The MC3100 combines Excellims’ proven high performance ion mobility technology (HPIMS™) with a miniaturized ion trap mass spectrometer. The resulting spectrometer is the first small-footprint analytical system that identifies chemicals based on both ion mobility and m/z; it offers superior isomer separation and chemical identification capability while providing chemical structure information via direct collision cross-section measurements.

Several modes of operation are available, including IMS-only, MS-only, and combined IMS-MS measurement modes for 2D analysis.

Alternatively, the IMS can be used as a prefilter for the mass spectrometer: particular mobility ranges can be selected for mass analysis, eliminating reactant ions and reducing spectral complexity.

Combining two complementary dimensions of analysis, the MC3100 delivers added confidence in compound identification – in a small, easy-to-use and fieldable package.
### Hardware

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>W x D x H</td>
<td>16” x 21” x 17” (41 cm x 54 cm x 43 cm)</td>
</tr>
<tr>
<td>Drift tube length</td>
<td>~10 cm</td>
</tr>
<tr>
<td>Drift tube voltage</td>
<td>Up to 8 kV</td>
</tr>
<tr>
<td>Ion gate pulse width</td>
<td>40 µs up to the maximum drift time range</td>
</tr>
<tr>
<td>Mass analyzer</td>
<td>Linear ion trap</td>
</tr>
<tr>
<td>Vacuum system</td>
<td>10^-5 torr</td>
</tr>
</tbody>
</table>

### Performance Characteristics

- IMS resolving power: > 70
- Drift time accuracy: ± 30 µs
- Drift gas: N₂, Air, He, CO₂, etc.
- Drift gas temperature: Up to 250°C
- Operating pressure: Atmospheric pressure
- Mass resolution: Unit mass or better
- Standard mass range: 20–2,800 m/z (customizable)

### Software

- Excellims control software
- MC3100 Software package includes control, data acquisition and offline analysis software for fully integrated HPIMS and ion trap mass spectrometer for 2D confirmation

### Sample Introduction Options

- Directspray™ ESI source: Rapid screening of liquid samples; no additional pump needed
- Continuous flow adaptor: Continuous liquid sample introduction for use of an autosampler
- Thermal Desorber with Corona Discharge Ionization: Solid phase sample introduction on swabs
- Other options: Custom inlets e.g. for gas sampling are possible – contact Sales for details

Rapid 2D confirmation by IMS and MS in a compact, fieldable package - MC3100