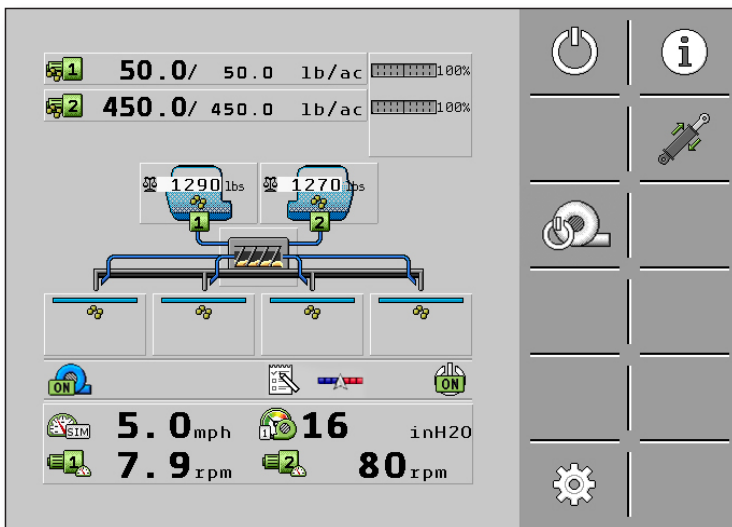




ISOBUS Dry Rate Controller Operation Manual



Last Update: 10/1/2018

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30285010-02-OM

SW Version 2.02.02.00

Read and follow these operating instructions.

Keep this operating instructions for future reference.

For updated manuals and additional supporting materials,
visit our website @ MontagMfg.com

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1 For Your Safety

1.1 Basic Safety Instructions

Operation

Be sure to always comply with the following instructions during operation:

- Read the operating instructions to the agricultural device which you want to control by using the product.
- Before you leave the vehicle cabin, ensure all automatic mechanisms are deactivated or manual mode is activated.
- Keep children away from the implement and from the ECU.

Servicing

Keep the system in a functional condition. To do so, follow these instructions:

- Do not make any unauthorized modifications to the product. Unauthorized modifications or use may impair safety and reduce the service life or operability of the unit. Modifications are considered unauthorized if they are not described in the product documentation.
- Never remove any safety mechanisms or stickers from the product.
- Before charging the tractor battery, always disconnect the ECU from the tractor.
- The product does not include any user serviceable parts. Do not open the casing.

1.2 Intended Use

The ECU is only intended for use in the agricultural sector. The manufacturer is not liable for any other installation or use of the ECU.



The manufacturer cannot be held liable for any personal injury or property damage resulting from such non-compliance. All risk arising from improper use lies with the user.

Intended use also includes compliance with the conditions for operation and repairs prescribed by the manufacturer.

All applicable accident prevention regulations and all other generally recognized safety, industrial, and medical standards, as well as, all road traffic laws must be observed. Any unauthorized modifications made to the equipment will void the manufacturer's warranty.

1.3 Layout and Meaning of Warnings

All safety instructions found in these Operating Instructions are composed in accordance with the following pattern:

	 WARNING
This signal word identifies medium-risk hazards, which could potentially cause death or serious physical injury, if not avoided.	

	 CAUTION
This signal word identifies hazards that could potentially cause minor or moderate physical injury or damage to property, if not avoided.	

NOTICE

This signal word identifies hazards that could potentially cause damage to property, if not avoided.

There are some actions that need to be performed in several steps. If there is a risk involved in carrying out any of these steps, a safety warning will appear in the instructions themselves.

Safety instructions always directly precede the step involving risk and can be identified by their bold font type and a signal word.

Example:

1. **NOTICE! This is a notice. It warns that there is a risk involved in the next step.**
2. Step involving risk.

1.4 Safety Stickers on the Product

	Do not clean with a high-pressure cleaner.
--	--

1.5 Disposal



When it has reached the end of its service life, please dispose of this product as electronic scrap in accordance with all applicable waste management laws.

