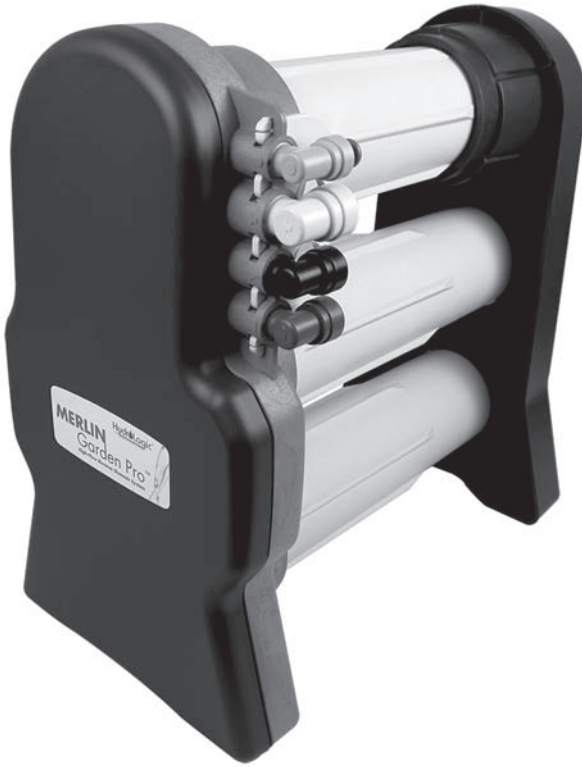


# MERLIN

# Garden Pro™

*High-Flow Reverse Osmosis System*



## **User Manual**

SUPPLEMENT

**HydroLogic™**  
PURIFICATION SYSTEMS

# Description:

*Serious gardeners understand the importance of Reverse Osmosis water as a clean base for your nutrient formula. In fact, all high quality fertilizers are formulated and have feed charts based on RO water. High PPM water is the main cause of nutrient lockout and plant deficiencies. By using RO water, you will notice a **huge difference in the health and success of your crops!***

*The **Merlin-Garden Pro™** is a revolutionary new design in Reverse Osmosis technology. This high flow RO purification system is capable of producing 30 gallons of clean water per hour or roughly 750 gallons a day.\* This is the first system rated for commercial use that has been customized for hydroponics and all types of gardening methods. The **Merlin-Garden Pro™** is an exclusive design available only at hydroponic related businesses.*

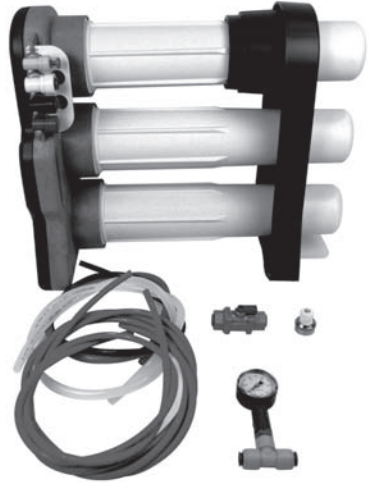
*\* based on 77 deg.far., 50 psi, 750 ppm inlet water*

## Table of Contents:

Setup	p <b>2-3</b>
Changing Filters & Membranes	p <b>4</b>
Float Valve Options	p <b>5</b>
Options & Add-Ons	p <b>6</b>
Additional Info	p <b>7</b>
Warranty / Support / Contact Info	p <b>8</b>

## The **MERLIN-Garden Pro™** unit includes:

- High Flow Reverse Osmosis Unit with 1 Carbon Pre-Filter & 2 RO Membranes
- Inlet Pressure Gauge
- Garden Hose Connector & 3/8" Inline Shut-off
- 12 ft. RO Line, 4 ft. Feed Line, 5 ft. Drain Line
- Fittings & Instructions

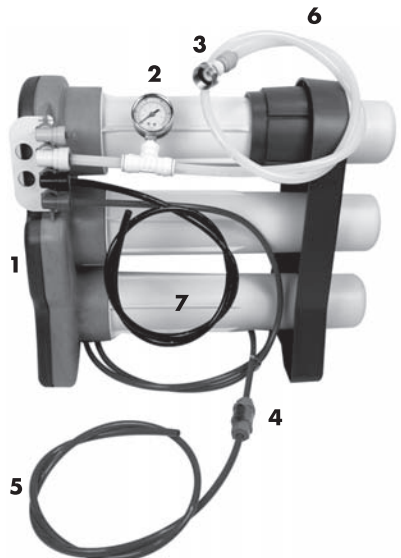


## **MERLIN-Garden Pro™ Setup:**

### **Filter Unit Setup:**

Follow the Instruction Manual included for the initial setup of the **Merlin-Garden Pro™** unit. The carbon post filter stated in the manual is not utilized by the MGP. The drain boa adapter and counter top faucet, also stated in the manual, are also not part of the **Merlin-Garden Pro™** configuration. The **Merlin-Garden Pro™** has a unique configuration that is exclusive to the gardening industry. These supplemental instructions are meant as an easy to follow additional manual that addresses the specific configuration of the **Merlin-Garden Pro™** unit.

