

ENGAGE® SPREADCONTROL

OPERATOR'S GUIDE

Document revision: 1.2

Last revised: October 21, 2020



a division of  **AGTEGRA**
COOPERATIVE

Engage® SpreadControl Operator's Guide

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Record of Revision

Revision Number	Change Description	Revision Date	Inserted By
0.1	POC3 release	8/28/19	AAL
1.0	Production release	7/01/20	AAL
1.1	Added instructions to calibrate rate valves, added troubleshooting information	7/28/20	AAL
1.2	Added instructions for unlocking Raven Viper 4 and changing PWM settings.	10/21/20	AAL

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About Engage® SpreadControl

Engage SpreadControl is a retrofit section control system for your floater. The system communicates with your floater's existing GPS mapping system to prevent overlap by opening and closing sections on your floater.

Unlocking the Raven Viper 4

1. Locate the part number and serial number of the Raven Viper 4 in the cab.
2. Contact Raven and provide the part number and serial number to order the multi-product unlock codes. Raven will email you an unlock file.
3. Put the file on an empty flash drive, then go to the TerraGator cab.
4. Turn on the Raven Viper 4, then plug the flash drive into the side of the VT.
5. Once the VT recognizes the new device, restart the device when prompted. The system will automatically install the file and unlock the VT.






Pre-Operation Checks

Perform the following checks before operating the system.

- Pull out each funnel box and clean any product buildup.
- Make sure that the gateway has a solid green light. If it doesn't, refer to the Engage SpreadControl Troubleshooting Guide for more information.



Adding Section Status Widget to Maps Page

1. Inside your job, tap the settings  icon in the bottom right corner.
2. Tap the screen layout that you want to modify, then tap the edit  button.
3. Tap the add  button in the bottom right corner.
4. Navigate to the ISOBUS page. Tap **ISO VT Display**.
5. Tap and hold the widget and position it where you'd like it to display on the screen.
6. Tap the back  button in the bottom right corner.
7. Tap the back  button in the upper right corner.

Configuring Raven Viper 4 Settings

The Raven Viper 4 controls the settings below. Refer to the Raven Viper 4 documentation to alter these settings:

- Look ahead settings (on look ahead, off look ahead, distance to apply)
- Bin chaining
- ISO boom configuration
- Linking product to channels
- Prescription maps

Accessing the Engage® SpreadControl App

To open the Engage SpreadControl app, make sure that the gateway has power, then press



on the UT main page.

Configuring Machine Settings

Input the machine and PM4X settings into the app.

1. Press **Config** on the right navigation.
2. Configure the settings:
 - a. Input the number of bins (not including the micronutrient bin).
 - b. If you are using a micronutrient bin, select **Yes**.
 - c. Input the serial number of the PM4X assigned to each bin.
 - d. Adjust the headroom percentage, if desired. Intelligent Ag recommends 25%.

C o n f i g		Back
No. Of Bins	2	Rate valve calib.
Micronutrient	Yes	PWM
Bin #1PM4X	D105	
Bin #2PM4X	D030	
Bin MNPM4X	D036	
Headroom	25	

Entering Mass Density

Enter the mass density of the product for each bin.

1. Press **Product** on the right navigation.
2. Input the mass density of the product for each bin. Mass density is calculated according to the instructions in the AGCO Air Max Precision operator's manual.
3. Make sure that the Manual speed is set to **OFF** during bin calibration.

Product	
Mass Density (lbs/ft3)	
Bin #1	42
Bin #2	42
Bin MN	42
Manual Speed	OFF

Back

Bin Calib.

