

Freeze drying


Catalysis


Environmental analysis

# OmniStar®/ThermoStar®

The efficient solution for gas analysis.

PFEIFFER VACUUM

# OmniStar®/ThermoStar®

The efficient solution for gas analysis.

**Your added value**

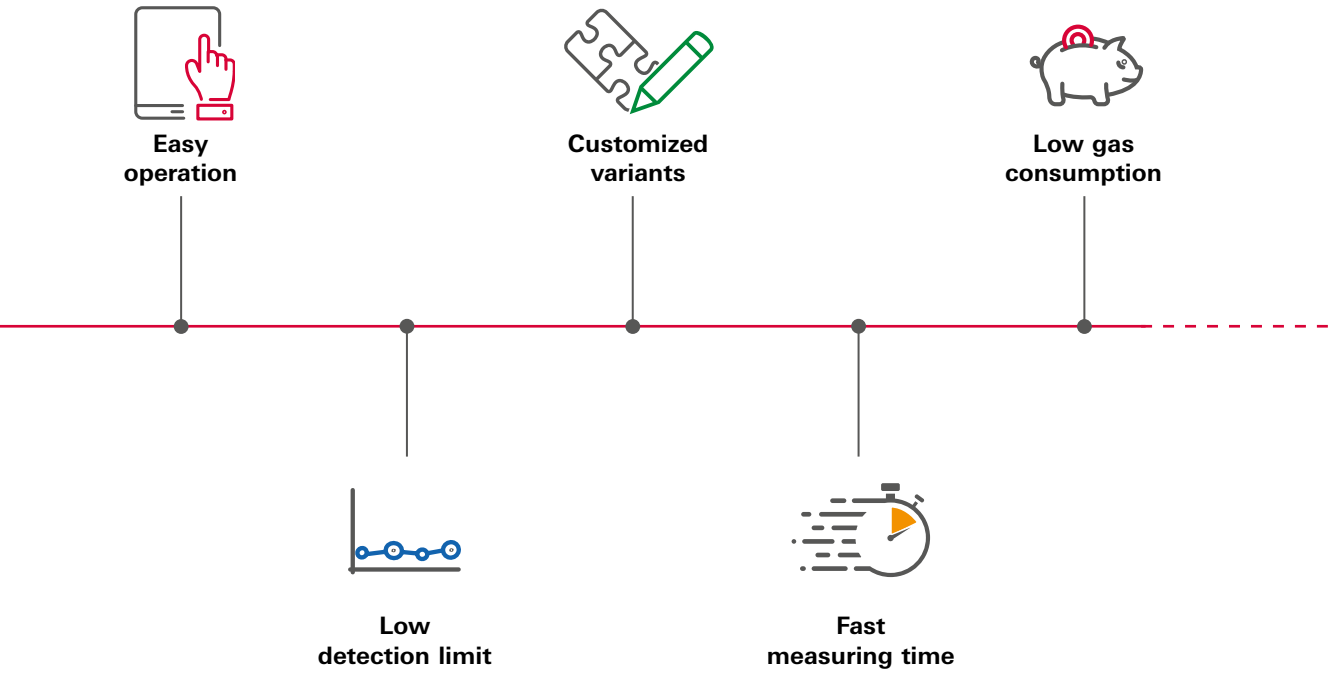
**Intelligent software**

**Compact design**

## 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 as standard 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 u, 1-200 u and 1-300 u




**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.

## PV MassSpec – Software for total analysis

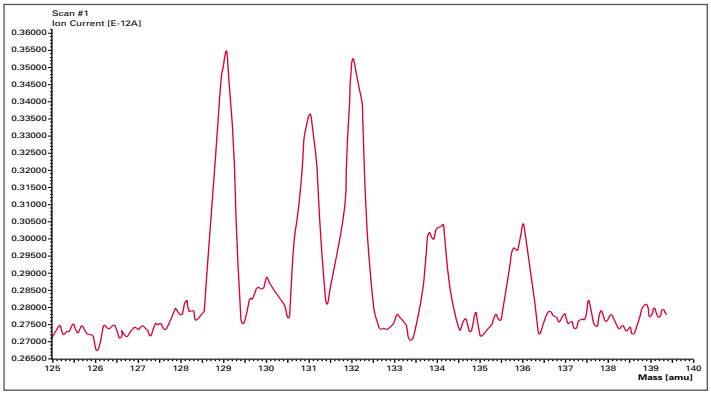
### Analysis software

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.

