

VM-5200/16-32

USER MANUAL



VANGUARD
SYSTEM

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Ag Express Locations

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515-289-2746

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765-533-4809

I Introduction

I.1 System Overview

The VM-5200 Monitor is designed for maximum performance in the field and is easy to install and use. The system is capable of monitoring up to 16 rows and provides not only seed flow information, but also will display seeding rate information and has capabilities of monitoring liquid flow with Vanguard “Visu-Flo™ Technology”.

- Monitor 1 – 16 rows or 1-36 Rows
- EZ Convert Main Harness for 16 Row only
- Auto-detect Sensors
- 7” Touch Screen
- Adjustable back light w/ Day/Night modes
- Adjustable audible alarm with mute and optional LED light
- Adjustable Average Accumulate Rate
- Bar graphs to show both over plant and under plant by row
- RAM 1 ½” Ball Mount
- View Min-Max-Avg
- View Seeds/Sec
- View 20 Sec Row History
- Optional Hopper Levels (2) and Lift Switch
- “Visu-Flo™ Technology” Option
- Insta-Pop indicated Seeds/Acre and Gallons/Acre



I.2 Specifications

Power	10–16 VDC, 3.5 A maximum
Operating temperature	-20°C to 70°C (-4°F to 158°F)
Storage temperature	-40°C to 85°C (-40°F to 185°F)
Size	27.30 cm W x 16.50 cm H x 5.08 cm D (10.75" W x 6.5" H x 2" D)
Weight	2.22 kg (4.9 lbs.) for VM-5200 system
Wire Harnesses	The VM-5200 includes detachable harnesses to supply the unit's power (fused) and sensor inputs (to hitch). Sensor harness includes EZ Convert feature on the 16 row version.
Sensors	Compatible with Vanguard and other major brands of seed sensors.
Standard mounting	RAM Mount ½" Ball Mounting
Alarm adjustment	Four levels audible alarm with mute onscreen selection. Optional external light available.
Backlight adjustment	Seven increments plus Day/Night mode

SAFETY NOTICES



CAUTION

CAUTION should be taken when connecting the monitor to the battery to assure that the Positive + (Red) wire is connected to the Positive terminal of the battery and the Negative – (Black) wire is connected to the Negative terminal of the battery.

The power cable is provided with a 5 amp fuse. DO NOT REPLACE with anything other than a 5 amp as this could damage the monitor and void the warranty. Fuses are for your protection and the protection of your equipment.

1.3 Installation

Your VM-5200 comes with a RAM 1 1/2" Mounting Ball. Any RAM Mount 1 1/2" fixtures will adapt to your monitor.

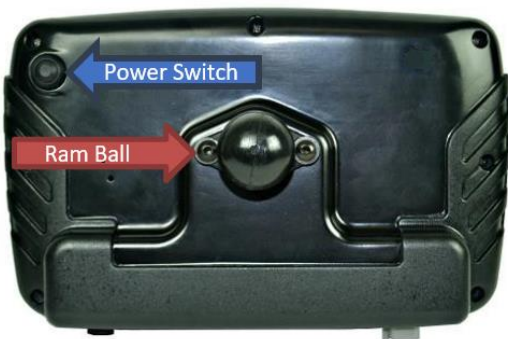


Figure 1 Monitor Mounting



Install the RAM-238-U 1 1/2" Ball supplied with your console by removing the two screws from the rear of the unit and use them to attach the ball.

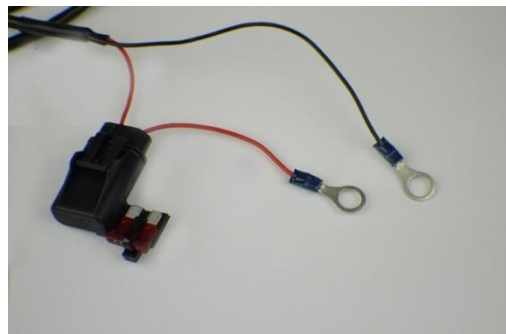
Any RAM configuration may be used to attach your console to a convenient location in your cab. If you need a base mount, see the above for more options. See your local dealer for brackets and arms that are available, or visit www.AgExpress.com to purchase online.