1. Main Unit
2. Inlet Pressure Gauge
3. Garden Hose Connector
4. 3/8" Inline Shut-off
5. RO Outlet Line (blue)
6. Feed / Inlet Line (clear)
7. Drain Line (black)



# Setup (cont.):

## Typical setup is as follows:

### Manifold ports:

When plugging in the 4 different elbow fittings into the **Merlin-Garden Pro™** manifold you must match up the unique symbols on the fittings with the symbols on the manifold. This step is outlined in the Installation Manual.

### Feed valve:

Once you have plugged in the 4 fittings and pushed in the lock bar to hold them in place you can hook up the tubing. Start by pushing in the short length of 1/2" clear tubing, included with the pressure gauge, into the "feed" port of the **Merlin-Garden Pro™**. Then push in the left side of the pressure gauge to this short length of tubing and then the longer length of 1/2" clear tubing to the right side of the pressure gauge. You can then hook the end of the 1/2" tubing to the brass garden hose adapter and to your garden hose or spigot. If you desire to hook the **Merlin-Garden Pro™** to your existing plumbing or faucet your dealer has several options available for this.

### RO water Line:

Insert the longer 8 foot length of blue tubing into the blue RO water port in the manifold. Push the included inline shut off valve into the other end of this 8 foot length. Push the shorter 4 foot length of blue tubing into the other side of the inline shut off. This can then be hooked into the float valve kit or simply used as a wand to fill your reservoirs. The inline shut off will not only stop the RO water line but, with the help of the manifold's internal Automatic Shut-Off Valve, will also stop the drain line.

### Drain Line:

Since a drain boa adapter is not included with the **Merlin-Garden Pro™** you will have to run the drain line somewhere. Begin by pushing in the 4.5 foot length of black tubing in the black "drain" port in the manifold. If this is not the sufficient length to reach your drain point you may push the short length of red 1/2" tubing in to the end of the black 3/8" tube to extend this. Any drain point will do, including sink drain, toilet, floor drain, or even outside to irrigate your landscaping. If you want a more permanent setup for the drain line, your dealer has drain adapters that hook up to the main drain under the sink.

### Tubing:

The unit includes enough tubing to get you setup. If you require more, your dealer has all sizes and lengths available. There are 2 lengths of blue RO 3/8" tubing included. They are cut to be able to splice them together with the 3/8" inline shut off valve.

### Top-Port / Fitting on MERLIN-Garden Pro™ :

The top port on the **Merlin-Garden Pro's™** manifold, that has the plug, is for an optional membrane flush tank. The flush tank extends the life of the two membranes as well as gives constant ultra low PPM water for critical applications and for drinking water. More info on this is available on our website and the tank is available at your dealer.

# Changing Filters and Membranes:

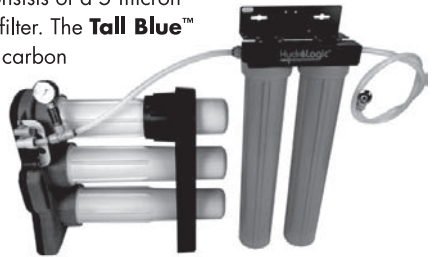
The **Merlin-Garden Pro's™** included carbon pre-filter has a useful life of approximately 1,500 gallon of RO water. After this, it can become clogged and no longer filter out harmful chlorine and sediment. Therefore, the RO membranes are at risk of fouling and becoming contaminated. Once this happens the only choice is to replace the dual membranes as they will not be doing a proper job of removing the Total Dissolved Solids (TDS) and therefore lowering the PPM.

With frequent and proper pre-filter changes, the **Merlin-Garden Pro's™** dual RO membranes can last from 2-4 years. Of course these are estimates and are all dependant on the quality of the feed water. The worse the feed water, the more frequent the pre-filter & membrane changes must be.

