



Process Mass Spectrometer, Model AIRSENSE Compact

On-Line Analysis of Raw Emissions and Trace Gas Components

Unique Combination

Research and development have come up with more and more complex technologies that require a flexible analysis which can only be achieved through a useful combination of various analytical procedures.

In order to be flexible enough to have further room for improvements, various measurement principles are needed to cover all the analytical techniques across the process.

Unlike others using a number of single analyzers, the real time parallel measurement of limited and unlimited gas components has been achieved by combining two mass spectrometers in one single housing, called the **AIRSENSE Compact**.

The synchronised double mass spectrometer consists of the Ion Molecule Reaction principle (IMR) combined with the Electron Pulse Ionization principle (EIMS) in which the complete system is now covering an enhanced application range.

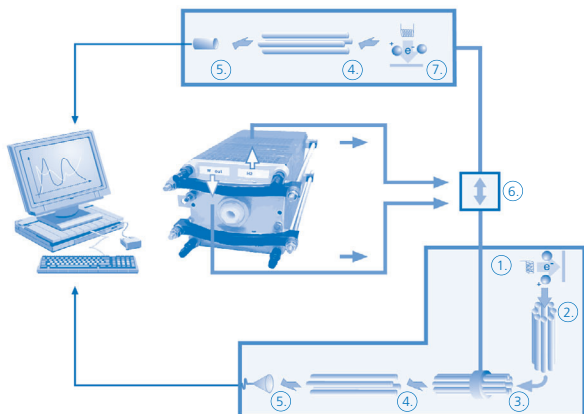
Dynamic Range

This unique combination of two different analytic principles - known as the **AIRSENSE Compact** - leads towards a wide dynamic range, user friendly, compact and easy to use monitoring system.

Optimized Operational Cost

Optimized serviceability and minimum operational costs reflect the more than 15 years of experience and development steps within the IMR-Mass Spectroscopy.

An user friendly software package combines both of the mass spectrometer configurations and data reporting issues. Unlike others, it is not necessary to overlap monitoring data afterwards.



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|-------------------------------|---------------------------|---------------------|
| 1. IMR-Primary Ion Source | 3. Charge Exchange Cell | 6. Gas Inlet System |
| 2. Octopole Separation Device | 4. Quadrupole Mass Filter | 7. EIMS-Ion Source |
| | 5. Particle Detector | |

Principle of Operation

Targeting the specific needs within R&D applications, the series **AIRSENSE Compact** is a combination of the well proven analytic technologies in one single housing.

The **AIRSENSE Compact** is a double mass spectrometer featuring the Ion Molecule Reaction (IMR) Mass Spec plus the Electron Pulse Ionization (EIMS) Mass Spec principle, housed in a user friendly system.

By using the IMR principle, primary ions with lower energy levels are used to completely ionize the probe gas molecules. The quadrupole mass filter (0-500 amu) then separates the molecules for further detection at the fast pulse counter.

To measure raw and trace gas components simultaneously within one system, we combine the EIMS principle with the IMR in one single housing which is now reflecting an intelligent and easy to use multi component system being able to measure the leading components N₂, He, H₂, CO₂ and Ar at the same time as the trace gases.

The temperature and pressure compensated sample gas inlet guarantees the correct measurement and avoids discrimination of the gas. Any contamination due to condensation or particulate matters is minimized.

Features Functions Benefits

- Multi Component Analyzer, High Selectivity,
 - On-Line Measurement of raw gas and trace analysis,
 - Fast Response Time, Optimized Operational Cost, Compact Dual MS

Technical Data

	EIMS	IMR		EIMS	IMR
Mass range	0 – 100 amu	0 – 500 amu	Ambient temperature	20...40 °C	
Lower detectable limit	0 – 100 %	0 – 10.000 ppm	Temperature change	max 1 °C/h	
Analysis time	< 500 msec	< 100 msec	Humidity	max. 80 %, (non condensing)	
Detection limit	< 0,002 % Hydrogen	< 10 ppb Benzene	Gas consumption	30 – 250 ml/min	
Drift	< ± 5 %	< ± 5 %	Gas inlet temperature	80°C – 190°C adjustable	
Measurement range	10 ³	10 ⁴	Power	220 V/50 Hz or 115 V/60 Hz, 900 W	
Reproducibility	< ± 5 %	< ± 5 %	Dimensions	590 x 650 x 860 mm	
Accuracy	10 % CO ₂ < ± 2 %	1ppm Benzene < ± 2 %	Weight	97 kg	

