

# agXcel 12HP

## REVOLUTION

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FOR  
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# Quick Start Setup Instructions for AgLeader Integera and InSight Rate Controller

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## Disclaimer

AgXcel has taken every effort to ensure the correctness of this document, to ensure the highest quality and accuracy. However, AgXcel assumes no responsibility for omissions and errors, nor is any liability assumed for damages resulting from the use of information contained within this document as there are many uncontrolled variables.

AgXcel shall not be responsible or liable for accompanying or significant reparations or a loss of expected benefits or profits, loss or delay of work, or inaccuracies of data arising out of the use, or inability to use, this system or any of its components. AgXcel shall not be held responsible for any modifications or repairs made outside our facilities, nor damages resulting from inadequate maintenance of this system.



## CAUTION

Read this document carefully before installing, testing and using the AgXcel GX12HP Revolution injection system.

- Follow all safety information presented within this document.
- Keep safety labels in good condition. Replace missing or damaged safety labels as necessary and verify labels are included on replacement parts or new equipment components.
- If you require assistance with any portion of the installation or service of this solution contact your local AgXcel Dealer or contact AgXcel directly.

## Chemical Handling and Safety

Chemicals used in agricultural applications may be harmful to your health or the environment if not used responsibly. Review the safe, effective, and legal use and disposal of agricultural chemicals with the chemical supplier.

- Always follow safety labels and instructions provided by the chemical manufacturer or supplier.



## Quick Start Setup Instructions for AgLeader Integra and InSight Rate Controller

### GX12HP Installation Requirements

#### **CAUTION – The GX12HP is capable of injecting up to 280 PSI**

The installation of the GX12HP unit is very versatile however for the best performance please follow the best practices below.

A. **Mounting the Unit** – The GX12HP may be mounted in any location on the tool bar or implement. However, the unit must be secured, and must be mounted level. Ensure that it is not in a location where rock, mud, or debris will directly hit the unit as these could damage the outer casing of the pump or flow sensor.

B. **Tank Feed** – When installing the GX12HP unit on the implement ensure that the distance between the chemical tank and the GX12HP is no longer than 10ft. This will ensure that the unit does not have to work harder to draw the chemical from the tank. This will allow for easier flushing of the unit. Less chemical will be in the tank to pump line.

C. **Injection Feed** – When deciding on an injection point, ensure that the distance from the GX12HP unit to the injection point is no longer than 8ft. This regulated distance allows for less strain on the pump unit.

a. **Check Valve**- It is also critical to install a check valve on the injection feed line at the injection point. This will prevent feedback into the pump.

