

ANALYTICAL INSTRUMENTS

BIKAI

Analytical Instruments

Configuration Reference Manual

PROFESSIONAL SUPPLIER FOR
SCIENTIFIC INSTRUMENTS
AND CONSUMABLES

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BIKAI Technology Co., Ltd

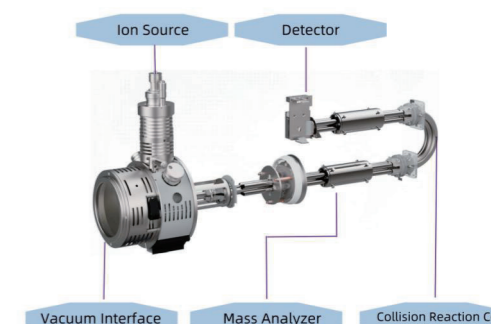
Add: Akihabara Building 2F, 1-11

Kanda Izumi CHO, Chiyoda Ku,
Tokyo, Japan

Build Innovation · Keep Accuracy Intact

MSD 9000 Series

Triple Quadrupole/ Single Quadrupole Mass Detector



• Vacuum Interface

Heated backflush gas, strong anti-contamination ability
High-capacity ion sampling cone, high sensitivity

• Ion Source

Fast switching and intelligent recognition between ESI/APCI
Plug-and-play, automatic gas-electric connection installation
Right-angle spray, strong anti-contamination ability
Active exhaust emission, reducing memory effect and pollution

• Detector

Discrete high-energy dynode electron multiplier, longer service life, lower noise, and better signal-to-noise ratio

• Mass Analyzer

Series metal quadrupole design, approaching the theoretical electric field of quadrupole
Front and rear pre-rods, effectively balancing ion incident angles, eliminating edge field effects

• Collision Reaction Cell

180° curved collision reaction cell design, eliminating interference from neutral particles
Axial linear acceleration, reducing crosstalk between MRM channels
Combined array-type collision gas control, enabling fast and efficient collision reactions

The BIKAI 1511/1521 series is the perfect choice for your liquid chromatography. This Manual will facilitate your configuration selection to meet your needs

• BIKAI-1511 Pro series

- * HPLC
- * 2D HPLC
- * Semi prep. HPLC
- * Flexible detectors
- * Multiple application possibilities

• BIKAI-1521 Pro series

- * UHPLC
- * Pressure up to 22000 psi
- * Flexible choices on injection mode
- * Multiple selection of functions



BIKAI Technology (Suzhou) Co., LTD

MSD 8000 Series

Triple Quadrupole/
Single Quadrupole Models



• High-Temperature Inert Ceramic Ion Source

Efficient ionization, reduced pollution, equipped with two long-lasting filaments made of special materials, two times of use time. All lenses are precisely temperature-controlled, making disassembling and cleaning of the ion source convenient

• Independent Pre-Quadrupole Guide Rod

By applying RF voltage and incorporating pre-quadrupole technology, it effectively eliminates neutral fragment interference and reduces noise. At the same time, it optimizes the transition electric field between the ion source and the quadrupole rod

• Fully Metallic Conjugated Quadrupole Rod

The cold rod design requires no heating and is maintenance-free for life. It utilizes the most advanced segmented design, equipped with a detachable pre-quadrupole that can automatically adjust DC voltage, eliminate edge field effects, and prevent ion spillover, thus achieving higher ion transmission efficiency

• Non-Continuous Discrete Electron Multiplier

With an exceptionally long service life, it is highly resistant to contamination and water

The LIGHT series is specifically designed for LC/MS and LC/MS/MS. It can provide pure, clean, and stable gas sources to meet the needs of most mass spectrometry, ensuring the operation of detection, and is an economical and good choice. It can switch between nitrogen and air at will, with a total flow rate of 35L/min, and the ratio can be adjusted according to needs. All the above models can be used as external air compressor models

Nitrogen Generator

Switchable between nitrogen and air,
with a combined maximum output of 35 L/min.



