Setting up the SurePoint Spartan Injection Pump with Raven RCM

Below are sample screenshots for setting up the Raven RCM for the SurePoint Spartan Injection Pump.

Your setup may be different. Set up Application Width, Sections, etc. as needed for your operation.

This sheet shows the Spartan set up as a single product Liquid Fert Tool. If you are setting the RCM to control more than one product, you would use a Generic profile setup. Many times, the carrier (main product) will be Product 1, and the Spartan will be Product 2.

Adjustments may be necessary in the field for best operation.

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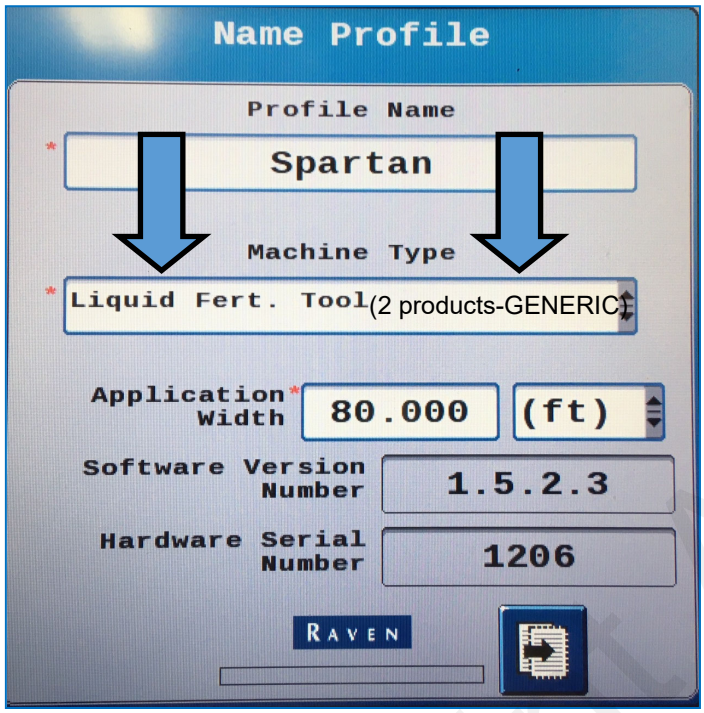
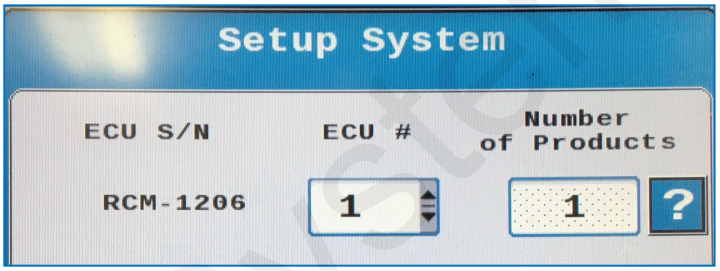
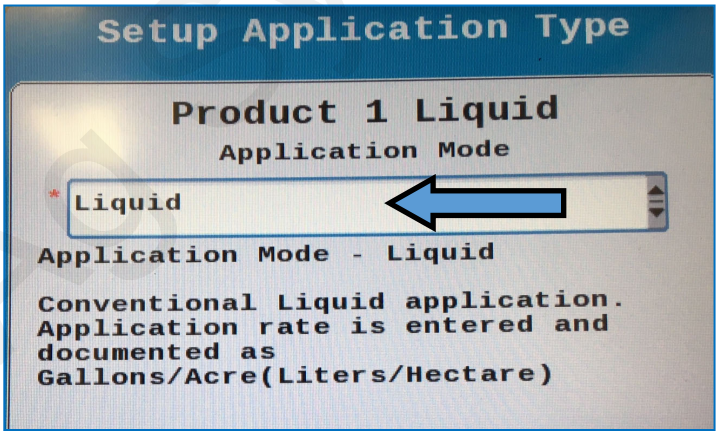
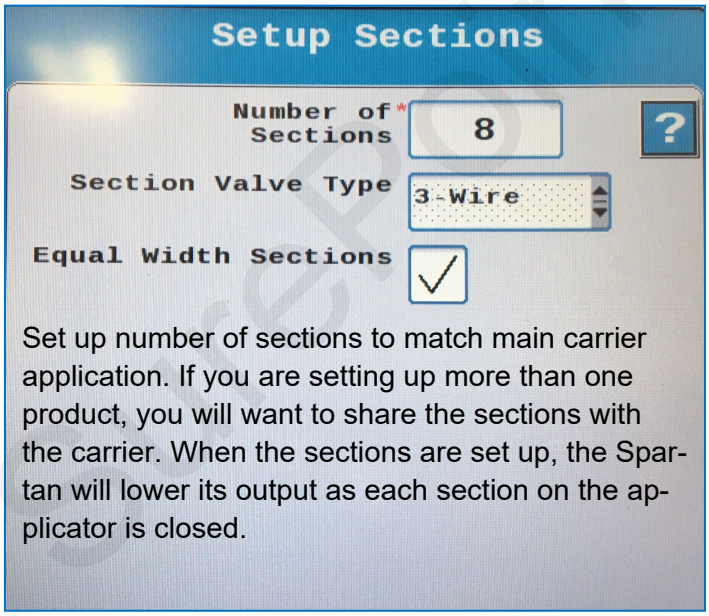
Setup > Implement > New Profile

