

ENERGY GREENHOUSE CO₂ REGULATOR

WARNING

1. All CO₂ tanks should be placed on a flat surface and securely mounted to a permanent structure such as a wall, or metal frame. These tanks are under extreme pressure. Should one fall or be knocked over, personal injury may result.
2. Follow all local laws for transporting, storing and handling CO₂.
3. PPM levels should be kept below 2500 PPM. Levels above 5000 PPM can be harmful.
4. Always completely turn off the tank valve before attaching or detaching the regulator.

INSTRUCTIONS

1. There may be particulates or debris in the tank valve. Before the regulator is connected to the tank, this material needs to be cleared. This is done by opening the tank valve very quickly for 3 seconds and closing immediately. This should be performed each time a new tank is installed.
2. When attaching the regulator to the tank, do not hold on to the plastic flow meter. Putting this pressure on the flow meter will break the seal at the base and permanently damage the unit. This will not be covered under the warranty.
3. Insert one of the provided white plastic washers inside the large brass nut. This will help prevent leaks. We recommend replacing the white plastic washer with each tank change. This will ensure a tight fit, without leaks each time.
4. Securely attach the regulator to the CO₂ tank. Use a crescent wrench to make this connection. Do not use pliers or channel-locks to tighten the nut. Do not over-tighten the nut.
5. Do not use pipe thread tape or lubricants when making the connection to the tank.
6. Attach the provided black tubing to the 1/4" barbed fitting on the CO₂ regulator. Run the tubing from the regulator to the back of an oscillating fan. Zip tie the tubing to the back of your fan. The fan will aid in the CO₂ dispersion around your room.

7. Plug the 120V power cord into a CO₂ monitor/control system. Repeat cycle timer or standard wall timer may also be used.
8. Before opening the valve on the CO₂ tank, slightly open (1/2 turn counter-clockwise) the flow adjustment knob on the regulator to relieve the pressure from the gas being released. Failure to do this can permanently damage the unit and void the warranty.
9. Open the valve on your CO₂ tank 2 or 3 rotations. Check for CO₂ leaks at all connections by using soapy water.
10. To set the flow rate, turn the brass flow adjustment knob. The ball will move up and down inside the flowmeter. Adjust the knob to your desired flow rate.

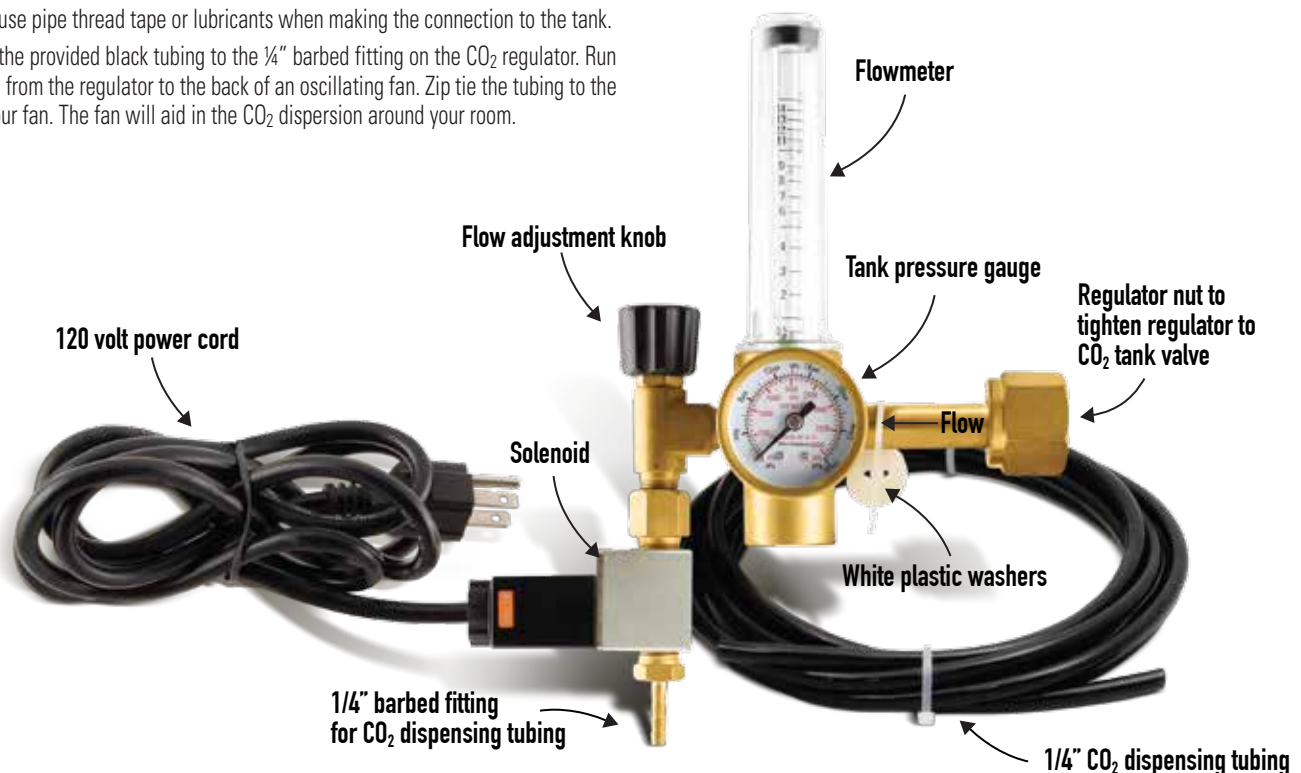
Warning: Opening the flow adjustment knob completely where the ball moves past the top of the flow scale can allow the CO₂ to flow too fast. This can cause freezing of the regulator and will void the warranty.

