

# 31



**Classical 3100**  
**HPLC**

# Customer service

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Analab has always followed the "customer-centric" service concept and attaches great importance to customer service support. In order to ensure that users receive effective and timely services as well as comprehensive technical support, a Customer Service Center was established in June 2010, and after continuous development to establish a comprehensive and systematic customer service system, including Customer Service Center and Analysis and Testing Center. The Customer Service Center provides you with product installation, product operation guidance, training, repair and maintenance services, and the Analysis and Testing Center provides users with solutions and testing methods. For a long time, our after-sales service team has spread all over the world, forming a perfect, high-quality, professional and timely networked service system.

## Service team

Customer Service Center—We have a senior team to solve users' technical problems with a strong technical backing.

- Call center: 400-66-35483 customer service telephone number has been opened to receive customer problems 7×24 hours, providing customers with a full range of technical advice and repair services. At the same time, it supports a variety of online service methods such as email, QQ and WeChat.
- Installation and maintenance platform: there are full-time after-sales engineers in Beijing, Shanghai, Nanjing, Guangzhou, Xi'an, Chengdu, Wuhan, Changsha and Jinan to provide installation and maintenance services for users.

Analysis and Testing Center—Relying on professional talents, we build an excellent application development team to provide solutions for you.

## Service commitment

Installation: we confirm the installation conditions with the user in advance and provide free installation and commissioning services according to the time and location requested by the user.

Maintenance: Three levels of maintenance system to ensure that after receiving technical advice and repair requests from users, respond within 24 hours, such as telephone can no solve the need for on-site maintenance, we promise to send someone to the scene as soon as possible, and in the shortest possible time to remove the fault. If the user is in urgent need of work, we can provide the customer with a turnover instrument after confirmation by the company's authorized technical personnel. The cost of replacement parts and repair hours will be charged according to the uniform price set by the company

## Training commitment

On-site training: The company and the company's authorized technicians provide free on-site training services to the user's operators during the installation and commissioning of the instrument and daily maintenance, including instrument performance, operation and use and general maintenance.

After-sales training: The company offers several training courses each year, taught by a number of instructors who are qualified in training and assessment by the NTC (National Training Council for Analytical Testers). The training courses last for one week and are held in Dalian.

# INHERIT THE CLASSICS, POURING EFFORTS TO BUILD

Technology inheritance, classic continuation, comprehensive upgrade

## INHERIT THE CLASSICS, POURING EFFORTS TO BUILD



### 🔍 New exterior design

- Newly built control panel, high-end, atmosphere, fashion.
- The perfect combination of curved control panel and two-color silicone keys, providing the best operating feel.
- High-definition VFD display, clear font, soft vision, to achieve the best sensory effect
- New door opening and panoramic window of the autosampler. It,s easy to observe the sample analysis in real time

# EClassical 3100 HPLC

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## Perfect Functionality

- An optimized extinction secondary spectroscopy function, which greatly improves reliability
- Improved heat dissipation efficiency and reduced baseline drift of deuterium lamps
- Chromatography data workstation with stable real-time feedback control of the main status and parameters of each unit module

## Stable communication

- Isolated DA output module, which makes the analog signal output more stable, as an optional module, can meet the special needs of customer fraction collection.
- The standard communication method adopts the USB interface with better applicability, selects the imported USB chip and adopts the advanced magnetolectric/optical isolation technology to ensure the instrument stable
- The RS-485 communication between the unit instruments adopts mature and flexible technology, and uses "avalanche secondary tube" instead of "TVS tube" to ensure communication reliability. Reliability and stability of instrument control

## Excellent performance

- High-pressure constant-flow pump continues the low pulsation to ensure infusion stability
- PID segmentation technology combined with temperature calibration curve and single-point calibration to ensure the accuracy and repeatability of the column temperature chamber.
- Excellent repeatability and linearity of the autosampler.

## Humanized design

- Equipped with S3100 autosampler can greatly improve the automation level of the whole instrument and the efficiency of customer's analysis
- Optimized location of the detection cell to harmonize with the complete system, facilitating piping connections and reducing out-of-column effects.
- Multi-level fault indication and alarm function, the operator can be informed of the instrument status in time to ensure the safety of man and machine.

## Diversified system configuration options

- The building block type unit module, can be flexible according to customer needs to achieve equal degree, binary high pressure gradient, quadratic low pressure gradient, DAD system configuration.
- The O3100 column temperature Oven, S3100 autosampler, DG3100 degasser, F3100 fraction collector, post-column derivatizer, Differential detector, Evaporative light detector, Laser induced fluorescence detector and other unit modules are optional to meet different customer needs.