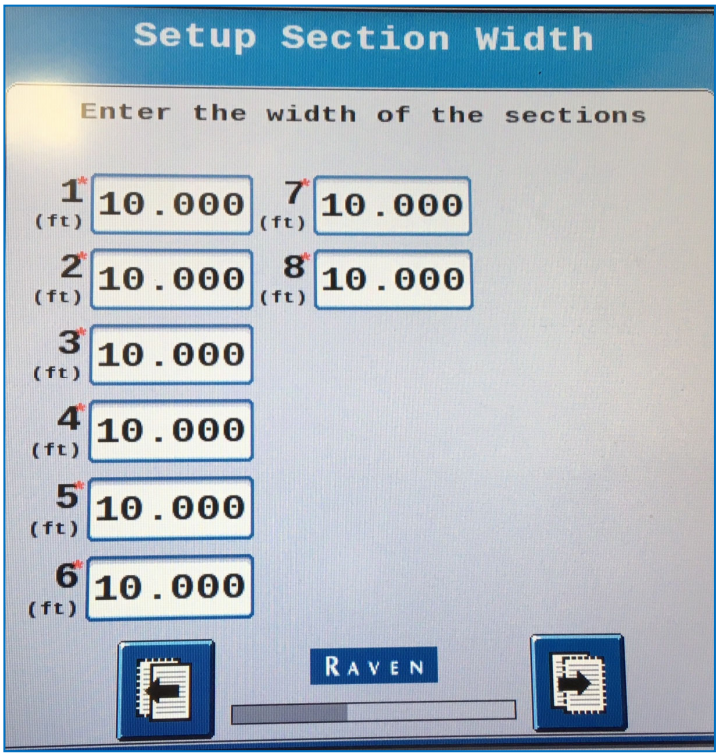


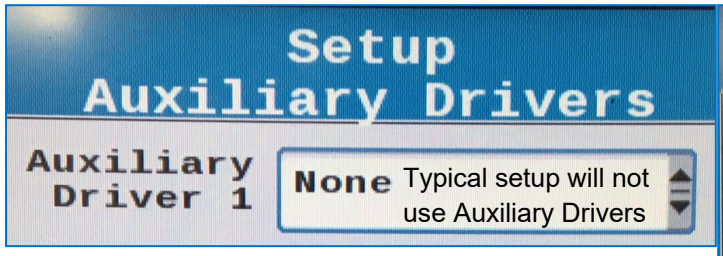


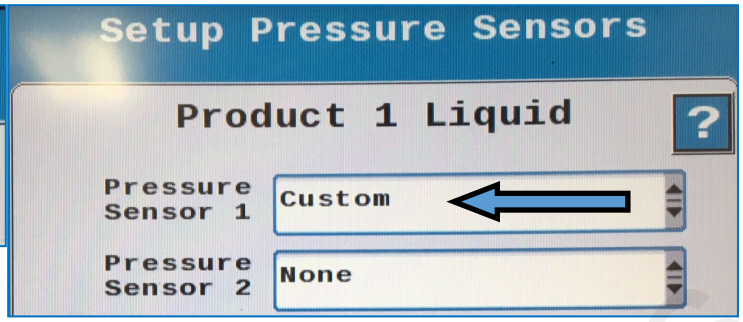


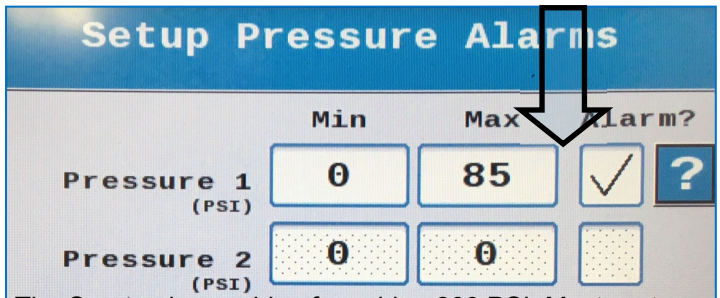


Set up number of sections to match main carrier application. If you are setting up more than one product, you will want to share the sections with the carrier. When the sections are set up, the Spartan will lower its output as each section on the applicator is closed.

