02 Cost and space-efficient solution for environments where high-resolution analysis is unnecessary
- 03 Practical solution for laboratories prioritizing performance and cost efficiency

Convenience

- 01 Rapid data verification in QC environments with frequent repetitive measurements
- 02 Concentration monitoring during processes and batch-to-batch quality comparison
- 03 Visible absorbance analysis for color uniformity evaluation and reagent-based reactions

Accessibility

- 01 Ideal for teaching Beer-Lambert law and fundamental absorbance principles
- 02 Easy operation suitable for beginners, educational labs, and multi-user environments

Specifications	
Operating Mode	Transmittance(%), absorbance, concentration (wavelength, time)
Light source	Tungsten-Halogen Lamp (visible range)
Wavelength range	320 - 1,100 nm
Wavelength Accuracy	$< \pm 1.5$ nm
Wavelength Reproducibility	$< \pm 0.1$ nm
Wavelength Calibration	Automatic
Wavelength Selection	Automatic, based on method selection
Spectral Resolution	1.0 nm
Spectral Bandwidth	< 5 nm
Scanning Speed	12.7 nm/s (in 1nm steps)
Photometric Measuring Range	± 3 Abs
Photometric Accuracy	$< \pm 0.005$ Abs at 0.0 to 0.5 Abs. $< \pm 1\%$ Abs at 0.50 to 2.0 Abs (NIST SRM 930e)
Photometric Linearity	$< 0.5\%$ to 2 Abs @546 nm
Stray Light	$< 0.1\%$ T at 340 nm with NaNO_2
Display	7-inch (Resolution: 1280 x 800)
Data Logger	$> 6,000$
Sample Cell Compatibility	16mm test tube, 1 inch square, 1 inch round, 10 * 10 mm square, 10*50 mm rectangular cuvette
Dimensions (H x W x D)	141 mm x 350 mm x 240 mm
Weight	4.4 kg
Operating Conditions	10 at 40 °C, max. 80 % relative humidity (non-condensing)
Storage Conditions	-25 to 60 °C max. 80 % relative humidity (non-condensing)
Enclosure Rating	IP30 with closed lid
Power Supply	Benchtop Power Supply
Power Requirements	110 - 240 VAC (50/60 Hz)
Interfaces	USB type A (2), USB type B, Ethernet, RFID module, RFID
Warranty	25 months

NanoQ Series

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

The NanoQ series incorporates array-type spectrophotometer technology using a Xenon lamp and a CMOS linear image sensor (2048 pixels), enabling rapid measurement of broadband absorption spectra from the ultraviolet to the visible range (190–850 nm) within seconds. It provides various algorithms for spectral analysis, including peak and valley detection. More than 20 measurement modes can be easily configured, including nucleic acids (dsDNA, ssDNA, RNA), proteins (Lysozyme, BSA, IgG), and OD600 measurements.

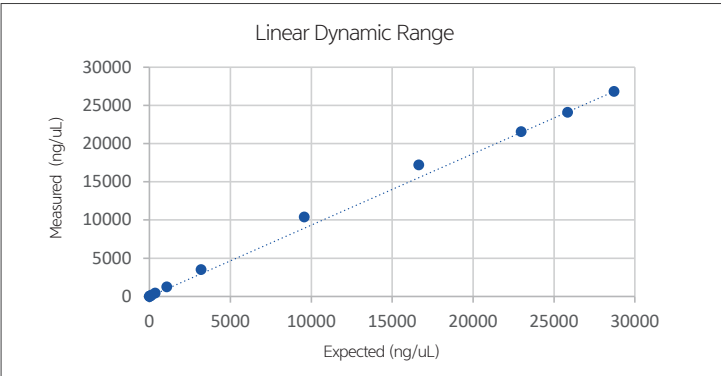
Note The NanoQ Plus model provides pedestal and cuvette measuring mode, but the NanoQ does not.



it Award
Design
Leader's choice
2019

25 MONTHS WARRANTY

The NanoQ series uses sample compression technology to ensure efficient light transmission, stable measurements, and minimal sample consumption. With precise optical path lengths of 1.0, 0.2, 0.1, and 0.03 mm, it maintains consistent accuracy across a wide concentration range, including 2–27,500 ng/μL for double-stranded DNA. Direct, dilution-free measurement reduces analysis time and significantly improves experimental efficiency.



Measurement menu configuration		
	Menu	Factor
Nucleic Acid (ng-cm/μℓ)	dsDNA	50
	ssDNA	37
	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 (10 mm 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® CortexTM-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+

Nano enables fast and accurate quantification of nucleic acid and protein samples using fixed wavelengths at 230, 260, and 280 nm.

NanoQ Lite+ is designed specifically for routine nucleic acid and protein quantification by applying fixed wavelengths at 230, 260, and 280 nm, rather than full-spectrum scanning. This focused measurement approach enables fast and stable analysis of DNA, RNA, and protein samples. With a streamlined, cost-effective configuration that eliminates unnecessary features, NanoQ Lite+ provides a reliable quantification solution for budget-conscious laboratories and educational institutions.

