



# THE ROBUSTER

## injector system

*Carefree plant feeder for every garden*

### Installation instructions

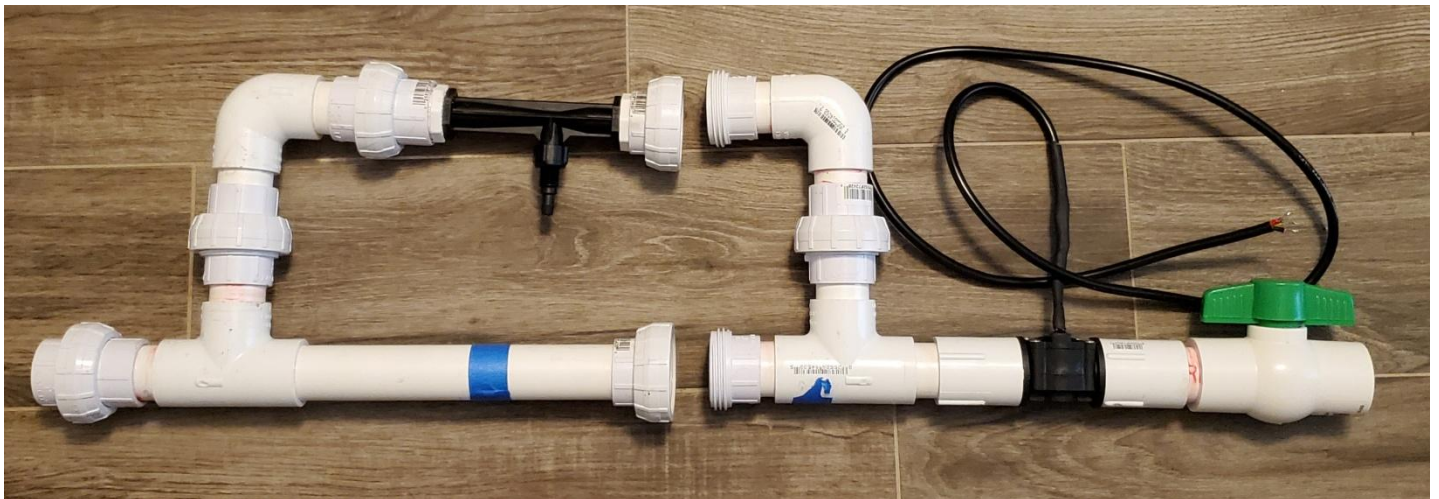
These instructions assume you have some knowledge of irrigation systems, plumbing and working with PVC pipe. Our system is built with 1" schedule 40 PVC. It is a complete kit, and includes the needed couplings to attach to your existing 1" irrigation line. You will also need to have a 120 v outlet and a waterproof cabinet or area to install the pump and controller. We assume no responsibility for incorrect installations.

The ROBUSTER was designed to be used with Sunshine Boosters amino acid based liquid fertilizers and micro-elements, but can be used with any liquid product that requires a dose of between 5 ml - 25 ml of product per gallon of water.

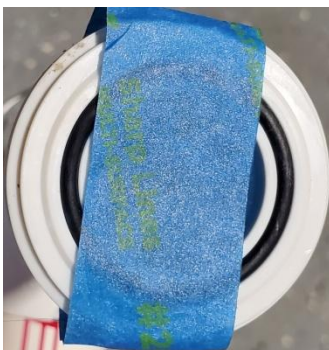
When you open the kit, confirm that all parts are present. If any parts are missing, please contact us immediately.

