

Liquid Chromatography 3000 Series



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

Pharmaceuticals & Medical

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

Health & Epidemic prevention

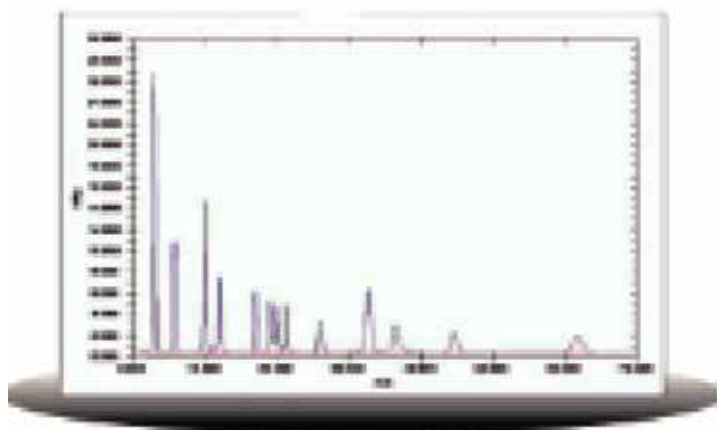
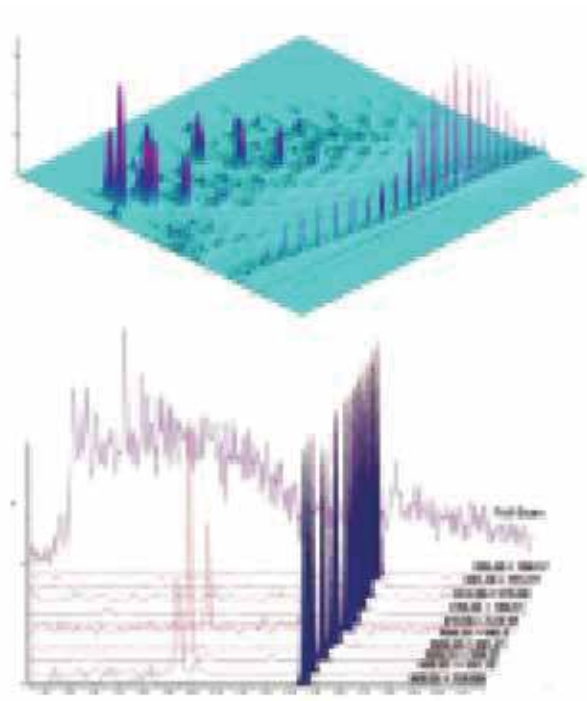
Clinical analysis, research of disease control, micro analysis in biological areas, human biochemical analysis, and metabolite analysis.

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.



14 DNPH Aldosterone Derivatoves Analysis

Mobile phase: Water/Acetonitrile=40/60

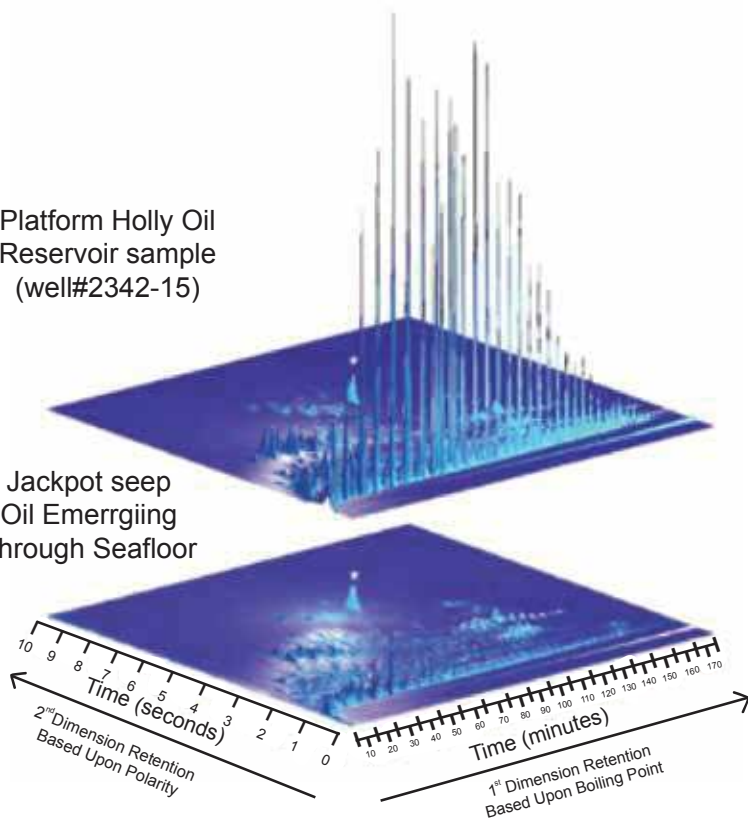
Wavelength: 360nm

Flow Rate: 1ml/min

Tempreture:ambient

Platform Holly Oil
Reservoir sample
(well#2342-15)

Jackpot seep
Oil Emerringiing
Through Seafloor



Bio-pharmaceuticals & Fine Chemicals

Process HPLC'S are used for production of Phylo & fine Chemicals etc.

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

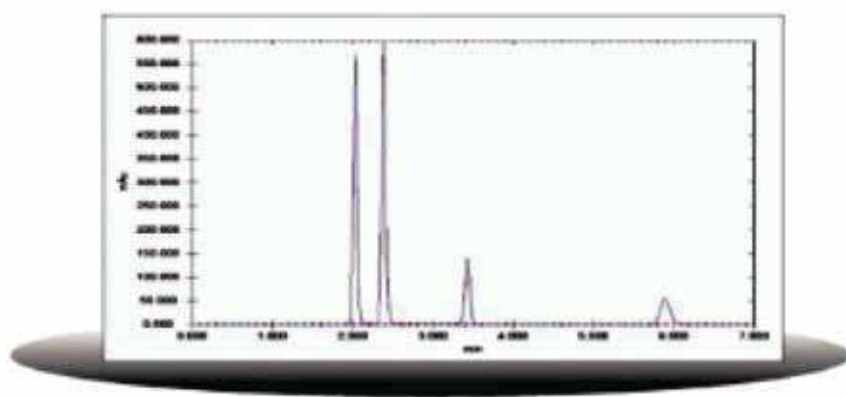
Educational establishments, institution for experiment, scientific research, teaching and demonstration.

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.



Hydrophilic Vitamins Analysis

Mobile phase: 0.1% TF A/Acetonitrile =40/60

Wavelength: 280nm

Flow Rate: 1ml/min,

Temperature: 30°

Typical Configurations for Various Applications



Features

Accurate

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

Stability

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.

