

Skyray Instrument

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LC-310

Skyray Instrument

>> Precise Rapid Sensitive

LC-310 PLUS

LC-310 PLUS Intelligent Full-Control Liquid Chromatographic System

Skyray Instrument Inc. is located in the scenery Braintree Hill Park, in Braintree, MA and is a high-technology enterprise specializing in the development, manufacturing and sales of analytical testing equipment in spectroscopy, chromatography and Mass Spectrometry.

Skyray has built a strong reputation and has gained over 80% of the market share in XRF technology within the past 5 years alone. Skyray Instrument has stepped up to a level of highly reputable equipment, with some of the largest manufacturing companies entrusting us with supplying them with our analytical equipment, Skyray has built a strong ever lasting reputation globally.

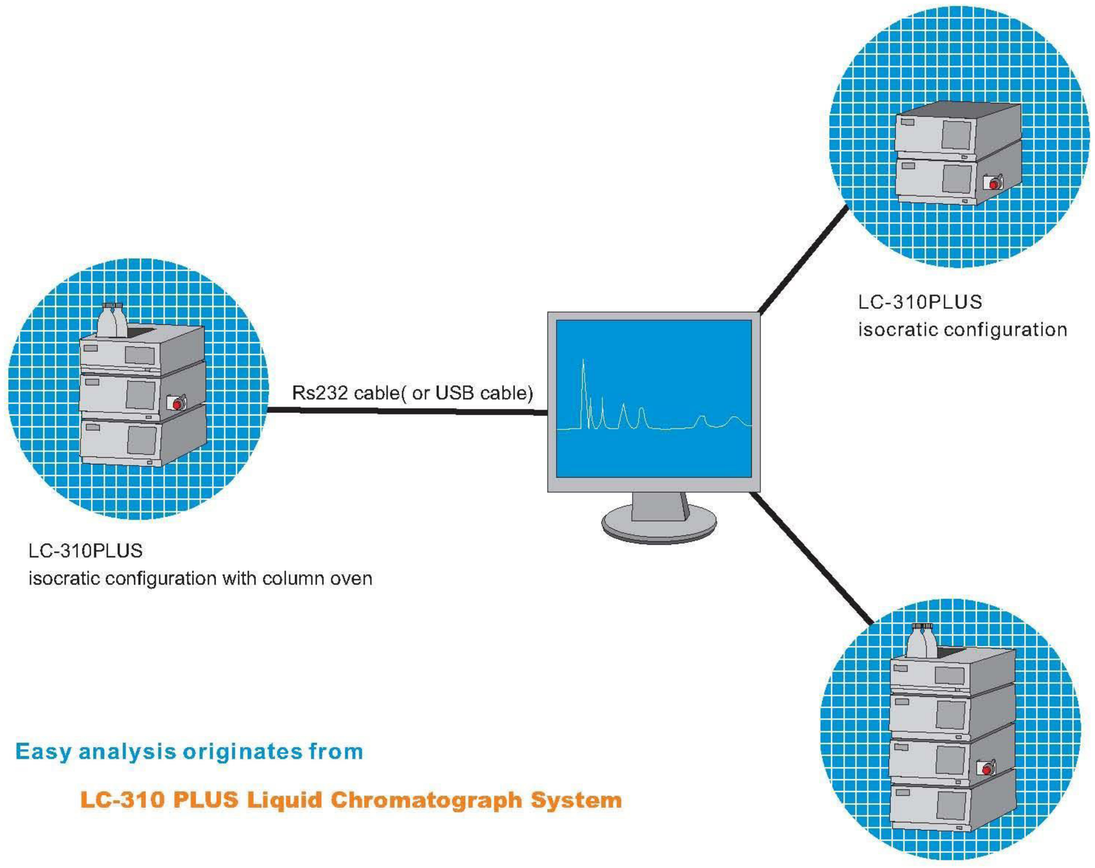
Skyray Instrument has recently joined the North American Market and wants to bring these low-cost, precise analytical equipment to the North American Consumer and Manufacturing market. The company possesses a first class expert management team, a strong Research Development Team, unparalleled technology with over 50 patents and a reputable service team.

