



Green Air Products

MODEL 6000



**Microprocessor-based, Infrared
Environmental CO₂ Sensor**

OPERATOR'S MANUAL

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Model 6000 Reference Manual

Revision History

<u>Date</u>	<u>Changes</u>
5/08/01	First printing.

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Introduction

The Green Air Model 6000 is a non-dispersive infrared analyzer for measuring environmental CO₂ concentration in indoor living and growing spaces. Its measurement range of 0 - 5000 PPM (parts per million; 1000 PPM = 0.1%) covers the typical range required for hydroponic environmental control.

The Model 6000 connects directly to the Green Air Products family of controllers: no separate power supply is required. The unit is factory-calibrated for ease of use and compatibility to the CDMC-6 system.

A simple one-point calibration procedure and built-in calibration port make the Model 6000 simple to maintain.

Indicators

The Model 6000 has a single green LED on the front panel which blinks to indicate that the unit is operating.

Installation

Mounting

The Model 6000 is designed for flush mounting to a vertical surface using the holes in the two mounting flanges at the narrow ends of the enclosure. The unit should be mounted with the interface connector facing down.

Locating the Device

The best results will be achieved by locating the Model 6000 in an area opposite the CO₂-generating device that is safe, secure, dry, and approximately three (3) feet above floor level.

Cover Removal

To open the Model 6000 remove the four retaining screws from the back of the unit and lift the cover off the base.

Calibration Procedure

The locations of controls on the circuit board are shown in Figure 1 on page 4.

To verify and/or adjust the Model 6000's calibration, proceed as follows:

1. Move the shorting block from jumper JP5 and slide it over both pins of jumper JP2 (see Figure 1 on page 4).
2. Remove the dust cover from the calibration nipple, attach a flexible tube and establish a flow of between 50 and 100 cc/min (0.1 to 0.2 SCFM) of calibration gas through the sensor. Allow approximately two minutes for the reading to stabilize.
3. If the concentration shown on the controller's CO₂ display differs by more than ± 75 PPM from the known concentration of the calibration gas, use the 'UP' and 'DOWN' buttons (see Figure 1 on page 4) to adjust the reading.
4. When the reading agrees with the concentration of the calibration gas, remove the shorting block on jumper JP2, and replace in its original position at jumper JP5.
5. Turn off the calibration gas flow, disconnect the gas tubing from the calibration nipple and replace its dust cover.

Cover Replacement

Place the cover on the base oriented so that the interface connector protrudes through the cutout. Ensure that the cover seats squarely on the base. Holding the cover in place, turn the unit over and replace the four cover retaining screws.

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Specifications

Operating principle	Non-dispersive infrared (NDIR)
Gas sampling method	Diffusion
Measurement range	0 - 5000 PPM CO ₂
Typical drift (per year)	±75 PPM (@ 1200ppm)
Accuracy	±5% of reading or ±75 PPM, whichever is greater
Repeatability	±20 PPM
Response time	Less than 1 minute
Operating temperature range	32 to 122 °F (0 to 50 °C)
Operating humidity range	0 - 90% RH (non-condensing)
Storage temperature	-22 to 140 °F (-30 to + 60 °C)
Power requirements	18 - 30 VDC
Power consumption	Less than 2W @ 24 VAC
Calibration adjustments	Span only (offset electronically nulled)
Calibration verification time	10 minutes typical
Dimensions	6.75" x 4" x 1.75"
Voltage output (linear)	0 - 5 volts DC (1 mV = 1ppm)
Warm-up time	3 minutes
Weight	9 Oz. (0.25 Kg)
Operating life expectancy	10 years typical