1.4 Monitor and Power Connections (Harness 647103)

Route the power leads of the main harness to the battery. Allow some slack to tie the harness off to a secure location in the cab to provide strain relief and for the protection of the harness.

The monitor operates on 12 VDC only. The red (Fused) lead should be connected to the positive battery terminal and the black lead should be connected to the negative battery terminal.

There is a short two pin Deutsch connector at the monitor end of the power cord. This is for connecting the optional Visual Alarm Light (Part No. 647105)



I.5 VM-5200 Console Main Harness (Harness 647131) (16 Row System)

Route the main harness to the rear of the tractor. Attach the connector to the bottom of the monitor with a 1/4" nut driver. Tie the harness securely in the cab as a strain relief.

Before connecting your monitor harness to your implement harness, check the pin configuration of your implement. Standard pin configurations for most harnesses have power on pin 24 and ground on pin 26. Deere harnesses have power on pin 27 and ground on pin 28. Your VM-5200 comes with our exclusive EZ Convert Harness (Part No.647131). With EZ Convert, you verify your implement connector and then select either the Dj connector or the Deere Connector on the harness as shown below.



Figure 2 Harness 647131 End

Once your implement is connected, you are ready to operate your monitor.

I.6 VM-5200 Console Main Harness (Harness 647106) (36 Row System)

Route the main harness to the rear of the tractor. Attach the connector to the bottom of the monitor with a 1/4" nut driver. Tie the harness securely in the cab as a strain relief.

Your harness provides two 37 pin connectors at the hitch for your implement. P1 connector is for Sensors 1-24 and P2 is for Sensors 25-36. Your implement must have Dj / Vanguard wiring. If you have a Deere harness you will need adapter harnesses. These are available at www.AgExpress.com or call 800-258-2415. Once your implement is connected, you are ready to operate your monitor.

2 System Operation

2.1 Start-Up

Touch the I-O switch button on the right panel of the monitor to start up. On power up, the monitor goes through a self-test mode and a splash screen will appear. Your monitor is pre-programmed and should auto-detect the seed sensors if you are using a planter/drill. Once they are detected, the operate screen will appear with bar graphs representing each row where a sensor is attached.

If you are using only flow meters, go to the Flow Setup section of this manual to properly configure your system.

Verify that all sensors are found and if so, you are ready to operate.

Once seed or flow begins, the bar graphs will indicate how each row is performing compared to a system average.

2.2 Bar Graph Screen (Home)

Once seed flow begins, the bar graphs will indicate how each row is performing compared to a planter average.