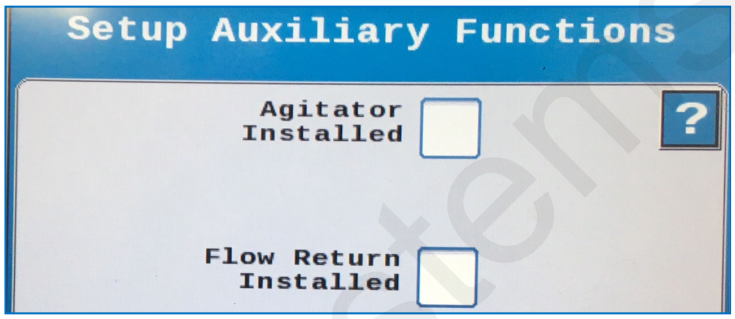


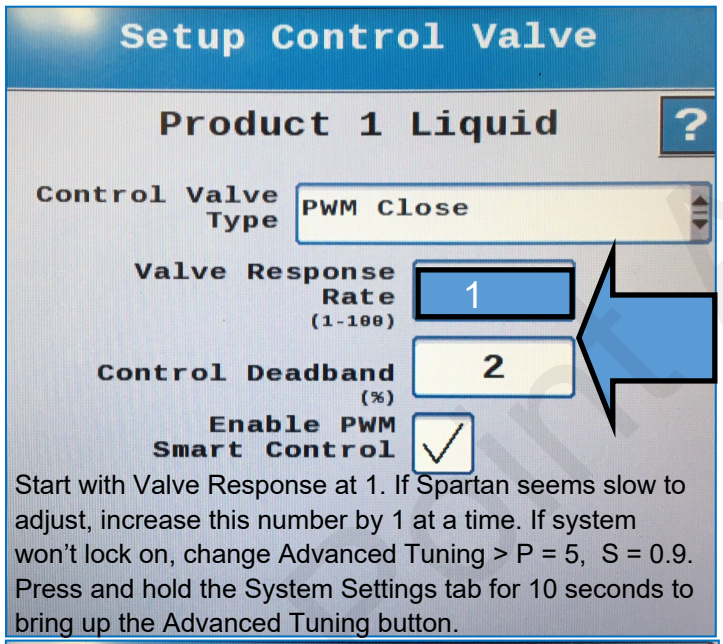




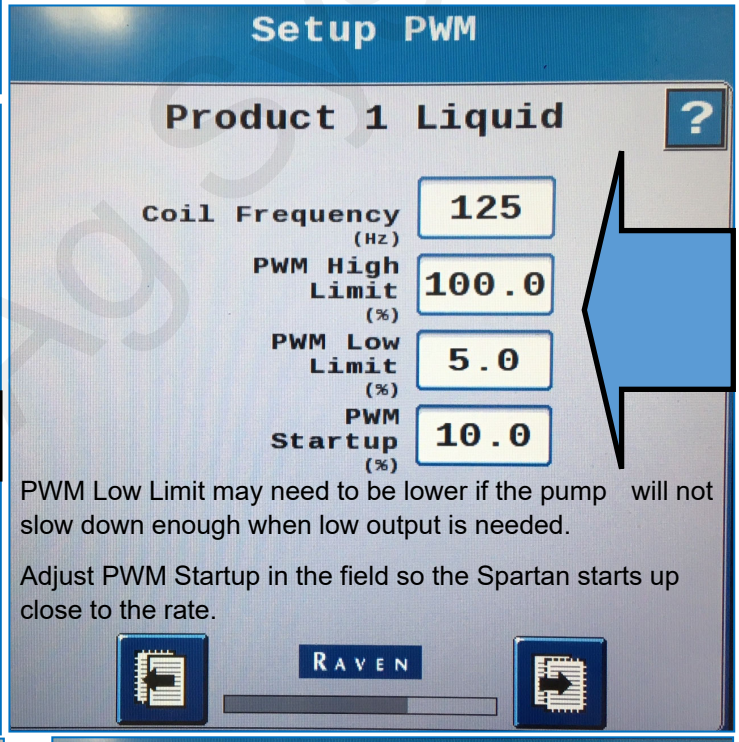


The Spartan is capable of reaching 200 PSI. Most system components will not handle that much pressure. Set a Max of 85 PSI and check the box. The RCM will not allow the Spartan to go above 85 PSI.



