

W4B 4 Burner CO₂ Generator

Summarization

CO₂ generator main uses in plant vegetables, increase CO₂ content for vegetable and flower planting in greenhouse. W4B is a safe and economical solution, to produces CO₂ by burning propane or natural gas or methane. has some characteristics as follows: high yield, safety and convenient operation and low cost, it is an ideal greenhouse product for accelerating plant growth, increasing yield, improving quality and can enhancing disease-resistance. This 4 burner CO₂ generator can produce 3-13 cubic feet per hour. The W4B is recommended for areas under 3200 cubic feet.

NOTE: An air exchange is recommended when using CO₂ generators. At least once every hour to avoid your plants from getting CO₂ poisoning.

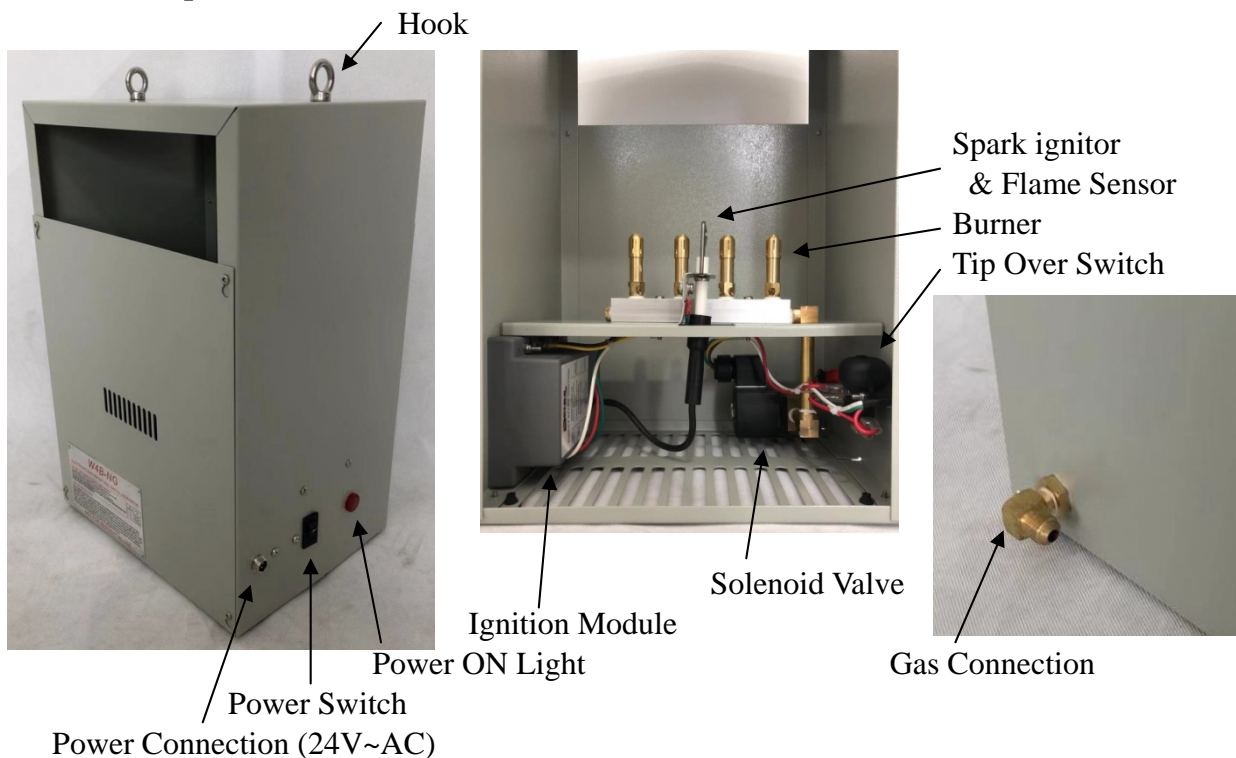
The W4B used an automatic electronic ignition module. When ignite unsuccessfully, the solenoid valve can automatically prevent the gas from leaking out in the event. A standard tip over switch is one of the safety features of the W4B.

