





APPLICATIONS

- SCR Monitoring
- Stack Gases (CEM)
- Scrubber Efficiency
- Combustion Efficiency
- Turbine/Generator Feedback Control
- Process Chemical Gas Analysis
- Power Plant De-Nitrification
- Fuel Cell Analysis
- Vehicle Emissions

OPTIONS

- Paramagnetic Oxygen Analyzer With Sample Conditioning System
- Internal ZAG-XL Zero Air Generator
- Heated Sample Line/Remote Heated Filter
- Externally Mounted Drier for Customer Compressed Air Supply
- Provision for Monitoring Multiple Points
- Alarm Relays

FEATURES

- Model 600 HCLD Contained in Air Conditioned and Heated NEMA 4 Enclosure
- Measures from 0-3 to 0-3,000 ppm Full Scale (NO/NOx)
- Auto Calibration and Ranging
- Fast Response Time
- Electronic Sample and Ozone Flow Control
- Comprehensive Diagnostics
- Output Options: Voltage, Current, RS-232, TCP/IP, Modbus
- Remote Monitoring and Control



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600 SERIES

NOxBox



DESCRIPTION

The California Analytical Instruments' NOxBox system has been specifically designed for harsh environment conditions frequently found in outdoor selective catalytic reactor applications. The analyzer system is housed in a Nema 4 enclosure with a front door. The enclosure contains a heating and cooling system to maintain a constant internal temperature for the gas analyzer(s) and interface equipment regardless of outside environmental effects. The SCR exhaust is obtained directly through a heated sample line, after the optional heated filter.

The NOxBox contains the latest CAI digital heated chemicuminescent analyzer with an optional paramagnetic oxygen analyzer and water removing sample conditioning system. Complete automatic diagnostics and alarms are standard with digital output to control systems, including TCP/IP.

Designed as a close coupled system, wth sample, including pump, maintained above 100°C, the direct wet measurement technique greatly simplifies sample conditioning. The enclosure houses all the components necessary to perform continuous NO/ NOx measurement of the SCR output. A optional zero air generator is available for pure air for the NOx analyzer's ozone generator and zero air for calibration.

OPERATION

The heated NOx analyzer utilizes the principle of chemiluminescence for analyzing the NO or NOx concentration within a gaseous sample. In the NO method is based upon mode. the the chemiluminescent reaction between ozone and nitric oxide (NO) yielding nitrogen dioxide (NO₂) and oxygen. This reaction produces light which has an proportional to the mass flow rate of NO₂ intensitv into the reaction chamber. The light is measured by means of a photodiode and associated amplification electronics. In the NOx mode, NO plus NO2 is determined as above, however, the sample is first routed through the internal NO₂ to NO converter which converts the NO₂ in the sample to NO. The resultant reaction is then directly proportional to the total concentration of NOx. Local operation is simplified using the 20 button alphanumeric keypad with data presented on a back lit LCD display.

The CAI optional oxygen analyzer section utilizes the paramagnetic method to determine the percent level of oxygen contained in the sample gas. The sample gas first passes through a chiller unit to remove condensation before entering the detector.

All local operations may be performed remote via RS-232 and/or TCP/IP which can be transferred to the SCR controller.

SYSTEM SPECIFICATIONS

Ambient Temperature: -40°F to +140°F Power Requirements: 115 VAC, 15 amp Air Requirements: 60-125 PSIG @ 7 liters/min. Dry Oil Free Air @ -35°C to 0°C Dew Point Zero Air Generator: Less than 1 ppm NO/NOx System Response Time: Varies Dependent on Heated Sample Line Length Alarms: TTL Output: Scalable Analog, RS-232, TCP/IP,. Modbus Input Fittings: Single Heated Sample Line Termination ¼ Inch Compressed Air Input ¼ Inch, Vent/Drain ¼ Inch Calibration Gas ¼ Inch Weight: 165 Pounds Dimensions: 36W – 48H – 16D (Inches) Certifications: CE Mark and ETL Listed—Conforms to UL STD 61010-1, Certified to CAN/CSA C22.2 STD No. 610610.1

ANALYZER SPECIFICATIONS

	NOx Analyzer	<u>Oxygen Analyzer</u>
Detector:	Chemiluminescence	Paramagnetic
Sample Contact		
Material:	Teflon, Stainless Steel	Platinum, Glass, Stainless Steel
Four Use Selectable		
Ranges:	3 to 3,000 ppm	0-25%
Response Time:	<3.0 Seconds	<10.0 Seconds
Resolution:	0.01 ppm NO/NOx	0.1 %
Repeatability:	>0.5% of Full Scale	>0.5% of Full Scale
Linearity:	Better than 1%	Better than 1%
Noise:	<1% F.S.	<1% F.S.
Zero & Span Drift: Better than 1% F.S E		Better than 1% F.S.
Flow Control:	EPC Valve	Orifice
Converter:	Vitreous Carbon	
	Material	
Ozonator:	Ultraviolet Lamp	
Sample		
Temperature:	Maintained @ 100°C	50°C After Chiller

Specifications subject to change without notice.



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