Skyray Instrument, as an industry technology leader, is constantly exploring the pinnacle of analytical field and providing customers with more advanced products and more satisfied services, meanwhile, providing more perfect solutions for electronics, electric appliances, jewelry, toys, food, construction materials, metallurgy, minerals, plastics, petroleum, chemistry, medicine and other industries.

A lab assistant you can depend on

Application Fields of Intelligent Full-control Gas Chromatograph

The Intelligent Full-control Liquid Chromatograph is designed to analyze the high-boiling, involatile, easily decomposable when heated, high-molecular-weighted, and polarity-different organic compounds; bioactive substances; natural products; and synthetic or natural macro molecular compounds. 80 % of the natural organic substances can be analyzed with Liquid Chromatograph System. LC can be seen in pharmaceutical analysis, hygiene and quarantine, environmental monitoring, agriculture, forestry, fishery, stockbreeding, manufacturing industry, petrochemical, quality inspection, scientific study, water conservation system, etc.



Easy analysis originates from

LC-310 PLUS Liquid Chromatograph System

- Intelligently Digitalized Full-control Liquid Chromatograph System
- Reciprocating dual-plunger parallel pump with improved stability and endurance
- Novel design, easy-to-use and humanity concern
- Excellence in every performance index, rival to the foreign popular LCs
- The optical path employs the precise positioning structure and the technology of heat insulation installation, offering high precision, minimum drift and short period for stabilization.
- All the parts are processed in the world leading CNC (Computerized Numerical Control) center.

Configurations:

- Standard P100 high pressure constant flow pump
- UV100 UV detector
- 7725i manual injector
- Exformma Pronaos Series chromatographic column
- WS100 workstation software

Note **The above configurations may vary upon users' requirements.**

Technical specifications of the pump:

- Flow rate Control Range: 0.001～9.999mL/min(step adjustable flow rate:0.001mL/min)
- Flow rate stability deviation: Sr≤0.3%　RSD<0.006%
- Specification Error S_s: S_s≤2%(Flow rate 1mL/min, pure water, pressure 5～10Mpa, room temperature)
- Pressure linearity and test accuracy: indicates pressure error smaller than 0.5Mpa (0～42MPa)
- Pulse pressure:≤0.1MPa (Flow rate 1mL/min, pressure 5～10Mpa)
- Airproof of pump: pressure 42MPa, time 10min, and pressure fall< 0.5MPa
- Maximal operating pressure: 42MPa(flow rate: 0.001～9.999mL/min)
- Dimension: 450mmX300mmX160mm (length x width x height)

Technical specifications of UV detector:

- Wavelength range: 190－680nm
- Spectral bandwidth: 8nm
- Wavelength indicated value error: ≤±1nm
- Wavelength repetitiveness: better than 0.1nm
- Baseline noise: ≤2X10 5AU(Dynamic)
- Baseline drift: ≤2X10 4AU(Dynamic)
- Minimum detectable concentration: 1 X 10 8g/ mL (naphthalene/methanol solution)
- Dimension: 450mmX300mmX160mm (length x width x height)

Your trusted

LC-310 PLUS pump

- Controlled by microprocessor, the reciprocating dual-plunger parallel pump offers high operating pressure, small pulsation, good stability and simple operation. As the dual plungers deliver solvents alternatively, the piston rod and the leather packing collar can work twice as long as those of common series pumps.
- The mechanical parts of the pump are computer aided design. Main parts are processed in the world leading CNC center. The fine workmanship and strict pressure test of every pump ensure no leakage happens. Free to use it!
- The pump has a function of process monitoring, where the microprocessor controls the flow rate and monitors the solvent pressure. It alerts and auto stops working when the pressure exceeds the limit.

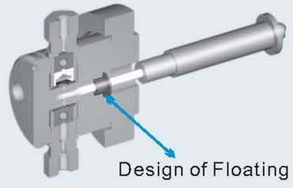
Design of Check Valve

Check Valve

The valve body, the diamond ball seat and the diamond ball are integrated into a single unit, featuring simple structure and good sealing capability. The unit enhances flow rate accuracy of the pump and measurement precision of the system. Plus, it is easy to install and replace.