# P3100 High pressure constant flow pump series

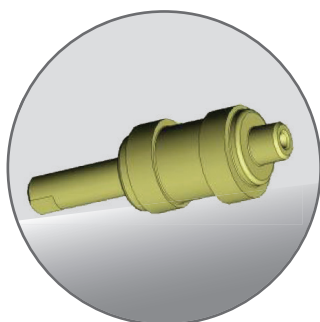


## Performance indicators

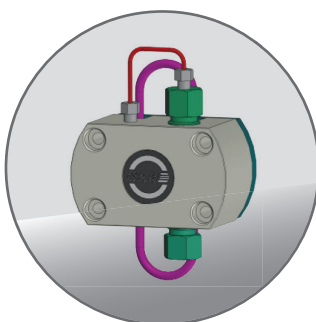
Flow range	0.001~10.000mL/min (Set step size 0.001mL/min)
Flow Accuracy	≤±0.2% (1.000mL/min, 8.5MPa, Water, room temp)
Flow stability	RSD≤0.06% (1.000mL/min, 8.5MPa, Water, room temp)
Maximum working pressure	45MPa (0.001~5.000mL/min) 20MPa (5.001~10.000mL/min)
Lagging volume	≤500μL
Size/weight	420×300×175mm (Length×Width×Height) /12kg
Power supply/power	AC220V±10%, 50Hz/80W

## Functional features

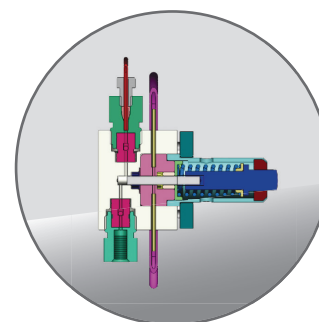
- tandem double plunger one-piece pump head with a cam stroke of only 2 mm.
- stepper motor interpolation control technology for improved accuracy and repeatability at low flow rates.
- Selected imported high-quality key components to ensure long-term operational infusion stability and durability.
- Real-time pressure detection display, high and low pressure alarms and other functions ensure the safety of the instrument's use.
- Microcontroller and SPI bus technology, which reduces the size of the board and the number of devices used and increases reliability.
- VFD vacuum digital tube 20 x 2 display window, friendly human-machine interface, easy and flexible operation.



Convex Wheel



Pump head



FIFO

# UV3100/UV3110UV-Vis detector

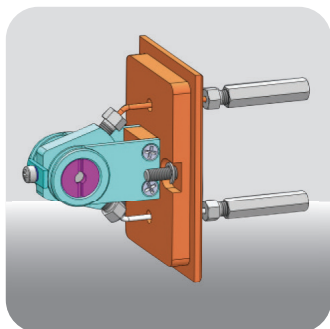


## Performance indicators

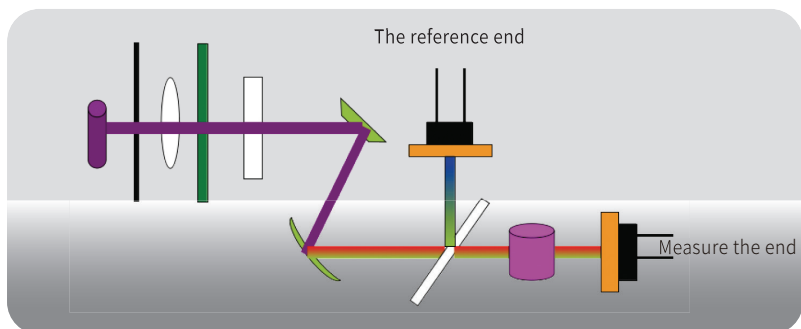
Wavelength range	190~700nm
Baseline noise	$\leq \pm 0.5 \times 10^{-5}$ AU (Dry pool、254nm)
Baseline drift	$\leq 1.0 \times 10^{-4}$ AU/h (Empty pool、254nm、20Hz)
Size/weight	420×300×175mm (Length×Width×Height) /16kg
Power supply/power	AC220V±10%, 50Hz/100W

## Functional features

- A more aerodynamic vertical air duct design that goes right to the heart of the heat source.
- Lower baseline drift, less baseline noise.
- A time-wavelength program function.
- New design of the test cell shape and mechanical structure, compact.
- Addition of DA analogue output function for detectors (optional)
- Dual wavelength mode provides simultaneous chromatograms at two wavelengths.



Testing pool



Optical path diagram

# DAD3100 Diode array detectors

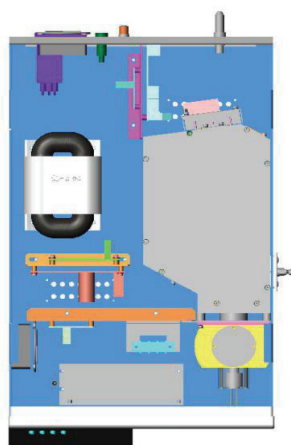


## Performance indicators

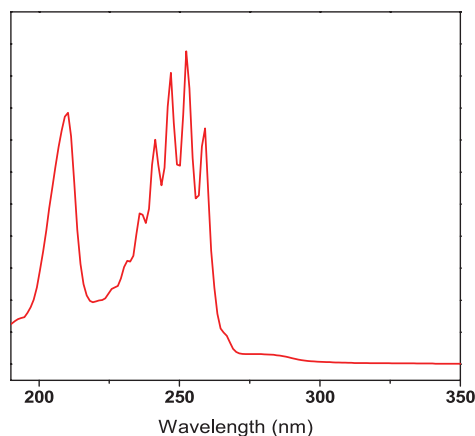
Wave length range	/	190~800nm
Baseline noise	/	$\leq \pm 1.0 \times 10^{-5}$ AU
Baseline drift	/	$\leq 2.0 \times 10^{-4}$ AU/h
Size/weight	/	420×300×175mm (Length×Width×Height)/18kg
Power supply/power	/	AC220V±10%, 50Hz/80W

