

O₂ Gas Analyzer (ppm - %)

HIGHEST ACCURACY & LOWEST COST



O₂ Gas Analyzer (ppm - %)

Transdiox-3100Z O₂


6 available configurations:

- * Transdiox 3100 Z: O₂.
- * Transdiox 3100 ZA: O₂ - CO₂.
- * Transdiox 3100 ZB: O₂ - CO.
- * Transdiox 3100 ZD: O₂ - H₂O.
- * Transdiox 3100 ZF: O₂ - Cl₂.
- * Transdiox 3100 ZN: O₂ - N₂O.

Optional swing handle, Pely-style carry case, printer and gas filter.

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The Transdox 3100Z oxygen analyzer allows fast and accurate oxygen analysis over the full oxygen range 10-20ppm to 100% O₂ in steps of 0.01%. CO₂ concentration, from ppm up to 100% & CO concentration, from 0-3% to 0-100% (range specified by the customer at the time of ordering). H₂O concentrations from either -60°C to +20°C or -100°C to +20°C dp (dew-point). Chlorine at a range of 0-60ppm. N₂O concentrations 0-1000ppm. The analyzer provides continuous on-line oxygen analysis, with a typical response time less than 5 seconds for a 90% response to a step change in gas compositions, 30 seconds for CO&CO₂&H₂O&N₂O and 60 seconds for Cl₂. The dew-point sensors are OEM modules.

The analyzer contains a powerful Nitto motor-driven vacuum pump which draws a gas sample at a rate that can be set by the user using the flow gauge/needle valve on the front panel. Typical flow rate is 1 liter per minute. Alternatively the pump can be independently switched off and operated under flowing gas conditions.

The zirconia sensor head is located inside the analyzer and needs to be heated to 650°C before it will conduct oxygen ions. The analyzer supplies heat to the sensor, which is controlled very accurately by a regulated power supply incorporated in the instrument. An internal pressure sensor compensates for small changes in gas pressure to keep the readings stable. The CO&CO₂&N₂O sensor is based on dual-beam infra-red technology with full pressure and temperature correction. The module is exceptionally stable and requires virtually no maintenance or calibration. The dew-point sensors are high precision transmitters that are fully factory calibrated and is supplied with its own Calibration Certificate, providing direct traceability to both UK (NPL) and US (NIST) Humidity Standards The sensor is certified at thirteen dew-point levels across its operating range against a certified reference hygrometer, using a mass flow humidity generator system as a source of reference calibration gas.

The analyzer is packed with features including fully programmable alarm circuits, programmable analogue outputs, easy calibration (any two or three user selectable gases), RS232 / RS485 communications, independent type K thermocouple and a full set of communications /data-logging software that is MS Excel compatible.

Features:

- Continuous gas sampling via powerful yet quiet internally located motor-driven pump.
- Flow rate controlled by needle valve/flow gauge on front panel
- Measurement range available:
 - Transdox 3100 Z: 10-20ppm to 100% O₂.
 - Transdox 3100 ZA: 10-20ppm to 100% O₂ & 0-5000ppm, 0-1%, 0-5%, 0-10%, 0-30% and 0-100% CO₂.
 - Transdox 3100 ZB: 10-20ppm to 100% O₂ & 0-3%, 0-10%, 0-30% and 0-100% CO.
 - Transdox 3100 ZD: 10-20ppm to 100% O₂ & -60°C to +20°C or -100°C to +20°C H₂O dew-point range.
 - Transdox 3100 ZF: 10-20ppm to 100% O₂ & 0 to 60ppm Cl₂.
 - Transdox 3100 ZN: 10-20ppm to 100% O₂ & 0 to 1000ppm N₂O.
- Accuracy ± 1% of the actual measured oxygen with a precision ± 0.5%, ±2% full scale accuracy for CO₂&CO&N₂O.
- Easy to calibrate by the user using user selectable gases.
- Large back-lit LCD display showing O₂, Cl₂, N₂O CO, CO₂ temperature and pressure (user-selectable units).
- RS232 / RS485, 0-5V and 4-20mA current loop outputs (both user programmable).
- Windows configuration and data logging software with MS-Excel compatible graphing included.
- Fully programmable alarms with outputs and visual/audible warning.
- Optional printer, carry handle & transport case available.
- Works on any worldwide mains voltage 90-260 Vac.
- Nernst mode of operation for ultra low oxygen concentrations.
- Independent type K thermocouple fitted as standard. Range 0-1250°C.
- Unique sensor cleaning facility which can be operated at any time during use.
- Sensor life expectancy typically 17,500 hours. Up to ten years for CO₂, CO, N₂O. Over 24 months Cl₂.
- Very fast O₂ measurement response (around 5 seconds for a 90% response).

