396-3652Y1

PRECISION IRRIGATION
MARKSMAN
INJECTION SYSTEM

AGSENSE
COMPATIBLE

AgSense Compatibility Instructions

SurePoint Ag Systems

Harness Installation Instructions

Marksman Third Party Compatibility Adapter Harness

208-08-3534Y1 Adapter Cable—No Divide By (Flow Meter PPG = 3rd Party PPG)

Not recommended for use on any systems after 2018—AgSense Software updates require a divide by adapter to achieve lower frequency (max 50 Hz with Mechanical Debounce On)

208-08-4012Y1 Adapter Cable with Chem Pulse Divide by 8

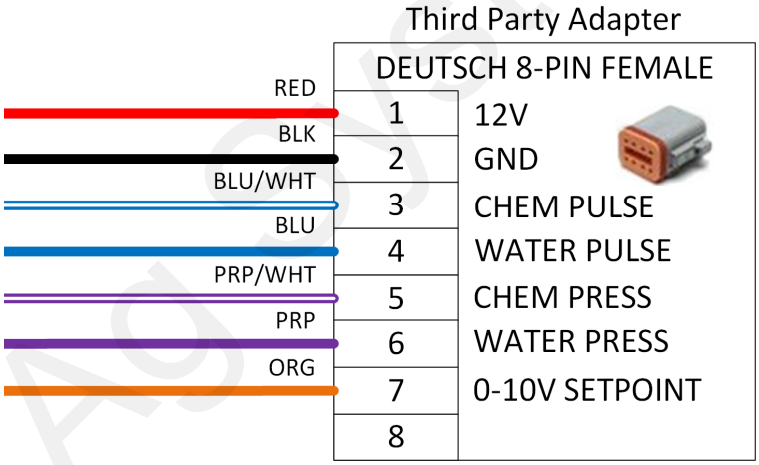
Recommended for SurePoint Marksman manufactured in 2017 & 2018 AND that used the 3000 pulse per gallon 0.13—2.6 GPM flowmeter.

208-08-4212Y1 Adapter Cable with Chem Pulse Divide by 32

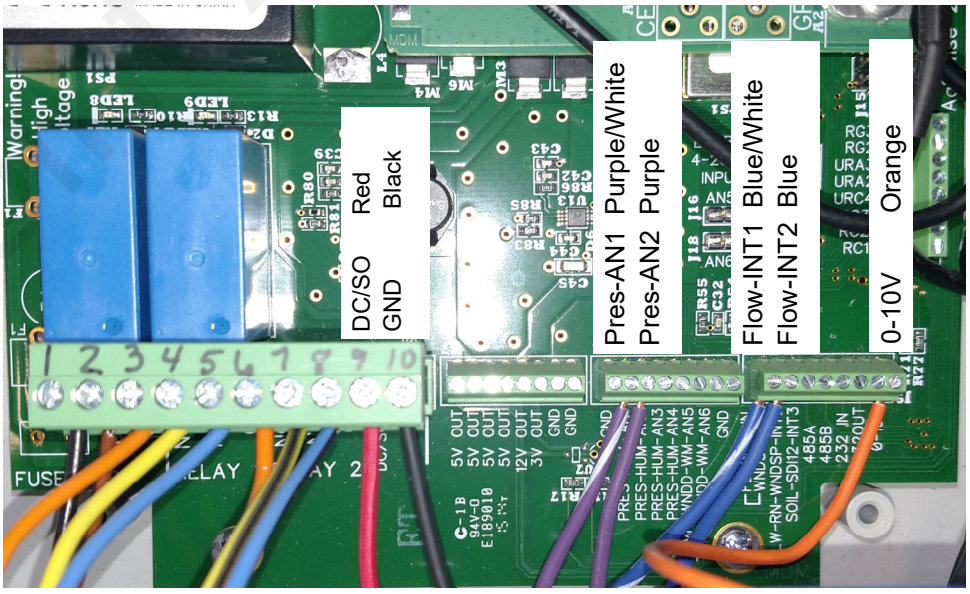
Recommended for SurePoint Marksman that use a flowmeter with 22,710 pulses per gallon. This includes all Marksman manufactured in 2019 and after.

The Marksman AgSense Compatibility harness is an 8' long harness with an 8-pin connector to plug into Marksman and 7 wires to connect to terminal blocks inside the AgSense CropLink box.

Marksman also provides power to the CropLink box (red and black wires) so no other power source is required for Croplink.



You may notice a small module inside the adapter harness near the CropLink connection. This small module is required for accurate communication between Marksman and CropLink. Do not make any harness alterations that remove or modify this module.



