



# 600 Series

## CLD NO<sub>x</sub> Analyzers

**600 CLD Analyzers use chemiluminescence to measure NO/NO<sub>2</sub>/NO<sub>x</sub> concentrations in industrial and vehicle emission applications.**



### Features

- Measures from 0-3 to 0-3,000 ppm Full Scale (NO/NO<sub>2</sub>/NO<sub>x</sub>)
- CE Mark and ETL listed – conform to UL STD 61010-1, certified to CAN/CSA C22.2 STD 61010.1
- Automatic calibration and ranging
- Fast response time
- Electronic sample and ozone flow control
- Output options: voltage, current, RS-232 using AK Protocol and TCP/IP, Modbus
- 1065-compliant configurations

### Applications

- Continuous emissions monitoring (CEMS)
- Scrubber efficiency
- Combustion efficiency
- Turbine/generator feedback control
- Process gas analysis
- Vehicle emissions
- Engine testing

### Options

- Heated version (HCLD)
- Paramagnetic oxygen channel
- Internal Zero/Span/ Sample valves
- 19" rack-mount slides
- Internal sample pump
- "Wet/Dry" option for HCLD

# 600 CLD

## Chemiluminescent NO<sub>x</sub> Analyzers

### Method of Operation

CAI 600 CLD Analyzers utilize the principle of chemiluminescence for analyzing the NO or NO<sub>x</sub> 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 (NO<sub>2</sub>) and oxygen. This reaction produces light which has intensity proportional to the mass flow rate of NO<sub>2</sub> into the reaction chamber. The light is measured by means of a photodiode and associated amplification electronics.

### Specifications

**Detector** – Chemiluminescence (CLD) photodiode (thermally stabilized with Peltier cooler)

**NO/NO<sub>x</sub> Ranges** – Four user-definable from 0-3 to 0-3,000 ppm

**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 and Span Drift** – Less than 1% of Full Scale per 24 hours

**Zero and Span Adjustment** – Via front panel, TCP/IP or RS-232

**Oxygen Methodology** – Paramagnetic, 0-25%/0-100%

**NH<sub>3</sub>, HCN and SO<sub>2</sub> Effect** – Not detectable with 100 ppm

**CO<sub>2</sub> Effect** – Less than 2.0% with 10% CO<sub>2</sub>

**H<sub>2</sub>O Effect** – Less than 1.0% with 1% H<sub>2</sub>O

**Flow Control** – Electronic proportional pressure controller

**Sample Flow Rate** – Typically 2.0 LPM (0.6 LPM with low-flow option)

**Converter** – Vitreous carbon material @ 205°C > 95% efficiency

In the NO<sub>x</sub> mode, NO plus NO<sub>2</sub> are determined as with the NO mode; however, the sample is first routed through the internal NO<sub>2</sub>-to-NO converter that converts the NO<sub>2</sub> in the sample to NO. The resultant reaction is then directly proportional to the total NO<sub>x</sub> concentration. 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 NO<sub>2</sub>.

**Ozonator** – Ultraviolet lamp

**Air or O<sub>2</sub> Requirement** – Less than 0.01 ppm NO<sub>x</sub> at 240 cc/min. @ 25 psig (dew point < -10°C)

**NO/NO<sub>x</sub> Control** – Manual/Remote/Auto Cycle

**Outputs Available** – TCP/IP, RS-232, Modbus, four scalable analog 0-10 V / 4-20 mA

**Special Features** – Calculated NO<sub>2</sub> derived from NO<sub>x</sub> converter efficiency, auto ranging, auto calibration (adjustable through internal clock), less than 3 cc gold-plated reaction chamber

**Display** – 3" x 5" backlit LCD

**Sample Temperature** – Up to 50°C non-condensing

**Oven Temperature (HCLD only)** – 850°C (1000°C on request)

**Ambient Temperature** – 5 to 40°C

**Ambient Humidity** – Less than 90% RH non-condensing

**Warm-up Time** – 1 hour (typical)

**Fittings** – ¼-inch tube

**Power Requirements** – 115/230 (±10%) VAC, 50/60 Hz, 200 Watts (350 Watts with pump)

**Dimensions** – 5¼" H x 19" W x 23" D

**Weight** – 45 lbs.

*Specifications subject to change without notice.*



California Analytical Instruments

1312 West Grove Ave., Orange, CA 92865

Phone: 714-974-5560 • Fax: 714-921-2531

[www.gasanalyzers.com](http://www.gasanalyzers.com)