

CAPS NO_x - NO₂ Monitor

Accurate and Precise Monitoring of Nitrogen Oxides (NO_x) and NO₂

- *Simultaneous Measurement*
- *High Time Resolution*

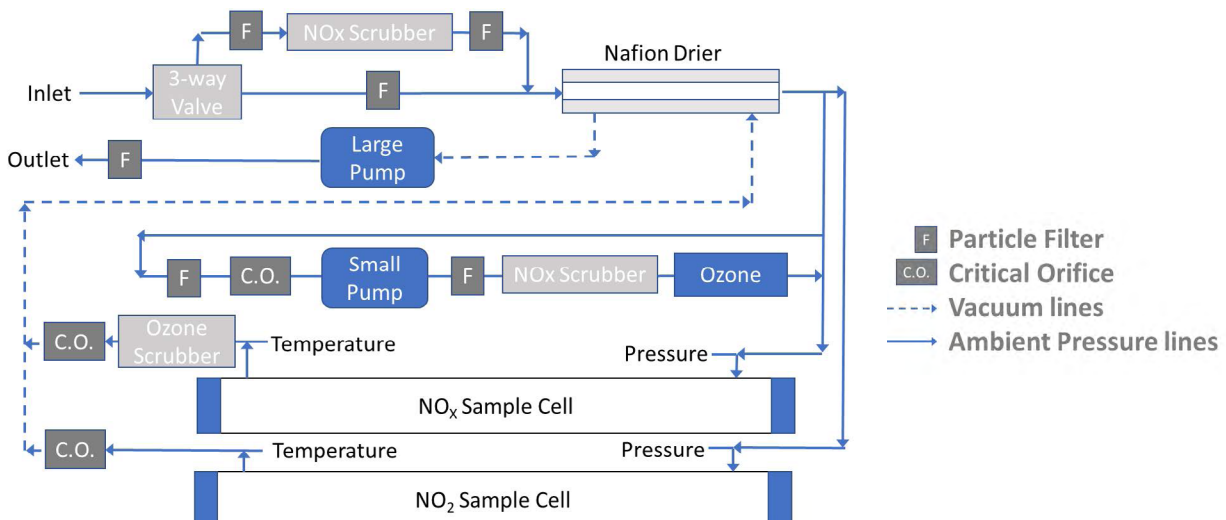


Attributes

- Visible (405/450 nm) absorption measurement using patented Cavity Attenuated Phase Shift (CAPS) technology
- Simultaneous dual channel NO₂ and NO_x (NO by subtraction)
- Ozone conversion of NO to NO₂
- High linearity (better than 1%)
- Ideal for mobile monitoring
Response Time 1-2 s

Advantages

- Direct measurement of NO₂
- Essentially interference-free
- Automated and autonomous operation:
 - No zero air
 - Automated background subtraction
- Minimal maintenance (periodic change of filter and scrubber)
- No toxic gas emissions
- Customization available



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Specifications

MEASUREMENT SPECIFICATIONS	NO ₂	NO _x	NO
Range (ppbv)	0-1,000	0-1,000	0-1,000
Resolution (ppbv)	0.01	0.01	0.01
Precision (2σ, 1 s) (ppbv)	< 0.5	< 0.5	< 1
Time Response (10-90%)	1-2 s	1-2 s	1-2 s
Baseline Drift	Baselines Taken as Often as Required		
Span Drift	Negligible		
Linearity	< ± 5 ppbv at 1000 ppbv		
Flow Rate (lpm)	1.25	1.25	

1 Year Manufacturer's Warranty

Physical Specifications

Cell Pressure: ambient
Cell Temperature: ~5 °C above ambient
Power Usage: <100 W
Weight: < 20 kg
Size: ~65 cm x 43 cm x 23 cm (L x W x H)
[19" rack mount, 5U, 24" deep]

Data Output

Display: Front Panel, 1 second time constant (± 1 digit)
RS-232: Rear Panel, DB-9 Female Connector (Null Modem cable provided)
USB: Rear Panel, Female B Connector (Male A to Male B cable provided)
Ethernet: Rear Panel, RJ-45 port
On-Board: Storage Capacity > 10 years continuous operation

REFERENCES

A Practical Alternative to Chemiluminescence Detection of Nitrogen Dioxide: Cavity Attenuated Phase Shift Spectroscopy, P.L. Keabian, E.C. Wood, S.C. Herndon, and A. Freedman, Environ. Sci. Technol., 42:6040-6045 (2008)
Detection of Nitrogen Dioxide by Cavity Attenuated Phase Shift Spectroscopy, Paul L. Keabian, Scott C. Herndon and Andrew Freedman, Anal. Chem., 77:724-728 (2005)
System and Method for Precision Phase Shift Measurement, P.L. Keabian, U.S. Patent 8364430 (issued Jan. 29, 2013); also patented in Germany, France, the United Kingdom and China
System and Method for Trace Species Detection Using Cavity Attenuated Phase Shift Spectroscopy with an Incoherent Light Source, P.L. Keabian and A. Freedman, U.S. Patent No. 7301639 (issued November 27, 2007)



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