

Mass spectrometers designed just for chemists

Advion

Over 20 Years of Mass Spec Experience



Compact. Fast. Easy
...and Affordable!

Compact Mass Spectrometry

With over 20 years of mass spectrometry and chemistry expertise, Advion has produced a family of compact mass spectrometers designed for the chemist. The affordability, small size and ease of use make them ideal for use directly at the chemist's bench, giving immediate answers and informed decisions instead of waiting in line at a central analytical service laboratory. Now every chemist can have a mass spec that works the same hours they do.

expression^S CMS

Designed with the chemist in mind, the expression^S is a flexible, transportable, mass detector for small molecule analysis.

Reaction monitoring

- Compound identification for batch and flow chemistry
- Confirm identity and purity quickly and accurately
- Little to no sample preparation needed with ASAP or TLC/CMS

TLC/CMS

- Unique interface for direct mass analysis of TLC spots
- Mass confirmation of reaction mixtures and flash fractions

Purification

- Mass directed fraction collection for flash chromatography, Prep-LC and SFC

A versatile mass detector for:

- Coupling to any (U)HPLC systems
- Food safety
- Water purity
- Clinical diagnostics

expression^L CMS

For chemists requiring a higher mass range, the expression^L is the ideal mass detector for large molecule applications with a mass range up to m/z 2,000.

The L model includes all of the capabilities as the S model as well as the higher mass range for:

- Peptide synthesis, batch and online reaction monitoring
- Polymer chemistry
- Natural products



Unrivalled Utility and Flexibility

The **expression** family of compact mass spectrometers were developed with the chemist in mind. Its design allows users to switch rapidly from a simple reaction monitor by manual injection to more complex analyses that require chromatographic separation.



Direct analysis probe (ASAP)



TLC/CMS –
mass analysis of TLC spots



Detector for (U)HPLC



Compound identification
by direct injection



High performance compact mass spec
designed especially for chemists



Cart-based LC/MS



Coupled to Flow Reactors,
Hydrogenation & Batch Chemistry



Online Flash/CMS –
mass directed fraction collection



Purification by SFC or Prep-LC

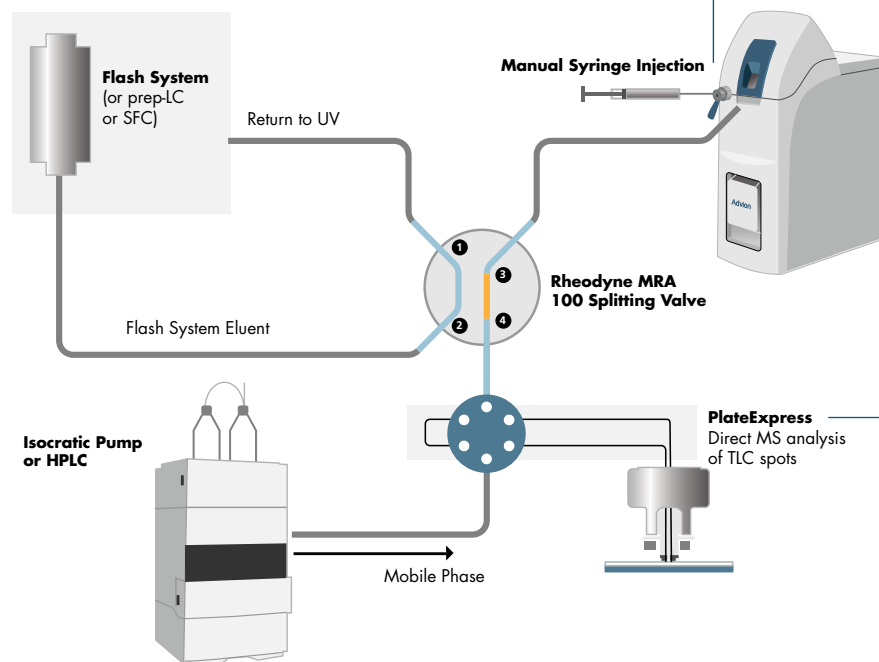
Maximize your Results and Investment

Simultaneous integration with several techniques

Placed at the center of the chemist's workflow, the expression CMS can provide critical information for many processes; reaction monitoring, separation, purification, and impurity determination.

