Spartan Injection Pump
Setup
Troubleshooting
Tech Tips
On the JDRC 2000 or Raven RCM
(some principles may apply to other controllers)

Section Setup

- In a 2-product setup, if the Spartan is injecting into a mixing chamber, say YES when asked if section drivers are shared between products. You want the Spartan to slow down as sections are closed, but it doesn't actually have any of its own section valves to operate. In a 3-product system with the Spartan injecting into a mixing chamber, the Spartan should share sections or be in the same Section Group as the product it is being injected into.
- If the Spartan is going directly to each row and has its own section valves, you will not share section drivers (unless you are actually using a Y harness on each section connection to operate the main product and the Spartan valves with one set of drivers).

Pressure Sensor Setup

- If the Spartan system has a pressure sensor, assign that sensor to the Spartan in the setup. On the JDRC 2000, set the Maximum Pressure at 80 PSI and check the Alarm box. This will limit the Spartan to 80 PSI. The Spartan will build up pressure in excess of 150 PSI which can cause problems with plumbing connectors.
- The Minimum Pressure can also be used as a control on the low end of the system. This is typically not used on a fertilizer application system, but may be useful if spray tips are being used.
- To have the Minimum / Maximum Pressure settings act as Control Limits, you must put a check mark in the Alarm box.
- **Alternate Use: A pressure sensor on the Spartan may serve as a backup to the float to alert you to a No-Flow situation. If the pressure drops from where it normally has been running, this could indicate no product is flowing. Be aware that the pressure may not drop below 10 PSI with the check valve(s) in the system.*

Control Valve Setup

- The suggested numbers in the manuals or QuickStart Setup guides are generally good starting points. **Be ready to adjust these in the field if the Spartan is not staying on rate.**
- **Always put the DC% (PWM Duty Cycle) on the display.** This is important information to know as it lets you see what the controller is doing.
- If operating at the lower end of the pump output range, you may need to lower the PWM Low Limit to 5, so the pump will be able to slow down enough.
- At lower Duty Cycles (15% or lower), you may need to slow down the Valve Response. **If the rate oscillates, lower the Valve Response as low as it takes to settle the system.** (This can be adjusted while in motion.) If that doesn't do the job, reset the Advanced Tuning parameters to Default, and adjust the Valve Response from there. **A Valve Response setting that works at higher Duty Cycles may not work at lower Duty Cycles.**
- On a Spartan 110, you will need to run the pump fast enough to keep the float floating. Depending on the product, it is possible that the pump may be able to pump an amount that will not keep the float floating continuously.
- **Running the pump in Manual Mode with a Test Speed is a good way to see how the pump operates at various Duty Cycles.** The Delivery System screen in Diagnostics > Readings gives more detailed information about the operation of the Flowmeter (Flowmeter Hz). This will tell you how fast the pump will run (DC%) at various flow rates. If the pump runs smoothly in the desired range here, but fluctuates in the field or in Auto Mode, lower the Valve Response.