Installation Steps:

1. Open the CropLink box and route the 7 wires through a grommet in the bottom of the box.
2. Attach to terminal blocks as shown in the diagram at right.
3. The red and black wires supply power to the CropLink box so no 120 VAC or other power source is necessary. (If you need to power the CropLink by another power source other than Marksman, you WILL have to hook up the black ground wire. Do not hook up the red +12 volt wire if using a different power source.)
4. Plug the 8-pin connector into the Marksman harness connector labeled "Third Party Interface".

The harness is 8 feet long so no extension is required in many cases. If mounting CropLink over 8' from the Marksman order the correct 8-pin extension.

Compatible Features

SurePoint Marksman is compatible with the AgSense system using AgSense CropLink. The following features are supported and compatible:

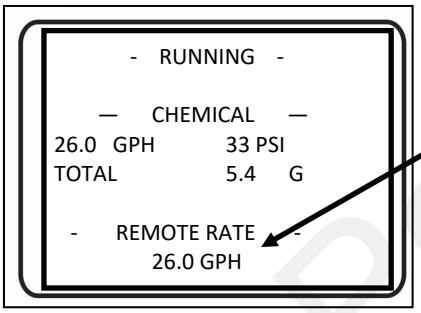
AgSense will:

- Monitor Chemical/Fertilizer Pressure
- Monitor Chemical/Fertilizer Flow
- Monitor Water Pressure (if optional water pressure sensor is connected to Marksman)
- Monitor Water Flow (if optional water flow meter is connected to Marksman)
- Command Marksman Rate for variable rate application

AgSense Operation

The Main screen on AgSense website will look similar to this. You may have additional features turned on but these features should be present.

- On the left side, you can see Pressure 1 & 2 and Flow 1 & 2.
- The Current VFD (GPH) will show the rate being sent to the Marksman.
- Use the Send VFD button to manually send the Marksman a new rate. Type the new rate in the GPH box and push Send VFD.
- After verifying the system will operate by manually sending rate, consult your AgSense operator's manual to set-up variable rate fertigation.



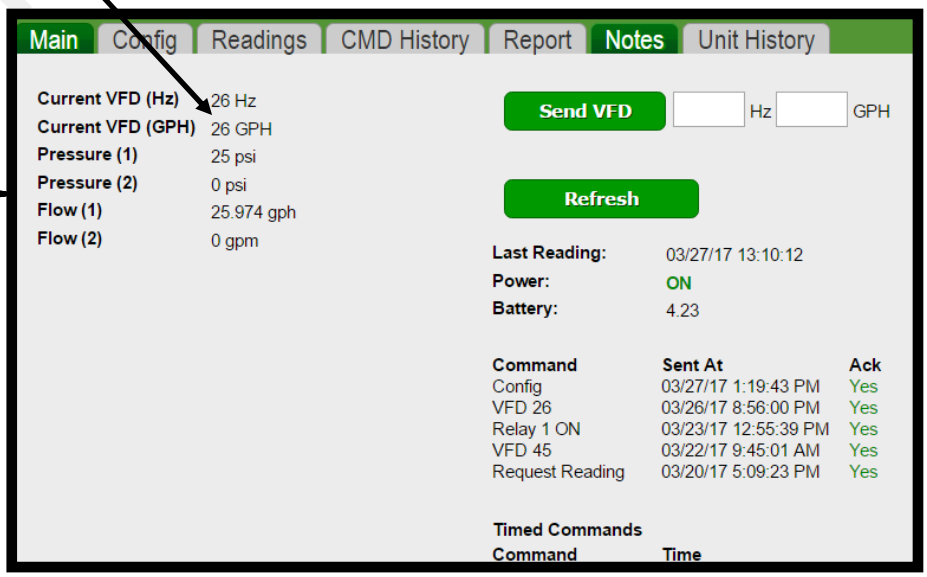
AgSense showing the rate it is sending and Marksman indicating the rate is being received.

Pressure (1) = Chemical / Fertilizer Pressure

Pressure (2) = Water Pressure (if connected)