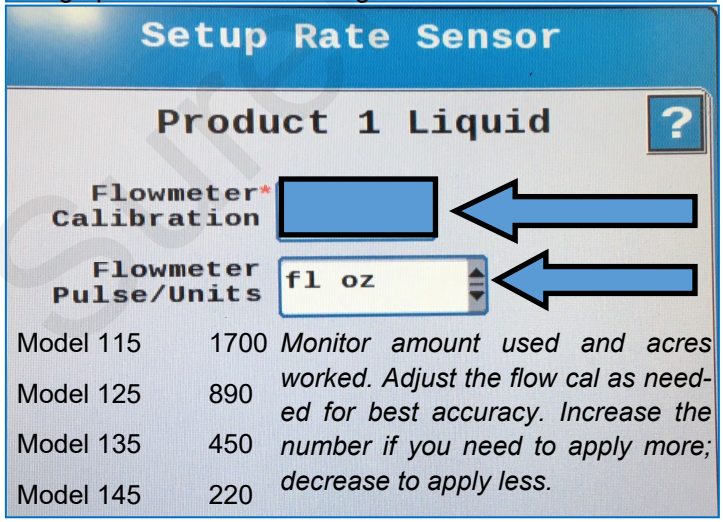


Start with Valve Response at 1. If Spartan seems slow to adjust, increase this number by 1 at a time. If system won't lock on, change Advanced Tuning > P = 5, S = 0.9. Press and hold the System Settings tab for 10 seconds to bring up the Advanced Tuning button.



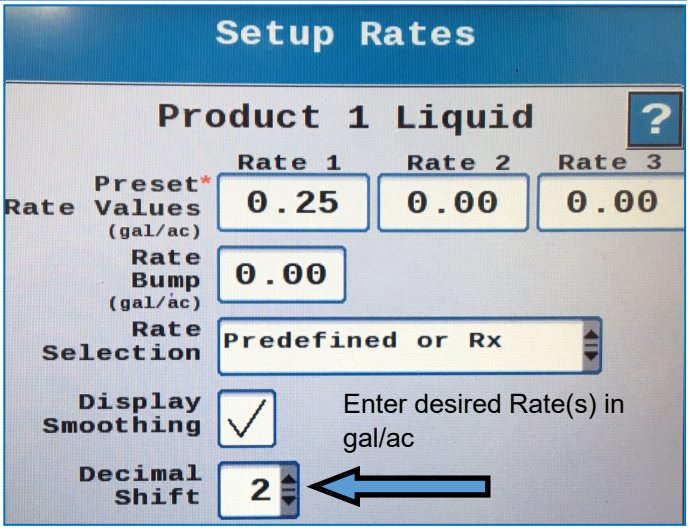
PWM Low Limit may need to be lower if the pump will not slow down enough when low output is needed.

Adjust PWM Startup in the field so the Spartan starts up close to the rate.

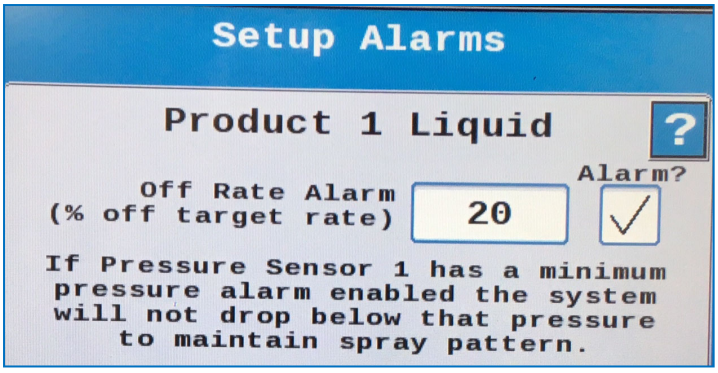


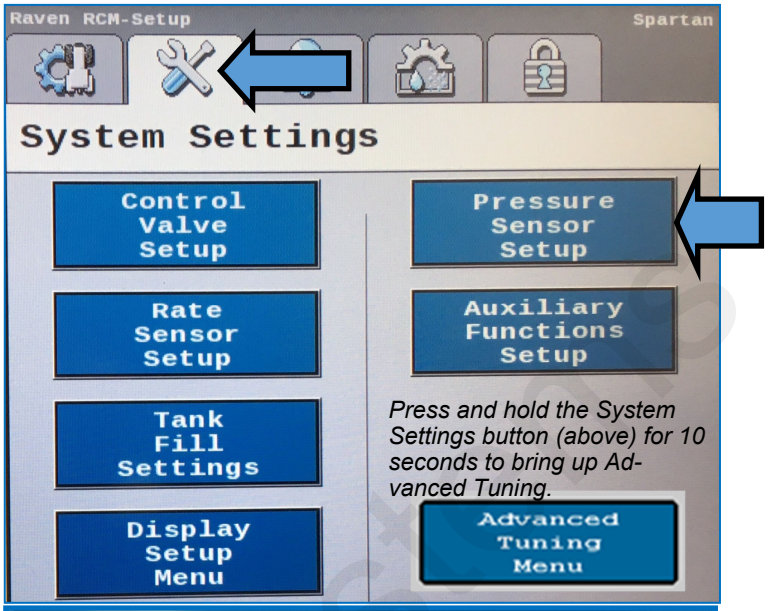
Model 115	1700
Model 125	890
Model 135	450
Model 145	220