- Remote monitoring
- Low- noise and anti- vibration design
- Low maintenance cost
- Energy saving technology
- Easy for installation
- Membrane technology

MODEL	UNI	LIGHT2	LIGHT3	LIGHT3 Pro
N2 Production	L/min	26	35	35 (N2 or Air)*1
Purity	%	Up to 99.5%		
Operating Temperature	°C	5-35		
Environmental Humidity	%RH	10-80		
Nitrogen Pressure	psi	116		
Nitrogen Outlet	RC	1/4"		1/4"
Power Consumption	kW	1.0		1.0
Dimensions	mm	W550 x D790 x H680		W550 x D790 x H680
Weight	kg	120	120	130
Noise	dB(A)	56	59	

BRAND	MODEL/SERIES	CONFIGURATION
Sciex	Triple Quad MS System/OTRAP MS	TJ30-97S / LIGHT 3G19N
	System 3500/4500/5500/API 3200/API 4000	TJ60-AN / LIGHT 3G35N
	Triple Quad MS System/QTRAP MS System/ Triple TOF System/4000~5500/5500+~7600/X500R/X500B/Echo MS	Mini HP /Concise 10
Agilent	ELSD/GC-OTOF/MP-AES	Micro Mini 5N
	GC series	TJ2-25T / Light 26
	6100 series /LC/MSD Single Quad Ms	TJ2-30T/ Light 35
	6200 series TOF MS	TJ60-97 / LIGHT 70
	6400 series Triple Quad MS/Ultivo Triple Quad Ms	TJ2-30T/ Light 35
	6490/6495 Triple Quad MS	TJ60-97/LIGHT 70
	6500 series OTOF MS	TJ2-30T / Light 35
Bruker	6550/6560 QTOF MS	TJ60-AN / LIGHT 2G35N
	timsTOF series	TJ2-25T / Light 26
	EVOQ series Triple Quad MS	TJ2-30T / Light 35
	amaZon series Ion Trap MS	TJ2-30T / Light 35
	compact, impact HD, maXis HD ESI-QTOF	TJ30-97S/LIGHT 2G30N
Shimadzu	solarix MRMS/scimaX MRMS	TJ60-AN /LIGHT 2G30N
	LCMS-2020 single Quad MS	
	LCMS-8030,LCMS-8040 Triple Quad MS /LCMS-8045	
	LCMS-8050, LCMS-8060 Triple Quad Ms	TJ30-97S/LIGHT 2G30N
	LCMS-9030 Q TOF MS	
Thermo	LCMS-IT-TOF	
	Orbitrap Exploris 120 /240 /480	
	MSO /ISO series Single Quad Ms	
	TSQ Altis ,Fortis, Quantis, Endura, Quantam Triple Quad MS	
	LTQ XL/ LCQ Fleet/Velos Ion Trap MS	TJ2-30T / Light 35
	Q Exactive Plus Hybrid, UHMR Hybrid, HF Hybrid, Focus Hybrid Quadrupole-Orbitrap	
	Orbitrap ID-S, Tribid, Fusion, Lumos, Eclipse, Exactive Plus, Elite,Orbitrap Exploris™ 120/240/480	
Corona CAD	Mini HP / Concise 5	
Waters	ACOQUITY ODa/ SOD2 Single Quad Ms	
	Xevo TQ-XS, TQD, TQ-S micro, TQ-S Triple Quad MS	TJ2-25T/Light 26
	SYNAPT XS, SYNAPT G2-Si HDMS, Vion IMS/QTOF MS	
Perkin Elmer	Cyclic IMS/ Xevo G2-XS TOF MS	
	Q Sight 100/200/400	TJ60-AN / LIGHT 2G35N



Pump

Maximum pressure up to
22000psi(152MPa)

Product

- Optional :
- Isocratic pump
 - Dual ternary gradient pump
 - Binary pump
 - Ultra-high-pressure binary gradient pump
 - Quaternary pump

Gradient Model

- Optional :
- Binary high-pressure gradient
 - Quaternary low-pressure gradient
 - Dual ternary gradient

Online Degassing

- Optional :
- 2-channel(480uL)
 - 3-channel(480uL)
 - 4-channel(480uL)
 - 5-channel(480uL)
 - 6-channel(480uL)

Max. Pressure

- Optional :
- Up to 11600PSI (80MPa)
 - Up to 16,000PSI (110MPa)
 - Up to 18,000PSI (124MPa)
 - Up to 22,000PSI (152MPa)