The **Merlin-Garden Pro™** out of the box is designed to produce around 20 gallons of RO water per day or 140 gallons per week. If, however, you plan on producing more water than that, a separate pre-filter system is highly recommended. Otherwise, the carbon pre-filter changes will be very frequent. If you don't keep up with these pre-filter changes you risk fouling your membranes. Below is a chart of weekly water use and what systems are recommended:

# OF GALLONS PER WEEK	RECOMMENDED SYSTEM
140 gallons or less	Merlin-Garden Pro™
140-300 gallons	Tall Blue™ w/Merlin-Garden Pro™
300+	Softener combo system w/Merlin-Garden Pro™

The **Tall Blue™** is 2 stage 20" pre-filter system that consists of a 5 micron sediment filter and a 5 micron highly efficient carbon filter. The **Tall Blue™** extends the life of the Merlin-Garden Pro's™ included carbon pre-filter by 3 times. This allows you to change the **Merlin-Garden Pro's™** and the **Tall Blue's™** pre-filters every 4,500 gallons of RO water. If you use more than 300 gallons of Reverse Osmosis water per week, then you should be looking into a separate, stand alone softener or softener combo system. The straight softener is perfect for well and spring situations that have no chlorine. A softener will remove all of the hardness and excessive minerals from the feed water. Folks using municipal or city water with chlorine should look at the softener combo system which includes some activated carbon in the softener tank that removes chlorine and chloramines along with the hardness.



**Softener**

Whichever way you go, it is important to know what contaminants and in what quantities they are present in your untreated water. Most dealers have in store water testing and can do an analysis of your water in 5 minutes. Then you can know exactly what is in your water, in what quantities, and how you can properly remove them.

# Float Valve Options:

The basic float valve kit includes a mechanical float valve, that has a bulkhead fitting and can be mounted in a reservoir or storage tank, and an Automatic Shut-Off Cartridge (ASOC). The ASOC acts as a mini bladder tank that helps the **Merlin-Garden Pro™** recognize the increase in pressure in the RO water line when the float valve closes and activates the manifold's internal automatic shut off valve thereby shutting off the drain line. Occasionally the drain line may not get shut off all the way. This can be caused by high inlet water pressure or the shape and size of the reservoir or tank being filled. In these cases you will have to manually shut off the feed valve or go with the float option below. Check unit periodically to make sure the drain has shut off.

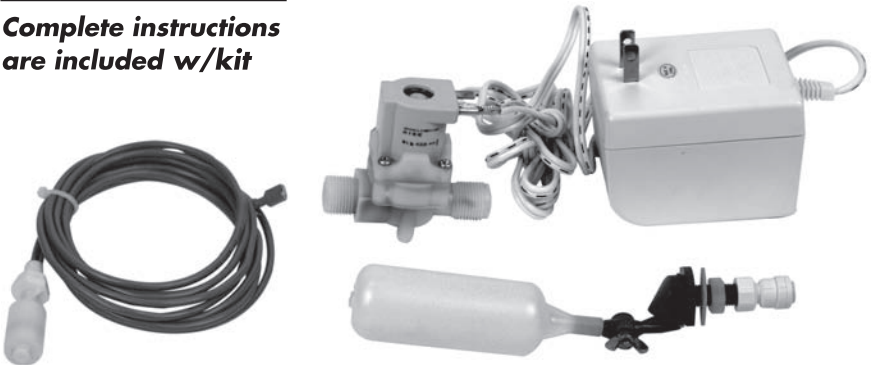


**Float w/ASO**

The best option to ensure that both the RO line and drain line get shut down is the electronic shut off kit. This consists of a float switch that is mounted inside a reservoir or tank at the desired shut off level, a solenoid with controller, a transformer, and the above mentioned PVC/Stainless float valve. The solenoid and controller unit are installed in the **Merlin-Garden Pro's™** 1/2" feed line. The PVC/Stainless float valve is mounted either horizontally or vertically in a reservoir or storage tank and is the point where the **Merlin-Garden Pro's™** RO line is attached and where the tank is fed with RO water. This float also serves as a backup in case power is lost or the solenoid malfunctions.

