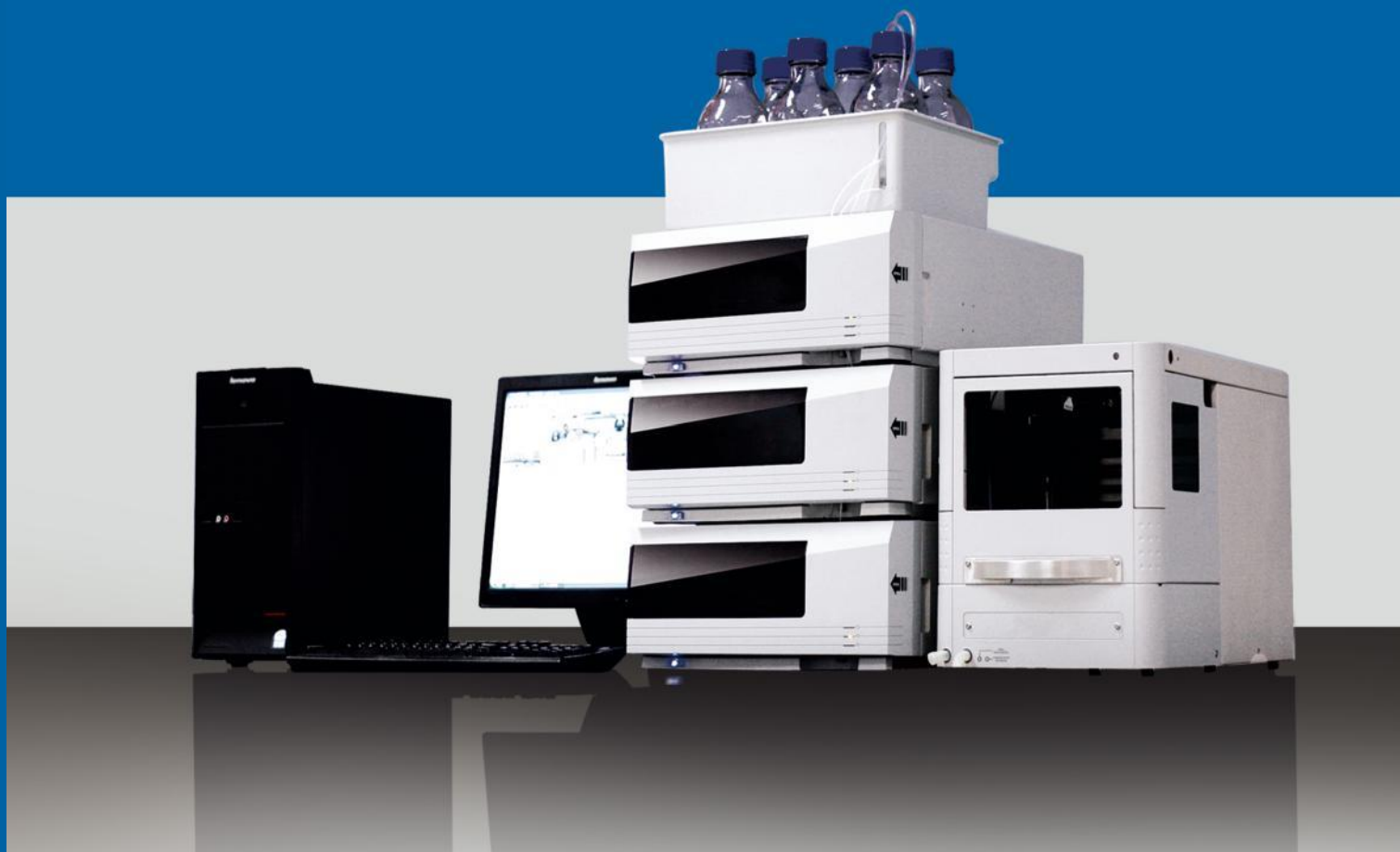
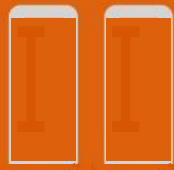


High Performance Liquid Chromatography



PERSEE ANALYTICS, INC.

LB



High Performance Liquid Chromatography

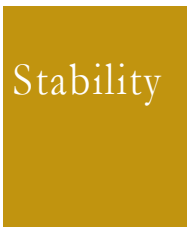




Character



"Accuracy is the spirit of analysis." Based on a well structured design and manufacturing process, unquestionable accuracy and precision were a prerequisite, secondly quantification and precision of analysis were dependent on accurate flow rate.