It can be integrated with several techniques at once and the chemist can move effortlessly between these techniques in seconds without the need to re-plumb or re-configure the system e.g.:

- Manual syringe injection
- Direct analysis probe (ASAP)
- TLC/CMS
- Flash chromatography, Prep-LC or SFC
- (U)HPLC



ASAP Source

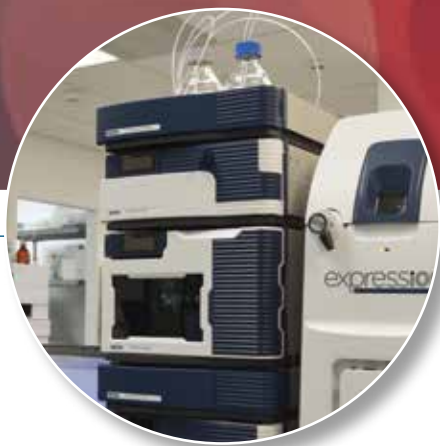
ASAP® (Atmospheric Solids Analysis Probe) permits chemists affordable and reliable sample analysis of solid and liquid samples such as reaction mixtures, food samples, natural products and tablets without chromatography or additional sample preparation.

Plate Express

Plate Express™ is a device that provides a simple, automated means of obtaining mass spectra directly from TLC plates, creating a technique known as TLC/MS. Using this technique chemists can quickly and confidently identify products even in complex mixtures without additional sample preparation.

Combined flash chromatography, TLC, (U)HPLC and manual injection interface. No re-plumbing necessary.

Integration



Advion's fully integrated LC/CMS

Clarity Compatibility

Integration with over 40 LC systems is accomplished with Clarity software from DataApex, allowing chemists maximum flexibility and adaptability within their lab. Clarity includes complete instrument control, data acquisition and processing, a full quantitation package, CFR21 part 11 compliance, and MS libraries.

Agilent Integration

Advion's Mass Express software offers direct integration with Agilent Technologies' liquid chromatography systems. Using Agilent's Instrument Control Framework (ICF), the Mass Express user interface is identical to the Mass Hunter experience.

Hardware I/O Integration:

- Contact closure inputs for remote start and stop from chromatography systems
- Digital outputs for remote control of external devices such as fraction collectors and switching valves
- Analog inputs to read external detectors such as UV and ELSD
- Programmable analog outputs to provide up to 4 simultaneous, real time XIC and TIC channels

Connection of up to 16 digital and analog I/O at the front and back of the instrument optimizes the instrument for any chemistry workflow.

Fast answers - less than 1 minute from sampling to data

The CMS is an easy-to-use, flexible detector that streamlines sample analysis. Proprietary software for operation and data analysis makes sample analysis fast, flexible, and reliable. From the Mass Express interface, select a method of analysis, next deliver the sample to the CMS and finally collect the data for analysis.