2 About the ECU

2.1 ECU Functions

The ISOBUS ECU is the control center of the Dry Rate Controller. Several sensors are connected to the ECU, which monitors important implement parts. The ECU controls the implement based on these signals and on the operator's specifications. An ISOBUS terminal serves as an interface. All implement specific data is stored in the ECU and is therefore maintained even when changing the display.

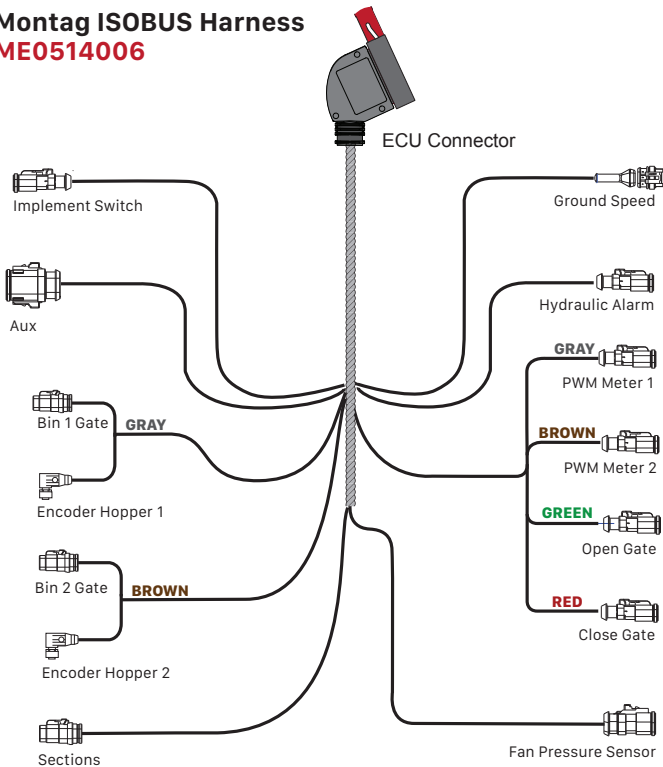
Among other things, the ECU can perform the following tasks:

- Monitoring of the metering shaft
- Control of the tramline valves
- Starting the calibration using the calibration button
- Control of the pre-emergence marker
- Monitoring of the fan speed

2.2 System Overview

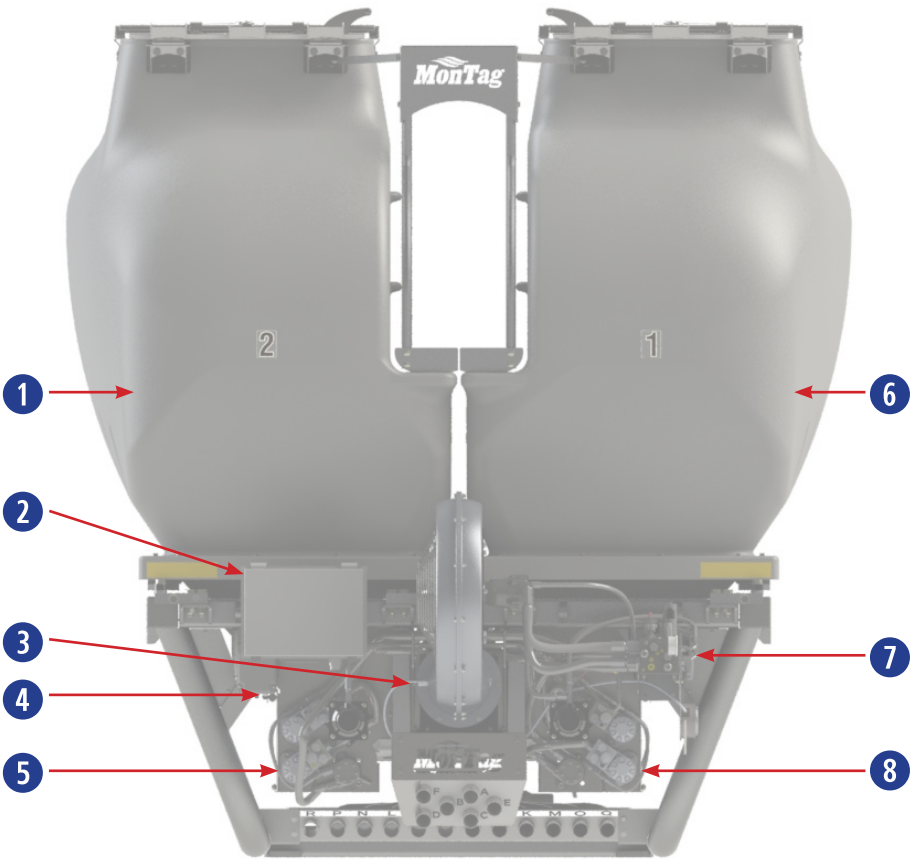
The image below shows the cabling diagram for the Dry Rate Control System.

