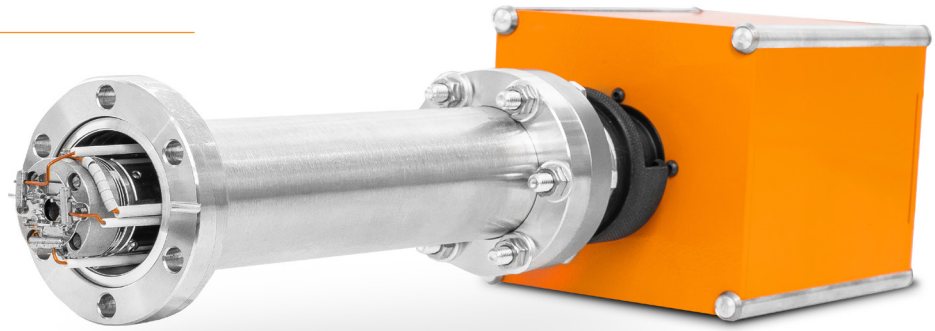
ProtaR

The ProtaR Residual Gas Analyser (RGA) from Protea represents the smallest footprint electronics and maximum performance for value of any RGA on the market



Protea's ProtaR RGA is a compact, stable and robustly designed Quadrupole Mass Spectrometer (QMS) instrument incorporating all the latest Quadrupole technology. ProtaR is a useful analytical tool for testing and residual gas analysis in leak testing, semi-conductor, coating and process applications, being able to detect and measure almost all gases with low detection limits and fast response. A mass spectrometer measures the mass-to-charge ratio of the molecules in a sample and by collecting and analysing the mass spectrum we can identity and quantify which molecules are present. The QMS within ProtaR contains a mass filter that is made up of 4 parallel circular rods, hence the name quadrupole.

- Very quick (millisecond) response time
- Detects almost any gas
- Low maintenance costs, with corrosion resistance inlets
- Advanced chemometrics for multi-gas quantification

Smallest footprint offering the greatest temperature stability

24-bit sampling as standard

Faraday and C-SEM detector as standard

6 decades of dynamic range

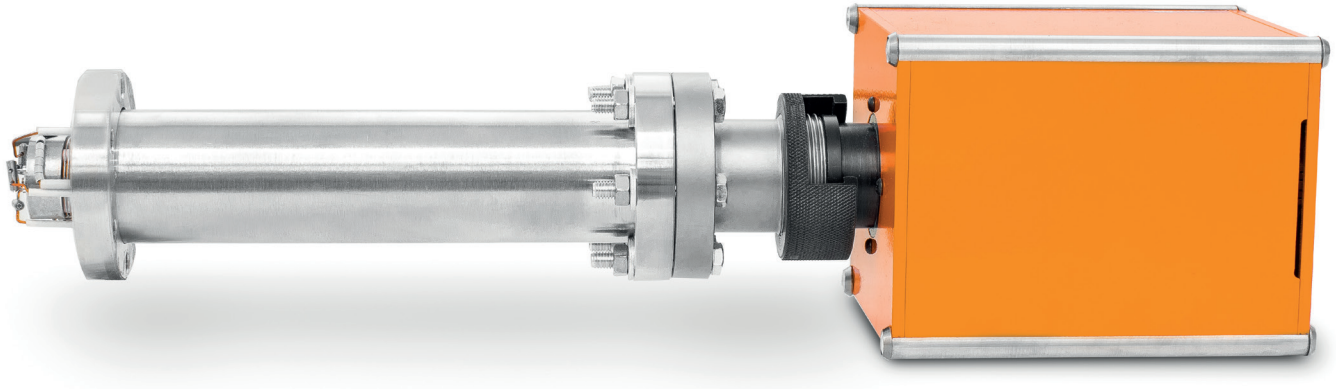
Ethernet connection, direct or Network controlled

Data saved as .csv. Spectra saved as .csv, .spc, .dx format

Windows software with OPC, Modbus protocols

Application Overview

- Vacuum Furnaces
- Semi-Conductor Processes
- Metalurgy
- Research and Development
- Vacuum Process
- Integration with existing vacuum systems