## Functional features

- Patent for "Extinction dipole spectroscopy device for chromatograph"
- Opto-isolated internal layout and stable and reliable cooling technology
- Integrated into chromatography data workstations for complete analysis automation and audit trail
- Advanced functions such as multi-channel wavelength detection, controlled acquisition frequency and wavelength range, spectral library search and peak purity calculation can be implemented to meet the user's testing needs



Three-dimensional internal structure layout



Spectral resolution (benzene "five-finger" peak)

# MFD3100 Multi-wavelength fluorescence detector

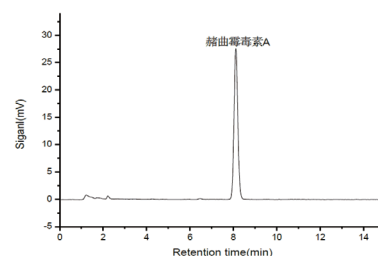


## Performance indicators

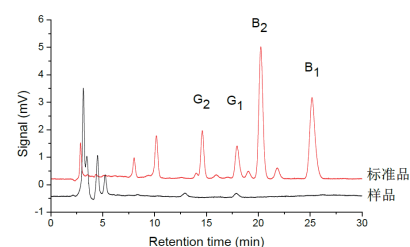
Optical path type	Confocal optical path system
Light source	3 LED light sources
Wavelength range	Excitation wavelength: 360-370nm/382-392nm/324-350nm Emission wavelength: 414-479nm
Wavelength accuracy	±3nm
Baseline noise	Static: $\leq 5 \times 10^{-5}$ FU
Noise drift	Static: $\leq 5 \times 10^{-4}$ FU/h

## Functional features

- The fully automatic power-on self-test function enables faults in the instrument's internal circuitry to be detected at the first opportunity.
- High precision, self-calibrating analogue-to-digital converters and a new confocal optical path system Enhanced detector sensitivity for better wavelength accuracy and repeatability
- The light path system has been improved by the use of an automatic switching device for LED light sources with unique patented technology Positioning accuracy for more precise wavelength positioning.
- The automatic calibration of the optical path optical axis system ensures the accuracy and repeatability of the output wavelengths of different wavelengths of UV LEDs, greatly reducing the time for optical path commissioning and effectively improving detection efficiency.
- The standard 3 LED light sources not only allow for free switching of light sources, but also for optimisation of light source energy.
- Five-fold sensitivity and triple gain for detection sensitivity at different concentrations.
- When used as a special detector for aflatoxin, the patented technology, registered by the patent office, has the advantages of high sensitivity, easy operation and low maintenance costs.
- The LED light source can be customised and replaced to meet the needs of the analysis of different test substances.



Typical spectrum of ochratoxin A



Determination of aflatoxins B1, B2, G1 and G2 in maize

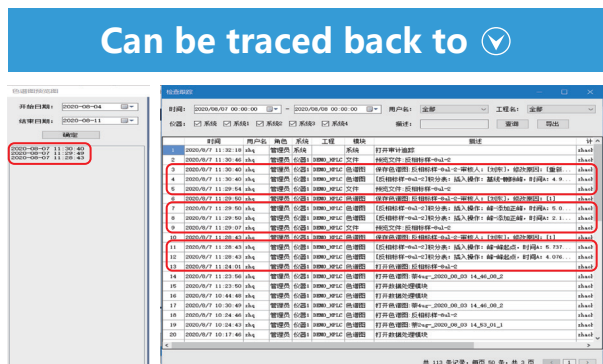
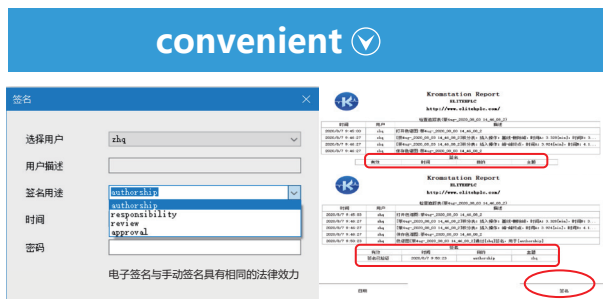
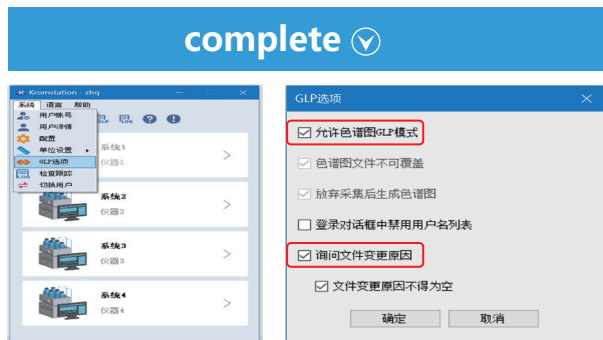


# Chromatography Data Workstation

The Kromstation chromatography data workstation is the workstation software for LC systems develop and is CNAS certified. WithKromstation can control liquid chromatography and complete various operations with a personal computer, with superb database, audit trail, GLP、 Data archiving and backup, electronic signature, permission setting, networked management, etc.; the interface is simple and easy to use in the process.

