

650

SERIES

NOxygen



Chemiluminescent NO/NO_x & Paramagnetic Oxygen 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/Sample Valves
- Internal Sample Pump
- Internal Ozone Pump
- High Output Ozone Lamp
- 19 Inch Rack Mount Slides

FEATURES

- Measures From 0-3 to 0-3,000 ppm Full Scale (NO/NO_x)
- Four User Definable Ranges
- Oxygen Range: 0-25%
- Fast Response Time
- Auto Ranging
- Auto Calibration
- Output Options: Analog (User Scalable), (RS232) using AK Protocol & TCP/IP
- Data Archiving
- Remote Monitoring and Control
- Electronic Proportional Pressure Control for Sample & Ozone Flow



1312 West Grove Avenue
Orange, CA 92865-4134
Phone: 714-974-5560 Fax: 714-921-2531
www.gasanalyzers.com

650 SERIES CLD/Paramagnetic Analyzer

NOxygen

DESCRIPTION

The California Analytical Model 650 NOxygen NO/NO_x/NO₂/O₂ digital analyzer is designed around a state-of-the-art 16 bit microprocessor, 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 calibrations may be activated locally or remotely or at preset times. The analyzer may also display NO, NO_x, NO₂, and O₂ via selectable time and hold commands.

METHOD OF OPERATION

Chemiluminescent

The California Analytical Model 650 NOxygen Analyzer utilizes the principle of chemiluminescence for analyzing the NO or NO_x concentration within a gaseous sample. In the NO mode, the chemiluminescent reaction occurs between ozone and nitric oxide (NO) yielding nitrogen dioxide (NO₂*) and oxygen. This reaction produces light. The intensity of this light is linearly proportional to the mass flow rate of NO into the reaction chamber. The light is measured with a photodiode and associated amplification electronics. The photodiode is thermoelectrically cooled and temperature regulated. 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 chemiluminescent NO-O₃ reaction is then directly proportional to the total NO_x concentration. 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.

METHOD OF OPERATION—O₂

The California Analytical oxygen analyzer section utilizes the paramagnetic method to determine the percent level of oxygen contained in the sample gas. The oxygen level is displayed on the LCD panel in Engineering units.

SPECIFICATIONS

DETECTORS: Chemiluminescence (CLD) Photodiode / Paramagnetic (O₂)
NO/NO_x RANGES: 0-3 to 0-3,000 ppm NO/NO_x (Other Ranges Available)
(Four user programmable ranges) (Higher Ranges Available upon Request)
OXYGEN RANGE: 0-25%
RESPONSE TIME: Typically < 2 Seconds to 90% Full Scale
REPEATABILITY: Better than 0.5% of Full Scale
LINEARITY: Better than 1% of Full Scale
NOISE: Less than 0.5% 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
CO₂ EFFECT: Less than 2% with 10% CO₂
ADDITIONAL INTERFERENCE DATA: CO 1000 ppm – N/A
HCN 28 ppm – N/A, SO₂ 500 ppm – N/A
NH₃: 10 ppm – N/A, N₂O 201 ppm – N/A
FLOW CONTROL: Electronic Proportional Pressure Controller
SAMPLE FLOW RATE : Typically 2.0 LPM (0.6 LPM with Low Flow Option)
NO₂ CONVERTER: Carbon Material @ 205°C > 95% Efficiency
OZONATOR: Ultraviolet Lamp
AIR OR O₂ REQUIREMENTS: Dry Air 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, 0-1, 0-5, 0-10 VDC, 4-20mA (selectable)
DISCRETE ALARMS/CONTROL: 15 definable, optically isolated solid state relays (60 VDC max @ 600 mA max)
DIGITAL DIAGNOSTICS: Converter Temperature, Cell Temperature Photodiode Temperature, Air Pressure, Flow Rate & EPC Control Voltage Sample Pressure
KEYPAD DISPLAYS: Factory Settings, TCP/IP address, Passwords (4) Scalable Analog Output Voltages, Full Scale Range Select, Auto Cal Times
SPECIAL FEATURES: Calculated NO₂, Auto Ranging, Auto Calibration (adjustable through internal clock), Data Archiving
DISPLAY: 3" x 5" Back Lit LCD
SAMPLE TEMPERATURE: Up to 50°C Non-condensing
AMBIENT TEMPERATURE: 5 to 40°C
AMBIENT HUMIDITY: Less than 90% RH (Non-condensing)
WARM-UP TIME: 1 Hour
FITTINGS: 1/4 Inch Tube
POWER REQUIREMENTS: 115 VAC/60 Hz or 230 VAC/50 Hz
DIMENSIONS: 5¼ H x 19 W x 23 D (Inches)
WEIGHT: 55 Pounds

Specifications subject to change without notice.



1312 West Grove Avenue
Orange, CA 92865-4134
Phone: 714-974-5560 Fax: 714-921-2531
www.gasanalyzers.com