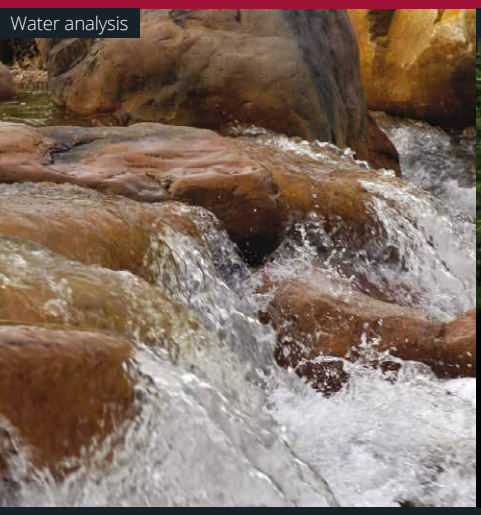
HIDEN ANALYTICAL

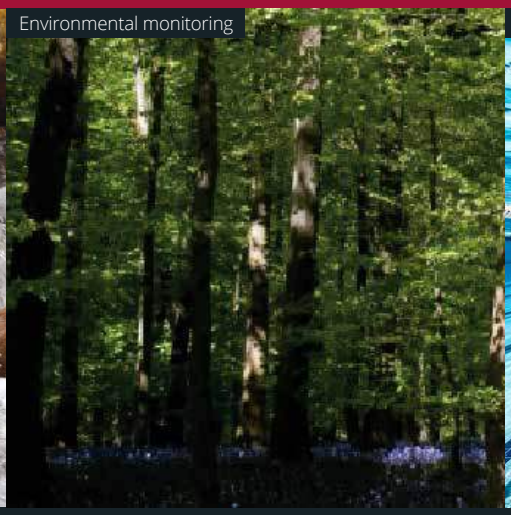


*p*QA – Portable Quadrupole Analyser

A compact transportable case mounted gas analyser configured for environmental field studies.

Detailed product information / introduction


Water analysis


Environmental monitoring


Swimming pool analysis

*p*QA a compact transportable ruggedized case mounted gas analyser configured for environmental field studies.

MIMS – membrane inlet mass spectrometry provides a sample interface for liquids and gases/ vapours to the mass spectrometer analyser. The choice of membrane and inlet employed provides application specific enhancements.

The *p*QA is offered with interchangeable inlets with either Polydimethylsiloxane or a proprietary X44 membrane.

The X44 membrane provides for higher sensitivity for rare earth gases and is used in groundwater studies.

The Polydimethylsiloxane membrane material provides high sensitivity for volatile organic compounds (VOCs) and is used in more general MIMS applications.

Applications:

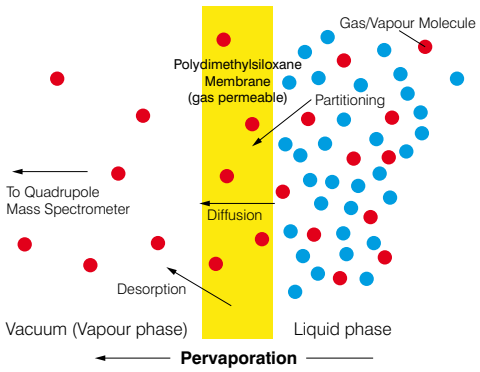
- Ground water studies
- Volatile organic compounds (VOCs) detection
- Pollution monitoring
- Denitrification studies
- Environmental research
- Oceanic gas measurements
- Sludge, and soil core analysis
- Swimming pool analysis

Key Features

- Multi gas/vapour analysis – user configurable.
- Versatile user configurable instrument with a range of sample inlet systems including:
  - Direct inlet probe.
  - Flow through probe with integrated thermocouple and X44 polymer membrane for high sensitivity to rare earth gases.
  - Low volume MIMS inlet for denitrification studies.
- Soft ionisation for reduced spectral fragmentation and simplified data interpretation.
- Transportable case configuration with 12 V operation for field studies (24 V Option).

