

VM-5100

USER MANUAL



Table of Contents

I. Introduction	4
1.1 System Overview	5
1.2 Specifications	6
1.3 Installation	7
1.4 Monitor and Power Connections (Harness 647103).....	7
1.5 VM-5100 Console Main Harness (Harness 647102)	8
2. System Operation	9
1.6 Start-Up	9
1.7 Bar Graph Screen (Home).....	9
1.8 Navigation Buttons	10
1.9 Planter Setup Screen	11
1.9.1 Auto Detect Rows	11
1.9.2 Manual Select Rows.	11
1.9.3 Sample Rate	11
1.10 Monitor Setup	12
1.10.1 Alarm Volume	12
1.10.2 Brightness Control	12
1.10.3 Day/Night Mode	12
1.10.4 Units Control	12
1.10.5 Calibrate Touch Screen.....	12
1.11 Info Screen	13
Appendix A VM 5100 Connector Pinouts	14
A.1 4 Pin Power In/ Alarm Out Pinout	14
A.2 Pin Sensor Pinout	14
A.3 37 Pin Implement Pinout	15
Appendix B Parts Information	16
B.1 Monitor	16
B.2 Planter Harnesses and Cables	16
B.3 Console Harness	16

Table of Figures

Figure 1 Monitor Mounting	7
Figure 2 Harness 647102 End.....	8
Figure 3 Bar Graph Screen	9
Figure 4 Menu Bar	10
Figure 5 Home Navigation Button	10
Figure 6 Planter Setup	11
Figure 7 Monitor Setup	12
Figure 8 Info Screen	13

Ag Express Locations

Des Moines, IA
515-289-2746

Grand Island, NE
308-381-2905

Sulphur Springs, IN
765-533-4809

I Introduction

I.1 System Overview

The VM-5100 Planter Monitor is designed for maximum performance in the field that is easy to install and use. The system is capable of monitoring up to 16 rows and is perfect for monitoring where only recognition of seed flow is necessary.

- Monitor 1 – 16 rows
- 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
- EZ Convert Harness to work with most common implements



I.2 Specifications

Power	10–16 VDC, 3.5 A maximum
Operating temperature	-20°C to 70°C (-4°F to 158°F)
range Storage temperature	-40°C to 85°C (-40°F to 185°F)
range 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 16-row VM-5100 system
Wire Harnesses	The VM-5100 includes detachable harnesses to supply the unit's power (fused) and sensor inputs (to hitch). Sensor harness includes EZ Convert feature.
Sensors	Compatible with Vanguard and other major brands of seed sensors.
Standard mounting	RAM Mount I 1/2" 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.

I.3 Installation

Your VM-5100 comes with a RAM 1 1/2" Mounting Ball. Any RAM Mount 1 1/2" fixtures will adapt to your monitor.

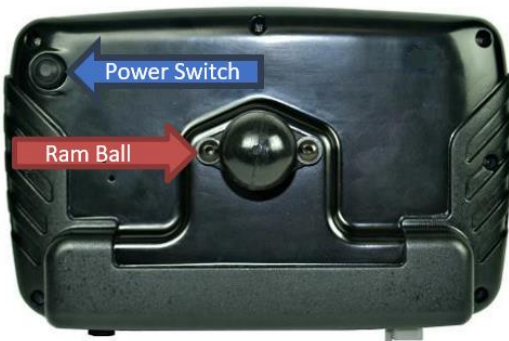


Figure 1 Monitor Mounting



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.

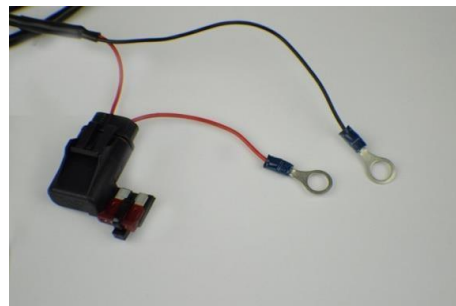
Any RAM configuration may be used to attach your console to a convenient location in your cab. If you need a base mount, see the above for more options. See your local dealer for brackets and arms that are available, or visit www.AgExpress.com to purchase online.

I.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.5VM-5100 Console Main Harness (Harness 647102)

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-5100 comes with our exclusive EZ Convert Harness (Part No.647102). 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 647102 End

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 rear 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 sensors on your planter/drill. Once they are detected, the operate screen will appear with bar graphs representing each row where a sensor is attached.

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

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 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 and the operator wishes to acknowledge the problem, he touches the individual row bar graph for three seconds and that row will be disabled and the alarm will no longer sound for that row. A Row can be re-enabled by an additional Press and three second hold. The Alarm disable is not recalled through a power cycle of the monitor.



2.3 Navigation Buttons

The Menu Bar is located in 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.