Design of Floating Guider

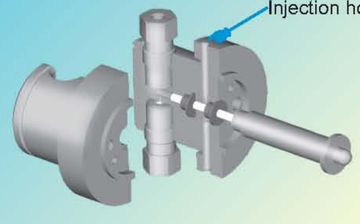
The floating guide mechanism extends the lifespan of the piston rod collar and delivers solvents stably in longer term.



The following pump is at your option

LC-P310 Post-column Rinsing Pump

If buffering salt acts as the mobile phase, it will accumulate at post column and cause mechanical wearing when not rinsed on time. Post-column Rinsing Pump is the answer. The double leather packing collars have longer wear-off period and extended service life.



Dm100 Dynamic Mixer

With the world-class dynamic mixing technology, the mobile phase can be mixed homogenously, making the tests more accurate and stable.

Co100 Column Oven

Temperature control range: 5℃æambient to 80℃
Temperature control precision: ±0.1℃
Features: intelligent microcomputer control; accommodating maximum of two chromatographic columns

High sensitive and programmable

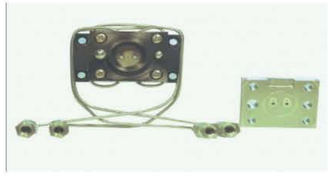
LC-310 PLUS UV detector

With the ground breaking digital switch system, the detector directly transfers the digital signals to WS1000 work station, eliminating the distortion and interference caused by multiple analog-to-digit conversions of chromatographic signals of common UV detector.

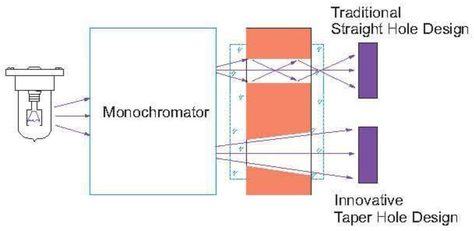
The outstanding flow cell design significantly improves the technical indexes of the instrument. The optical system adopts the precise positioning structure with high accuracy and tiny deviation. As the heat insulation technology is applied between D2 lamp and optical system, the period for stabilization is shortened and the influence the D2 lamp has on the optical path minimized.

The preamplifier combines a high resolution A/D switch with a high resistant and low drifting instrument amplifier. In routine analyses, the dynamic range amounts to 106, ensuring the accuracy of the logarithmic calculation.

Superior performance guaranteed by high quality finish machining and patented technologies.



The heart of UV detector: flow cell



Taper hole design in the flow cell improves 23.8% of the signal to noise ratio, dramatically enhancing the measurement sensitivity.

Powerful and easy-to-use WS100 Work Station Software

Ws100 Work Station Software has realized the fully automated integration of UV detector and high pressure constant flow pump, delivering powerful control and simple operation.

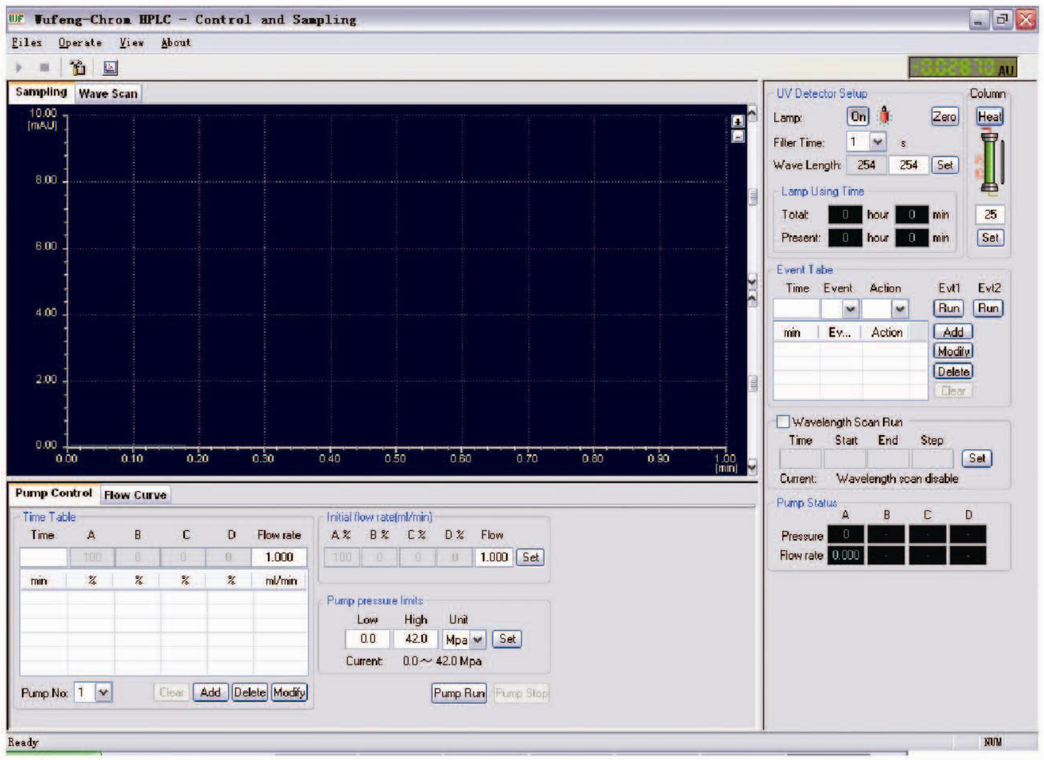
The software employs digit control system to simplify the workflow and generate the maximum precision. The software mainly consists of two modules, namely LC-310 PLUS control module and chromatographic data processing module.