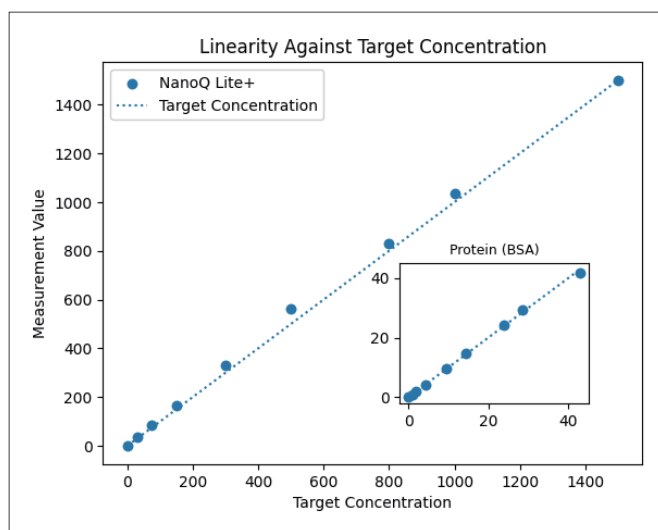


NanoQ Lite+ is a microvolume spectrophotometric instrument designed for fast and accurate measurement of DNA and protein concentrations from small sample volumes.

Its optimized optical path design ensures stable and reliable results even in repetitive measurements, making it well suited for routine research and quality control environments.

- 01 Optimized optical path design (0.75 mm)
Enhances signal stability and minimizes measurement variation
- 02 Excellent repeatability and reproducibility
Maintains low variability even in repeated measurements for reliable results
- 03 Linearity across a wide concentration range
Ensures high agreement with target concentrations from low to high levels
- 04 Suitable for routine laboratory use
Provides stable performance for repetitive analyses in research, education, and QC environments
- 05 Intuitive measurement workflow
Enables fast and simple measurements without complex preparation steps

NanoQ Lite+ demonstrates high linear agreement with target concentrations across a wide range of DNA and protein samples.



Specifications	
Photometrics System	Microvolume & Cuvette Spectrophotometer
Light Source(s)	Xenon flash lamp
Lifetime	Up to 10 years
Detector	2048-element CMOS linear image sensor
Spectral Resolution	≤ 1.8 nm (FWHM at Hg 254 nm)
Wavelength Range	(Pedestal) 230 nm, 260 nm, 280 nm
	(Cuvette) 600 nm for OD600
Wavelength Display (setting)	1 nm
Wavelength Accuracy	± 1 nm
Absorbance Precision	SD 0.002 or 2 % CV, whichever is greater (*)SD from 20 times repeatedly measured at 0.5 Abs
Absorbance Accuracy	3 % (at 0.97A at 302 nm), $23 \pm 2^\circ$
Measurement Time	< 1 second
Sample Volume	1–2 μ L
Pathlength	0.75 mm (fixed)
Photometric Range	0.04 - 30 A (10mm equivalent)
Maximum Concentration	1,500 ng/ μ L (dsDNA)
	1,200 ng/ μ L (RNA)
	45 mg/mL (BSA)
	21 mg/mL (IgG)
Detection Limit	2.0 ng/ μ L (dsDNA)
	1.6 ng/ μ L (RNA)
	0.06 mg/mL (BSA)
	0.03 mg/mL (IgG)
CPU	Octa Core ARM® CortexTM-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

Cuve Lite

A compact sample analyzer with excellent portability, allowing for on-the-go processing and analysis.

K LAB's portable analyzer boasts high portability, enabling fast and accurate measurements anywhere. With a built-in battery(*Optional), it can be used without a power connection, offering convenience wherever you go. Providing excellent performance at an affordable price, it ensures reliable results even in environments where immediate on-site analysis is required. Its user-friendly design makes it easy for anyone to use.



Cuve Lite is optimized for on-site diagnostic testing (POCT) across various fields, including pharmaceuticals, biotechnology, chemistry, food testing, and environmental monitoring, through its combination with a wide range of reagents. It enables fast and accurate real-time analysis in the field.

Cuve Lite main characteristics

- Compact & Ultra-light (1kg): Offers excellent portability
- Versatile Reagent Combinations: Maximizes effectiveness
- Optimized for POCT: Real-time field measurement, OEM bulk supply available
- Battery & AC Power: Built-in auto-charging function (*Optional)
- Intuitive UI: Easy and simple measurements
- USB Port Support: Easy data output to PC and printer
- Semi-permanent LED Lamp: Low-power design reduces maintenance costs

Concentration Measurement

Standard Curve Manager

STC1 (mg/l)	0.1
STC2 (mg/l)	0.1
No Function (mg/l)	0.1

Back Edit Select

STC1 540 nm

1.0000 x Abs +0.0000) * factor Factor: 1.0

-0.0 mg/l

1.000 100.07 % Date: 25.03.19 Time: 22:10:19

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Absorbance Measurement

Absorbance Measurement 540 nm

Factor: 1.0

0.000 Abs

T(%) = 100.00 %
* Abs = OD x Factor

Back Blank Sample Data

Date	Time	Abs	Factor
5.02.11	13:40:01	0.741	1.000
5.02.11	13:40:02	0.729	1.000
5.02.11	13:40:03	0.732	1.000
5.02.11	13:40:04	0.731	1.000
5.02.11	13:40:07	0.731	1.000

Back Delete All Export

Specifications		
Product Name		Cuve Lite
Photometrics System		Cuvette Spectrophotometer
Light Source(s)		LEDs
Lifetime		Up to 10 years
Detector		Silicon photodiodes
Spectral Resolution		≤ 8.0 nm
Wavelength Range		450, 540, 600, one selected wavelength (customizable)
Wavelength Accuracy		± 1 nm
Absorbance Precision		0.004 AU (0.5 mm path)
Absorbance Accuracy		< 5 % (at 1A at 260nm)
Measurement Time		< 10 seconds
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)
Battery (Optional)	Battery Type	Lithium-Ion
	Cell Format	18650
	Cell Configuration	3 S (3 Series)
	Nominal Voltage	10.8 V
	Capacity	3400 mAh
CPU		ARM® Cortex-M series
Display		4.3-inch, (resolution: 480 * 272 pixels)
Touchscreen		Resistive touch
Glove Compatibility		Compatible with lab gloves
Storage		200 Measurement data
Operating Voltage		12 V (DC)
Dimensions(W*D*H)		145mm * 190mm * 120mm
Weight		1.0 kg

MRX Series

Microplate Reader MRX A2000 can be used with 6 - 384 well plates and cuvettes, and provides excellent measurement performance in the UV-VIS range.