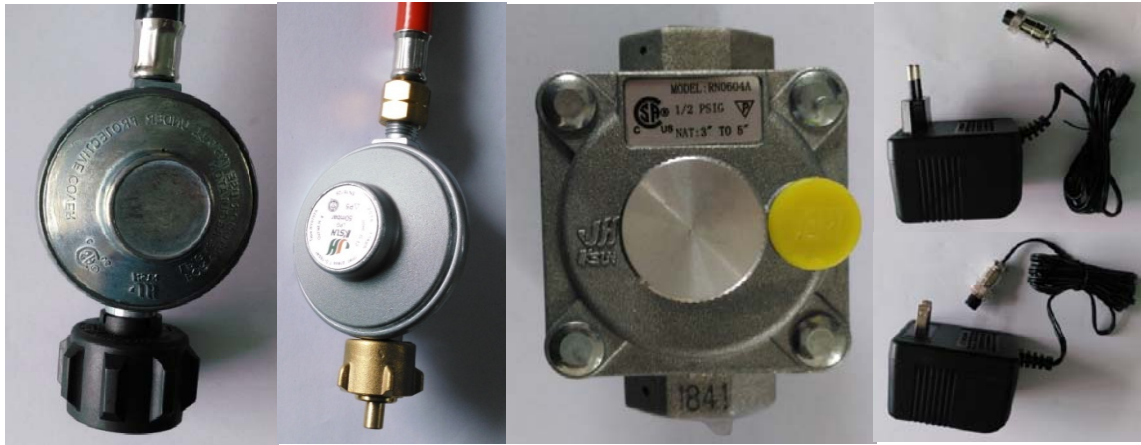
Also, comes standard with 4 brass burners and a 12 foot hose. A regulator is provided, so that you can connect or tap into existing lines.

WARNING: Not recommended for use inside of a Grow tent. The high heat can cause melting of the wall material.



Name of component





Liquid Propane Gas Regulator

In-Line Natural Gas Regulator

Power Supply

Installation

- 1) Determine the desired location for the W4B. It must be mounted at least 18” away from walls or any flammable material. An 18” clearance must be maintained between the unit and ceiling (18” of chain provided with W4B). Open flames are present inside the unit, Do not used the unit around flammable materials. Unit does get warm to the touch.
- 2) The W4B must be hung correctly for optimum operation. Use the hooks & chains provided with the unit to secure to ceiling. The unit must be level in order to operate correctly and safe. Tighten all slotted brass caps by hand, may come loose during shipping.
- 3) The hose provided is fitted with a standard 3/8” female flare connector. Connect the hose to the back of the W4B. Use two crescent wrenches or similar to properly tighten the connection. This should be done without twisting any other connections.

WARNING: Connecting the W4B LP unit to a Natural Gas line, will result in very large flames. Alternatively, if a W4B-NG is hooked up to propane, this will result in very low and insufficient flames. Make sure your fuel matches the Generator type.

Propane Generator Only

NOTE: The W4B-LP comes with a standard tank mounted regulator, which should be used unless the incoming pressure is already regulated to 11” WC (water column).

- 4) Connect other end of hose to the brass connector on the LP regulator provided. Use the two wrenches again, one to hold the regulator from the bottom side. The other to twist the 3/8” brass connector on tightly.
- 5) Open the valve on the propane tank or bigger fuel source. Check the Lines and connections for leaks, by spraying them with soapy water from a spray bottle. Look for constant bubbling, that would indicate a leak. Fix leak repeat process.
- 6) Flip power switch to on position, within 20 sec. unit will begin to spark to ignite the fuel.

Natural Gas Generators Only

NOTE: It is very important to install the regulator “in-Line” between your gas supply and generator. The regulator supplied with the W4B-NG is present to maintain a constant pressure of 4.5” WC. Which is around ¼ PSI. Before installation, verify your main gas pressure. Most Gas companies install low pressure gas regulators at the meter that are about ½ PSI. Some commercial buildings have a high pressure gas main (usually around 2 PSI). If the pressure is high, it will need to be reduced to ½ PSI or lower before installing regulator (high pressure can keep the valves open, causing unit to run with no power).

- 4) When installing, make sure to install a gas shut-off valve on your line (turn off at main or meter). Install the shut-off valve in an accessible location. Install the in-line regulator to the gas supply (3/8” NPT female thread). Connect the hose to the flared fitting on regulator. Using two crescent wrenches or similar to tighten

connections.

5) Open the inline shut off valve (make sure the main is on). Check for leaks using soapy water and a spray bottle. Look for bubbling, this indicates a leak.

6) Flip power switch to on position, within 20 sec. unit will begin to spark to ignite the fuel.

Connecting to CO₂ controller

NOTE: The recommended CO₂ level for optimum growth is between 1000 to 1500 PPM. Above these levels is considered wasteful. Above 5000 PPM is considered dangerous to animals and humans. Side effects of excessive CO₂ include headache, drowsiness & shortness of breath. Use a PPM controller to ensure you're maintaining proper PPM levels.

1) Connect the CO₂ generator's power supply to the controller that you are using. Usage of the generator should be during lights ON hours. At bare minimum, a timer can be used to turn the generator on/off. Possibilities are likely to exceed recommended PPM range with this method.

2) Set CO₂ controller to desired PPM level and plug in the power of the CO₂ generator into the controller.

Lighting the Generator

1) Connect the power supply to the power connection on the side of the generator and plug it into the wall or your CO₂ controller.

NOTE: Confirm that the supply voltage and plug voltage is the same.

2) Ensure the power switch on the side of unit is OFF. Turn on the gas supply to the unit.