Powerful

Analchrom 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.

Beautiful

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 complement each other.

Economical

The intelligent HPLC 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 application development service.

Pumps

3113i Isocratic HPLC Pump

The 3113i Isocratic Pump is a robust, low pulsation solvent delivery system. The pumphead is easily accessible from the front panel to make routine maintenance, like changing pump seals, easy and fast. The system is available with Micro, Analytical or Semi Preparative pumphead in Stainless Steel or PEEK. Automatic rinsing of plunger.

3113i Low-Pressure Quaternary Gradient Pump

The 3113i Low-Pressure Quaternary Gradient Pump incorporates an active low pressure mixer with adjustable mixing volume. The mixing chamber volume can be freely adjusted. An optional integrated vacuum degasser removes dissolved gases in the eluents and prevents air bubbles in the system. The system is available with Micro, Analytical or Semi Preparative pumphead in Stainless Steel or PEEK.

3132i High-Pressure Binary Gradient Pump

The 3132i High-Pressure Binary Gradient Pump incorporates two pump systems with active high pressure mixer with adjustable chamber volume. An optional integrated vacuum degasser removes dissolved gases in the eluents and prevents air bubbles in the system. The system is available with Micro, Analytical or Semi Preparative pumpheads in Stainless Steel or PEEK. Automatic seal wash-prolongs piston seal life for greater reliability(Automatic rinsing of plunger). Precise stepper motor control (48steps/ μ L resolution) of dual reciprocating pistons to ensure pulse free solvent delivery Capability for auto stat & equilibrium, Multi mode programming, Floating and self aligning mount. Upgradable to LCMS and compatible to MS detector.

Technical Specifications

Wetted Materials:	Stainless Steel / PEEK*, Teflon AF® PVDF, Ceramics, Sapphire, Ruby Programmable
Flow rate:	Micro: 0.0001 - 4.000 ml/min Analytical: 0.0001 - 10.000 ml/min Semi-Preparative: 0.0001 - 40.000ml/min
Flow rate Resolution	3 μ l
Flow Accuracy:	\pm 0.08% 1.000 ml / min
Flow Precision:	\pm 0.06 % RSD 1.000 ml/min
Pressure Range:	0 – 7500 psi Semi-Preparative: 50 MPa (up to 20.000 ml/min); 25 MPa (up to 40.000 ml/min)
pH reange	1 to 13
Pressure Pulsation:	typical < 0.03 MPa or < 1.0 %
Composition Precision:	< 0.1% RSD
Compressibility:	user-adjustable for different solvents
Dimensions: (W x H x D)	396 x 250 x 478 mm
Power Supply:	100 - 250 ~V (47 - 63 Hz)
Safety Feature:	Leak sensor & Gradient curve setting
Concentration Accuracy :	\pm 0.5%
Setting Range :	0 to 100%, 0.1% step
Plunger Cleaning :	Automatic Rinsing Mechanism
Modes of operation :	Isocratic, Gradient flow programming
Concentration Precision:	\pm 0.1%
Standalone Operation Capability :	Capability to operate 11 or more various gradient curve

3113i Quaternary Gradient Pump

Vacuum Degassing:	< 20% dissolved gases remaining in water @ 1.000 ml/min
Gradient Range:	0.0 – 100.0 %, 4 channels
Gradient Accuracy:	< 0.50 %
Gradient Mixing:	Active
Mixing Volume:	adjustable: 10 – 500 μ l
Composition Precision:	\leq 0.15% RSD

3132i Binary Gradient Pump

Vacuum Degassing:	< 20% dissolved gases remaining in water @ 1.000 ml/min
Gradient Range:	0.0 – 100.0 %, 4 channels
Gradient Accuracy:	< 0.50 %
Gradient Mixing:	Active
Mixing Volume:	adjustable: 10 – 500 μ l
System delay volume :	\leq 200 μ l
Retention time :	\leq 0.1%
Type :	On-line membrane type, 5 channels
Volume :	2 ml to 4 ml.
Precise Volume :	48 step/ μ l or better
Program:	Programming for flow rate, pressure, event output
Pressure ripple of : single pump	\leq 2 % at 1.0 ml/min

* depending on configuration

Product Specification

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• P6000 Preparative HPLC Pump

- Analytical's preparative HPLC pump is double piston design.
- Developed server engine.
- Exported check valve and sealing ring.
- Providing high quality products for the customer.
- Automated provision for extra sample loading from Pump through software using extra pump or channel
- The pump have automatic and continuous compressibility compensation

Technical Specification

Flow rate	0.1 to 250ml/min with 0.01 increments	Safety standards	IEC/EN/CSA/UL
Operating Pressure	4000 psi for 250 mL/min, 5000 psi (34 MPa) for 150 mL/min, 6000 psi (41 MPa) for 100 mL/min and 8700 psi (60 MPa) for 50 mL		
Delivery method	double pistons, main & auxiliary	Control	Stand-alone mode by front keypad
Flow rate accuracy	± 0.1%		HPG Mode: one pump work as master
Flow rate Precision	≤ 0.3%RSD		others work as slave
Display	Graphics & LCD 320X240 blue background Colour		Rs232 by PC using communication protocol
Protection	Pmax & Pmin Data automatically saved after power down		Integral plunger seal wash
Safety features	fully automated diagnostic leak test	Power Supply	220V±10%, 50Hz, 400W
System connection	1/8" capillaries, 1/4" capillaries	HPG	up to Quaternary HPG
Pump seal wash	integral, active and programmable	GLP	Record running time automatically

Product Specification

• 3000 Plus High Pressure UHPLC Pump

The High Pressure UHPLC Pump has been specifically designed for Analytical to high speed, high resolution Chromatography applications. Also, a constant pressure version has been developed to allow packing of particle in the 1 micron to 10 micron range. The Analytical Pump provides flow rates from 0.001 to 5.000 ml/min, with flow settings in 1 L increments Pulse-free flow in the Analytical Pump is guaranteed by using advanced solvent recompression algorithms and automatic pressure compensation which provides unmatched performance for the most demanding applications. The Packing Pump has flow range settings from 0.001 to 12mL/min with flow controlled by the pressure setting. The High Pressure UHPLC Pump is offered as Technical Specifications.