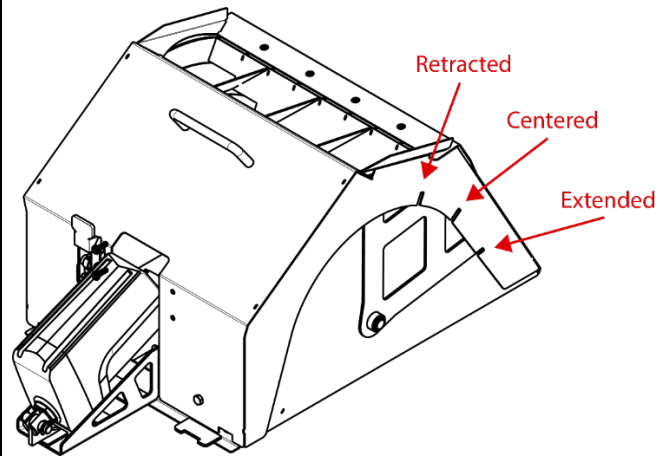
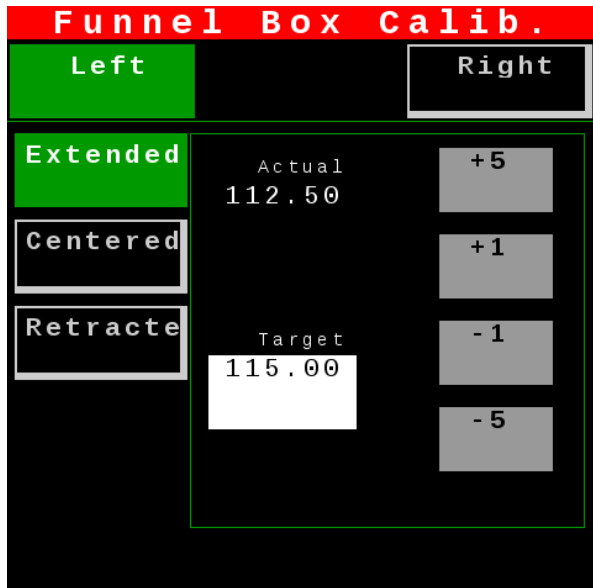
Funnel Box Calib.

Calibrating the Funnel Boxes

At the beginning of each season, calibrate the funnel box to make sure that the funnel box sections are correctly positioned.

NOTE: This process is easiest with two people.

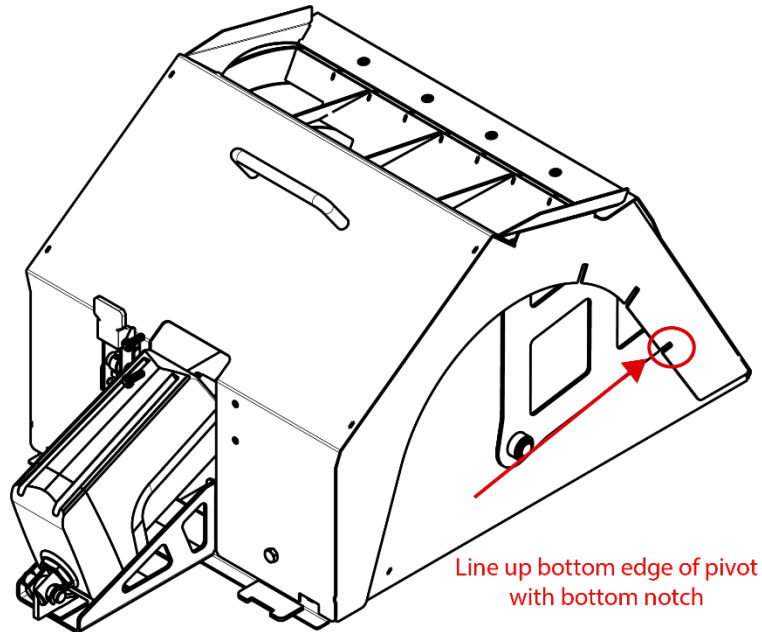
1. Press **Product** on the right navigation.
2. Press **Funnel Box Calib.**
3. Calibrate the funnel box.



- a. Tap **Left**, then tap **Extended**.