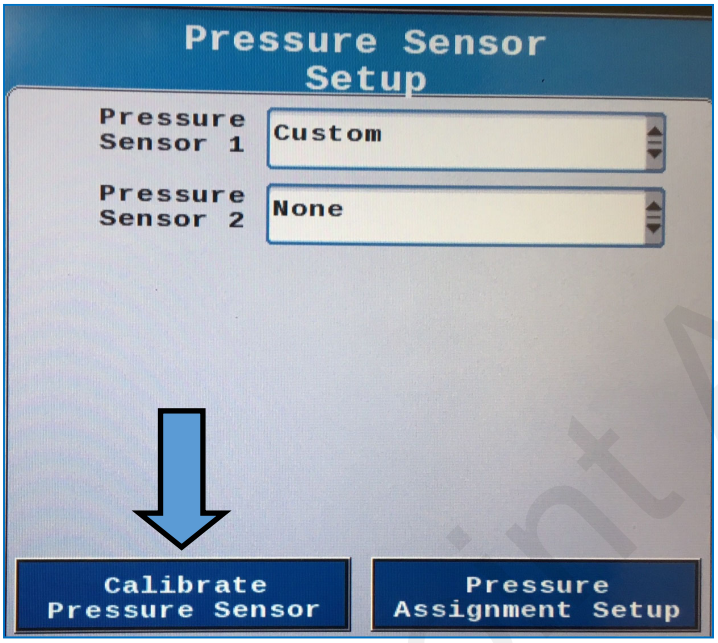
Monitor amount used and acres worked. Adjust the flow cal as needed for best accuracy. Increase the number if you need to apply more; decrease to apply less.

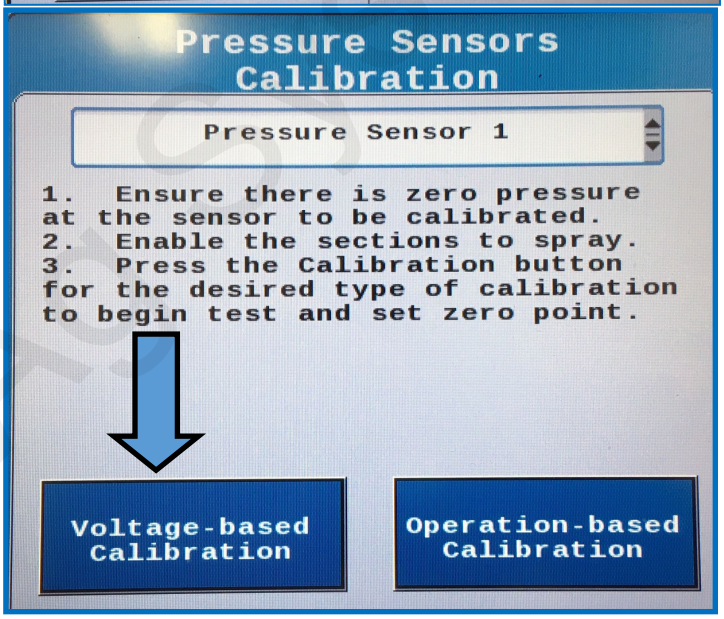


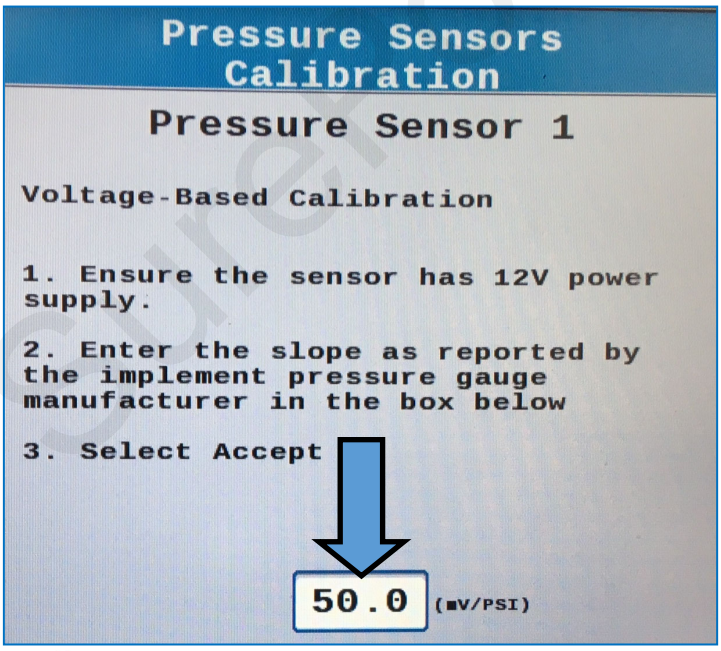
Enter desired Rate(s) in gal/ac











See the main manual for your system and the QuickStart Setup Guide for setting up the number of products your system will be using.