Excellent reliability and stability. The pump heads have been machined using a first class CNC process; the innovative structural design has been designed to achieve minimum pressure fluctuation. Consequently stable flow, low noise and overall quality provides the foundation for reliable results.



LCWin software offers complete control, powerful data processing, reporting functions, intelligent diagnostic systems and maintenance utility ensure a complete and flexible software solution for your analytical work.



Art combined with practicality. The modular system provides shape and character whilst being aesthetically pleasing. The unique and practical design ensures ease of use and maintenance. In essence, the combination of art and practicality compliment each other.



The L600 is a high performance yet cost effective solution. The modular design ensures that you can configure the system to meet your application requirements. A dedicated team of product specialists will provide technical support and provide an applications development service.

Configuration



• L600—Isocratic configuration



• L600—Gradient configuration

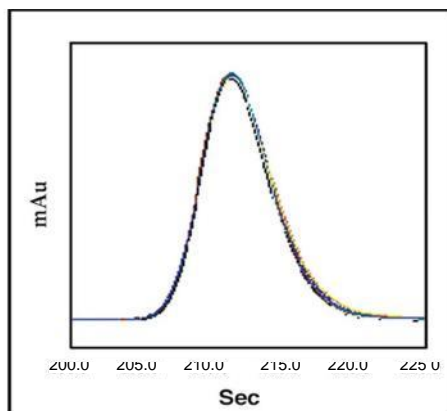


• L600 Gradient configuration with column oven



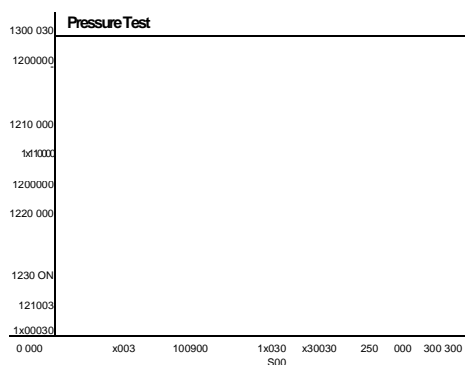
• L600 Gradient configuration with column oven and auto sampler

L600 High pressure pump

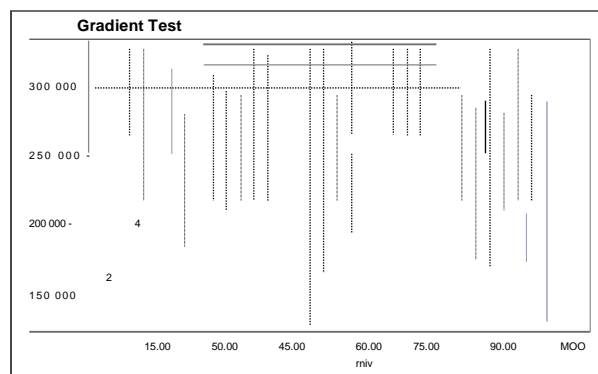


Item	Retention Time(s)	Area μ Abs.s
1	211.5	354986.7
2	211.9	355102.1
3	212.2	353989.3
4	212.6	357527.6
5	212.0	357115.9
6	210.1	356984.3
7	211.8	360583.8
8	211.3	359729.9
9	211.6	357272.6
10	210.6	352621.6
Average	211.6	356591.4
RS D%	0.35	0.69

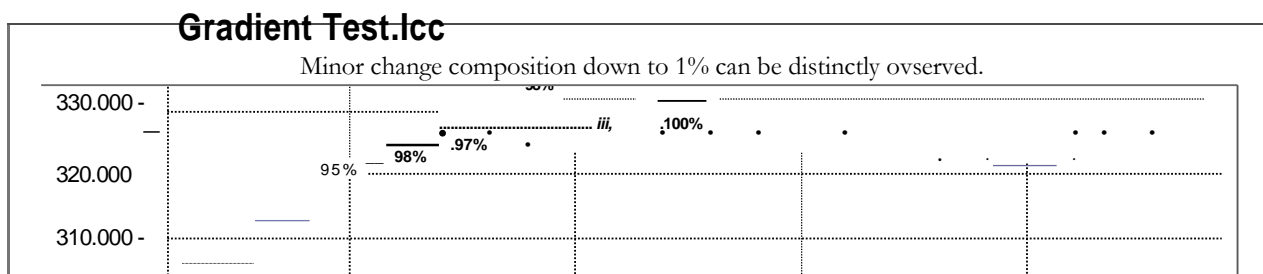
The figure above shows comparison of 10 injections (Response time 0.1s). From this figure we can see that the L600 pump exhibits good repeatability on both retention on both retention time and peak area, which leads to accurate results. The solvent system incorporates a fluidic design that uses a serial flow path. The system employs dual plungers and two check valves for enhanced reliability. The dual cam gear is calculated to ensure optimal flow control whilst an integral seal wash system will extend the serviceable life of the pistons and seals.