Technical Specification

Flow Rates0.01 - 2.0 mL/min	Flow Accuracy < ± 1% at 1 mL/min
0.01-5.0mL/min	System dwell volume.....≤ 400ul
Pressure 9000 psi 12,000 psi (@0.01-5ml/min) (Optional) 18,000 psi (@0-2mL/min) (Optional)	Flow Precision 0.075% RSD on > 30 sec.average flow Composition Accuracy.....±0.5% Composition Precision.....≤0.15% RSD
Pulsation± 0.75% from 3000 to 18000 psi	Physical 5.5" H x 10.375" W x 17.5" D
Pressure Accuracy.....± 2% of full scale pressure	(14 x 26 x 44 cm)
Solvent degassing.....Built in 4 channels	Eluent Degassing..... online membrane Degasser
Gradient mixer.....Active	Gradient range..... 0 – 100.0 %, 4 channels

• 6000 High Pressure HPLC Pump

This new powerful pump is a new member of P6000 pumps such as great powerful, the long lifetime, the very high flow rate accuracy, flow rate precision, specially suit for the industrial production. P6000-31 equipped with servomotors.

The two pistons working in parallel mode to reduce the pulsation. The pump can be configured as HPG system and control all procedure from injection to target fractions by the software Analchrom.

Technical Specification

Preparative HPLC Pump	10-3000mL/min,10Mpa	Display:	LCD, 320x240 blue back ground
Pump head:	3000mL		color
Max. working Pressure:	10 Mpa	Protection:	Pmax &Pmin Date Automatically
Flow Range:	1-3000mL/min.		save after power down
Flow rate Accuracy:	≤1%	Power supply:	220V ± 10%, 50Hz, 1000W
Flow rate precision:	RSD ≤0.5%.	Dimension & weight:	700 x 466 x 248, 40kg.

Configuration

- 1 6000-3L HPLC pump
- 2 Piston for 6000 -3L
- 3 Piston seal for 6000 -3L
- 4 Special cable for Rs232 Connection

Product Specification

• Large Scale High Pressure Piston Pump

International level large flow rate high pressure piston pump design, with developed driving system exported from oversea, all the material which contacts the liquide is 316L or non-metal material, all this pump fit for the industrial preparative HPLC system, with high flow rate accuracy, little pulsation, the pump can work under multi kinds working conditions.

Technical Specificaiton

Liquid Delivery mode	Multi piston parallel connection
pump head	316L Stainless Steel
Working Pressure	10Mpa
Flow rate range	10L/min - 85L/min
Display	LCD
Gradient	High Pressure Gradient or low pressure gradient

Configuration

- | | |
|--------------------------------------|---|
| 1 P6000-10L Preparative HPLC pump | 1 |
| 2 Piston for P6000-10L | 1 |
| 3 Piston seal or P6000-10L | 1 |
| 4 Special cable for Rs232 Connection | 1 |



• Pneumatic Pump P6000pa

- Pneumatic solvent delivery system without electronics for flow rates up to 1000mL/min.
- For hazardous environments.
- For constant pressure applications.
- For easy column packing up to 1000bars-developed for the production of high performance columns, either analytical or preparative.
- For preparative chromatography.
- For process chemistry.

Technical Specificaiton

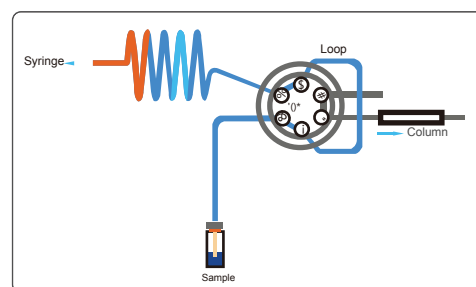
1	Pneumatic Pump P6000PA, 100ml/min, Stainless steel	1
2	Pneumatic Pump P6000PA, 250ml/min, Stainless steel	1
3	Pneumatic Pump P6000PA, 500ml/min, Stainless steel	1
4	Pneumatic Pump P6000PA, 1000ml/min, Stainless steel	1

3530i Sample Injector System

The Analytical 3530i Sample Injector System is a very flexible and powerful HPLC autosampler with excellent reproducibility and linearity properties. Variable vial racks and adaptors for microliter plates as well as a multitude of firmware options make this system highly adaptable and suitable for any analytical application.

Flow line rinse capability for both before and after sampling.

Wetted Materials:	Stainless Steel / PEEK*, PPS, PVDF
Sample Capacity:	120 (2 ml), 192/200 (microtiter plates)
Injection (syringe) Volume:	Programmable upto 2000µL
Injection Volume Accuracy:	±0.8%
Sample loop	Available with 5, 20, 50 & 2000µL
Replicate Injection:	1-50 Per vial
Sample Heating/Cooling:	optional: +4 – +60 °C
Injection Precision:	< 0.5 % Variable Volume Injection (10 µl; typically ~0.25 %)
Linearity:	Correlation Factor > 0.999 (10 µl injection volume, 500 µl Syringe)
Cross contamination:	<0.1% Wash with & without automated needle Wash
Temperature Accuracy:	±0.5°C
Carry Over:	< 0.003% RSD with wash program
Dimensions: (W x H x D)	396 x 275 x 478 mm
Power Supply:	100 - 250 ~V (47 - 63 Hz)
Sample Delivery Precision	0.3% RSD



Full loop injection

Dual-Needle Design

The Dual-Needle design of the 3530i Sample Injector System avoids system blockages due to septum particles injected into the system. The ventilation needle pierces the septum before the injection needle moves into the sample vial (see figure on the right). As the more fragile injection needle does not need to pierce the vial septum, stronger vial caps or plastic vials can be used without problems.

3325i UV/VIS Detector

The Analytical 3325i UV/Vis Detector is a variable wavelength UV/Vis detector for routine analysis and sophisticated research. The dual lamp design offers a wavelength range of 190 – 800 nm with a low baseline noise. The front-accessible flowcell can be easily exchanged, as well as the lamps which are accessible through a side panel in the instrument housing.

Integrated Wavelength Program

The 3325i UV/Vis Detector features a wavelength program to change the selected wavelength over time. With this feature the optimum wavelength can be selected for each analyzed substance according to its retention time.

Integrated Peak Detector

The integrated Peak Detector works as a basic fraction collector. The peak detection level can be freely programmed for peak start and peak end to enhance the collection purity. An integrated 24V output for switching a solenoid valve is used for the fraction collection, which is automatically operated with a selectable time delay.

Optional - Dual - Wavelength

The 3325i UV/Vis Detector is available with an optional second wavelength. This feature enhances the Wavelength Program feature that you can measure 2 different wavelengths at the same time. A second D/A converter output comes with this option to keep the system flexible to be used with any data acquisition software available.