The screenshots in this document are designed to help set up the SurePoint Spartan Injection Pump with the Raven RCM.

Your settings may be different than those shown here.

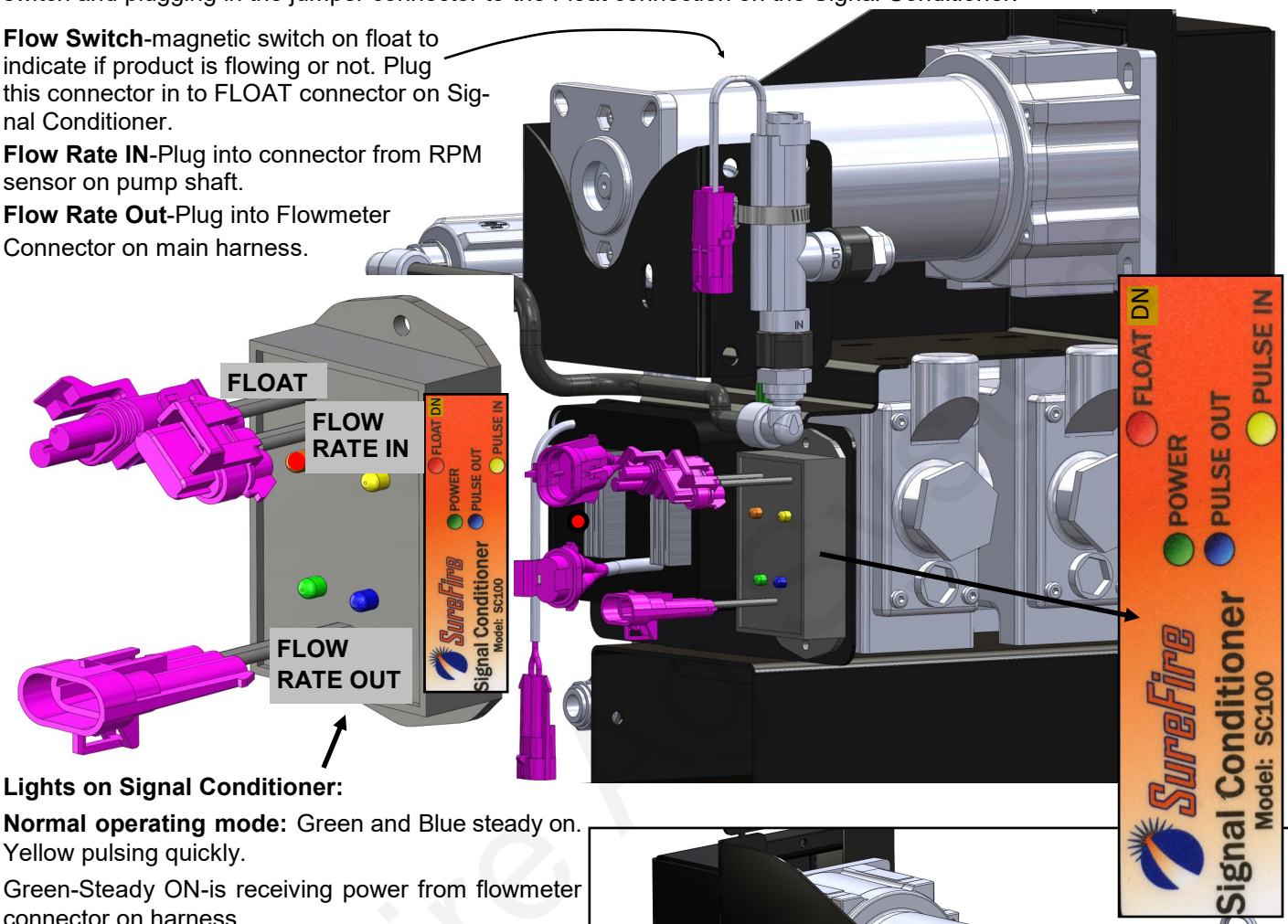
Adjustments may need to be made in the field for best operation.