Optimised solvent delivery is achieved using pulse dampening compensation. This system optimises pump stability and decreases pressure ripple to 1%.

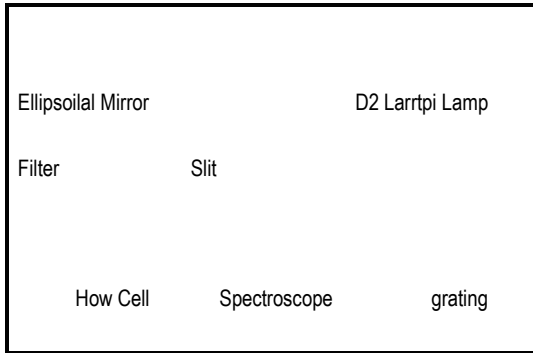


Accurate gradient elution: composition accuracy < 2%.



L600 Detector

- UV Detector

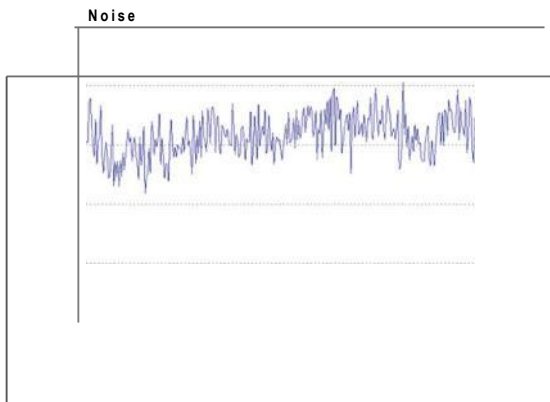


Simplified optics: comprising of an advanced ellipsoidal mirror and concave grating. Compared with the traditional configuration, this arrangement greatly reduces the number of optical components ensuring



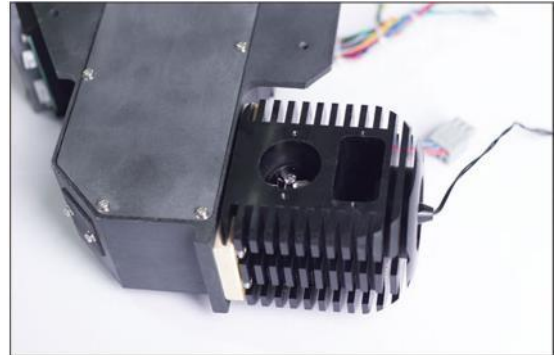
wavelength accuracy.

The lowest baseline noise $< 0.75 \times 10^{-5} \text{ AU}$ allows sensitive analyses to be achieved. The thermostatic flow cell reduces the influence of room temperature

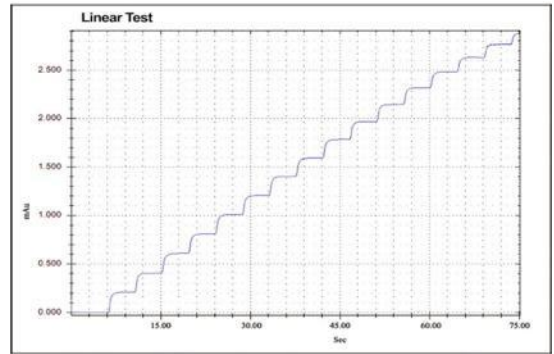


and fluctuations on absorbance and provides a stable baseline

Low noise and drift



Transmission deuterium lamp combined with tungsten lamp provides a wavelength range of 190-800nm. The shine through deuterium lamp eliminates moving components, reduces noise whilst offering increased reliability



Linearity range $> 10^4$



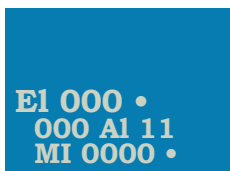
Integral large capacity memory, which can save the

