

Model 902P Process O₂/CO₂ Analyzer

Details & Specifications

✓ Features

- Range 0-100% oxygen
- Ranges 0-1, 2.5, 10, 20, 30, 50 or 100% carbon dioxide
- Analyzes oxygen/carbon dioxide in all types of applications
- Sampling pump (optional)
- Battery operation (optional)
- Economically priced
- Analog outputs and data logging available
- Two Year Warranty

✓ Applications

- Bioreactors
- Gas Blending Systems
- Fruit Storage Areas
- Fermentation
- Welding Gases
- Controlled Atmosphere Rooms



Overview

The Model 902P is designed for continuous or spot check monitoring of O₂ and CO₂ levels in all types of processes, gas blending, biotech, fermentation, fruit storage areas, welding gases and controlled atmosphere rooms. The Model 902P is available with any single range from 0 to 1% up to 0 to 100% CO₂ vol/vol full scale. Options include battery operation, analog outputs, various pump options, and data logging. For those applications where a source of sample flow is not available, the 902P can be equipped with an optional sample pump which can operate in a continuous or batch (1-10 seconds) mode.

Infrared CO₂ Sensor

The Model 902P uses a solid-state infrared sensor which has no moving parts, a compact optical cell, and microprocessor-based calibration factors using a 6th order polynomial equation to linearize the full range measurement up to 100%. Infrared CO₂ measurements are inherently non-linear, especially over a high range of concentrations. The math algorithm used yields more accurate results over a much wider range of concentrations than other methods.

The Model 902P IR sensor combines cutting edge 32 bit digital signal processing with the solid reliability, compact size and state of the art microprocessor technology that makes this full-featured CO₂ measurement system less complex and more robust than other instrumentation. Its reliability is backed up with a two year warranty, twice the industry standard. The advanced design provides a stable, drift-free linearized voltage or current output that is much less susceptible to external electro-magnetic interference than conventional analog electronics.

The sensor assembly is cable connected to the control circuit board. It can be used with diffusion or pumped sample draw systems. The measurement accuracy is not affected by sample flow rate.

Electrochemical O₂ Sensor

The Model 902P design incorporates a long-life, heavy duty, proprietary electrochemical, maintenance free sensor. The sensor is totally sealed, operates at room temperature and is internally compensated for slight temperature variations. Unlike other sensors, it is not dependent on a controlled flow rate for accuracy, is not heated and is not affected by high levels of CO₂, hydrocarbon or other gases.

Sampling Versatility

The sensor designs are compact, have a low internal volume and require only a low sample flow of about 10 to 1000 cc/min. The sample should be clean and dry (non-condensing). Moisture or dirt deposits on the internal surfaces of the sensor can cause errors in the reading. A disposable type particulate filter can be inserted onto the front panel inlet fitting if needed.

The sensors operate at atmospheric pressure, and the accuracy of the measurement is not dependent on the flow rate of the sample gas. For those systems where a source of sample flow is not available, the Model 902P can be equipped with an optional internal miniature diaphragm pump with a switch on the front panel for sampling in 2 to 12 second intervals, or for continuous pump operation.

Rechargeable Battery

With its low power requirement, the Model 902P can be operated with an optional battery for those applications where AC power is not readily available. A totally sealed, long-life internal 12 Vdc NiMH battery pack accepts a full or partial charging cycle and will operate the unit for 8-12 hours (depending on CO₂ sensor and pump duty cycle). The charger module plugs into a standard 100-240 Vac outlet for charging or continuous operation. Alternatively, the unit can be powered from an external 12Vdc source.

Microprocessor/Electronics

Microprocessor based electronics for sensor signal processing, battery charging, pump timing and on/off control provide high accuracy and reliability with minimal component use to reduce size and cost. Battery save feature turns unit off after one hour idle time.

Technical Specifications - Sensors

	Oxygen Sensor	Carbon Dioxide Sensor
Type:	Proprietary Electrochemical	Solid-state Infrared
Range:	0 to 100%	0-1, 2.5, 10, 20, 30, or 0-100%
Sensitivity:	0.1% O ₂	0.1% CO ₂
Minimum Detection Limit:	0.1% O ₂	0.1% CO ₂
Accuracy:	$\pm 0.2\%$ O ₂ below 25% $\pm 1\%$ of reading above 25%	$\pm 0.1\%$ CO ₂ below 2% for 0-100% $\pm 2\%$ of reading above 2% for 0-100% $\pm 0.1\%$ CO ₂ below 2% for 0-20% $\pm 1\%$ of reading above 2% for 0-20% $\pm 200\text{ppm}$ for 0-1%

Technical Specifications - All

Calibration Controls	Potentiometer SPAN adjustment for both O ₂ and CO ₂ . Potentiometer ZERO adjustment for O ₂ , pushbutton AUTO-ZERO for CO ₂ .	
O ₂ Calibration	Weekly; set with room air set to 20.9% O ₂ .	
CO ₂ Calibration	Every 12 months; calibration gas recommended.	
O ₂ Resolution	0.1% O ₂	
CO ₂ Resolution	0.1% CO ₂	for 0 to 30% and 0 to 100% ranges
	0.01% CO ₂	for 0 to 2.5%, 0 to 10%, or 0-20% ranges
	0.001% CO ₂	for 0 to 1%
Analog Output (Optional)	0-5Vdc or 4-20mA linear proportional to concentration (O ₂ channels) 0-1Vdc or 4-20mA linear proportional to concentration (CO ₂ channel) – 0-10Vdc for 0-2.5% range and lower	
Sample Pump (Optional)	Miniature diaphragm type with adjustable timing, or optional 2-mode pump switch (continuous/controlled by adjustable timing setting), ~5cc/sec flow, rated for 5000 to 10000 hours of run time	
Sampling Port	Front panel fitting with luer connection for disposable filter, plastic splitter; 1/16 to 1/8 ID tubing.	
Size	9.8W x 4H x 10L in. (249 x 102 x 254 mm)	
Weight	9.8 lb. (4.4 Kg)	
Warranty	2 years, parts and labor	
Standards	 	
Origin of Goods	Our products are manufactured in the U.S.A.	
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