



# REG-1 CO<sub>2</sub> Regulator

Custom Automated Products offers a full range of equipment for the growing enthusiasts. The REG-1 CO<sub>2</sub>-Regulator combines a precision regulator/ flow gauge and an industrial solenoid valve. The flow gauge can be set from .5 to 15 Cubic Feet Per Hour. Used in conjunction with a CO<sub>2</sub> Controller or timer, it covers a broad range of set-ups.

## OVERVIEW

The REG-1 is designed to work with any control device that is 120 volt.

Features a tank pressure gauge to indicate remaining tank pressure.

Complete with solenoid valve, 6 foot power cable and 10 feet of 1/4" air line.

The REG-1 is a solid & reliable unit with a 3 year warranty!

## INSTALLATION

**\* WARNING: Using and transporting compressed gasses can be dangerous if mishandled. Follow your local regulations for transportation and storage of compressed gasses. Even though CO<sub>2</sub> is non-flammable, it is stored at very high pressures up to 1500 P.S.I.**

1) The tank you are using must be secured in a way so that it will not tip over. Damage to the top of the cylinder may result in high-pressure gasses being released under tremendous energy.

**\*NOTE: You must insert a plastic washer between the valve connection on the REG-1, and tank. Make sure that the clear plastic flow gauge is upright when the connection is tightened. The plastic washer or bushing is squeezed between the two pieces when the CGA-320 nut is tightened creating a seal. If the seal is not made properly, the CO<sub>2</sub> will leak out of the tank.**

2) Remove the plastic washers that are tie wrapped around the pressure gauge. Make sure that the CO<sub>2</sub> tank outlet is free of dirt and debris. Use one of the washers between the regulator and the tank. Hand tighten the brass nut.

**\* WARNING: Do not hold on to the plastic flow meter when you are tightening the nut onto the CO<sub>2</sub> tank! YOU WILL BREAK THE SEAL BETWEEN THE FLOW GAUGE AND THE HOUSING OF THE UNIT! THIS IS NOT COVERED BY WARRANTY!!!!!!!!!!!!!!**

**\* WARNING: Do not over tighten the nut. Please use the correct wrench. DO NOT USE PLIERS!**

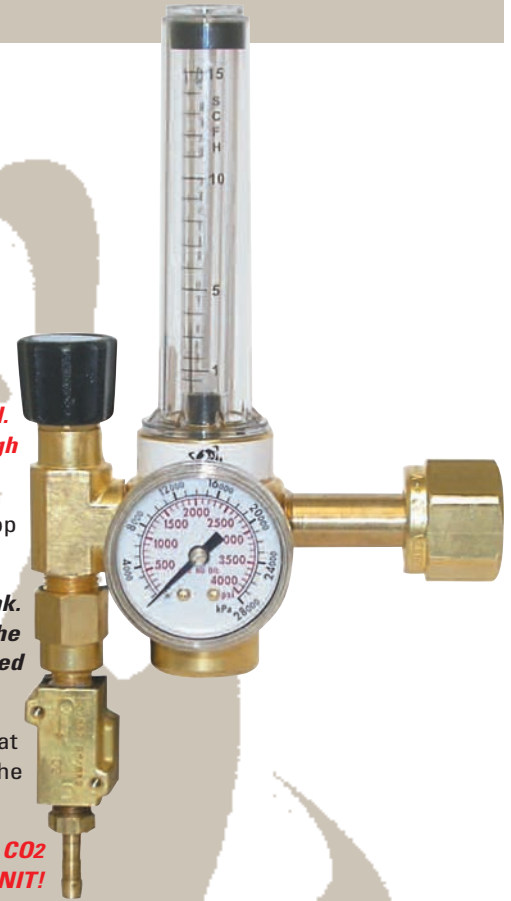
3) Tighten the nut using a large Crescent wrench.

4) Connect the 1/4" tubing to the 1/4" hose barb on the bottom of the solenoid valve. Using the provided tie-wraps, secure the other end of the 1/4" tubing near the back of an oscillating fan for best mixing results.

5) Open the valve on top of the tank and check for leaks. Spraying the brass connections with a soapy water or glass cleaner makes finding leaks easier. Just look for bubbles.

6) The standard 120 volt power cord can be connected to a timer or controller. When the valve is turned on, CO<sub>2</sub> will flow through the flow-gauge to the 1/4" hose.