Technical Specifications

Wetted Materials:	Stainless Steel / PEEK*
Baseline Noise:	$\pm 0.25 \times 10^{-5}$ AU (@240 nm, 2 sec Risetime)
Baseline Drift:	$< \pm 0.35 \times 10^{-3}$ AU/Hz
Wavelength Range:	190 – 800 nm
Wavelength Accuracy:	± 1 nm
Linearity:	> 2.0 AU (5%)
Light Source	Deuterium Lamp, Tungsten Lamp
Wavelength Program:	Programmable, 10 steps
Analog Output:	1x 1 V (optional: 2x 1V)
Control Features:	Internal Peak Detector with +24 V solenoid switching output.
Dimensions: (W x H x D)	396 x 165 x 478 mm
Power Supply:	100 - 250 ~V (47 - 63 Hz)
Bandwidth:	8nm
Wavelength Precision:	± 0.1 nm
Cell:	10mm, 0.3 mm and 0.05 path length, tapered cell
Data Acquisition:	up to 80Hz
Adjustment:	Automatic wavelength adjustment

Optional - Online-Scan

Another option for the 3325i UV/Vis Detector is the Online Scan. With the Online Scan whole spectrum information can be gathered at a certain time. This scan information is stored internally and can be accessed at any time. The Online Scan is a good alternative to a full UV PDA detector.

Product Specification

3335i PDA Detector

The Analytical 3335i UV/Vis Detector is a photo diode-array (PDA) detector for routine analysis and sophisticated research. The dual lamp design offers a wavelength range of 190 – 720 nm (256 Diodes or 190-800nm (512 diodes) 190 - 1015nm (1024 diodes) with a low baseline noise. The front-accessible flowcell can easily be exchanged, as can be the lamps which are accessible through a side panel in the instrument housing. (D2, W or D2+W)

4-Channel UV Detector

The 3335i PDA Detector features 4-Wavelength channels to measure chromatograms at 4 different wavelengths at the same time. With this feature the optimum wavelength can be selected for each analyzed substance. self-aligning mechanism for the light sources and cell accessible from the front.

Integrated Peak Detector

The integrated Peak Detector works as a basic fraction collector. The peak detection level can be freely programmed for peak start and peak end to enhance the collection purity. An integrated 24V output for switching a solenoid valve is used for the fraction collection, which is automatically operated with a selectable time delay

Optional-Analog Output

The 3335i PDA Detector is available with an optional 4-Channel analog output. This D/A converter output option is offered to keep the system flexible to be used with any data acquisition software available.

Technical Specifications*

Wetted Materials:	Stainless Steel/PEEK*, Teflon, Glas
Baseline Noise:	$\pm 0.3 \times 10^{-5}$ AU (@254 nm, 1 sec. Risetime)
Slit width:	1.2 nm
Sensitivity mode	8nm
Sensitivity Setting Range	0.0001 - 2.000 AUFS
Baseline Drift:	$\leq 0.5 \times 10^{-4}$ AU/h
Number of Diodes:	256/512/1024
Bandwidth:	1.2 nm
Wavelength Range:	190 – 720 nm (256 Diodes) 190 – 800 nm (512 Diodes) 190 – 1015 nm (1024 Diodes)
Wavelength Precision:	± 0.1 nm
Wavelength Accuracy:	± 0.5 nm (256 Diodes); ± 1 nm (512 Diodes); ± 0.1 nm (1024 Diodes);
Wavelength Repeatability	± 0.1 nm
Element Resolution:	1.2 nm/element
Date Acquisition:	Up to 100 Hz
Temperature Range:	5 - 50°C
Mean Pixel Pitch:	2.2 nm (256 Diodes), 0.8 nm (1024 Diodes)
Resolution (λ FWHM):	7 nm (256 Diodes), 1.2 nm (1024 Diodes)
Linearity:	<5% at 2.0 AU min (ASTM)

Light Source	Deuterium Lamp ($D_2 > 2000$ hr lifetime, without drop in the energy level with appropriate backup from software and hardware) Tungsten Lamp 10mm
Noise level:	$< 10 \times 10^{-6}$ AU/hr at 254nm
Wavelength Program:	Programmable, 10 steps
Analog Output:	- (optional : 4x 1V) 1 Hz - 100 Hz
Cell volume:	Semi-micro flow cell 2.5 μ l Conventional flow cell 10 μ l, 10mm cell path length (Analytical and Preparative flow cell 0.5mm), 12Mpa Pressure
Flow cell:	Temperature controlled flow cell
Control Features:	Internal Peak Detector with +24V solenoid switching output.
Operating mode	Both 2D and 3D
Digital Resolution	1.2nm - 600nm (3D mode)
Dimensions:	396 x 165 x 478 mm
Power Supply:	100 - 250 ~V (47 - 63 Hz)
Flow cell Design:	Taper Slit only to avoid total internal reflection
Digital and Optical mode:	3D

	Fluorescence Detector 3000plus Optical System
Monochromators	Holographic concave diffraction grating monochromators for both excitation and emission
Light Source	150W Xe lamp
Settable wavelength	Zero order, 200 - 900 nm Both Ex And Em
Measuring wavelength Range	Zero order, 220 - 700 nm for both Ex and Em Optional PM tube extends the range up to 900 nm.
Spectral bandwidths	Ex: 18 nm Fixed Ex: 18, 40 nm selectable
Wavelength Accuracy	±2.0 nm
Wavelength Reproducibility	±0.2 nm
Detectors	Ex: Photodiode Em: photomultiplier
Cell volume	10 µl (standard)
Temperature Operating Range	5°C, Ambient temp to 50°C
Temperature Accuracy	±0.5°C
Pressure	2Mpa
Sensitivity	500:1(tangent method) 700:1(Baseline Method)
Sensitivity range	1, 2, 4, 8, 16, 32, 64, 128, 256, and S.
Gain	x1, x10, x100, x1000
Response	Response
Power	FAST, STD, SLOW (0.5, 1.5, 5 Sec.)
Digital filter	3, 5, 10, 20, 40 sec
Signal processing	Digital processing by A/D and D/A converters
Output	10mV/Fs for recorder (Polarity change is possible.) 1 V/Fs for integrator marker, leak out
Input	marker, autozero, program reset/ran
Self-diagnostics	memories, DC power supply, Ex. energy, leak in cell, lamp operation time
Time programming	64 steps, 10 files, 0.1 to 999.9 minutes in 0.1 min increments for Ex and Em wavelength, range, gain, autozero, spectral bandwidth, and spectral measurement
Spectral scanning	Ex and Em spectra
Spectral subtraction	Ex and Em spectra
Lamp timer	shows accumulated lamp operation time
Lamp off timer	settable from 0-99.9 hours (0.1 hour increments)
Temperature compensation	compensates PM tube response for temperature variation

Digital Amperometric EC detector, Model EC3000 Plus

Technical Specification

Principle : Amperometric detector with free-electrode technique.