Note: CO₂ should be used during daylight hours when the lights are on.

Remember: Light + CO₂ = Photosynthesis.

WARRANTY

This unit is covered against material defects for one (1) year. Abuse or misuse will void the warranty.



The typical level of CO₂ in the air we breathe is 300 – 400 PPM. This timing chart will assist with adding an additional 1100-1200 PPM of CO₂, bringing your garden area's CO₂ level to 1500 PPM, which is considered ideal for most indoor gardens.

Along the top row of the chart represents cubic feet (cu.ft) of your garden area (length x width x height = cu.ft). The left column represents the flowmeter setting (cu.ft/hr), which is controlled by the flow adjustment knob. Simply determine your cu.ft/hr and set your flowmeter. The chart will tell you how long to set your timer to bring your CO₂ level to 1500 PPM. Example: If you have 800 cu.ft and set your flowmeter to read 6, it will take 10 minutes to bring the CO₂ up to a level of 1500 PPM. Ideal CO₂ enrichment times range from 8 to 15 minutes. The quicker you can replenish the CO₂ in your space the better. Caution: Excessive flow rates of CO₂ from a tank through a regulator can cause the regulator to freeze and can permanently damage the regulator. Your garden area will determine adjustments made to this timing chart (plant maturity, drafts, leaks, etc. should be considered). Some gardens will require less time than indicated and some gardens will require more. For areas larger than 2000 cu.ft, use the formula to figure your setting.

1. Take the total PPM and divide by 1,000,000

Example: 1200 PPM / 1,000,000 = 0.0012

2. Divide the result by the flowmeter setting

Example: .0012 / 12 cu.ft/hr = 0.0001

3. Multiply the result by the cu.ft of the space you are using

Example: 0.0001 x 2500 cu.ft = 0.25

4. Multiply the result by 60 to get minutes

Example: 0.25 x 60 = 15 minutes

With a flow rate of 12 cu.ft/hr and a room size of 2500 cu.ft the timer should be set to 15 minutes to bring our CO₂ level up to 1500 PPM.

Flow Meter Settings Cubic Feet Per Hour	1200 PPM Timing Chart Garden Size Cubic Feet (LxWxH)															
	Cu.ft	100	200	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000
	1	7	14	22	30	36	43	50	58	65	72	87	101	115	130	144
	2	4	7	11	14	18	22	25	29	32	36	43	50	58	65	72
	3	2	5	7	10	12	14	17	19	22	24	29	34	38	43	48
	4	2	4	5	7	9	11	13	14	16	18	22	25	29	32	36
	5	1	3	4	6	7	9	10	12	13	14	17	20	23	26	29
	6	1	2	4	5	6	7	8	10	11	12	14	17	19	22	24
	7	1	2	3	4	5	6	7	8	9	10	12	14	17	19	21
	8	1	2	3	4	5	5	6	7	8	9	11	13	14	16	18
	9	1	2	2	3	4	5	6	6	7	8	10	11	13	14	16
	10	N/A	1	2	3	4	4	5	6	7	7	9	10	12	13	14
	11	N/A	1	2	3	3	4	5	5	6	7	8	9	11	12	13
	12	N/A	N/A	2	3	3	4	4	5	5	6	7	8	10	11	12
	13	N/A	N/A	2	2	3	3	4	4	5	6	7	8	9	10	11
	14	N/A	N/A	2	2	3	3	4	4	5	6	6	7	8	9	10
15	N/A	N/A	1	2	2	3	3	4	4	6	6	7	8	9	10	

WARNING: Never allow CO₂ levels to get above 2500 PPM. Levels above 5000 PPM are extremely dangerous.

PRODUCT SPECIFICATIONS

Main power voltage: 120V

Temperature control range: 50-115°F

Humidity control range: 20-80% with a 5% differential

Relay operating life: 100,000 electrical

Maximum amperage: 15 amps

Temperature operating range: 32-110°F

Humidity operating range: 0-99%