**Check Valve**



D. **Chemical Mixer** – A standard chemical mixer in the line

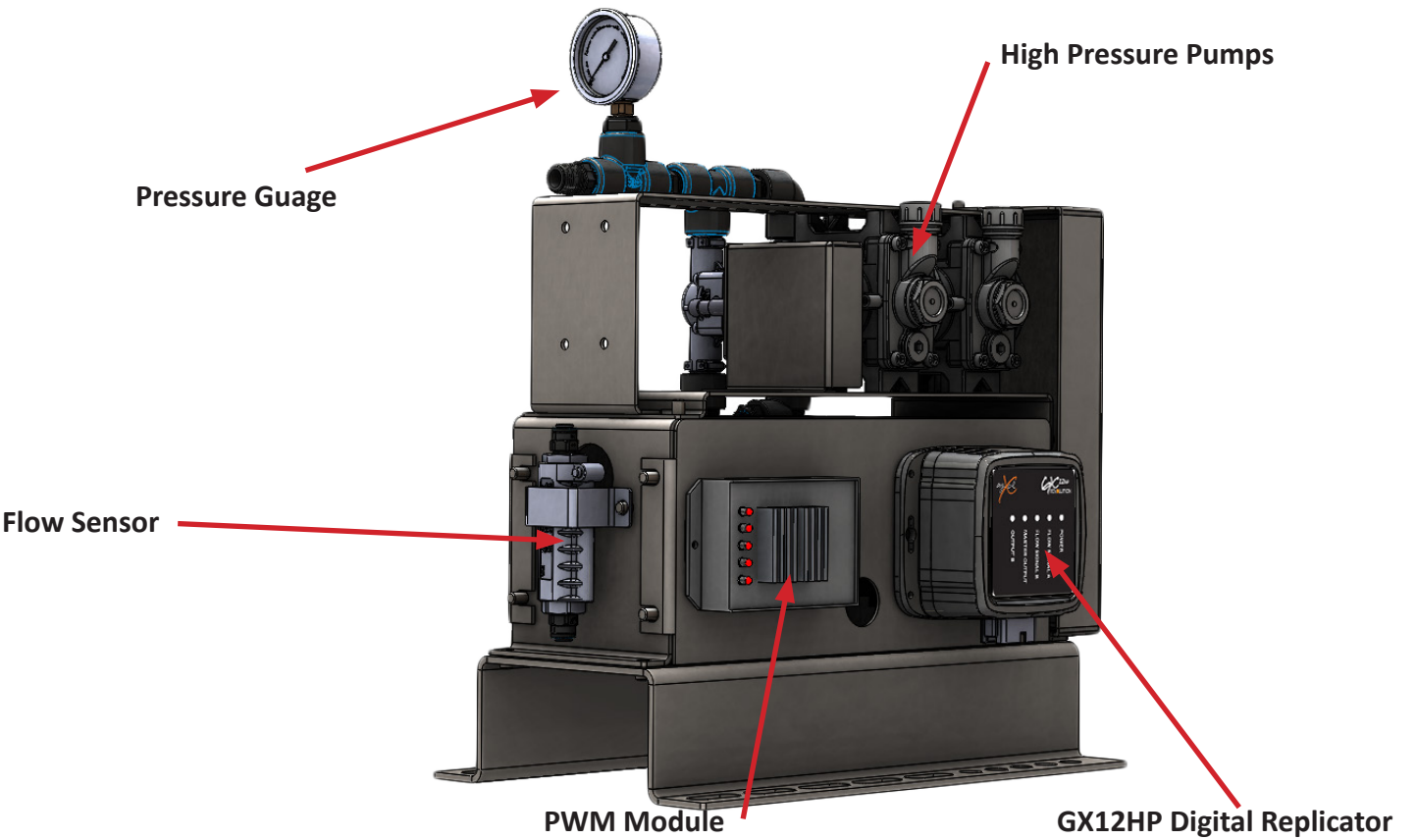
E. **High Pressure** – The GX12HP is a high-pressure injection with the ability to inject up to 280 PSI. However, AgXcel highly recommends the following precautions

- a. Pressure Sensor
- b. Pressure Spike Valve
- c. Manual Pressure Gauge



# Quick Start Setup Instructions for AgLeader Integra and InSight Rate Controller

## GX12HP Unit Breakdown



## GX12HP Digital Replicator



- **POWER**
- **FLOW SIGNAL A**
- **FLOW SIGNAL B**
- **MASTER OUTPUT**
- **OUTPUT B**

See page 9 for more info



## Quick Start Setup Instructions for AgLeader Integra and InSight Rate Controller

### GX12HP Flow Sensor

AgXcel's GX12HP utilizes one of two types of flow sensors, depending on the application. They are as follows.

**ICOS Precision Flow Switch** – This sensor is ideal for medium flows of liquid. The sensor has an operation range to allow adjustment for an ideal flow of liquid to be detected in application.

The ICOS must be installed in the exact position as when shipped from the factory. Any modifications or alteration will void the warranty and will affect performance. Do not make any attempt to adjust the flow switch settings as this will have a major affect on system performance and accuracy.



**FL7 MS Flow Switch** – Is an electro mechanical device in which the fluid passage moves a magnetic piston when flow is detected. The flow switch detects the presence of the water flow within the system via the displacement of a piston moved by the water itself. When the piston is moved by the water flow, the magnets contained therein energizes a reed switch that closes the circuit.

The FL7 must be installed in the exact position as when shipped from the factory. Any modifications or alteration will void the warranty and will affect performance.





## Quick Start Setup Instructions for AgLeader Integra and InSight Rate Controller

### GX12HP Revolution Quick Start

#### High Pressure Chemical Injection Solution Quick Start Guide

The following details are for the system configuration setting for the AgXcel GX12HP Chemical Injection solution for JD/2000, Trimble, AgLeader, Raven LRCM. Follow the settings outlined in this Quick Start Guide for initial system start up. However, due to various controller environments settings may have to be modified to ensure proper application. **THIS IS ONLY A GUIDE.** Please make sure a catch test is performed to ensure accuracy is achieved. **TEST WITH WATER FIRST!**

**CAUTION!** The GX12HP can produce in upwards to 280PSI. User must ensure that system controller operating pressure settings be limited 90PSI. This will ensure that all system rated components continue to fall within the rated pressure settings.