## Functional features

- Audit trails and electronic signatures comply with the CFDA's data integrity management specifications.
- System management functions to meet the security requirements of various workflows.
- Provides multi-level access management and electronic approval of analysis data stored in the database
- Detailed user information can be saved to create a review history that manages appropriate reviews.
- Customised reports are available, combining many different items.



# S3100Autosampler

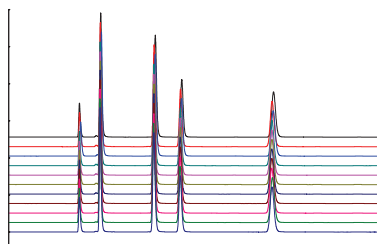


## Performance indicators

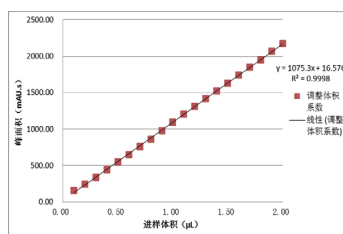
Sampling range	0~100 $\mu$ L (Incremental 0.1 $\mu$ L)
Number of samples processed	120位
Sample residues	<0.01%
Sampling repeatability	RSD<0.3% (Full ring injection, 20 $\mu$ L sample ring) RSD<0.5% (Part volume with sample loss injection) RSD<1.0% (Part volume with sample loss injection)
Size/weight	540 $\times$ 400 $\times$ 300mm (Length $\times$ Width $\times$ Height) /23kg
Power supply/power	AC220V $\pm$ 10%, 50Hz/30W

## Functional features

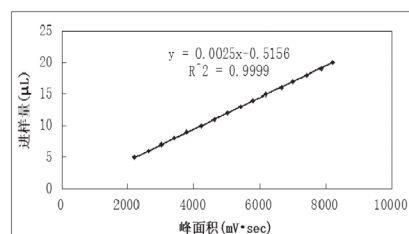
- Improved positioning accuracy with 8-bit position calibration
- Relative movement of the tray and sample needle to shorten the injection cycle.
- New injection mode with greatly optimised line connections
- Unique sample needle design to avoid the problem of clogged sample needles.
- Excellent mechanical precision and stability.
- Independent software control, compatible with a wide range of HPLC models.



Injection reproducibility chromatogram



0.1 to 2  $\mu$ L autosampler linearity



5 to 20  $\mu$ L autosampler linear

# F3100 Fraction collector

The F3100 Fraction Collector is a fully automatic fraction collector that provides mobile fraction collection for a wide range of applications such as gel clean-up systems, HPLC systems, chromatography systems, biochemical product preparation and product purification.

## Functional features

- A detachable X-Y robotic arm system imported from Germany with maintenance-free lifetime slide rails, the height of which can be freely adjusted according to the height of the sample.
- High-precision PEEK three-way solenoid valve with independent waste channels and no dripping during switching
- Automatic tube rack type recognition, automatic peak detection.
- Power-off data saving function.
- Collection by component time, volume, threshold and slope is available to meet a variety of collection needs.



## Performance indicators

Number of fractions	/	100 test tubes, 4 solvent bottles
Contact material	/	316L Stainless steel, PTFE
Ambient temperature	/	2~45°C
Minimum movement time	/	0.1seconds
Set-aside time setting	/	Max 99min
Size/weight	/	380×350×410mm (Length×Width×Height) /16kg
Power supply/power	/	AC220V±10%/30W

# O3100 Column\_Oven

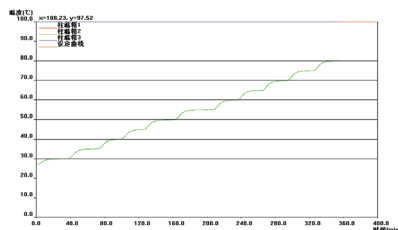


## Functional features

- Advanced 32-bit ARM processor in the main control chip, faster computing speed and higher integration
- AC phase modulation, combined with temperature, calibration curve and single point correction, ensures accuracy and reproducibility of temperature within the set range and shortens temperature stabilisation time to less than 30 minutes
- Embedded software introduces digital PID algorithms for shorter temperature rise and stabilisation times and smaller temperature rushes

## Performance indicators

Temperature control range	/	Room temperature is above+5~80°C
Temperature control accuracy	/	≤0.1°C
Size/weight	/	420×300×120mm (Length×Width×Height) /7kg
Power supply/power	/	AC220V±10%, 50Hz/130W



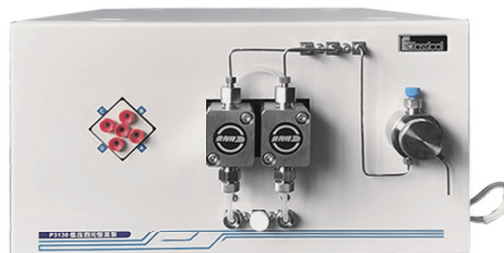
Temperature linear gradient curve

# P3130 Low pressure quadruple constant current pump

The P3130 low pressure quadruple constant flow pump is a high performance liquid chromatography of low pressure quadruple constant flow pump with independent intellectual property designed and developed by Instruments, which can be conveniently used with various liquid chromatography detectors, autosamplers, column temperature chambers and other units, or used as an infusion tool alone. Different ratios of mobile phases can be provided for routine applications and method development applications.