Noise $< 0.75 \times 10^{-5} \text{ Au}(25, 234\text{nm}, \text{drycell}, \text{responds time } 1\text{s})$
shortage Drift $< 10^{-4} \text{ Au/h}(25, 254\text{nm}, \text{dry cell}, \text{responds time } 1\text{s})$

data in the event of accidental power

(5 • 6)

• DAD Detector



The DAD detector is a modern programmable Diode Array Spectrophotometer for HPLC. The instrument includes a deuterium lamp and a detector head with 256 diodes that can monitor the wavelength range from 190 to 500nm with a user—selectable bandwidth from 4-25nm. Calibration and wavelength validation are performed using an integrated holmium oxide filter. The system is designed for ease of operation and provides optimum performance with high sensitivity in a very compact design.

• ELSD Detector



The ELSD detector Chromachem is used to detect all semi— and non—volatile analytes in your sample, including those transparent to other detectors.

• RI Detector



The RI-201H is a versatile and high sensitive RI detector that can be used with various manufactures 'HPLC system'.

• Fluorescence Detector

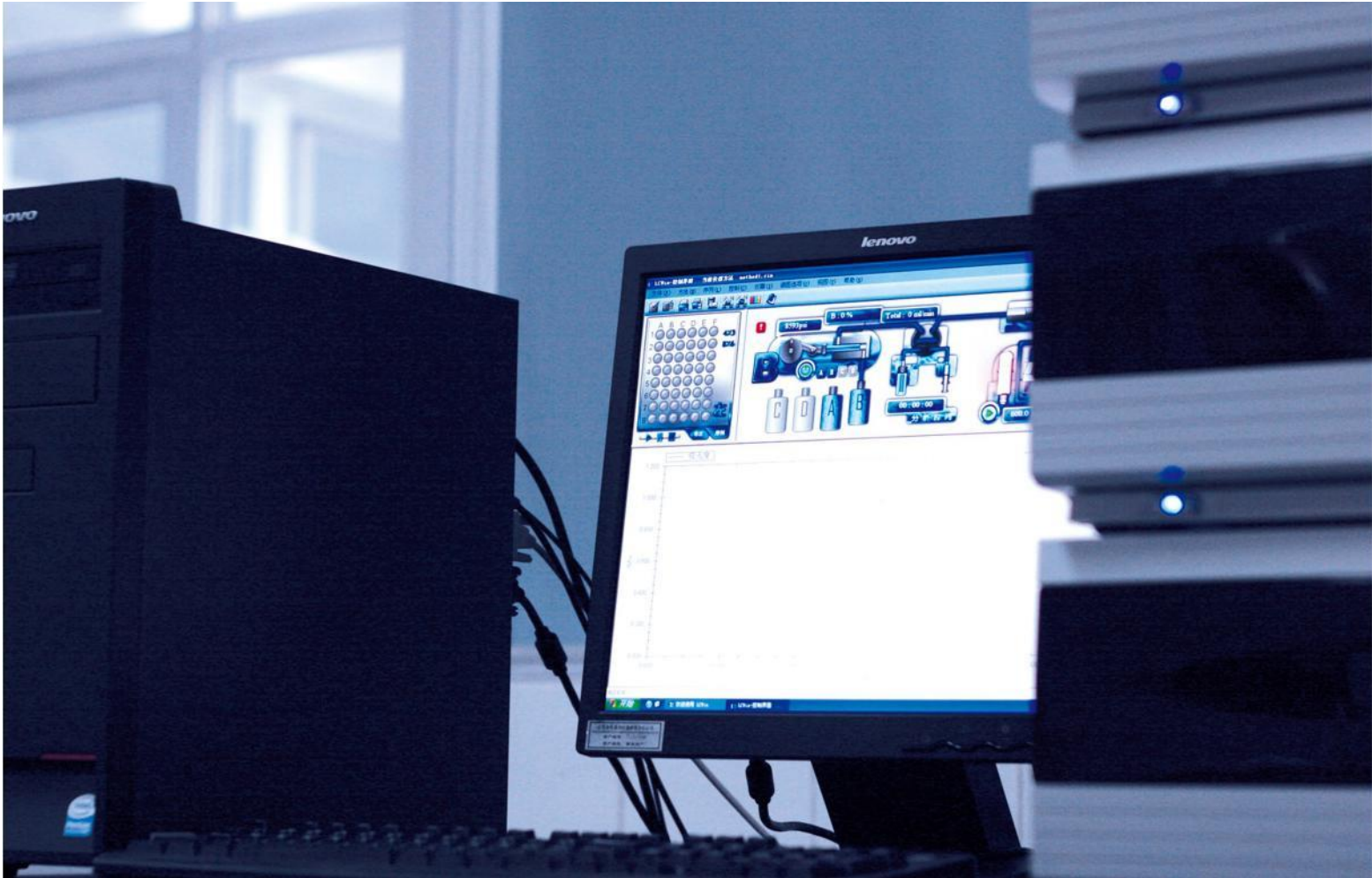


The RF-20A/20Axs fluorescence detector can offer world— class sensitivity, excellent ease of maintenance, and validation support functions. They support a wide range of applications from conventional analysis to high—perfor— mance analysis.

