

## **Model 906E CO<sub>2</sub> Analyzer** **High Accuracy Version (0-1000 or 0-2000ppm)**



*Model 906E with optional internal pump and two mode pump switch*

✓ **Available native sensor ranges: 0-500, 0-1000, 0-2000ppm**

### ✓ **Features**

- Continuous measurement of CO<sub>2</sub> in all types of applications
- Excellent temperature and humidity compensation
- Stable, repeatable results
- AC or (optional) battery operation
- (Optional) Internal sampling pump
- Economically priced
- Two-year warranty
- (Optional) 0-10 Vdc analog output
- (Optional) Companion data logging available complete with graphing software

### ✓ **Applications**

- Bioreactors
- Gas Blending Systems
- Fruit Storage Areas
- Fermentation
- Welding Gases
- Controlled Atmosphere Rooms
- Algae Experiments
- Carbon Capture And Storage
- Incubation Experiments
- Cell Culture Analysis
- Greenhouse CO<sub>2</sub> Research
- Biofuel Experiments
- CO<sub>2</sub> Mitigation Research

## **Overview**

The Model 906E Carbon Dioxide Analyzer is designed for continuous or spot check monitoring of CO<sub>2</sub> levels in all types of processes, gas blending, biotech and other systems.

## **Sensor Design**

The Model 906E uses an NDIR 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 2000ppm. Infrared CO<sub>2</sub> measurements are inherently non-linear, especially over a high range of concentrations. The math algorithm used in the 906E yields more accurate results over a much wider range of concentrations than other methods.

The Model 906E 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 CO<sub>2</sub> 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 allows an output requiring less frequent calibration. It 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 sensor design is compact, has a low internal volume and requires only a low sample flow of about 800 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 in the sample line if needed.



## **Sampling Versatility**

Sample flows into the sensor through the front panel fitting and vents out through a port fitting on the back panel. The sensor operates at atmospheric pressure, and the accuracy of the measurement is not dependent on the flow rate of the sample gas. There are no restrictions in the sample cell, and samples introduced at slightly higher pressure will quickly equilibrate to atmospheric pressure. For those systems where a source of sample flow is not available, the Model 906E can be equipped with an optional internal miniature diaphragm pump with an on-off switch on the front panel, a continuously operating pump, or a cycling pump which is user adjustable.

## **Principle of Operation**

Sample is introduced to the analyzer through a front panel fitting and into the NDIR sensor for carbon dioxide measurement. Microprocessor controlled light pulses at a specific wavelength in the infrared are absorbed by any carbon dioxide present in the sensor cell, which causes a reduction in the light energy impinging on the detector. The amount of energy absorbed is processed by another microprocessor which mathematically calculates the concentration value using a 6<sup>th</sup> order algorithm and converts it into a linear electronic output. This output signal is then sent to the analog output converter for the V<sub>dc</sub> output, and also to the LCD screen for concentration display.

## Technical Specifications

<b>Range</b>	0 to 2000ppm	
<b>Resolution</b>	For Range 0-2000ppm CO <sub>2</sub>	1ppm
<b>Output</b>	Optional, 0 to 10V, linear, proportional to CO <sub>2</sub> concentration (*analog output set at factory, please inquire)	
<b>Accuracy</b>	For 0-2000ppm:	$\pm 10$ ppm or $\pm 1\%$ , whichever is greater; below 100ppm $\pm 5$ ppm
<b>Response Time</b>	Approximately 30 seconds to final reading	
<b>Warm Up</b>	About 30 seconds to low accuracy (for best accuracy allow 10 minutes)	
<b>Drift</b>	less than 4ppm per year (maximum)	
<b>Sensor</b>	NDIR Infrared; non-depleting with no moving parts	
<b>Sensor Body</b>	Anodized aluminum	
<b>Calibration</b>	With standard calibration gas; SPAN adjustment on rear panel ZERO set with auto-zero button located on rear panel.	
<b>Calibration Frequency</b>	Minimum once per year	
<b>Power Supply</b>	Internationally compatible charger or power supply, 100/240V (50/60Hz) to 12V	
<b>Sample Pump</b>	Optional; internal, with on-off switch on front panel.	
<b>Battery Operation</b>	Optional, with internal rechargeable 12 Vdc NiMH battery	
<b>Size</b>	10 in. x 4 in. x 10.5 in. (25.4 cm x 10.6 cm x 26.67 cm)	
<b>Weight</b>	7 lbs. (3.18 kg)	
<b>Warranty</b>	2 years, parts and labor	
<b>Standards</b>	 	
<b>Origin of Goods</b>	Our products are manufactured in the U.S.A.	



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