**NOTE** – The GX12HP unit requires a 12v source to control both the processor and the EPD driver when the unit is operating.



# Quick Start Setup Instructions for AgLeader Integra and InSight Rate Controller

**PLEASE NOTE:** Your setup may vary. Not all screens are shown.  
See AgLeader's Operator's Manual for safety information  
and additional setup/operating information.

## MENU STRUCTURE FOR LIQUID RATE CONTROLLER



### Home

- Support
- System Information
- Event Setup



### Map

- Field Display
- Target Rates
- Flow Display



### Config Selection

- User Config.
- Equip. Config.
- System Config.

### System Information

AgLeader technology is a very flexible control platform with many capabilities. This quick start setup guide will show you the necessary steps to setup your AgLeader display to control AgXcel's Fertilizer Pump Systems. Follow the general directions in your AgLeader Integra User Manual (especially under Configuration and Liquid Rate Control) or InSight User Manual (especially under Setup and Application). This manual will show you the specific numbers and settings to use with your AgXcel Fertilizer Pump System.

### Integra & InSight Users

Information in this manual is applicable to the InSight except for screen-shots shown in the **Setup & Operation**. The **Calibration** and **Setup** values in this section **DO** apply to the InSight. However, the InSight has a completely different screen layout and menu structure that is not shown in this manual. Use your AgLeader manual to navigate, then enter the appropriate numbers from the AgXcel manual.

### Configuration – Setup

In the **Setup** menus, you will set the AgLeader display to work properly with the AgXcel Fertilizer Pump System. Carefully follow these steps to first make the proper settings. Then, run the tests shown to verify your fertilizer system is ready to go to the field.

- From the “**Home**” screen, press the “**Wrench**” icon on the top right, which will take you to the **Configuration Setup** screen.
- Once on the **Configuration Setup** screen, choose “**Equipment**” on the top right of the screen.





## Quick Start Setup Instructions for AgLeader Integra and InSight Rate Controller

### Configuration – Setup cont.

- Next, choose the **Implement** tab in the middle and touch the green “+” button to add a new implement.
- On the **Choose Implement Type** screen, you will need to select **Application** when setting up any AgXcel Fertilizer Pump Systems.
- Next, select the **tractor** being used with the **implement** and press the right arrow button.
- After the **tractor** has been selected, you can select an existing **implement** such as a planter or press the green “+” button to add a **new implement**.
- When adding a **new implement**, the **Implement Wizard** screen will appear where the user can define the **Make** and **Model** of the implement. When the information is displayed correctly, press the right arrow button.
- Next, add how the implement **attaches** to the tractor and press the right arrow button.
- On the **Application Channels** screen, press the “+ **Liquid Application**” button on the top right of the screen.
- Select the appropriate **liquid rate controller** and press the right arrow button.
- Choose a **name** and **capacity** of the **tank** being used on this implement. Press the right arrow button to continue.
- On the **Section Count Screen**, enter the number of sectional valves if applicable and press the right arrow button.

The screenshots show the following steps in the setup wizard:

- Setup**: Shows the 'Implement' tab selected. A list of implements is shown on the left, and a green '+' button is on the right.
- Choose Implement Type**: Shows options for Tillage, Planting, Application, Header, and Tile Plow. The 'Application' option is selected.
- Implement Wizard: Attachment Type**: Shows the 'Implement Attachment Type' dropdown menu with 'Rear Drawbar' selected.
- Implement Wizard: Application Channels**: Shows a table with columns Type, Controller, Channel, and Container. On the right, there are buttons for '+ Liquid Application', '+ Direct Injection', and '+ Granular Application'. The '+ Liquid Application' button is selected.
- Equipment Setup Wizard: Rate Controller**: Shows the 'Select Application Rate Controller' dropdown menu with 'AgX DirectLiquid' selected.
- Equipment Setup Wizard: Container**: Shows fields for Container Name (Main Tank), Capacity (500), and Units (gallons).
- Equipment Setup Wizard: Section Count**: Shows the 'Enter Number of Boom Sections' field with the value 4.





