

[ ACQUITY SQD WITH THE SQ DETECTOR ]

MASS SPECTROMETRY.  
MADE SIMPLE.



Waters

THE SCIENCE OF WHAT'S POSSIBLE.™

## POWERFUL SINGLE QUADRUPOLE MASS DETECTION.

In a system designed for the chromatographer.

For chromatographers looking for increased selectivity, sensitivity and high throughput confirmation, conventional HPLC methodology is often not up to the task. But with everyday time and resource demands, introducing new mass spectrometry technologies into the lab can be challenging. Waters ACQUITY® SQD with the SQ Detector is an easy-to-use and compact platform for UltraPerformance LC® analysis that benefits fast-paced laboratories.

- Your team will be running MS quickly with the system's minimal learning curve.
- Your analysts will be more confident in results.
- Your decisions will benefit from increased selectivity and sensitivity.
- Your lab will be more productive with high-throughput mass confirmation.





Easier. Smaller. Better. Enabled by user-friendly IntelliStart™ Technology, the ACQUITY SQD provides a simple route to more selectivity, sensitivity, and throughput with scan speeds that are perfectly matched to UPLC.®

## SIMPLE – YET POWERFUL

It's robust and reliable. It brings walk-up single quadrupole atmospheric pressure ionization (API) mass detection to your lab. It's for chromatographers with any level of experience.

The Waters® SQ Detector offers a simple yet powerful solution for your multi-tasking, fast-paced laboratory environment. And with easy upkeep, minimal bench space requirements, and interactive IntelliStart Technology for worry-free automated system optimization and performance checks, even the most inexperienced scientist can obtain superior results quickly and easily, every day.

The SQ Detector is an integral part of the ACQUITY SQD System, leveraging the power of UPLC® Technology to give you better performance and throughput than you've ever experienced with traditional LC and LC/MS systems.

The result: very narrow peaks and superb spectral quality to identify all of the compounds in your sample across a wide range of applications, including peak purity and impurity profiling, synthesis confirmation, product deformation, and enhanced method development with molecular weight-based peak tracking.



## MS FOR THE MASSES

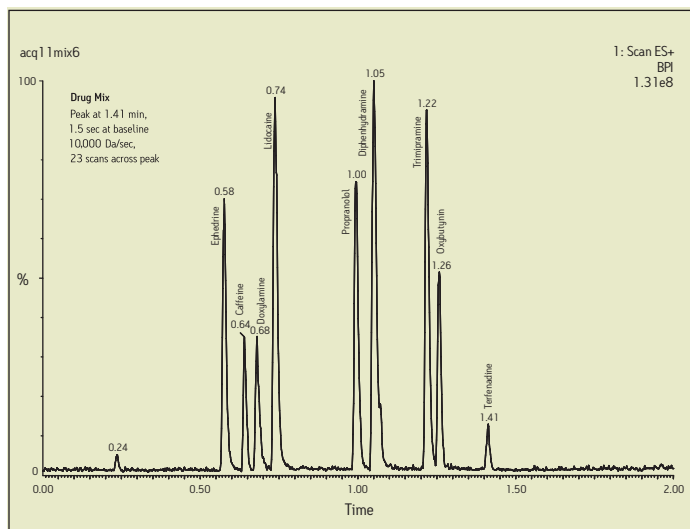
Every chromatographer routinely encounters unknown peaks in the analysis of their samples. And, as the task of analyzing drugs, chemicals, natural products, and environmental samples becomes even more challenging – and as matrices are more complex – concentration levels widen and high throughput becomes the norm, LC/UV detection techniques are becoming increasingly inefficient.

Liquid chromatography, when combined with single quadrupole mass spectrometry (LC/MS) allows you to obtain qualitative structural information that increases your confidence in your results.

With the power of this new dimension of analytical information, you are now able to quickly and easily confirm a compound's mass, accurately track peaks during methods development, purify sample extract components, and identify, characterize, and quantify unknowns or impurities.

With the ACQUITY SQD, you can vastly expand the scope of your analytical capabilities – all with enhanced selectivity, sensitivity, and linearity.

