

## Lead Lag Submersible Requirements

### Lead Lag Submersible Manual

- Submersible Lead / Lag Configuration
- Two to Four above ground Tanks

### Water Requirements

- A 2" discharge line from the two sump pumps will feed into Tank 1 & discharge below the level of the water.

### Electrical Requirements – Submersible Pump Control Box

For single phase units:

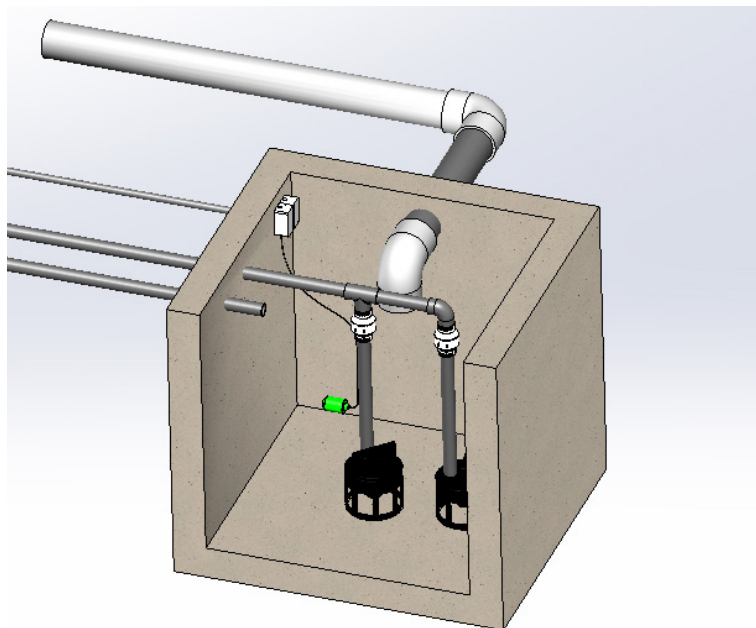
- (1) 120 Volt 30 amp single phase circuit

For three phase units:

- (1) 208/230 Volt 30 amp three phase circuit
- OR (1) 460 Volt 20 amp three phase circuit

### Misc Electrical

- 1" Conduit from Submersible Pump control box to Tank 1 for both Floats in Tank 1
- 1" Conduit from Submersible Pump control box to bring wires from submersible pumps and low level float in catch basin to the control box.
- **NOTE: Three phase systems will need an additional conduit to the sub pumps or a larger size conduit to accomodate the 10 wires needed.**



## System Operation

### Overview

The Lead Lag Submersible Pump System is float driven and is designed to pump wash water from a tank that is normally located below ground, to a tank that is usually located above ground. A low level safety float located in the below ground tank with the submersible prevents the pumps from running dry in the event the tank goes low. The high and mid level floats located in the above ground tank, send a signal to the PLC located in the lead lag control box. These floats tell the pumps to turn on and fill the tank when their position is down, indicating the water level is low. Once the float(s) are in the up position, the submersible pumps remain off until the float(s) drop again.

The Lead Lag Submersible Pump System is designed to operate with the Power Input Switch in the “On” position and the Pump #1 and Pump #2 Switches in the “Off” Position.

### Modes:

**ON** (Without Pump #1 and Pump# 2 switches selected)

When the Power Input Switch is selected to the “On” position, the pumps will operate in a “lead-lag” configuration. Pump #1 will operate as the lead pump Monday through Saturday and Pump #2 will operate as the lag pump, only running on Sunday. If a fault is detected with the “Lead” (#1) pump, the system will automatically attempt to switch over to the second “Lag” pump (Pump #2).

When the high level float drops to the “Down” position, the lead pump will turn on 1-5 seconds later and fill the above ground tank(s). If the lead pump is unable to keep up with the demand and the mid float drops to the “Down” position, the lag pump will turn on 1-5 seconds later and continue to run until the mid float returns to the “Up” position. The lead pump will continue to run until the high level float returns to the “Up” position.

### Off

When in the “Off: mode, the system will not operate.

### Pump #1 Only

When Pump #1 only switch is selected to the “On” position, Pump #2 will not operate. This mode should only be used if there is a known problem with Pump #2 or for testing purposes.

### Pump #2 Only

When Pump #2 only switch is selected to the “On” position, Pump #1 will not operate. This mode should only be used if there is a known problem with Pump #1 or for testing purposes.