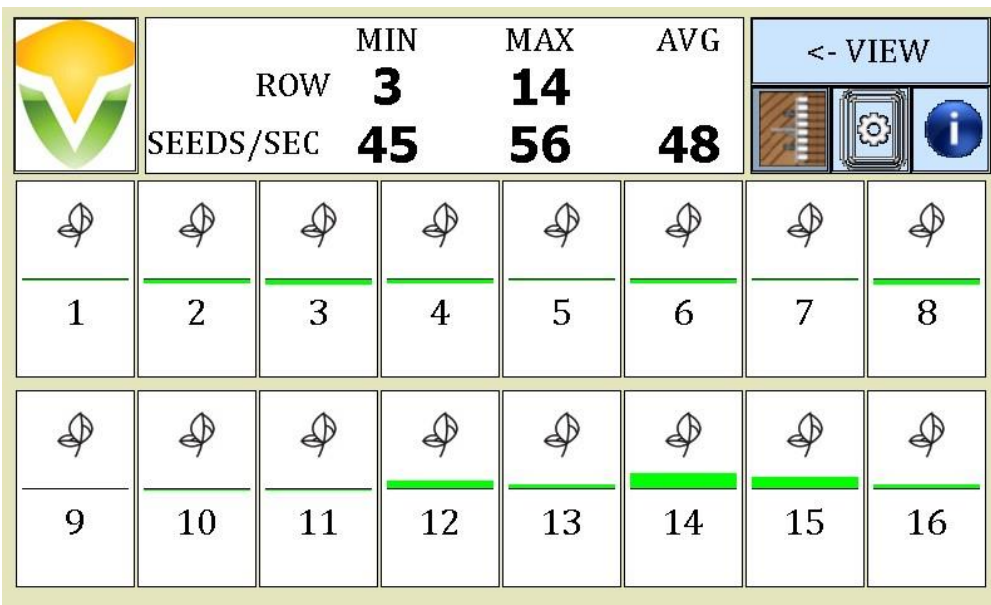


Figure 3 Bar Graph Screen

Above is the operate screen for seeding showing bar graphs for each row. The mid-point of the line represents the planter average planting rate and the green above and below the mid-point shows how that row is performing compared to overall average. If the row goes more than 50% above or below the average, the bar graph will change color... Yellow if it goes high and Red if it goes low. At that time the audible alarm will sound to alert the operator of the problem.

Should a row continue to be a problem, select the individual row bar graph for three seconds and that row will be disabled and the alarm will no longer sound for that row.



2.3 Navigation Buttons

The Menu Bar is located on the upper right corner of all Monitor Screens.



Figure 4 Menu Bar

Press the desired button to navigate the monitor to other screens. The buttons represent Planter Setup, Monitor Setup and Information Screens. The follow Sections describe these screens in more detail.

The monitor can be taken back to the Home Bar Graph screen immediately by pressing the Home button in the Top Left Corner of All screens.



Figure 5 Home Navigation Button

2.4 Planter Setup Screen

Depress the Planter Setup icon  on the main screen to open the Planter Setup Screen. There you will find a number of options.

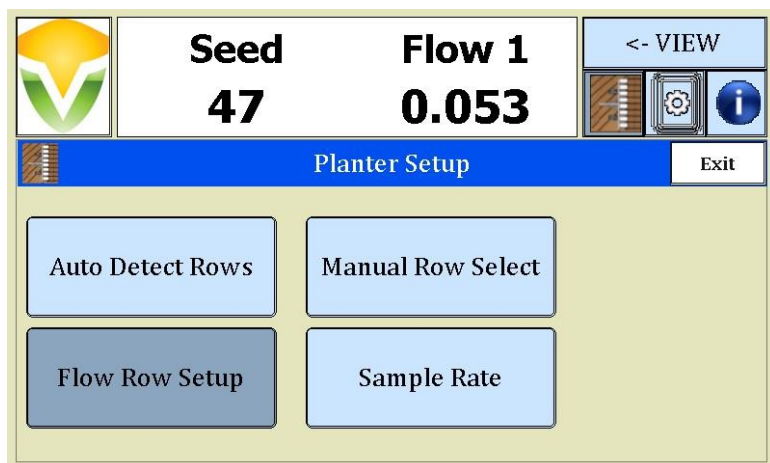


Figure 6 Planter Setup

2.4.1 Auto Detect Rows

In the upper left is the **Auto Detect Rows** which when depressed will run a scan of your planter and detect the rows with active sensors. The monitor runs this process upon power up, so this is not necessary unless you have made some adjustment to the row configuration or need to re-detect sensors. Auto detect does not detect flow sensors, it must be manually selected.

2.4.2 Manual Select Rows.

Touch this button and open up a screen showing rows with a box where you can select or un-select a row manually.

2.4.3 Sample Rate

Sample Rate gives the operator a choice of 1, 2, 3 or 4 second intervals. Default is 2 seconds. Once you change this rate, it stays in the memory of your box until you change it again. Depending on your planting rate, you can change the time period for averaging your seed detection.

2.4.4 Flow Meter Row Unit Setup

Select this button if you have the Visu-Flo™ system flow meters in your system. The first dialog box will ask if you are using one rate or two rates in your system.

	MIN	MAX	AVG
ROW 2	14		
SEEDS/SEC	45	56	48

Select Number of Rates Used

☒ 1 ☐ 2

NEXT >>

Figure 7 Flow Meter Number of Rates

2.4.4.1 One Rate Setup

Selecting the one rate button will bring up the following screen where you enter the Part Number of your flow meters.

