



HEMS-T

Hydrogen Purity Analyzers

Hydrogen Elimination Mass Spectrometer

The Power + Energy HEMS™-T hydrogen analyzer is a full-spectrum instrument with limits of detection per impurity as low as one part-per-trillion. The analyzer is self-calibrating and, with a short analytical cycle time, can be used as an in-line impurity monitor. The compact package and automatic operation make it easy to use for quick sample verification at multiple points.

The HEMS™ (hydrogen elimination mass spectrometer) analyzer uses P+E's patented palladium diffusion technology combined with advanced quadrupole mass spectrometry.

Compared to other analyzers, HEMS™ technology offers detection of the broadest range of impurities in a compact footprint with automated operation at an affordable cost.



Hydrogen Purity Analyzer Features

The HEMS™ instruments generate their own reference gas samples, permitting system calibration to a known baseline without the need to purchase or handle expensive "zero gas" samples.

Instrument operation is automatic, requiring minimal technician involvement. Operators can be trained quickly and require no advanced scientific education.

System Specifications

H₂ Inlet Purity	99.99999%
Detection Limit	1 part-per-trillion (ppt)
Response Time	5-10 minutes (typical)
Inlet Pressure	> 40 psig [2.8 Barg]; 165 psig [11.4 Barg] (typical); Scalable systems upon request
Analysis Flow Rate	2000 sccm (maximum)
Purge (N₂ or Argon)	70 - 90 psig [4.8 - 6.2 Barg]
Connection Types	1/4" mVCR for Vent, Inlet and Purge
Interface	6.5" [16.5 cm] color TFT touchscreen; USB for reporting and maintenance
Environmental	10 - 40°C
Power	100 - 240 VAC, 50/60 Hz
Dimensions	28" x 18.5" x 25" [71.1 x 47 x 63.5 cm] width x depth x height
Weight	162 lbs. [73.6 kg]

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Sample Hydrogen Analysis

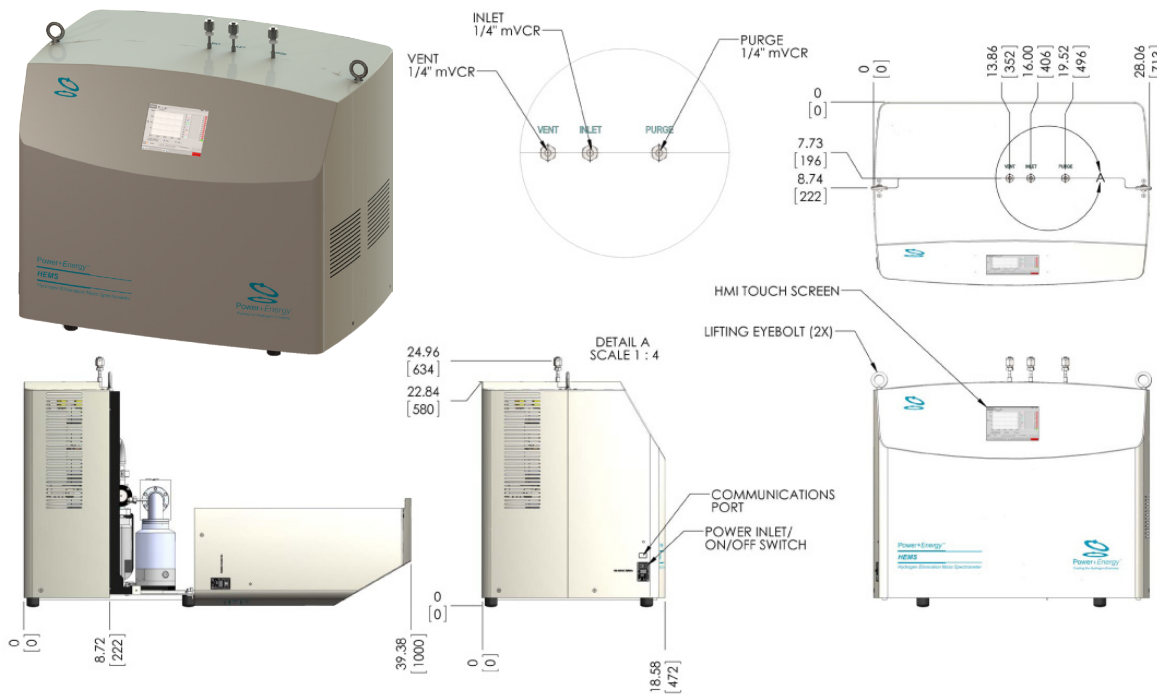
The output of the HEMS™ instrument is a list of contamination levels for each impurity. Below is an example of a typical analysis.

Impurity	Value (ppb)	Limit of Detection (ppb)
CH ₄	0.091	0.001
H ₂ O + O ₂	0.001	0.001
N ₂ , CO	0.059	0.001
CO ₂	0.004	0.001

Typical Applications

- LED device manufacturing
- Photovoltaic production
- GaN and SiC power semiconductors
- Silicon device manufacturing
- LCD display processes

Mechanical Dimensions



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