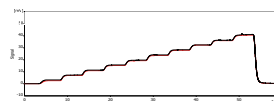
## Functional Features

- 5mm parallel double plunger, improve infusion stability and prolong solenoid valve life.
- 5ms high-speed solenoid valve, reduce the opening dead time, reduce heat generation, improve the proportional accuracy.
- Symmetrical proportional distribution, so that the distribution is more accurate, 1% step test error are <1%, the flow has better repeatability.

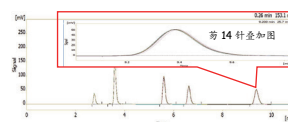


## Performance Indicators

Flow Range	0.001~10.000mL/min
Gradient accuracy	≤±1.0%
Maximum working pressure	63MPa
Retention time repeatability	≤0.1%
Communication method	UDP Network Communication
Mixing volume	750μL
Size / Weight	400×300×180mm (Length×Width×Height)/15kg
Power supply/power	AC220V±10%, 50Hz/100W



1% step test error are <1%



Continuous injection 14 needles of retention time RSD≤0.1%

# DG3100/DG3110 Degasifier

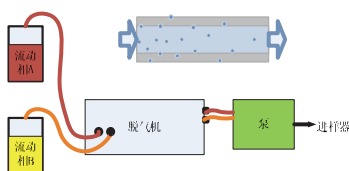


## Functional features

- Removing the gas dissolved in the mobile phase by automatic continuous vacuum degassing method with high efficiency.
- Adopts stepper motor subdivision control technology to achieve continuous low-speed and high-speed cyclic operation of the pump, avoiding baseline fluctuations, greatly reducing noise and wear and tear.
- Adopting imported Teflon® AF degassing membrane, which has good degassing effect, effectively reduces the volume of the inner chamber, and has good chemical resistance.
- Compact design, small size and easy to use with any HPLC connection, is the ideal complementary product for HPLC.

## Performance Indicators

Online degassing	Built-in binary quaternary
Maximum flow rate of single channel	10.000mL/min
Deaeration fluid channel inner diameter	1.143mm
Standard channel volume	480μL/channel
Contact with liquid materials	PEEK, Teflon® AF
Size / Weight	250×95×155mm (Length×Width×Height) /1.5kg
Power supply/power	AC220V±10%, 50Hz/20W



Degassing schematic diagram

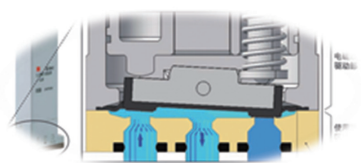
# RC3100 Solvent Controller

RC3100 solvent controller is a magic tool developed by Analab to realize the problem of solvent switching in liquid chromatography. It can complete the binary / ternary / quaternary solvent switch with One click and realize unattended automatic sequence analysis and improve the efficiency of the instrument during working hours. The RC3100 solvent controller can be used with any set of liquid chromatographs to realize the upgrade match as you like.



## Function features

- Long press for 1 second to easily switch the flow path manually, making flushing convenient and fast.
- Automatically memorize the flow path state when the power is turned off last time and switch to this flow path directly.
- Automated sequence analysis between different mobile phase conditions when unattended.
- Fast completion of binary, ternary and quadratic switching of isocratic/gradient, with 63% increase in work efficiency.
- Support sequence number identification and multiple control.



## Performance Indicators

Flow Range	≤10mL/min
Switching speed	≤100ms
Inner chamber volume	≤40μL
Maximum withstand pressure	0.3MPa
Communication method	UDP
Liquid contact material	316L/PFA/FFKM

# RI-201H Differential refractive index detector

The RI-201H Differential Refractive Index Detector is a widely used general-purpose detector for liquid chromatography analysis, suitable for GPC analysis and sugar analysis. The RI-201H Differential Refractive Index Detector has the advantages of reliable performance and easy operation.

## Functional features

- Stable and fast start-up.
- Double temperature control, which greatly reduces drift caused by ambient temperature fluctuations.
- Use of the same optical system as the RI-101.
- cost-effective and reasonable price.
- with USB interface.



## Performance Indicators

Testing Range	0.25~512μRIU
Linear Range	≥600μRIU
Temperature control	Off, 30~50°C (1°C each time) , 77°C fuse (double temperature control)
Size / Weight	400×260×150mm (Length×Width×Height) /12kg
Power supply/power	AC100~240V±10%, 50/60Hz, 150VA max

# D3250 Fluorescence Detector

The D3250 fluorescence detector is a multi-signal fluorescence detector with fast on-line scanning capability and spectral data analysis. As a detection unit for HPLC, it can be conveniently used with other units such as various liquid chromatography infusion pumps, autosamplers, and column thermostats.

