

## MSU-1024 EasyFill™ ULTRA Autofill System User Manual

Thank you for purchasing the *Level Waters*™ MSU-1024 **EasyFill ULTRA™** Electronic autofill system. It is the smallest automatic, completely electronic water level sensing unit on the market.

The MCU-21 control sensing unit incorporates a dependable patent pending sensing process and includes features found only on large professional systems, like the wave compensation delay and third failsafe probe. It may be used in many applications including ponds, water gardens, fountains and other water features. It is also suited for large industrial applications like cooling towers water make up.

The Unit uses no external moving parts and will not clog like standard float valves can. It is hand assembled from PVC material instead of molded ABS plastic. PVC provides for better endurance in sunlight and heat and will extend the life of the components over time than using other plastics would.

The MCU-21 control sensor provides dependable filling in a simple design to achieve an optimum water level. Installation is a snap with simple plumbing and wiring.

For more information on our full line of professional leveling systems, visit us on the web at [www.aquilitysystems.com](http://www.aquilitysystems.com).



### Safety Overview

The **EasyFill ULTRA™** Water Level Control/Sensor is designed to provide the user a safe product that is easy to install and use. When installed as described in this manual, the system presents no unsafe shock hazards. However, altering any of the components may present an unsafe circumstance.

Some other considerations to keep in mind during installation and operations are as follows:

**Always** use a Class 2 power limiting supply.

**Never** mount a power supply made for indoor use in an outdoors environment where it will get wet. **Follow all manufacturer instructions when installing a power supply.**

**Do not** insert metal objects into sensor probes while unit is turned on.

**Do not** break seals on unit. Doing so may expose the user to potentially dangerous voltages when unit is turned on and will void the warranty.

**Do not** plug the power supply in until all wiring is complete and leads are not exposed!

**Always** use safety equipment, such as eye protection, and dust mask when cutting PVC piping along with other normal safety precautions.

**Always** carefully follow all installation instructions.

## Installation

The MSU-1024 Automatic Water Leveling System is simple to install. A waterproof outlet cover will need to be installed on the power receptacle to protect the power transformer. These may be purchased from many local hardware stores.

Installation will also require simple PVC pipe installation and screw mounting the snap-in mount or the sensing unit along with simple wiring. The limited plumbing that is necessary to provide the system with filling water requires only a hacksaw (or other appropriate saw), PVC cement and sufficient PVC and adapters.

### Preparing for Installation

Open the package and ensure that all of the components are present and have not been damaged in shipping. Items included in the system are:

- MCU-21 **EasyFill ULTRA™** Control/Sensing Unit
- PS-24A 450ma power supply
- 1" 24VAC Fill Valve
- Mounting Accessory Kit
- Probe cleaning wire brush
- User Manual

Identify where the **EasyFill ULTRA™** will be mounted. The fill valve should be mounted within 75 feet of the control wires on the **EasyFill ULTRA™** and connected using irrigation zone wire. An outside water feed, such as a spigot will need to be run to the valve and then to the water feature that will be filled.

A **weather-protected** receptacle for power will need to be located within a maximum of 12 feet of the **EasyFill ULTRA™** Sensing Unit to install the power module. If more power cord is needed, an extension cord may be installed (sold separately) up to a length of 6 feet which will give an overall distance to the outlet of 18 feet. **Do NOT extend beyond this or the warranty will be void.**

**Warning!** Always consult with an electrician when installing electrical wiring! Not doing so could result in a dangerous condition and/or noncompliance with electrical codes.

### Installing the Contro/Sensor

Determine a location where the **EasyFill ULTRA™** control/sensor will be mounted (try to find an inconspicuous place.). If the unit is to be mounted in a skimmer, locate the surface it will mount on and verify that the sensor window will maintain the level at the optimum height for the skimmer.



Position the MSU-21 Control/Sensor so the two outside probes are at the lowest desired water level. To avoid overflows, the middle short probe should be below the pond edge. If the sensor height will need to be adjusted, MNT-

EZ/SLU adjustable mount (sold separately) may be installed. This will not be needed for most installations.

Mark the mounting surface to match the two mounting holes in the MSU-21 Control/Sensor. (If no holes are desired, the unit may be affixed using silicone sealant) Drill a small #4 pilot hole at the marks and screw the Control/Sensor snugly to the mounting surface with the #6 panhead stainless screws provided. **DO NOT** over-tighten the screws!

### Installing the Fill Valve

Plumb the input and output of the fill valve (follow manufacturer's instructions for valve) to an always-on water source using PVC pipe or garden hose (see 'Plumbing the Unit' for PVC installation tips). We recommend installing a ball valve on the output of the fill valve to control flow volume to the water feature.

