QSight LX50 UHPLC System

Liquid Chromatography / Mass Spectrometry

Key Features:

- Outstanding injection reproducibility – even at low volumes, while protecting samples from degradation and contamination

- Precise, repeatable solvent delivery at UHPLC flow rates and pressures

- Highly stable multi-column temperature control

- Robust and easy to maintain system increases uptime and productivity

The World's Most Flexible Mass Spectrometer Requires an Equally Capable UHPLC

Introduction

The PerkinElmer QSight® LX50 UHPLC system is the perfect complement to our QSight LC/MS/MS platform. Featuring a high precision autosampler, an advanced UHPLC solvent delivery module and a flexible column temperature module, the QSight LX50 UHPLC delivers the performance required for even the most demanding analyses.

Whatever the application you are running, the QSight LX50's performance will ensure your lab's success. The sensitivity and specificity of the system is ideal for critical analyses such as pesticide residues and nutritional component analyses. Its robust design and carryover elimination features enable you to handle the difficult sample matrices often found in food, environmental and industrial applications.

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For the Better

QSight LX50 Precision Sampling Module

The most important part of your labs workflow is the handling of your samples – ensuring they are not subject to degradation or contamination, that they are injected precisely and that the system is thoroughly cleaned to avoid cross-contamination and is ready for the next injection quickly. The QSight LX50 Precision Sampling Module was engineered with the most advanced fluidics technology and was designed to ensure stability and productivity for superior performance. The moment your samples are placed in the QSight LX50, the system works to protect them from degradation or precipitation. While many autosamplers claim to offer some form of cooling or heating of the sample tray, the QSight LX50 actually provides uniform cooling of all samples in the tray as well as the environment surrounding them. When it's time to perform an analysis, the advanced fluidics design of the QSight LX50 Precision Sampling Module delivers outstanding injection-to-injection reproducibility (even for very low injection volumes) with no run-to-run carryover or contamination. The special injection valve design makes the LX50 ideal for even those UHPLC analyses at extreme pressures (up to 18,000 PSI) while an ultra-fast valve mechanism reduces pressure and shock perturbations that would otherwise negatively affect analytical performance and column life. Once an injection has been made, the system ensures there is no chance of carryover or contamination by using a separate, dedicated built-in solvent pump to perform fast and effective needle washing. The QSight LX50 uses a combination of air pressure and solvent streams to ensure thorough cleaning of the needle pair, both on the inside and the outside, in just seconds.

Figure 1. QSight LX50 Precision Sampling Module.

Key Features Include:

- Precise, uniform temperature control (4 °C to 40 °C) ensures sample stability or improved viscosity
- Dual needle design with a dedicated "septa-piercing needle"
- Diverse range of sample needle materials to meet unique sample requirements
- Vial bottom detection permits accurate injections even at low vial volumes
- Highly reproducible injections via novel injection value designed for UHPLC pressures without generating column-harming pulsations or shock
- Virtually no carryover via a dedicated, multi-solvent wash mechanism that cleans and dries the inside and outside of both needles quickly and thoroughly

QSight LX50 Solvent Delivery Module

Accuracy and precision isn't just a requirement for your autosampler. In fact, accurate, precise and rugged formulation and delivery of your mobile phase is critical to your results. The QSight LX50 Solvent Delivery Module uses an advanced implementation of a rugged linear drive to deliver ultra-precise UHPLC gradient flows up to 18,000 psi and above. Each of the four pump heads is individually motor-driven and controlled. This generates maximum freedom for flow control and pulsation reduction. "Intelligent" flow control algorithms create stable and accurate flows no matter what solvents or flow rates you choose. The QSight LX50 incorporates truly automatic solvent compressibility compensation (no need to enter factors in the method) and is essentially self-cleaning via an active piston backwash system that ensures maximum life of the piston seals. Unlike many other UHPLC delivery systems, the QSight LX50 was also engineered to allow for quick routine maintenance with easy access to seals to provide maximum uptime and productivity. Finally, the system is fully self-priming through a novel automatic priming design that automates the otherwise cumbersome process used in many other UHPLC systems. There's no need to manually prime the pump with a syringe. The QSight LX50 can prime and purge itself in just a few minutes freeing you to prepare samples or handle other important laboratory tasks.
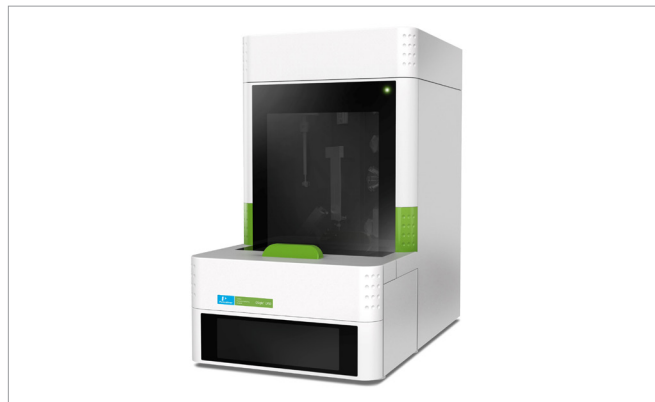

Figure 2. QSight LX50 Solvent Delivery Module.

Key Features Include:

- Select from up to four solvents with binary solvent delivery
- Integrated vacuum degassing
- Accurate and precise flows (1 – 4000 ul/min @ 1ul increments) via advanced linear drives and intelligent flow control algorithms
- Automatic solvent compressibility compensation to ensure accurate solvent blends
- Long seal life via a dedicated and automated piston seal wash mechanism
- Specifically designed for quick and easy routine maintenance
- Self-priming to speed up and simplify solvent change over and system start up

QSight LX50 Column Stability Module

An often overlooked and underappreciated component of an UHPLC system is its column temperature control module (frequently referred to as a column oven). Maintaining a precise and consistent temperature for both the column and mobile phases results in highly reproducible retention times, while having the ability to set a specific temperature is a great tool to enhance selectivity, improve peak shape and reduce analysis time. Finally, the ability to run at elevated temperatures reduces column back pressure significantly – which allows higher solvent flow rates even with narrower columns and smaller particles. The QSight LX50 Column Stability Module delivers precise and consistent temperature control while offering a spacious multi-column compartment for quick and easy access. Also, the QSight LX50 incorporates a solvent pre-heater mechanism that effectively regulates solvent temperature before it reaches the column to ensure maximum stability and reproducibility from run to run.

Figure 3. QSight LX50 Column Stability Module.

Key Features Include:

- Accurate and precise temperature control from 5 °C to 90 °C
- Integrated solvent preheater
- Temperature and vapor safety sensors with alarm
- Large column compartment can accommodate four (or more) HPLC / UHPLC columns

The Perfect Combination of LC Technology and Mass Spectrometry

The PerkinElmer QSight LX50 UHPLC integrates seamlessly with both the QSight LC/MS/MS and its Simplicity™ 3Q software to deliver the highest levels of performance from sample handling right through final results and reporting. The QSight LX50 UHPLC delivers the perfect blend of performance and reliability you need to optimize your workflow and achieve higher levels of productivity.

Figure 4. The QSight LX50 UHPLC integrates with all QSight MS/MS models.

For more information, visit www.perkinelmer.com/QSight

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