**Manifold half (out to irrigation system).**

**Manifold half (in from irrigation system).**



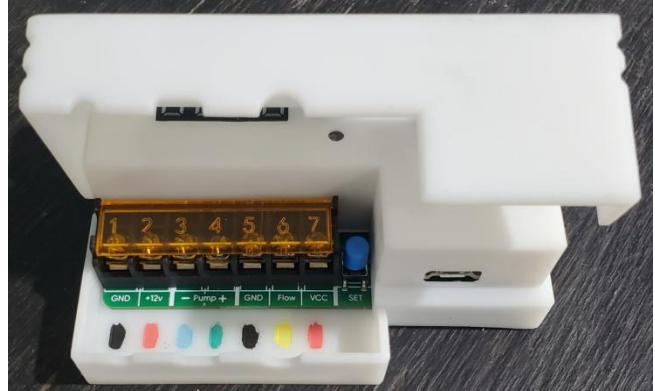
**O-Rings**



**Booster Pump with IN/OUT tubes and wiring harness**



## Controller Box



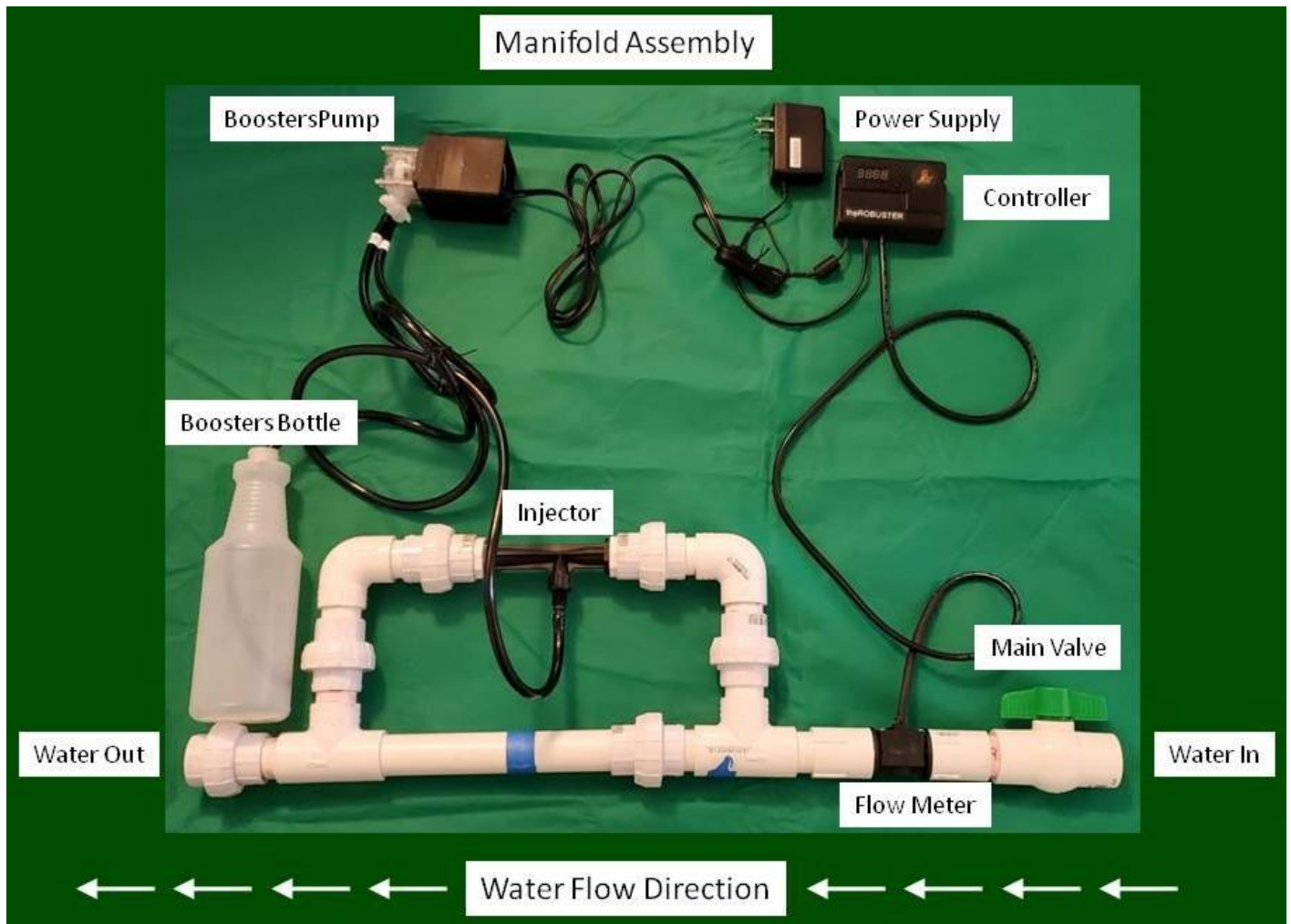
## Power Supply for Controller Box



## Pre-installed flow meter

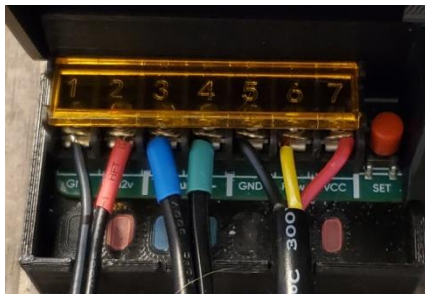


# Assembly Instructions



- A. Connect both sections of the manifold together using pre installed threaded connectors and 2 provided **O-rings**. Make sure there is no dirt or other objects between two halves. If an **O-ring** is missing please contact us immediately. Hand tight only.
- B. Connect fertilizer injector **Manifold Assembly** to the irrigation line.
  - a. You will need PVC cement and primer (not provided).
  - b. Make sure to follow PVC cement manufacturer directions
  - c. When making cuts use a proper tool and properly measure length.
  - d. Make sure to observe water flow direction. (The Main Valve is on the inlet end)
- C. Observe all applicable codes and regulations and seek professional advice if required. If your water comes from a ground well or municipal water system you may need to install a proper backflow prevention valve.
- D. Close **Main Valve**
  - a. Open main line and check for leaks
  - b. Slowly open **Main Valve** and check for any leaks
  - c. Make sure the **Injector** is not leaking
- E. After checking for leaks, turn off the valve.
- F. Place the **Controller Box** in a place where it is protected from the elements. You may need to install a waterproof enclosure. We offer waterproof enclosures for sale.