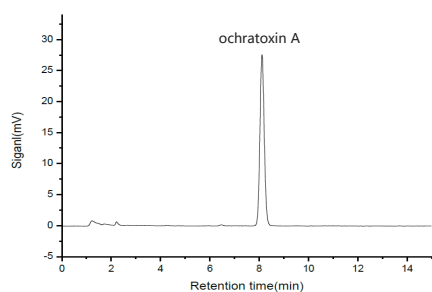
## Functional Features

- Analog signal output unit
- Very high sensitivity of  $S/N \geq 3000$  for Raman spectroscopy of water
- Constant flow cell: optional constant flow cell to reduce the influence of room temperature changes
- Full-automatic self-test function can be found in the first time the instrument internal circuit failure
- Variable slit: adjustable slit of emission light monochromatic: 15nm, 30nm; 30nm slit can be used for High sensitivity analysis
- Built-in Hg lamp wavelength calibration: UV region wavelength calibration by using the 254nm characteristic spectrum of the Hg lamp
- The lamp and the detection cell can be replaced from the front without adjustment, which makes it easier to maintain the equipment.

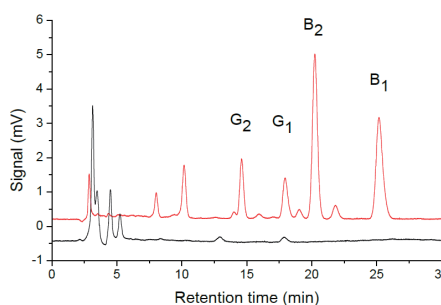


## Performance Indicators

Detector type	/	Multi-signal fluorescence detector with fast on-line scanning capability and spectral data analysis
Light source	/	Xe Lamp
Wavelength range	/	Excitation wavelength: 200-850nm Emission wavelength: 250-900nm
Response time	/	10-2000ms, 7-segment switching
Sensitivity	/	Raman spectroscopy of Water $S/N > 3000$
Wavelength repeatability	/	$\leq \pm 0.2\text{nm}$
Wavelength accuracy	/	$\leq \pm 3\text{nm}$
Baseline noise	/	$\leq 2 \times 10^{-5}\text{FU}$
Baseline drift	/	$\leq 5 \times 10^{-5}\text{FU/h}$
Linear range	/	$\geq 10^3$



Typical spectrum of ochratoxin A



Determination of aflatoxins B1, B2, G1 and G2 in maize

# Post-column derivatizer

Post-column derivatization, also known as post-column derivatization reaction, is a reaction process that converts a compound with no properties into another compound (derivative) with certain properties

## PD3100 Post-column derivatizer

PD 3100 post-column derivatizer adopts advanced design concept, non-metallic material for full liquid flow path, precise temperature control method, convenient to connect with high performance liquid chromatograph, which can ensure simple, efficient and accurate liquid chromatography analysis.



### Functional features

- Integration of dual derivatization reaction modules, dual independent precise temperature control modules, coolers with one.
- All inert liquid circuit material, contact liquid material is PEEK, Teflon FEP, widely used.
- Independent temperature control, automatic intelligent adjustment of temperature control mode, with automatic over-temperature cut-off protection circuit
- Regulated backpressure valve, shorten detector stabilization time.
- Wide chemical adaptability, commonly used acids, bases, organic solvents and surfactants have no effect. The range of pH is 1-14.

### Performance index

The range of temperature control	Room temperature +3°C-155°C
Temperature control accuracy	±0.1°C
Temperature control precision	±0.2°C
Size / weight	420×260×100mm (L × W × H) /9.3kg
power supply / power	AC100~240V, 50/60Hz, 320W

## PD 3110 Photochemical Derivator

The PD 3110 photochemical derivatizer is a derivatization device for aflatoxin and sulfonamide testing, and can be connected to any brand of liquid chromatograph. Its basic principle is to enhance the fluorescence intensity of the sample by UV light irradiation, and then to detect it by fluorescence detector.

### Functional features

- low cost of use without the use of any derivatization reagents.
- Avoiding interference with the liquid chromatography system.
- Fast and low toxicity.
- Easy to operate.

### Performance index

UV lamp wavelength	254nm
Derivative volume	0.5mL
Pressure resistance	300psi
Dimension/Weight	350×130×110mm (L×W×H) /2.7kg
Power supply/power	AC220V, 50Hz/11W

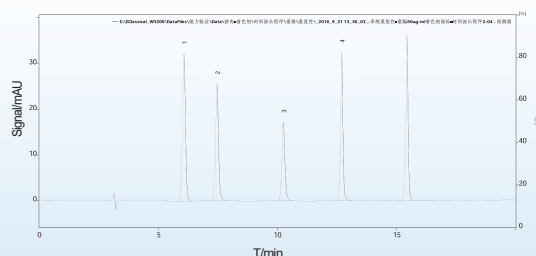


# Application Examples (Food)

## Synthetic colorants in meat products

Column: Supersil ODS2 5 $\mu$ m 4.6 $\times$ 250mm  
 Mobile phase A: 0.02 mol/L ammonium acetate solution  
 Mobile phase B: methanol; gradient elution  
 Flow rate: 1.0mL/min  
 Detection wavelength: 254nm  
 Injection volume: 10 $\mu$ L  
 Column temperature: 35 $^{\circ}$ C

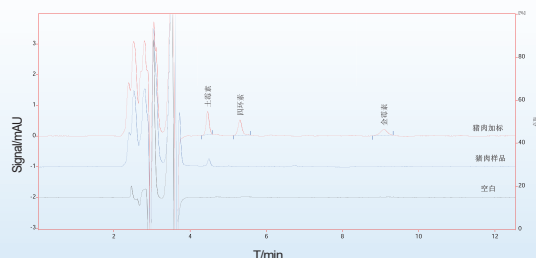
time/min	Gradient condition	
	A%	B%
The initial	80	20
6	65	35
15	40	60
20	80	20
30	80	20



