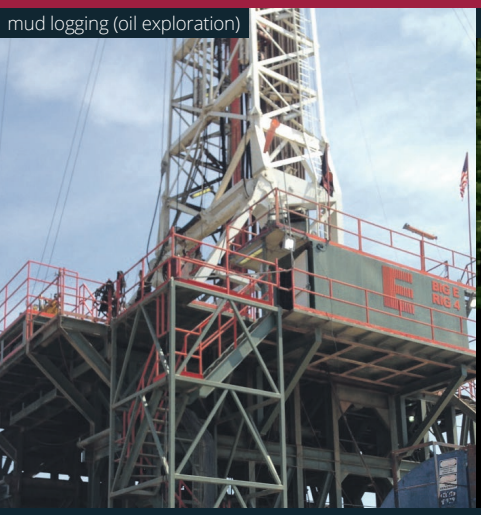
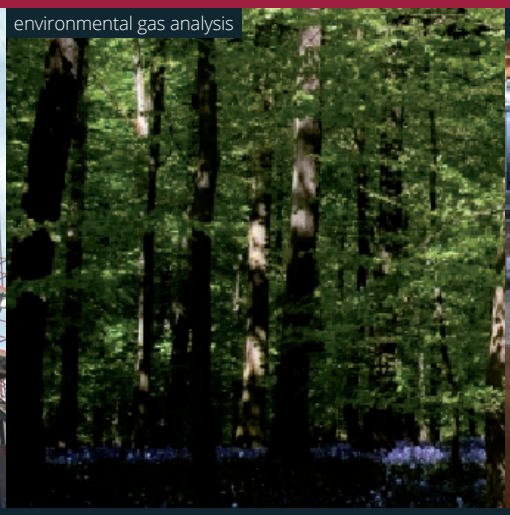
HIDEN ANALYTICAL

ExQ Quantitative Gas Analyser

A compact bench-top system for real-time gas and vapour analysis

Detailed product information / introduction


mud logging (oil exploration)


environmental gas analysis

fermentation off-gas analysis

The Hiden ExQ quantitative gas analysis system is configured for continuous analysis of gases and vapours at pressures near atmosphere in standard form. Inlet accessories are available to configure the system for sampling from low to high pressures, up to 30 bar.

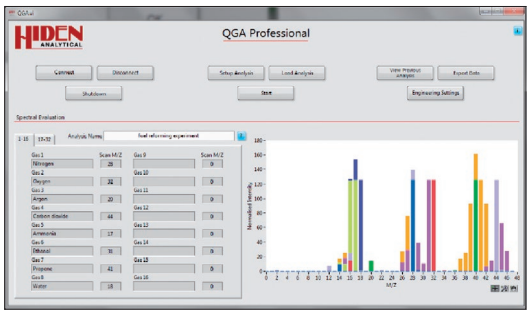
Applications:

- mud logging (oil exploration)
- gas reaction studies
- catalysis
- reaction kinetics
- TPD
- thermal analysis mass spectrometry
- gas purity analysis/contamination studies
- process characterisation
- fermentation off-gas analysis
- environmental gas analysis
- combustion studies
- CVD/MOCVD

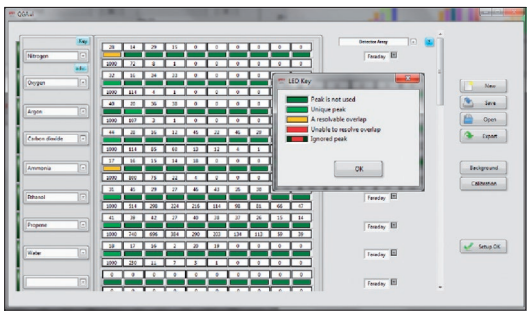
Key Features

- determination of fracking zones, rock porosity, rock layer boundaries and trapped hydrocarbons in mud logging applications
- multiple gas and vapour analysis – 200 amu mass range, 300 amu option
- 2 metre continuous sampling heated capillary inlet
- gas sample flow rate 16 atm. cc/min standard. 1 atm. cc/min option
- quantitative data output and data export
- high sensitivity: detection to 100 ppb
- <300 ms response time to changes in gas concentration
- fast data acquisition: up to 500 measurements per second
- automatic subtraction of spectral overlaps
- integrated CO analyser option for the analysis of low level CO in the presence of N_2 and CO_2
- soft ionisation for reduced spectral fragmentation and simplified data interpretation
- broad range of sampling accessories
- custom designed interfaces available to suit a wide range of TGA instruments for evolved gas analysis