The MRX series supports intuitive control and experimental design through PC software, enabling efficient analysis workflows tailored to the user's laboratory environment. It offers multiple measurement modes, including Endpoint, Kinetic, Spectral Scanning, and Well Area Scanning, and integrates incubation and shaking functions within the instrument. This allows reliable application across a wide range of assays, such as ELISA, enzyme kinetics, and cell-based analyses.



Microvolume Plate (*Optional)

The MRX A2000-specific microvolume plate is designed for handling small sample volumes (2 μ L), especially for DNA, RNA, and protein analysis. It typically consists of wells designed to accommodate various experimental samples. This plate allows for precise measurement and analysis of sample quantities, enabling accurate results with minimal sample volume, thereby enhancing research efficiency.

Analytical Flexibility

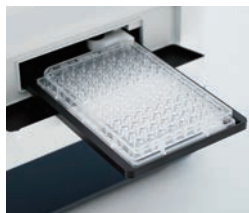
- 01 Filter-free wavelength control from 190–1,100 nm at 1 nm intervals
- 02 Four ELISA modes: Endpoint, Kinetic, Spectrum, Photometric
- 03 Compatible with 6–384 well plates and cuvette port (MRC model)
- 04 Single software for nucleic acid, protein, and cell-based assays

Precision Environmental Control

- 01 Temperature control from ambient +2 °C to 65 °C for ELISA and enzymatic reactions
- 02 Three built-in shaking modes: Linear, Orbital, Double Orbital
- 03 Uniform reaction mixing without the need for a separate shaker

Specialized Solutions

- 01 Micro-Volume Plate for DNA and protein quantification without dilution
- 02 Kinetic-based endotoxin analysis mode (optional)
- 03 Reads a full 96-well plate in under 8 seconds



- Endpoint or Kinetic ELISA
- Nucleic acid, protein direct quantification
- Microbial growth assay
- Cytotoxicity assay
- Cell proliferation assay
- Spectral scanning
- Endotoxin Testing (*Optional)

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 Lamp
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: ± 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

MRX N1

MRX N1 is a 96/384-well high-throughput FT-NIR analyzer for rapid quantitative analysis of hundreds of samples.

MRX N1 acquires spectra within seconds and completes full analysis of a 96-well plate in under 48 minutes, improving overall analytical efficiency by up to six times compared to conventional HPLC while reducing operating costs by more than 70%. Based on an FT-NIR double retro-reflector optical design with an InGaAs detector and two-stage TEC, and delivering a high SNR of 100,000:1, MRX N1 provides performance comparable to leading global instruments, optimized for automation and high-throughput operation.

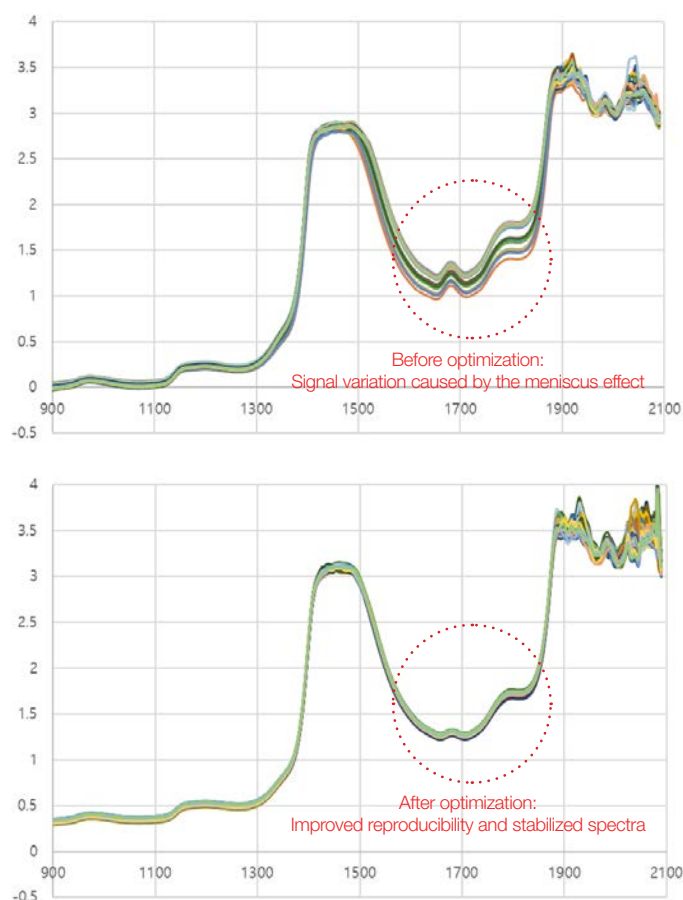


Item	HPLC + HTS-NIR Integration	HPLC Only Operation
Daily sample throughput	192 samples (based on 96-well plates)	Approx. 30 samples
QC response time (per sample)	0.5 min / sample	Approx. 30 min / sample
Operating cost (including consumables)	70 % reduction	100 % (baseline)
Overall analytical efficiency	Up to 6× improvement	Baseline
Outlier sample verification strategy	NIR screening followed by focused HPLC analysis	Identical analysis for all samples
ROI payback period	Within 6 months	Within 2–3 years