### Advantages at a glance

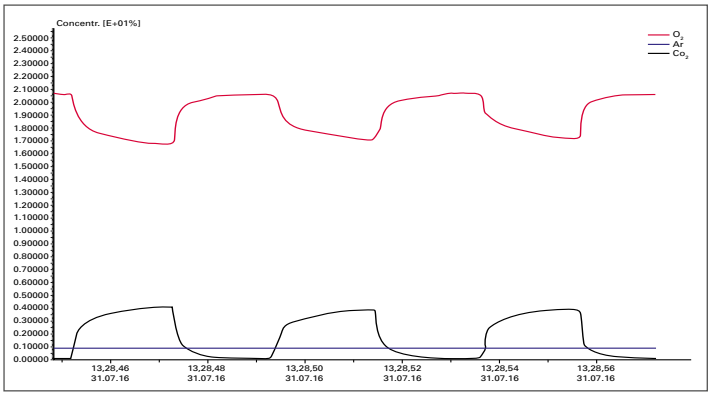
- User-friendly, intuitive operation
- Automated measurement routines via included sequencer
- Leak detection and vacuum diagnosis with just one click
- Automatic calibration and tuning
- Simple definition of measurement recipes
- Mass spectrometer data can be linked with external signals (e.g. external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

### Xe in air/OmniStar®




The graph (mass range 125–140 u) shows the xenon isotopes and the excellent detection limit of the OmniStar. Xenon has stable isotopes at 129, 131, 132, 134 and 136 u. The concentration of 136Xe 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.

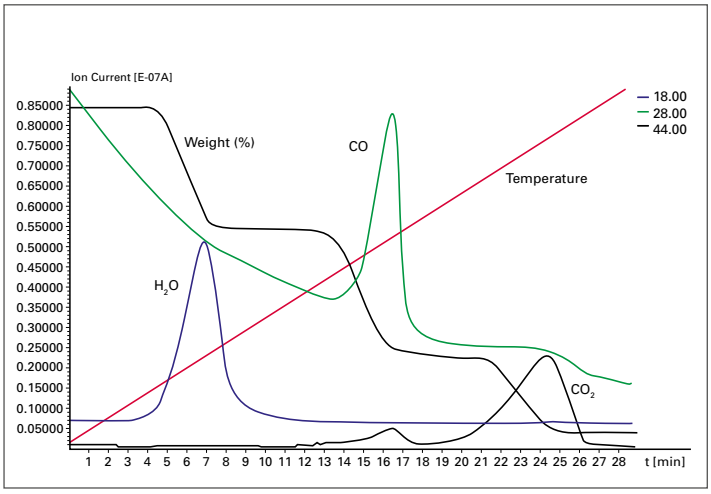
## ThermoStar – The special solution in connection with thermo balances.

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.

### 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

### TGA-MS

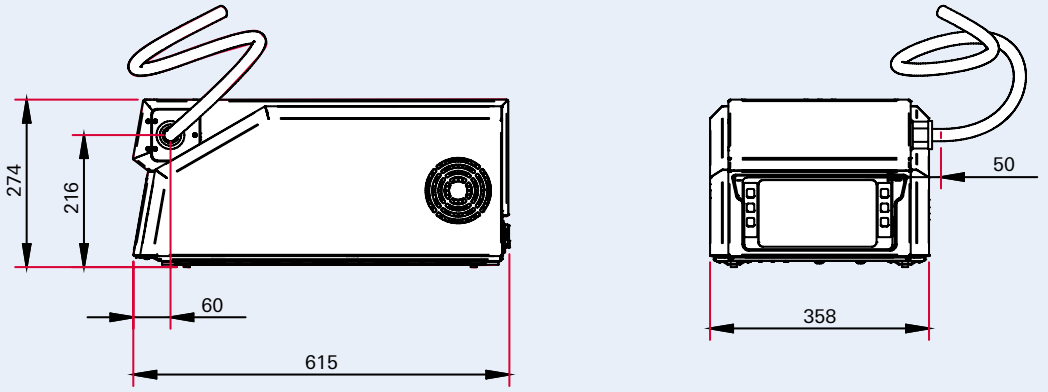



The gases water vapor (18), carbon monoxide (28) and carbon dioxide (44) that evolve when conducting a thermal analysis of calcium oxalate are shown as a function of time together with weight and temperature.

