Summary of LC Multi Valve Applications

Application Type

  STANDARD AND SPECIAL

Application ID

Description

  Multiple Valve Applications for LC

Code	Application	Control SW	Key Hardware	Key Benefits	Restrictions	GLP
M-001 [1] ⬓	**Dual Channel Serial Injection** Provides shorter cycle times by regenerating columns during next analytical run	Analyst with ICC-CE	* 6 port injection valve * 10 port Valve * Gradient Pump * Regeneration pump	* Saving of regeneration time(Back Cut) * Increase throughput at little cost * Control is all within Analyst * Compliance is not affected	* Can not do "Look Ahead" * Injections are not staggered * Peaks of interest must come of early * Columns may perform slightly differently on alternating samples	Yes

Code	Application	Control SW	Key Hardware	Key Benefits	Restrictions	GLP
M-002 [2] ⬓	**Dual Channel Serial Injection with Front Cut** Provides shorter cycle times by regenerating columns during next analytical run and diverts the solvent front to waste	Analyst with ICC-CE	* Trio VS * Gradient Pump * Regeneration pump	* Saving of regeneration time(Back Cut) * Increase throughput at little cost * Control is all within Analyst * Compliance is not affected * Avoids contaminating MS inlet with early eluting compounds and solvent	* Can not do "Look Ahead" * Injections are not staggered * Peaks of interest must come of early * Columns may perform slightly differently on alternating samples	Yes

Code	Application	Control SW	Key Hardware	Key Benefits	Restrictions	GLP
M-003 [3] ⬓	**Dual Channel Parallel Injection** Provides shorter cycle times by limiting the acquisition time to just the peaks of interest and regenerating columns during acquisition	Cycle Composer outside of Analyst	* DoubleStack valve * 6 port injection valve * FWS in front of 6 port valve * Gradient Pump * Regeneration pump	* Saving of Front and Back Cut * Provides "Look Ahead" * Provides staggering of injections	* Requires matching sample lists in Cycle Composer and Analyst * Columns may perform slightly differently on alternating samples	No

Code	Application	Control SW	Key Hardware	Key Benefits	Restrictions	GLP
M-004 [4]	**Analyst with "Look Ahead" with LEAP Shell** Control of the Sample List is through LEAP Shell	LEAP Shell	* Standard PAL * Pumps are supported within Analyst	* "Look Ahead" * Can import custom columns * Freedom to create and use custom Cycles	* Does not support 21CFR11 compliance	No

Code	Application	Control SW	Key Hardware	Key Benefits	Restrictions	GLP
M-005 [5]	**Dual Channel Parallel Injection** Provides minimum cycle times by limiting the acquisition time to just the peaks of interest and regenerating columns during acquisition	LEAP Shell	* DoubleStack valve * 6 port injection valve * FWS in front of 6 port valve * Gradient Pump * Regeneration pump	* Integration with Analyst Software * Single Sample List * Provides staggering of injections * Multiplexes 2 separate LC systems into on MS	* Does not support 21CFR11 compliance * Requires pumps to be integrated with LEAP Shell	No

Code	Application	Control SW	Key Hardware	Key Benefits	Restrictions	GLP
M-006 [6]	**Inline Sample Concentration** SPE Column regenerated during analytical extraction	Analyst with ICC-CE	* TrioVS	* Automated concentration and elution of sample on SPE column prior to separation on analytical column	* No "Look Ahead" * Can not prep samples ahead of analytical run	No

Code	Application	Control SW	Key Hardware	Key Benefits	Restrictions	GLP
M-007 [7]	**Inline Sample Filtration** SPE Column regenerated during analytical extraction	Analyst with ICC-CE	* TrioVS	* Automated filtration of sample on cleanup column prior to separation on analytical column	* No "Look Ahead" * Can not prep samples ahead of analytical run	No

Code	Application	Control SW	Key Hardware	Key Benefits	Restrictions	GLP
M-008 [8]	**Dual Channel In-line Sample Concentration** SPE Column regenerated during analytical extraction	Cycle Composer outside of Analyst	* TrioVS	* Dual Stream * High throughput sample cleanup "Look Ahead"	* Requires two matching sample lists	No

Code	Application	Control SW	Key Hardware	Key Benefits	Restrictions	GLP
M-009 [9]	**Dual Channel in-line Sample Filtration** SPE Column regenerated during analytical extraction	Cycle Composer outside of Analyst	* TrioVS	* Dual Stream * High throughput sample cleanup * "Look Ahead"	* Requires two matching sample lists	No

Code	Application	Control SW	Key Hardware	Key Benefits	Restrictions	GLP
M-010 [10]	**Dual Channel in-line Sample Concentration** SPE Column regenerated during analytical extraction	LEAP Shell	* TrioVS	* High throughput sample cleanup "Look Ahead"		No

Code	Application	Control SW	Key Hardware	Key Benefits	Restrictions	GLP
M-011 [11]	**Dual Channel in-line Sample Filtration** SPE Column regenerated during analytical extraction	LEAP Shell	* TrioVS	* High throughput sample cleanup "Look Ahead"		No

Code	Application	Control SW	Key Hardware	Key Benefits	Restrictions	GLP
M-014 [12]	**Selectable HPLC** (max 2 Streams)	Analyst Standard Cycles	* Two Injection Valves * MS Stream Selector	* Different Analyst Methods inject into different LC Valves * Uses Standard Analyst cycles	* Requires Analyst control of the stream selector valve * Max of 2 streams can be supported	Yes

Code	Application	Control SW	Key Hardware	Key Benefits	Restrictions	GLP
M-015 [13]	**Selectable HPLC** (max 4 Streams)	Analyst with ICC-CE	* Multiple Injection Valves (serial control) * PAL 10 port Valve for Stream Selector	* Different Analyst Methods inject into different LC Valves * Stream selection to MS	* PAL controls the stream selector valve * Requires Custom Cycle	Yes

Code	Application	Control SW	Key Hardware	Key Benefits	Restrictions	GLP
M-016 [14] 🗗	**Column Selection** Method selects which HPLC column is in-line before injection	Analyst with ICC-CE	* CTC Column Selector * Up to 5 columns	* Automated switching between analytical columns within run	* Requires Custom Cycles	Yes

For other cost/time saving measures consider:

- LEAP offers multiple choices of Valve Self Wash Stations to aid in cleaning the valve [15] 🗗
- LEAP offers custom sample prep and inject with Analyst and other data systems
- LEAP Shell Software and application for custom injections and scheduling [16] 🗗

LEAP provides automated workstation instrumentation solutions based on the LEAP CTC PAL X, Y, Z syringe only autosampler robot from LEAP Technologies. This extremely flexible, precise, and adaptable liquid handling robotic platform is available in a variety of lengths and options depending on the requirements of your sample preparation and injections for your UHPLC, LC or GC chromatography.LEAP offers full support and service for the PAL platform in addition to being able to write custom macros, cycles, and scheduling to your applications. Please contact LEAP Technologies on how we can help you get maximized throughput with flexible pipetting automation solutions.

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