*The ACQUITY SQD provides more quality information about your samples in less time. The SQ Detector delivers 10,000 Da/sec scan speeds and interscan delays as low as 20 msec to accommodate the narrowest UPLC peaks.*





## ACQUITY SQD FEATURES:

- Easy-to-use:** IntelliStart Technology with an integrated system of fluidics, electronics and software to continually monitor and optimize UPLC/MS system performance.
  - Fast:** 10,000 Da/sec scan speeds up to 2,000 Daltons for full compatibility with seconds-wide UPLC peaks.
  - Rugged:** Industry-leading ZSpray™ dual orthogonal sampling ionization source design with the proven reproducibility and reliability of UltraPerformance LC.
  - Versatile:** Rapid polarity switching capability and ESCi® multi-mode ionization with simultaneous APCI and ESI, for comprehensive compound analyses in a single run. IonSABRE™ APCI and atmospheric pressure photo ionization (APPI) probes are available as optional with the SQ Detector. The ACQUITY SQD
- Column Manager allows up to four column switching with wide-range temperature control and multi-sample, high-capacity capabilities.
- Flexible:** Multiple ACQUITY UPLC® Detector strategy support with Tunable UV, Photodiode Array, and Evaporative Light Scattering with a variety of ACQUITY UPLC BEH Chemistries including C<sub>18</sub>, C<sub>8</sub>, Shield RP<sub>18</sub>, Phenyl, HILIC, and ACQUITY UPLC C<sub>18</sub> for polar compounds.
  - Intelligent:** Connections INSIGHT® Intelligent Service Delivery Platform (ISDP) for remote intelligent support.
  - Ultra-compact:** Requiring less than 35 cm of bench space, the Waters SQ Detector is ideal for space-conscious laboratories.
  - Compatible:** ACQUITY SQD control and data acquisition within MassLynx™ or Empower™ 2 Software.

## THE COMBINED POWER OF UPLC/MS

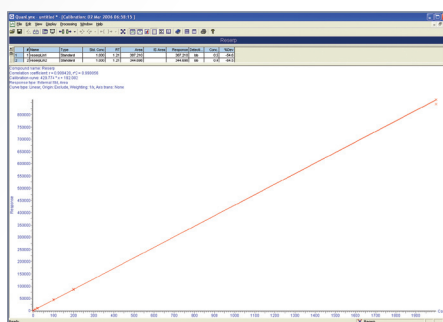
To complement the proven resolution, sensitivity performance, and throughput benefits of UltraPerformance LC, the SQ Detector features innovations to adapt to a variety of applications and environments for the ultimate in UPLC/MS productivity.

The SQ Detector's fast scanning and multi-function acquisition capabilities are complemented by a full suite of ACQUITY UltraPerformance LC® Technologies – hardware, software, columns, and chemistries – designed to work together to give you more benefits than you've ever experienced from traditional LC and LC/MS systems.

The ACQUITY UPLC System employs novel small column particles, very low system volumes, and greater throughput to detect more peaks in faster runs – adding significant value to the power of the low dispersion, high-speed detectors. The result is very narrow UPLC peaks and superb spectral quality for easy identification of all of the compounds in your sample.

## Linearity

Broad quantitative linearity is demonstrated over a range of 1 pg to 2,000 pg on-column for reserpine.



## Reproducibility

High quantitative reproducibility is shown for 10 pg reserpine injections on-column (n=20).

Quantify Compound Summary Report							
Printed Thu Mar 02 07:46:45 2006							
Compound 1: Reserp							
#	Name	Type	Std. Conc	RT	Area	IS Area	Response
1	1.reserp_repr.OC	OC	0	1.21	4702.344		4702.344
2	2.reserp_repr.OC	OC	0	1.22	4547.234		4547.234
3	3.reserp_repr.OC	OC	0	1.21	4563.634		4563.634
4	4.reserp_repr.OC	OC	0	1.22	4954.846		4954.846
5	5.reserp_repr.OC	OC	0	1.21	4748.219		4748.219
6	6.reserp_repr.OC	OC	0	1.22	4638.104		4638.104
7	7.reserp_repr.OC	OC	0	1.22	4720.701		4720.701
8	8.reserp_repr.OC	OC	0	1.21	4793.393		4793.393
9	9.reserp_repr.OC	OC	0	1.22	4640.599		4640.599
10	10.reserp_repr.OC	OC	0	1.21	4783.67		4783.67
11	11.reserp_repr.OC	OC	0	1.21	4787.47		4787.47
12	12.reserp_repr.OC	OC	0	1.22	4625.708		4625.708
13	13.reserp_repr.OC	OC	0	1.21	4819.788		4819.788
14	14.reserp_repr.OC	OC	0	1.22	4629.699		4629.699
15	15.reserp_repr.OC	OC	0	1.21	4584.853		4584.853
16	16.reserp_repr.OC	OC	0	1.21	4600.279		4600.279
17	17.reserp_repr.OC	OC	0	1.21	4950.857		4950.857
18	18.reserp_repr.OC	OC	0	1.21	4678.208		4678.208
19	19.reserp_repr.OC	OC	0	1.21	4654.434		4654.434
20	20.reserp_repr.OC	OC	0	1.22	4656.179		4656.179
						avg	4653.9245
						stdev	79.89932835
						%rstd	1.716797744

EASY TO RUN, EASY TO MAINTAIN

IntelliStart Technology

IntelliStart Technology is designed to automate system set-up, enabling non-experts to acquire data with confidence that the system is operating with optimum performance.