Applications:

Transdox 3100 Z, 3100 ZA and 3100 ZB:

- Laboratory scale furnace experiments where the control and monitoring of residual oxygen is critical.
- Monitoring vehicle emissions and pollution control.
- Industrial processes using low oxygen environments. e.g. wave soldering under nitrogen, vacuum welding.
- Sampling oxygen levels in rooms where asphyxiation may be a hazard e.g. In rooms containing liquid nitrogen dewars.
- Control of critical oxygen atmospheres where high partial pressures are required.
- Food production.
- Testing the purity of inert gases such as argon and nitrogen.
- Monitoring of the combustion process in lean-burn applications.
- Control of critical oxygen atmospheres where high partial pressures are required.

Transdox 3100 ZD:

- Glove box applications.
- Laboratory scale furnace experiments where the control and monitoring of residual oxygen is critical.
- Applications where extremely dry gases must be used.
- Industrial Gas Production.
- Gases used in electronics production and medical applications.
- Catalytic reformer cycle.
- Moisture in natural gas.
- Moisture in high-voltage switchgear quench gases.
- Monitoring of desiccant dryers for compressed air or plastic moulding apparatus.

Transdox 3100 ZF:

- Monitoring of chlorine.
- Control of levels during industrial chlorination process.
- Cooling tower and emission monitoring and control.
- Analysis of chlorine manufacturing.
- Analysis in water treatment plants, industrial and mining enterprises and swimming pools.

Transdox 3100 ZN:

- Air quality monitoring.
- Hospital gas circuits.
- Anaesthesia gases.
- Breathing zone gases in hospitals.
- Verification of quality of piped N₂O and O₂ gases in hospitals.
- Measuring N₂O TWA exposure.

Specifications Transdox 3100Z O₂

Technical Data: Analyzer

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|------------------------------|---|
| Voltage | 90-260Vac, 50/60Hz |
| Analyzer dimensions | 350mm x 263mm x 150mm |
| Weight | 7 kg |
| Display | 16 x 2 character (9mm) back lit LCD |
| Warm up time | 3-4 minutes at 20°C |
| Operating temperature | 5°C to 35°C |
| Voltage outputs | 0-5V linear, user-programmable |
| Current outputs | 4-20mA linear, user-programmable |
| Digital outputs | RS232 (RS485 option available): data streamed on demand |
| Calibration | Requires 1 or 2 user selectable gas mixtures |
| Sample pump | 24Vdc motor-driven diaphragm pump |
| Thermocouple | Type K 0-1250°C accuracy ±1% |

Technical Data: Sensor

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|--|---|
| O₂ Sensor | 10 ⁻²⁰ ppm to 100% O ₂ ; ±1% of the actual oxygen concentration |
| O₂ Sensor stability | ±2% of reading per month |
| CO₂ Sensor | 0-5000ppm, 0-1%, 0-5%, 0-10%, 0-20%, 0-30% and 0-100%; ±2% of full scale |
| CO Sensor | 0-3%, 0-10%, 0-30% or 0-100%; ±2% of full scale |
| H₂O Sensor | -60°C to +20°C or -100°C to +20°C dp; ± 2°C dp |
| Cl₂ Sensor | 0-60ppm |
| N₂O Sensor | 0-1000ppm; ±2% of full scale |
| Life expectancy | >17.500 hours: O ₂ , >5 years H ₂ O |
| Response time O₂ (gas flow rate 1ltr.min ⁻¹) | Approximately 5 secs for a 90% step change |
| Response time CO and CO₂ | T90 approximately 30s (90% response time) |
| Response time H₂O (gas flow rate 1ltr.min ⁻¹) | Approximately 10 minutes for a 90% step change in dew-point |
| Response time Cl₂ | < 60 seconds for a 90% step change |
| Response time N₂O | Approximately 30 seconds for a 90% step change |
| Maximum free air displacement | 7 litres per minute (user adjustable) |
| Noise level | 44db (max) at 1 meter |
| Maximum inlet temperature | 50°C |
| Sample connections | 4mm ID / 6mm OD nipple type |



Optional Transdox Sampling Kit

- Transdox 3100Z analyzer.
- Handle.
- Thermal printer.
- Heavy duty Peli-style case.