Flow Rate Range

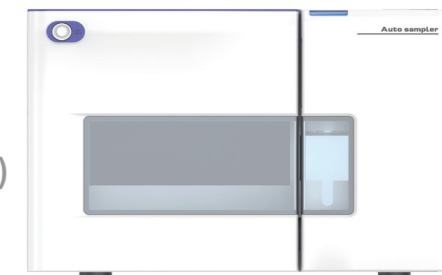
- Optional :
- 0 - 5.000 mL/min (increment 0.001mL/min)
 - 0 - 10.000 mL/min (increment 0.001mL/min)
 - Semi-preparative: 0-50 mL/min
 - Preparative: 0-150 mL/min

Pressure Pulsation

Standard $\leq 1.0\%$ (@1mL/min,water,back pressure>10Mpa)

Auto Sampler

Supports multiple injection modes,
including aspiration (full/partial/microliter carryover)
and integrated loop (FTN)



Product

- Optional :
- Preparative auto sampler
 - Ultra-high-pressure type
 - Large sample size
 - Biologically inert standard
 - Integrated loop automatic sampler

Injection Mode

- Optional :
- Inhalation (full loop injection/partial injection/microliter carryover injection)
 - Integrated loop injection (FTN mode)

Volume of Sample Loop

Optional : 10 μ L/20 μ L/50 μ L/100 μ L/1000 μ L/5000 μ L

Max. Sampling Volume

- Standard full loop injection = loop volume
- Partial injection = 1/2 loop volume
- Microliter carryover injection = (loop volume - 3 \times needle volume)/2

Sample Capacity

- Optional :
- Analysis type: 2*54 1.5mL vials 108 (standard), optional 96*2 well plate
 - Preparative type: 2 * 40 5mL bottle holders
 - High-throughput, 4 x 54-position sample trays, 216-position 1.5 mL vials or 4*96-well plate

Sampling Repeatability

- 100 μ l loop: Full loop $\leq 0.3\%$ RSD; Partial loop $\leq 0.3\%$ RSD ($\geq 2\mu$ L); μ L pick-up $\leq 1.0\%$ RSD
- 1000 μ l loop: Full loop: $\leq 0.3\%$ RSD; Partial Loop: $\leq 0.3\%$ RSD ($\geq 50\mu$ L) & $\leq 0.5\%$ RSD ($\geq 20\mu$ L); μ L pick-up $\leq 1.0\%$ RSD ($\geq 20\mu$ L);

Cross-contamination

Standard $< 0.0025\%$ (under specified conditions)

Cooling function

Optional



Column Oven

Precision flexibility:
±0.1°C stability with cooling to 4°C

Product

Standard heating optional: cooling function optional

Temperature Control Type

Optional :

- Forced air circulation
- Paltier temperature control

Temperature Control Range

Optional :

- Upper limit:90°C Lower limit: Room T.+5°C
- Cooling: Upper limit: 90°C Lower limit: Ambient T.-21°C lowest to 4°C

Temp Accuracy

Standard ±0.5°C

Temperature Stability

Standard ±0.1°C

Column Capacity

Standard Max. 4 * 300mm column or more short column

Automatic Switching Valve

Optional :

- 2 sets for SPE system or Muti-D Chromatography
- PEEK automatic switching valve
- Automatic switching valve
- Configuration: 1 two-position six-way valve V1
- 2 two-position six-way valves V2
- 1 two-position six-way+1 two-position ten-way V6
- 2 Six-position seven-way valve (6 columns can be switched in parallel)

Wavelength range

Standard 190 - 900nm

Light Source

Standard Deuterium lamp, Tungsten lamp

Wavelength Accuracy

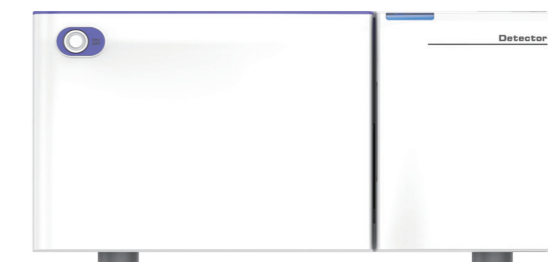
Standard ±0.5nm

Wavelength Precision

Standard ±0.1nm

UV-Vis Detector

Wavelength range 190 - 900 nm



Wavelength

Optional :

- 190 - 640nm
- 190 - 800nm

Light Source

Optional :