Working Potential	± 2.00 V	Storage capacity for measurement program	0 - 99
Measurement Range	± (10pA-20uA)	Storage capacity for cell-cleaning program	0 - 99
Auto Zero Range	max ±50uA	Pulse mode range Filter (cut off) advanced digital filter	10nA - 200 uA in 1,2,5 steps 0.4 - 0.001 Hz, 1,2,5 steps
Manual offset Range	max ±50uA	Scan mode range Scan rate	10nA - 200uA (in 1,2,5 steps) 1-50mV/s (in 1,2,5 steps)
LCD - Display	display of setting and measurement data	Analogram Output	+ 1V per measurement
Filter	5Hz - 0.002 Hz 1,2,5 steps	Signal range	10pA to 500µA
Detector noise level	3 pA with a dummy cell (load of 300 M and 0-0.5uF)	Auto-Zero interface	active low
Cleaing Potential	± 2.00 V	Input	115-320v, 50-60Hz
Delay time cleaning	10 - 1500sec	Output	+ 10 and -10V (20 bit D/A converter)
Cleaning Cycle	every 1st to 10th cycle	Dimensions	260 x 251 x 160 mm
DC Current	10pA -200µA in 1-2-5 Sequence.	Weight	7.6 kg

Features:

- ▶ Quantify femtogram levels of oxidizable or reducible compound
- ▶ Automatic detection parameters configuration
- ▶ Four independent controlled channels
- ▶ Advanced multi-level digital filtering
- ▶ Detection control via USB 2.0/optical/RS-232
- ▶ Fluid leakage detection
- ▶ Multiple Detection modes: direct current, pulsed amperometric and scanning
- ▶ Flow cell convenient position for simple cleaning and assembly
- ▶ Stabilized temperature for better accuracy with integral flow cell
- ▶ Cell assembly/detection unit enclosed in a faraday cage.
- ▶ Cell Auto DC mode (5 files);pulse mode (4 files)

Product Specification

3359i Refractive Index Detector

	Micro	Analytical	Semi-Preparative
Detection Method:		Deflection	
Refractive Index Range:		1.00 to 1.75	
Flow Rate:	0.2 - 3.0 ml/min	0.2 - 3.0 ml/min	1 - 50 ml/min
Cell Volume:	4 μ l, 45° angle	10 μ l, 45° angle	7 μ l, 5° angle
Flow Cell Pressure:	6 kg/cm ²	6 kg/cm	6 kg/cm
Dead Volume:	6 μ l	24 μ l	88 or 353 μ l
Linearity Range:	0 - 500 μ RIU	0 - 1000 μ RIU	0 - 20000 μ RIU
Noise Level:	10 x 10 ⁻⁹ RIU	2.5 x 10 ⁻⁹ RIU	10 x 10 ⁻⁸ RIU
Drift with 1ml H ₂ O/min	1x10 RIU/hour	1x10 ⁻⁷ RIU/hour	1x10 RIU/hour
Integrator Output:	\pm 1 V	\pm 1 V	\pm 1 V
Recorder Output:		\pm 10 mV/ 100 mV/ 1 V	
Recorder Offset:		0 mV/ 10 mV/ 100 mV	
Recorder Range:		8 steps (1:8) - 16:1)	
Digital Interface:		RS232, Purge, Autozero, Start, Stop, DataOut: 1 Hz, 10 Hz	
Digital Output:		TTL: Intensity Alarm	
Digital Input:		TTL: Purge, Autozero, Start, Marker	
Temperature Setting:		Ambient, 35°C to 55°C in 1 °C steps, Thermal Fuse 75°C	
Temperature Accuracy:		\pm 0.5°C	
Time Constant:		RAW (0.0 sec.), Fast (0.4 sec.), Medium (0.8 sec.), Slow (1.2 sec.)	
Weight:		13 kg	
Dimensions: (W x H x D)		396 x 165 x 478 mm	
Power Supply:		100-120/220-240 ~V (50/60 Hz), 50 VA	

* All technical specifications may be subject to change.

Evaporative Light Scattering Detector 3000plus	
Light Source	Tungsten / Halogen
Temperature Range	20-100°C, 0.1°C Increment, feedback accuracy to 0.1°C
Temperature setting range:	Ambient to 80 degree
Flow Rate	0.1mL/min - 2.5mL/min (standard)
Air Consumption	<3.0L/min
Air Required	>5L/min nitrogen gas or air, 65 Psi
Nebulizer Gas	Nitrogen
Nebulizer(high flow rate)	100-3000 μ l/min
Nebulizer chamber	Thermally controlled, Heater 0-100%, Cooler(on/off)
Gain Setting	0-1000
Sample Rate	upto 80 Points
Optics	Heated Optics Bench
Lamp calibration	Pre aligned assembly
Detector	PMT
Scattering angle	60 Degree
Measurement range	0.1-2000light scattering units full scale
Angle Output	2, LS units nebulizer, drift tube, CHM Gas pressure
Built in	Build in Compressor Nitrogen gas generator compatible with ELSD Detector

Low-Temperature Evaporation

ELSD 3000plus is an innovative gain control available when it is driver-controlled by software, it automatically adapts the gain setting to avoid any off-scale saturation of the detector.

Easy Maintenance

A single and dedicated HPLC nebulizer and an innovative cell design minimize band broadening. This nebulizer covers the flow rate range from 100 μ L/min to 3000 μ L/min and can be readily and quickly mounted and dismantled.

3411i Column Oven

The Analytical 3411i Column Oven is a contact heat transfer oven for high temperature stability and accuracy. The columns are mounted inside the column oven in optimized column holder which enclose the

complete column to get the best temperature transfer between the heater and the column. Up to two columns (max. length 250 mm) can be mounted at the same time (max. O.D. 8 mm).

Heating

The Analytical 3411i Column Oven standard version features a high temperature controller for stable column temperatures of +30°C up to +100°C. The temperature accuracy is within 0.1 °C.

Temperature Time Program

The Heating/Cooling variant offers an optional Temperature Time Program for stand-alone operation. Capable of complex temperature programming in linear and step programs.

Heating/Cooling

The Analytical 3411i Column Oven is also available with active Heating/Cooling with Peltier technique. The temperature range is +5°C up to +100°C. The Heating/Cooling unit uses the same efficient controller as the basic version with temperature accuracy better than 0.1 °C.

Integrated Valve

The Analytical 3411i Column Oven offers the option to include an automatic switching valve of the Analytical 3600, for example the 3607 Column Selection Valve, but all 3600 can be integrated. Built in slots for valve control functions.

