



OMNISTAR®/THERMOSTAR®

The next generation in efficient solution for gas analysis.
Intelligent software. Easy operation. Compact design. Customization possible.

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What are OmniStar® and ThermoStar®?

OmniStar and ThermoStar are compact benchtop analysis systems for sample gases at, or below atmospheric pressure. They are the perfect complete solution for gas analysis, especially in chemical processes, the semiconductor industry, in metallurgy, fermentation, catalysis, freeze drying and environmental analysis.

The analysis systems consist of an inlet system, a PrismaPro mass spectrometer, a dry-compressing diaphragm vacuum pump MVP and a HiPace turbopump.

The gas inlet is equipped with a capillary that can be heated to 350°C; this capillary is made of stainless steel in the OmniStar and of quartz glass in the ThermoStar. The heated capillary prevents vapors from condensing during analysis of the sample gas. This 2-stage inlet enables a quasi segregation-free gas supply.

The PV MassSpec mass spectrometer software enables qualitative and quantitative analyses. The systems cover the mass ranges of 1-100 amu, 1-200 amu and 1-300 amu

ThermoStar® – Special solution

The ThermoStar solution was specifically developed for coupling with thermo balances. The inlet system incorporates a quartz capillary and platinum orifice, assuring that even minute concentrations can still be analyzed. In contrast to competitive analysis methods, such as FTIR and IR, it is possible to detect all gases within the mass range.



Freeze drying



Catalysis



Environmental analysis



Advantages at a glance

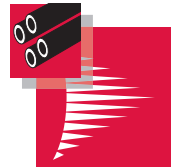
- Qualitative and quantitative gas analysis, connection port for calibration gas inlet systems
- Low detection limit (< 100 ppb), even for condensable gases
- Compact, easy-to-operate analysis unit with 7" colored touch screen or Web User Interface
- Heated capillary inlet, up to 350°C
- Bakeable all-metal sealed high vacuum chamber for low backgrounds
- Customized versions possible, e.g. pressure controlled inlet, special inlet systems, special housing designs
- Mass ranges of 1 to 100 amu, 1 to 200 amu and 1 to 300 amu
- Fast, reliable and precise measurement of non-polar and noble gases
- Soft Ionization option (15–100 eV)
- Compact and portable (approx. 23 kg total weight)
- Low gas consumption (1–2 sccm)
- Fast measuring time (up to 1 ms/amu dwell time)

PV MASSSPEC

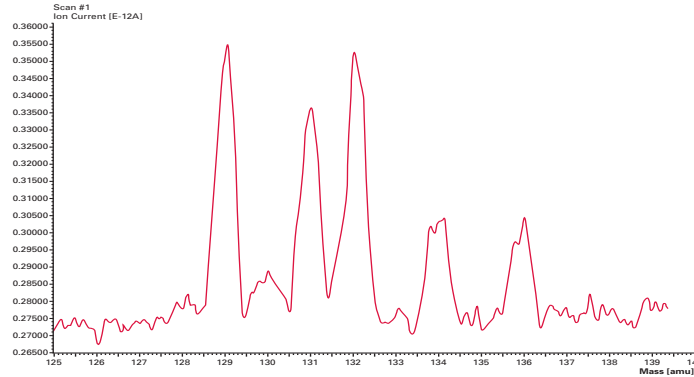
Software for total analysis

PV MassSpec analysis software

The PV MassSpec software has been specifically developed for the PrismaPro and offers an easy-to-read, user-friendly platform for capturing and visualizing measured data and parameter records. Complete measurement procedures can be programmed.

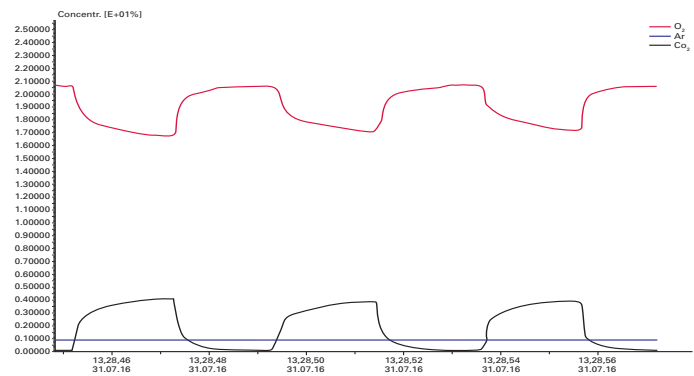


Xe in air/OmniStar®



The graph (mass range 125–140 amu) shows the xenon isotopes and the excellent detection limit of the OmniStar. Xenon has stable isotopes at 129, 131, 132, 134 and 136 amu. The concentration of ^{136}Xe in air is 7.8 ppb.

