# 600 Series
**NDIR/Oxygen Multi-Component Analyzer**

## Features
- Measures IR from low ppm up to 100% Full Scale and oxygen from 0-1% to 0-100%
- Multiple channels – Up to three NDIR channels or two NDIR channels plus oxygen
- Auto calibration and ranging
- Fast response time
- Temperature and pressure compensation
- Comprehensive diagnostics
- CE Mark and ETL listed – Conforms to UL STD 61010-1, certified to CAN/CSA C22.2 STD No. 610610.1
- 1065-compliant configurations

## Applications
- Continuous emissions monitoring (CEMS)
- Greenhouse gases
- Gas purity
- Process gas analysis
- Vehicle emissions
- Engine testing

## Options
- Paramagnetic or electrochemical oxygen channel
- Oxygen channel-only configuration
- Internal sample pump
- Sample flow control
- Multiple sample inputs
- 19” rack-mount slides
- Output options: Voltage, current, RS-232, TCP/IP, Modbus
Method of Operation (NDIR)
The CAI Series 600 NDIR/O₂ analyzer is based on the infrared absorption characteristics of gases. Using a single infrared beam to measure gas concentrations, this analyzer delivers highly stable and reliable results.

A single infrared light beam is modulated by a chopper system and passed through a sample cell of predetermined length containing the gas sample to be analyzed. As the beam passes through the cell, the sample gas absorbs some of its energy. The attenuated beam (transmittance) emerges from the cell and is introduced into the front chamber of a two-chamber infrared microflow detector. The detector is filled with the gas component of interest, and consequently the beam experiences further energy absorption. This absorption process increases the pressure in both chambers.

The differential pressure between the front and rear chambers of the detector causes a slight gas flow between the two chambers. This flow is detected by a mass-flow sensor and is converted into an output signal.

Method of Operation (Oxygen)
The CAI 600 Series analyzer’s oxygen channel utilizes either the paramagnetic or electrochemical fuel-cell method to determine the percent level of oxygen contained in the sample gas. The oxygen level is displayed on the LCD panel in percent concentration.

Specifications

**IR Analysis Method** – Non-dispersive infrared (NDIR)
**NDIR Components** – CO, CO₂, CH₄, SO₂
**Detector Type** – Microflow
**NDIR Ranges** – From 0-50 ppm up to 0-100%
  *SO₂, 0-1% up to 0-20%, and CH₄, 0-1,000 ppm up to 0-100%
**Range Ratio** – 10:1
**Response Time (IR)** – 90% of Full Scale in < 1 second, depending on cell length, flow rate and time constant
**IR Sample Cell** – Stainless steel w/ replaceable gold cell liner
**Resolution** – Typically 0.1% of Full Scale
**Repeatability** – Better than 1.0% of Full Scale
**Linearity** – Better than 1.0% of Full Scale of factory-calibrated ranges
**Noise** – Less than 1% of Full Scale of factory-calibrated ranges
**Zero and Span Drift** – Less than 1% of Full Scale per 24 hours

**Sample Flow Rate** – 0.5 to 2.0 LPM
**Oxygen Analysis Method** – Paramagnetic or electrochemical fuel cell
**O₂ Ranges** – 0-1% (paramagnetic only) up to 0-100% O₂ Full Scale; four definable ranges
**O₂ Response Time** – T₉₀ - 2 seconds paramagnetic; 16 seconds fuel cell
**Outputs Available** – Voltage, current, TCP/IP, RS-232, Modbus
**Display** – 3” x 5” backlit LCD
**Sample Temperature** – Up to 50°C, non-condensing
**Ambient Temperature** – 5 to 40°C
**Ambient Humidity** – Less than 90% RH (non-condensing)
**Fittings** – ¼-inch tube
**Power Requirements** – 115/230 (+- 10%) VAC; 50/60Hz; 300 Watts maximum
**Dimensions** – 5¾”H x 19”W x 23”D
**Weight** – 30-45 lbs., depending on configuration

*Specifications subject to change without notice.*