3) Turn on the power switch. The generator will turn on the valve and attempt to light the generator. It will make 5 attempts to light the main burner, 20 seconds apart. If the generator does not light the 5th attempt, a red light will appear on the electric ignition module indicating that it was unable to light in 5th attempts. And give alarm. It will not try again until the power is cycled. Turn off the power switch and turn it back on, it should light with the next 5 attempts after all the air in the das line is gone. Depending on the length of the gas hose, you might need to turn it on and off to 3 or 4 times, if your generator still will not light, please refer to the troubleshooting tips at the end of this instruction manual.

4) Once the main burner lights, it is should light reliably until the tank (propane only) is changed out.

5) The red indicator light on the side of the generator and blue light on the ignition module is both on as long as the main burner is running.

Proper Sizing

It is important to consider that some manufactures have inaccuracies within their generator ratings. In order to compare sizes, a very simple conversion can be used to determine a CO₂ generator's actual capacity to produce CO₂. That is assuming you know the actual Btu output of the unit. British thermal units (BTUs) are stated as the actual heat output of the unit. Heat output (BTU), is determined simply by knowing the pressure of the gas, the type of gas (LP or natural) and the volume of gas allowed to flow to the burner.

To convert an LP generator's Btu rating into cubic feet of CO₂ per hour:

$$\frac{\text{Btu / hr} \times 1.18}{1000} \quad \text{Example: } \frac{11,176 \times 1.18}{1000} \quad 11,176 \times 1.18 = \frac{13,187}{1000} = 13.2 \text{ cuft CO}_2 / \text{hr}$$

To convert an LP generator's Btu rating into cubic feet of CO₂ per hour:

$$\frac{\text{Btu / hr}}{1000} \quad \text{Example: } \frac{12540}{1000} = 12.5 \text{ cuft CO}_2 / \text{hr}$$

So a CO₂ generator running propane, with a rating of 11,176 Btu will produce 13.2 cubic feet of CO₂ per hour assuming a standard pressure of 11" WP is used. A natural gas fired generator rated 12540 will produce up to 12.5 cubic feet per hour. That's not the only thing to consider.

Reducing Burners

The W4B CO₂ generator installed four burners, you can reduce them as needed, front panel can be removed. Four screws are used to secure the panel in place. Simply loosen the screws and lift the panel off the keyhole in order to expose the burner assembly. Be sure to replace the cover prior to operating.

Troubleshooting

If you are having problem with this unit, refer to these troubleshooting hints.

The generator not light

- 1) There could be air in the gas line, especially when changing propane tanks or turning on your generator for the first time. Turn generator off and turn it back on. Let it attempt to light 5 times and then repeat.
- 2) If the generator lights the main burner and then immediately turns back off, the flame sensor may not be directly in line of the flame. Tighten up the slotted jet caps on both sides of the spark ignitor/flame sensor so that the flames coming out of the burner are aimed at the spark ignitor/flame sensor. Bend the mounting bracket slightly to adjust the flame sensor to be in the heat of the flame.
- 3) Make sure that tank is full and that the gas is turned on.
- 4) Verify the unit matches the type of gas you are supplying and the gas pressure is correct.

The flame on the main burner seem either too large with yellow flame or too small “flashing” ON and Off

- 1) You may have mixed burners. Verify you are using natural gas burner with natural gas and propane burner with propane.
- 2) Lazy yellow flame indicate low gas flow due to low propane tank level or low natural gas pressure. Long piping runs with natural gas need to be appropriately size.
- 3) Verify the unit matches the type of gas you are supplying and the gas pressure is correct.

The unit is plugged in and turned on but the burner don't work

- 1) Verify the power switch is ON and the power supply is getting power.
- 2) make sure the unit is level. If the unit is title more than 35 degrees in any direction, the unit can't operate.

NOTE: After making the gas connections ALWAYS check for leaks using soapy water and a spray bottle.

This unit is not for residential use. The exterior of the unit can get very HOT when in operation.

Always wait for generator to properly cool down prior to servicing or removing the front panel.

Do not operate the unit with the front panel removed.

When the unit stops using or depositing in the room, should turn off the power and gas source.

When it does not use for a long time, should separate the CO2 generator and gas source.

Warranty:

The W4B is warranted against defects in workmanship and parts for Three years, non-transferable.

Specifications:

Power supply in: 120v~ or 240V~ depending on the power supply

Power supply out: 24 volts AC

Propane Pressure: 11" WC **Natural Gas Pressure:** 4.5" WC

Total BTU 1 burner: Propane 2,794/ Natural Gas 3,135

Total BTU 2 burner: Propane 5,588/ Natural Gas 6,270

Total BTU 3 burner: Propane 8,382/ Natural Gas 9,405

Total BTU 4 burner: Propane 11,178/ Natural Gas 12,540

Shipping Weight: 12lbs

Dimensions: 11"x16 1/2" x 8 1/2"