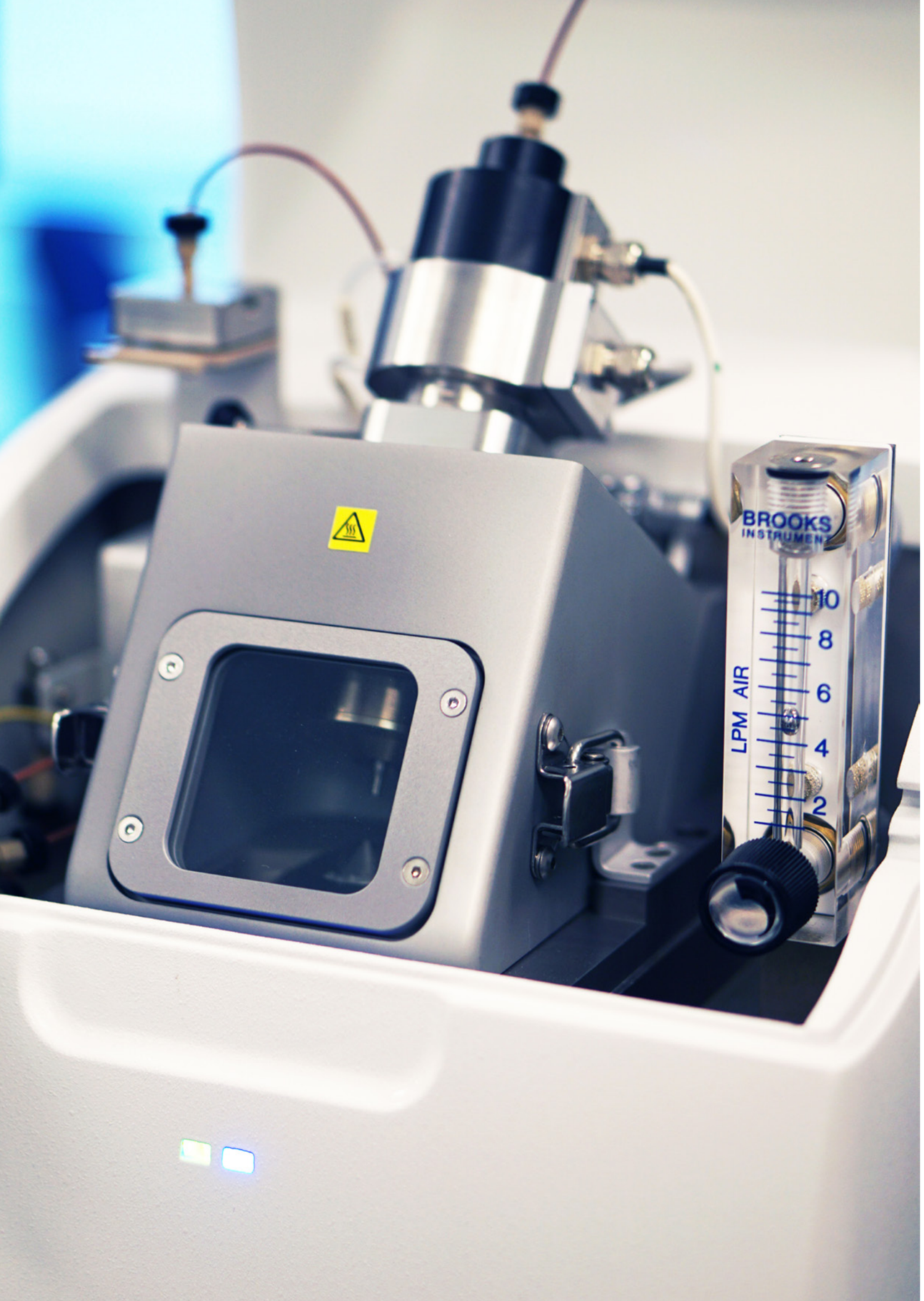
LC-MS Systems

LC-4000 Series HPLC

JASCO

Performance
Innovation
Reliability



The LC-4000-MS mass spectrometry system has been developed to harness the power of a single quadrapole MS with an easy to use HPLC system.

The CMS expression is a high resolution mass spectrometer with wide mass range and a choice of sources including ESI, APCI and ASAP – a direct injection method.