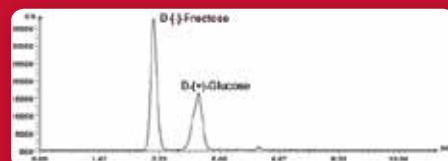
STEP 1: Choose method



STEP 2: Align your developed TLC plate, or place probe in ASAP source



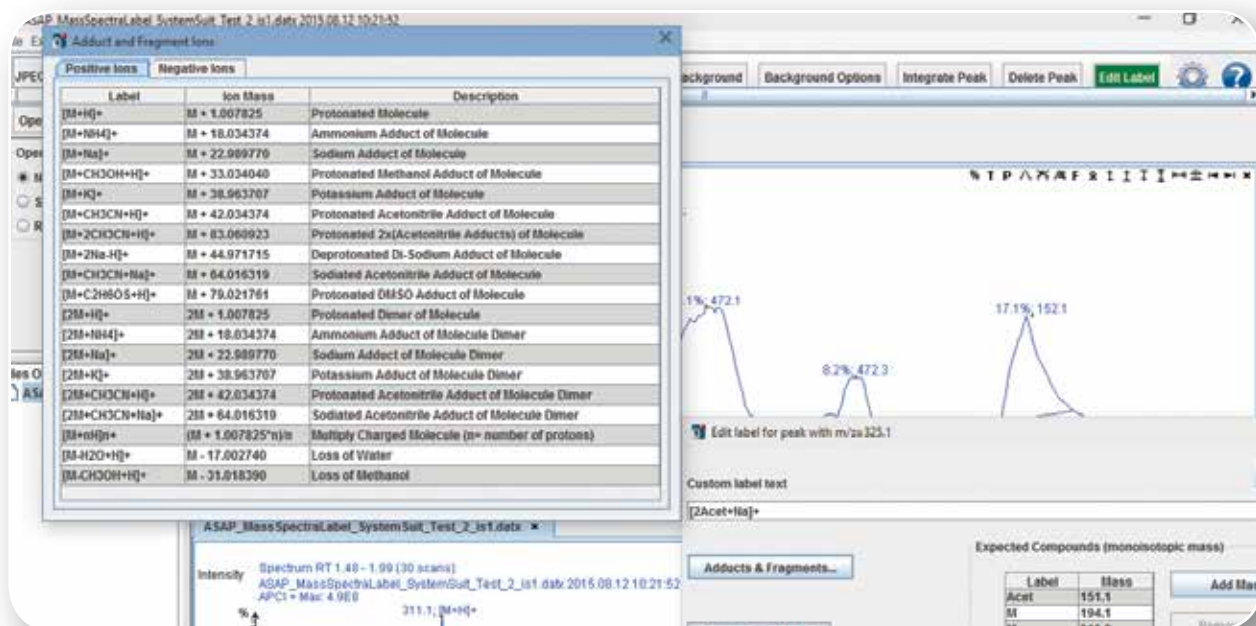
STEP 3: Collect data



Software for Simplified Mass Spec Operation and Compound Identification

The CheMS user interface simplifies the mass spectrometry experience and makes it more accessible in chemistry and biochemistry laboratories. The user interface allows users to quickly select the workflow and type of compound they wish to analyze in just a few clicks of the mouse and the software automatically optimizes the ion source and data acquisition parameters to ensure they get the data they need for decision-making. This allows the chemist to obtain optimal data without needing to be an expert in mass spectrometry.

- Effortless method and instrument set-up for a range of sample introduction techniques, optimized for your sample type.
- Simplified mass spectral interpretation with automatic identification of peaks related to your compounds of interest.
- Flexibility to scan across the full mass range to search for unknowns, or to focus on a specific area for a compound of interest.
- Integrated with Advion sampling techniques; direct syringe injection, Plate Express (TLC/CMS) and ASAP direct probe analysis.
- Works in conjunction with Mass Express for fully versatile software



Specifications and Installation Considerations

Size and Design Matter

- The first mass spec to fit in a fume hood; enabled by its patented atmospheric pressure ionization interface
- All critical and commonly used components are located on the front of the instrument for easy access.
- Pump and source exhaust are bi-directional (left or right hand) to allow for optimal hood or bench location
- Solvent-resistant exterior package

Specification

| | |
|--------------------------|--|
| Ion Source | ESI, APCI or APCI/ASAP |
| Polarity | Positive & negative ion switching in single analysis |
| Flow Rate Range | ESI: 10 μ L/min to 1 mL/min APCI: 10 μ L/min to 2 mL/min |
| <i>m/z</i> Range | expression S <i>m/z</i> 10 to 1,200 expression L <i>m/z</i> 10 to 2,000 |
| Acquisition Speed | 10,000 <i>m/z</i> units/sec |
| Sensitivity (ESI) | 10 pg reserpine (FIA - 5 μ L injection at 100 μ L/min) 100:1 S/N (RMS) with SIM of <i>m/z</i> 609.3. |
| Accuracy | +/- 0.1 <i>m/z</i> units of the entire acquisition range |
| Stability | +/- 0.1 <i>m/z</i> units over 12 hour period (65 °F - 75 °F (18 °C - 24 °C) operating temperature) |
| Polarity Switching Speed | 50 ms |
| Dynamic Range | 4-5 orders of magnitude |

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) |

Transportability

The expression CMS can be mounted on a cart and moved quickly from one area of the lab to another so that a single mass spectrometer can be used for many applications.

- Rapid pump down allows the system to run samples just 30 minutes after being moved
- 100-240 VAC, 47-63Hz operation enables the unit to plug into any standard electrical wall outlet

Founded in 1993, Advion became one of North America's largest bioanalytical Contract Research Organizations, operating nearly 60 high performance LC/MS/MS systems in 3 facilities across the USA. This unrivalled expertise in integrating the power of chromatography and mass spectrometry was further leveraged a decade ago when the company expanded into making the world's premier ion source (the TriVersa NanoMate®) for the most demanding applications in partnership with leading mass spec vendors across the globe. In 2007, Advion launched a microfluidic flow synthesis system for radiochemistry. For the last 6 years, Advion has invested heavily in the development of the expression® CMS in partnership with academic and industry collaborators. We will continue to expand our range of space-conscious, performance-oriented and affordable mass spec, ion source and synthesis solutions in a global and customer-focused manner.

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