- Deuterium lamp
- Deuterium lamp, Tungsten lamp

Array Diode

Standard 1024 pixels, 0.6nm/pixel

Wavelength Accuracy

Standard ±0.6nm

Wavelength Precision

Standard ±0.1nm

Flow-Through Cell

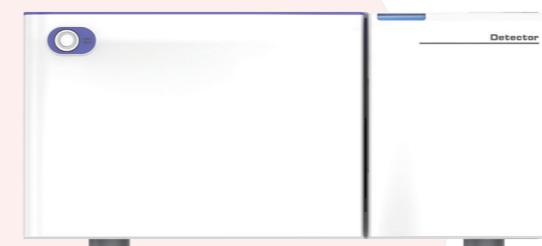
Standard 12μL, 10mm optical path

Optional :

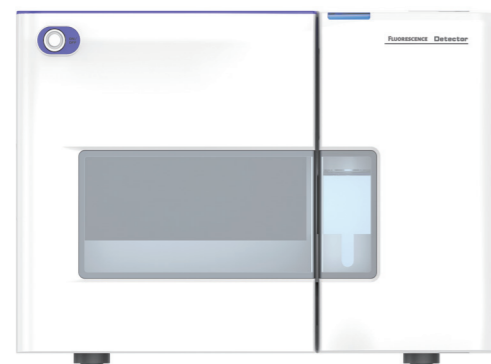
- 3μL, 10mm optical path, SS316 stainless steel
- 2μL, 10mm optical path, total reflection fiber flow cell.
- 12μL, 60mm optical path, high sensitivity total reflection fiber flow cell

Diode Array Detector

Wavelength range 190 - 800 nm



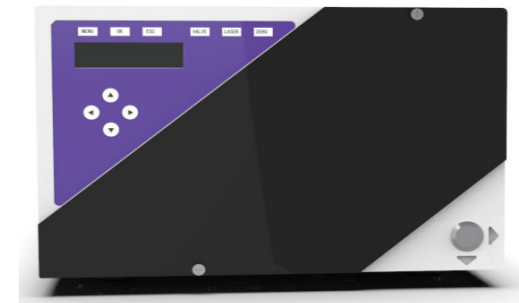
Fluorescence Detector



Product	D50	D51
Wavelength range	EX: 200-750nm EM: 200-750nm	EX: 200-900nm EM: 200-900nm
Light source	Xenon Lamp (DC)	
Spectral bandwidth	20 nm	
Wavelength accuracy	±2nm	
Wavelength precision	±0.2nm	
Wavelength calibration	Built-in holmium oxide glass calibration	
water Raman peak S/N (Signal-to-Noise)	1200: 1	
Dynamic noise	≤5x10 ⁻⁴ FU	
dynamic drift	≤5x10 ⁻³ FU/h	
Linear range	>10 ⁵ (JJG)	
Maximum sampling rate	100Hz	
Flow cell	12uL; 2MPa (290PSI)	
Minimum detection concentration	2*10 ⁻¹⁰ g/mL (Na)	
Weight	24Kg	
Dimensions	550mm(D) x 400mm(W) x 280mm(H)	
Power supply	100VAC - 240VAC, 50/60Hz, 300 Wmax	

Refractive Index Detector

Noise < 2.5 nRIU, Drift < 200 nRIU/h



DETECTION PRINCIPLE	REFRACTOMETRY
Refractive Index Range	1~1.75
Detection Range	0.25~512μRIU
Linear Range	600μRIU
Baseline Noise	< 2.5nRIU (pure water)
Baseline Signal Drift	< 200nRIU/h (pure water, 1 mL/min)
Signal Offset	- 500~500μRIU
Quantitative Repeatability (RSD%)	< 2.0%
Zero Adjustment	Manual, automatic, remote optical/electronic zeroing
Digital Filter	None, 1~10 s
Light Source	Tungsten Lamp
Detection Cell Volume	8μL
Detection Cell Pressure Resistance	0.5MPa
Maximum Flow Rate	10mL/min (pure water)
Dead Volume	~60μL before the cell, ~500μL after the cell
Contact Materials	316 Stainless Steel, Teflon (PTFE), Quartz Glass
Temperature Control	OFF, 30~60°C, step 0.1°C
Temperature Control Accuracy	±0.1°C
Analog Signal Output	0~1024mV/FS (full scale) (2mV/μRIU, 8mV/μRIU)
Digital Status Input	Trigger (zero), switch polarity, switch flow path
Communication Interfaces	RS-232, RS-485, USB, LAN
Control Software	Free standalone control software, Clarity control plugin



