

# SPECIFICATIONS

## PERFORMANCE

Measurement Ranges (percent oxygen)

Single Range	Three Range
0-100	0-10/25/100
0-25	0-5/10/25
0-10	0-1/10/25
	0-0.5/5/25

<b>Accuracy<sup>1</sup></b>	±1% of full scale.
<b>Linearity</b>	±1%.
<b>Response Time</b>	90% of full scale response in less than 20 seconds (typical).
<b>Sensor Type</b>	Patented Ambient Temperature Electrochemical Sensor with EES.
<b>Temp. &amp; Press. Compensation</b>	Standard.
<b>Operating Temp.</b>	32° to 122° F (0° to 50°C). <32° F use heated sensor enclosure. >122° F cooling of sensor required.
<b>Warranty</b>	3 years electronics/2 years sensor.
<b>ELECTRICAL Display</b>	0.4" (10.2 mm) high, 4-1/2digit LCD.
<b>Resolution</b>	0.1 %
<b>Input Power</b>	115/230 VAC, 50-60Hz or 18-32 VDC, battery backup available as an option for some models.
<b>Outputs</b>	4-20 mADC and 0-2 VDC standard. RS-232C or RS-485 optional. TTL output with three range instruments.

Alpha Omega Instruments reserves the right to change or modify its product specifications without notice.

**Oxygen Alarm Relays** Three (3) SPDT Form C contacts rated 10 A @ 30 VDC/115/230 VAC. User selectable for fail-safe or non fail-safe.

**Instrument Status Alarm** Rated identically to the O<sub>2</sub> relays.

**Audible Alarm** Internal buzzer with audible cancel.

## SAMPLE GAS CHARACTERISTICS

**Flow Rate** 1.0 to 2.0 SCFH (0.5 to 1.0 liter/min).

**Sample Gas Temp.** 32° to 122° F (0° to 50°C).

**Sample Gas Pressure** 0.1 to 1.0 psig (1.4 to 14.2 kg/cm<sup>2</sup>).

**Entrained Solids** <3 mg/ft<sup>3</sup>: no in-line filter required.  
>3 mg/ft<sup>3</sup>: in-line filter is required.

**Hydrocarbon Mist** <0.7 mg/ft<sup>3</sup>: no in-line filter required.  
>0.7 mg/ft<sup>3</sup>: in-line filter is required.

## CONSTRUCTION<sup>2</sup>

**Electronics Control Unit** Polycarbonate with a hinged clear front cover, rated NEMA 4X (IP 66).

**Control Unit Dimensions**  
9.45 in. (240.5 mm) length.  
6.50 in. (165.1 mm) width.  
6.20 in. (157.5 mm) depth.

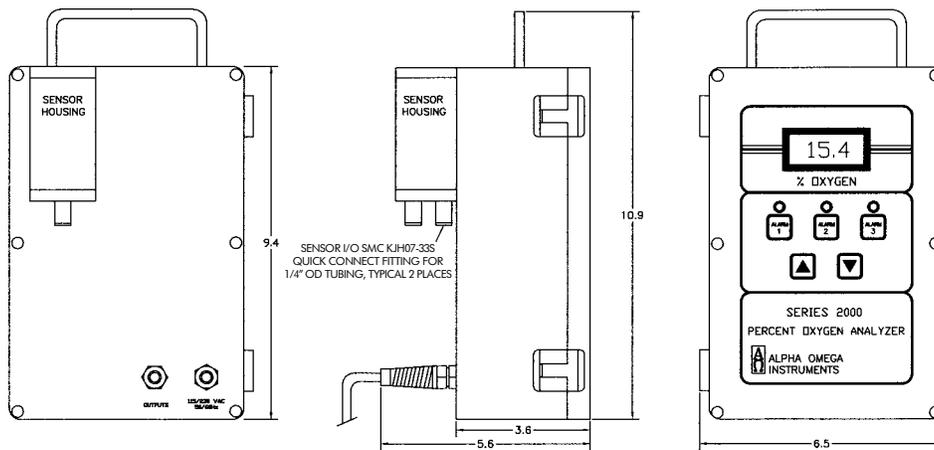
**Gas Connections** Quick connect for 1/4" OD flex tubing or optional 1/4" compression fittings.

**Sensor Mounting** Local or optional remote mounting.

**Weight** 11lbs (4.98 kg) (Benchtop Config.)

<sup>1</sup> Stated at constant temperature and constant pressure.

<sup>2</sup> Other mechanical configurations available-consult factory.



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## COMPANY MISSION

The primary mission of Alpha Omega Instruments Corp. is to satisfy its customers. With today's world economy, conducting business on a global basis offers many opportunities, as well as posing numerous challenges. As diversified as the markets are, there is one constant—the customers' desire to find effective and economical solutions to their measurement needs. Alpha Omega Instruments has the product breadth, as well as the depth of application experience, to make the right recommendations the first time around. We are proud of the Company's growth and attribute it to the Christian principles it was founded upon, and that are in evidence within the Company today.

Alpha Omega Instruments Corp. has two primary business groups. Its Electro-optics Group manufactures products used in conjunction with global positioning satellites, high resolution spectrophotometers, laser characterization equipment, inertial guidance systems, and medical diagnostic equipment. The Company's fastest growing business segment is its Process Analyzer Group, which includes a product line of Trace and Percent Oxygen Analyzers and Ambient Air Monitors. Falling within that product group is the Series 2000 Percent Oxygen Analyzer used to measure oxygen in concentrations up to 100%.