Leakage Sensor

The 3441i Column Oven offers a high sensitive Leakage Sensor which detects the vapors of organic solvents.

Temperature Fuse

Besides a Leakage Sensor the 3441i offers a temperature fuse which shuts down the unit when the temperature becomes too high, because of an electronic defect.

OEM Options

The Analytical 3441i Column Oven itself is available as a complete OEM instrument. Please contact us for any further information on OEM modules.

Technical Specifications

Wetted Materials:	Stainless Steel / PEEK ¹ , PPS ¹
Temperature Range:	+20°C – +120°C (min.: ambient +5 °C), +5°C – +120 °C (Peltier) ²
Temperature Accuracy:	< 0.1 °C
Switching Valve:	optional : any Valve
Temperature Program:	optional with Heating/Cooling (Peltier)
Temperature Precision:	±0.1°C
Display:	available
Safety Features:	Temperature Fuse; Leakage Sensor
Dimensions: (W x H x D)	396 x 165 x 478 mm
Power Supply: Type:	100 - 250 ~V (47 - 63 Hz) Block Heating
Temperature element :	Peltier controlled
Accommodate :	Analytical and preparative column

1. Switching Valve: depending on configuration
2. Temperature range at 20°C ambient

3412i Column Oven

The Analytical 3412i Column Oven is a contact heat transfer oven for high temperature stability and accuracy. The columns are mounted inside the column oven in optimized column holder which enclose the

Heating

The Analytical 3412i Column Oven standard version features a high temperature controller for stable column temperatures of +30°C up to +150°C. The temperature accuracy is within 0.1 °C.

Heating/Cooling

The Analytical 3412i Column Oven is also available with active Heating/Cooling with Peltier technique. The temperature range is +5°C up to +100°C. The Heating/Cooling unit uses the same efficient controller as the basic version with temperature accuracy better than 0.1 °C.

Temperature Time Program

The Heating/Cooling variant offers an optional Temperature Time Program for stand-alone operation.

Integrated Valve

The Analytical 3412i Column Oven offers the option to include an automatic switching valve of the Analytical 3412i, for example the 3600 Column Selection Valve, but all 3600 Valves can be integrated.

complete column to get the best temperature transfer between the heater and the column. Up to Five 350mm columns can be mounted at the same time.

Leakage Sensor

The 3412i Column Oven offers a high sensitive Leakage Sensor which detects the vapors of organic solvents.

Temperature Fuse

Besides a Leakage Sensor the 3412i offers a temperature fuse which shuts down the unit when the temperature becomes too high, because of an electronic defect.

OEM Options

The Analytical 3412i Column Oven itself is available as a complete OEM instrument. Please contact us for any further information on OEM modules.

Technical Specifications

Wetted Materials:	Stainless Steel / PEEK ¹ , PPS ¹
Temperature Range:	+30°C – +150°C (min.: ambient +5 °C) optional: +5°C – +100 °C (Peltier) ²
Temperature Accuracy:	< 0.1 °C
Temperature stability:	±0.1 °C to set temperature
Switching Valve:	optional: any Valve
Temperature Program:	optional with Heating/Cooling (Peltier)
Safety Features:	Temperature Fuse; Leakage Sensor
Dimensions: (W x H x D)	183 x 566 x 270 mm
Power Supply:	100 - 250 ~V (47 - 63 Hz)

¹ Switching Valve: depending on configuration

² Temperature range at 20°C ambient

Fraction Collector (3100 Plus)

Features

- The only fraction collector that can easily be programmed for any rack or recipients of your choice.
- All electronic and mechanical components have been miniaturized and placed in one moving part, which is placed above the fractions. Therefore, there is no danger of spilling.
- The lower part of the fraction collector can be placed into a cold bath, ice bath or any other thermostabilizer container.
- The lower part of the fraction collector can be placed into a cold bath, ice bath or any other thermostabilizer container.
- Modern microprocessor controlled system using several optical sensors allows for easy programming of the tube positions just with a simple pen.
- Fraction collection according to time or volume.
- Fraction collection in lines or meander like (zigzag).
- A pause (0.1-999.9 min or 1-9999 min) can be programmed between fractions. Thus, the OMNICOLL fraction collector can be used for taking (single or multiple) samples, e.g. during fermentation processes, cell cultures and other biological or chemical processes.
- The pause function can be used also for an automatic start up of the fraction collection.
- Washing of the tubing (line washing) between samples is possible the number of fractions in a series can be chosen.
- Auto-stop function switches off the collector and the fractionation after a selected rack or at the end of the line.
- Pump flow stop function avoids spilling between two consecutive fractions.
- Only the liquid transferring tubing is moved instead of the tubes, this requires much less energy and allows the collector to be miniaturized. Additionally, the tubes are easily accessible from all sides.
- The lower part of the collector can be used for carrying of storage of fractions. A new plastic fixing mat keeps the racks or recipients in position
- Several lower parts can be combined to increase the fraction collecting capacity of the collector.
- Highest user safety has been attained by supplying OMNICOLL with a low voltage plug-in power supply. This allows also an easy field application of the fraction collector (battery operation possible).
- Solid metal construction makes the OMNICOLL fraction collector insensitive to solvents.
- Can be easily disassembled and requires only little storage space.
- Low- maintenance construction
- Competitive price.
- Remote control allows sampling after reception of an external signal (such as an alarm). In this way, it is possible to obtain important samples during long processes running even during absence of a supervisor.
- Drop counter, inert valve, RS-232 interface and other accessories are available as an option.

Technical Specifications

Fractionation:	Time 0.1-999.9 min in 0.1 min steps or 1-9999 min in 1 min steps Volume 0.05-500 ml or 0.1-30 l Drop counter (1-9999 or 60-599'940) (option) Through external signal or RS-232 interface (option) With or without a pause from 0.1-999.9 min or 1-9999 min
Tube capacity:	According to your choice (available surface of 45 × 31 cm) e.g. using Nalgene economy racks: 300 tubes × 13 mm diameter 204 tubes × 16 mm diameter 130 tubes × 20 mm diameter 80 tubes × 30 mm diameter Tube capacity can be increased several times (by adding several lower parts together)
Power supply:	9 VDC/12 W, using plug-in power supply (100-240 V, 50-60 Hz)
Safety:	Meets CE and IEC 1010/1 norms for laboratory instruments
Operating temperature:	0 to 40 °C
Weight:	6.5 Kg
Dimensions:	34x30x49 cm (W x H x D)
Guarantee:	2 years

Fraction Collector (3100)