Evaporative Light Scattering Detector

Typical sensitivity as low as 5ng

COMPONENTS

Detection	Photodiode
Light Source	Blue LED
	Elapsed Time Counter
Temperature Range	Ambient to 100°C
Nebulizer	LC
Eluent Flow Rate	200µL/min to 2mL/min
Typical Sensitivity	5ng

DATA

Analog Output	0-1 Volt
Gain Settings	1 to 7
Filter	Dedicated Numerical Algorithm
Signal Amplification	SAGA (SEDEX Automated Gain Adjustment)
Data Rate	40Hz

COMMUNICATION

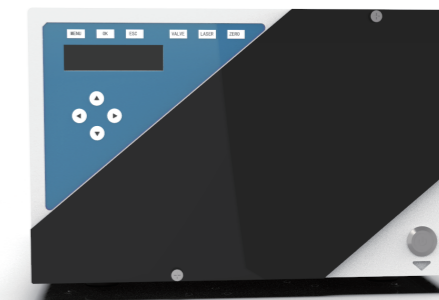
Selection & Display	OLED Display and Keypad
Events	Contact Closure, TTL for Ready, Autozero
Power-down Methods	Shut-off: Gas, Light Source, Heating and/or Photodiode
	Cleanng Mode
Computer Interface	USB, RS-232
Software	Drivers (option)

EXTERNAL REQUIREMENTS

Power	100V to 240V (50Hz/60Hz)
Gas Supply	Nitrogen or Air
	3.5bar(less than 3L/min)
Dimensions	250mm(10in)W, 330mm(13in)H, 530mm(21in)D
Weight	5kg (331b)

Charged Aerosol Detector

Sensitive (500 pg detection) and simple to use



CATEGORY	DETAILS
General	Model: BIKAI CAD D70 Charged Aerosol Detector. Min. Detection: 500 pg. Dynamic Range: 10 ⁴ . Repeatability (RSD): ≤ 2.5%
Power & Environment	Input: 84-265 VAC, 40-60 Hz. Consumption: 250 VA. Conditions: 5-30°C, ≤ 90% RH
Temperature Control	Nebulizer/Drying Tube/Detection Cell: Ambient to 100°C. Control: ±0.1°C accuracy, 0.1°C increment
Gas System	Gas: Nitrogen/Clean Air. Pressure: 2-5 bar (±0.01 bar). Flow: < 4 L/min (±0.02 L/min). Control: Manual & PC
Liquid Flow	Eluent Flow Rate: 0.01 mL/min to 3.0 mL/min
Signal Performance	Output: Analog (-1.250~1.250 mV) & Digital (Serial, Ethernet). Offset: -500~500 pA. Baseline: Noise ≤ 0.05 pA, Drift ≤ 0.5 pA/30min. Filter: Moving Window Digital
Controls & Interface	Display: 16x2 LCD. Keypad: 10-key membrane. Zero: Manual/Auto/Remote. Inputs: Remote Zero/Gas/Heater control (contact & TTL). Low Power: Manual/Remote/Timer
Communication & Software	Interfaces: RS-232, RS-485, USB, LAN. Serial: 9600-115200 bps, 1 Stop, No Parity. Network Modes: B/S & C/S. Software: Dedicated CAD Control Software
Data Management	Methods: 100 sets storage with auto recall



Fraction Collector

(Auto Control) Software-controlled

Collection Mode

Standard support according to time, threshold, slope and mixed mode

Collection Rack

Standard 2 collection racks, 16mm tubes, 2* 60 positions

Optional :

- 30mm tube, 2*21 positions
- 13mm tube, 2*90 positions
- 96 well plate, 4*96 positions

