

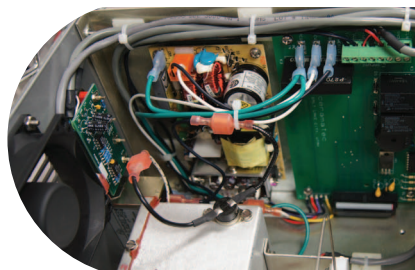
# MODEL OA-1S+



**Neutronics**  
Gas Analysis Solutions

## Portable Trace Oxygen Analyzer

For ultrapure gas applications requiring ppb measurements



Lightweight. Versatile. Fast.

- ppm to 100% measurement range
- rapid-response Neutronics zirconia oxide sensor
- electropolished SS tubing and orbital welded fittings
- unaffected by position or motion
- 5 year sensor life with no regular service required

### Description

The Model OA-1S+ is a portable analyzer that accurately measures oxygen in the range of 75 ppb to 100%. Featuring the Neutronics rapid response zirconia oxide sensor with its extremely fast response and high accuracy, the Model OA-1S+ can be exposed to air and quickly read ppb oxygen in a variety of background gases, including Nitrogen, Argon, and Helium. The OA-1S+ is designed to measure oxygen concentrations in clean gases that do not contain hydrocarbons or carbon monoxide.

### Rapid Response Zirconia Oxide Sensor

The robust design of the Neutronics zirconia oxide sensor gives this analyzer the ability to rapidly measure oxygen through large step changes in concentration and the ability to accurately measure ppm concentrations of oxygen within seconds after exposure to air. When heated to an elevated temperature, the rapid-response zirconia oxide sensor produces a predictable electrical output in response to changes in the partial pressure of oxygen. The sensor is a solid-state device that utilizes yttria-stabilized zirconia (YSZ), a zirconium-oxide based ceramic.

### Precise Sensor Temperature Control

Critical to reliable performance and rapid response, the Model OA-1S+ includes a precision controlled sensor heater assembly designed to maintain the temperature of the sensor at 650° C by continuously modulating the VAC electrical power input. To meet strict heat loss requirements, the sensor heater housing utilizes high temperature microporous insulation, a low density material with an extremely low thermal conductivity.

### Long Sensor Life

The expected service life for the Neutronics zirconia oxide sensor is greater than 5 years. The sensor has an unlimited shelf life and will not dry out or freeze.

### Portable Design

The Model OA-1S+ is a completely self-contained instrument that is unaffected by position or motion. The unit is ideally suited for regulated process pressures ranging from 25 to 60 psig. A pressure regulator must be installed in the inlet line if sample pressures outside this range are expected.

### Sampling System

The internal sampling system includes electropolished 316SS tubing and orbital welded VCR fittings. A pressure relief bypass valve controls the system back pressure, and a series of fixed orifices control the sample flow at a rate of 1.0 to 5.0 slpm to the sensor. Two diaphragm sampling valves maintain trace levels of oxygen within the sensor loop. This feature enhances the analyzer's ability to read trace levels after disconnecting, moving, and reconnecting it at multiple measurement points.

### Two Adjustable Alarms

The analyzer has an audible alarm system that controls contact closures that integrate the alarm function into the user's process control system. The OA-1S+ provides the flexibility to set the alarms for high/low, high/higher, or low/lower as required. The user can change the alarm values and turn the alarms on or off. Relay contacts are located on the back panel.

### Two Displays

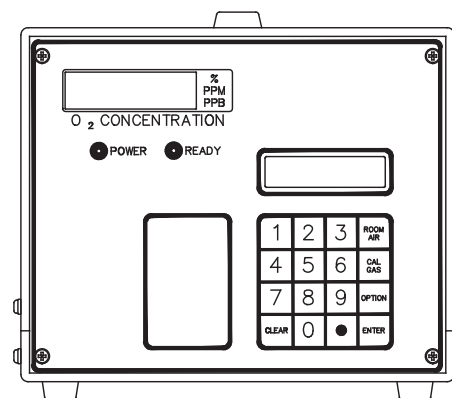
The OA-1S+ includes a large three-digit LED display for showing the temperature and oxygen content. When the oxygen content is displayed, the analyzer automatically switches to the proper range and illuminates one of the range indicators, showing either ppm or percent. The smaller secondary display is used to guide the user through a variety of modes of operation and diagnostics.