Control Software

- LCWin

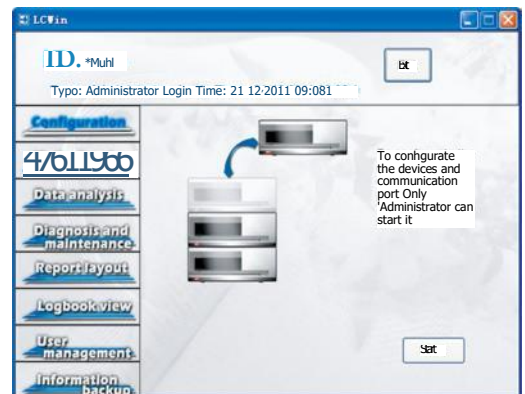
LCWin is a liquid chromatography software package developed by PG Instruments.it provides complete instrument control and data processing functions with a simple and efficient operation.



Function areas

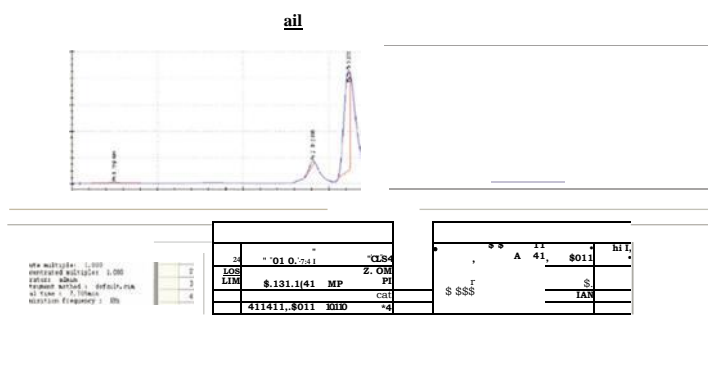
Instrument control, data analysis, diagnostics, report editing.

These four modules provide comprehensive functionality. The modern layout provides a convenient and simple user interface whilst wizard operations simplify configuration and operation.



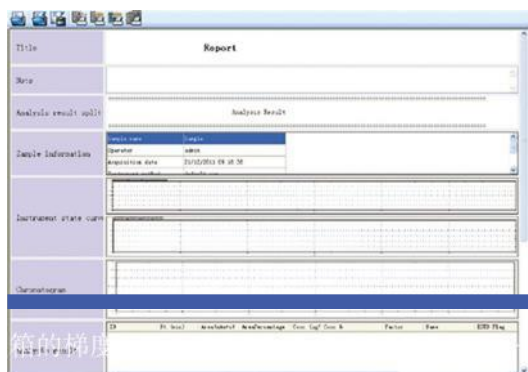
Functional approach

Powerful data processing functions, intelligent batch processing and report capabilities provide the users with multiple operations and reporting formats. All six quantitative functions include programmable integral parameters and over 20 chromatographic parameters to satisfy all your demands for analysis and calculation.



report
within

Flexible reporting, 12 complete control over the



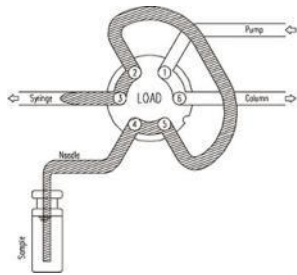
Programmable
components
report manager

editable components provides reporting styles.

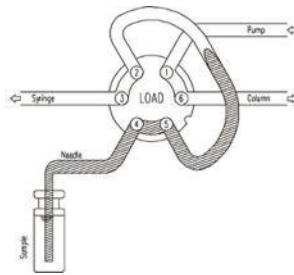
L600 Auto Sampler

The L600 high performance Auto Sampler delivers superior repeatability (<0.3% Full loop mode). This fully automated solution precisely measure sample volume with no sample loss and has impressive high speed 17 second injection cycle.