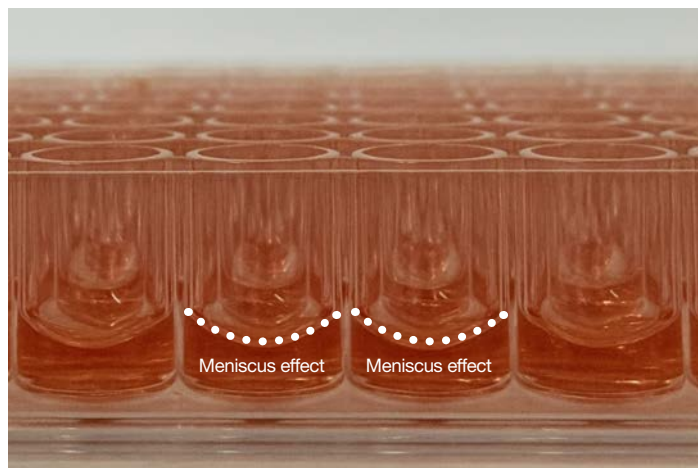
MRX N1 Applications

- Biotechnology: Fermentation monitoring; amino acid and sugar quantification
- Food: Moisture, protein, and fat analysis; blend homogeneity QC
- Pharmaceuticals: Batch quality control of tablets and capsules
- Feed: Protein, fiber, and energy analysis
- Environmental: Quantification of organic content in sludge and wastewater

- 01 High-Throughput Screening (HTS)**
Rapid analysis of hundreds of samples using 96/384-well plates (Single well <30 s / 96 wells <48 min)
- 02 Non-destructive, Consumable-Free Design**
Immediate analysis without pretreatment, reducing consumable costs by ~70% compared to HPLC
- 03 Rapid Quantitative Prediction**
Multivariate modeling enables concentration prediction within seconds, even above 1 %
- 04 Industry-Specific AI Model Packages**
Instrument and software included, with customized modeling and AutoML-based Pro-AI support under development.
- 05 Improved HPLC Workflow Efficiency**
NIR pre-screening enables targeted HPLC analysis, increasing throughput by 6× and QC speed by 60×
- 06 Broad Industrial QC Applications**
Pharmaceutical · Food · Biotechnology · Feed · Environmental



Optimized optical system for high-precision NIR measurements



[Figure] Meniscus formation on the liquid surface inside a 96-well plate

In well-plate measurements, the meniscus formed on the liquid surface can distort the optical path, leading to signal fluctuation, reduced accuracy, and poor reproducibility.

To address this challenge, MRX N1 applies an optimized optical design with carefully controlled illumination angles and signal collection geometry. This significantly minimizes meniscus-related effects and ensures stable, consistent spectra across all wells.

As a result, MRX N1 delivers highly reliable quantitative analysis, excellent reproducibility, and high-quality NIR data even under demanding well-plate conditions.

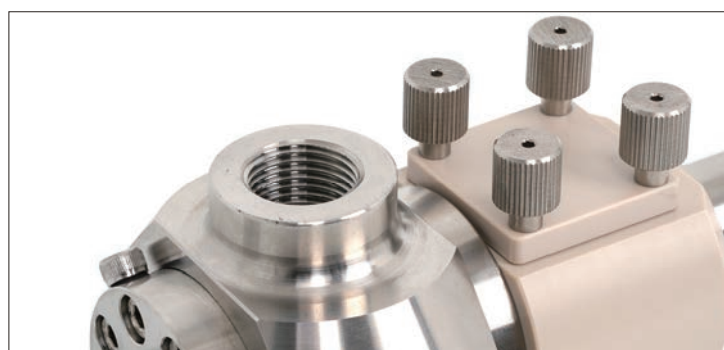
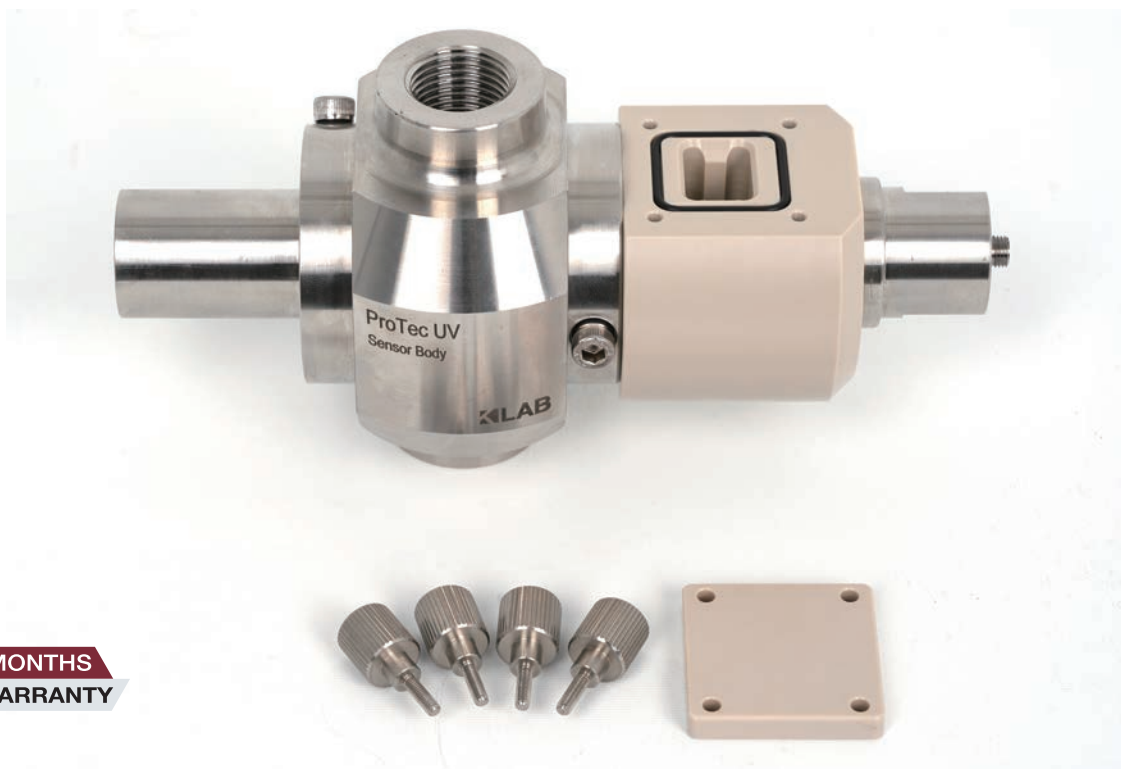
Specifications	
Optical System	Permanently aligned, Double retro-reflector design
Detector	2-stage TE cooled InGaAs array
Wavelength range	900 to 2,500 nm
Optical resolution (FWHM)	0.66 nm – 5 nm @ 8cm ⁻¹
SNR	100,000:1 @ 60s measurement, 4cm ⁻¹
Measurement time	> 4 Hz @ 4 cm ⁻¹ (Scan frequency)
Throughput	- 200s/1 plate (96 wells @ 1 autozero), - 540s/96 well (96 wells @ every well autozero)
A/D resolution	24-bit
Temperature Humidity	5-40 °C, non-condensing
Dimensions (W x D x H)	340 x 410 x 345 mm
Weight	12.1 kg
Operation	PC Software (WavePlace™ for operation, WaveCraft™ for modeling)
Interface	Ethernet