- b. Use the **+5**, **+1**, **-1**, and **-5** buttons to adjust the funnel box position so that the bottom of the pivot lines up with the extended position notch, as shown in the following image. The pivot material should fill in the notch cutout in the cover.

Positive numbers lengthen the actuator, and negative numbers shorten the actuator.



- c. Repeat the steps above for the left centered and left retracted positions. Then, calibrate all positions for the right funnel box.

Calibrating the Bin

At the beginning of each season, calibrate the bin to ensure that the correct amount of product is dispensed.

1. Unplug the harness from the funnel boxes and remove the funnel boxes. Remove the chute covers and put the covers where the funnel boxes were.
2. Press **Product** on the right navigation and input your settings, if they are not already there. For more information on these settings, see *Configuring Machine Settings* on page 6 and *Entering Mass Density* on page 7.
3. Press **Bin Calib.** and configure your bin settings.

Bin Calibration

Bin #1 Bin #2 Micro Back

Simulated Speed 10

Target Rate 100

Target Cal. Weight 100

Cal Number 1610

START

- a. Tap the bin you want to calibrate: **1**, **2**, or **micronutrient**.
 - b. For **Simulated Speed**, enter **10**.
 - c. For **Target Rate**, enter **100**. This is the application rate (lbs/acre).
 - d. For **Target Cal. Weight**, enter **100**. This is the amount of product the TerraGator is going to try and dispense during calibration.
 - e. Enter a calibration number.
 - If it's your first time calibrating the system, enter **1610** for bin 1 or bin 2, and enter **7,200** for the micronutrient bin.
 - If you've calibrated the system before, the previously determined calibration number will be entered. Do not change it.
4. Press **Start**. Product will begin to dispense. When the calibration finishes, weigh the material.

5. Enter the total weight (in pounds) that was dispensed from both drive chains. The calibration number will automatically adjust to the correct calibration. Don't change this number.

To manually calibrate the number, use the following equation:

(old calibration number) x (desired weight / actual weight) = new calibration number.

Bin Calibration

Bin #1 Bin #2 Micro Back

Mass Dispensed 100

Cal Number 100

ACCEPT

6. Tap **Accept**.

Calibrating Rate Valves

1. In the app, press **Config** on the right navigation, then press **Rate Valve Cal.**
2. Calibrate the rate valves.

IMPORTANT: Do not press the SET button next to the numbers.

- a. Press the **Bin 1** tab.
- b. Enter 30 under **Low**. Press the green check box.
- c. Enter 70 under **High**. Press the green check box.
- d. Press the **Bin 2** tab and enter the same values as above.

Rate Valve Calib.

Bin #1 Bin #2 Back

Low **High**

30 ~~Set~~ 70 ~~Set~~

Headroom Offset Slope

25 38 50

Enc. (Hz) Open (%)

602 0

+5
+1
-1
-5

3. Tap **Accept**.

Changing PWM settings

1. In the app, press **Config** on the right navigation, then press **PWM**.
2. Enter the PWM values for Bin #1 and Bin #2.
 - a. For **P**, enter 250.
 - b. For **I**, enter 100.
 - c. For **PWM**, enter 200.
3. Enter the PWM values for the Micronutrient bin.
 - a. For **P**, enter 200.
 - b. For **I**, enter 50.
 - c. For **PWM**, enter 2000.
4. Press **Save**.