Seed	Flow 1
73	0.350

Select Flow Sensor

Flow 1

CAL 6663

<< PREV NEXT >>

Figure 8 One Rate Flow Sensor Select

Selection of the flow meter will bring up a row input screen where you can manually select which rows on your display will be flow meters. Touch the box beside each row to select.

Row Input: Flow Meter Setup

Row 1	☐ EN
Row 2	☐ EN
Row 3	☐ EN
Row 4	☐ EN
Row 5	☐ EN
Row 6	☐ EN
Row 7	☐ EN
Row 8	☐ EN
Row 9	☐ EN
Row 10	☐ EN
Row 11	☐ EN
Row 12	☐ EN

OK CANCEL NEXT >>

Figure 9 One Rate Flow Meter Assignment

Select (Enable) to apply Flow to a specific row input. Press Next button to navigate to next set of Rows.

Once the rows have been selected, press ok to accept. The monitor will then bring up the operate screen showing bar graphs with nozzle icons on the rows that have been selected for flow. If you have an equal number of rows of seed and flow, they will be stacked in order if you let the last half of your rows be flow and the first half be seed.

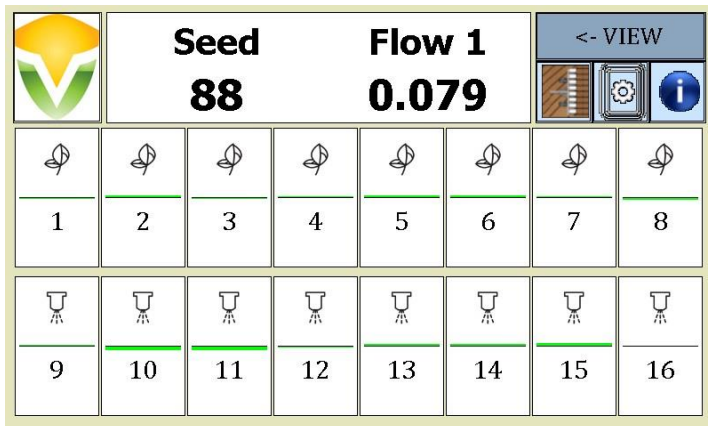


Figure 10 Seed and Flow Home Screen

2.4.4.2 Two Rate Setup

Selecting the two rate button will bring up the following screen where you enter the Part Numbers of each flow meter.

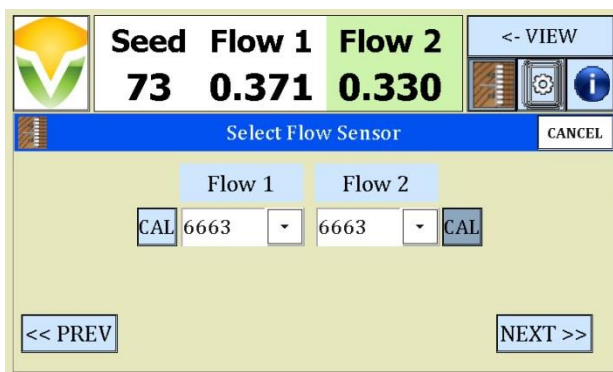


Figure 11 Two Rate Flow Sensor Select

If you will be using two different rates with your flow system, select the 2 rate button on the screen (Figure 7 Flow Meter Number of Rates above). Press Next to bring up the Ratio Screen. You have several choices to enter your flow ratio. You may leave the F1 as 1.00 and if you are using a 1-1/2 rate for flow two enter 1.50 in the F2 box.

Enter the numbers by pressing the digit box and it will index one digit at a time. If you know the GPM flow rate of your nozzles, you may enter those numbers in the F1 and F2 boxes for example: 0.80 and 1.20, or if you know the GPA that you are targeting for each rate, you may enter that number in each box for example: 5.00 and 3.50

	MIN	MAX	AVG
ROW	34	29	
SEEDS/SEC	58	90	73

Input Ratio of Your Rates

Flow 1: 2.00 Flow 2: 1.00

<< PREV NEXT >>

Figure 12 Two Rate Flow Ratio Setup

When two rates are selected you must enable the Row and select which Flow Rate.

