



**MultipleLabs**  
Turnkey Laboratories Solutions

# IRMS-9202

---

## Isotope Ratio Mass Spectrometer





## ► Specification

Geometry	120° extended geometry with an 11cm radius magnetic sector giving an effective 21 cm radius dispersion and double direction focusing. Truly Faraday triple collectors for simultaneous collection of adjacent masses in range 28,29,30-64,65,66 with no adjustment of collectors or amplifiers. Additional long supr with 98.8° sector which creates a distance of 24 cm between the focal points for m/z 2 and 3. Additional single Faraday collector for m/z 3.
Materials	All stainless steel construction with metal gasket seals to ensure ultra clean internal environment. The use of an all metal analyser permits bake out of the analyser and negligible water background. True UHV using conflat flanges means no dead volumes within ion optics so eliminating contamination and memory effects.
Ion Source	High sensitivity, electron impact, plug-in design.
Magnet	Programmable electromagnet, permanent magnet option
Resolution	m/ m= 110 (N2) 10% valley definition. m/ m= 40 (H2) 10% valley definition.
Sensitivity	< 850 molecules per m/z 44 ion in CF.< 650 molecules per m/z 44 ion in DI.
Abundance Sensitivity	< 5 ppm for N <sub>2</sub> , 30 ppm for CO <sub>2</sub> ,< 1 ppm for H <sub>2</sub> at 4 x10 <sup>-6</sup> mbar He in continuous-flow mode.
Linearity	< 0.02‰ / nA at beam intensity of 2 x10 <sup>-8</sup> A for CO <sub>2</sub>
H <sub>3</sub> <sup>+</sup>	<5 ppm / nA. Stability < 0.03 ppm/nA/hour.
Sample Decay	Time for a signal of 2E-8 amps for m/z 44 to decay below 2E-10 Amps when inlet is isolated Continuous flow mode = 30 seconds
Vacuum	Mass analyser - truly differentially pumped by 2 x drag stage turbomolecular pumps (70 L/s) backed by a two-stage rotary pump. Ultimate vacuum of 1 x 10 <sup>-9</sup> mbar. Source pressure monitored by inverted magnetron gauge.
Inlet	Zero dead volume capillary interface to allow the use of continuous flow methods.
Data acquisition system	Data acquisition system uses state of the art highly stable and linear high frequency converters which produce integral slices with zero dead time and quantisation below the beam statistical noise floor at all signal levels.
Software	Callisto software. Proprietary operational software for system control and data handling. Fully compatible with all versions of Windows.

Electronics	<p>System Controller. Flashover-resistant electronics with semiconductors close to ground and isolated from high voltages. Full control of ion source parameters through software and on-board microprocessors. Communication is via USB with PC system. Valve control outputs for 32 valves as standard, can be extended to 64. Four VFC channels for ion beam and other detector readbacks are installed, extendable to eight or twelve depending on system configuration.</p>
Reference Gas	<p>Triple-port reference gas injection system to calibrate sample peaks produced by attached continuous flow modules. Fitted with dedicated pneumatic valves and inlet manifold for 3 reference gas bottles. Reference valve array can be expanded to six or more reference gases if required.</p>