Example Data

Membrane Inlet Mass Spectrometry (MIMS)



TYPICAL ENRICHMENT FACTORS W.R.T. N_2	
CO_2	12.0
CH_4	3.2
C_3H_8	13.6
CH_3OH	46.4
SO_2	50.0
C_3H_6O	19.6
$C_6H_5CH_3$	30.4

Applications in water/soil/sludge analysis

The MIMS instrument is versatile, robust and portable for use in the laboratory and field based applications including:

Diurnal variation of stream denitrification in a southeast China coastal watershed

- China - *Coastal and Ocean Management Institute, Xiamen University.*
- Sweden - *Dept. of Water Resources Engineering, Lund University.*

Enhancing denitrification using a carbon supplement generated from the wet oxidation of waste activated sludge

- Australia - *University of Queensland.*
- New Zealand - *Sustainable Design, Scion.*

Oceanic Trace Gas Measurements by Membrane Inlet Mass Spectrometry (MIMS)

- Canada - *University of British Columbia, Institute of Ocean Sciences - Fisheries and Oceans.*
- USA - Universities of California, Delaware, and Charleston.

Methane stimulates massive nitrogen loss from freshwater reservoirs in India

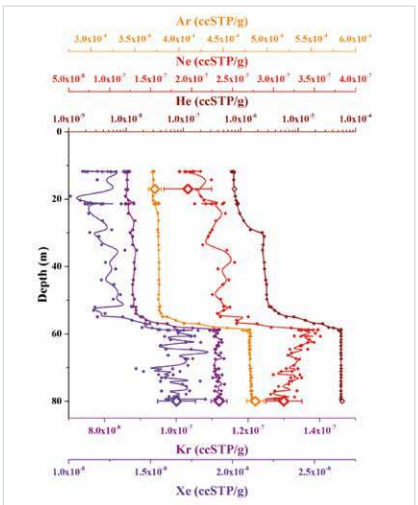
- India - *CSIR-National Institute of Oceanography, Goa.*
- Germany - *Max-Planck Institute for Marine Microbiology, Bremen.*
- UK - *National Oceanography Centre, University of Southampton.*

The impact of sludge amendment on gas dynamics in an upland soil: Monitored by membrane inlet mass spectrometry (MIMS).