Simple interface setting

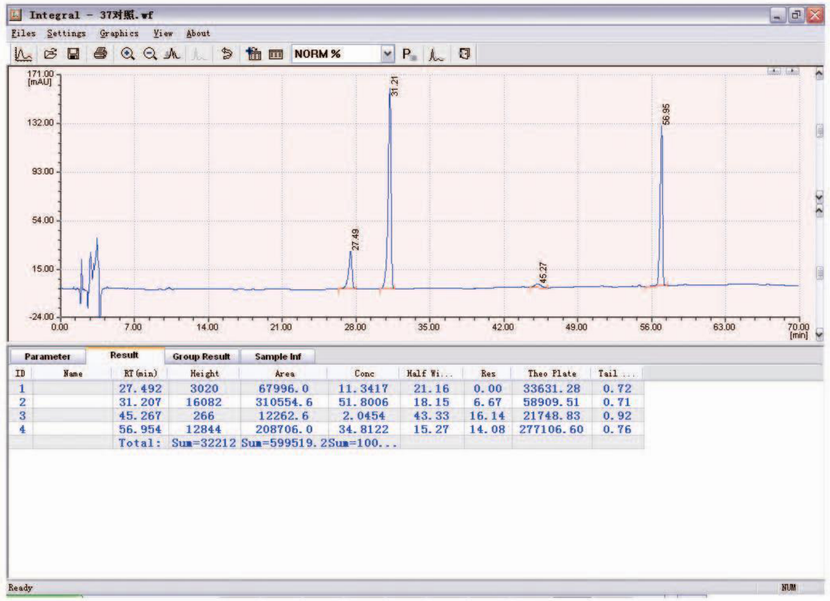
Real-time control interface sets all the basic parameters of the UV detector and the pump. What the users do is click the button with the mouse or enter the values with the keyboard. They can, as required, control the on/off of D2 lamp, zero the real-time acquired data, and adjust the filtering time and the settings of the wavelength. They may set the time or start the wavelength scan program during the operation. They can also open/close the pump, adjust its upper and lower limits, and regulate the flow rate in fixed time. Besides, during the gradient elution process, the users can directly use the timing program on the interface to do it and execute real-time flow rate monitoring of the entire process.

- Clear parameter setting: In the parameter setting dialogue box, users can enter different values to set the peak handling parameters and the system parameters.
- One-step units conversion: With WS100 work station, the units of chromatographic data processing parameters are converted into the units related to absorbency AU value, saving the users labor.

Real-time control interface of the work station



Work Station After-Treatment Interface



Six Quantitative Calculation Methods:

Normalization, revised normalization, revised normalization with actor of proportionality, internal standard method, external standard method, and index calculation method

Calibrating Operation:

Calibrate standard samples with multiple concentrations and establish a calibration curve of sample concentration-peak area.

