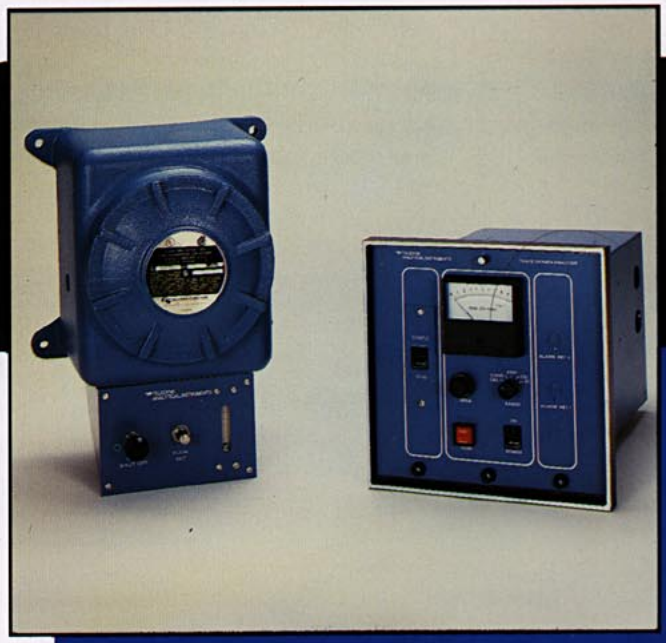
Model 317R Trace Oxygen Analyzer



The high-accuracy, fast-response Model 317R is simple to calibrate, requires no support gases, and is virtually maintenance-free. It features four standard analysis ranges: 0-10, 0-100, 0-1000 and 0-10,000 parts-per-million (ppm), plus a CAL range allowing calibration on ambient air.

The Model 317R consists of two units: The explosion-proof field-mounted analysis section, which includes the oxygen sensor and sample handling system; and a separate general-purpose control unit, which includes the meter readout, signal output, optional alarms, range switch and other controls.

Maintenance-Free Sensor

The Model 317R uses the specially-qualified Class B-2 Micro-Fuel Cell to measure trace O_2 in a sample gas. The B-2 sensor sets industry standards for accuracy, sensitivity and ease-of-use. And because every B-2 sensor undergoes stringent glovebox testing and special quality procedures, you're assured of outstanding reliability and optimum performance.

Like all Micro-Fuel Cells, the B-2 is a sealed electrochemical device with no electrolyte to change or electrodes to clean, so it is virtually maintenance-free. This sensor is specific to oxygen and is capable of accurately monitoring gas streams containing up to 100% hydrocarbons. Also, because it has an absolute zero, no zero gases are need for calibration.

Easy One-Man Calibration

The Model 317R has a remote calibration feature that allows one person to fully calibrate the analyzer at the control unit. There is no need to have a second person at the field-mounted analysis section. A switch on the control unit activates the analysis section's solenoid valve, changing from sample gas to your span gas.

The Micro-Fuel Cell produces an output that is linear from 0 to 100%. That means you can use ambient air (209,500 ppm O_2) for calibration. This eliminates the need for special ppm O_2 span gases. Or, if a faster calibration is required, a certified ppm O_2 span gas can be used to calibrate the Model 317R.

Sample Handling System

In addition to the sample/span gas solenoid valve, the Model 317R analysis section features a simple gas handling system that includes a shutoff valve and flowmeter. The measurement provided by the Model 317R is not flow sensitive; however, the flowmeter is included to verify that there is sample flow through the analyzer and to provide nominal flow control.

Panel- or Bulkhead-Mounting

The Model 317R is available in two versions. The Model 317RA has a panel-mounted control unit, whereas the Model 317RB uses a control unit designed for bulkhead mounting. Either version comes with the same explosion-proof bulkhead-mounted analysis section. And both versions share the same exceptional performance.

Teledyne also offers a complete line of portable and continuous-duty trace oxygen analyzers (the Series 310) that include general purpose, explosion-proof, and intrinsically safe configurations.

*Patent numbers 3,429,796 and 3,767,552

Special Systems

You can order the Model 317R as a standard unit, or as part of a larger analytical system. Signal conditioning, custom sampling systems, and special enclosures are available.

Teledyne also provides special sensors, custom-engineered analyzers and complete monitoring systems to satisfy unique application requirements.

Applications

Air separation and liquefaction

Pure, gaseous hydrocarbon stream monitoring

Semiconductor manufacturing

Protective atmosphere blanketing of primary liquid feedstocks and flammable liquids

Process monitoring of gaseous monomers — vinyl chloride, propylene, butadiene isoprene and ethylene

Gas purity certification

Glove box leak detection

Natural gas treatment and transmission

Catalyst protection

Inert gas welding of exotic metals

Heat treating and bright annealing

Nuclear fuel processing and isotope separation

Monitoring chemical reactions

And many other applications

Options

- Ranges from 0-10 to 0-10,000 ppm O_2
- Millivolt output signal
- Isolated output signal
- Alarm setpoints and relay contacts
- Off-range switch contacts
- Digital readout
- Vacuum service tubing and fittings
- RFI shielding
- Stainless steel tubing, fittings and sensor housing
- Front door with viewing window
- Custom-engineered analyzers and complete monitoring systems for special applications

*Specifications/Features: vary with application; are established and validated during design; are not to be construed as test criteria for every product manufactured; and subject to change without notice.

Features

- Four linear ranges: 0-10, 0-100, 0-1000 and 0-10,000 ppm O_2, plus a special CAL range
- One-man air calibration . . . no zero or span gases required
- High accuracy and sensitivity, fast response
- Unaffected by hydrocarbons and other oxidizable gases
- Long-life, maintenance-free Micro-Fuel Cell oxygen sensor
- Less than 2% drift over 3-4 week periods without calibration
- Unaffected by position, motion or vibration
- Panel- and bulkhead-mounted versions
- Optional alarms and current output

Specifications *

Ranges:
0-10, 0-100, 0-1000, 0-10,000ppm and 0-25% Cal

Sensitivity:
0.5% of full scale

Accuracy:
+/-2% of full scale at constant temperature (except +/-1 on 10ppm range)
+/-5% of full scale over operating temperature range (except +/-1ppm on 0-10ppm range)
(Once the system has equilibrated to constant temperature)

Response Time:
90% response in 60 seconds

System Operating Temperature:
0 to 50 Deg C

Sensor Type:
B-2, B-2C (for hydrogen and helium background gases)

Signal Type:
0-1VDC full scale, 4-20mA isolated

System Power Requirements:
115/220 VAC, 50/60Hz

System Enclosure:
Control Unit - General purpose: 317RA panel mountable or 317RB bulkhead mountable.
Analysis Unit - Explosion-proof enclosure rated for Class 1, Division 1, Groups C and D (Group B optional)

TELEDYNE ANALYTICAL INSTRUMENTS

16830 CHESTNUT STREET, CITY OF INDUSTRY, CA 91749-1580 U.S.A. • (818) 961-9221 • (213) 283-7181 • EASY LINK 628-31862 • FAX (818) 961-2538