ProTec UV Sensor

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

High-precision inline light intensity monitoring system

Designed for inline process monitoring, the system ensures accurate concentration measurement with excellent reproducibility and linearity. During data acquisition, the reference-channel photodiode (PD) simultaneously monitors the light source intensity, compensating for fluctuations in output. This approach delivers high accuracy and long-term stability, while the use of a dedicated LED light source guarantees a long operational lifetime of over 10,000 hours.

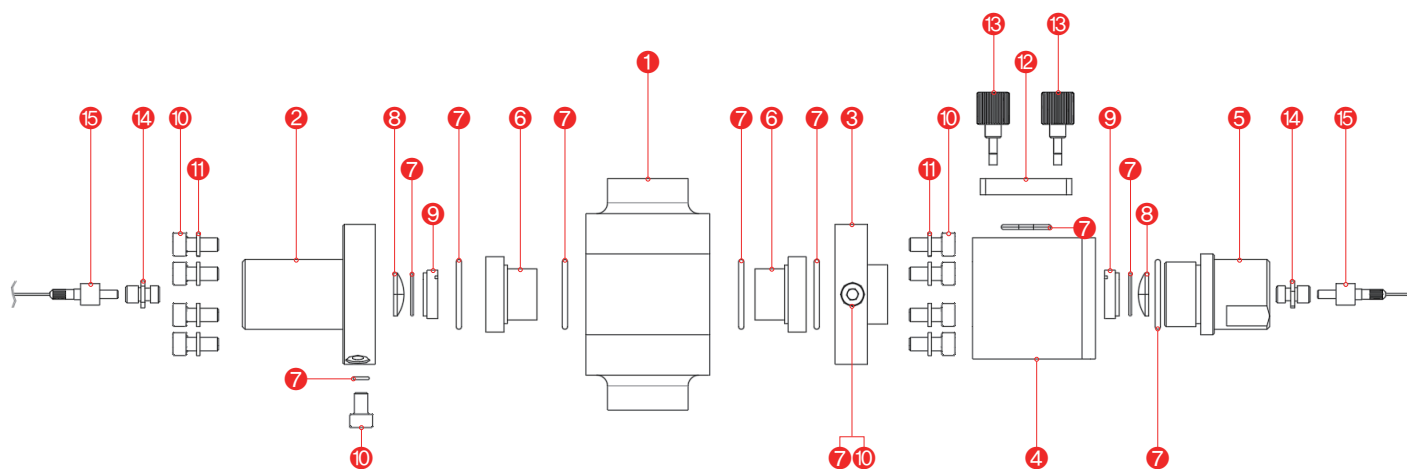


Depending on the needs, users can choose from a variety of wavelengths such as 254, 280, 290, 300, 313 nm, and optical pathlength in the range of 1 – 160 mm. This makes it applicable to Aromatic compound detection, protein concentration, and other demanding applications.

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 fixed-installation photometric converter that receives transmitted light from the measurement target via optical fiber from the sensor body, displays absorbance values, and outputs control signals. Measurement data and control commands can be transmitted in real time via LAN and RS232 communication. A 7-inch touch color LCD user interface enables data logging, trend analysis, and converter control. For quality and process control applications, the integrated PLC functionality provides up to four channels of current input/output and up to four relay outputs.