Model	CBS-B
Collection tubes	63(60mL)
Display Mode	7-inch HD full-color capacitive touch LCD screen 1024*600
Test tube rack protocol storage	15
Timed collection range	Each test tube: 1 second - 999 hours 59 minutes 59 seconds, select any time
Fixed drop collection range	1-100,000 drops per test tube Choose any number of drops
Fixed peak collector range	±5V resolution 0.01mV
Habitual storage	64
Independent storage (programmed collection)	130
Mobile pipe routing mode setting	X-Y movement, 16 pipe routing methods
Test tube rack setting	Can be set to collect any test tubes and bottles freely combined
Tube change control	1 valve
Tube replacement without drainage	None
UV channel	Channel 1
Valve interface	1
Pump interface (input interface)	1
Output Interface	1
Drop counting interface	1
UV signal interface	1
USB interface	1
Execution motor speed	500RPM Max
Data retention	16M storage can save massive data
Usage environment	0-40°C, humidity ≤85%
Supply voltage	110-220V/AC; 50HZ, 10W
Dimensions	350*370*300(Length*Width*Height)
Weight	10kg



Fraction collector
 (manual control) Most cost-effective

GC Autosampler

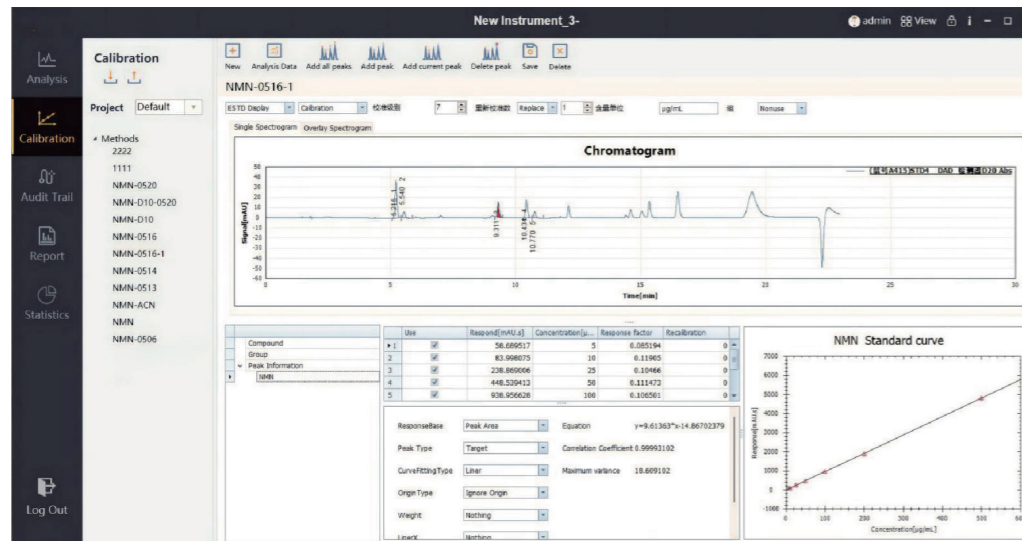
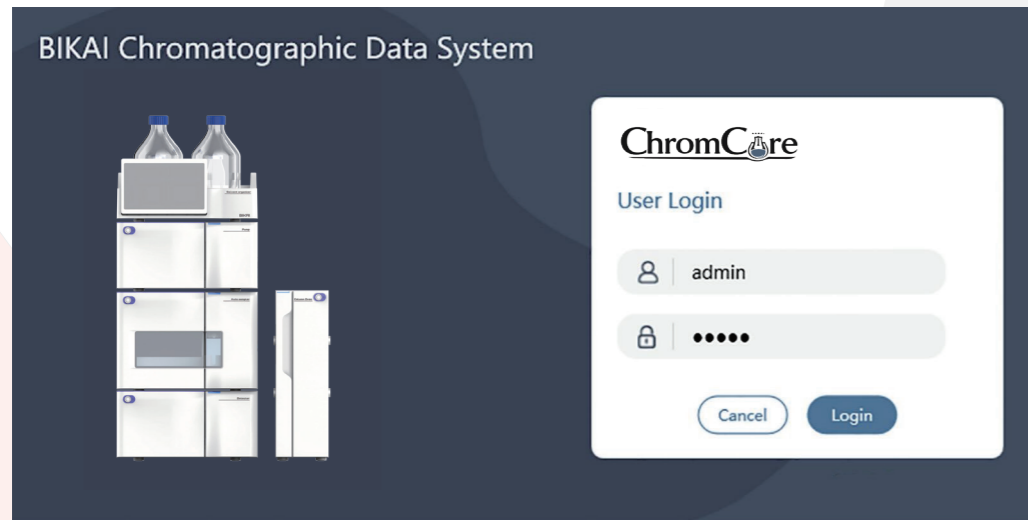
Time reproducibility < 1/1000 second