Row Input: Flow Meter Setup

Row 1 ☐ EN ☒ F1 ☐ F2 Row 7 ☐ EN ☒ F1 ☐ F2

Row 2 ☐ EN ☒ F1 ☐ F2 Row 8 ☐ EN ☒ F1 ☐ F2

Row 3 ☐ EN ☒ F1 ☐ F2 Row 9 ☒ EN ☐ F1 ☒ F2

Row 4 ☐ EN ☒ F1 ☐ F2 Row 10 ☒ EN ☒ F1 ☐ F2

Row 5 ☐ EN ☒ F1 ☐ F2 Row 11 ☒ EN ☒ F1 ☐ F2

Row 6 ☐ EN ☒ F1 ☐ F2 Row 12 ☒ EN ☒ F1 ☐ F2

OK CANCEL NEXT >>

Row Input: Flow Meter Setup

Row 13 ☒ EN ☒ F1 ☐ F2

Row 14 ☒ EN ☒ F1 ☐ F2

Row 15 ☒ EN ☒ F1 ☐ F2

Row 16 ☒ EN ☐ F1 ☒ F2

<< PREV OK CANCEL

Figure 13 Two Rate Flow Assignments

Check the rows where you will be monitoring flow and for each row, select the button to designate it as flow 1 (F1) or flow 2 (F2). Once selection is finished, press ok to go to your operate screen. The rows you have selected as flow will be represented with a nozzle icon. The F1 rows will have a white background and the F2 rows will have a green background.

Seed Flow 1 Flow 2

16 0.095 0.192

Seeds →

Flow 1 (F1) Flow 2 (F2)

2.5 Monitor Setup

Depress the Monitor Setup icon  on the main screen to open the Monitor Setup Screen. There you will find a number of options.

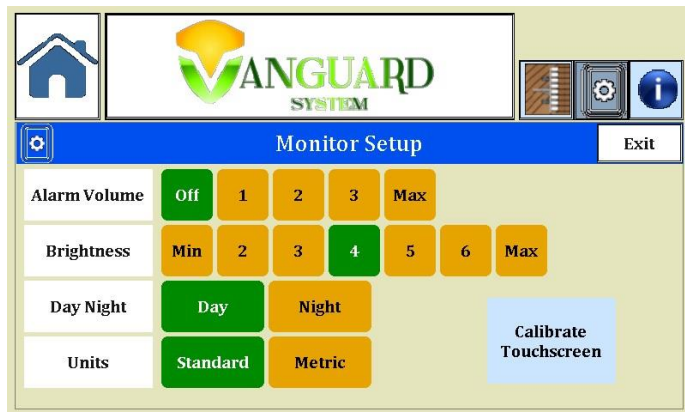


Figure 14 Monitor Setup

2.5.1 Alarm Volume

There are four levels of intensity for the audible alarm plus mute. Select from the levels shown or select Off to Mute the alarm.

2.5.2 Brightness Control

Your monitor has an adjustable backlight control. You may select from 8 levels of intensity.

2.5.3 Day/Night Mode

To reduce the brightness further for night work, you may enable the Night mode by depressing the Day/Night button. Return to Day mode by selecting the Day button.

2.5.4 Units Control

Your monitor may be changed to Metric by selecting the Metric button. Return by selecting Standard.

2.5.5 Calibrate Touch Screen

If your registration is off and the touch does not match the screen, run the Calibrate Touch Screen routine. Here you will be asked to touch three points on the screen to re-calibrate.

2.6 Info Screen

Depress the Info icon  on the main screen to open the Info Screen.

