

# **TELEDYNE ANALYTICAL INSTRUMENTS**



## **MODEL 3020T** *Process Trace Oxygen Analyzer*

**T**eledyne's Model 3020T Trace Oxygen Analyzer is a microprocessor-based instrument for detecting oxygen at the parts-per-million (ppm) level in a variety of gases. This instrument serves as the explosion-proof, bulkhead-mount version of the 3000 Series. Simple menu choices, externally accessible command switches, and dual LCD and LED displays make set-up and operation clear and quick.

### **Analysis Ranges**

Three user-configurable ranges are standard, with an excellent linearity precluding the need to recalibrate when changing ranges. Two fully programmable concentration alarms satisfy nearly any requirement. All features offer a sophistication that assures the 3020T will provide years of service.

### **Convenient Outputs For Data**

Two standard 0-1 VDC outputs and two 4-20 mADC isolated outputs provide both concentration and range identification. A bi-directional RS-232 serial interface is incorporated to relay information to a host computer for remote monitoring of critical functions.

### **Operator Interface**

All controls and displays on the standard 3020T are available from outside the housing. The instrument has two simple operator controls. A digital meter, an alphanumeric display, and a sample flowmeter give the operator constant feedback.

### **Standard Features**

- An explosion proof NEMA 4/7 rated enclosure
- A 2-line alphanumeric display screen, driven by microprocessor electronics continuously prompting and informing the operator
- High resolution, accurate readings of oxygen content from low ppm levels through 25%.
- Advanced Micro-fuel Cell designed for trace analysis, with a one year warranty and an expected life of two years
- Versatile analysis over a wide range of applications
- Microprocessor based electronics: 8-bit CMOS microprocessor with 32kB RAM and 128kB ROM
- Three user-definable output ranges (from 0-10ppm through 0-250,000 ppm) assuring a perfect match for the user's process.
- Air-calibration range for convenient spanning at 20.9%
- Auto-Ranging automatically selects the proper preset range for a given measurement. Manual override allows the user to lock onto a specific range of interest.
- Two adjustable concentration alarms and a system failure alarm
- Extensive self-diagnostic testing at start-up and on demand with continuous power-supply monitoring
- Two way RS-232 serial digital port for use with a computer or other digital communication device
- Four analog outputs; two for measurement (0-1VDC and Isolated 4-20mADC) and two for range identification

### **Applications**

- Monitoring inert gas blanketing
- Air separation and liquefaction
- Chemical reaction monitoring
- Semiconductor manufacturing
- Petrochemical process control
- Quality assurance

# MODEL 3020T TRACE OXYGEN ANALYZER

## Specifications

**Ranges:** 3 customer programmable ranges  
(minimum 0-10ppm) with AutoRanging

**Calibration range:** 0-25%

**Accuracy:**  $\pm 1\%$  of FS at a constant temperature

**Sensitivity:** 0.5% of FS

**Response:** 90% of FS at 77°F (25°C) in less than  
65 seconds

**Operating temperature:** 32°F to 122°F (0°C to 50°C)

**Signal output:** Analytical measurement - 0-1 VDC  
and 4-20 mADC (isolated)

**Range ID output:** 0-1 VDC and 4-20 mADC (isolated)

**Analysis display:** 5 digit red LED, 3/5" high numerals

**Menu display:** 20 character, 2 line LCD

**Data lines:** Bi-directional RS-232C serial interface,  
baud rate 2400 - remote monitoring of  
all critical functions

**Alarm:** One system failure alarm contact  
to detect power failure. Two fully  
programmable concentration alarm set  
points and corresponding form C 3 amp  
contacts.

**Power requirements:** 115 / 230 VAC, 50-60 Hz

**Oxygen sensor:** Teledyne Micro-Fuel cell, Class L-2  
(2 year life expectancy with most  
applications)

**Sample Connections:** 1/4" fittings

**Area Classifications:** Explosion proof enclosure is  
U/L and CSA listed for Class I,  
Division 1, Group B, C, D  
service NEMA 4/7 rated

**Mounting:** Bulkhead mounting

**Dimensions:** 25.63" H x 15.25" W x 11" D

## Options

- C Integrally mounted cal/zero valves
- V Plumbed for vacuum service
- F Flame arrestors for Class I, Div 1, Group C/D service
- G Flame arrestors for Class I, Div 1, Group C/D service  
with cal valves
- H Flame arrestors for Group B (hydrogen) service
- I Flame arrestors for hydrogen service with cal valves
- S Stainless steel cell block

## TELEDYNE ANALYTICAL INSTRUMENTS

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## Warranty

Instrument is warranted for 1 year against defects in material  
or workmanship

NOTE: Specifications and features will vary with application. The above are established  
and validated during design, but are not to be construed as test criteria for every product.  
All specifications and features are subject to change without notice.