1. Lemon yellow; 2. Amaranth red; 3. Carmine; 4. Sunset yellow; 5. Red temptation

## Tetracycline antibiotics in meat products

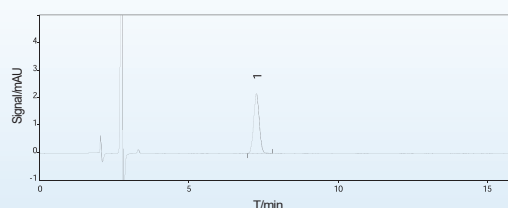
Column: SinoChrom ODS-BP 5 $\mu$ m 4.6 $\times$ 250mm  
 Mobile phase: acetonitrile/sodium dihydrogen phosphate buffer solution = 27/73  
 Flow rate: 1.0mL/min  
 Detection wavelength: 355nm  
 Injection volume: 20 $\mu$ L  
 Column temperature: 30 $^{\circ}$ C



## Vitamin B12 in food

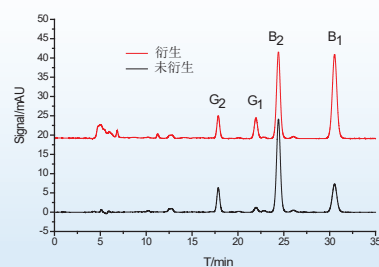
Column: Supersil ODS2 5 $\mu$ m 4.6mm $\times$ 250mm  
 Mobile phase: Mobile phase A: weigh 0.87 g of dipotassium hydrogen phosphate, 0.41 g of dipotassium in a 1000mL volumetric flask, dissolve with water, add 115mL acetonitrile and fix the volume with water to the scale.  
 Mobile phase B: water/acetonitrile/phosphoric acid = 499/499/2; gradient elution  
 Flow rate: 1.2 mL/min  
 Detection wavelength: 361 nm  
 Injection volume: 10 $\mu$ L  
 Column temperature: 40 $^{\circ}$ C

time/min	Gradient condition	
	A%	B%
0	100	0
13	100	0
28	0	100
38	100	0
50	100	0



## Aflatoxin in honey

Column: SinoChrom ODS-BP 5 $\mu$ m 4.6 $\times$ 200mm  
 Mobile phase: methanol/acetonitrile/water=20/20/60(v/v/v)  
 Flow rate: 0.8mL/min  
 Detection wavelength: excitation 360nm, emission 450nm  
 Injection volume: 20 $\mu$ L  
 Column temperature: room temperature



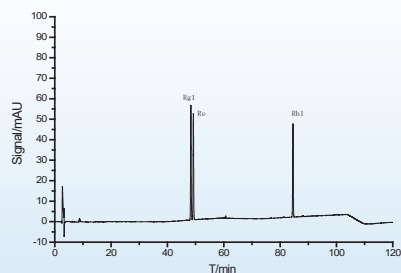


# Application Examples (Traditional Chinese Medicine)

## Ginsenoside

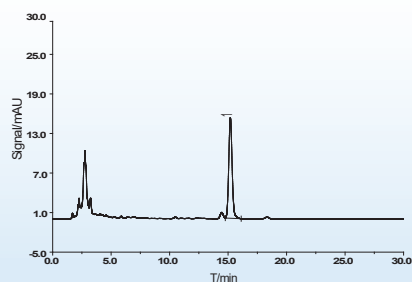
Column: EliteUQ GIN C18 column for ginseng  
 Mobile phase: acetonitrile (A): water (B) gradient elution  
 Flow rate: 1.0mL/min  
 Detection wavelength: 203nm  
 Injection volume: 10 $\mu$ L  
 Column temperature: 40°C

time/min	Gradient condition	
	A%	B%
0-35	19	81
35-55	19→29	81→71
55-70	29	71
70-100	29→40	71→60
100-105	40→19	60→81
105-120	19	81



## Porphyra

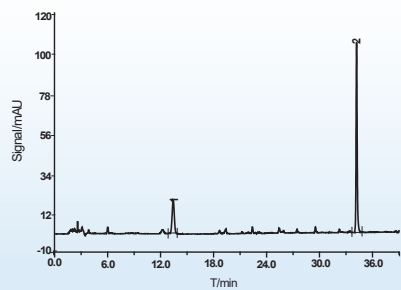
Column: Supersil ODS2 5 $\mu$ m 4.6 $\times$ 150mm  
 Mobile phase: Methanol  
 Flow rate: 1.0mL/min  
 Detection wavelength: 283nm  
 Injection volume: 5 $\mu$ L  
 Column temperature: room temperature