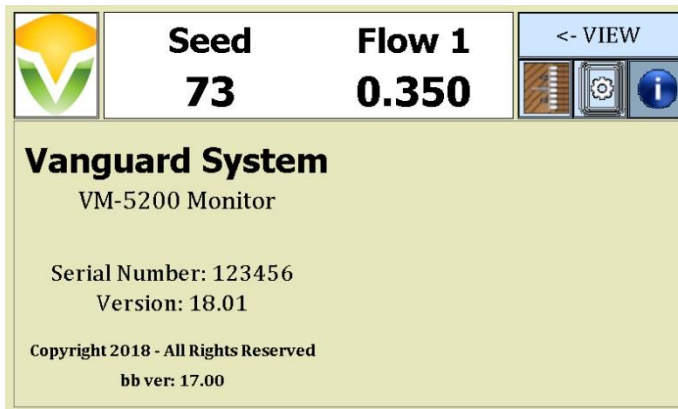


Figure 15 Info Screen

2.7 View Screen

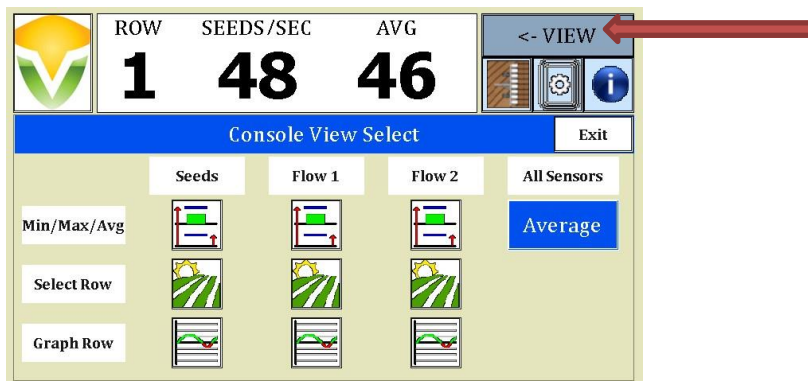


Figure 16 View Screen

The View Screen in the top center of the monitor display will default to Min-Max-Avg if you have seed monitoring only or flow monitoring only. You may also choose to view individual row seeds/sec (gal/min), or a line graph for an individual row showing the past 20 second average. The above screen shows the selection choices for the View Window. Select the column you want to watch and the type of screen you want to view. Sample above shows Seeds and Select Row choice. Below are the three types of screens available.

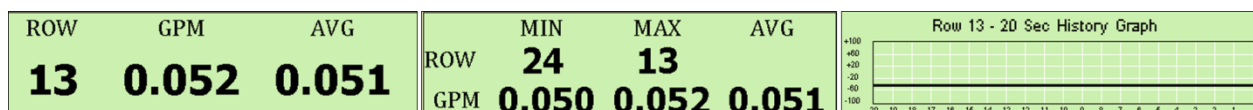


Figure 17 Console Area

If you are using combinations of seeds and/or flows, you will have additional selections. Your default screen will be a screen called Average which shows the averages of your selections and may be chosen from the menu box. It is displayed in the following format showing the average of each function.

Seed	Flow 1	Flow 2
46	0.052	0.051

Figure 18 Console Select Row

2.8 Insta-Pop Screens

This feature lets the user to get an indication of his Seeds/Acre or Gallons/Acre rates. Although not as precise as a population monitor, this feature takes the Vanguard non-pop series to a whole new level. When in Average Mode, just touch the portion of the above screen that you would like to view.

The Insta-Pop screen will appear where you may enter your approximate speed and your row spacing. Insta-Pop will show an indicated seeds per acre or gallons per acre depending on your selection. Once you have entered your constants, it's easy to just touch the view screen to get a current rate screen without further input.

