



# QGA 2.0 Next Generation Gas Analyser

► The latest advancement in gas analysis technology

# Introduction



**A compact bench-top gas analyser configured for real-time, multi-species analysis with wide dynamic range – 100 ppb to 100%**

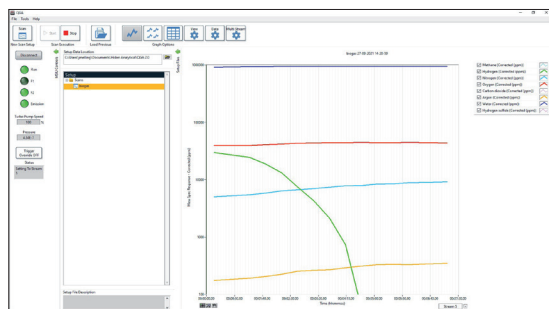
## Applications:

- ▶ Carbon capture
- ▶ Hydrogen analysis
- ▶ Environmental monitoring
- ▶ Gas production and storage
- ▶ Fuel cell studies
- ▶ High purity gas analysis
- ▶ Fermentation off-gas analysis
- ▶ Thermal analysis
- ▶ Gas reaction studies
- ▶ Catalysis
- ▶ TPD/R/O

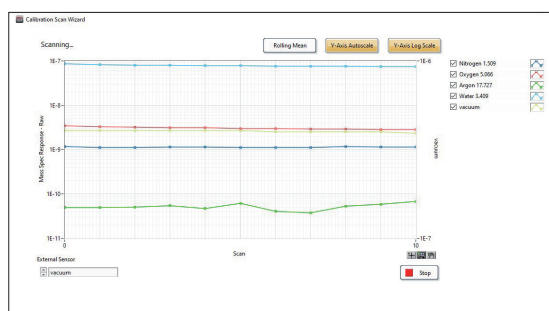
## Key Features

- ▶ **Sensitivity:** Detection from 100 ppb to 100%.
- ▶ **Response:** Less than 300 ms response time.
- ▶ **Precision:**  $\leq \pm 2\%$  RD.
- ▶ **Performance:** Capable of 1000 measurements per second with a 7 decade dynamic range.
- ▶ **Lightweight & Compact Design:** Weighing less than 30 kg with a 42% smaller footprint than the QGA system.
- ▶ **Simplified Start-up:** Single button combines pump down and MS electronics start.
- ▶ **Advanced Electronics Package:** The redesigned electronics package ensures enhanced functionality and easier servicing.
- ▶ **Compatibility:** The QGA 2.0 is compatible with a range of interfaces.
- ▶ **Hydrogen-Compatible Vacuum System:** With optional high performance gas dilution and purge function.
- ▶ **QGA 2.0 Software:** Customised software package for quantitative gas analysis.
- ▶ **Sustainability:** The QGA 2.0 is more environmentally friendly, utilizing fewer materials in its construction.

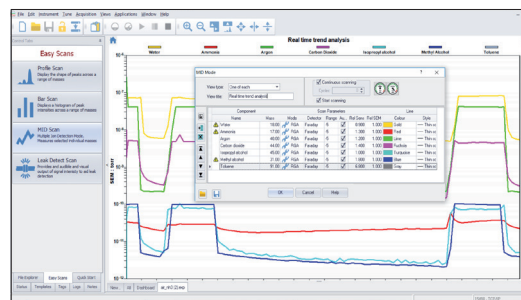
# Software



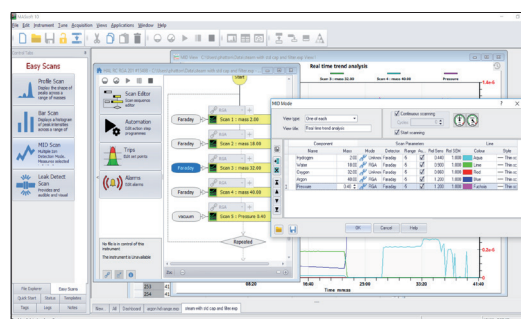
QGA 2  
Software  
Homescreen



QGA 2  
Software  
Calibration



MASsoft  
Professional  
– Overview



Trend Analysis  
(MID Setup)