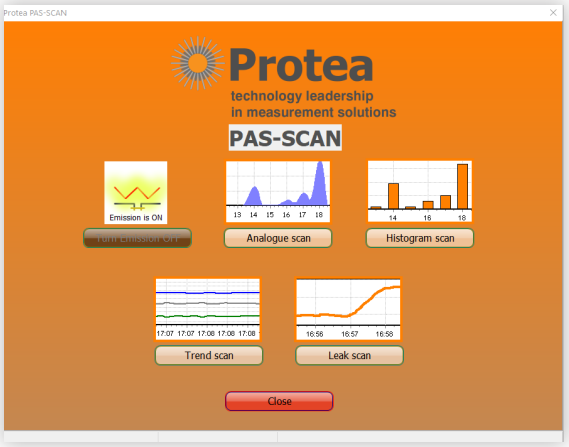
ProtaR

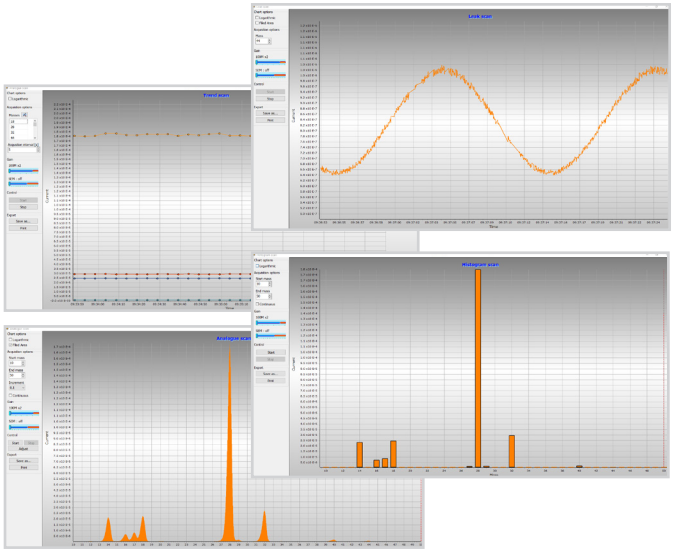
RGA Software

PAS-Scan software included

ProtaR is supplied with free PAS-Scan software for RGA peak analysis. This simple to use software allows for Analogue, Histogram, Trend and Leak scans to be taken quickly and simply. Scans can be carried out a signle mass (leak detection), specific masses (mass jumping) or as a full analogue scan over the mass range of the RGA. The mass spectra can be plotted on linear or logarithmic scales.

Individual RGA settings can be saved to the electronics of the RGA or can be saved to an .xml file. This allows a single network PC to connect to multiple RGA with different settings. Replacement electronics can be provided to give redundancy and coverage across multiple RGA installations.





PAS-Scan software allows quick and simple recording of Analogue, Mass Trend, Histogram and Leak Scans

