



 *nu instruments*  
Instruments that work

*nu* **HORIZON**  
STABLE ISOTOPE RATIO  
MASS SPECTROMETER



*nu* **HORIZON**

## STABLE ISOTOPE RATIO MASS SPECTROMETER

*Bringing high technology  
to the routine market*

The Nu HORIZON IRMS instrument is designed for flexibility, high performance, and reliability with user friendly instrument control software and data analysis suite.

This next generation instrument possesses unique features for both Dual Inlet and Continuous Flow Analysis, interfacing with a wide range of sample preparation peripherals. The collector array uses the patented Variable Dispersion Zoom Optics to monitor masses from 2 to 100 with exact coincidence.

## Features

High efficiency ion source with integral focusing lenses

Fully differentially pumped as standard

Electromagnet stabilised with hall probe control

Large mass dispersion

Unique SIRMS collector array using Patented Variable Zoom Optics (with no moving parts)

High efficiency, narrow entrance, deep Faraday collectors

Simultaneous collection from two to six Faraday collectors

Amplifiers capable of measuring signals above 50V

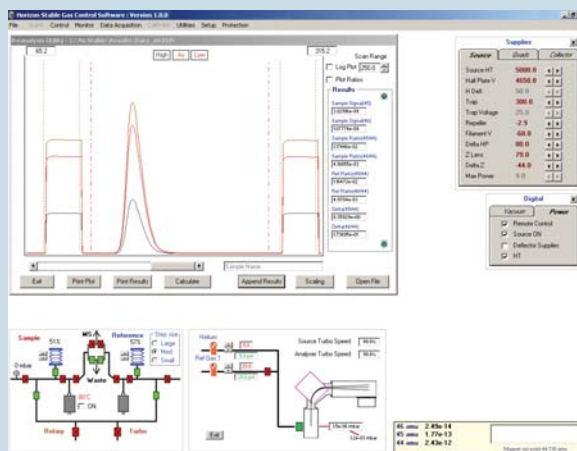
State-of-the-Art electronics with full self-diagnostics

New comprehensive and Easy-to-Use Windows® based control software

Small footprint, an instrument designed to be easily serviced yet compact

## Continuous Flow

The Horizon is designed to be easily interfaced to a range of continuous flow prep systems such as Elemental Analyser and GC via the automatic isolation valve. Reference gas injector units are contained within the Horizon instrument enclosure and all effluent gas is safely exhausted. The reference gas signals are under electronic control with automatic pressure monitoring allowing automatic selection of beam height and unattended  $H_3^+$  or linearity determination.



## Optimised Collector Geometry

The fundamental difference between this instrument and many of its competitors concerns the collector geometry. To allow collection of Carbon and Nitrogen using a "Universal" detector array, such instruments have to compromise the width of the collectors and have a "narrow" central collector, but wide slits on the two outer buckets.

### This design suffers from a number of pitfalls, including:

- Detectors are not "deep" enough to ensure uniform efficiency as the peak is scanned across the entrance aperture, giving sloping peaks.
- Detectors are more susceptible to collecting "stray" ions – leading to poor abundance sensitivity
- But most importantly, detectors are liable to "accidentally" receive part of the neighbouring peaks (e.g. for  $CO_2$  the tail of the 47amu beam can be incident in the detector, and be recorded at the same time as the (required) 46amu peak.

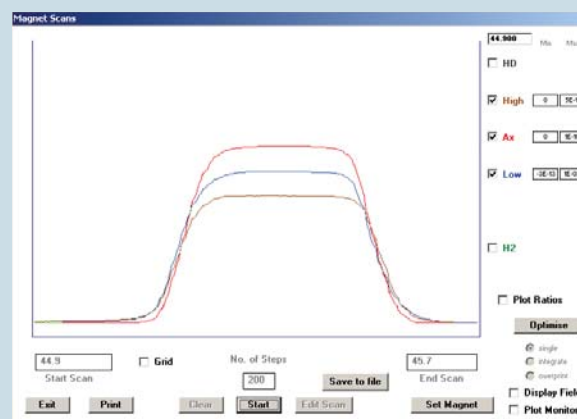
These effects limit the accuracy that such an instrument is capable of achieving, which is why (up to now) all the more accurate instruments have been fitted with either separate fixed narrow collectors, or movable arrays.

The Patented zoom optics technology used on the Nu Horizon now permits these shortcomings to be overcome at a reasonable price. By altering the dispersion of the instrument electronically with the zoom lens, the beams are made to image simultaneously on fixed narrow detectors.



## Dual Inlet

Provided in a separate frame mounting for easy access the Dual Inlet partners the Horizon, interfacing to automated preparation systems or standard manifold. The Dual Inlet is optimised for low consumables usage and connects via the changeover block mounted in the Horizon main enclosure. The Ultra-low volume Micro-Inlet Block is optimised for high gas conductance and designed to maintain gas integrity in event of power failure.





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