OPERATOR'S MANUAL

DM-4400

		MIN	MAX	AVG	<- VIEW
	ROW	3	14		
	SEEDS/SEC	45	56	48	

MONOSEM   DM-4400

MONOSEM

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DM-4400 Planter Monitor

OPERATOR'S MANUAL

INTRODUCTION

System Overview

The DM-4400 Planter Monitor is designed for maximum performance in the field and is easy to install and use.   The system is capable of monitoring up to 36 rows and provides not only seed flow information, but also will display seeding rate information and has capabilities of monitoring liquid flow with Monosem "*Visu-Flo Technology*".

- Monitor 1 – 36 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
- View Min-Max-Avg
- View Seeds/Sec – Gal/Min
- View 20 Sec Row History
- "*Visu-Flo Technology*" Option
- Insta-Pop indicated Seeds/Acre and Gallons/Acre

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	27.3 cm W x 16.5 cm H x 5.1 cm D (10.75" W x 6.5" H x 2" D)
Weight	3.08 kg (6.1 lb) for 36-row DM-4400 system
Wire Harnesses	The DM-4400 includes detachable harnesses to supply the unit's power (fused) and sensor inputs (to hitch).
Sensors	Compatible with Monosem and other major brands of seed sensors.
Standard mounting	RAM Mount 1 $\frac{1}{2}$" Ball Mounting
Alarm adjustment	Four levels audible alarm with mute onscreen selection. Optional external light available.
Backlight adjustment	Ten 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.

INSTALLATION

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Your DM-4400 comes with a RAM 1 ½" Mounting Ball.   Any RAM Mount 1 ½" fixtures will adapt to your monitor.

Optional RAM Base Mount
Part Number: 301108

Install the RAM-238-U 1 ½" 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 the optional 301108 base. See your local dealer for brackets and arms that are available, or visit www.agdirectusa.com to purchase online.

MONITOR AND POWER CONNECTIONS (Harness 301104)

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.
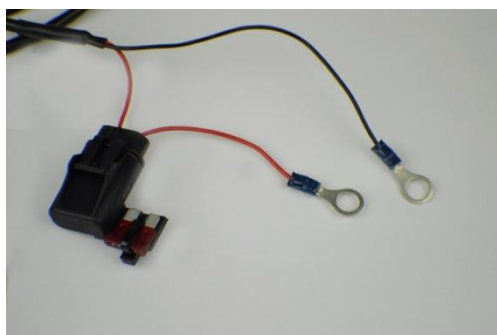
DM-4400 CONSOLE MAIN HARNESS (Harness 301105)

Route the main harness to the rear of the tractor.   Attach the connector to the bottom of the monitor with a ¼" nut driver.   Tie the harness securely in the cab as a strain relief.

The 301105 harness will attach to your planter with a 37 pin AMP CPC style connector.   This connector is pinned to match standards used by Monosem.

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

SYSTEM OPERATION

Touch the I-O switch button on the rear 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 of the planter. Once they are detected, the operate screen will appear with bar graphs representing each row where a sensor is attached.
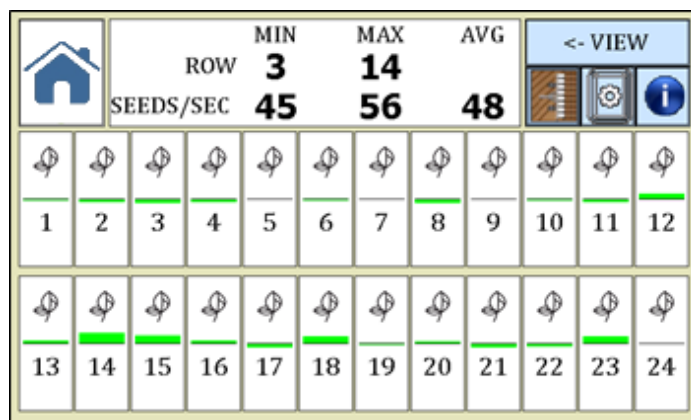
If you are using only flow meters, go to the Flow Setup section of this manual to properly configure your system.

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.

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The 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.