P W M			
	Bin #1	Bin #2	Micro
P	250	250	200
I	100	100	50
PWM	200	200	2000

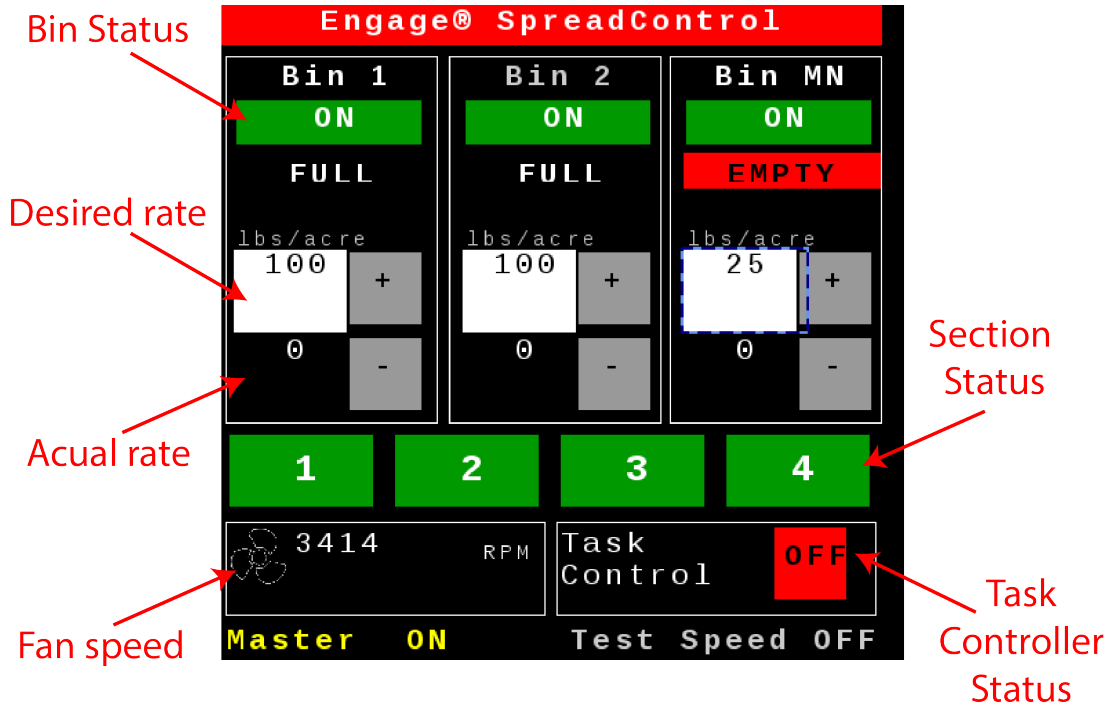
	Bin Cap.	Bin Cap.	Micro Cap.
(ft ³)	100	100	100

[Back](#)

[SAVE](#)