## SYSTEM DESCRIPTION

The Series 2000 Percent Oxygen Analyzer is a microprocessor-controlled instrument that can be supplied with oxygen measuring ranges from 0-0.5% to 0-100%. Single and three-range instruments are available. Autoranging is a **standard** feature on all three range analyzers. The Series 2000 Percent Oxygen Analyzer is powered from 115/230 VAC, 50-60Hz, or 18-32 VDC with optional battery backup available for certain models. Oxygen values are displayed continuously on an easy-to-read, 0.4" (10.2 mm) high, 4-1/2 digit liquid crystal display (LCD). The instrument can be purchased in a variety of mechanical configurations ranging from a general purpose, portable device, to a NEMA 7 (explosion proof) system. The electronics enclosure used for the portable and panel mounted versions is made from durable polycarbonate and, together with the gasketed seals, is rated **watertight NEMA 4X (IP66)**. The gas inlet and outlet connections on the sensor housing are quick-connect types. One-quarter inch stainless steel compression fittings are available upon request.

### PATENTED OXYGEN SENSOR WITH EES

The Series 2000 Percent Oxygen Analyzer features a patented, extended life oxygen sensor with **EES (enhanced electrolyte system)**. This sensor provides exceptional performance, accuracy, and stability. For applications where carbon dioxide is present in the sample gas, the EES retards passivation of the sensor anode by allowing the products of oxidation to dissolve in the electrolyte. In effect, the sensor

is renewed continuously, resulting in an increase in sensor life even if exposed to limited amounts of carbon dioxide. In addition, the enhanced mechanical design of the sensor ensures longer life, and virtually eliminates leakage of electrolyte, a nagging (and expensive) problem associated with sensors that require periodic electrolyte maintenance.

The eloquence of the Series 2000 Percent Oxygen Analyzer is its ease of use. The front panel contains five switches that provide access to the instrument's settings. Each analyzer is equipped with three oxygen alarm relays and one status alarm relay as standard equipment. All four relays are Form C (SPDT) types rated at 10 amps at 115/230 VAC and 30 VDC. Each relay is user configurable for fail-safe operation. In addition to the alarm relays, the analyzer is equipped with a **built-in audible alarm**, as well as **three front panel LEDs** for visual indication of an alarm condition.

The Series 2000 Percent Oxygen Analyzer comes equipped with **two analog outputs**, 4-20 mA DC and 0-2 VDC, for use with recorders, dataloggers, etc. For enhanced communications, the Series 2000 Percent Oxygen Analyzer can be configured with optional RS-232C or RS-485 serial communications. For multiple point installations, the RS-485 format is capable of sending digital signals over greater distances, and controlling each monitor using the same communication channel.

## MAXIMUM VERSATILITY

### Analyzer Configurations

- Portable Instruments
- Bench-top Installations
- Panel-mounted Installations
- Watertight (NEMA 4) Systems
- Explosion-proof (NEMA 7) Systems
- Remote Sensors (NEMA 4 and 7)
- Intrinsically Safe Systems

### Optional Equipment

- Sample Pumps
- Filters
- Pressure Regulators
- Flow Meters
- Mounting Plates
- Enclosure Heaters
- Sampling Systems

## FEATURES

## BENEFITS

 <b>Full two year sensor warranty</b>	Ensures <b>trouble-free and cost-effective operation</b> . Beware of “limited” or “pro-rated” sensor warranties. Warranty replacement of one competitor’s sensor can exceed \$1,500.
 <b>Patented extended life oxygen sensor</b>	<b>Eliminates frequent sensor replacement and annoying false low oxygen alarms</b> . Maintenance costs are significantly reduced.
 <b>Economically priced</b>	<b>Save thousands of dollars</b> over paramagnetic and other electro-chemical oxygen analyzers.
 <b>Exceptional speed of response</b>	Responds <b>instantaneously</b> to changes in oxygen.
 <b>Acid gas resistant sensor</b>	<b>Eliminates sample conditioning</b> and premature sensor failures for many applications.
 <b>No false O<sub>2</sub> readings</b>	Unlike zirconium oxide sensors, the Series 2000 Percent Oxygen Analyzer won't produce false readings in carbon monoxide, hydrogen, hydrocarbons, and other reducing gases.

## APPLICATIONS FOR THE SERIES 2000 PERCENT OXYGEN ANALYZER

- Vessel Blanketing
- Air Separation
- Glove Boxes
- Flare Stacks
- Steel Production
- Heat Treating
- Controlled Atmospheres
- Environmental Monitoring
- Inert Gas Generators
- Piped Breathing Air
- Pharmaceutical Manufacturing
- Inerting of Centrifuges
- Chemical Manufacturing
- Process Dryers
- Combustion Efficiency

**Over the years, Alpha Omega Instruments Corp. has had the pleasure of serving Fortune 100 Companies, as well as many small, entrepreneurial-based organizations. A partial list of customers includes:**

AT&T	General Electric	Lawrence Livermore Labs	Polaroid
Argonne National Labs	Hewlett Packard	Litton Solid State	Procter & Gamble
Bayer Corp.	Honeywell	Lockheed/Grumman	Raytheon
EG&G	Hughes	McDonnell Douglas	Rockwell
Eastman Kodak	IBM	Motorola	Sony
Exxon	Intel	NASA	Texas Instruments
FMC	Jet Propulsion Lab.	Perkin Elmer	Xerox