7) To set the flow gauge, open the black valve on the unit by rotating the knob counter-clockwise. Opening the valve will allow you to set the unit from .5 to 15 Cubic Feet Per Hour. Opening the valve further results in the small metering ball moving up past the top of the printed scale. For larger areas this can be done to increase the flow as long as you are using a controller like the PPM-2a Fuzzy Logic. The Fuzzy Logic Controller will AUTOMATICALLY adjust itself to ANY flow gauge setting. Be careful of freezing up the regulator with too much flow.



## CONTROLLER OPTIONS

Because of the rather high cost of using compressed CO<sub>2</sub>, most people want to have a automatic controller that can actually measure CO<sub>2</sub> levels in parts per million. The controller ensures you are not using too much CO<sub>2</sub> and can reduce waste dramatically. Using a timer to control the CO<sub>2</sub> valve can be done with some success but you may end up quite a bit below or even worse quite a bit above your intended CO<sub>2</sub> level.

C.A.P. offers a full line of CO<sub>2</sub> controllers from simple to sophisticated. Controllers such as the PPM 3 or the PPM-2a Fuzzy Logic Controller™ intelligently control your CO<sub>2</sub> Levels automatically.

Keep in mind that no two set-ups are exactly alike so it is almost impossible to know exactly how much CO<sub>2</sub> to release simply by time. Factors such as whether or not your area is sealed or open, cooled by air conditioners or a fan contribute to the imprecise nature of timed release.

## MAKING CONNECTIONS

To determine how long in minutes it will take to increase the level of CO<sub>2</sub> in your growing area, first calculate cubic feet are in your area by multiplying the rooms length x height x width. Compare your result with the numbers down the left side of the chart. When you find a number that closely matches your area, pick a flow gauge setting which will fill the room in a specified time, preferably in the green area, as that is where the you will get the best precision of a timed release. Be sure to have lots of air-movement around the plants to properly distribute and mix the CO<sub>2</sub>. Depending on how much air leakage you have, you may want to release CO<sub>2</sub> every 3 hours or so. This is rather arbitrary, and so for best results, we recommend that you use a PPM level controller. If you are using a PPM Level controller, the Yellow areas are good to use.

### FLOW GAUGE SETTINGS

#### CUBIC FEET/HOUR

	0.5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
50	7	4	2	1	1	x	x	x	x	x	x	x	x	x	x	x
100	14	7	4	2	2	1	1	1	1	1	x	x	x	x	x	x
200	29	14	7	5	4	3	2	2	2	2	1	x	x	x	x	x
400	58	30	14	14	10	7	6	5	4	4	3	3	3	2	x	x
600	87	43	22	14	11	9	7	6	5	5	4	4	4	3	3	x
800	115	58	29	19	14	12	10	8	7	6	6	5	5	4	4	4
1000	144	72	36	24	18	14	12	10	9	8	7	7	6	6	6	6
1200	137	87	43	29	22	17	14	12	11	10	9	8	7	7	6	6
1400	202	101	50	34	25	20	17	14	13	11	10	9	8	8	7	7
1600	230	115	58	38	29	23	19	17	14	13	12	11	10	9	8	8
1800	259	130	65	43	32	26	22	19	16	14	13	12	11	10	9	9
2000	288	144	72	48	36	29	24	21	18	16	14	13	12	11	10	10

This chart is based on an ambient level of 300 PPM of CO<sub>2</sub> and a desired level of 1500 PPM.

## PRECAUTIONS

*After making the compressed gas connections always check for leaks. .*

*DO NOT allow the CO<sub>2</sub> level to rise above 2500 PPM. Levels above 5000PPM can be extremely dangerous.*

*The REG-1 should be connected to a suitable CO<sub>2</sub> controller to regulate the CO<sub>2</sub> level in PPM.*

*Using and transporting compressed gasses can be dangerous if mishandled. Follow your local regulations for transportation and storage of compressed gasses. Even though CO<sub>2</sub> is non-flammable, it is stored at very high pressures up to 1500 P.S.I.*

## WARRANTY

*The REG-1 is warranted against defects in workmanship and parts for Three Years.*

## SPECIFICATIONS

Main power voltage:	120 volts	Maximum amperage:	15 amps
Temperature control range:	50-115° F	Temperature operating range:	32-120° F
Humidity control range:	20 - 80% with a 5% differential	Humidity operating range:	0-99%
Relay operating life:	100,000 electrical		

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