# Quick Start Setup Instructions for AgLeader Integra and InSight Rate Controller

## Configuration – Setup cont.

- Select the appropriate **implement swath width** and press the right arrow button.
- Verify the width of each section on the **Section Configuration Screen** and press the right arrow button to confirm it.
- Enter the **distance from the hitch to the application**

**Equipment Setup Wizard: Application Point Offset**

Enter Distance from Hitch to Application Point (front to back)

25 ft

**Equipment Setup Wizard: Swath Width**

Enter Full Swath Width

60 ft

**Equipment Setup Wizard: Section Configuration**

Enter Boom Section Widths from Left to Right

Section	Swath Width (ft)
1	15.0000
2	15.0000
3	15.0000
4	15.0000

- It will return you back to the **Application Channels Screen** where you can add additional applications to the implement. **For example**, if an in-furrow application set-up has been completed and a 2x2 application needed to be added the “+ **Liquid Application**” button would be pressed and the set-up process would be repeated for the 2x2 system.
- When all applications have been set up correctly, press the right arrow button
- Set up **OptRx sensors** if applicable and press the right arrow button.
- A pull behind tank can be configured on the **Hitch Point Configuration Screen**. Once configured, press the right arrow button.
- Finally, enter the **implement’s name** and press the green check mark to complete the set-up.
- When completed the implement should appear on the **Setup**

**Implement Wizard: Application Channels**

Type	Controller	Channel	Container
Liquid	AgX DirectLiquid		Main Tank

+ Liquid Application  
+ Direct Injection  
+ Granular Application

**Implement Wizard: Additional Devices**

☐ OptRx Crop Sensor

Crop Sensor Settings

Sensing Width: 60 ft

Swath Offsets

Number of Sensors: 0

Note: Sensing Width should typically be set to the same width as the implement.

**Implement Wizard: Hitch Point Configuration**

Enter Hitch Point Information

☐ Implement Provides a Rear Hitch

Enter Left or Right Distance: 0 ft to the left

Enter Forward or Backward Distance: 0 ft

**Implement Wizard: Implement Name**

Enter Implement Name

AgXcel

**Setup**

Vehicle Implement Controller

All Implements

Agxcel 15

Gx 40 blv Mod(2)



# Quick Start Setup Instructions for AgLeader Integra and InSight Rate Controller

## Configuration – Setup & Calibrate

- From the **Home Screen**, choose Setup (**Wrench icon**)

- The Setup Screen will appear.

Choose the “**Configuration**” tab.

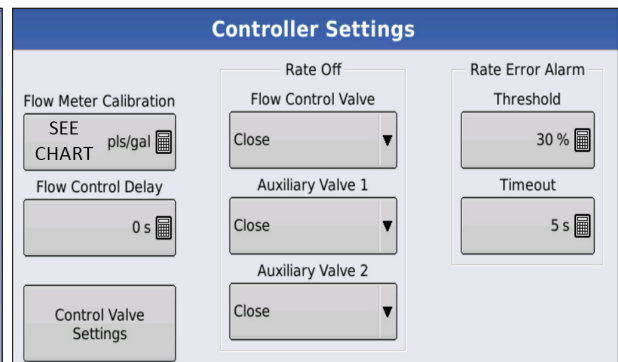
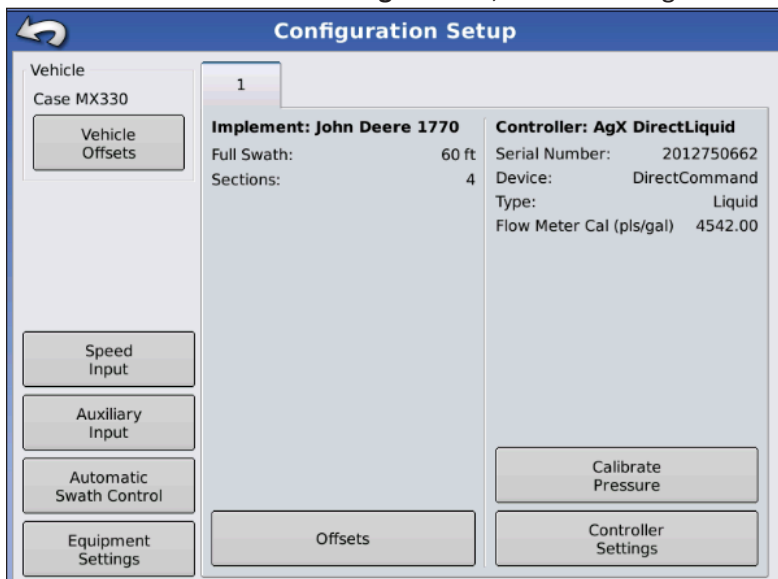
- From the **Controller Menu**, select the controller you want to change or use the Add button to create a new controller.