Montag ISOBUS Harness ME0514006



2 About the ECU System Overview

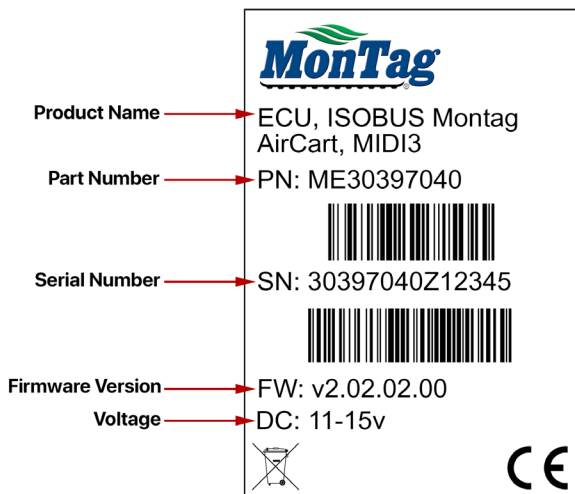
The following diagram shows how the Dry Rate Controller is structured:



1	Hopper 2	5	Hopper 2 Encoder
2	ECU Control Enclosure	6	Hopper 1
3	Pressure Sensor	7	PWM Valves
4	DigiStar Connector	8	Hopper 1 Encoder

2.3 Information on the Identification Label

On the outside of the ECU, you will find an Identification Label. The sticker provides a unique ECU identification.



3 About the Operating Instructions

3.1 Who is the Target User for the Operating Instructions?

These Operating Instructions are intended for operators of the Dry Rate Controller equipped with an ISOBUS ECU from Mueller-Electronics.

3.2 Scope of the Instructions

These instructions describe all of the functions that can be actuated with the ECU. This means that some chapters may not be relevant for the operation of certain implements.

3.3 Directional Information in the Instructions

All directional information in these instructions, such as "left", "right", "forward", "back", is relative to the movement direction of the vehicle.

3.4 Layout of Operating Instructions

The operating instructions explain step by step how you can perform certain operations with the product.

We use the following symbols throughout these Operating Instructions to identify different operating instructions:

Type of depiction	Meaning
1.	Actions that must be performed in succession.
2.	
→	Result of the action - This will happen when you perform an action.
→	Result of an operating instruction - This will happen when you have completed all steps.
☑	Requirements - In the event that any requirements have been specified, these must be met before an action can be performed.

3.5 Layout of References

If any references are given in these Operating Instructions, they will appear as:

Example of a reference: [→ 11]

References can be identified by their square brackets and an arrow. The number following the arrow shows you on what page the section starts where you can find further information.