Respiratory Gas Analysis/OmniStar®



Three breathing cycles of an endurance test. The breath is characterized by the gases O_2 and CO_2 . The argon in the air serves as a reference gas for demonstrating the stability of the system. Very quickly measured by the OmniStar at atmospheric pressure in the Multiple Concentration Determination (MCD) mode.

Advantages at a glance

- User-friendly, intuitive operation
- Automated measurement routines via included sequencer
- Leak detection and vacuum diagnosis with just one click
- Automatic calibration and tuning
- Simple definition of measurement recipes
- Mass spectrometer data can be linked with external signals (e.g. external trigger signal)

THERMOSTAR®

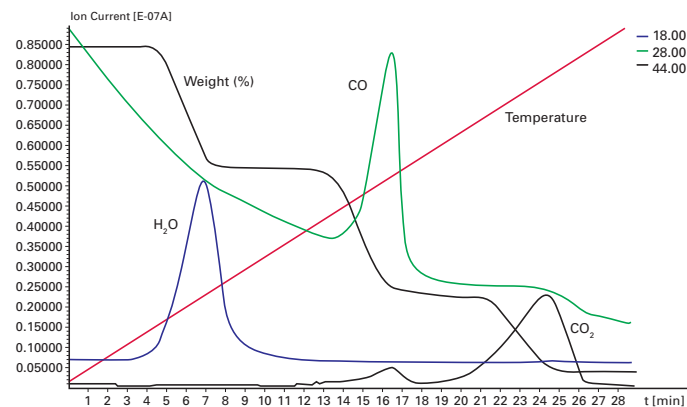
The special solution in connection with thermo balances.

ThermoStar®

The ThermoStar gas analysis unit is a version that is specially designed for being coupled with thermo balances. Hightemperature gas samples can be introduced by means of a quartz capillary.



TGA-MS



The gases water vapor (18), carbon monoxide (28) and carbon dioxide (44) that evolve when conducting a thermal analysis of calcium oxalate are shown as a function of time together with weight and temperature.

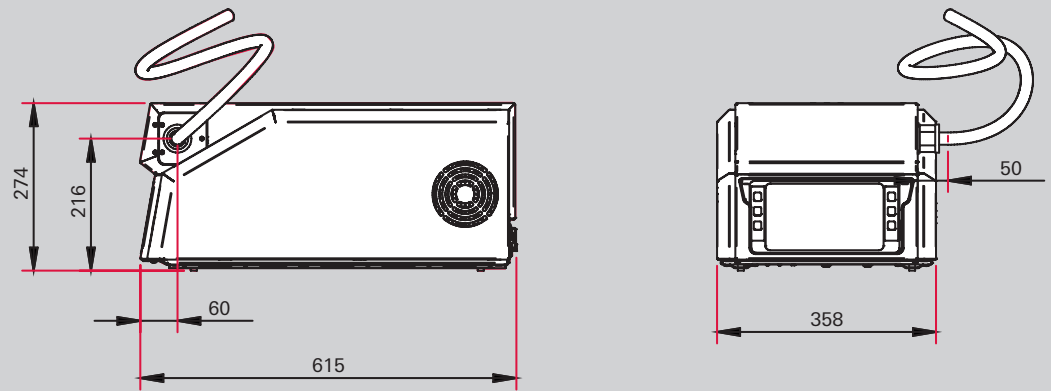
Advantages at a glance

- Even small concentrations of reactive and condensable gases can be detected
- Inert inlet, no change in gas composition
- Gas inlet heatable up to 350 °C
- Multi-gas analysis