An integrated system of fluidics, electronics and software continually monitor UPLC/MS system performance. Through a series of diagnostic checks, the system can report when it is ready for use. Any failures will give a red light, warning that action may be required before analysis can proceed.

Software automation enables the system to automatically take corrective actions, where possible. (Corrective action can include autotune and autocalibration facilities, using the integrated system fluidics and set-up solutions.)

Scientists may also use the system with their own solutions for compound-specific method development.

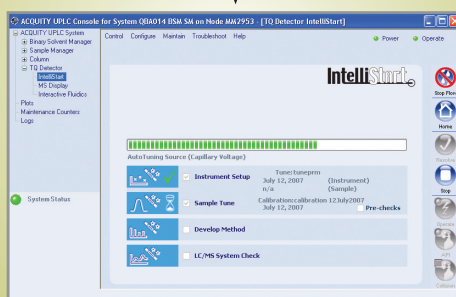


System status: Alert

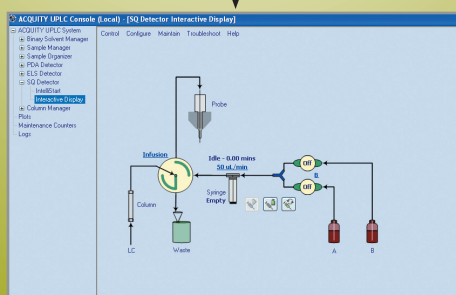


- Resolve system alerts
- Autotune + calibrate
- Auto develop methods
- LC/MS system check

Integrated fluidics are automatically activated.



*The ACQUITY SQD console allows you to manage the integrated fluidics with IntelliStart Technology. They can be operated manually or programmed as part of an LC/MS method for flow divert or combined infusion.*



System ready: Go!

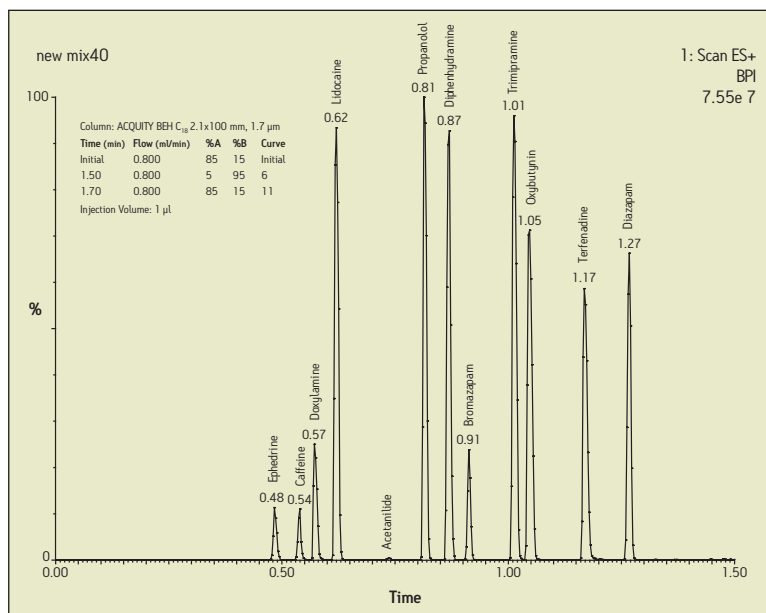






## FOR YOUR MOST CHALLENGING APPLICATIONS

The ACQUITY SQD brings unparalleled sensitivity, selectivity, and throughput in a compliance-ready platform for a diverse range of applications.



A generic ACQUITY SQD UPLC/MS method for cleaning validation.

### Cleaning validation

Run a single UPLC/MS method for use with many different formulations to maintain good sensitivity and resolution to differentiate similar analytes, and fast analyses to increase throughput – enabling you to move on to the next formulation in less time than with traditional methods.