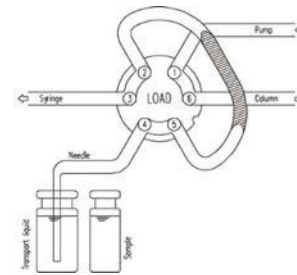
• Flexible injection modes:



Full loop mode
(Most accurate)



Partial loopfill mode
(More flexible)



uL pickup mode
(Minimal sample loss)

• Extra injection range:

1-5000µL

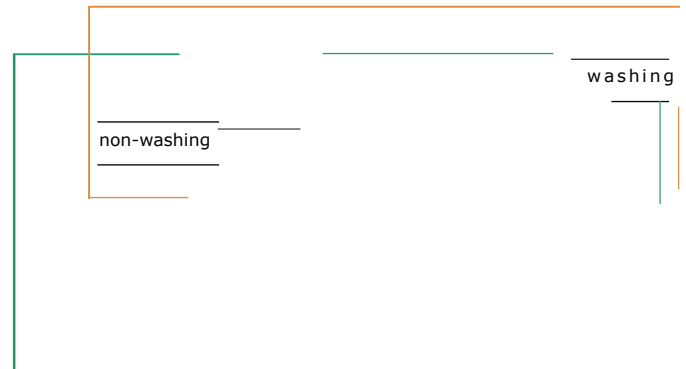
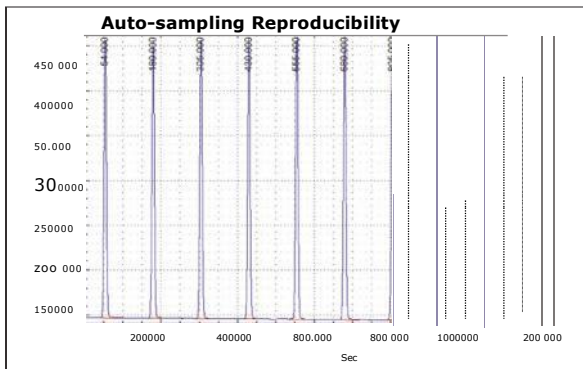
• Ultra high reproducibility: • Sample carry over

Full loop < 0.3 %

Partial loopfill < 0.5 %

uL pickup < 1.0 %

The special design of the needle wash station and rapid wash solvent delivery enable efficient removal of contaminants. Extensive wash routines ensure minimal carry over even for highly absorptive compounds



Optional sample tray cooling:

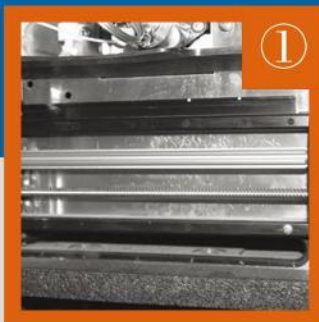
Minimum sampling cycle of 17 seconds, greatly improves throughput time.

• Ultra fast sampling cycle: •

with built in peltier cooling, temperature can be reduced to 4°C

- L600 Auto sampler main

- CD Syringe location module
- CD Cooling module
- CD Syringe driver module
- CD Injection valve
- ' Sample tray module
- 0 CPU board



①



②



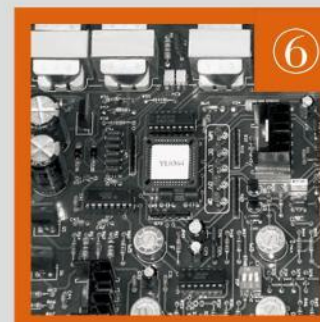
③



④



⑤



⑥

1.1111PIP

Application

HPLC analysis usually applied to different polarity involatile or thermostable organic compounds, also a variety of bioatctive substances and natural products; synthetic and natural polymers amongst many. Today, 80% of the organic compounds can use liquid chromatography for analysis and detection.

- **Medical and pharmaceuticals**

Drug analysis for pharmacy, detection of effective components, drug metabolite control, micro toxin in— vivo analysis, and microbial drug analysis..

- **Health and epidemic prevention**

Clinical analysis, research of disease control, microanalysis in biological areas, human biochemical analysis, and metabolite analysis.

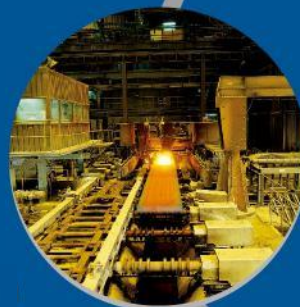
- **Environmental monitoring**

Water, air, rainfall monitoring and determination of the content of various pollutants.

