

NOVION®

The comprehensive solution for vacuum monitoring



Picture similar

- Wide range pressure measurement from ATM to UHV
- Gas analysis up to 300 amu available at high pressures up to $5 \cdot 10^{-3}$ mbar
- Helium leak detection without additional instrumentation
- Detection of air components
(i. e. partial pressures of H₂, H₂O, N₂, O₂, CO₂ etc.)
- High sampling rates up to 250 ms for a mass spectrum
- Interference-free hydrogen detection (no zero blast effect)
- Detection of heavy hydrocarbons (vacuum quality monitoring)

Technical Data

■ Principle of measurement	<ul style="list-style-type: none"> ■ Ion Trapping and electron impact ionization ■ Time of flight mass spectrometry ■ Heat conduction (Pirani)
■ Vacuum connection	KF 25/CF40
■ Scope of delivery	<ul style="list-style-type: none"> ■ Sensor ■ Removable control unit ■ RJ45 data cable with USB-to-RS232 adapter ■ 24 V power supply
■ Filaments	2x Iridium, yttria coated
■ Materials in vacuum	SS, Au, Y ₂ O ₃ on Ir, glass, Cu, Pt, Al ₂ O ₃
■ Mounting position	<ul style="list-style-type: none"> ■ Any for < 10 mbar ■ Position-dependent for > 10 mbar
■ Operating temperature	10 °C to 55 °C
■ Max. Bakeout temperature	80 °C at flange (control unit attached) 200 °C at sensor (control unit detached)
■ Weight	<ul style="list-style-type: none"> ■ Sensor head: about 1 kg (flange dependent) ■ Control unit: about 0.76 kg
■ Dimensions (HxWxD)	<ul style="list-style-type: none"> ■ 260 × 73 × 66 mm (control unit attached) ■ 100 × 73 × 66 mm (control unit detached)

Pressure Measurement

■ Short description	<p>Convenient pressure measurement range reaches from 1000 mbar down to UHV.</p> <p>Switching between Pirani and ionization mode is performed automatically at $1 \cdot 10^{-3}$ mbar and vice versa at $5 \cdot 10^{-3}$ mbar.</p> <p>Pressure monitoring is carried out simultaneously to the optional residual gas analysis or helium leakage detection.</p>
■ Measurement range (pressure)	$1 \cdot 10^{-9}$ to $1 \cdot 10^5$ Pa $1 \cdot 10^{-11}$ to 1,000 mbar $7.5 \cdot 10^{-12}$ to 750 Torr
■ Accuracy (pressure)	$\pm 25 \%$ ($1 \cdot 10^{-3}$ to $1 \cdot 10^{-1}$ mbar) $\pm 15 \%$ ($1 \cdot 10^{-7}$ to $1 \cdot 10^{-5}$ mbar)
■ Reproducibility (pressure)	$\pm 10 \%$ of reading ($1 \cdot 10^{-8}$ to $1 \cdot 10^{-2}$ mbar)
■ Sampling rate	Adjustable, up to 250 ms

Helium Leak Detection

<ul style="list-style-type: none"> ■ Short description 	<p>Easy and sensitive Helium leakage detection is available without additional instrumentation.</p> <p>A high dynamic range is provided, even at high pressures up to $5 \cdot 10^{-3}$ mbar.</p>
<ul style="list-style-type: none"> ■ Minimum detectable partial pressure of Helium (percentage of the total pressure p) 	<ul style="list-style-type: none"> ■ $< 0,05\%$ ($p = 1 \cdot 10^{-3}$ to $1 \cdot 10^{-6}$ mbar) ■ $< 0,5\%$ ($p = 1 \cdot 10^{-7}$ mbar) ■ $< 1\%$ ($p = 1 \cdot 10^{-8}$ mbar) ■ $< 10\%$ ($p = 1 \cdot 10^{-10}$ mbar)
<ul style="list-style-type: none"> ■ Minimum detectable Helium leakage rate for $S_{He}=10$ l/s 	<ul style="list-style-type: none"> ■ $< 5 \cdot 10^{-6}$ to $5 \cdot 10^{-9}$ mbar/l*s ($p = 1 \cdot 10^{-3}$ to $1 \cdot 10^{-6}$ mbar) ■ $< 5 \cdot 10^{-9}$ mbar/l*s ($p = 1 \cdot 10^{-7}$ mbar) ■ $< 1 \cdot 10^{-9}$ mbar/l*s ($p = 1 \cdot 10^{-8}$ mbar) ■ $< 1 \cdot 10^{-10}$ mbar/l*s ($p = 1 \cdot 10^{-10}$ mbar)