**Warning! The fill valve must be installed in an upright position with the wires extending upwards from the unit to function correctly.**

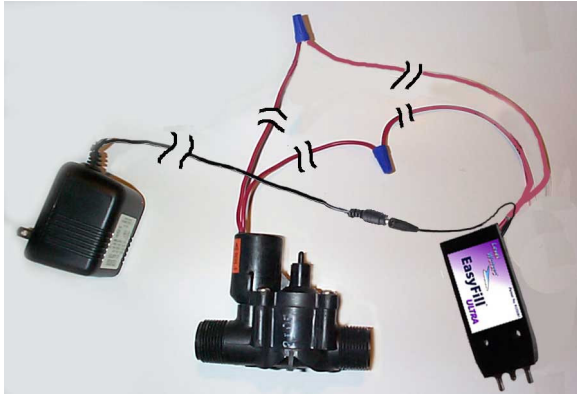
### Wiring the System

Wiring the **EasyFill ULTRA™** control/sensing unit to the power supply and fill valve requires that each connection be sealed from water using the supplied self-adhering tape and electrical sealant.

**Warning! Do not plug the power supply in until all wiring is complete and leads are not exposed!**

Remove precut insulation from sensor wire ends. Connect valve wires as shown in Diagram 2 using wire nuts provided. Bend wire nut connection flat to length of wire and wrap with self-adhering tape making sure to create a proper watertight seal. Plug the power supply connector into the black sensor power connector and seal with self-adhering tape. Apply a liquid electrical sealant (available at most hardware stores) to each connection. We recommend that the unit be tested before weatherproofing the connectors.

**Note:** It does not matter which red wire from the valve are used when wiring.



Parts needed:

- Hacksaw (or other suitable fine-toothed saw)
- PVC glue
- Required lengths of 1" PVC
- Required angle adapters.

Cut and fit all PVC pipe from the fill valve to the water feature without gluing to make sure that the pipes are where the user desires them.

Clean and glue all parts with general PVC cement to form a watertight seal. Allow joints to dry for 24 hours before connecting water to the system.

Plug the power supply into the weather-protected receptacle. The unit is ready for operation

### Operation

Once the **EasyFill ULTRA™** is connected properly and plugged in it will fill anytime the water level drops below the sensor probes after a delay of between 10 - 40 seconds.

**Note!** If the level of the water at the time of power up is low, the unit will fill until the water level reaches the probes before turning off.

### Maintenance

The **EasyFill ULTRA™** requires very little maintenance. To maintain optimal performance, periodically clean the sensor probes with the supplied wire brush, to remove debris and film. No other maintenance is required.

### Troubleshooting

The MSU-1024 **EasyFill ULTRA™** Automatic Pond Leveling System should maintain the level in your pond for many worry-free years. However, if you should experience problems with it, it may be caused by some of these common issues that can be resolved by the user:

- ✗ Pond overflows when filling
  - ✓ Verify valve is installed upright, flow direction is correct and manual fill screw is tight.
  - ✓ Readjust sensor height to lower water level.
  - ✓ Clean the probes thoroughly with the supplied wire brush.

- ✓ Water has become ground potential or there is a voltage leak. Check pumps and submerged equipment for shorts.
- ✗ Pond will not fill
  - ✓ Check to make sure power is available at receptacle.
  - ✓ Check for debris on sensor probes and in between them and clean per instructions.
  - ✓ Check to ensure connections are not damaged and are covered with weatherproof tape or sealant. Allow connections to dry if necessary and seal per the instructions.

### Warranty

Aquility Systems, Inc warrants this product to the original purchaser for a period of two years against defects in material or workmanship when used for normal residential purposes it is intended for. In order to obtain a replacement unit or repair the existing unit, you must obtain a RMA number and return the complete unit, postage prepaid, to the place of purchase, or to the Aquility Systems facility. (6949 SW 21<sup>st</sup> Lane, Gainesville, FL 32607)

This warranty is intended to cover product defects only. Aquility Systems, Inc. is not liable for indirect, incidental or consequential damages in connection with the use of the Level Waters product covered by this warranty. This warranty does not cover any cost or expense incurred by the purchaser in providing substitute equipment or service during reasonable periods of malfunction or non-use of this product, while waiting for completion of repairs under this warranty. Some states do not allow exclusions of incidental or consequential damages, so the above exclusions may not apply in all states. This warranty gives you specific legal rights in your state, which vary from state to state.

If you wish to contact Aquility Systems, Inc., please direct inquiries to:

Customer Service  
 Aquility Systems, Inc.  
 6949 SW 21<sup>st</sup> Ln.  
 Gainesville, FL 32607 or by email at  
[support@aquilitysystems.com](mailto:support@aquilitysystems.com)

Connection	Power Lead	Sensor Lead	Valve Lead
1	1 Black	1 Black	---
2	---	1st Red	1st Red
3	---	2nd Red	2nd Red

### Plumbing the Unit

Using 1" PVC pipe (available at most hardware stores) run water supply from the fill valve outlet to the pond routing it the way desired.