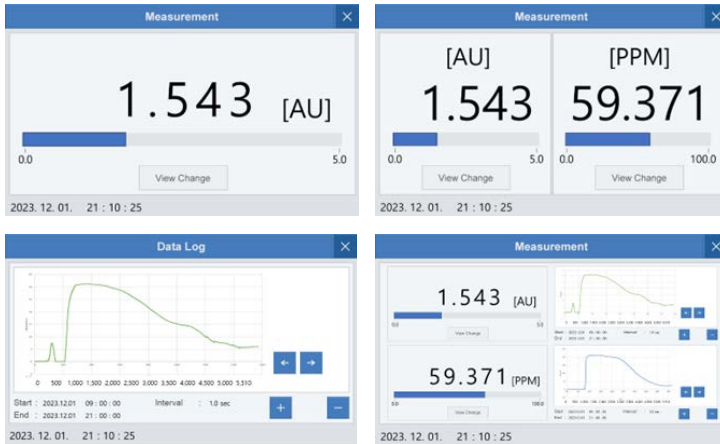


ProTec UV Package

To present our products in the highest quality, we offer them in elegantly designed sets. This packaging not only highlights the premium nature and professionalism of our products but also leaves a strong, positive impression on consumers. Through excellent design and meticulous packaging, we strive to provide customers with a unique experience and satisfaction.

Included in the package: ProTec UV Sensor Body, Converter, Validation Sample Set

- Real-time Photometric Converter
- Data log recording for quality control (up to 20,000 data)
- Easy installation using Optical Fiber
- Up to 4-channel analog input/output for PLC connection (0-20 mA or 4-20 mA)
- Data transmission via Ethernet and RS232
- Communication with OPC UA Server (Modbus-TCP)
- Supports remote monitoring and control
- Explosion-proof case (Optional)



Remote Control and Monitoring

- Remote control via OPC UA Server (Modbus-TCP)
- Remote control features: Parameter, Zero, Linearization, etc.
- Real-time data reception and control via Ethernet LAN and RS-232
- Customizable communication protocols and software available
- Remote control for PLC input/output available

PLC Input/Output

- Up to 4 channels of 0-20 mA, 4-20 mA input/output selectable (Customization available for input/output conditions and ranges)
- Up to 4 channels of SPDT relay contacts available (Customization available for relay operation conditions)
- Parameter set provided for each channel
- Linearization function available for various physical units
- Span-Offset calibration function available

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

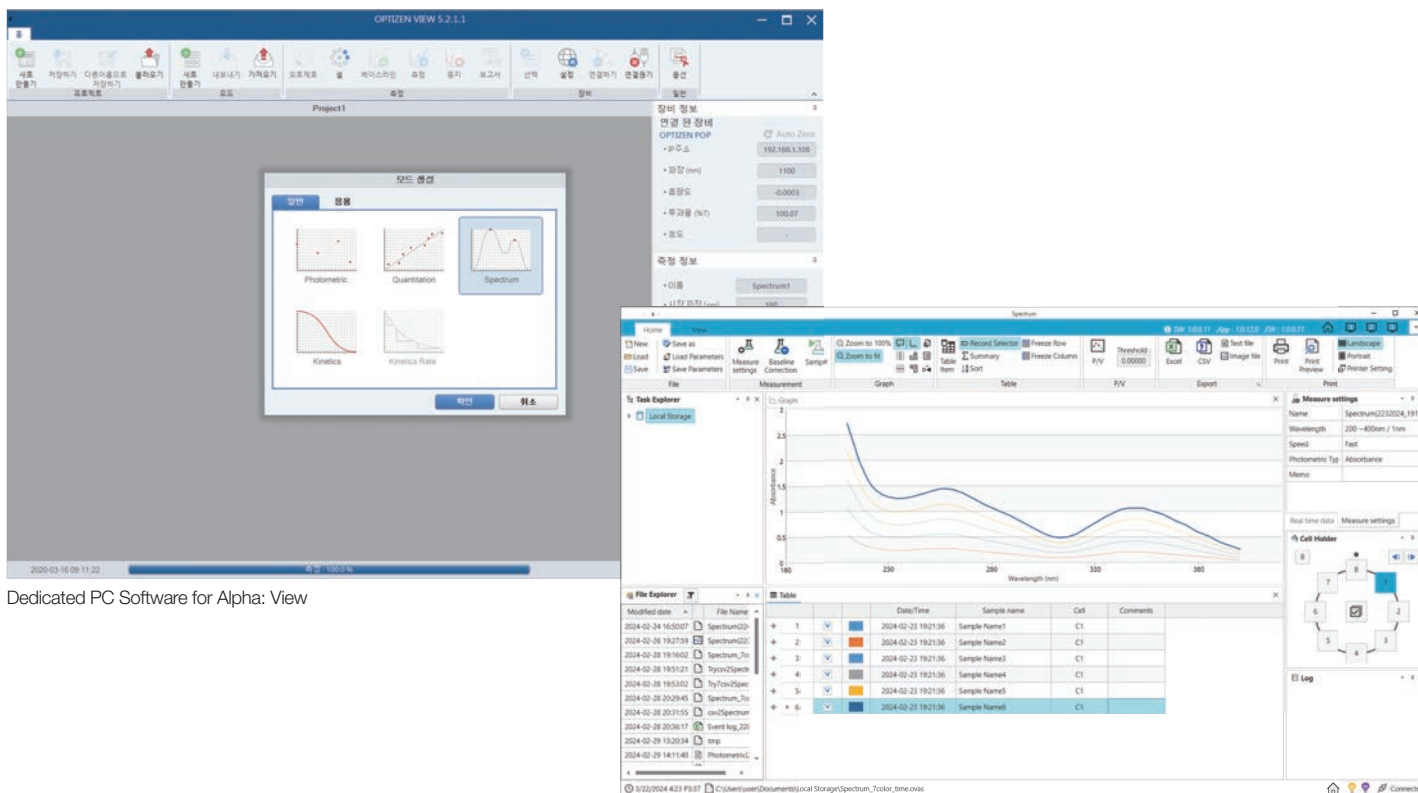
Specifications

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 (4-20 mA or 0-20 mA) 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 Series