The separation system can be configured for a wide range of applications, including standard HPLC or UHPLC, to take full advantage of the speed and sensitivity of the mass spectrometer.

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LC-MS

The LC-4000 Series includes various pump options for solvent delivery with accurate and pulseless flow, with flexible configuration for isocratic or binary and quaternary gradients.

The AS-4150 autosampler has capacity for up to 180 – 2 mL samples and includes full or variable loop injections. The sample pre-load feature eliminates sample loading time between injections for the fastest sample cycle time to get results faster.

Several optional column ovens offer the advantage of temperature control with single column or multi-columns for rapid method development.

The mass spectrometer can be a simple, cost effective CMS expression single quadrapole instrument, or a higher specification tandem MS with either a triple quadrapole (TQ) or time of flight (TOF) with fully integrated control of the LC for a powerful high throughput analytical or preparative system. Multiple source options include ESI and APCI.

The LC-4500 LC-MS systems can be used for a wide range of separations including routine HPLC, UHPLC and preparative LC.

System	Column ID	Particle Size
HPLC-MS	3mm, 4.6mm	3 - 5 µm
RHPLC-MS	2 - 4.6 mm	3 - 5 µm
UHPLC-MS	2 - 4.6 mm	1.5 - 5 µm
Preparative LC-MS	4.6mm, 10mm, 20mm	5 - 10 µm

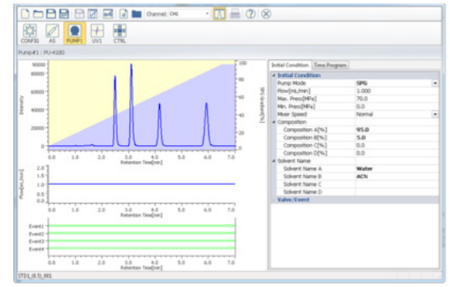
ChromNAV Software

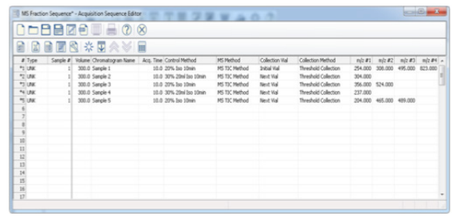
Instrument Control

The system is controlled by ChromNAV MS with acquisition of up to four data channels (with additional PDA channels when configured).

ChromNAV includes many useful features such as the m/z setting in the sequence, visual method optimization and on-peak spectral scanning for signal enhancement.

The combined software platform offers complete and easy system control and access to all MS data. Autotuning and performance checks are built-in to ensure your MS is performing at its peak.

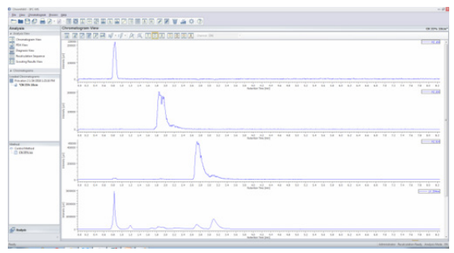




Select Detection Signals

Configure up to four chromatogram data channels to control fractionation. The user can combine signals from multiple detectors and select from a variety of peak start and end options to control the fractionation.

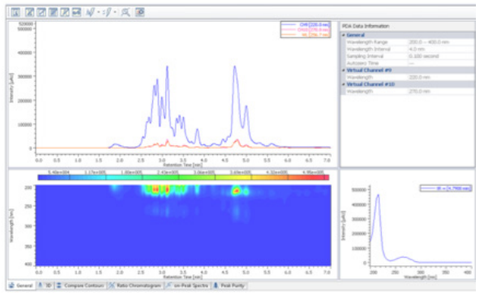
For complex separations, ChromNAV allows the user to select different detectors for the target analytes where they might have different optical properties. This is especially useful for compounds that have no chromophore or may require a more selective detector such as a fluorescence or mass spectrometer.