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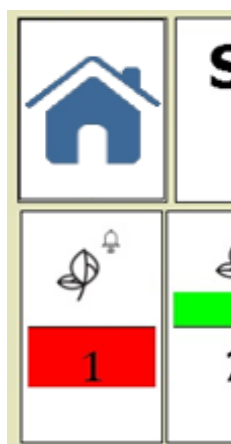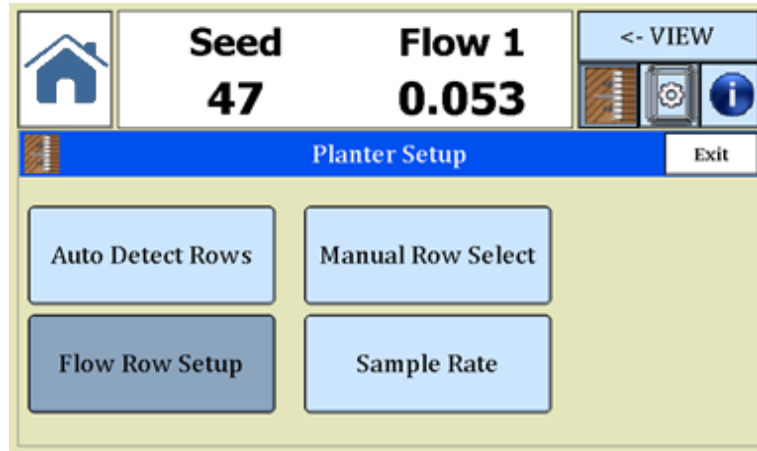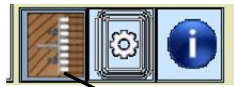
Planter Setup

Depress the Planter Setup icon on the main screen to open the Tool Bar. There you will find a number of options. 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. Auto detect does not detect flow sensors. They must be manually selected.

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.

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.

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.

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Fig. 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.


Fig 2.

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.

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Once the rows have been selected, press ok to accept.   Your 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.
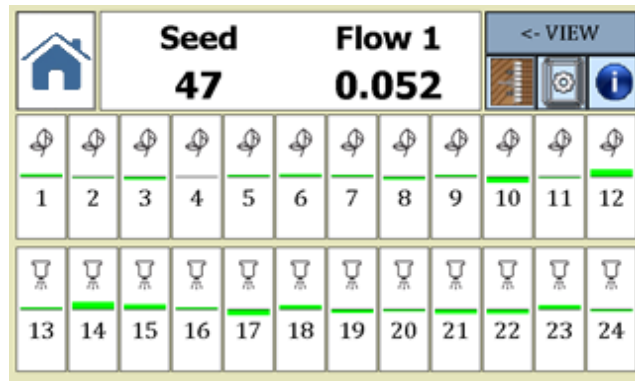
Two Rate Setup If you will be using two different rates with your flow system, select the 2 rate button on the screen (Fig. 1 above) Press Next to bring up the Ratio Screen.   You have several choices to enter your flow ratio.   You may leave the F1 as 1.00 and if you are using a 1-1/2 rate for flow 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.
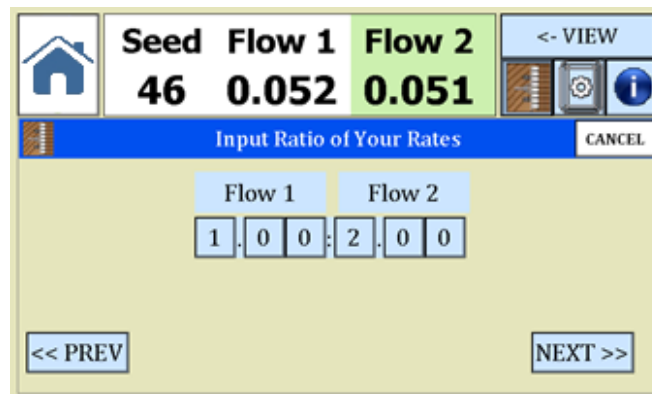
Select Next to advance to the Flow Meter Selection Screen (Fig. 2) Select the Part Number of your flow meters (found on your flow meter).

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Selection will bring up the row input screen

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.