## QGA 2

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

- ▶ 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

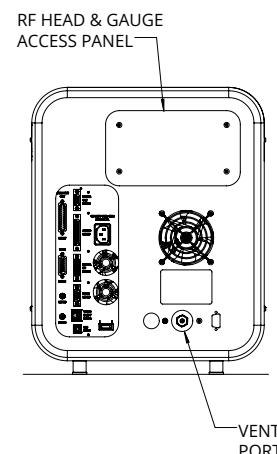
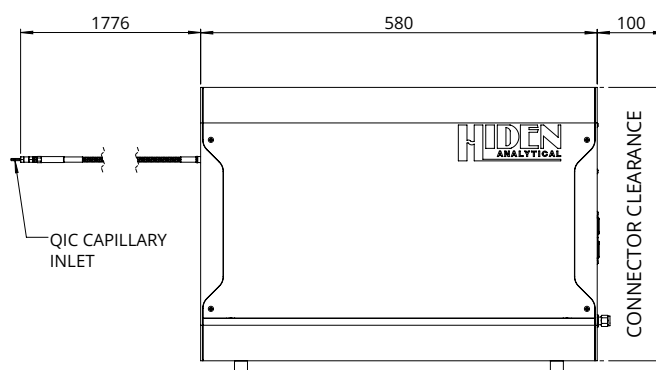
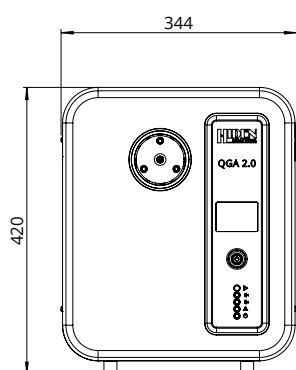
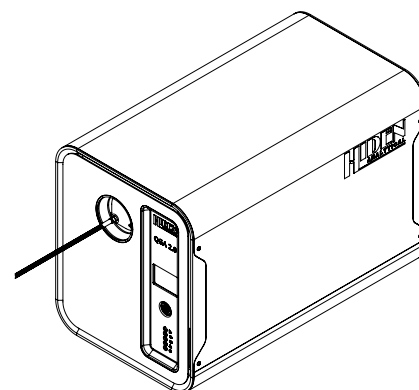
## MASsoft Professional

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

- ▶ 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



|                                             |                                                             |
|---------------------------------------------|-------------------------------------------------------------|
| <b>Mass ranges:</b>                         | 1-200 / 1-300 amu                                           |
| <b>Sensitivity:</b>                         | 100% to 100 ppb subject to spectral interference            |
| <b>Speed:</b>                               | Up to 1000 measurements/second                              |
| <b>Response time:</b>                       | 300 ms                                                      |
| <b>Software:</b>                            | QGA 2 Software & MASsoft Professional<br>Windows compatible |
| <b>Dimensions (L x W x H), mm:</b>          | 580mm x 344mm x 420mm                                       |
| <b>Weight, kg:</b>                          | 29.5kg – 33.5kg, depending on configuration                 |
| <b>Interface:</b>                           | Ethernet/USB/serial (RS-232) connections                    |
| <b>Gas consumption rate:</b>                | 16/8/3.2/0.8 sccm (user configurable)                       |
| <b>Capillary operating temperature, °C:</b> | Up to 200°C                                                 |
| <b>Detector:</b>                            | Dual Faraday/Channeltron Electron Multiplier                |

# System Configuration & Options



| ITEM                            | DESCRIPTION                                                                                                                                                                                                                                                                                   | PARTCODE   |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| SYSTEM                          | QGA 2.0 bench-top gas analysis system, including Hiden HAL 201 RC mass spectrometer with Faraday Multiplier detector. Mass range 200 amu. Includes internal membrane pump. QGA 2 & MASsoft Professional included as standard. Includes standard QIC capillary inlet for operation up to 200°C | 305150     |
| OPTIONS & ACCESSORIES           | Extended mass range. 300 amu mass range (in place of standard 200 amu mass range)                                                                                                                                                                                                             | 305113     |
|                                 | High performance external scroll pump                                                                                                                                                                                                                                                         | 303750     |
|                                 | Gas dilution with inert gas purge                                                                                                                                                                                                                                                             | 303601     |
|                                 | Corrosion resistant upgrade                                                                                                                                                                                                                                                                   | 303604     |
|                                 | CO Analyser 0 - 10,000 ppm range                                                                                                                                                                                                                                                              | 303595     |
|                                 | QIC heated capillary inlet filter (2 µm)                                                                                                                                                                                                                                                      | 303576     |
| SPARES KIT                      | Recommended spares kit<br>▶ Replacement capillary liner<br>▶ Replacement leak orifice<br>▶ Twin filament                                                                                                                                                                                      | 303147     |
| INTERFACE OPTIONS               | 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                | EGAssoft - application specific software program for evolved gas analysis, TA-MS and TPD studies                                                                                                                                                                                              | 800295     |



# Hidden**APPLICATIONS**

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

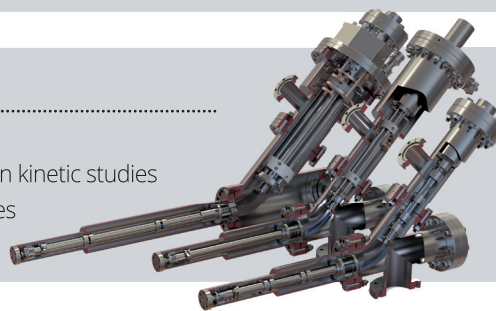
## **GAS ANALYSIS**

- ▶ 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
- ▶ ToF qSIMS and SIMS analysers
- ▶ 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

# **HIDEN**

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