The flowmeter on the Spartan is a pump RPM sensor that is calibrated to convert the pump RPM to flow measured in oz/min. To be certain that liquid is actually flowing, a flow switch with a floating magnetic switch is in the flow line. If the tank is empty, the float will go down, telling the controller that there is no flow. If the flow switch malfunctions and tells the controller there is no flow when there is flow, you can run the system without the flow switch by unplugging the flow switch and plugging in the jumper connector to the Float connection on the Signal Conditioner.

Flow Switch-magnetic switch on float to indicate if product is flowing or not. Plug this connector in to FLOAT connector on Signal Conditioner.

Flow Rate IN-Plug into connector from RPM sensor on pump shaft.

Flow Rate Out-Plug into Flowmeter Connector on main harness.



Lights on Signal Conditioner:

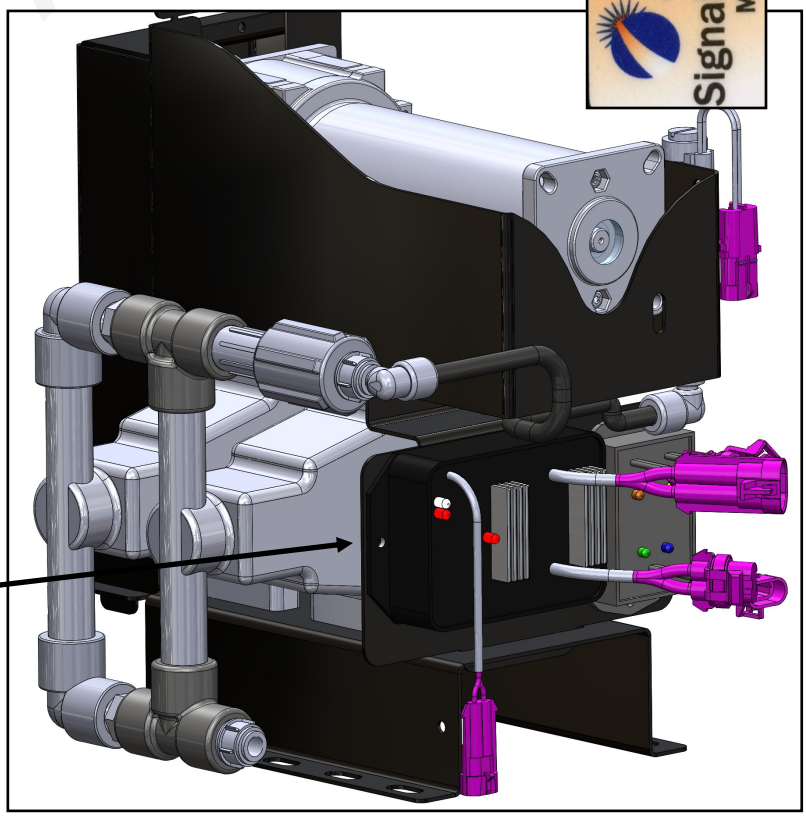
Normal operating mode: Green and Blue steady on. Yellow pulsing quickly.

Green-Steady ON-is receiving power from flowmeter connector on harness.

Blue– should be ON when system is running. Indicates Signal Conditioner is sending out pulses to controller.

Yellow—Quick pulses while system is running indicates it is receiving pulses from the RPM sensor on the pump shaft.

Red-should be OFF. Red light ON indicates that float is down or is malfunctioning if fluid is flowing. Red light ON means no pulses are being sent to the controller. (When Red light first comes ON, pulses will be sent for about 10 seconds). To bypass the float (Flow Switch) unplug Flow Switch connector from Float connector on Signal Conditioner, and plug jumper into Float connector. Red light should go out.



Lights on EPD module:

Red light by fins-steady blink (once per second) indicates power from battery. When system is running, this light goes steady red, and red light in corner turns on (maybe not as bright) indicating PWM signal.