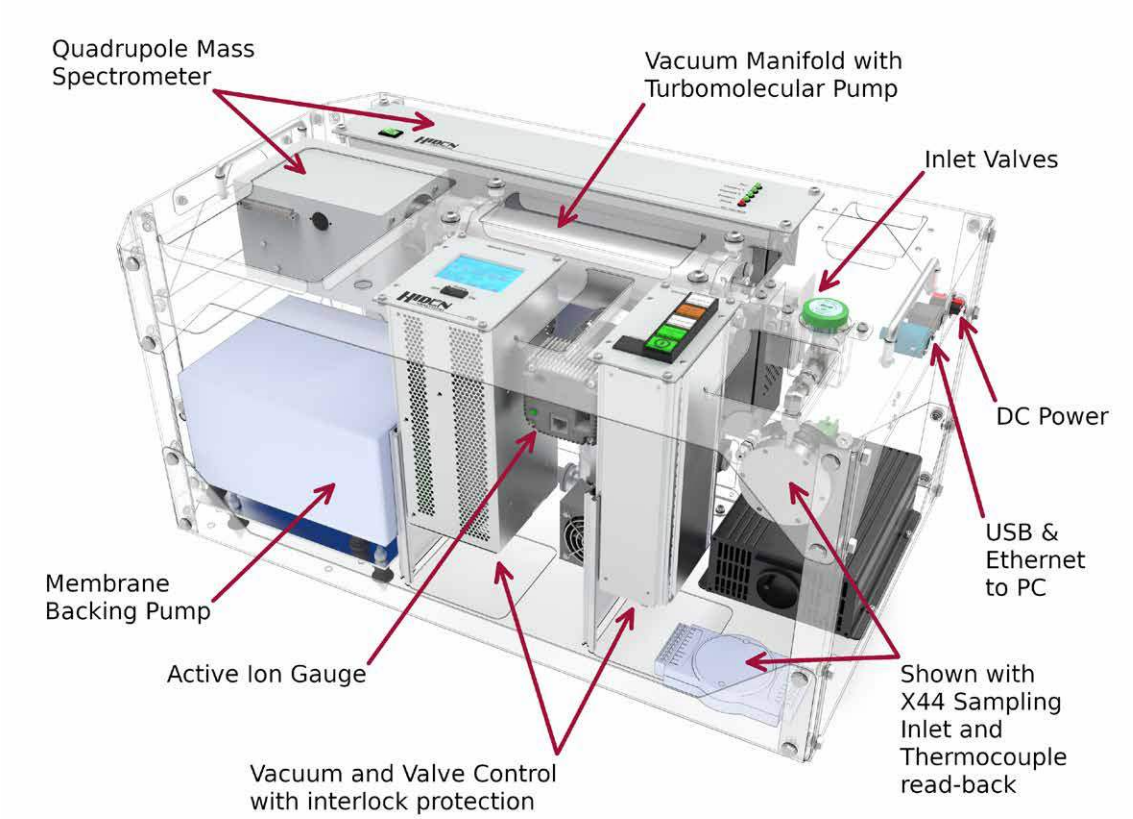
- UK - *University of Bath.*

Ground water study of 5 biologically/chemically inert gases - He, Ne, Ar, Kr, Xe - and their reaction to physical external forces in the environment.

- France - *https://geosciences.univ-rennes1.fr/en/experiments-hydrology-and-hydrogeology-leth2*



Technical data



Mass Ranges:	1-200/1-300 amu
Sensitivity:	100% to 60 PPT
Speed:	Up to 650 measurements/second
Response time:	MIMS direct probe inlet < 60 s T90
Inlets:	Direct MIMS Inlet, recirculating probe and denitrification inlet
Software:	MASsoft Professional + QGA Professional
Dimensions:	Pelican® Case Dimensions:
	Width: 795 mm Depth: 518 mm Height: 394 mm
Weight:	< 40 kg
Power:	120 W / 70 W standby:
	12 V DC or 24 V DC option

System Configuration & Options

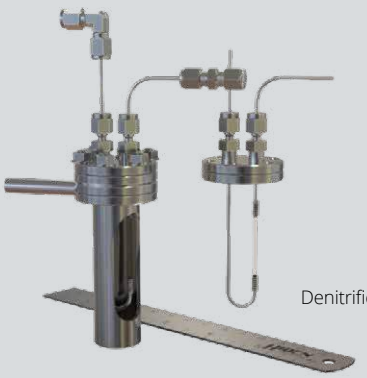
ITEM	DESCRIPTION	PARTCODE
	***p*QA SYSTEM**	
PQ 1.1	*p*QA Portable Gas Analysis System, including Hiden HAL 201 RC mass spectrometer with Faraday/Electron Multiplier detector, Mass Range 200 amu.	**305220**
QC 2.1.1	**Extended Mass Range** 300 amu mass range (in place of standard 200 amu mass range).	**305113**
	SAMPLE INLETS	
GA 3.7.0	Direct membrane inlet probe – 500 mm long.	**303416**
GA 3.7.3g	Flow through probe, circular carrier type inlet, includes X44 membrane selected for high sensitivity to rare earth gases. Includes integrated thermocouple and signal conditioning module.	**303437**
GA 3.7.3h	Flow through probe, low flow design for denitrification studies, including stainless steel U-tube connection.	**303438**



Probe inlet



X44 Inlet Assembly



Denitrification inlet



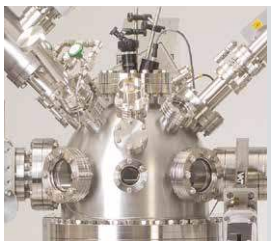
Hiden**APPLICATIONS**

Hiden's quadrupole mass spectrometer systems address a broad application range in:

GAS ANALYSIS

- dynamic measurement of reaction gas streams
- catalysis and thermal analysis
- molecular beam studies
- dissolved species probes
- fermentation, environmental and ecological studies





SURFACE ANALYSIS

- UHV TPD
- SIMS
- end point detection in ion beam etch
- elemental imaging – 3D mapping

PLASMA DIAGNOSTICS

- plasma source characterisation
- etch and deposition process reaction kinetic studies
- analysis of neutral and radical species





VACUUM ANALYSIS

- partial pressure measurement and control of process gases
- reactive sputter process control
- vacuum diagnostics
- vacuum coating process monitoring

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