- Select the **Wrench icon** in the middle of the **Configuration Screen**.

- From this menu, choose the **Controller Settings** button. This will enter the controller menu where the parameters must be set to accurately control your AgXcel Fertilizer Pump System.



- The AgLeader can store multiple configurations. The controller settings used for each configuration are listed on the right of the **Configuration Setup** screen. Use **Configuration** settings to change these items. You will want to set items in the **vehicle**, **implement**, and **product** screens. Consult your manual or AgLeader dealer for assistance with those settings.
- On the **Controller Settings Screen**, set the settings as shown:



**Flow Control Delay:**  
All Systems.....0

**Flow Control Valve:**  
All Systems.....Close

**Threshold:**  
All Systems..... 30%

**Auxiliary Valve 1:**  
All Systems.....Close

**Auxiliary Valve 2:**  
All Systems.....Close

**Timeout:**  
All System ..... 5 secs

**\*Note:** The Flow Meter .08 – 1.6 is exclusively used for the GX40 Synergist to attain such low volumes. The flow meter calibration is 22710.

**Flow Meter Calibration\*:**

**See AgXcel's Flow Meter Guide on next page**



## Quick Start Setup Instructions for AgLeader Integra and InSight Rate Controller

### Configuration – Setup & Calibrate cont.

Number of Pumps	Flow Calibration Number
1 Pump	84
2 Pumps	42
3 Pumps	28
4 Pumps	21

**\*\*NOTE\*\*** Even though the Flowmeter Units is set to read in gallons, AgXcel has manipulated the controller to really read in ounces with the Flowmeter Calibration number that has been set. For example, if you enter the rate 32 Gal/Acre, your controller will really be applying 32 Oz/Acre.

Press the **Control Valve Settings** button on the **Control Settings** screen. This will bring up the **Control Valve Settings Screen**. Set the settings as shown:

**Control Valve:**

PWM 12 volt

**PWM Frequency:**

All Systems.....100

**PWM Gain:**

GX5 (hydraulic).....2500

GX2 (electric)..... 9999

Synergist.....9999

**GX12HP.....150**

**PWM Standby\*:**

All Systems.....50

**GX12HP.....10**

**Zero Flow Offset\*\*:**

GX5 (hydraulic).....20

GX2 (electric).....10

Synergist.....10

**GX12HP.....10**

**Allowable Error:**

All Systems.....2%

**\*Note:** PWM Standby setting is not used if Flow Control Valve is set to Close, but still needs to be set.

**\*\*Note:** Zero Flow Offset can be set higher if system is slow to reach Target Rate when starting. Can be set lower if pump will not go slow enough for low rates.



# Quick Start Setup Instructions for AgLeader Integra and InSight Rate Controller

## Configuration – Pressure Calibration

- The AgXcel harness includes a connection for an electronic pressure sensor.\* The sensor is identified as “**Main Pressure**” in the AgLeader display.
- From the **Configuration Setup** screen, choose **Calibrate Main Pressure**.
- Enter values in the calibration
- **\*Note: The pressure sensor is an optional feature!**

## Configuration – Calibration

- *AgXcel highly recommends you perform these exact steps with water to verify that your AgXcel System is correctly installed and ready for field use.*
- On the **Home** screen, select your **Operator** and your **Equipment** that you will be using
- Press the **Select Event** button
- Select **Growing Season, Grower, Farm, & Field** from the drop-down box or add new selections by pressing the green “+” button. Press the right arrow button.
- On the **Product Selection** screen, select the product being used from the drop-down box or press the green “+” key to create a new product.