Seeds

Flow 1 (F1)   **Flow 2 (F2)**

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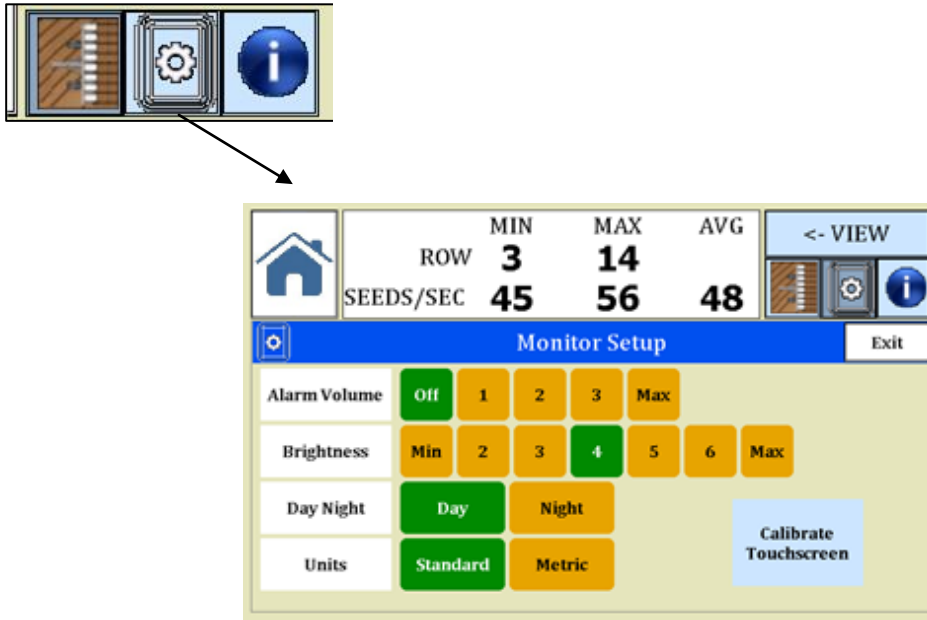
Alarm Volume.   There are four levels of intensity for the audible alarm plus mute. Select from the levels shown or select Off to Mute the alarm.

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

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.

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

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.

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i Info Screen
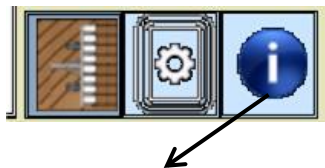
Depress the *i Icon* for information about your monitor including the model, software version and a Q-Code that you can scan for additional help with your monitor.
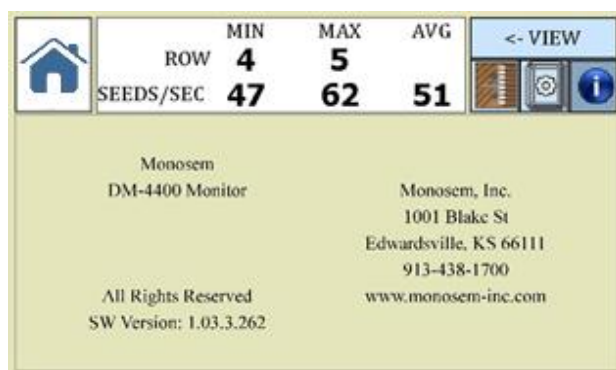
Home

The Home button in the upper left of your monitor screen returns to the operate mode of the monitor.

The 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 t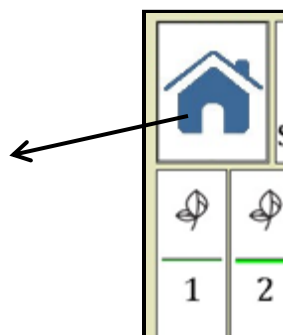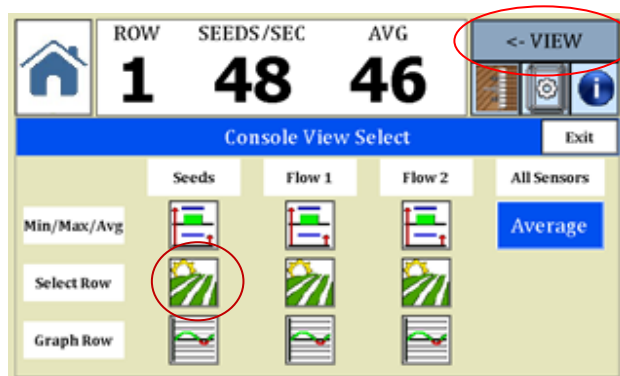o view individual row seeds/sec (gal/min). or a line graph for an individual row showing the past 20 second average.   The above screen shows the selection choices for the View Window. Select the column you want to watch and the type of screen you want to view. Sample above shows Seeds and Select Row choice. Below are the three types of screens available.