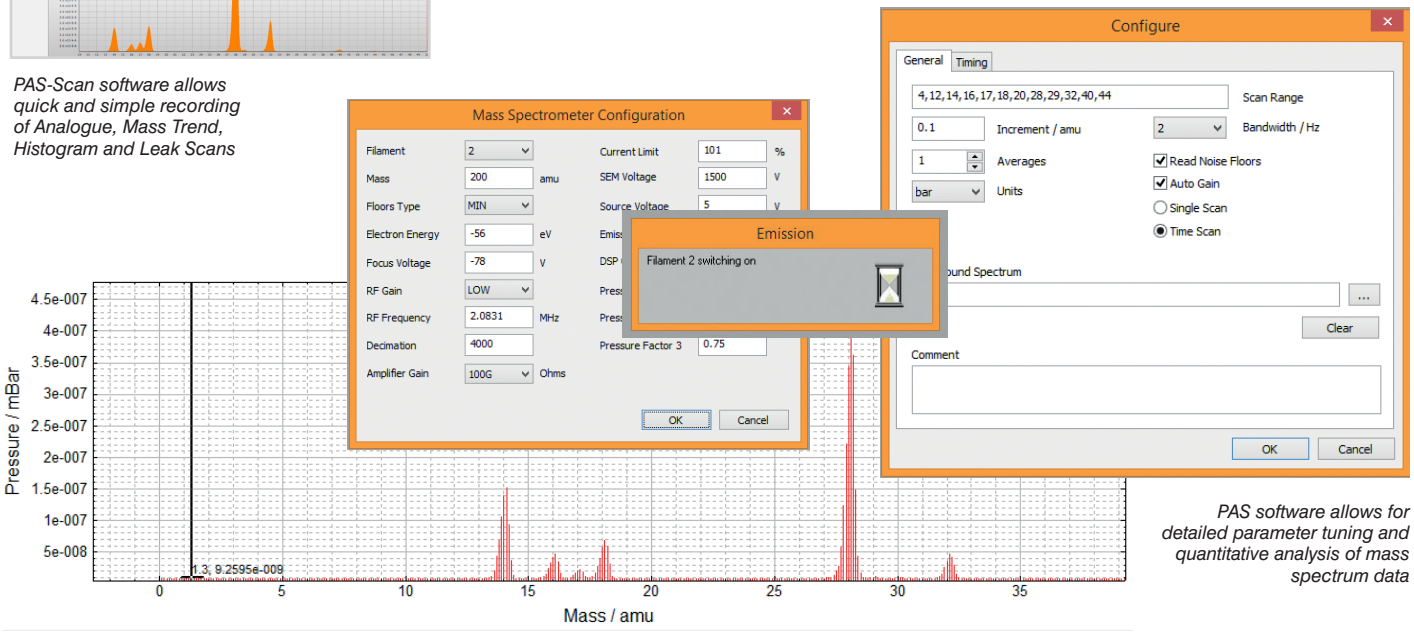
PAS Analytical software

For analytical applications requiring quantified concentration measurements, the more comprehensive PAS software can be provided. PAS allows for the same range of single or multiple mass measurements. Dynamic analysis can be applied, as a minimum just using a simple univariate peak height analysis of specific masses. This will provide an online trend in raw units or partial pressure, ion current or as a concentration measurement in ppb, ppm, mg/m^3 or %Vol.

Normalisation of mass spectra for base peak normalisation or sum to unity normalisation can be applied, as well as baseline and background subtraction.

A full quantification analysis can be carried out using a number of methods: univariate peak height compensation, multivariate CLS and multivariate PLS analysis.

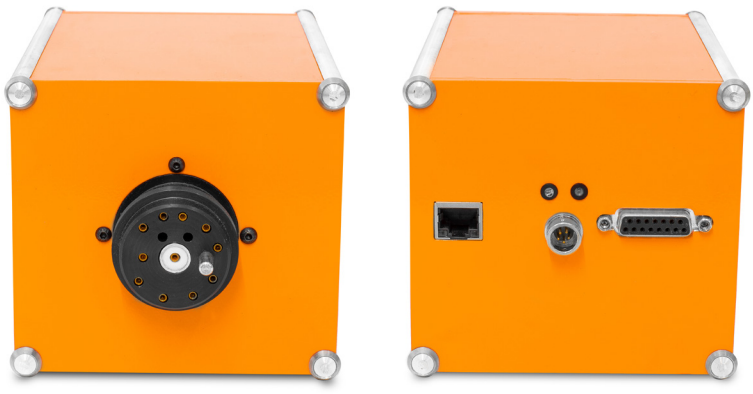
There is **no limit** to the number of masses or gases that PAS can analyse for.



PAS software allows for detailed parameter tuning and quantitative analysis of mass spectrum data

Hardware Specifications

Mass Range	0-100amu	0-200amu(standard)	0-300amu (Triple Quadrupole required)
Detector	Faraday and C-SEM, both as standard		
Ion Source	Open ion source (standard) Closed ion source (option)		
Filament(s)	Dual filament with auto-switchover on failure Thoria coated Iridium (standard)		
Resolution	1 amu FWHH		
Minimum Detection	Faraday: 1 x 10^{-10}mbar ; C-SEM: 1 c 10^{-14} mbar		
Maximum Operating Pressure	Faraday: 10-4 mbar, C-SEM: 10-5 mbar		
QMS Max. Temp.	60°C (operating) 200°C (bake out, with electrometer dismounted) Thermal extended option if running hot		
Electronics Temp. Range	0 - 40°C		
Ion inlet settings	Electron Energy: -40 – -105eV Ion Energy: 5 – 12V Focus Voltage: 0 – -150V Emission Current: 0.5mA – 3mA Soft Ionisation Option, please contact		
Measurement Speed	Analogue Scan: 100 - 60 s/amu Mass Jump/Leak Rate: 100ms		
Insertion Depth / Overall Length	220mm / 265mm (use of stainless steel tube / cover nipple for smaller insertion depths)		
Mounting Flange	DN40 CF		
Connection	0° or 90°		
Electrometer Dimensions	137 x 110 x 101		
Power	Mains input voltage: 24vDC Power consumption <3A		
Weight	QMS Analyser – 900g Electrometer – 1.5kg (not including guard tube)		
I/O	1 x 0-10V Total Pressure Gauge input Vacuum Interlock available		
Communications	Ethernet RJ45		



Electronics module store sensor parameters, RJ45 Ethernet as standard and come with Digital IO

Exchangeable electronics can be connected easily to quadrupole with quick fit connection

ISO 9001:2015 Management System
TÜVRheinland CERTIFIED
www.tuv.com ID 9108637504

This Datasheet is a guide to the product and Protea Ltd reserve the right to modify the product without notification.