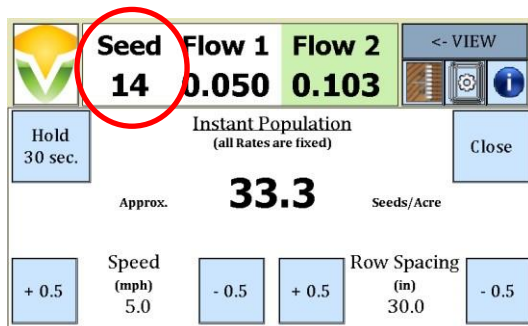


Figure 19 Instant Population

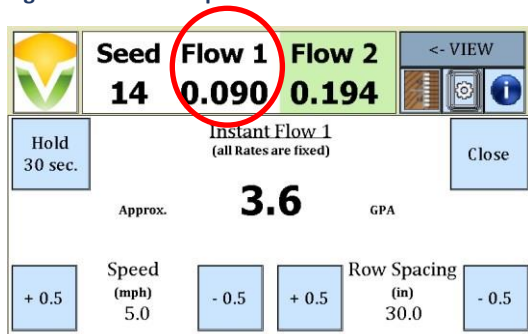


Figure 20 Instant Flow 1

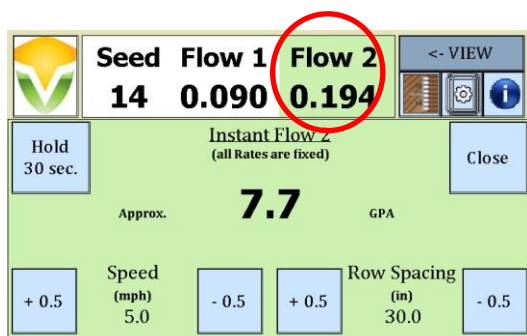


Figure 21 Instant Flow 2

3 Additional Information and Options

If a dialog box is open and your system has a failure, the alarm will sound and your dialog box will turn red to indicate that you must close the dialog and address the failure.

Up to two hopper level sensors may be added to your system if you have a harness that supports Hopper Levels. Low Hopper warnings will scroll across the screen every 20 seconds to warn of a low hopper level situation.

A lift switch option is also available if you have a harness that supports it. This is used to disable row inputs when the implement is raised.

Appendix A VM 5200 Console Pinouts

A.1 4 Pin Power In/Alarm Out Pinout

Pin #	Description
1	12 VDC IN (red)
2	-12VDC IN (black)
3	Visual Alarm Out (red/white)
4	Visual Alarm Return (black/white)

A.2 30 Pin Console Pinout

Pin #	Description
A1	Row 1 (green)
A2	Row 2 (white)
A3	Row 3 (brown)
B1	Row 4 (blue)
B2	Row 5 (orange)
B3	Row 6 (yellow)
C1	Row 7 (purple)
C2	Row 8 (gray)
C3	Row 9 (pink)
D1	Row 10 (tan)
D2	Row 11 (white/black)
D3	Row 12 (red/black)
E1	Row 13 (green/black)
E2	Row 14 (orange/black)
E3	Row 15 (blue/black)
F1	Row 16 (black/white)
F2	Row 17 (red/white)
F3	Row 18 (green/white)
G1	Row 19 (blue/white)
G2	Row 20 (black/red)
G3	Row 21 (white/red)
H1	Row 22 (orange/red)
H2	Row 23 (blue/red)
H3	Row 24 (red/green)
J1	No Connection
J2	No Connection
J3	No Connection
K1	Lift Switch Signal (orange/green)
K2	8 V Sensor Power (red)
K3	8 V Sensor Ground (black)

A.3 18 Pin Console Pinout

Pin #	Description
A1	Row 25 (green)
A2	Row 26 (white)
A3	Row 27 (brown)
B1	Row 28 (blue)
B2	Row 29 (orange)
B3	Row 30 (yellow)
C1	Row 31 (purple)
C2	Row 32 (gray)
C3	Row 33 (pink)
D1	Row 34 (tan)
D2	Row 35 (white/black)
D3	Row 36 (red/black)
E1	Hopper Level 1 Signal
E2	Hopper Level 2 Signal
E3	No Connection
F1	No Connection
F2	8 V Sensor Power (red)
F3	8 V Sensor Ground (black)

Appendix B VM-5200 Implement Pinouts

B.1 16 Row Harness

The following table provides a Pinout for the 16 Row Harness.

B.1.1 37 Row Pin Pinout

Pin #	Description
1	Row 1 (green)
2	Row 2 (white)
3	Row 3 (brown)
4	Row 4 (blue)
5	Row 5 (orange)
6	Row 6 (yellow)
7	Row 7 (purple)
8	Row 8 (gray)
9	Row 9 (pink)
10	Row 10 (tan)
11	Row 11 (white/black)
12	Row 12 (red/black)
13	Row 13 (green/black)
14	Row 14 (orange/black)
15	Row 15 (blue/black)
16	Row 16 (black/white)
17-23	No connection
* 24	8 V Sensor Power (red) (Dj Style)
25	
26	8 V Sensor Ground (black) (Dj Style)
27	
28	
29	Hopper Level 1 Signal
30	Hopper Level 2 Signal
31-36	No connection
37	Lift Switch Signal

* John Deere Style

27 8V Sensor Power

28 8V Sensor Ground

B.2 36 Row Harness

The following two tables provide a Pinout for the P1 and P2 on the 36 Row Harness.

