



Zirconium Oxide Trace Oxygen Analyzer

Teledyne manufactures a variety of oxygen analyzers utilizing state-of-the-art technologies to monitor oxygen in virtually all industrial bulk gases supplied by the air separation community.

To compliment our electrochemical fuel cell and paramagnetic oxygen products, Teledyne has developed a zirconium oxide-based (ZrO₂) trace oxygen analyzer, the 3000ZA-XL, which can be readily applied on inert, H₂ / HC-free, gas streams. The unique, miniature, amperometric-based ZrO₂ sensor provides the operator with unrivaled repeatability, responsiveness and stability.

Proven Analyzer Platform

By integrating Teledyne's amperometric ZrO₂ oxygen sensor with our field-proven Series 3000 platform, the user achieves highly reliable control of their process.

The 3000ZA-XL comes standard with (3) user programmable ranges, user selectable fixed or automatic range change capabilities, range ID contacts, two concentration output signals (current and voltage), a RS-232C bi-directional serial interface, two configurable concentration alarms, a system failure alarm, and user programmable auto-calibration capabilities.

Designed for flush panel mounting, two units can be mounted side-by-side in a panel space-saving 19" rack arrangement.

Sensing Technology

The 3000ZA-XL utilizes a non-depleting amperometric zirconium oxide sensor. This miniature ZrO₂ sensor generates a current signal linearly proportional to the part-per-million levels of oxygen present in the sample gas. The sensor also operates at a favorably lower operating temperature than conventional ZrO₂ sensors providing a longer expected life of 5-plus years due to less thermal stress.

In addition, Teledyne's amperometric ZrO₂ sensor requires no reference gas supply, reducing installation and running costs as well as eliminating any inaccuracies associated with possible reference gas composition variances.

Model 3000ZA-XL

The first amperometric based zirconium oxide analyzer for trace applications

The sensor has been designed for enhanced performance on ranges from 0-5 ppm to 0-25%.

The 3000ZA-XL provides the user with highly stable, drift-free performance.

Ideal for Unmanned Plant Operations

Because the sensor has no reference gas requirements, operates on a non-depleting basis, and can easily be fitted with Teledyne's uniquely designed, electronically-driven, miniature integral auto-calibration valve manifold, it is an ideal choice for unmanned plant requirements.

Key Features

- Highly flexible, field-proven Series 3000 platform
- Programmable Auto-Calibration capabilities
- User selectable ranges
- Helium leak checked sample handling system
- High sensitivity of 25 ppb or better

Advantages

- No reference gas requirements = lower operating costs
- Long life, maintenance-free, non-depleting ZrO₂ sensor design
- Highly stable, drift-free performance
- Low sensor replacement cost

Applications

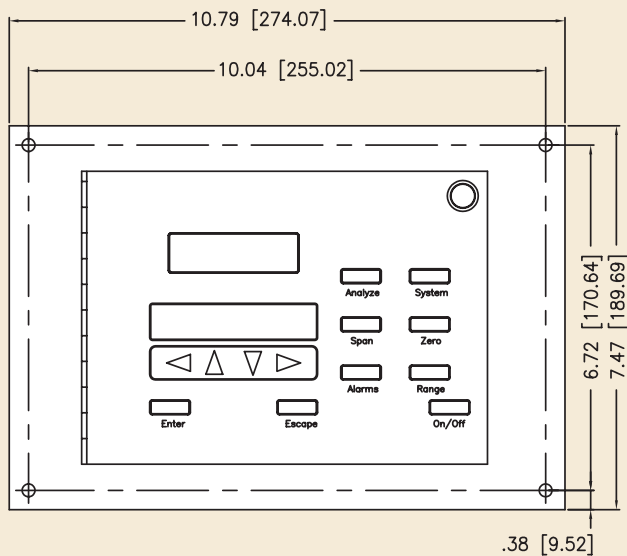
- Air liquefaction
- Inert gas blanketing
- Glove box monitoring
- Bulk gas purity certification
- Semiconductor manufacturing

Note: The 3000ZA-XL should only be applied on inert sample gas streams which are ideally free of combustible gas impurities. For streams that may have trace levels of H₂, CO, or hydrocarbons present, please consult with Teledyne in advance to address application feasibility considerations.

3000ZA-XL ZIRCONIUM OXIDE TRACE OXYGEN ANALYZER

Standard Features

- Three user-selectable ranges
- Signal output: 0-1 VDC & 4-20 mADC
- Programmable Auto Ranging
- Range ID contacts (Quantity 4). Form A normally open contacts, 3A resistive
- Two fully-adjustable concentration alarm points with programmable relay function. Form C contacts, 3A resistive
- Programmable auto cal / zero. Form A normally open contact relay signals
- Remotely initiated cal / zero via customer supplied 24 VDC signal
- Self diagnostics with Form C failure alarm contacts
- Full duplex RS-232 communication link
- Five digit oxygen concentration LED display
- Backlit 2 x 20 line alphanumeric liquid crystal display for set up and diagnostics
- 316 stainless steel sampling system
- Sample flow indicator
- Universal power supply: 85-230 VAC 50-60 Hz



Specifications

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|-------------------------|--|
| Ranges: | 3 ranges customer selectable (from 0-5 ppm to 0-25%) |
| Accuracy: | ± 1% of FS at a constant temperature |
| Sensitivity: | 0.5% of full scale |
| Response: | 90% of FS at 77°F (25°C) < 30 seconds |
| Operating temp: | 32 to 122°F (0 to 50°C) |
| Cross sensitivity: | Less than 0.5 ppm O ₂ with 5 ppm H ₂ , 5 ppm CH ₄ , or 5 ppm CO |
| Signal output: | Analytical measurement - 0-1 VDC, and 4-20 mADC (isolated) |
| Max. load impedance: | 4-20 mA isolated output 1000 ohms |
| Analysis display: | 5 digit red LED, 3/5" high numerals |
| Data lines: | Bi-directional RS-232C serial interface |
| Power requirements: | Universal AC input ranges - 85 to 230 VAC, 50 / 60 Hz |
| Max. power consumption: | 20 VA |
| Oxygen sensor: | Zirconium oxide, amperometric type |
| Sample connections: | User specified 1/4" or 6 mm fittings |
| Wetted parts: | Stainless steel and nylon |
| Area classifications: | General purpose |
| Mounting: | Flush panel mount |
| Dimensions: | 8.70" W x 6.96" H x 12.2" D (case) 10.79" W x 7.46" H (panel) |

Options

- C Auto cal / zero with integrally mounted control valves
- K 19" rack mount with either one or two control units

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.