4 Basic Control Principles

4.1 Powering Up the ISOBUS ECU

You can switch on the ISOBUS ECU as follows:

1. Supply the ECU with power. This can be done in the following ways:
 - a) For ISOBUS tractors: Switch the tractor on using the ignition key.
 - b) For non-ISOBUS tractors: Switch on the display.
2. You have switched on the ECU.

4.2 Powering Down the ISOBUS ECU

Always switch off the ECU in the following situations:

- When you have finished work.
- Before you leave the field.

You can switch off the ECU as follows:

1. Stop the tractor.

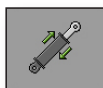
→ The ISOBUS ECU closes all the valves.



2. Switch application off by pressing the Master icon.

→ The application indicators beneath the icon of the implement are faded out.

3. Activate Road Mode by pressing the Hydraulics icon, followed by the Road Mode icon.



+



4. Switch off the tractor at the ignition switch, and ensure that the display is switched off.

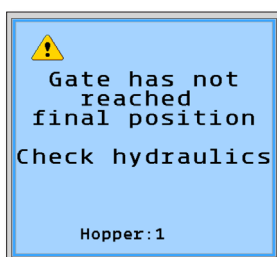
→ You have switched off the ECU.

4.3 Road Mode Feature

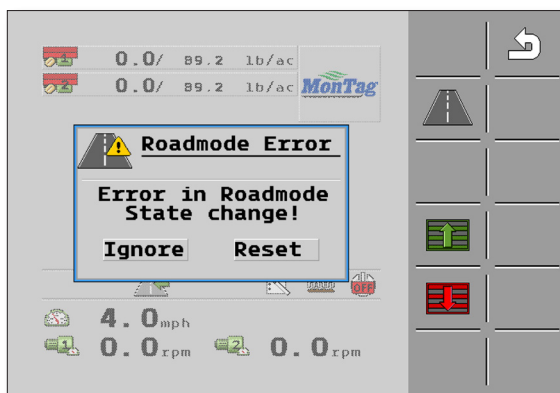
Road Mode should be used whenever you are transporting the air cart to and from the field. This status disables all application and puts the control system in a state for out of the field travel.

When entering Road Mode, the machine will automatically close the hopper gates, once the gates are closed the meters will turn at 35% PWM output for 10 seconds to remove any remaining material from the meters. Confirm all sections are in the **BLUE** state. If in overlap or the sections are turned OFF manually, sections will not turn ON when running the cleanout process. This may result in the outputs becoming plugged.

If the gates do not close completely a warning message will appear showing the following:



After acknowledging the warning a pop-up window will show:





4.4 ISOBUS ECU Symbol on a Display

You can recognize the ISOBUS ECU existence on your display by the Montag implement icon on the display. Press the icon to launch the ISOBUS Dry Rate Control System.



4.5 Browsing Between Screens

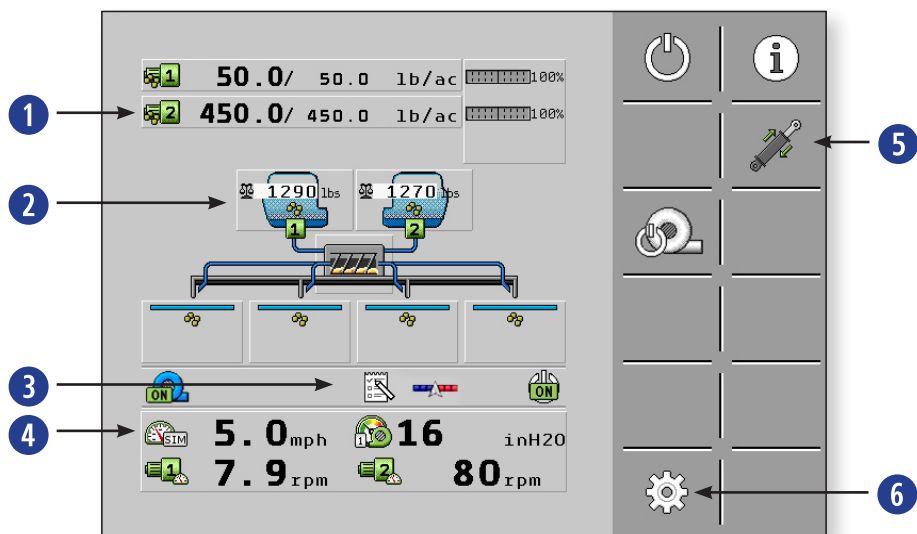
There are function icons that will advance you to the function screen desired. You can touch these (on a touch-screen) or press a function key beside the icon (on a non-touch display) to perform a function.