- **Agriculture, forestry, fisheries, animal husbandry**

Pesticide residue detection, crop detection, chemical fertiliser detection, plant quarantine, veterinary drug

detection, aquamarine detection





• Manufacturing

Process control and product testing, such as analysis of food preservatives, sweeteners, spices, food enzyme, carbohydrate, vitamins, nutrients, cosmetics preservatives and antimicrobial agent detection.

• Petrochemical

Industrial process control, product testing and manufacturing processes.

• Quality control

Quality control of commodity inspection, quality inspection, import/export quarantine departments.

• Education and scientific research

Educational establishments, institution for experiment, scientific research, teaching and demonstration.

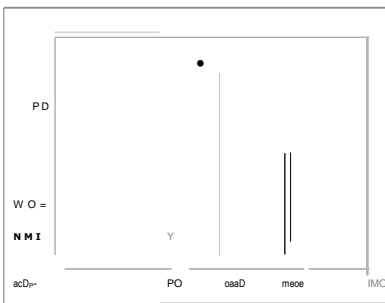
• Water conservation system

Water quality and environmental monitoring, fresh water and sewage treatment plants.

• Other areas

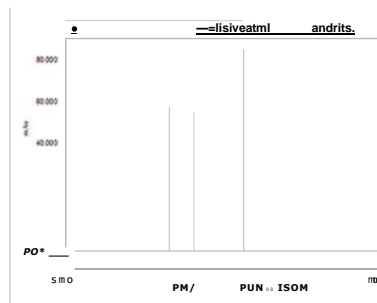
Power station, military, judicial, public security detection and forensics amongst others.

FOR SAFETY AND QUALITY OF LIFE



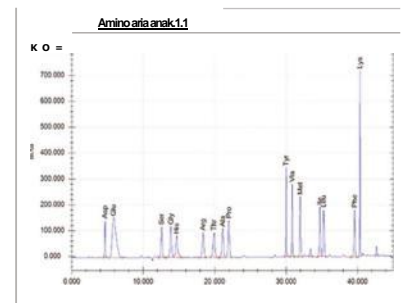
- **Stevioside analysis**

Column: pGranthil NH₂, 5µm, 4.6 x 250mm
 Mobile phase:
 Acetonitrile:water=80:20 Wavelength:
 210nm Flow rate: 1.2mU/min



- **Preservative and sweetener analysis**

Column: pGrandsil—STC, 5µm, 4.6 x 250mm
 Mobile phase: 0.02M ammonium acetate:methanol=80:20
 Wavelength: 230nm
 Flow rate: 1mU/min



- **Amino acid analysis**

Column: pGrandsil—AA C18, 5µm, 4.6 x 250mm
 Mobile phase: k 0.1M sodium acetate:4pH.5):acetonitrile—80:20
B: acetonitrile:water=80:20
 Gradient elute
 Wavelength: 254nm
 Flow rate: 1ml/min
 Column temperature: 40°C

Specifications

• L600 Pump

Item	Specification
Flow range	0.001mL/min-10.000mL/min, 0.001mL/min increment
Compressive compensation	User—defined
Plunge seal wash	Manual
Maximum operation pressure	40MPa, upper and lower limits settable, automatic alarm
Pressure ripple	1% (1mL/min , water)
Flow precision	0.075% RSD (based on retention time)
Flow accuracy	± 1%
Binary high pressure gradient accuracy	1%
Binary high pressure gradient precision	0.2%

• L600 UV detector

Item	Specification
Lamp source	Deuterium lamp, Tungsten lamp
Drift	1×10^{-4} AU/h(dry cell, 254nm, integration time 1s)
Minimum detection concentration	5×10^{-9} g/mL (Naphthalene/Methanol solution)
Flow cell volume	10 μ L
Flow cell pressure limit	10MPa(1500psi)
Wavelength range	190-800nm
Spectral bandwidth	6nm
Wavelength accuracy	± 1nm (Deuterium lamp)
Wavelength precision	0.2nm (Deuterium lamp)
Linear range	$\geq 10^4$
Noise	$\pm 0.75 \times 10^{-5}$ AU (dry cell, 254nm, integration time is)
Integration time	0.1s-2s