- G. Connect the **Water Flow Meter** to the **Controller Box** following the wiring guide in the controller box. Be sure to note wire color and connect to the correct connector. The flow meter connects to the three screws on the right side of the wiring board.
- H. Connect the **Boosters Pump** to the **Controller Box** following the wiring guide in the controller box. Be sure to note wire color and connect to the correct connector. The pump connects to the screws marked with blue and green in the center of the wiring board.
- I. Connect the **Power Supply**. Be sure to note wire color and connect to the correct connector. Connectors for the power supply are on the left side of the electronic board. While the controller is low-voltage (12V), the **Power Supply** must be plugged into a 110V outlet. Make sure to observe all applicable electrical codes. Do not use extension cords. Contact us if you need a longer cable for the pump or water flow meter. (Photo shows controller box after all connections have been completed. Make sure all cords/cables are routed through the slots in the front of the controller so that it will close properly.



- J. Connect the **Boosters Pump** to the **Injector** using the tube marked "OUT".



- K. Add Boosters to the **Boosters Bottle** - see Boosters Selection Instruction
- L. Place the **Boosters Pump** tube marked "IN" into the **Boosters Bottle**. Make sure the tube reaches the bottom of the **Boosters Bottle**.
  - a. You can use any suitable plastic bottle for fertilizer, for example, an empty milk bottle. Depending on the frequency and volume of watering you may need a larger bottle. Do not use metal jars. Make sure the fertilizer bottle is closed to prevent rain and insects from getting into fertilizer. The best method may be to drill a hole the same size as the tube in the lid of the container and insert the tube through the hole.



# General operating instructions

- A. Set the desired booster dosage using the button inside the cover of the **Controller Box** (see instructions below). The dosage is calculated in milliliters of Boosters per gallon of water. See boosters fertilizing chart for proper dosage.
- B. When you turn on the water, the pump will start dosing.
- C. When the water stops, the pump will automatically stop

**Important!** Make sure to keep the proper level of Boosters inside the **Boosters Bottle**. If the **Boosters Bottle** is empty then the pump injects air into the irrigation system. This will not damage the pump or the irrigation system; however the plants will not be getting any fertilizer.

## Controller Box Setup and Operation



- A. The **Controller Box** consists of:
  - a. LED screen
  - b. 2 indicator LED lights on top of the box
  - c. An adjustment button for setting the correct dosage of Boosters
  - d. An internal electronic board for connecting power, controller and pump.
- B. Indicator LED's
  - a. Power LED - indicates that the device is powered and ready to work.
  - b. Pump LED - flashes when water is passed through theRobuster and the Booster pump works.
- C. Display Screen
  - a. After powering the **Controller Box** the screen should show "F" and numbers. That is the firmware version. For example - "F 451".
  - b. Next it will show "- - -". That is the idle state.

# Adjustment steps after assembling the entire Robuster Injector System

- A. Make sure that
- The Booster Tube is in the Booster Bottle
  - Booster Bottle is filled with fertilizer - see Selecting Boosters part
  - Power adapter is plugged into 110 VAC outlet
  - Irrigation system is not running.
- B. **Setting up the Boosters dosing rate.**
- With no water running through the system, plug the **Controller Box** into an appropriate outlet. The **Controller Box** and electrical connections must be in a waterproof area. Use of extension cords is not recommended.
  - To set the dosing rate, press the adjustment button. The display will show "C:--". By turning the knob you can set the Booster dosage from 0 to 25 ml per gallon of water passing through the system. If you set it to 0, you can still run water through the Robuster, but you will not get any fertilizer.
- C. If water runs through the Id assembly and the pump dispenses Boosters - the display screen shows:
- Water flow in gallons per minute (GPM) For example - "F 1:20" - means that the current flow is 1.2 GPM
  - Set dosage of Boosters in ml per gallon of water. For example - "C: 20" = 20 milliliters of boosters for every gallon of water passing through the manifold assembly.

## Selecting Boosters

The Robuster Injector System has been designed to use an all in one liquid fertilizer such as Sunshine Boosters amino acid based Combo Garden series products. These products are available from <https://toptropicals.com/store/group/gardensupplies.htm>. Below is a list of the products recommended for this system.

NAME	RRECOMMENDED FOR:	Recommended ml/gal		
		Drip	Microjet	Sprinkler
SUNSHINE Ananas	Pineapples and Bromeliads	10	10	5
SUNSHINE Robusta	Vegetative Growth	25	15	10
SUNSHINE Megaflor	Promotes blooms	25	15	10
SUNSHINE C-Cibus	All fruiting and flowering plants	25	15	10
SUNSHINE Mango Tango	Mango and Avocado trees	25	15	10
SUNSHINE Citron	All citrus trees	25	15	10
SUNSHINE Superfood	Micro-elements (monthly)	5	5	5
		Drippers or microjets with plants in pots or grow bags		
		Drippers or microjets with plants in the ground		
		Sprinklers with plants in the ground (large area)		



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