

Model 3000ZA-XL

Zirconium Oxide Trace Oxygen Analyzer



The first amperometric based zirconium oxide analyzer for trace applications

Teledyne Analytical Instruments manufactures a wide variety of oxygen analyzers which utilize 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 product offerings, Teledyne has developed a zirconium oxide-based (ZrO_2) trace oxygen analyzer, the Model 3000ZA-XL, which can be readily applied on inert, H_2 / HC-free, gas streams. The unique, miniature, amperometric-based ZrO_2 sensor utilized in the 3000ZA provides the operator with unrivaled repeatability, responsiveness and stability.

Proven Analyzer Platform

By integrating Teledyne's amperometric ZrO_2 O_2 sensor with our field-proven Series 3000 Analyzer 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 3000ZA-XL units can be conveniently mounted side-by-side in a panel space-saving 19" rack arrangement.

Sensing Technology

The Model 3000ZA-XL utilizes a non-depleting amperometric zirconium oxide sensor. This miniature ZrO_2 sensor generates a current signal which is 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 ZrO_2 sensors providing plant operators with a longer expected life of 5-plus years due to less thermal stress.

In addition, Teledyne's amperometric ZrO_2 sensor requires no reference gas supply, reducing installation and running costs as well as eliminating any inaccuracies associated with possible reference gas composition variances. The 3000ZA-XL ZrO_2 sensor has been designed for enhanced performance on ranges from 0-5 ppm to 0-250 ppm O_2 . By focusing on this niche area of interest, the Model 3000ZA-XL provides the user with highly stable, drift-free performance.

Ideal for Unmanned Plant Operations

Because the 3000ZA-XL 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 Analyzer 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 ZrO_2 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

Built for Reliability and Performance

MODEL 3000ZA-XL ZIRCONIUM OXIDE TRACE OXYGEN ANALYZER

STANDARD FEATURES

- Three user-selectable ranges
- Signal output: 0-1 VDC & 4-20 mA DC
- 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

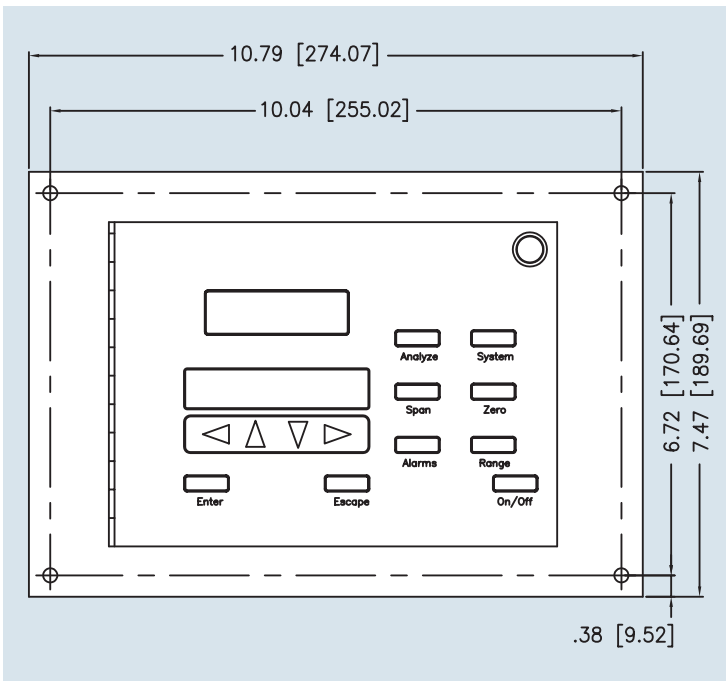
- Ranges:** 3 range customer selectable
(Minimum 0 - 5 ppm full scale)
(Maximum 0 - 250 ppm full scale)
- Accuracy:** $\pm 2\%$ of FS at a constant temperature or
 ± 0.5 ppm of FS over operating temperature range,
whichever is greater
(once temperature equilibrium has been reached)
- Sensitivity:** 0.5% 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 O₂ with 5 ppm H₂, 5 ppm CH₄,
or 5 ppm CO
- Signal output:** Analytical measurement -
0-1 VDC, and 4-20 mA DC (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)

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.

OPTIONS

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



TELEDYNE ANALYTICAL INSTRUMENTS

A Teledyne Technologies Company

16830 Chestnut Street
City of Industry, California 91748, USA

TEL: 626-934-1500 FAX: 626-934-1651

TOLL FREE: 888-789-8168

Visit Our Web Site at:
www.teledyne-ai.com

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.

CERTIFIED
ISO 9001:2000



Accredited by the Council
for Accreditation (RvA)



National Accreditation
Program