• L600 Auto sampler

Item	Specification
Loop range	1-5000 μ L, 1 p. L increment (10mL loop optional)
Syringe volume	500 p. L(2500 μ L optional)
Sample capacity	2 x 48 vial tray (1.5mlvial); (optional 12 positions 10mL vial tray, 96 well plate formats, 384 well plate formats)
Switching time of injection valve	< 100ms
Needle location precision	Lc., 0.6mm
Injection cycle time	17s(60s if including washing needle)
Injection modes	Full loop, partial loop fill and pickup mode
Injection reproducibility	Full loop < 0.3% Partial loop < 0.5% Pickup mode < 1%
Carry over	< 0.05%
Cooling (optional)	4°C to ambient —3°C

• L600 Column oven

Item	Specification
Model	LC240 and LC242 LC241 and LC243
Temperature range	Ambient-100°C, 0.1°C increment
Temperature accuracy	\pm 0.5°C
Temperature stability	
Cooling(optional)	Minimum to ambient —15°C
Columns accommodated	3 Columns, 15-25cm

• L600 Degasser

Item	Specifications
Type	LC250 Membrane online degasser 2 channel
	LC251 Membrane online degasser 3 channel
	LC252 Membrane online degasser 4 channel
Volume	10ml/min

• DAD Detector

Item	Specifications
Light Source	Deuterium
Measurement Range	190-500nm
Detection Type	Diode Array, 1.25nm dot pitch, 256 diodes
Bandwidth	4-25nm, user selectable
Wavelength Accuracy	1nm
Wavelength Validation	Automatic via internal Holmium Oxide filter
Noise(a)	1×10^{-5} AU
Drift(a)	5×10^{-1} AU/hr
Linearity	0-1.5AU
Measurement Range	0-2.2AU
Spectra	4 spectra can be stored
Integration time Range	13-200 ms
Time Constants	0.1 sec to 10.0 sec in 1-2-5 steps

• ELSD Detector Chromachem

Item	Specifications
Light Source	High intensity halogen lamp (multicolor)
Detector	Photomultiplier (High sensitivity)
Analogue Signal Output	0-1V
Detect Limit	< 10ng glucose (Non-column injection)
Heating Time	< 10min heat up to 150°C
Temperature Range	Evaporation chamber: maximum 150°C, increase by 1°C Nebulizer: Maximum 70°C
Autozero	Front panel or external trigger
Nebulizer Type	Venturi tube, temperature controllable
Gas Flow Rate	1-2L/min, recommended pressure 1-2bars
Spectra	4 spectra can be stored
Integration time Range	13-200 ms
Time Constants	0.1 sec to 10.0 sec in 1-2-5 steps

• RI Detector 201 H

Item	Specifications
Refractive Index Range	1.00-1.75
Deviation Adjustable Range	10 μ RIU
Deviation Resolution	50 μ RIU
Detection Cell Volume	8 μ L
Detection Range	0.25-512 μ RIU
Linear Range	$\geq 600 \mu$ RIU
Noise	≤ 2.5 nRIU (pure water, response time: 1.5 sec)
Response Time	0.1, 0.25, 0.5, 1, 1.5, 2, 3, 6 sec
Autozero	Automatic zero
Autozero Range	Full range
Flow Rate	Common value 0.2-3.0ml/min, minimum 0.1ml/min (pure water)
Highest Pressure	0.05MPa
Dead Volume	670 μ l
Temperature Control	OIL 30-50°C (each time 1) , 77°C fuse (dual temperature control)

• Fluorescence Detector RF-20A/20Axs

	13F-20A	RF-20Axs
Light Source	Xenon Lamp	Xenon Lamp Low pressure Mercury (For wavelength accuracy correction)
Wavelength Range	200nm-650nm	200nm-750nm
Spectral Bandwidth		20nm
Wavelength Accuracy		± 2nm
S/N	Raman peak of water S/N above 1200	Raman peak of water S/N above 2000
Detection Cell Temperature Range		4 °C—40°C, 1 °C increment
Detection Cell Temperature Control Range		(ambient-10)°C-40°C
Detection Cell	Standard detection cell: volume:12 μ L, withstanding pressure:2MPa Half—micro detection cell: volume:12 μ L, withstanding pressure:2MPa	
Functions	Simultaneous double—wavelength test, wavelength scanning	
Safety Protection	Leakage sensor	
Operation Temperature Range	4°C-35°C	

Accessories

• Multi way connectors



• Column



• Filtration system



• Tubing(SS, PEEK, FPE)



• Manual injection valve



• Ultrasonic cleaner



• Fitting



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