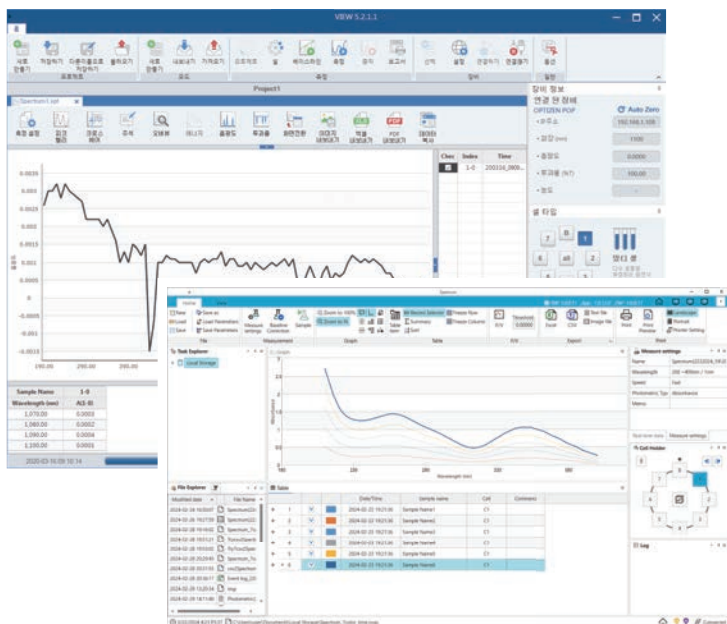
Compatible devices: Alpha, POP Series, QX

View Series is PC software for instrument control and measurement data management of spectrophotometers via a standard Windows-based computer. It supports multiple analysis modes including Photometric (Abs/%T), Quantitation using calibration curves, Spectrum for wavelength-range analysis, and Kinetics for monitoring signal changes over time.



Dedicated PC Software for Alpha: View

Dedicated PC Software for POP Series and QX: View 5.0



Workflow

- 01 Project-based save and recall for managing multiple analysis modes
- 02 Real-time monitoring window for selected wavelengths and measurement values

Data Analysis

- 01 Graph and table tools for spectral and time-based data analysis (Peak/Valley detection, enzyme activity analysis, etc.)
- 02 Configurable decimal precision for absorbance, transmittance, and concentration results

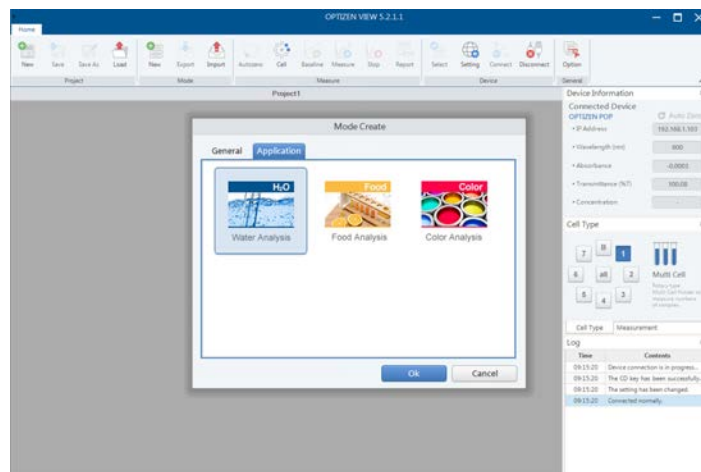
Data Management

- 01 Easy report generation and printing
- 02 Data export in multiple formats: Excel, PDF, HTML

UI & Compliance

- 01 Multilingual interface: Korean, English, Chinese
- 02 Supports FDA 21 CFR Part 11 compliance (Secure software optional)

Application Mode (Available only in View PC software for Alpha)



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. (KW mode, M mode, Hu mode)
 - 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

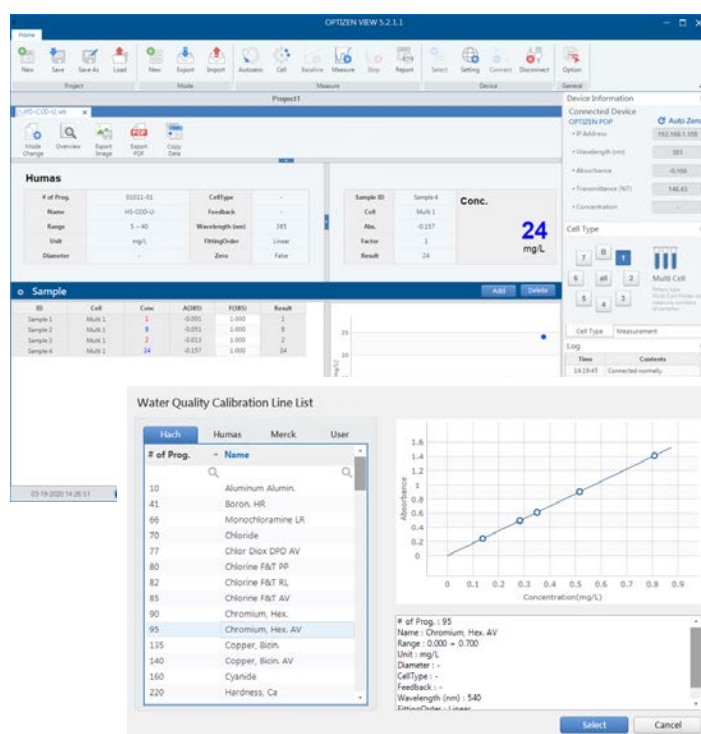
- Provides a mode to measure Wine Color Intensity and Wine Hue.
- Wine Color Intensity – Calculated as the sum of absorbance in Violet, Green, and Red, and checks the darkness of the wine.
- Wine Hue – Calculated as the ratio of absorbance in the Violet and Green areas, and checks the tone of the wine

