

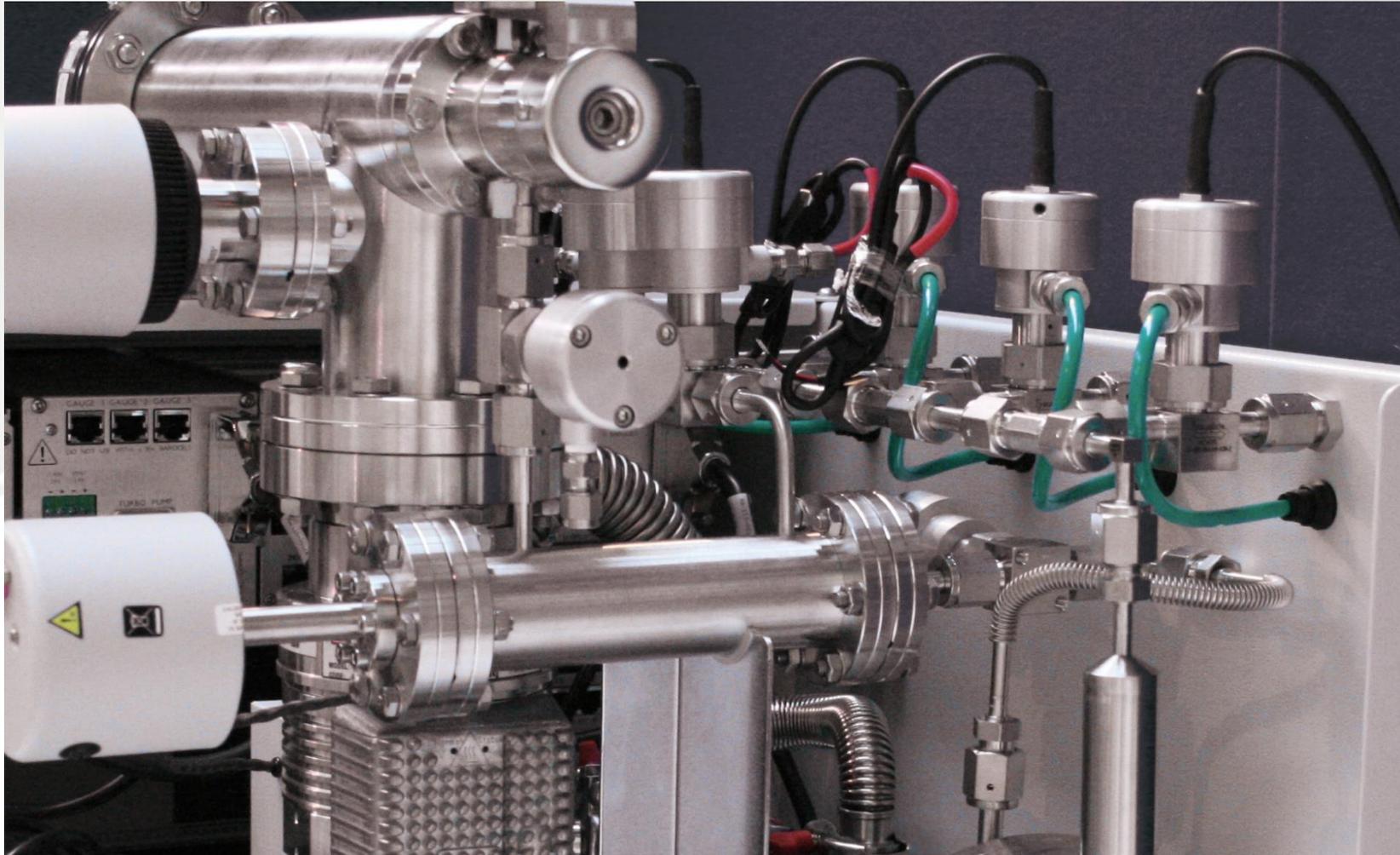
# Hidden HPR-70

A System for Discrete Low Volume Sample Analysis

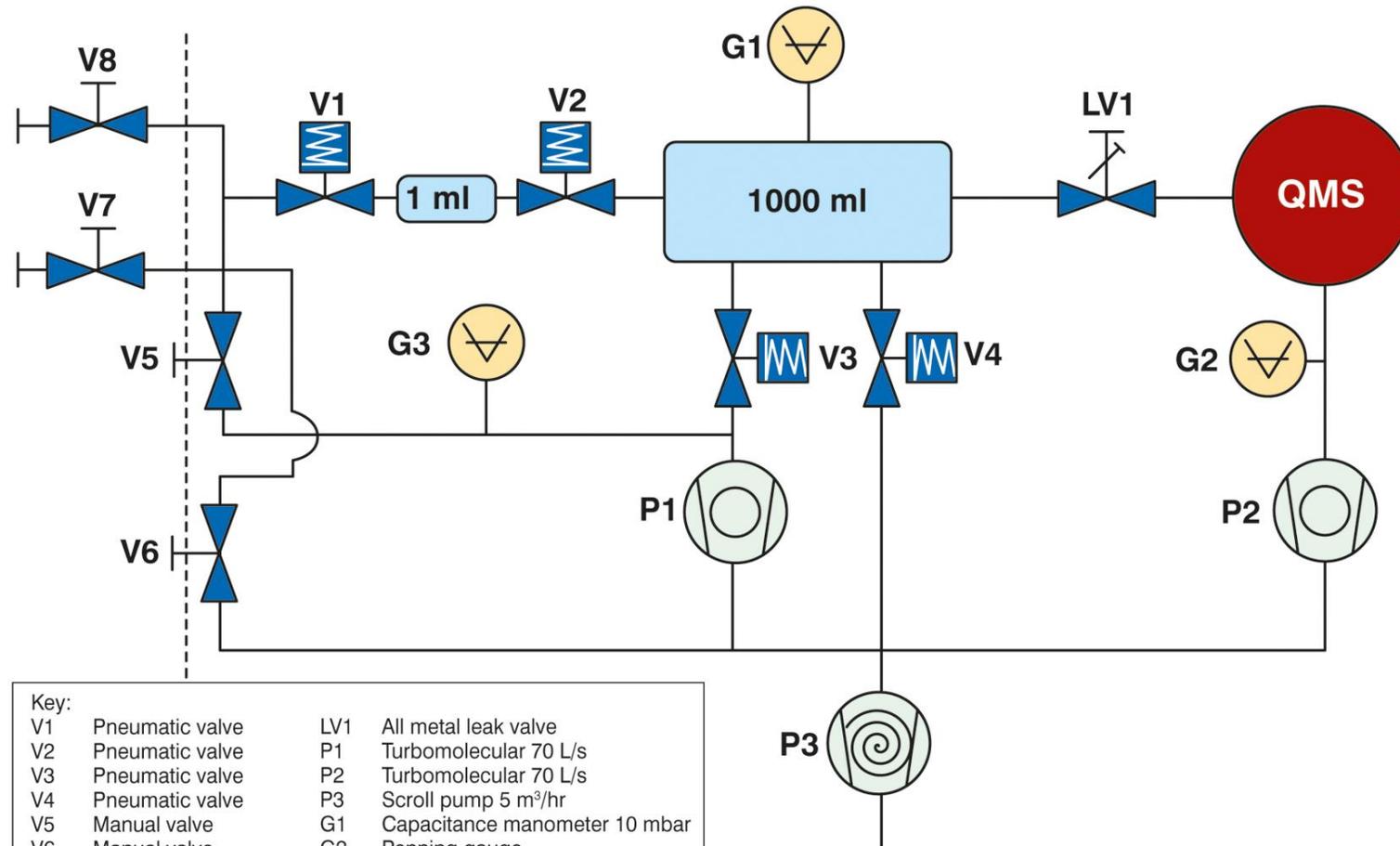
# Introduction

The **HPR-70** system is a compact bench-top gas analysis system for analysis of discrete gas samples. The system includes a batch gas inlet with for sample introduction of sample volumes to 0.2 atm.cm<sup>3</sup>. Sample introduction is via a 1cm<sup>3</sup> dosing volume. Cascade volumes enable sample expansion to a 1 litre reservoir for admission to the mass spectrometer by molecular leak. Sample introduction to the mass spectrometer ioniser is coupled to admit sample direct to the ionisation chamber providing high sensitivity closed ion source operation.