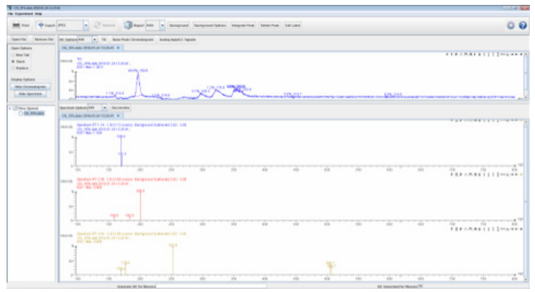


ChromNAV Software

Powerful Data Analysis

ChromNAV includes all standard chromatography calculations, such as peak integration and identification, powerful and easy quantification, a quick user-defined reporting format and versatile data conversion for data export. Peak calculation results and raw data can be sent to Microsoft® Excel automatically. Peak spectral information from the chromatogram can easily be extracted when using a PDA or MS detector for peak identification.

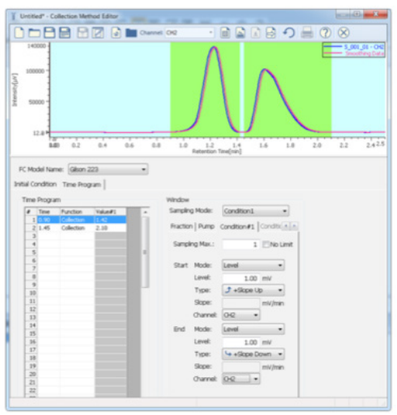


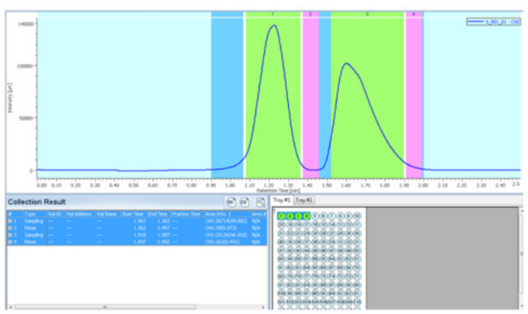


Smart Fraction and Simulation

Boolean logic can be applied to the detection signal for each fraction channel. Combining slope, threshold and time with both positive and negative signals (useful for chiral and refractive index detectors) offers a wide array of peak detection parameters.

For simple setup of the fraction conditions, ChromNAV includes a graphical simulation of a previously acquired chromatogram used to define and preview the fraction parameters applied. Saving this fractionation method translates directly to collection for future injections.





Specifications

Specification	
Instrument	Single Quadrapole Mass Spectrometer*
Ion Source	ESI, APCI or APCI/ASAP
Polarity	Positive & negative ion switching in single analysis
Flow Rate Range	ESI: 10 µL/min to 1 mL/min APCI: 10 µL/min to 2 mL/min
m/z Range	expression S m/z 10 to 1,200 expression L m/z 10 to 2,000
Acquisition Range	10,000 m/z units/sec
Sensitivity (ESI)	10 pg reserpine (FIA - 5 µL injection at 100 µL/min) 100:1 S/N (RMS) with SIM of m/z 609.3
Accuracy	0.1 m/z units of the entire acquisition range
Stability	0.1 m/z units over 12 hour period 18°C - 24°C operating temperature

*The specifications of higher end mass spectrometers such as triple quadrapole or time of flight will depend on the application and configuration, and are available upon request.

System/Space Requirements	
Gas Supply	60 psi, 98% pure Nitrogen
Gas Consumption	< 10 L/min
Solvents	LC/MS-grade solvents
Weight	70 lb (32 kg)
Dimensions (H x W x D)	26 x 11 x 22 in (66 x 28 x 56 cm)
Line Voltage	100 - 240 VAC
Line Frequency	47 - 63 HZ
Power Consumption	915 VA (including PC)

System	UHPLC	HPLC	Prep HPLC
Pump Flow/Pressure	0.05 - 2.0 mL/min	0.5 - 10mL/min	3.0 - 50ml/min
Autosampler	0.1 to 100uL with 1mL and 10mL options		
Column Oven	Ambient -15C to 100C, column lengths up to 400mm		
Detectors	UV, PDA, Fluorescence, Chiral Dichroism, ELSD, RI		
ChromNAV MS CDS	Windows 7, 8.1 and 10		
Fraction Collector	Time, Threshold, Slope triggered. Standard up to 120 fractions		

*These are general specifications. The configuration will determine the specifics that can be found in our HPLC brochure.

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