## Quick Start Setup Instructions for AgLeader Integra and InSight Rate Controller

### Configuration – Calibration cont.

- You can select a previous event that has been created or you can create a new event by pressing the **Start New Event** on the **Event Selection Screen**.
- Finally, select the **region** and the **controlling product**. When this is complete, select the green check mark button to finish setting up a new field.
- The **Home Screen** will now have an **Operator**, **Equipment**, and **Event** selected and loaded.
- Press the **Grid icon (Map)** on the bottom left of the **Home Screen**.
- **Note:** To simulate speed to test flow without moving, you must go to the **Configuration Setup** screen. Press the **Wrench icon** next to your selected equipment. Press the **Speed Input** on the left to enter your simulated speed in mph.

The screenshot shows the 'Event Selection' and 'Options' screens. The 'Event Selection' screen has a 'Start New Event' button and a list of events: 'Event: 2017-07-14\_11:58:10' and 'Event: 2017-06-26\_11:53:26'. The 'Options' screen has a 'Region' dropdown menu with a plus sign, a '<1>' button, and a keyboard icon. Below it is a 'Controlling Product' dropdown menu with 'Capture LFR (fl oz)' selected.

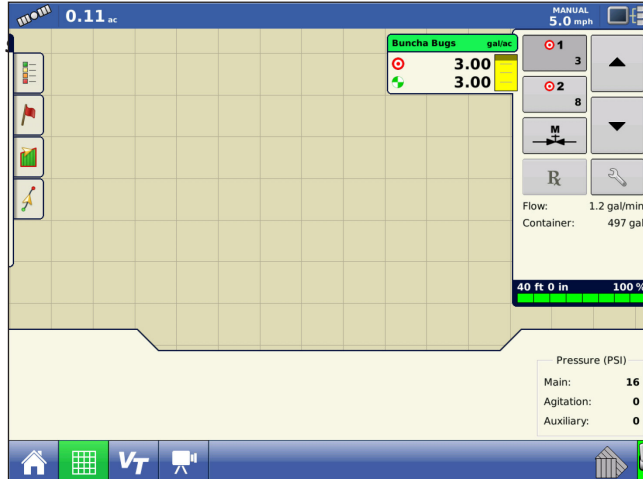
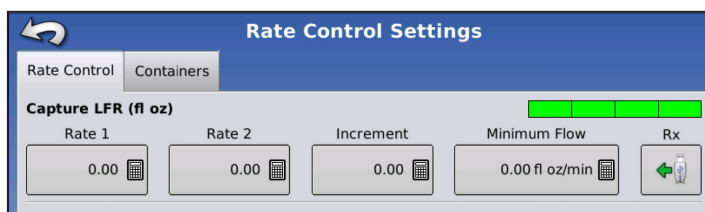
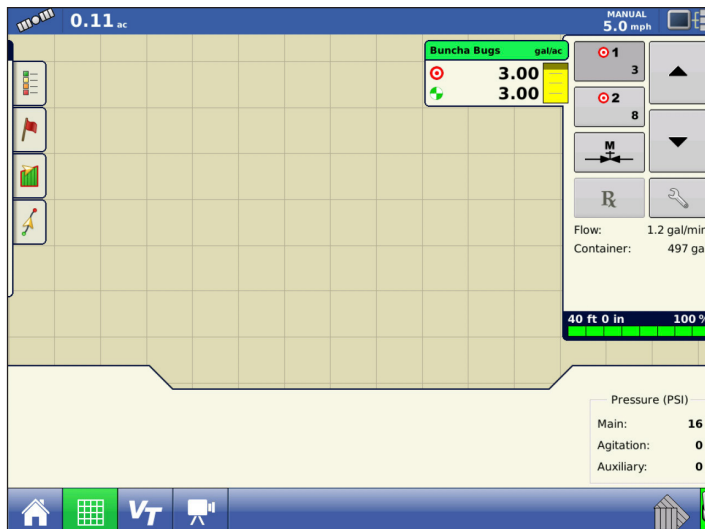
The screenshot shows the 'Home Screen' with a green background. At the top, it displays '0.00 ac' and '0.0 mph'. Below this, there are sections for 'Trevino, Joshua' and 'Case MX330, John Deere 1770'. The 'Event' section shows 'Event: 2017-06-26\_11:53:26', 'Grower: AgXcel', 'Farm: Deets', and 'Field: Deets East'. The 'Products' section shows 'Productivity' and 'Region: <1>'. The 'Capture LFR' section shows '0.0 fl oz/ac', '0.0 fl oz', and '0.0 ac'. At the bottom, there is a navigation bar with icons for Home, Grid, VT, and a camera icon. The bottom right corner shows the time '11:55:47 AM' and date '06/26/2017'.