### Impurity profiling

UPLC/MS, with ESCi for polarity and ion mode switching, enables the accurate and precise detection and quantification of all sample impurities in one rapid analytical run. Additionally, the SQ Detector's high scan rates produce data that allows you to confirm the identity of your compounds without the need to outsource your analytical work to another facility – saving time and money in high-volume laboratory environments.

### Peak tracking

With any method development activity, there is always the need to separate out a number of key compounds as quickly as possible while maintaining data quality. With the ACQUITY SQD, you have a very easy way to monitor peak retention while UPLC/MS conditions are being optimized to maximize resolution, sensitivity, and speed, removing the need to individually inject your sample components.



The compact SQ Detector has a footprint of just 34.5 cm (13.6 in.)

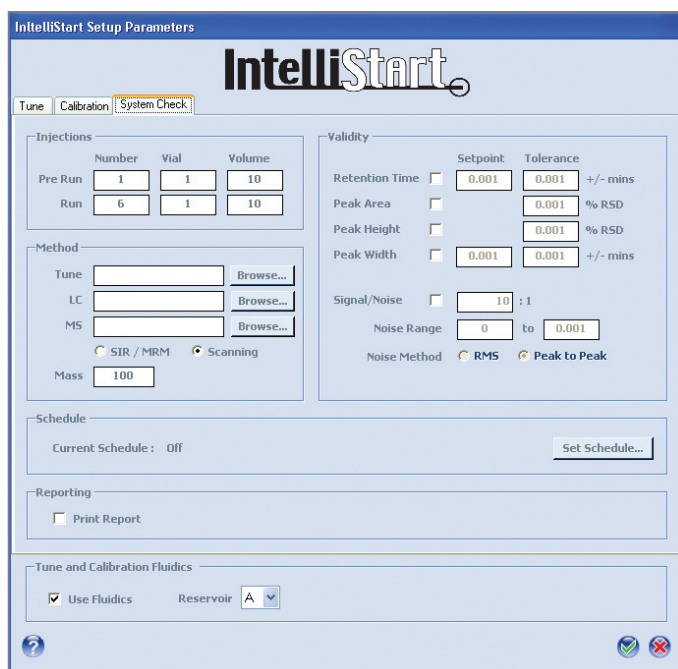
## SYSTEM PERFORMANCE CONFIDENCE

While IntelliStart enables the MS to check its 'health' and take corrective action, a higher level system performance check is also available in MassLynx Software.

Pre-defined UPLC/MS methods allow the system to inject a diagnostic sample on-column. This helps scientists identify any issues with the configured system by providing data that indicates:

- Sensitivity (S/N)
- Response (peak area, peak height)
- Chromatographic performance (peak width, retention time)

*System Check can be easily customized for scheduled reporting on any specified compound and method.*



## ACHIEVE MAXIMUM PRODUCTIVITY

### Connections INSIGHT ISDP

To ensure the highest level of productivity, the ACQUITY SQD features Connections INSIGHT ISDP that dramatically enhances Waters' ability to provide predictive system support.

Through a secure Internet connection, Connections INSIGHT ISDP continuously receives diagnostic information relevant to system performance. Waters technical experts monitor this information to anticipate and resolve potential performance and maintenance issues.

Combined with IntelliStart, Connections INSIGHT ISDP ensures a higher level of service response, maximum system uptime, and consistent high performance, every day.



*The ACQUITY SQD.*





## FLEXIBILITY: YOUR LABORATORY, YOUR CHOICE

ACQUITY SQD  
SYSTEM CONSOLE

- Simple plug-in to Empower or MassLynx software platforms
- IntelliStart system set-up
- SIR method developer
- Connections INSIGHT
- System diagnostics
- System service history

## Empower 2 Software

- Quick and easy storage and retrieval of UPLC/MS data using an embedded relational database
- Scalable, modular architecture allows an easy path from a single workstation environment to an enterprise-wide system
- Built-in support for a data-secured regulatory laboratory environment
- Full system suitability reporting
- Method Validation Manager (MVM) for automation of the entire chromatographic method validation process, from planning experiments to generating final reports

## MassLynx Software

- Flexible and sophisticated instrument control and data acquisition
- Open architecture for easy import and export of work lists, data and results
- QuanLynx™ for batch quantification and rapid results review and compliance tools
- Advanced application solution add-ons to address your specific analytical needs
- Intuitive walk-up, walk-away Open Access capabilities for routine analyses and MW confirmation with OpenLynx™ and OALogin, with results emailed directly to the chemist, exported to LIMS or presented as a printed report



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# Waters

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