



Online Gas Mass Spectrometer PM-QMS

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Instrument Introduction

The new generation of high-performance, cost-effective online gas mass spectrometers, designed for real-time, online qualitative and quantitative analysis of gases.



Instrument Dimension ●



Product Features ●

1. Millisecond response time, millisecond scanning speed for fast online analysis.
2. Faraday cup/electron multiplier dual detector with high sensitivity for a wide range of detection from 100% to ppb.
3. Professional analysis software, multi-component sampling, to achieve qualitative and quantitative analysis of gases.
4. Temperature-controlled inlet pipeline, effectively preventing the inlet gas from condensing during the inlet process.
5. Heated mass spectrometry chamber can effectively reduce the interference of background gas.
6. Multiple input and output signals can be used with external instruments to achieve automation control.
7. Features integrated filament pressure protection to significantly prolong filament service life.
8. Fully customizable sampling interface featuring integrated gas pre-treatment and scalable multi-channel detection to meet specific application requirements.

Instrument Core Components

Gas sampling device: 1m long sampling capillary, external heating jacket, maximum heating temperature of 200°C (adjustable), two-stage pressure reduction

01

The analytical core features an ultra-high vacuum (UHV) stainless steel chamber with an internally polished finish to minimize surface adsorption. Equipped with an integrated external heating jacket (up to 200°C), the chamber supports regular bakeout cycles to eliminate residual gases and significantly reduce background interference.

03

Mass Analyzer: High-performance Quadrupole with dual Faraday Cup/Electron Multiplier detectors. This configuration ensures a wide dynamic range, supporting both bulk gas monitoring and ppb-level trace analysis.

05

Equipped with a dual-channel temperature controller for independent, high-precision heating of both the mass spectrometry chamber and the sample injection assembly

07

Vacuum system: a high-performance turbomolecular pump backed by an oil-free diaphragm dry pump, with the entire system monitored and managed via an intuitive integrated touch-screen interface.

02

The system features a high-efficiency Electron Impact (EI) ion source equipped with dual filaments. Users can select between Iridium or Tungsten filament materials depending on their application. To ensure maximum longevity, the source includes redundant protection circuits for both emission current and vacuum pressure.

04

Windows-based control suite enables comprehensive multi-channel gas monitoring with advanced algorithms for both qualitative identification and precise quantitative analysis.

06

Instrument Specifications

Mass Analyzer	Quadrupole
Ion source	Electron Ionization (EI)
Mass Range	1-100amu/1-200amu/1-300amu (selectable models)
Filament	Ir Y ₂ O ₃ , 2 filaments
Minimum Detection Limit	<50ppb
Sensitivity	≥5 x 10 ⁻⁴ A/mbar (Faraday)
Resolution	>0.5amu
Maximum working pressure	<5 x 10 ⁻⁴ mbar(Faraday)
Ion energy adjustment range	15-102 eV.
Molecular pumping speed	≥67 L/s
Pre-stage pump	Oil-free dry pump
Max heating temperature of sampling tube & Ion source chamber	200°C
Response time	<300ms
Maximum measurement channels	200
Scanning time	1ms-16 s/amu
Operating software	Multi-channel gas detection for qualitative and quantitative analysis
Supply voltage	220 V AC, 50/60 HZ

Versatile Analytical Applications

The PM-QMS offers seamless TGA-MS coupling, enabling rapid, real-time characterization of evolved gas products during thermogravimetric analysis. The system supports synchronous triggering and the direct import of temperature profiles, ensuring precise correlation between mass loss events and chemical species identification.



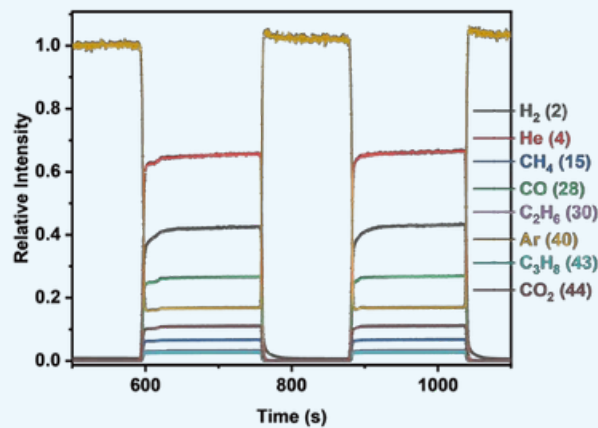
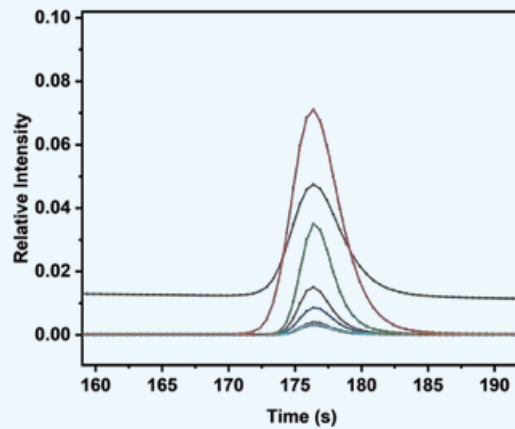
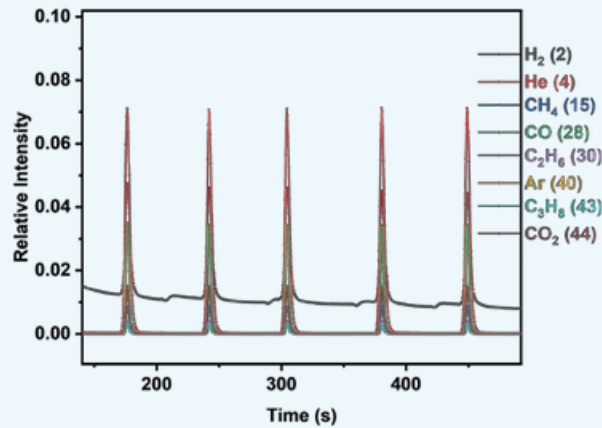
The PM-QMS integrates seamlessly with chemisorption analyzers for the real-time qualitative and quantitative monitoring of evolved gases during Temperature Programmed Desorption (TPD/TPR/TPO). The system features hardware-level synchronous triggering and temperature signal integration, allowing for the precise mapping of desorption kinetics.



Measurement Results & Data Analysis

The data demonstrate high-resolution real-time tracking of multiple gas components, including: H₂ (2), He (4), CH₄ (15), CO (28), C₂H₆ (30), Ar(40), C₃H₈ (43) and CO₂ (44).

Key performance: High baseline stability and clear peak resolution during dynamic reaction processes.



20 sccm Ar

Strategic Partners & Users



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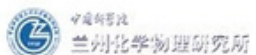
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