# Quick Start Setup Instructions for AgLeader Integra and InSight Rate Controller

## Configuration – Calibration cont.

- To **adjust rates**, touch the tab where the rate information is displayed.
- Rates 1 and 2** can be selected or a variable rate prescription can be loaded. Press the **Wrench** button on the right side of the rate screen.
- The **Rate Controller Settings** screen will appear. From this screen both **Rate 1 and Rate 2** can be entered along with the minimum flow. Press the **Minimum Flow** button.
- Once pressed the minimum flow threshold can be set. **AgXcel recommends the minimum flow be set to “0”**.
- After rates and minimum flow are set, return to the main operation screen to conduct a **catch test**.
- Enter the **manual mode** by pushing the “M” button under the **Rate 1 and Rate 2 buttons**. You can tell when you are in manual mode when the “**Target Rate**” says “**OFF**”.
- On the switch box, turn the **master switch ON**. Turn section switches **on and off** to check proper section valve operation. Leave all section valves “**ON**”
- Use the **up** arrow on the right side of the screen to increase flow. **Does “Flow Rate” display a flow rate? Is it stable after the system is primed? Do the increase and decrease buttons increase and decrease the flow?**
- Next, **perform a catch test** using either automatic rate 1 or 2 while utilizing the simulated speed set earlier. The simulated speed should be displayed in the upper right-hand corner of the screen.







# Quick Start Setup Instructions for AgLeader Integra and InSight Rate Controller

Wire Size: 18 AWG  
unless otherwise  
specified

## AgLeader Adapter Cable P/N 53514

12 Pin Boom Connector  
Deutsch DT06-12S Female



Section 1	1	BLK
Section 2	2	BRN
Section 3	3	BLUE
Section 4	4	BLK/WHT
Section 5	5	BRN/WHT
Section 6	6	BLU/WHT
Section 7	7	WHT/BLK
Section 8	8	WHT/BRN
Section 9	9	WHT/BLU
Section 10	10	PINK
Section 11	11	WHT/YLW
Section 12	12	WHT/GRN

12 Pin Aux Connector  
Deutsch DT06-12S Female  
(Black Connector)



	1	
	2	
Agitation Pressure	3	
Pressure 1 (Main)	4	PRP
	5	
	6	
Aux Valve 1	8	
Aux Valve 2	9	
Imp Switch Signal	10	18 AWG RED
	11	
Imp Switch GND	12	18 AWG RED

8 Pin Channel 1 (PWM  
and Flow) Connector  
Deutsch DT06-08S Female



	1	
Servo +/-PWM	2	YELLOW
Flow Signal	3	RED
Flow GND	4	BLK
	5	
	6	
Servo -/PWM	7	GREEN
	8	

2 Pin (Power In)  
Connector  
Deutsch DTP04-2P Male



+12VDC	1	14 AWG RED
Ground	2	14 AWG BLK

16 Round Pin - AMP  
Male pins in male body  
(with threads for swivel nut)

Labeled  
"Sections"



1	Valve GND
2	Section 2
3	Section 3
4	Section 4
5	Section 5
6	Section 6
7	Section 7
8	Section 8
9	Section 9
10	Section 10
11	Section 11
12	Section 12
13	Pressure 1 (Main)
14	Valve Power
15	Section 1
16	Valve Power

16 Round Pin - AMP  
Female pins in female body  
(with swivel nut)



1	GND
2	
3	Servo +/-PWM
4	Servo -/PWM
5	
6	Section 1
7	
8	
9	Pressure 1 (Main)
10	
11	Flow GND
12	
13	Flow Signal
14	
15	
16	Power

Run/Hold

Dust Cap

150 MP Tower 3-Pin		150 MP Shroud 3-Pin		18 AWG RED
A	Signal		Signal	A
B				B
C	Ground		Ground	C



# Quick Start Setup Instructions for AgLeader Integra and InSight Rate Controller

## PWM Harness

Flowmeter, PWM, Pressure  
P/N 53697

