

High Performance Liquid Chromatograph

Prominence



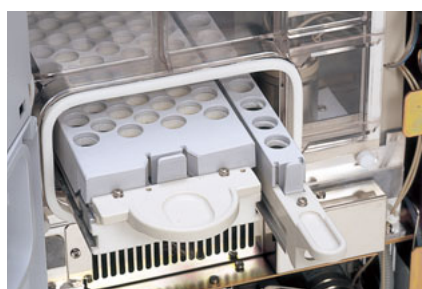
Prominence

HPLC systems are currently used in a wide variety of fields. Higher reliability in analysis data and higher efficiency in total analysis workflow are required for faster development of new drugs, for better food safety, and for meeting higher standards in environmental regulations. Many analysis techniques use LCMS, which requires a front-end HPLC system to provide solvent delivery performance in the micro to

semi-micro range and injectors with low sample carryover. Prominence is a network-ready HPLC system that meets the demands of today's advanced users. Prominence features the world's first Web control, fastest sample injection, and highest detection sensitivity performance...functions that surpass current HPLC technology.

Superior Component Performance

- The SIL-20A/C autosamplers use a high-resolution metering pump and total injection volume method for no sample loss injection. The 6nL resolution ensures accurate and reproducible analytical data.



Autosampler

Injection volume accuracy

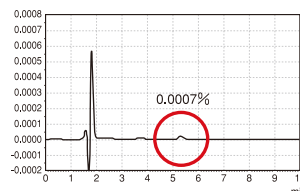
Set Value (μL)	Measured Value (μL)	Error (%)
1	0.99	-1.00
2	1.99	-0.50
5	5.01	-0.20
10	10.00	0.00
20	19.92	-0.40
50	49.90	-0.20
100	99.70	-0.30

Precision

Injection Volume (μL)	Area Repeatability (%RSD)
1	0.28
2	0.25
5	0.06
10	0.04
20	0.03
50	0.10
100	0.11

- A specially treated outer needle surface and improvement of needle seal composition greatly reduce sample adsorption. This performance is critical for achieving the high sensitivity of LC-MS/MS. In addition to that, the optional multi-liquid rinsing demonstrates almost undetectable sample carryover. The right chromatograms show the carryover of highly adsorptive chlorhexidine.

SIL-20A provides good result even with adsorptive compound.



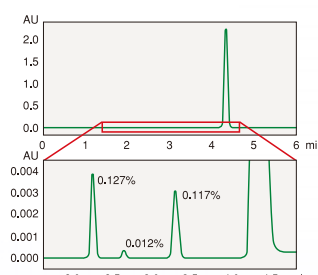
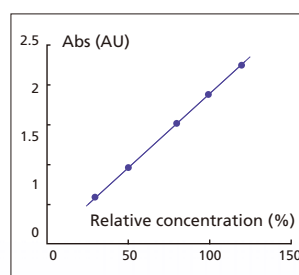
With rinsing pump, sample carryover is not detected.



Sample carryover test using Chlor-hexidine

- The SPD-20A detectors achieve the highest level of detection sensitivity and linearity by electronic noise elimination and a temperature-controlled flow cell. This performance is ideal for everyday needs and especially suitable for high-sensitivity analyses such as impurity quantitation.

With the SPD-20AV, both D₂ and W lamps can be lit simultaneously so that high-sensitivity analysis for the full UV to VIS wavelength range is possible.



Concentration linearity and impurity limit test for raw drug A

Flexible system configurations



Standard automated system

Prominence features a wide variety of components, enabling you to build systems to meet any application need. Exceptional performance and functions such as high throughput and low sample carryover enhance any system from performing routine analysis to becoming a highly sophisticated LCMS front end.

The SIL-20 rack changer stores and transports up to 12 standard or deep-well microtiter plates to the Prominence autosampler for a significant advantage in sample capacity and throughput. Standard (ambient temperature) and cooler models with temperature control from 4 to 40°C are available.

Prominence will support multiple LC-20AB binary pumps, allowing an automated pretreatment system with column switching to use gradient elution in both sample pretreatment and analysis. With an additional pump, an automated system for direct serum injection with online sample dilution capability can be configured.



