

600

SERIES

CLD/HCLD

HEATED



Chemiluminescent NO/NO_x Analyzer

APPLICATIONS

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

OPTIONS

- Internal Zero/Span Solenoid Valves
- 19 Inch Rack Mount Slides
- Internal Sample Pump
- High Output Ozone Lamp
- Internal Ozone Pump
- Sample Chiller (HCLD Only)

FEATURES

- Measures from 0-3 to 0-3,000 ppm Full Scale (NO/NO_x)
- Four User-Definable Ranges From 0-3 to 0-3,000 ppm
- CE Mark and ETL Listed—Conforms to UL STD 61010-1, Certified to CAN/CSA C22.2 STD 61010.1
- Auto Calibration and Ranging
- Fast Response Time
- Electronic Sample and Ozone Flow Control
- Comprehensive Diagnostics
- Output Options: Voltage, Current, RS-232, TCP/IP
- Remote Monitoring and Control



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Chemiluminescent NO/NO_x Analyzer

CLD/HCLD

DESCRIPTION

The California Analytical Instruments Model 600 HCLD NO/NO_x digital analyzer is designed around a state-of-the-art 16-bit microprocessor. The 16 bit microprocessor control board consists of the MSR-Card with 16 digital inputs, 16 digital outputs, 16 analog inputs and 4 analog outputs. The analyzer can be manually operated from the keypad or remotely via TCP/IP, RS-232C communications and discrete inputs. The analyzer display includes screen presentation of all analyzer alarms. Four levels of password protection are provided. For precision measurements, the analyzer's accuracy is increased by entering calibration curve fit polynomials. Automatic calibration may be activated locally or remotely and includes auto cal via preset times.

METHOD OF OPERATION

The California Analytical Model 600 HCLD Analyzer utilizes the principle of chemiluminescence for analyzing the NO or NO_x concentration within a gaseous sample. In the NO mode, the method is based upon the chemiluminescent reaction between ozone and nitric oxide (NO) yielding nitrogen dioxide (NO₂) and oxygen. This reaction produces light which has intensity proportional to the mass flow rate of NO₂ into the reaction chamber. The light is measured by means of a photodiode and associated amplification electronics. In the NO_x 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 NO_x. Sample enters the analyzer directly into a heated chamber and is maintained at an elevated temperature. The moisture will remain in the vapor state, thus ensuring no loss of the NO₂. Local operation is simplified using the 20 button alphanumeric keypad with data presented on a back lit LCD display. All local operations may be performed remote via RS-232 and/or TCP/IP.

SPECIFICATIONS

DETECTOR: Chemiluminescence (CLD) Photodiode (thermally stabilized with Peltier Cooler)
NO/NO_x RANGES: 5 to 5,000 ppm NO/NO_x (Four user programmable ranges)
RESPONSE TIME: Typically < 2 seconds to 90% Full Scale
REPEATABILITY: Better than 0.5% of Full Scale
LINEARITY: Better than 0.5% of Full Scale
NOISE: Typically less than 1% of Full Scale
ZERO & SPAN DRIFT: Less than 1% of Full Scale per 24 Hours
ZERO & SPAN ADJUSTMENT: Via front panel, TCP/IP or RS-232
NH₃, HCN & SO₂ EFFECT: Not detectable with 100 ppm
CO₂ EFFECT: Less than 2.0% with 10% CO₂
H₂O EFFECT: Less than 0.8% total with chiller
FLOW CONTROL: Electronic Proportional Pressure Controller
SAMPLE FLOW RATE: Typically 1.5 to 2.5 LPM (0.6 LPM with low flow option)
CONVERTER: Vitreous Carbon Material @ 205°C >95% efficiency
OZONATOR: Ultraviolet Lamp
AIR OR O₂ REQUIREMENTS: Less than 0.01 ppm NO_x at 240 cc/Min. @ 25 psig (Dew Point < -10°C)
NO/NO_x CONTROL: Manual/Remote/Auto Cycle
OUTPUTS AVAILABLE: TCP/IP, RS232, Four Scalable Analog 0-10 V / 4-20 mA
DISCRETE ALARMS: (Local & Remote Adjustable) General Fault/ TTL Logic (Ground True) Calibration Failure/ TTL Logic (Ground True) High Concentration (2 each)/ TTL Logic (Ground True)
DIGITAL DIAGNOSTICS: Control Voltages, Temperatures, Pressures, Flow Parameters
KEYPAD DISPLAYS: Factory Settings, TCP/IP Address, Passwords (4), Scalable Analog Output Voltages, Full Scale Range Select, Auto Cal Times
SPECIAL FEATURES: Calculated NO₂ derived from NO_x converter efficiency, Auto Ranging, Auto Calibration (adjustable through internal clock) Less than 3 cc Gold Plated Reaction Chamber
DISPLAY: 3" x 5" Back lit LCD
SAMPLE TEMPERATURE: Up to 50°C Noncondensing on CLD; 85-100°C on HCLD
OVEN TEMPERATURE: 85°C on HCLD; up to 100°C on request
AMBIENT TEMPERATURE: 5 to 40°C
AMBIENT HUMIDITY: Less than 90% RH Noncondensing
WARM-UP TIME: 1 Hour (Typical)
FITTINGS: 1/4 Inch Tube
POWER REQUIREMENTS: 115/230 (±10%) VAC; 50/60 Hz; 200 Watts (350 watts with pump)
DIMENSIONS: 5½ H x 19 W x 23 D (Inches)
Weight: 45 lbs.

Specifications subject to change without notice.



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