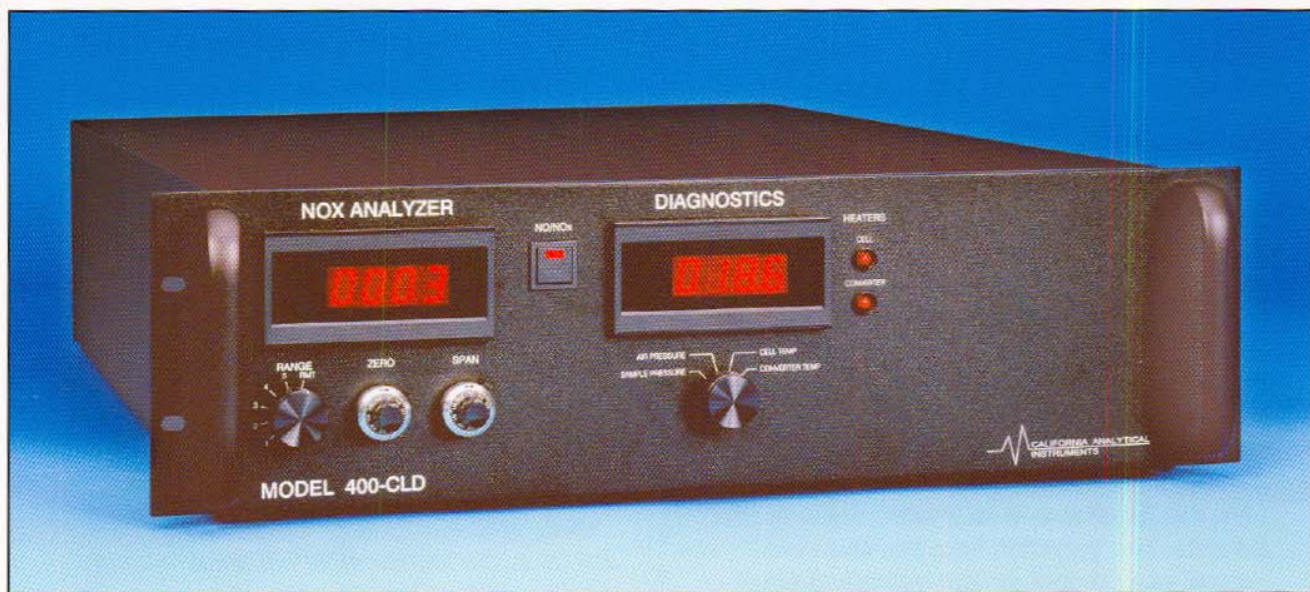


CHEMILUMINESCENT NO/NO_x ANALYZER



Model 400 CLD

FEATURES

- Sensitivity to 3 ppm NO/NO_x Full Scale
- Automatic High Voltage Shutdown with Loss of Ozone Air
- Complete Digital Presentation Including Sample & Air Pressure (No Gauges)
- Five Ranges
- Remote Operation Capability
- Sample Pump (Optional)
- CE Approved

CLD OPTIONS

- 19 Inch Rack Mount Slides
- Remote In-line Sample Filter
- Built-in Sample Pump

APPLICATIONS

- Stack Gases (CEM)
- Source Monitoring
- Scrubber Efficiency
- Process Chemical Gas Analysis
- Personnel Safety
- Power Plant Stack De-Nitrification
- Vehicle Emissions
- Low NO_x Applications

 **California Analytical Instruments, Inc.**

Model 400 CLD CHEMILUMINESCENT NO/NO_x ANALYZER

DESCRIPTION

The Model 400 CLD NO/NO_x Analyzer is designed to continuously measure the total concentration of oxides of nitrogen within a gaseous sample. The gaseous sample can be ambient air, exhaust gases from an internal combustion engine, or exhaust gases from a combustion process.

METHOD OF OPERATION

The California Analytical Instruments Model 400 CLD Analyzer utilizes the principle of chemiluminescence for analyzing the NO or NO_x concentration in a gaseous sample. In the NO mode, the chemiluminescence reaction between ozone and nitric oxide (NO) yields excited nitrogen dioxide (NO₂^{*}) and oxygen. Approximately 10% of the NO₂^{*} produced from this reaction is in an electronically excited state. The transition from this state to a normal state produces light intensity proportional to the mass flow rate of NO₂ into the temperature controlled 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. The sample is first routed through the internal NO₂ to NO converter which converts the NO₂ in the sample to NO. The converter is preconditioned vitreous carbon; operating at relatively low temperatures of 130-200°C. Has an operating life of 10⁶ ppm hours or one year. NO₂ concentrations can be converted in the entire range of the analyzer.

SPECIFICATIONS

ANALYSIS METHOD: Chemiluminescence (CLD)
Photodiode Detector

MULTIPLE RANGE CAPABILITY: 5 Ranges Select
Group A, B, C, or D
A: 0-3, 10, 20, 50, 100 ppm
B: 0-5, 10, 25, 50, 100 ppm
C: 0-10, 30, 100, 300, 1000 ppm
D: 0-30, 100, 300, 1000, 3000 ppm

RESOLUTION: 0.02 ppm NO/NO_x
NOISE: Less than 0.5% of Full Scale
LINEARITY: ±0.5% of Full Scale
REPEATABILITY: Better than 0.5% of Full Scale
ZERO & SPAN DRIFT: Less than ±0.5% of Full Scale per Week
ZERO & SPAN ADJUSTMENT: Ten Turn Potentiometer
DISPLAY: 4-1/2 Digit Panel Meter. Selectable 0-100% Full Scale of Direct Reading
DIAGNOSTICS: 3 1/2 Digit Panel Meter with 4-Position Switch

1. Sample Pressure
2. Air Pressure
3. Cell Temperature
4. Converter Temperature

RESPONSE TIME: Adjustable from 1.5 to 10 Seconds to 90% of Full Scale
ANALOG OUTPUT: 0-10 VDC & 4-20 mADC
OZONE SOURCE: Ultraviolet Lamp
FLOW CONTROL: (Sample & Ozone) Electronic Proportional Pressure Control
SAMPLE FLOW RATE: 3.0 L/min. ±0.5 L/min. (pump optional = 2.5 psig); span 20-25psig
AIR OR O₂ REQUIREMENTS: Zero grade; less than 0.1 ppm NO_x at 250-650 cc/min. @ 25 psig
O₃ CONTROL: Automatic Shutdown with Loss of Air or Oxygen Pressure
CONVERTER: Vitreous Carbon material @ 200°C (130-210°C); 98 to 100% Efficiency
INTERFERENCES:
CO₂ @ 1% with 10% CO₂
H₂O @ 1% with 3% H₂O
CO 1000 ppm not measurable
NH₃ 139 ppm not measurable
HCN 28 ppm not measurable
N₂O 201 ppm not measurable
SO₂ 500 ppm not measurable
NO/NO_x SELECTION: Manual Push Button or Remote
AMBIENT TEMPERATURE: 0-40°C
SAMPLE TEMPERATURE: 0-65°C
WARM-UP TIME: 1 Hour
FITTINGS: 1/4" Tube, Compression
POWER REQUIREMENTS: 115/230 (±10%) VAC @ 50/60 Hz, 160 watts
DIMENSIONS: 5 1/4"H x 19"W x 23"D
RELATIVE HUMIDITY: Less than 90% RH
WEIGHT: 38 lbs.



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