ROW	GPM	AVG
13	0.052	0.051

|	MIN	MAX	AVG
ROW	24	13	
GPM	0.050	0.052	0.051

Row 13 - 20 Sec History Graph
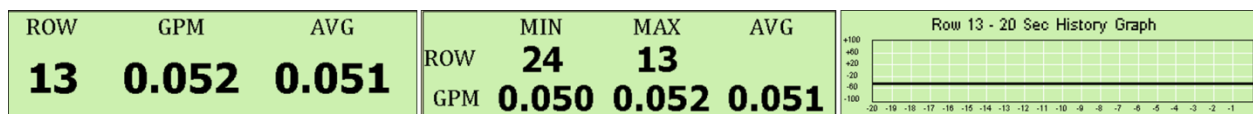
If you are using combinations of seeds and/or flows, you will have additional selections. Your default screen will be a screen called Average which shows the averages of your selections and may be chosen from the menu box.   It is displayed in the following format showing the average of each function

Seed	Flow 1	Flow 2
46	0.052	0.051

A special enhancement is the Insta-Pop feature. This 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 Monosem 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.

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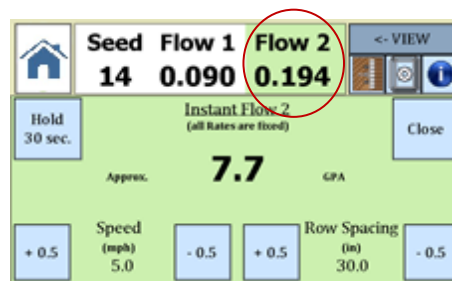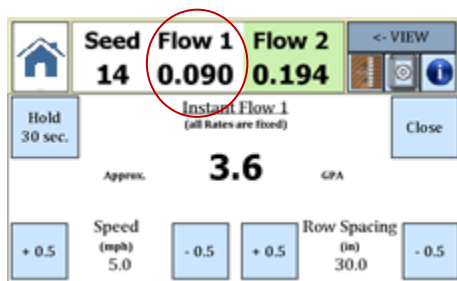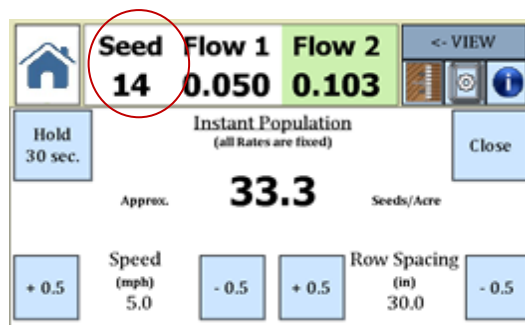
Additional Information and Options

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.

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4 Pin Console pinout

DM-4400 Power In/ Alarm Out	
Pin #	**Description**
1	12 VDC IN (red)
2	-12VDC IN (black)
3	Visual Alarm Out (rd/wh)
4	Visual Alarm Return (bk/wh)

18 Pin Console Pinout

DM-4400 Sensor Connector	
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 - F1	No Connection
F2	8 V Sensor Power (red)
F3	8 V Sensor Power (black)

30 Pin Console Pinout

DM-4400 Sensor Connector	
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	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)

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37 Pin Harness Pinout P1 Connector

DM-4400 Implement	
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	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
37	Lift Switch Signal

37 Pin Harness Pinout P2 Connector

DM-4400 Implement	
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)
24	8 V Sensor Power (red)
25	8 V Sensor Power (black)
26	8 V Sensor Power (red)
27	8 V Sensor Power (black)

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PARTS INFORMATION

Monitor	
Description	**Part Number**
DM-4400 Console Only	301102
RAM Ball Mount	301107
RAM Arm and Base Kit (Optional)	301108
Visual Alarm (Optional)	301109

Many other harness options are available.

Console Harnesses	
Description	**Part Number**
Console Power Harness 12'	301104
Cab Harness 12'	301105

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Visu-Flo Parts and Accessories:

Flowmeters

6663	.013 to .132 GPM
6664	.032 to .396 GPM
6667	.053 to 1.189 GPM
6665	.08 to 2.65 GPM

Flowmeter Bracket

6675	Bracket for 8 flowmeters

Visu-Flo Harness

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

Y Cables
Connect Visu-Flow harness to an existing 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 Dj Seed Harness
237-8VJ	Visu-Flo Harness to Deere Seed Harness
237-12VJ	Visu-Flo Harness to Deere Seed Harness
237-16VJ	Visu-Flo Harness to Deere Seed Harness

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NOTES:

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