Features

- Flexible approach to manual and automated fraction collection
- Unique menu-operational processes. Press "Concise Flow Chart" on the panel and that is able to operate easily and conveniently;
- Rectangular design and Hanging-type X-Y moves for accuracy of tube change; Secure use with circuit separation when liquid collecting;
- Corrosion-resistant design -- application to column chromatography separation experiments for water-soluble solvent or organic solvents;
- Programmable control -- microprocessor-controlled and the user can design its own collection procedures according to chromatography by the operation panel; Max. Flow rate: 300 ml/min
- Collecting with different capacities and waste tank -- Free combination of different tube racks available for SP-16A, SP-36A, SP-100A, SP-169A; achieve a multi-purpose machine functions and matching (SP-36L) can be repeated unlimited consecutive collection to the efficiency of preparation; waste flow into the tank automatically through threeway valve and control procedures;
- Peak collecting with spectra show - the collection information showed on the screen to make the peak collection easily and convenient to the spectrum processing and quantitative analysis;
- Collection time delay set available -- can be set to delay collection time. Programmatically set the delay time to ensure that the sample accurately into the right tube;
- Tube instead with solenoid valve control -- Through the solenoid valve control to prevent liquid leakage.
- System using several optical rack sensors allows for easy programming of the tube positions just with a simple pen.
- Diverter valve to manage the collection of purified peak fractions into test tubes, microtiter Plates, eppendorf tubes, scintillation vials, bottles or flasks.

Technical Specifications

Display:	Blue LCD display in English
Tubes:	120 (each max capacity: 12ml and 20ml with a waste tank)
Timing range:	1 s-999 h 59 m 59 s (arbitrary)
Drop range:	1 drop - 9999 drop (arbitrary)
Pack range:	1-200mv (arbitrary)
Programmable range:	1-10sect (arbitrary)
Moves:	Hanging X-Y Tube instead with 12V DC solenoid valve
Operation:	English menu - style
Temperature:	4-35°C
Procedures available:	1-10 modes
Data retention with power outages:	Ten years
Tube rack:	rectangular design with a waste tank; free combination; optional (SP-169A, 36A, 16A are optional and scalable available for 36L)
Power Supply:	AC220V± 10%; 50Hz; 10w
Use of the environment:	Temperature 0-40°C; Humidity < 85%
Weight:	10Kg
Dimensions:	355x360x270mm
Collection methods:	Time, Signal

3751i Vacuum Degasser

The Analytical 3751i Vacuum Degasser is an online degasser system with high efficiency. Dissolved gases are removed from the solvents by applying vacuum to a semi-permeable membrane.

Working Principle

The solvent flows through a short length of Teflon AF® capillary inside a sealed chamber. This chamber (vacuum chamber) is completely sealed to the environment and vacuum is applied with a pump. Due to this vacuum any dissolved gases in the solvent running through the inner capillary are removed through its semi-permeable membrane wall. The high efficiency of the Teflon AF® material allows the usage of a very short length of capillary inside the vacuum chamber.

Wetted Materials:	Teflon AF® Teflon, Stainless Steel, Aluminium, EPDM
Degassing Capacity:	< 20% dissolved gases remaining in water at 1.0 ml/min
Volume / Channel:	< 500µl
Dimensions:	125 x 167 x 270 mm
(W x H x D) Weight:	3.2 kg
Power Supply:	100 - 250 ~V (47 - 63 Hz)

High Efficiency

The high efficient Teflon-AF® capillary has a much higher efficiency than a normal Teflon capillary of similar size. This allows the usage of a smaller length of capillary to reduce the dead volume of the system considerably.

2 Operation Modes

The 3751i can be run either with constant speed or in Hysteresis Mode, which switches the vacuum pump on or off.

5-Year Membrane Warranty

The 3751i vacuum pump uses a membrane for creating the vacuum. This membrane is made of a specific Teflon material specifically designed for fast movements. Analytical offers a 5-year warranty on the lifetime of this membrane.

Multi-Channel

The 3751i Vacuum Degasser is available as 1-Channel, 2-Channel, 3-Channel, or 4-Channel version. Each solvent channel can be used for a different solvent. Several channels can be used in series to increase the efficiency even more.

OEM Options

Analytical offers this instrument as an OEM product to any interested party, even for small numbers. Besides the complete instrument Analytical also offers the vacuum pump and vacuum chambers as OEM modules.

DAC Columns

DAC stands for dynamic axial compression. It combines the preparative column and packing system together. It is very simple to operate. The column can be used online when it is packed well. Don't need to take the column down. It prevents mechanical degradation of the particles. Bed compression is maintained constant, independent of swelling or shrinking of the bed. If the solvent conditions are such that particle swelling takes place, then the piston automatically let the bed expand to maintain constant compression.

Analytical-PACK DAC columns can be consistently packed with small particulate media (10um and less) to high levels of performance: column efficiencies of up to 50,000 theoretical plates per meter have been reported for columns of 50 and 300 mm internal diameter(i.d). This requires an even distribution of the liquid flow over the column cross-section. Our engineers have modeled the flow pattern at the column ends and designed efficient flow distribution system for optimum performance. For even better control of chromatographic conditions, DAC column are delivered with a temperature jacket and/or insulation.



Technical Specification

Column:	Internal diameter: ID30mm-ID1000mm Tube length:650mm Tube internal suffice finish: Ra ≤0.8m Material:SST316 Sintered	Hydraulic cylinder:	Maximmm working pressure: 50MPa Viscosity range: 46-68cst.
Filter:	Material: SST316 sintered pore size: 3-5um	Pressure Indicator	Air pressure meter:0-10bar, 0.01 degree Hydraulic meter:0-400bar, 0.1 degree
Piston:	Material:SST316L	Working pressure	120bar max. piston act on the column bed
		Air supply requirement:	Rated air out pressure 0.5-1Mpa

Analytical Semi-preparation/Preparative HPLC Column

Analytical HPLC Column

Dimension: ID 4.6mm, Length 150-300mm

Connection:1/16"(Standard)

Packing Material: World famous brand material, such as Kromasil, Luna, YMC, Daiso etc.

Semi-Preparative HPLC Column

Dimension: ID 10-40mm, Length 150-300mm

Connection:1/16"(Standard)

Packing Material: World famous brand material, such as Kromasil, Luna, YMC Daiso etc.

Preparative HPLC Column

Dimension: ID 50-500mm, Length 150-600mm

Connection: 1/8" or 1/14"(Standard)

Packing Material: World famous brand material, such as Kromasil, Luna, YMC Daiso etc.

We can produce all kinds of hplc columns basis of customers requirement.

Preparative hplc column re-packing service

Preparative hplc column application support.