---

**Complete instructions  
are included w/kit**



( actual float may vary )

# Options & Add-ons for Your MERLIN-Garden Pro™:

- **UV (ultra-violet) Sterilizer Filter** for water sources with unknown bacterial content or the extra assurance of ultra-pure, sterilized water
- **Feed Valves** and **Drain Adapters** that hook into existing plumbing and sink faucets
- **QuickConnect Fittings** in many different varieties in to customize your setup. Some examples include 2 and 3 way RO line splitters for multiple reservoirs, elbow, tees, unions, etc.
- **Inline Dual TDS Monitor** to know real time in and out water quality and to determine when RO membranes need to be changed.
- **Flowmaster** gallonage meter and filter capacity monitor. This helpful accessory not only measures how many gallons of RO water have been produced but it can be programmed for a filter's useful life and will beep when it's time to change your pre-filter.
- **Booster Pump** specially designed for the **Merlin-Garden Pro™** is available for situations where the inlet pressure may be lower than 40 psi. This boosts the flow rate to maximum levels as well as allows the **Merlin-Garden Pro™** to run at maximum efficiency, wasting less water. It also ensures the lowest PPM water.
- **Remote Vertical Storage Tanks** ranging from 50 to over 1,000 gallons are available. They come in either green or black and are food grade plastic with a bulkhead fitting installed. A 3 GPM or 6 GPM inline, externally mounted delivery pump to deliver the tank's water to your reservoirs is also available.
- **Counter Top Mounted Faucets** are also available for residential drinking water applications as are fridge/icemaker connection kits.
- **Membrane Flush Tank** for increased membrane life, drinking water and for critical ultra-low PPM water applications are an option.

# Important Info:

- 1. TDS creep:** This is something that all RO systems exhibit. When the system turns off and sits idle, the untreated water inside the unit slowly migrates or “creeps” through the membranes as untreated water due to lack of pressure. When the system is turned on the next time, this water is the first to exit and is usually higher in TDS than you can expect from the system once this water has been purged

***As a result,** the first several ounces are higher TDS water. As the system runs a few minutes, the TDS levels drop dramatically and the unit produces low TDS water. This is not a concern when using it for hydroponics or gardening as the few ounces of high TDS water will be diluted into much more low TDS water. It is only a concern for drinking water. An optional membrane flush tank is available from your dealer if you are using the **Merlin-Garden Pro™** mainly for drinking water.*

- 2.** A very important factor to consider when using the **Merlin-Garden Pro™** is the hardness of the incoming water. Hardness is a measure of the dissolved minerals, mainly calcium, in the water. The **Merlin-Garden Pro™** can handle higher levels of hardness than typical RO systems available on the hydroponics market. The **Merlin-Garden Pro™** can handle hardness levels of up to 10 grains per gallon or 170 ppm. It’s important to know the hardness level of your inlet water, and most dealers will have an in store water quality analysis that can determine the level of hardness and other parameters of your untreated water. Using the **Merlin-Garden Pro™** with inlet water that has higher than 10 grains per gallon hardness may prematurely clog the pre-filters and RO membranes. A stand alone softener to remove excess hardness may be needed to pre-treat the water before the **Merlin-Garden Pro™**. Inquire at your dealers about these.
- 3. The Merlin-Garden Pro™** needs a minimum inlet pressure of 40 PSI. If this not available an optionally booster pump is available. Many people on well/spring water will need a booster pump.
- 4. The Merlin-Garden Pro™** flow rate is determined by inlet pressure and inlet water temperature. The higher the pressure and/or temp., the higher the flow rates.
- 5.** When running longer lengths of RO tubing or when running the RO tubing vertically up a floor or two, you may need a delivery pump to get the water to its source and fight the pressure loss in the line. These are available at your dealer.



# Warranty:

A 3-year residential warranty is offered to those using less than 10 GPD average. A 1-year commercial warranty is offered to those using more than 10 GPD average. This does not include clogged pre-filters and/or membranes due to excessive sediment and/or chlorine in water. This warranty also excludes damage to units caused by using the unit outside of the specified parameters. Do not operate unit if incoming pressure exceeds 80psi or there is problem with water hammer spikes. If unsure of water pressure, check with a pressure gauge available at most hardware stores. You should contact your dealer in case of a warranty issue. Refer to GE Merlin instruction manual for complete warranty information.

**Complete and mail Warranty Registration Card.**

# Tech Support / Contact:

In case your dealer can not help you with a particular application or setup question, you can contact Hydro-Logic via email: **info@HydroLogicSystems.com**

**1-888-H2O-LOGIC**

*(1-888-426-5644)*

**Visit us on the web at:** [www.HydroLogicSystems.com](http://www.HydroLogicSystems.com)



pure water's not **magic**  
it's **logic**



370 Encinal Street  
Suite 150  
Santa Cruz, CA  
95060

ph: 888.H2O.LOGIC / (888.426.5644)  
fax: 831.336.9840

info@hydrologicsystems.com  
www.hydrologicsystems.com



Built in  
USA



Earth-friendly  
Company



Printed on 100% post-consumer material