Residual Gas Analysis

<ul style="list-style-type: none"> ■ Short description 	<p>A rough residual gas analysis from 1 to 300 amu can be carried out.</p> <p>Spectral information is available up to a total pressure of $5 \cdot 10^{-3}$ mbar.</p> <p>The resolution is optimized for three typical use cases:</p> <ul style="list-style-type: none"> ■ Measurement of Hydrogen and Helium with a very high resolution (1 to 5 amu). ■ Typical atmospheric gas component and water can be separated (10 to 50 amu). ■ Measurement of the overall contamination by heavy carbon hydrogens (50 to 300 amu).
<ul style="list-style-type: none"> ■ Mass range 	1 to 300 amu
<ul style="list-style-type: none"> ■ Mass-resolution R (note that a small r is better) 	<ul style="list-style-type: none"> ■ < 1 (for 1 to 5 amu) ■ < 10 (for 10 to 50 amu) ■ < 20 (for 51 to 100 amu) ■ < 50 (for 101 to 300 amu)
<ul style="list-style-type: none"> ■ Minimum detectable partial pressure up to 40 amu (percentage of the total pressure p) 	About 0.1 % (depending on total pressure)
<ul style="list-style-type: none"> ■ Minimum detectable partial pressure of heavy hydrocarbons (percentage of the total pressure p) 	About 0.1 % (depending on total pressure)

Electronic Control Unit

<ul style="list-style-type: none"> ■ Interfaces 	<ul style="list-style-type: none"> ■ RJ45 jack: digital I/O: RS232/RS485 (VACOM® Protocol) analog out: 0 to 10V, max. 20 mA ■ Bluetooth 2.0 (VACOM® Protocol) ■ 3 LED Indicators
<ul style="list-style-type: none"> ■ Power supply 	24 V +/-10 %, 30 W
<ul style="list-style-type: none"> ■ Display 	None
<ul style="list-style-type: none"> ■ Protection category 	IP50
<ul style="list-style-type: none"> ■ Sollwerte 	None
<ul style="list-style-type: none"> ■ Upgrade via firmware 	Yes
<ul style="list-style-type: none"> ■ Sensor head connector 	Detachable plug with screw connection

Software

<ul style="list-style-type: none"> ■ Compatible software 	NOVION® Viewer (download https://www.vacom.de/downloads/software)
<ul style="list-style-type: none"> ■ Analysis capabilities 	<ul style="list-style-type: none"> ■ Trend view of separate gas components and/or gas compositions ■ Inspect each recorded mass spectrum ■ Compare recorded spectra ■ Rich export capabilities
<ul style="list-style-type: none"> ■ Helium leak detection 	<ul style="list-style-type: none"> ■ Convenient helium leakage monitoring ■ Threshold can be defined
<ul style="list-style-type: none"> ■ Save/load records 	<ul style="list-style-type: none"> ■ Autosave available ■ Save/Load data with complete pressure and gas composition information
<ul style="list-style-type: none"> ■ Minimal system requirements 	<ul style="list-style-type: none"> ■ 2 GHz processor ■ 2 GB of RAM ■ 2 GB available hard disk space ■ OS: Windows 7 / 10