High-capacity system with rack changer



Microplates in rack changer



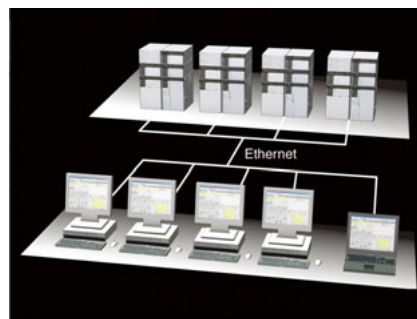
Serum direct injection auto-pretreatment system (Co-Sense for BA)

Innovative network compatibility

- The world's first HPLC control by a web browser is available with the CBM-20A. Use any computer with Microsoft Internet Explorer 6.0 or later to control and monitor the Prominence HPLC system. Connection to the CBM-20A with a static IP address requires no special software to control and monitor HPLC systems on the network from the client PC. Easily check the status of networked HPLC systems, or monitor consumable parts for increased work efficiency.
- Connection of HPLCs and PC workstations via the Ethernet enhances flexibility of instrument installation to efficiently use laboratory space, and provides a flexible analytical network environment by controlling access to the configured HPLC systems from client computers. Networked Prominence systems support HPLC control, run monitoring, maintenance information, data management, and integrated analysis schedules.



HPLC control through Internet Explorer



Example of network environment using Prominence

Prominence Specifications

System Controller	CBM-20A (228-45012-xx)		CBM-20Alite (228-45011-38)
Number of connectable modules	8		5 (including a module in which CBM-20A lite is installed)
Event input/output	Input: 4, Output: 4		Input: 2, Output: 2
Solvent Delivery Unit	LC-20AD (228-45000-xx)	LC-20AT (228-45001-xx)	LC-20AB (228-45002-xx)
Pump type	Parallel double plunger pump	Serial double plunger pump	Parallel double plunger pump
Flow rate setting range	0.0001 mL/min.–10.0000 mL/min.	0.001 mL/min.–10.000 mL/min.	0.0001 mL/min.–10.0000 mL/min.
Gradient System	LC-20AB (228-45002-xx)	LC-20AD/20AT (with High-pressure gradient unit installed)	LC-20AD/20AT (with Low-pressure gradient unit installed)
Gradient type	High pressure mixing	High pressure mixing	Low pressure mixing
Number of solvents mixed	2	2 or 3	4
Degassing Unit	DGU-20A _{3R} (228-45018-xx)		DGU-20A _{5R} (228-45019-xx)
Number of flow lines	3		5
Autosampler	SIL-20A (228-45006-xx)		SIL-20AC (228-45007-xx)
Injection system	Variable injection volume type (zero sample loss during injection)		
Injection volume setting range	0.1 to 100 μ L (standard), 1 to 2000 μ L (optional)		
Number of samples processed	175 (1mL sample vials) + 10 (1.5mL vials) 105 (1.5mL sample vials) + 10 (1.5mL vials) 50 (4mL sample vials) 10 (1.5mL vials) 2 (96-well, 384-wells MTP/DWP) + 10 (1.5mL vials)	175 (1mL sample vials) + 10 (1.5mL vials) 70 (1.5mL sample vials) + 10 (1.5mL vials) 50 (4mL sample vials) 10 (1.5mL vials) 2 (96-well, 384-wells MTP/DWP) + 10 (1.5mL vials)	
Sample cooling	none		4 to 40°C (Block heating/cooling type, with dehumidification function built-in)
Column Oven	CTO-20A (228-45009-xx)		CTO-20AC (228-45010-xx)
Type	Forced air circulation		
Temperature control range	(Room temperature + 10°C)–(85°C)		(Room temperature - 10°C)–(85°C)
Absorption Detectors	SPD-20A (228-45003-xx)	SPD-20AV (228-45004-xx)	SPD-M20A (228-45005-xx)
Light source	D ₂ lamp	D ₂ lamp, W lamp	
Wavelength range	190nm–700nm	190nm–900nm	190nm–800nm
Functions	Dual wavelength detection in 190nm - 370nm, or in 371nm or higher Ratio chromatogram output Wavelength scan		Contour output Spectral library Max. plot
Cell	Path length: 10mm, Volume: 12 μ L, Pressure: 12MPa		Path length: 10mm, Volume: 10 μ L, Pressure: 12MPa