# HPR-70



# HPR-70 Batch Inlet Sampling Schematic



Key:			
V1	Pneumatic valve	LV1	All metal leak valve
V2	Pneumatic valve	P1	Turbomolecular 70 L/s
V3	Pneumatic valve	P2	Turbomolecular 70 L/s
V4	Pneumatic valve	P3	Scroll pump 5 m <sup>3</sup> /hr
V5	Manual valve	G1	Capacitance manometer 10 mbar
V6	Manual valve	G2	Penning gauge
V7	Manual valve	G3	Wide range gauge
V8	Manual valve	QMS	Quadrupole mass spectrometer

# MASsoft Professional Control Software

The screenshot displays the MASsoft 10 software interface, which is used for controlling mass spectrometers. The main window shows a 'Real time trend analysis' plot with SEM (Secondary Electron Multiplier) on the y-axis (log scale from 10<sup>-12</sup> to 10<sup>-4</sup>) and Time (mm:ss) on the x-axis (from 08:20 to 41:40). The plot shows several peaks corresponding to different components: Water, Ammonia, Argon, Carbon Dioxide, Isopropyl alcohol, and Methyl Alcohol.

On the right side, there is a 'Scan Editor' window showing a sequence of scans:

- Scan 1 : mass 2.00
- Scan 2 : mass 18.00
- Scan 3 : mass 32.00
- Scan 4 : mass 40.00
- Scan 5 : Pressure 0.40

Below the scan editor, there is a 'MID Mode' window showing a table of scan parameters:

Component	Mass	Mode	Detector	Range	Au.	Rel Sens	Rel SEM	Colour	Line	Style
Hydrogen	2.00	Unknown	Faraday	-5	✓	0.440	1.000	Aqua	---	Thin sc
Water	18.00	RGA	Faraday	-5	✓	0.900	1.000	Green	---	Thin sc
Oxygen	32.00	Unknown	Faraday	-5	✓	0.860	1.000	Red	---	Thin sc
Argon	40.00	RGA	Faraday	-5	✓	1.200	1.000	Blue	---	Thin sc
Pressure	0.40	RGA	Faraday	-5	✓	1.200	1.000	Fuchsia	---	Thin sc

The interface also includes a 'Quick Start Tasks' panel on the left, a 'Scan Editor' panel, and a 'MID Mode' panel. The bottom of the screen shows the Windows taskbar with the date 29/03/2018 and time 10:42.

A multi-level software package allowing both simple control of mass spectrometer parameters and complex manipulation of data plus control of external devices.

# Application Areas

- Landfill and Environmental Monitoring
  - Nuclear Gas Analysis
- Head Space Measurements
  - Fuel Cell Analysis
  - Geological Samples

# Key Features

- Dual compound turbo pumps and oil-free, totally dry
- Backing pump
- Automatic dosing, expansion and accurate sampling
- Total sample pressure measurement with capacitance manometer
- Optional aliquot filling facility
- 1 litre sample reservoir
- 1 ml injection reservoir
- Optional calibration lines
- Cart mounted version available

# Recent Customers

**James Fisher**  
Nuclear



- James Fisher Nuclear
- University of Liverpool
  - SCK Belgium
  - Bechtel Marine
    - AWE



**sck|cen**



UNIVERSITY OF  
**LIVERPOOL**

# Summary

- Allows analysis of discrete gas samples
- Multi-species analysis – 5 PPB to 100%
- Can be custom configured

- 
- [www.HidenAnalytical.com](http://www.HidenAnalytical.com)
  - The Hiden website is an excellent resource with product pages, brochures, catalogues, product pages with some application notes, presentation and other information.
  - Contact +44 1925 445225 for direct support.