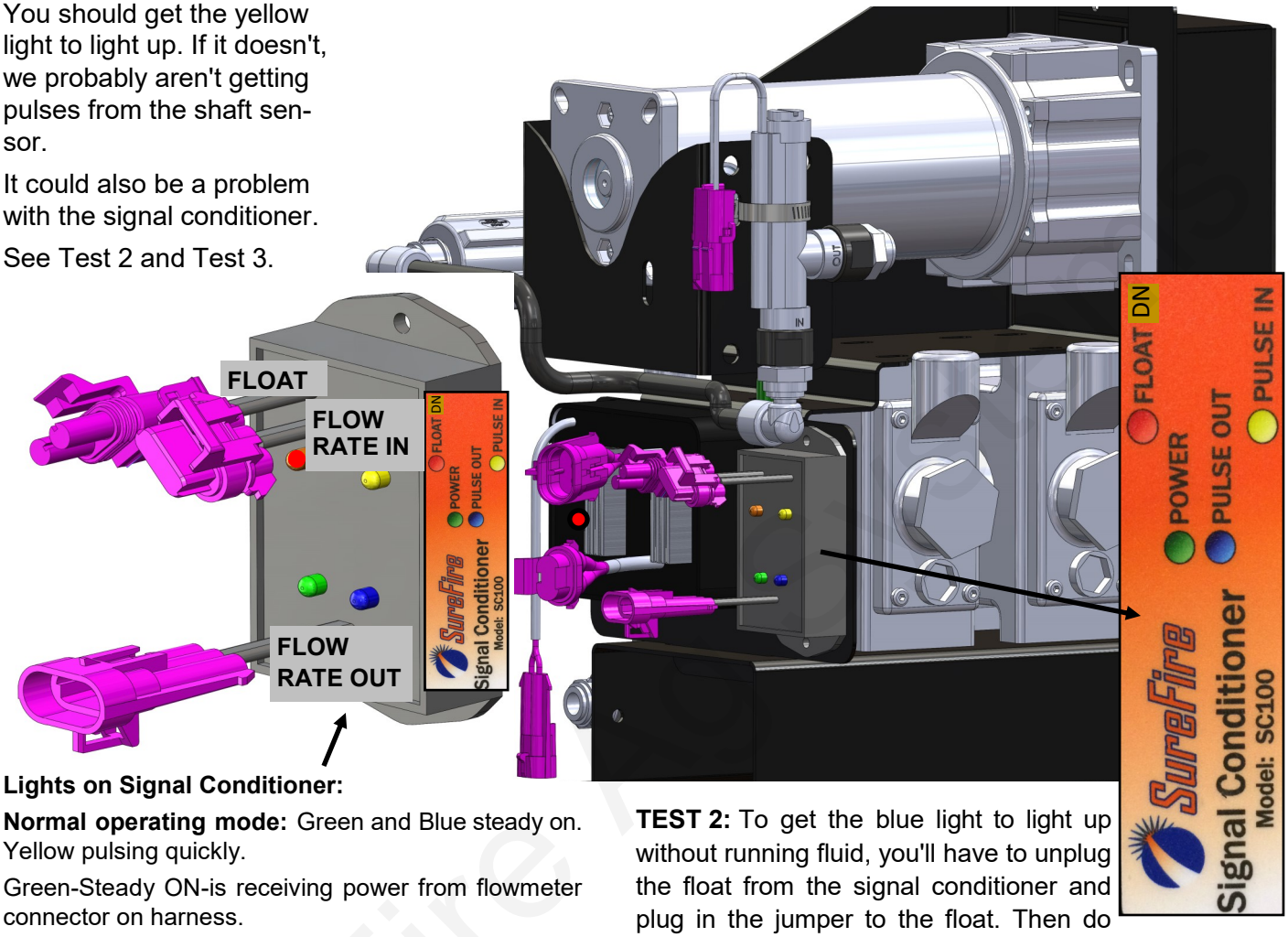
Spartan Tap Test and Signal Conditioner Lights

ISSUE: No yellow or blue lights on Signal Conditioner and No flow reading on display

TEST 1: Unplug the connector where the cable from the shaft sensor plugs into the signal conditioner (Flow rate in). On that Flow Rate In connector take a short wire and tap repeatedly between the two outside pins. You should get the yellow light to light up. If it doesn't, we probably aren't getting pulses from the shaft sensor.

It could also be a problem with the signal conditioner.

See Test 2 and Test 3.



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Lights on EPD module:

Red light by fins-steady blink (once per second) indicates power from battery. When system is running, this light goes steady red, and red light in corner turns on (maybe not as bright) indicating PWM signal.

TEST 2: To get the blue light to light up without running fluid, you'll have to unplug the float from the signal conditioner and plug in the jumper to the float. Then do that tap test, and it should light up the yellow, showing that the conditioner is receiving pulses, and should light up the blue, to show that the conditioner is sending pulses out.

You should be able to see these pulses in this second test on the display. On Sentinel, look at the Diagnostics Tab for Flowmeter Hz. You have to do quite a bit of tapping to see this. On a Deere display, go to Diagnostics > Readings > Delivery System > Flowmeter Hz. On Trimble and Ag Leader, you can go to Diagnostics and see Flowmeter Pulses.

TEST 3: Plug the flowmeter connector on the pump final harness directly into the connector from the shaft sensor. This bypasses the Signal Conditioner and float. When you run the pump, pulses (flow) should register on the display to verify that the shaft sensor is sending out pulses and that the harnessing can get it to the display. Be sure shaft sensor is lined up and close to disc (business card).