	<p>Pressing the back arrow icon returns you to the previous screen.</p> <p>There are some screens that have too many functions to display them all on one screen. In these screens, you may need to browse further.</p>
	<p>The three dots icon inform you that you can browse to the next screen.</p> <p>Pressing this icon also to toggle between Tank 1 & Tank 2 parameters.</p>

4.6 Gen II/ Fortifier Run Screen

The Run Screen is always displayed during work and contains the most important information. It informs you about the status of the Dry Rate Control System. Depending on the implement equipment, not all of the icons are always shown.

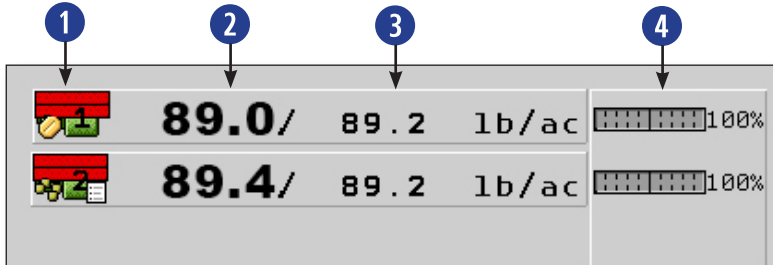
The Run Screen is divided into 6 areas.



1	Hopper Target/Actual Rates
2	Dry Rate Controller Display Area
3	Status Line
4	Visible Values
5	Hydraulics
6	Settings

4.6.1 Hopper Target / Actual Rates

This area displays information on the Target Rate, Actual Rate, and the Delta Target being applied.

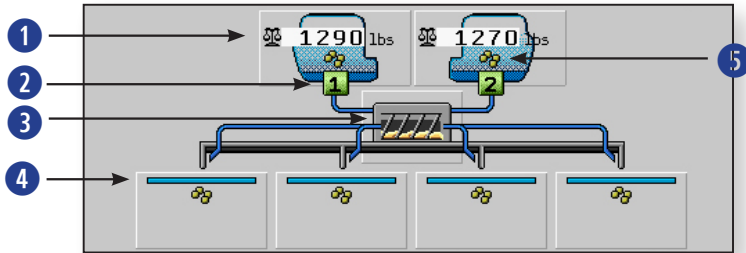


1	Metering Drive Number These icons indicate the number of drives that are setup in the system.	3	Target Rate This area will display the current Target Rate as set by operator.
2	Actual Rate This displays the actual As Applied rate	4	Delta Target Rate Level The bar graph provides feedback for the Delta Target Rate or by prescription.

Meter Drive Icons	Description
	Gate fully open
	Gate fully closed
	Gate partially open and calibrated.
	Gate partially open with no calibration factor. <i>(Possible failed sensor)</i>
	Gate fully open with no calibration factor
	Gate partially open with the meter turned off.
	Gate fully open and being controlled by a prescription.