# OmniStar®/ThermoStar®

## Technical data

### Dimensions




Dimensions in mm

### Technical data

| Gas analysis system | GSD 350 – OmniStar® | GSD 350 – ThermoStar® |
|---|---|---|
| Mass ranges, u | 1–100 / 1–200 / 1–300 | |
| Gas connection | Stainless steel or quartz 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, u | 0.5–2.5 | |
| Dwell time | 1 ms–16 s/u | |
| Dimensions (L x W x H), mm | 615 x 358 x 274 | |
| Weight, kg | 23–26 | |
| Mains requirement: voltage, VAC | 100–240 | |
| Interface | Ethernet<br>Analog input: 5x ± 10 V / 16 bit<br>Analog output: 4x 0...10 V / 16 bit<br>Digital input: 4x<br>Digital output: 7x sink, optical insulated, 24 V | |

**OmniStar/ThermoStar**

**<100 ppb**

Detection limit

**7“touch screen**

Operation

## Order matrix OmniStar®/ThermoStar®

**Order number**

**PT Q a b c def g 0**

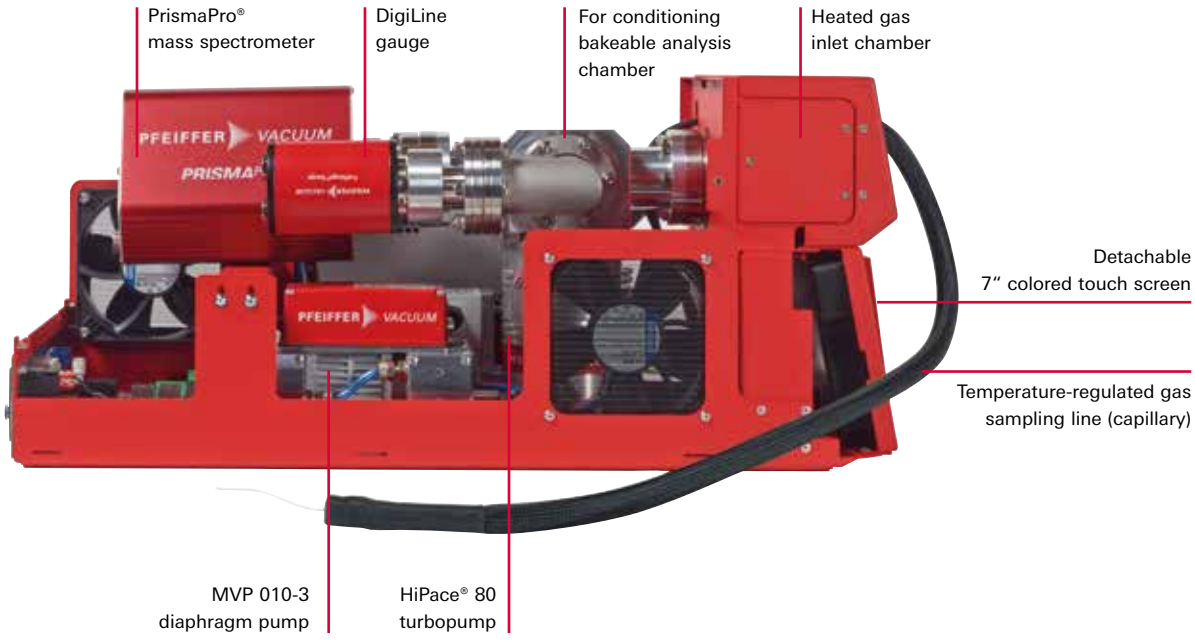
| GSD 350 variant | |
|---|---|
| OmniStar | **8** |
| ThermoStar | **9** |

| Standard/Korrosiv | |
|---|---|
| Standard | **0** |
| Corrosive gas version with controlled purge gas system | **1** |

| Filament/calibration device | |
|---|---|
| Yttriated iridium, integrated option for mass calibration | **1** |
| Yttriated iridium | **2** |
| Tungsten, integrated option for mass calibration | **5** |
| Tungsten | **6** |

| Gas inlet system | |
|---|---|
| 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, quartz, 1 m temperature-regulated gas sampling line, 200 °C | **151** |
| OmniStar, quartz, 2 m temperature-regulated gas sampling line, 200 °C | **152** |
| OmniStar, quartz, 1 m temperature-regulated gas sampling line, 350 °C | **153** |
| 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 | |
|---|---|
| 100 u | **1** |
| 200 u | **2** |
| 300 u | **3** |



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