PARAMETER	RANGE
Injections per Vial	1-99 times
Maximum Time Interval	999 minutes
Minimum Injection Volume	0.1µl
Maximum Injection Volume	250µl
Methods Selectable	1-20 methods
Maximum Injection Port Supported	1
Maximum Needle Washing Cycles	99 times
Maximum Pumping Cycles	99 times
Maximum Pumping Interval	5000 milliseconds
Viscosity Delay	0-60s
Pre/Post-Injection Dwell Time	0-120s
Needle Insertion Speed	Fast, slow, user-defined
Aspiration/Injection Speed	Fast, slow, user-defined
Injection Modes	Normal, continuous, sample+L1, sample+L1+L2, PTV
Control Modes	Interval self-control, signal reverse control, PC control
Dual-Tower Sampling	Time reproducibility < 1/1000 second

Workstation-ChromCore

Comply with CFR21 Part-11



Type

Stand alone / Web / Enterprise version

Language

Multi linguistic

Regulations Applicable

Comply with the FDA 21 CFR Part11 / GMP/GLP norms

Electronic Signature

Included

Automatic Backup

3-triple automatic backup

Audit Trail

Operation recording automatically, can be traced back

User Multistage Rights Management

5 levels or higher

Report

Built-in standard report format. The user can also edit personalized report template

Instrument Control, Data Acquisition And Data Processing Functions

Instruments configuration and parameters, data acquisition and data processing parameters as setting automatic peak width, automatic threshold algorithm, adaptive sampling data, automatic adjustment algorithm to achieve the best effect of integral

Diagnosis Maintenance Function

Functions of diagnosis maintenance automatic analysis

Maintenance Notice Function

Maintenance notice function: record the main consumables total service time and replacement durations, remind customers to change based on regular maintenance guides

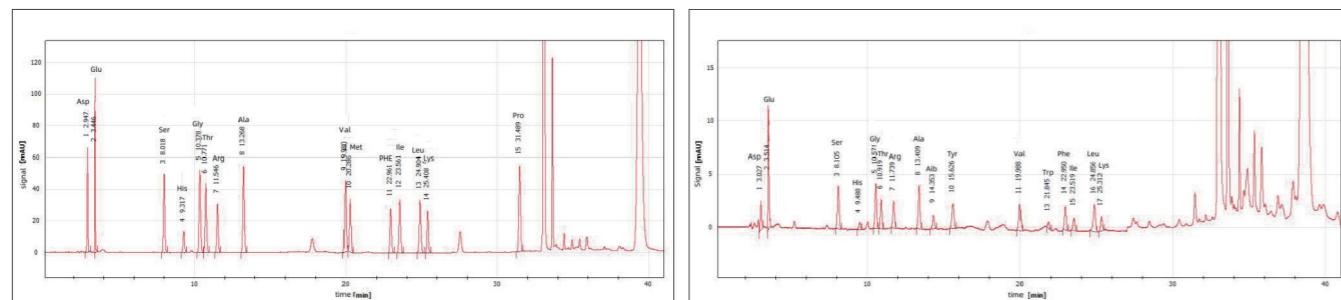
3Q Certification

Built-in function with Installation qualification (IQ), Operation qualification (OQ) & Performance qualification (PQ)

Database Type

SQL server

Typical Application - Semaglutide



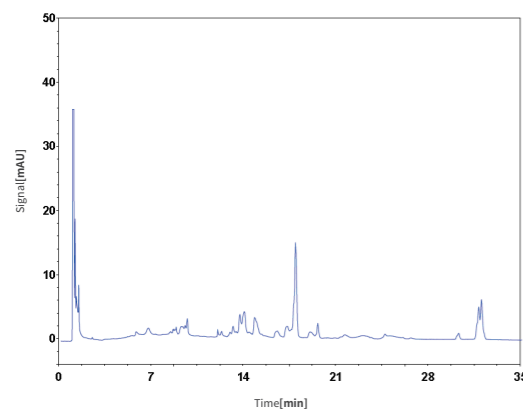
Chromatogram of the pre-column automatic derivatization standard solution of 19 amino acids in Semaglutide