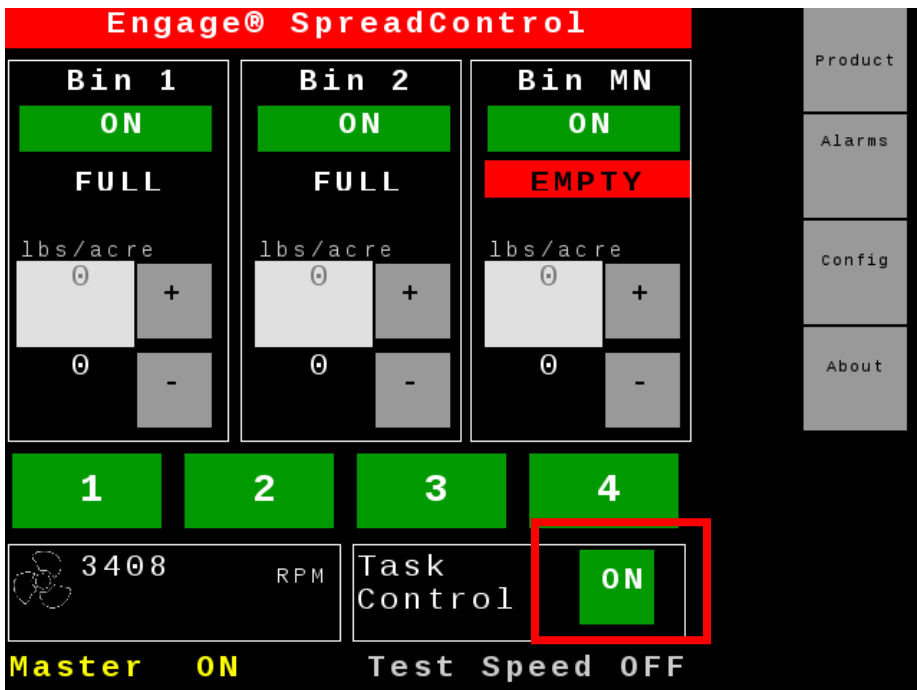
Viewing Section Status

Tap  on the UT main page to view the Engage® SpreadControl main page. Here you can view section states and manually control each section.



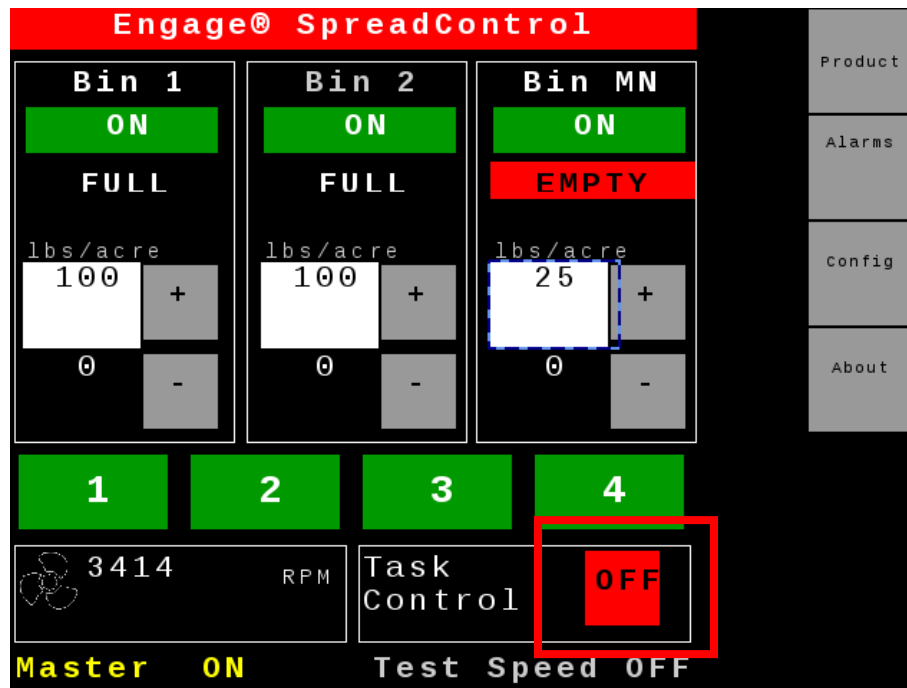
Controlling Sections Using Maps

Select **On** next to Task Control to let the floater control when the sections open and close.



Controlling Sections Manually

Select **Off** next to Task Control to manually control each section.