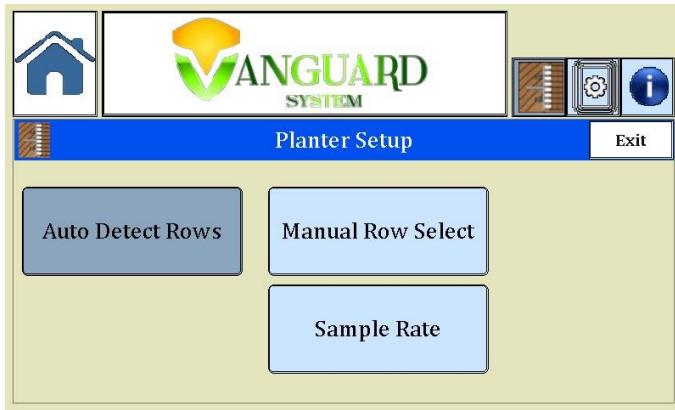


Figure 6 Planter Setup

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. Your 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.

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.

2.5 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.

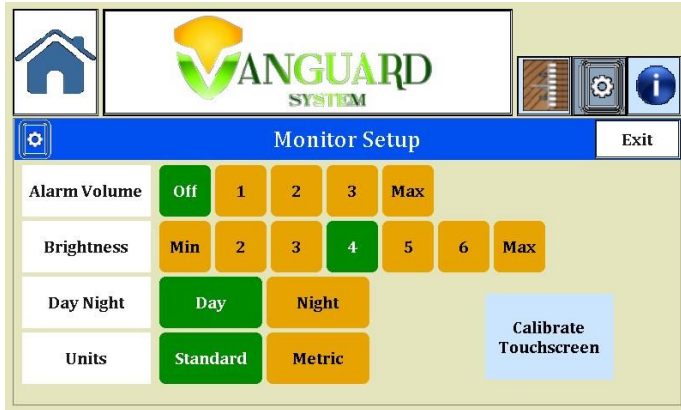


Figure 7 Monitor Setup

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.

There you find the Model Number as well as Software Version and Contact info with QR CODE.

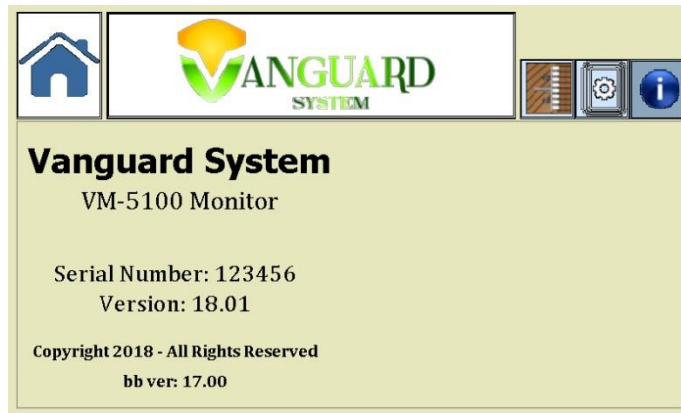


Figure 8 Info Screen

Appendix A

VM 5100 Connector 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 (rd/wh)
4	Visual Alarm Return (bk/wh)

A.2 Pin Sensor 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 (violet)
C2	Row 8 (grey)
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	8 V Sensor Power (red)
F3	8 V sensor Ground (black)

A.3 37 Pin Implement 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 (violet)
8	Row 8 (grey)
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	No connection
26	8 V Sensor Ground (black) (Dj Style)
27	8 V Sensor Power (red) (JD Style)
28	8 V Sensor Ground (black) (JD Style)
29-37	No connection

Appendix B

Parts Information

B.1 Monitor

Description	Part Number
VM-5100 Console Only	647510
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

B.2 Planter Harnesses and Cables

Description	Part Number
Planters	
4-row harness	3204A
6-row harness	3206A
8-row harness	3208A
12-row harness	3212A
16-row harness	3216A
Drills	
4 Sensor 15' – 20' Drill 12' Hitch	750-200-4
4 Sensor 15' – 20' Drill 18' Hitch	UX18-200-4

B.3 Console Harness

Description	Part Number
Console Power Harness 12'	647103
Console Power Harness 17'	647109
Implement Harness 12'	647102
Implement Harness 20'	647112



6820 NE 14th Street
Des Moines, IA
515-289-2746



308 Claude Road
Grand Island, NE
308-381-2905



106 West Main
Sulphur Springs, IN
765-533-4809

AG-EXPRESS[®]

ELECTRONICS

100% Employee Owned

The Vanguard[™] System — Warranty

Ag Express Electronics, Inc. warrants to the original purchaser for use that, if any part of the product proves to be defective in material or workmanship within one year from date of original installation, and is returned to *Ag Express Electronics, Inc.* within 30 days after such defect is discovered, *Ag Express Electronics, Inc.* will (at our option) either replace or repair said part. This warranty does not apply to damage resulting from misuse, neglect, accident or improper installation or maintenance. Said part will not be considered defective if it substantially fulfills the performance specifications.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OF MERCHANTABILITY, FITNESS FOR PURPOSE AND OF ANY OTHER TYPE, WHETHER EXPRESS OR IMPLIED. *Ag Express Electronics, Inc.* neither assumes nor authorizes anyone to assume for it any other obligation or liability in connection with said parts and will not be liable for consequential damages. Purchaser accepts these terms and warranty limitations unless the product is returned within fifteen days for a full refund of purchase price. In no case shall *Ag Express Electronics, Inc.* be liable for any incidental, special, consequential, or similar damages.