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Dimensions

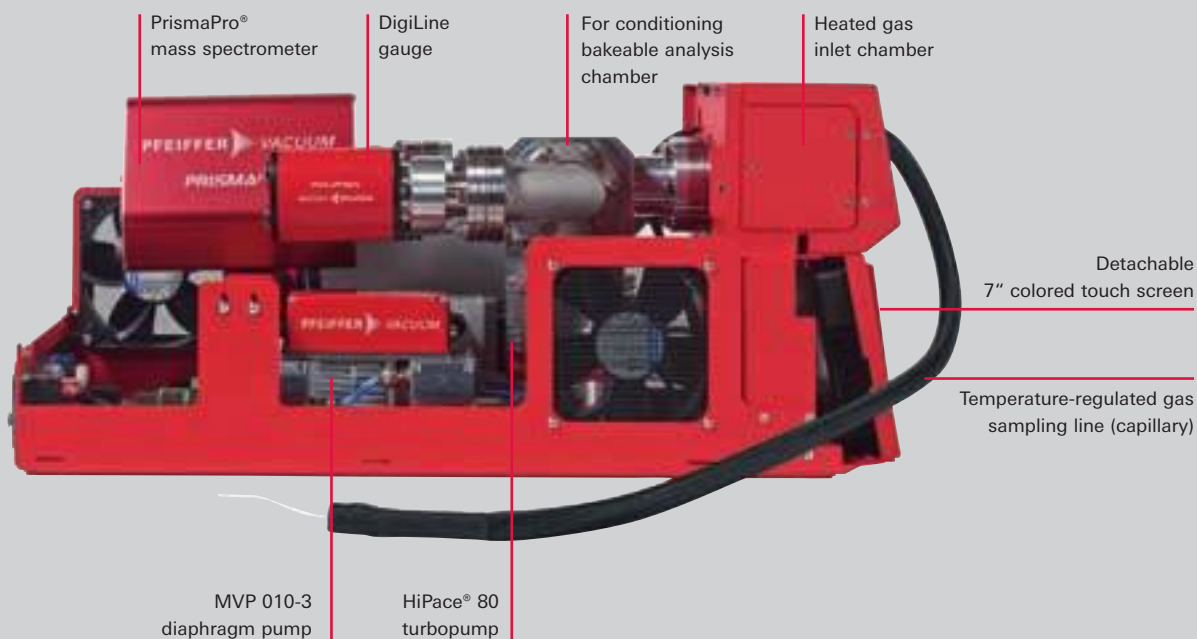
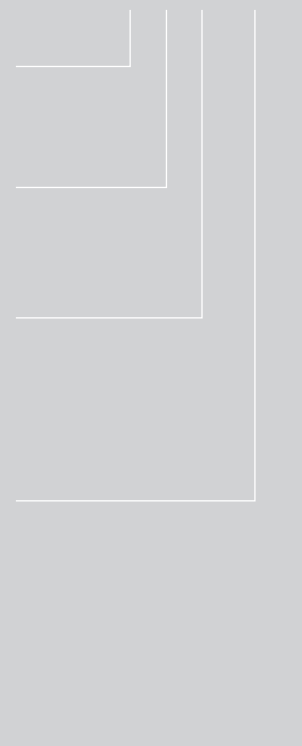


Dimensions in mm

Technical data

Gas analysis system	GSD 350 – OmniStar®	GSD 350 – ThermoStar®
Mass ranges, amu	1 – 100 / 1 – 200 / 1 – 300	
Gas connection	Stainless steel capillary	Quartz capillary
Gas inlet	Via software-controlled inlet valve, or user interface	Continuously open
Pressure reduction		2-stage, segregation-free
Gas flow rate, sccm		1 – 2
Sample gas pressure, hPa (mbar)		Up to 1,000
Capillary operating temperature, °C		Up to 350
Operation		7" colored touch screen or Web User Interface
Rod system, material / diameter / length, mm		Stainless steel/6/125
Detector		C-SEM/Faraday
Mass spectrometer electronics		PrismaPro®
Software		PV MassSpec
Contribution to neighboring mass: 40 to 41		<10 ppm / <20 ppm / <50 ppm
Min. detection limit, C-SEM		<100 ppb
Resolution, adjustable at 10 % peak height, amu		0.5 – 2.5
Dwell time		1 ms – 16 s/amu
Dimensions (L x W x H), mm		615 x 358 x 274
Weight, kg		23
Mains requirement: voltage (range), VAC		85 – 265
Interface		Ethernet Analog input: 5x ± 10 V / 16 bit Analog output: 4x 0...10 V / 16 bit Digital input: 4x Digital output: 7x sink, optical insulated, 24 V

GSD 350 variant		a
OmniStar		8
ThermoStar		9
Standard/corrosive		b
Standard		0
Corrosive gas version with controlled purge gas system		1
Filament/calibration device		c
Yttriated iridium, integrated option for mass calibration		1
Yttriated iridium		2
Tungsten, integrated option for mass calibration		5
Tungsten		6
Gas inlet system		def
ThermoStar, quartz, 1 m temperature-regulated gas sampling line, 200 °C		111
ThermoStar, quartz, 2 m temperature-regulated gas sampling line, 200 °C		112
ThermoStar, quartz, 1 m temperature-regulated gas sampling line, 350 °C		113
OmniStar, stainless steel, 1 m temperature-regulated gas sampling line, 200 °C		171
OmniStar, stainless steel, 2 m temperature-regulated gas sampling line, 200 °C		172
OmniStar, stainless steel, 1 m temperature-regulated gas sampling line, 350 °C		173
Mass range		g
100 amu		1
200 amu		2
300 amu		3



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