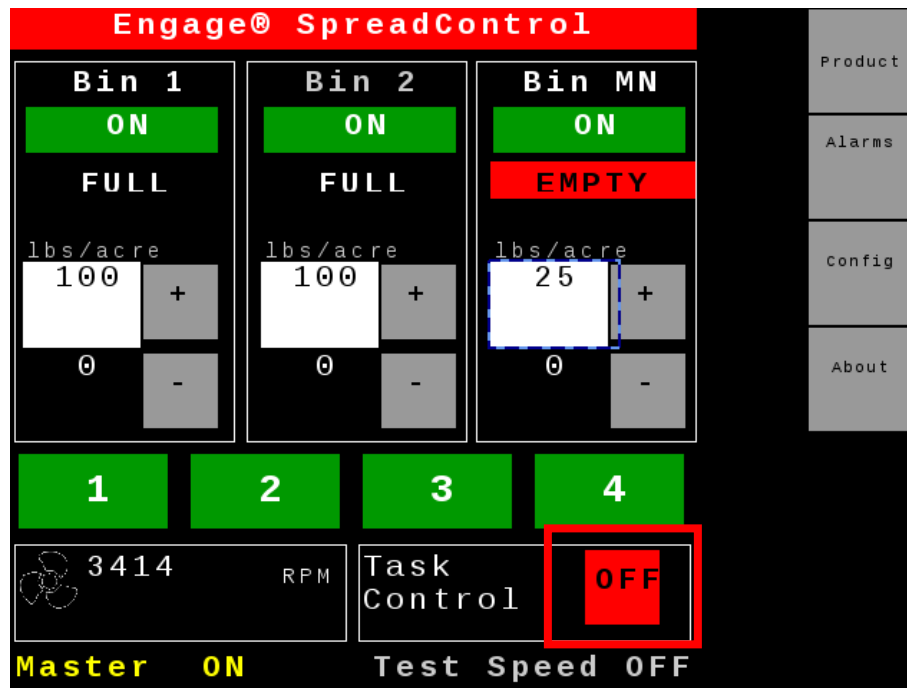
- Tap **On** or **Off** to turn a bin on or off.
- View if the bin is **Full** or **Empty** based on the bin level sensors.
- Enter the rate of the product. The top number shows your value, and the bottom number shows the actual rate.
- Tap the section number to enable the section (green) or disable the section (red). You can also use your machine's section switches to open and close sections. Flip the switch up to enable a section, and flip the switch down to disable a section.

NOTE: Bin 1 and 2 chains will decrease the application rate if a section is disabled. The micronutrient bin will **not** decrease its rate, consequently overapplying that area.

Controlling Machine Manually

Configure the settings below to manually control the machine.

1. Select **Off** next to Task Control.



2. Turn the floater master apply switch off.
3. Tap in the white box below **lbs/acre** to set the rate for each bin.
 - Type 100 for bins 1 and 2.
 - Type 25 for the micronutrient bin (if applicable).

4. Tap **Product**. Then, tap **On** next to Manual speed, and enter 10 for the speed.

5. Tap **Back**. The screen will display **Test Speed ON**.

6. Turn on the fan in the floater's cab.

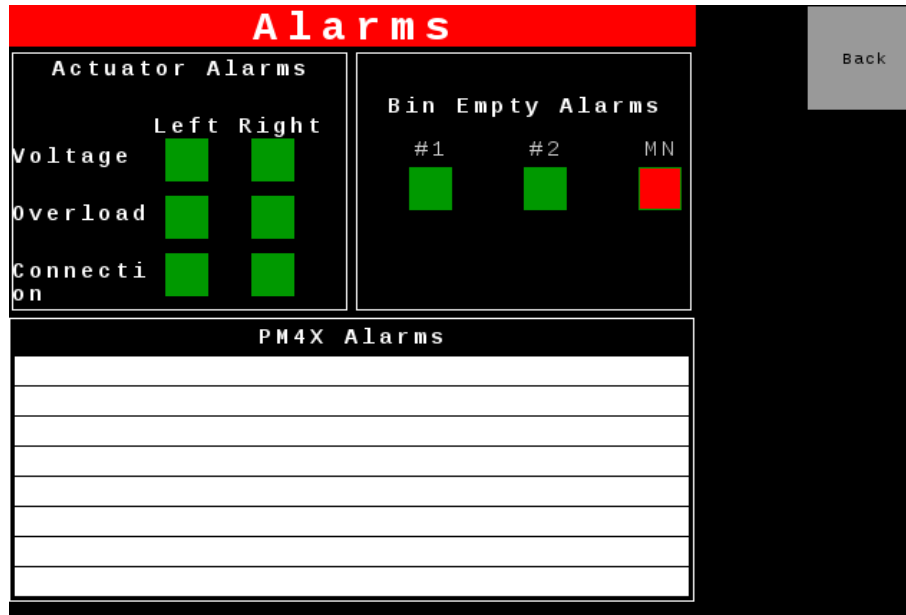
NOTE: The chains will not start and the fan speed will display as red until a fan speed above 75 rpm is reached.