## Roasted licorice

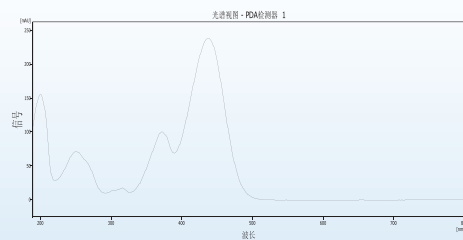
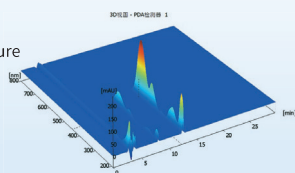
Column: SinoChrom ODS-BP 5 $\mu$ m 4.6 $\times$ 200mm  
 Mobile phase: A acetonitrile, B 0.05% phosphoric acid solution (gradient elution)  
 Flow rate: 1.0mL/min  
 Detection wavelength: 237nm  
 Injection volume: 10 $\mu$ L  
 Column temperature: room temperature

time/min	Gradient condition	
	A%	B%
0-8	19	81
8-35	19→50	81→50
35-36	50→100	50→0
36-40	100→19	0→81



## Gold Amine O

Column: SinoChrom ODS-BP 5 $\mu$ m 4.6 $\times$ 250mm  
 Mobile phase: acetonitrile:0.025 mol/L potassium dihydrogen phosphate solution (containing 0.2% triethylamine, pH 3.0 adjusted by phosphoric acid) = 35:65  
 Flow rate: 1.0mL/min  
 Detection wavelength: DAD detection  
 Injection volume: 10 $\mu$ L  
 Column temperature: room temperature

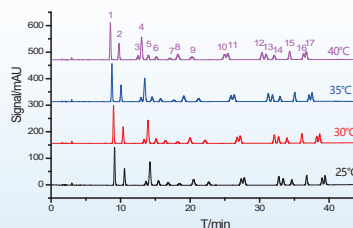


# Application Examples (Environmental)

## Polycyclic aromatic hydrocarbons

Column: Supersil ODS2 5 $\mu$ m 4.6 $\times$ 250mm  
 Mobile phase: A: acetonitrile, B: water  
 Flow rate: 1.0mL/min  
 Detection wavelength: 220nm  
 Injection volume: 10 $\mu$ L  
 Column temperature: 30 $^{\circ}$ C

Gradient condition		
time/min	A%	B%
0	70	30
16	70	30
40	100	0
45	100	0

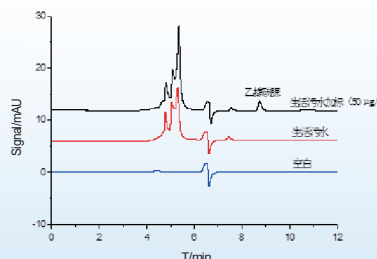


1. Naphthalene; 2. Acenaphthylene; 3. +; 4. Acenaphthene; 5. The Philippines; 6. Anthracene; 7. Decafluorobiphenyl; 8. Fluoranthene; 9. p; 10. Chrysene; [A] anthracene; 11. [B]. 13. [K] fluoranthene; [A] pyrene; 14. Dibenzo [a, h] anthracene; Benzo [GHI] pyrene; 16. 17. Indene [1, 2, 3-cd] pyrene

## Ethylene thiourea in water

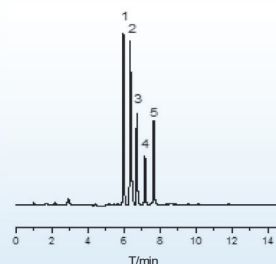
Column: SinoChrom ODS-BP 5 $\mu$ m 4.6 $\times$ 250mm  
 Mobile phase: A: methanol, B: water  
 Flow rate: 0.5mL/min  
 Detection wavelength: 233nm  
 Injection volume: 20 $\mu$ L  
 Column temperature: 30 $^{\circ}$ C

Gradient condition		
time/min	A%	B%
0-10	10	90
10-11	10-100	90-0
11-30	100	0



## 5 biogenic amines in water

Column: SinoChrom ODS-BP 5 $\mu$ m 4.6 $\times$ 150mm  
 Mobile phase: mobile phase A: acetonitrile; mobile phase B: 20mmol/L ammonium acetate solution  
 Flow rate: 1mL/min  
 Detection wavelength: 254nm  
 Injection volume: 10 $\mu$ L  
 Column temperature: room temperature

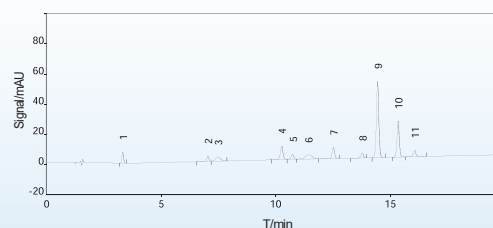


1. Putrescine; 2. Cadaverine; Spermidine; 3. 4. Fine amine; 5. Histamine

## 12 phenols in the environment

Column: Supersil ODS2 5 $\mu$ m 4.6 $\times$ 150mm  
 Mobile phase: A: acetonitrile, B: water  
 Flow rate: 1.5mL/min  
 Detection wavelength: 223nm  
 Injection volume: 10 $\mu$ L  
 Column temperature: room temperature (25 $^{\circ}$ C)

Gradient condition		
time/min	A%	B%
0	15	85
20	40	60
22	15	85



1. 1, 3-catechol; 2. Phenol; 3. 2, 4-dinitrophenol; 4. 3-methylphenol, 4-methylphenol; 5. 2-methylphenol; 6. 2,4, 6-trinitrophenol; 7. 4-chlorophenol; 8. 2, 6-dimethylphenol; 9. 2-naphthol; 10. 1-naphthol; 11. 2, 4-dichlorophenol