### Communication Options

The electronics have been designed for communication with a host controller through a standard RS-232 interface. The host computer can inquire about temperature, oxygen concentration, sensor voltage, and alarm points. Two analog outputs are available: 4-20mA and 0-1VDC.

### Auto-ranging or Fixed Range Measurement

The range values for the OA-1S+ are typically set to auto-range. The user has the option to disable the auto-range and set the range as needed for a specific application.



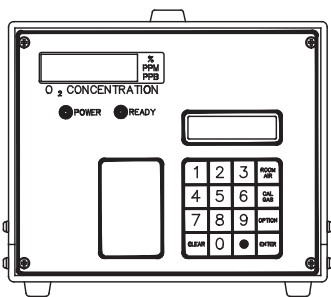
# MODEL OA-1S+

## Portable Trace Oxygen Analyzer

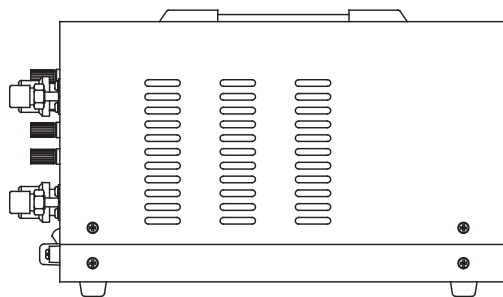
### Specifications

Type	Portable trace analyzer
Operating range	Auto-ranging between 75 ppb to 100% oxygen. Operator does not need to select the range. An indicator light shows whether the reading is in ppm or percent.
Sensor type	Neutronics rapid response zirconia oxide
Expected sensor service life	>5 years
Accuracy	50 to 100 ppb: $\pm 5.0\%$ of reading @ up to 100 ppb 101 to 999 ppb: $\pm 2.0\%$ of reading 1000 ppb to 99.9%: $\pm 2.0\%$ of reading
Response time	T90 < 5 seconds at 1 liter/minute sample flow rate
Sample pressure	25 to 60 psig
Sample flow rate	1 to 5 standard liters/minute
Warm up time	20 minutes
Recovery time	< 5 seconds from room air to 0.1% < 5 minutes from room air to 1 ppm < 30 minutes from room air to 50 ppb
Relative humidity	0 to 90%, non-condensing
Operating temperature	32 to 122° F (0 to 50° C)
Power supply	115/230 VAC $\pm 20\%$ , 50/60 Hz (power cord included)
Display	3-digit LED digital display of oxygen concentration, dot matrix display of diagnostics
Signal interface	RS-232 serial port 0-1V $\pm 0.5\%$ analog output 4-20mA analog output
Relay outputs	Two available, 5A, 220VAC rated
Warranty	12 months from date of shipment
Dimensions	13.55" (344mm) length x 9.00" (229mm) width x 9.15" (232mm) height
Ratings	Faceplate: NEMA 4 (IP66)
Sampling system MOC	316 SS electropolished fittings and tubing; orbital welded with VCR connections
Weight	8.5 lbs. (3.9 Kg)

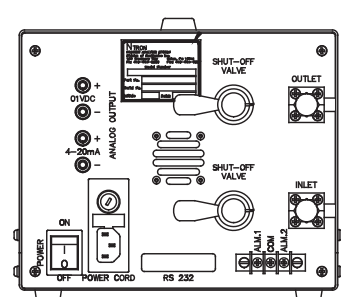
Specifications are subject to change without notice.



Front View



Side View



Rear View

### Order Information

C7-01-1000-21-1

C5-06-4900-03-0

Model OA-1S+

Operations manual, MN-A-0077



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