We promise that each column must be tested strictly and attached with test report.

HSCCC

HSCCC has unique advantages in the isolation and purification work of natural products and antibiotics.

Analchrom Chromatography workstation software data handling system is compatible with any model of chromatographic analytical instrument available in the market. Our state of the art hardware comes in two different models, while you can connect the two channels to the dual detectors of the same instrument for simultaneous data acquisition, you can also connect them to the two different instruments for independent data acquisition.

This software system is structured in such a way that all the sequences related to an analysis (Standard from acquisition of raw data signal, to integration of chromatogram, to calculation of components quantities, through to preparation of analysis report) are incorporated in one serve document called chromatogram file. By applying document windows technique and split window technique, we have design a one page document window for you to display the entire working element for chromatogram file in one screen for quick access and manipulation.

Analchrom is liquid chromatography software package developed by Analytical Technologies. It provides complete control and data processing function with simple and efficient operation. Complies with 21 CFT/GLP/GMP features. PDA/DAD (Diode Array Detector) control & acquisition is possible. Online GPC (Gel Permeation Chromatography) calculation.

- Licensed HPLC software for control of all HPLC modules like pump, tector etc. for qualitative and quantitative analysis.
- Parameter validation management.
- Compatibility with general detectors.
- Compatibility to import and export the data.
- Ability to acquire and analysis and store spectral library.
- Flexible report publisher to make report in desired form.
- Should have system suitability option.
- ANALCHROM is the most universal software of the entire product line.
- GLP Compliance.

All other versions are derives from the full clarity software.

INTEGRATION

There is extensive possibility to modify chromatograms. The chromatogram can be changed by entering by global parameters or interactively, through direct graphic modification of the base line.

OVERLAY

Simultaneously display a virtually unlimited number of chromatograms and their mathematical modification; for example, mutual deductions or derivations of any order.

CALIBRATION

Internal and external standard calculation methods, calibration of groups of peaks and reference peaks method for better identification.

USER SETTINGS

User selects parameter for peak display and the specification for axes, including color from and extensive array of color settings. Text labels and lines, either as part of the area or anchored to a chromatogram, may also be inserted.

METHOD AND CALIBRATION HISTORY

Each Chromatogram can easily be displayed under the same conditions as when it was printed, exported or saved.

COLUMN PERFORMANCE

Calculation of peaks in terms of symmetry, efficiency, resolution; all by several methods (Tangent, moments, etc)

BATCH

Automatically batch processes, displays, exports or prints any number of chromatogram.

USER ACCOUNTS

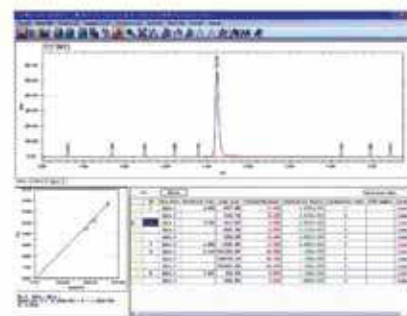
Set up access rights and passwords (Including their parameters e.g. minimum length, validity, etc) each user can define his or her own station appearance.

AUDIT TRAIL

Records selected events and operations into a special file. Records selected operations directly into chromatogram.

ELECTRONIC SIGNATURE

Each Chromatogram can be signed electronically. Signature selection is based on the signature certificate.



Spares & Consumables / Columns / Source Lamps / Pre-Installation Requirements



HPLC Consumables like Check Valves Plunger, plunger Seals Columns (Analytical And Prep), pulse Damper, Mixer PEEK Nuts, SS Male, Nuts, Solvent Reservoir Filter, Septas, Vials, Rotor Seal, Stator Face Assy, Loops, Syringes, Bearings, O-Rings, Line Filters for any make of HPLC system. Flow Splitters, Pulse dampers, Multi Purpose HPLC Pumps (Isocratic & Gradient) & Manual Injectors CHIRAL, Preparative, Analytical Capillary HPLC Columns and guard columns, GPC Columns, Combi Chem and Amino Acid, Microbore HPLC Columns, BULK Materials for Columns, frits and Hardware for Columns. Source Lamps for all Analytical Instruments such as D2, Halogen, Xenon, Tungsten, mercury vapors hollow cathode lamps etc.

Chemicals, Reagents & Medical Diagnostic kit



Hematology Reagent



Bio Chemistry Reagents



Urine Strips



Medical Diagnostic kit

We offer all the Consumables / Reagents Quality / Control Standards / Calibration Standards / Validation Standards required for running the analyzers like HPLC, SPECTROPHOTOMETER, FTIR, HEMATOLOGY ANALYZER, BIO-CHEMISTRY ANALYZERS (Clinical Chemistry Analyzers). We also manufacture reagents for Hematology and Bio Chemistry, Urine Analysis.

Note: This Model can be upgradeable as and when needed with any spares of any make.

Support & Services

HPLC Servicing, Validation, Trainings and Preventive Maintenance :

HPLC Servicing	:We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.
Trainings	:We also take up preventive Maintenance to reduce downtime of HPLC's
AMC's/CMC	:We offer user training both in-House and at customer sites on HPLC principles, operations, troubleshooting.
Validations	:We have protocols for carrying out periodic Validations as per GLP/GMP/U SFDA norms
Instruments	:We offer instruments / Renting Services Modules like pumps, detector etc. on Rent.



About Analytical Technologies

Analytical Technologies is synonymous for offering technologies for doing analysis and is the Fastest Growing Global Brand having presence in at least 96 countries across the globe. Analytical Technologies Limited is an ISO :9001 Certified Company engaged in Designing, Manufacturing, Marketing & providing Services for the Analytical, Chromatography, Spectroscopy, Bio Technology, Bio Medical, Clinical Diagnostics, Material Science & General Laboratory Instrumentation. Analytical Technologies, India has across the Country operations with at least 4 Regional Offices, 6 Branch Offices & Service Centers. Distributors & Channel partners worldwide.

About Analytical Technologies



▶▶▶ Regulatory compliances



▶▶▶ Corporate Social Responsibility



Analytical
Foundation

Analytical Foundation is a nonprofit organization (NGO) founded for the purpose of:

1. Research & Innovation Scientist's awards / QC Professional Award : Quality life is possible by innovation only and the innovation is possible by research only, hence ANALYTICAL FOUNDATION is committed to identify such personalities for their contributions across various fields of Science and Technology and awarding them yearly. To participate for award, send us your details of research / testing / publication at Info@analyticalfoundation.org

2. Improving quality of life by offering YOGA Training courses, Work shops / Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXYFY human minds, souls and body by means of yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Comps etc.

▶▶▶ Reach us @



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