600 Series

CLD NO_X Analyzers

600 CLD Analyzers use chemiluminescence to measure NO/NO_2/NO_x concentrations in industrial and vehicle emission applications.

Features

- Measures from 0-3 to 0-3,000 ppm Full Scale (NO/NO_2/NO_x)
- 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_x Analyzers

Method of Operation

CAI 600 CLD Analyzers utilize 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 (NO_2) and oxygen. This reaction produces light which has intensity proportional to the mass flow rate of NO_2 into the reaction chamber. The light is measured by means of a photodiode and associated amplification electronics.

In the NOx mode, NO plus NO_2 are determined as with the NO mode; however, the sample is first routed through the internal NO_2-to-NO converter that converts the NO_2 in the sample to NO. The resultant reaction is then directly proportional to the total NO_x 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_2.

Specifications

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

NO/NOx 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_3, HCN and SO_2 Effect – Not detectable with 100 ppm

CO_2 Effect – Less than 2.0% with 10% CO_2

H_2O Effect – Less than 1.0% with 1% H_2O

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

Ozonator – Ultraviolet lamp

Air or O_2 Requirement – 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, RS-232, Modbus, four scalable analog 0-10 V / 4-20 mA

Special Features – Calculated NO_2 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" 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