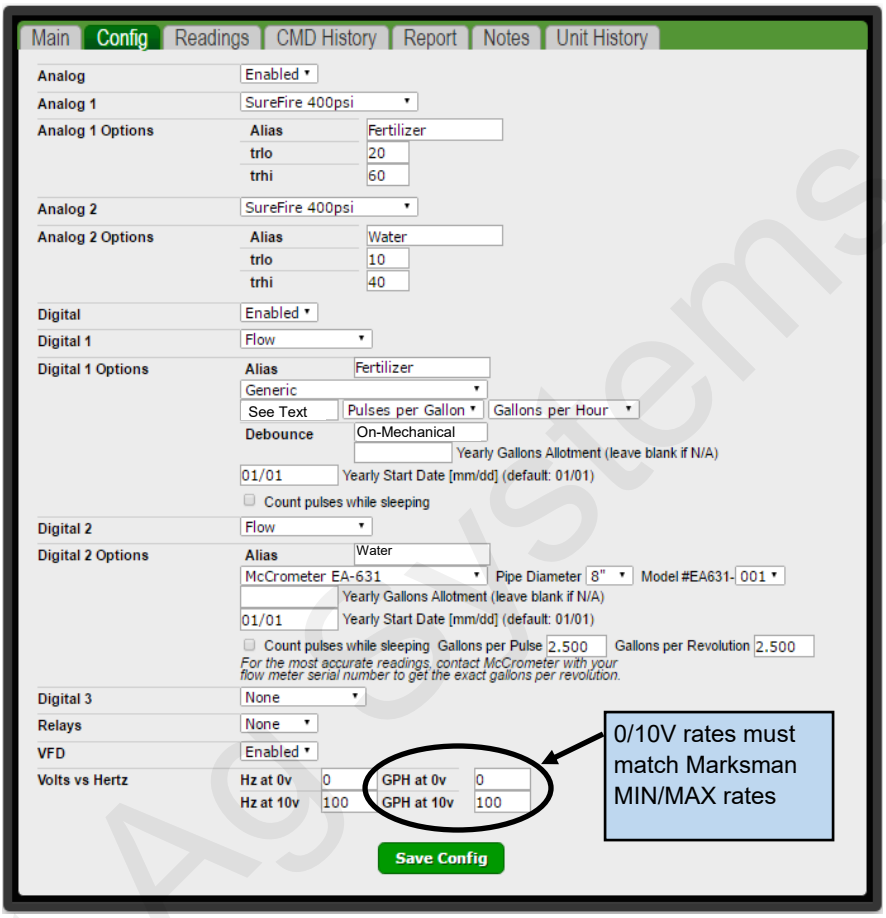
Flow (1) = Chemical / Fertilizer flow (GPH)

Flow (2) = Water Flow (if connected, GPM)



AgSense and Marksman Setup Instructions

Set the Config settings on AgSense as shown in this picture to communicate pressure and flow with Marksman. Note that you may have more settings on your config screen for your specific irrigation system.



1. Set Analog to Enabled.
2. Choose SurePoint 400psi for the sensor type.
3. Name the product(s) and set pressure alarms if desired.
4. Set Digital to Enabled.
5. For Digital 1 (Fertilizer) choose Generic for the sensor type.
6. Make sure to choose “Pulses per Gallon”. On the very right, choose to display in “Gallons per Hour”. Set Debounce to “On-Mechanical”.
7. Pulses Per Gallon:
   - Enter 375 pulses per gallon for a 3000 pulse per gallon meter with divide by 8
   - Enter 710 pulses per gallon for a 22,170 pulse per gallon meter with divide by 32 (2019 and Later Marksman)
8. Digital 2 is for water flow. Setup for the water flow meter you are using.

Next, follow these steps to setup AgSense sending rate to Marksman.

9. Set VFD to Enabled
10. Set both Hz and GPH at 0 volts to 0 (zero). This could be a higher number. However, always set it 10-20 GPH UNDER your lowest intended rate. This allows AgSense to send the Marksman a low voltage to turn it off.
11. Set the Hz and GPH at 10 volts to no less than the maximum rate you will use (shown above as 100 GPH). Even if you may only pump at rates of 20-65 GPH, using settings of 0 and 100 will work well.

Set Marksman Controller to accept AgSense commands

12. On screen 4/7 on 1.3.0 software and higher, set REMOTE SPT to ENBL.
13. Set the MIN and MAX rates to the same rates as AgSense for 0 and 10 volts.
14. Set ROFF to a setting above your MIN setting on the screen at left, but below the minimum rate you will apply in the field. When Marksman receives a rate under the ROFF setting it will turn off. Recommended minimum ROFF setting is 1.0 GPH.

```
4/7        * SETTINGS 1 *
   WATER SPT        DSBL
   SPT          200.0 GPM

REMOTE SPT          ENBL
   MAX     100.0    GPH
   MIN       0.0    GPH
   ROFF      5.0    GPH
```

AgSense sends the application rate to Marksman via a voltage signal. This signal can fluctuate slightly and is not absolutely precise. If the Marksman is receiving a different rate than AgSense sends, first check the Min / 0v and Max / 10v settings in AgSense Config and the Marksman match exactly. The AgSense rate and the Marksman rate will typically vary by 0.1– 0.5 GPH. For example, AgSense may send 25 GPH and the Marksman receives 24.7 GPH; this is normal operation. You can improve this slightly by tweaking the MIN/MAX setting on Marksman.

- If Marksman rate is lower than AgSense increase the MIN setting 0.1 volts at a time until rate matches.
- If Marksman rate is higher than AgSense decrease the MAX setting 0.1 volts at a time until rate matches.
- This is not a perfect adjustment and will not make rates match at every possible rate setting.