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, 11	Windows® 8, 10, 11
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

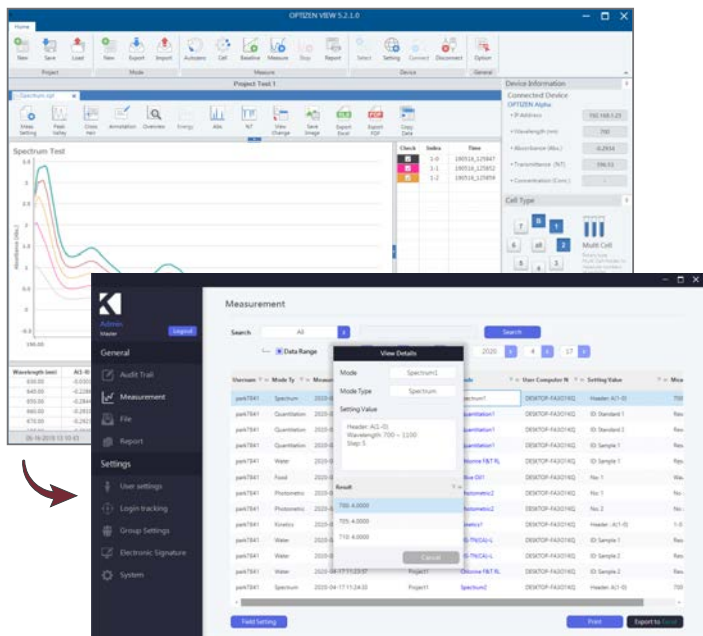
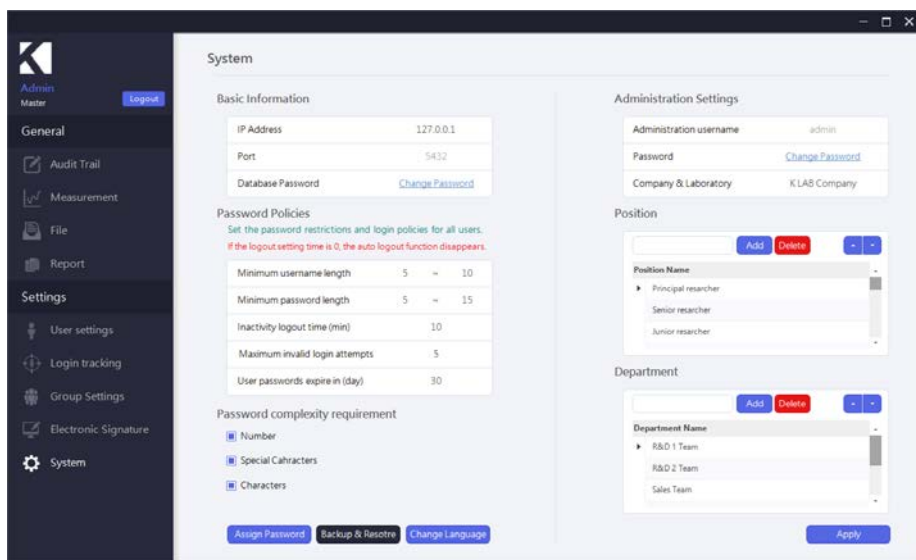
Meets 21 CFR Part 11 Compliance and Audit Trail Features

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



System Validation & Security Management

- 01 Supports system validation, record generation, record protection, and access control
- 02 Provides document encryption and permission verification functions
- 03 User management with user groups and role-based access control

Electronic Signature & User Authentication

- 01 Electronic signatures are unique to each user, with identity verification prior to registration
- 02 Electronic signatures are executed based on user ID and password authentication to prevent unauthorized use
- 03 Login/Logout functions support secure user authentication and system access control

Audit Trail & Data Integrity

- 01 Audit trail records for user activities including login, measurement, data storage, and report generation
- 02 System event tracking such as record creation, modification, events, and user actions
- 02 Checksum function to detect data corruption or unauthorized modification(Secure software required)

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	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. We use a system that requires an Username and Password so that only authorized users can access the system. Checksums are included to clarify the origin of the data or to prevent tampering. Unauthorized checksums are denied to access.
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	Secure enables historical measurement results, reports and audit trails. Print and export utilities are also provided to facilitate this. 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. 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.
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	Records of K LAB staff's training and recruitment can be verified during on-site audits after the verification process. In addition, all relevant K LAB staff have been trained on regulatory requirements. 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. K LAB provides basic guidance training for system users during product installation process. Training courses are also available for administrators and users.
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	Secure results provide electronic signature function. Electronic signature displays include: · 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; All signatures are saved with the resulting file and cannot be changed.
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	Electronic signatures appear on View results reports and can be displayed or printed electronically.
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	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.
11.100 (a)	Each electronic signature shall be unique to one individual and shall not be reused by, or reassigned to, anyone else.	Yes	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.
11.200 (a) (1)	Employ at least two distinct identification components such as an identification code and password.	Yes	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.

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 large number 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



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 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 of 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.

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