The chromatogram of the acid hydrolysate of semaglutide

Using the pre-column derivatization function standardly equipped with the BIKAI HPLC system's autosampler, and selecting OPA and FMOC as the two derivatization reagents, the online automated derivatization of primary and secondary amino acids can be achieved. In this experiment, semaglutide samples were subjected to hydrochloric acid hydrolysis and sodium hydroxide hydrolysis respectively to determine the amino acid composition of semaglutide. The measured results were compared with the theoretical amino acid composition and ratios. The amino acid composition in the samples was consistent with the theoretical composition, and the relative error of the amino acid ratios in the samples compared to the theoretical values was within 10%, indicating that the method is accurate and reliable

Typical Application - Separation and Collection of Snake Venom (SCX) - Size Exclusion

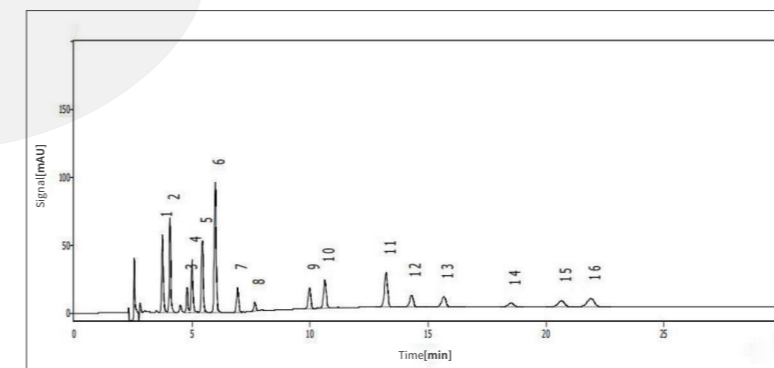
- Solution - snake venom protein



Instrument: BIKAI HPLC	
Column: BioCore SCX , 5µm, 4.6mm x 250mm	Column temperature: 30°C
Mobile Phase: A) 20mM Tris-HCl , pH6.0 B) 300 mM NaCl in20 mM Tris-HCl , pH6.0	Flow rate : 1.0mL / min
Detection wavelength : 280nm	Injection volume: 10µL

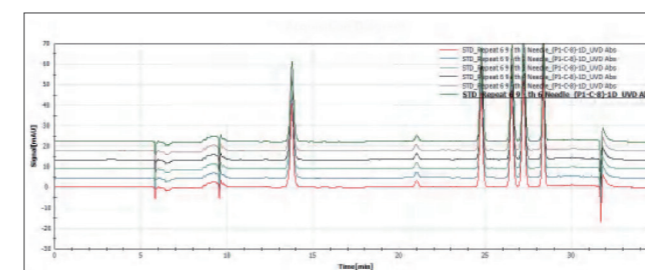
Typical Application – Determination of PAHs in Water

- Solution - PAHs

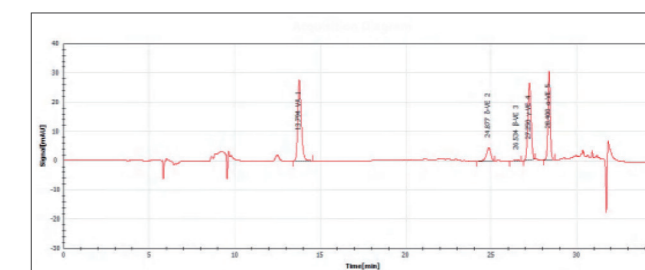


Instrument: BIKAI HPLC	
Column: PAH, 5µm, 4.6mm x 250mm	Column temperature: 30°C
Mobile phase: A methanol, B water; (gradient elution)	Flow rate : 1.2mL / min
Detection wavelength: 254nm	Injection volume: 10µL

Typical Application – Formula Milk Powder



The chromatogram of fat-soluble vitamins A, D, E, and their isomers



The typical chromatogram of infant formula

This method utilizes the BIKAI specialized chromatographic column for the analysis of vitamins A, D, and E, achieving excellent separation of vitamin A, the four isomers of vitamin E, and vitamins D2 and D3. The incorporation of online solid-phase extraction technology significantly simplifies the sample pretreatment process, thereby enhancing detection efficiency and reducing human errors. By employing a high-sensitivity total reflection diode array detector, accurate quantitative analysis of low-content vitamin D can be achieved. Finally, preliminary durability tests have demonstrated good reproducibility and stability of this method, making it a highly efficient and reliable approach for the analysis of VA, VD, and VE content in infant formula, suitable for widespread application