F lexible peak identification and handling capability:

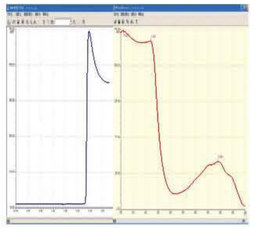
By setting the peak handling parameters and the timing program, chromatographic peaks can be identified and handled. Or, handle them manually.

C hromatogram adjustment

Chromatogram, configured quantitative calculation method, peak handling parameters, peak identification sheets, etc. can be saved to a file name assigned by the users.

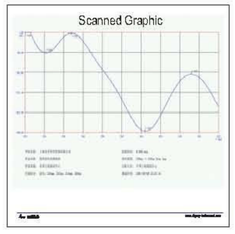
Besides the chromatogram processing function of a traditional work station, WS100 offers:

Wavelength scan graphics when in sample analysis

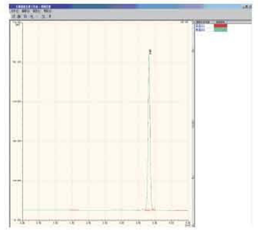


Normal analysis Stopping pump Wavelength scan

Spectrum scan

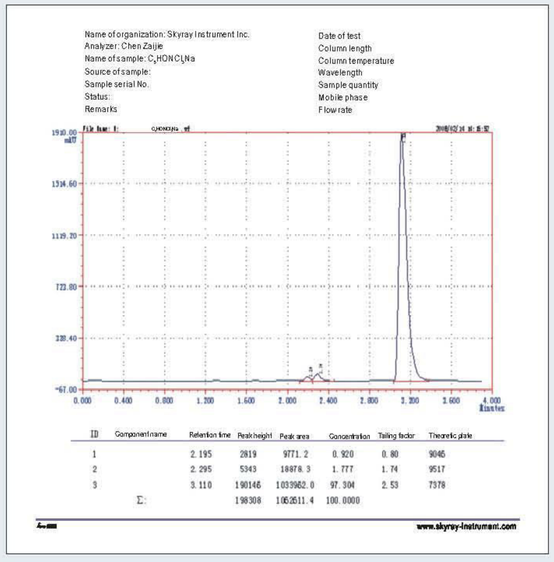


Work station graphics comparison

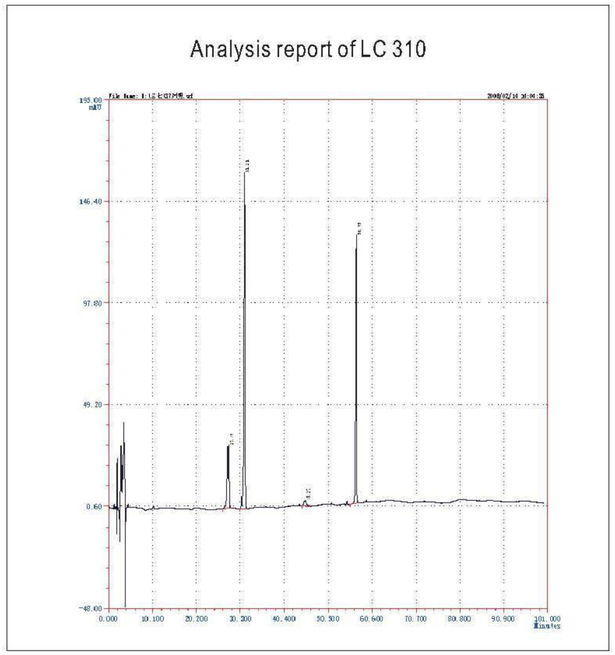


LC-310PLUS

The high precise parallel pump design provides smooth delivery of solvents. The high sensitive detector observes the tiniest noise peak. Their combination makes the sample analysis easy and flexible.



High stable binary high pressure gradient elution system produces more reliable results.



Precision Instruments
Skyray Elaborates

Name of sample: Pseudo-ginseng
Chromatographic column: Ultimate C18, 5.0μm, 4.6×250mm
Gradient program:

Time(minute)	Acetonitrile	Water
0-12	19	81
12-60	36	64

Wavelength:203nm Temperature:ambient
Flow rate: 1ml/min injection volume: 20μl

Other accessories are available:

Pre-treatment device, columns of all sizes, connection pipes, fittings and other consumables