B.2.1 37 Pin Pinout (P1)

Pin #	Description
1	Row 1 (green)
2	Row 2 (white)
3	Row 3 (brown)
4	Row 4 (blue)
5	Row 5 (orange)
6	Row 6 (yellow)
7	Row 7 (purple)
8	Row 8 (gray)
9	Row 9 (pink)
10	Row 10 (tan)
11	Row 11 (white/black)
12	Row 12 (red/black)
13	Row 13 (green/black)
14	Row 14 (orange/black)
15	Row 15 (blue/black)
16	Row 16 (black/white)
17	Row 17 (red/white)
18	Row 18 (green/white)
19	Row 19 (blue/white)
20	Row 20 (black/red)
21	Row 21 (white/red)
22	Row 22 (orange/red)
23	Row 23 (blue/red)
24	8 V Sensor Power (red) (Dj Style)
25	8 V Sensor Power
26	8 V Sensor Ground (black) (Dj Style)
27	8 V Sensor Ground
28	Row 24 (red/green)
29	Hopper Level 1 Signal
30	Hopper Level 2 Signal
31-36	No connection
37	Lift Switch Signal

B.2.2 37 Pin Pinout (P2)

Pin #	Description
1	Row 25 (green)
2	Row 26 (white)
3	Row 27 (brown)
4	Row 28 (blue)
5	Row 29 (orange)
6	Row 30 (yellow)
7	Row 31 (purple)
8	Row 32 (gray)
9	Row 33 (pink)
10	Row 34 (tan)
11	Row 35 (white/black)
12	Row 36 (red/black)
13-23	No connection
24	8 V Sensor Power (red)
25	8 V Sensor Power (red)
26	8 V Sensor Ground (black)
27	8 V Sensor Ground (black)
29-37	No connection

Appendix C Parts Information

C.1 Monitor

Description	Part Number
VM-5200 Console Only	647520
RAM Ball Mount	RAM-238U
RAM Arm and Base Kit (Optional)	647141 647142 647143
Fuse, AGC 5A (Pkg. of 12)	PR050
Visual Alarm (Optional)	647105

C.2 Console Harness

Description	Part Number
Console Power Harness 12'	647103
Console Power Harness 17'	647109
Monitor Harness 16 Row	647131
Monitor Harness 36 Row	647106

C.3 Visu-Flo™ Parts and Accessories

C.3.1 Flowmeters

Description	Part Number
.013 to .132 GPM	6663
.032 to .400 GPM	6664
.053 to 1.189 GPM	6667
.08 to 2.65 GPM	6665
1.32-3.96 GPM	6668

C.3.2 Flow Meter Bracket

Description	Part Number
Bracket for 8 flowmeters	6675

C.3.3 Visu-Flo™ Harness

Description	Part Number
8 Sensor Harness w/19' Hitch cable	3708A
12 Sensor Harness w/19' Hitch cable	3712A
16 Sensor Harness w/ 19' Hitch cable	3716A
24 Sensor Harness w/ 19' Hitch cable	3724A

C.3.4 Y Cables

Connect Visu-Flo™ harness to an existing seed harness.

Description	Part Number
Visu-Flo™ Harness to Dj Seed Harness	237-8Y
Visu-Flo™ Harness to Dj Seed Harness	237-12Y
Visu-Flo™ Harness to Dj Seed Harness	237-16Y
Visu-Flo™ Harness to Deere Seed Harness	237-8VJ
Visu-Flo™ Harness to Deere Seed Harness	237-12VJ
Visu-Flo™ Harness to Deere Seed Harness	237-16VJ

Hitch extensions are available; see our catalog for lengths and prices.



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100% Employee Owned

The Vanguard[™] System — Warranty

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