

**Minimum input pressure is 100 psi.**

## Operating Principles

The Electronic Control Unit controls the supply of compressed gas to pneumatic pumps. Drive (pressure) and vent periods are cycled to provide water flow. During pressurization periods water is forced into the sample tubing. The vent period allows water to re-enter (recharge) the pump. Cycle repetition may be controlled manually or automatically. The maximum output is 250 psi.

### Notes:

- The programmed pre-sets (pumping cycles) on the Control Unit were designed for the 1.66" x 2' Integra Bladder Pump. However, the Control Unit may be used with any other pneumatic pump.
- Follow the Optimization instructions for use with pumps other than the 1.66" x 2' Integra Bladder Pump.
- Allow several cycles for water to reach the surface then adjust the settings as necessary.
- The Control Unit is shipped without the batteries in the housing. It will be required to install these before operating the Control Unit.

## Preparation

### Notes:

- The Control Unit comes with an In-Line Oil Moisture filter. The filter should be replaced when the saturation nears the top of the label on the filter housing. You may get a replacement filter from Beach Filters: beach@aol.com or (717)-235-1136.
  - Do not release any pressure from the compressed gas supply until all preparatory steps are complete.
  - Please read all of the instructions before proceeding to Step 3.
1. Connect the Supply Line, which has an In-Line Oil Moisture Filter attached, to the Air In fitting on the Control Unit panel. Attach the other end to the compressed gas supply source.

2. Connect the Drive Line from the Air Out fitting to the quick connect on the wellhead manifold (or air supply connection on a reel).
3. Set the compressed gas supply regulator to no more than 300 psi.

## Electronic Controller Set Up

### Note:

- Included with the Control Unit is a 5/32" hex key used to open the battery housing. The Control Unit uses eight AA batteries to operate.
- Turn the unit on by pressing the green Menu button. The LCD screen will display 'WAKEUP WAIT'. The unit then checks the battery levels and displays a reading on the screen. If the battery reading is 50% or less, replace the batteries.
- There is no OFF switch. The unit will shut down if not in use and set in the 'Standby' mode.

## General LCD Screen Notes

The Drive and Vent pump times are shown in seconds. If the Run/Standby switch is set to 'Run', the Control Unit will start operating. If the Run/Standby switch is set to 'Standby', the time screen will still indicate the Drive and Vent settings, but the Pump will not run.

- Indicator changes position to show Drive or Vent status when the Run/Standby switch is in the 'Run' position.

Drv	■	3.0s
Vnt	■	3.0s

## Timer Adjustment

The Drive and Vent times can be altered using the Timer Adjustment rotary dial.

To change the Drive time: hold down the 'Select' button and turn the Timer Adjustment dial clockwise to increase drive times and counter-clockwise to decrease drive times. Drive times can be set from 0.3 seconds to 162 seconds.

To change the Vent time: turn the Timer Adjustment dial clockwise to increase vent times and counter-clockwise to decrease vent times. Vent times from 0.3 seconds to 162 seconds are available.

## Flow Regulator

After selecting the pumping cycles, use the Flow Regulator to change flow rates. To decrease rates, turn the Flow Regulator counter-clockwise. To increase flow rates, turn the Flow Regulator clockwise.

## Pump Cycle Selection

Press the Menu button to cycle through all of the sub-menus on the LCD screen. Choose a sub-menu by pressing the 'Select' button.

- Sel. Last Settings
- Sel. Med 1.0 L/mn
- Manual Drive
- Sel. Low 0.5 L/mn
- Sel. Fast 2 l/mn
- Sel. Slow 0.1 L/mn
- Sel. High 1.5 L/mn

## Sel. Last Setting Screen

This option is used to choose the setting last used. Push Select to accept this setting.

## Manual Drive Screen

In this mode, pressing the 'Select' button will toggle between Vent and Drive. The Run/Standby switch must be in the 'Run' position for any pumping to occur.

## Pre-Set Automatic Drive Modes

The following screens are pre-set flow rate screens: Press the Menu button repeatedly to cycle through the sub-menus. Once the desired pre-set flow rate screen is displayed, select that flow rate by pressing the 'Select' button. The LCD screen will then display the Drive and Vent times in seconds. To start pumping at the selected rate, flip the Run/Standby switch to the 'Run' position. To increase the flow rate, rotate the Flow Regulator clockwise. Rotate the Flow Regulator counter-clockwise to decrease the flow rate.

- Sel. Fast 2 L/min
- Sel. Low 0.5 L/mn
- Sel. High 1.5 L/mn
- Sel. Slow 0.1 L/mn
- Sel. Med 1.0 L/mn

## OPTIMIZATION

### For 1.66" x 2' Integra Bladder Pump

For flow rates of < 0.5 L/min, set the Flow Selector to the Low position. For higher flow rates, use the Normal position.

### Note:

To optimize timing for pumps other than the 1.66" x 2' Integra Bladder Pump, see the Timer Adjustment section and the Flow Regulator section.

### For Other Bladder Pump Optimization:

Select the desired flow rate from the pre-set screens. Use the Flow Regulator to adjust flow to your desired rate. If higher flow rate is required, increase the Drive time to increase the flow rate. When this no longer increases the flow rate, increase the Vent time, then re-adjust the Drive time to obtain the highest flow rate.

Once optimization has been done, make note of the Flow Regulator setting, Drive and Vent period, and Flow Selector setting for subsequent sampling events.

### For Double Valve Pump Optimization:

As a starting point, select the desired flow rate from the pre-set screens. Use the Flow Regulator to adjust flow to your desired rate. If a higher flow is required, slowly increase the Drive time to increase the flow rate. If air is expelled, decrease the Drive time. To further optimize the flow rate, increase or decrease the Vent time until the highest flow rate is achieved.