7. Turn the floater master apply switch on and the chains will start turning.

Viewing Alarms

Alarms will automatically appear on the screen. Otherwise, tap **Alarms** from the main page.

For more troubleshooting information, refer to the Engage SpreadControl Troubleshooting Guide.



Actuator and Bin Empty Alarms

Alarm	Red Color	Green Color
Voltage	No power. Check the connection on the 2 pin connector on the actuator	No issue
Overload	Actuator is overloaded. <ol style="list-style-type: none"> 1. Clean the funnel box, especially around the actuator. 2. Inspect funnel box for mechanical damage which impedes motion of the pivot. 3. Power-cycle (i.e. un-mate and re-mate the power connector) the affected actuator with the system powered up and operating. 	No issue
Connection	No communication. Check the connection on the 4 pin connector on the actuator.	No issue
Bin Empty Alarms	Bin is empty	Bin is full

PM4X Alarms

PM4X Blinks*	Meaning	Alarm Text	Troubleshooting Steps
1, 2, or 3	CAN Comm Error	IO400 Bin X Timeout	<ol style="list-style-type: none"> If all bins are reporting this error, the problem is likely in the Main System harness. Check the 4-pin connector power (red), black (ground), green and yellow (CAN) wires of the Main System harness connected to the PM4X with the error. Swap the 4-pin power/CAN connector with another PM4X. <ul style="list-style-type: none"> If the error changes to the second bin's PM4X, contact Intelligent Ag for a replacement harness. If the error does not change to the second bin's PM4X, contact Intelligent Ag for a replacement PM4X.
4 or 8	Output Overcurrent	Bin SN Bank X Pin 5-6 Overcurrent <i>SN = PM4X serial number</i>	<ol style="list-style-type: none"> Check for damage to the wiring both at the PM4X and the sensor, valve, or switch that it connects to. Repair any damage. Unplug the sensor, valve, or switch and cycle power to the system. If the error goes away, install a new sensor, valve, or switch. Swap the 6-pin connector with another bank on the same PM4X and cycle power to the system. <ul style="list-style-type: none"> If the error follows the connector swap, contact Intelligent Ag for a replacement harness. If the error stays the same, contact Intelligent Ag for a replacement PM4X.
5 or 7	Output Overcurrent	Bin SN Bank X Pin 1-2 Overcurrent <i>SN = PM4X serial number</i>	<ol style="list-style-type: none"> Check for damage to the wiring both at the PM4X and the sensor, valve, or switch it connects to. Repair any damage. Unplug the sensor, valve, or switch and cycle power to the system. If the error goes away, replace the sensor, valve, or switch. Swap the 6-pin connector with another bank on the same PM4X and cycle power to the system. <ul style="list-style-type: none"> If the error follows the connector swap, contact Intelligent Ag for a replacement harness. If the error stays the same, contact Intelligent Ag for a replacement PM4X.
Continuous	Invalid Firmware Image	IO400 Bin X Timeout	<ol style="list-style-type: none"> Cycle the system power. Swap the 4-pin power/CAN connector with another PM4X. If the error persists, contact Intelligent Ag for a replacement PM4X.

6	PM4X Device Overcurrent	Bin SN Device Overcurrent <i>SN = PM4X serial number</i>	<ol style="list-style-type: none"> 1. Check for damage to the 4-pin connector power (red) and black (ground) wires. Repair any damage. 2. Check the wiring on the four 6-pin connectors on the PM4X, particularly pins 1-2. 3. Swap all 5 connectors with another PM4X. <ul style="list-style-type: none"> • If the error changes to the second bin's PM4X, harnessing is bad. • If the error does not change to the second bin's PM4X, contact Intelligent Ag for a replacement PM4X.
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*Numbers correspond to the number of flashes, followed by a long pause.