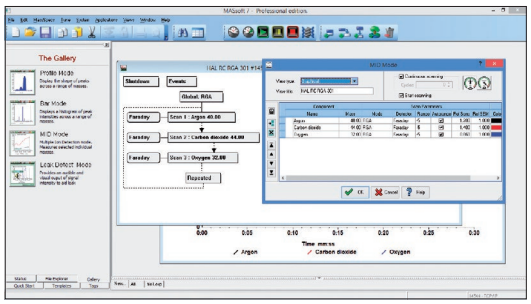
Software



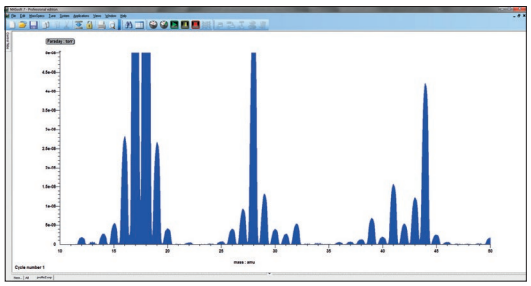
QGA Professional main screen



Automatic mass spectral analysis setup



MASsoft Professional – overview



Mass scan – profile

QGA Professional

An application specific software package for quantitative gas and vapour analysis providing real-time continuous analysis of up to 32 species with concentrations measured in the range 0.1 ppm to 100%.

Key Features – QGA Professional Software

- automatic calibration with background correction
- automatic subtraction of spectral overlaps
- quantitative analysis of up to 32 gases
- 10 peak spectral library with intelligent library scan feature
- automatic triggering of analysis from an external input
- x-axis can display time or an external input, e.g. temperature

