SOLATEL CO2-300 CO_2 CONTROLLER

INTRODUCTION

The Solatel CO2-300 provides monitored CO_2 control. Automated CO_2 dispensing avoids wasted CO_2 and gives finer control over grow room CO_2 concentration compared to a timer. The user simply sets a desired concentration level in PPM (parts per million) and the CO2-300 does the rest. It can be used with any CO_2 dispensing equipment such as a CO_2 tank or generator. The CO2-300 consists of a Control Unit and a Sensor Unit connected by an 8 foot cable.

INSTALLATION

1) Plug the Control Unit into a convenient 120 VAC outlet. If you wish to prevent CO_2 dispensing when your lamp is off, plug the Control Unit into your lamp timer or another timer on the same schedule. Do not plug CO_2 dispensing equipment into the Control Unit yet.

2) Mount the Sensor Unit in a place that is most likely to measure an average of the changing CO_2 environment. Position it for good air circulation. Avoid dead air spaces where there is poor air circulation. Place it some distance away from the CO_2 equipment to allow the CO_2 to mix with the air before measurement. Some experimentation may be required for best control.

3) Wait 5 minutes for system warm up. The Sensor Unit will then display the actual room CO_2 level.

4) When you press the SET button on the front panel of the Sensor Unit, the display switches from showing actual room CO_2 PPM to showing the set point level (also in PPM). When the room CO_2 level falls below the set point, the Control Unit turns on your CO_2 dispensing equipment. The dispensed CO_2 will eventually increase the room CO_2 level above the set point and the Control Unit will then turn off your CO_2 dispensing equipment. The Sensor Unit's front panel LED indicator changes from steady to blinking when the actual room CO_2 level is above the set point.

5) To adjust the set point, keep holding the SET button down while repeatedly pressing either the "+" button or the "-" button until you get the reading you want. A typical desired value for a set point is 1500 PPM *. Now release the SET button and the display once again shows the actual room CO_2 level.

6) Now plug your dispensing equipment (tank solenoid valve or generator) into the AC outlet on the front of the Control Unit. That's it. Your Solatel CO2-300 will now maintain the CO_2 concentration you have selected in your indoor growing environment.

* The CO2-300 has 40 PPM of hysteresis (offset) built into it. For example, if you adjust the set point to 1500 PPM, it would actually turn off CO_2 at 1540 PPM and turn on CO_2 at 1460 PPM. This is to try to smooth fluctuations in CO_2 levels. CO_2 typically rises and falls in a cyclical manner as it is dispensed and then utilized by the plants or otherwise escapes the grow room. Some grow rooms are more difficult than others in this regard. In more difficult environments, the Sensor Unit needs to be located by experimentation to minimize overshoot and undershoot. The set point usually needs to be adjusted such that it "averages" the overshoot and undershoot around the desired CO_2 level.

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SPECIFICATIONS

Operating principle	Non-dispersive infrared (NDIR)
Gas sampling method	Diffusion
Range	0-2000 PPM CO_2 (1000 PPM = 0.1%)
Maximum drift (per year)	±75 PPM
Accuracy	±5% of reading or ±75 PPM, whichever is greater
Repeatability	±20 PPM
Response time	Less than 1 minute
Set point hysteresis (offset)	Approximately 40 PPM
Operating temperature range	0 to 50 ºC
Operating humidity range	0 - 99% rH (non condensing)
Warm up time	5 minutes
Display	4 digit LCD showing actual or set point PPM CO_2
Indicator	1 LED: on steady below set point, blinks when above
User controls	3 buttons: SET, +, -
Power input	120 VAC 60 Hz @ 0.05A maximum + dispensing equipment
Dispensing equipment outlet	1 each NEMA 5-15R, 120 VAC @ 5A maximum
Dimensions - Sensor Unit	5.2" x 3.2" x 1.4"
- Control Unit	4.0" x 2.2" x 2.5"
Interconnecting cable length	8 feet
Weight (total)	1.3 pounds
Storage temperature	-30 to +60 ºC
Recommended calibration interval	5 years
Operating life expectancy	10 years typical
Warranty	1 year parts and labor