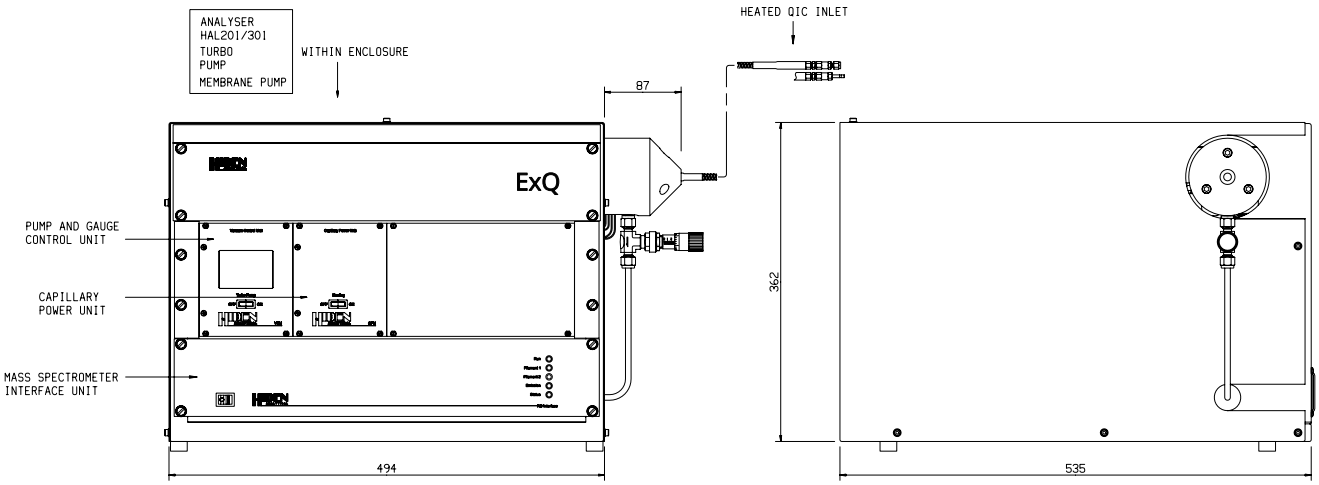
MASsoft Professional

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

Key Features – MASsoft Professional Software

- profile, bar and multiple ion detection (MID) modes
- mass spectrometer ionisation energy control for soft ionisation of complex mixtures
- export data to NIST MS database for analysis of unknowns
- export to external data analysis software, e.g. Excel, Origin
- control of external devices e.g. MFCs, gas switching/sampling valves and furnace PID controllers
- output data as percentage or ppm values
- real-time subtraction of overlapping peaks
- scan templates for fast setup of scans
- user selected alarm facilities

Technical Data



Dimensions in mm

Mass ranges, amu:	1-200 / 1-300 amu
Sensitivity:	100% to 100 ppb subject to spectral interference
Speed:	Maximum measurement speed is 500 measurements/second
Response time:	300 ms
Software:	MASsoft Professional & QGA Professional
	Windows 7/8/10 compatible
Dimensions (L x W x H), mm:	581 x 535 x 362 mm
Power requirement:	100-240 V AC, 50-60 Hz, 1.0 kVA
Interface:	Ethernet/USB/serial (RS-232) connections
Gas consumption rate:	16/8/3.2/0.8 sccm (user configurable)
Capillary operating temperature, °C:	up to 200 standard/300/350/400/450 options
Detector:	Dual Faraday/Channeltron Electron Multiplier
Analogue input:	8x (optional)/16 bit
Analogue output:	16x (optional)/14 bit
Digital input:	8x
Digital output:	8x, 24V

System Configuration & Options

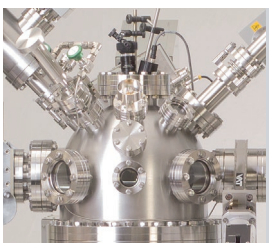
ITEM	DESCRIPTION	PARTCODE
SYSTEM	ExQ Bench-top Gas Analysis System including HAL 201 RC mass spectrometer with Faraday/Multiplier detector. Mass range 200 amu. Includes diaphragm pump. QGA Professional & MASsoft Professional included as standard. Includes standard QIC capillary inlet for operation up to 200°C.	305115
OPTIONS & ACCESSORIES	Extended mass range. 300 amu mass range (in place of standard 200 amu mass range)	305113
	Corrosion resistant upgrade	303604
	CO Analyser 0 - 10.000 ppm range	303595
SPARES KIT	QIC heated capillary inlet filter (2 µm)	303576
	Recommended spares kit ▸ Replacement capillary liner ▸ Replacement Platinum leak orifice ▸ Twin filament	303147
GAS INLET OPTIONS	QIC HT 250 high temperature capillary inlet - 250°C	303561
	QIC HT 450 very high temperature capillary inlet - 450°C	303568
	LP-SSC Low pressure capillary - 25 mbar to 250 mbar	303564
	VLP-GLC very low pressure sampling capillary - 1 mbar to 10 mbar	303558
	QIC inlet adapters for TA-MS - Custom designed interfaces to suit a broad range of TGA instruments for evolved gas analysis	303580-585
MULTI-STREAM SELECTOR MANIFOLDS	MSV 8-way multi-stream valve	303688
	20-way Proteus multi-stream valve	303650
	40-way Proteus multi-stream valve	303660
	80-way Proteus multi-stream valve	303670
SOFTWARE OPTIONS	EGAsoft - application specific software program for evolved gas analysis, TA-MS and TPD studies	800295

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

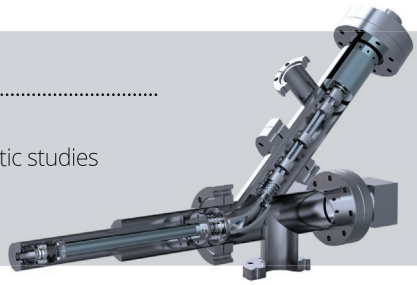


SURFACE ANALYSIS

- 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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