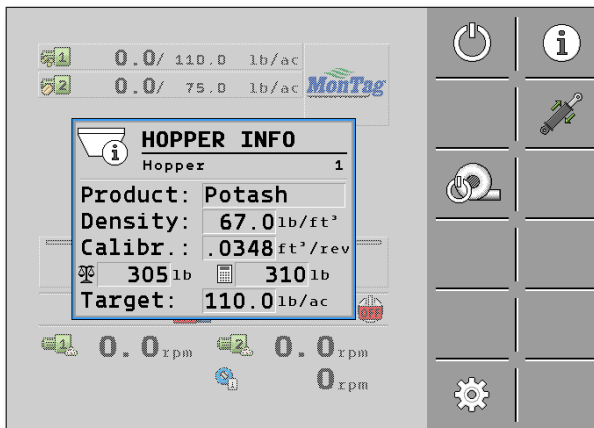
4.6.2 Dry Rate Controller Display Area

This area of the Run Screen provides feedback of Dry Rate Controller operation.



1	Hopper Weight - customer defined: actual or calculated
2	Hopper Number
3	Prime button to fill auger
4	Section ON/OFF Indicator - BLUE = sections on, GREY = sections manually off, RED = sections turned off by section control
5	Product Type - seed or solid

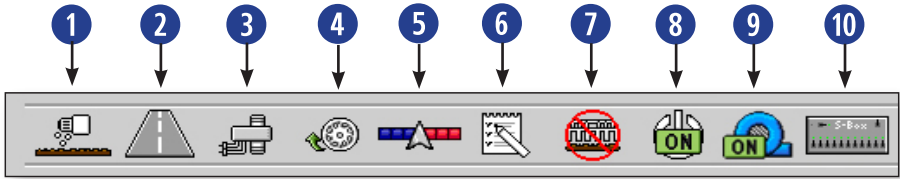
Each hopper can be pressed to show detailed information. This feature works whether the Master is on or off. This information includes product name, product density, product calibration, weight (scale, if installed, and virtual), and target rate.



To set the virtual weight equal to the scale weight, refer to Section 4.7.1 Hopper Settings [→ 21]. Note that the unit must be stationary to perform this task. If the weights are zeroed, product has been ran, and the spread becomes greater than 30 lbs, a calibration is necessary. [→ 24]

4.6.3 Status Line

The following information is shown in this area.



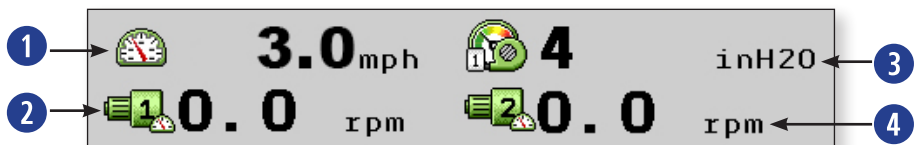
1	Active Calibration - displays when calibration is active (<i>when 'no catch test' is selected</i>)
2	Road Mode indicator - displays when the system is in Road Mode
3	Blockage System - displays icon when a row has blockage
4	Prime indicator - displays when the auger is being filled
5	Section Control indicator - displays when Section Control is active
6	Task Controller indicator - display when using Task Controller
7	Work Position - displays the status of the implement (<i>red line means inactive & the implement is raised</i>)
8	Master ON/OFF indicator - displays the status of the Master switch
9	Fan indicator - displays the status of the fan
10	S-Box indicator - displays that an S-Box is installed and active

Section Control

This symbol will be shown in the Status Line when automatic section control from the TC (Task Controller) is enabled and is controlling the application on and off function. As the machine crosses previously applied areas and borders, it will turn off application.

4.6.4 Visible Values

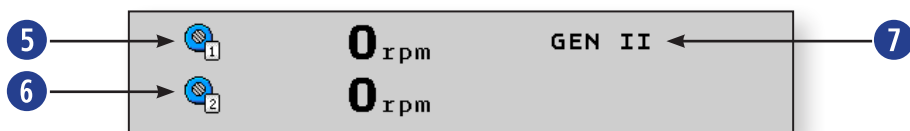
The following information is shown in this area.



4 Basic Control Principles

Visible Values

If you have more than 4 items setup in the Visible Values, you can press the display to cycle through and see the additional items.

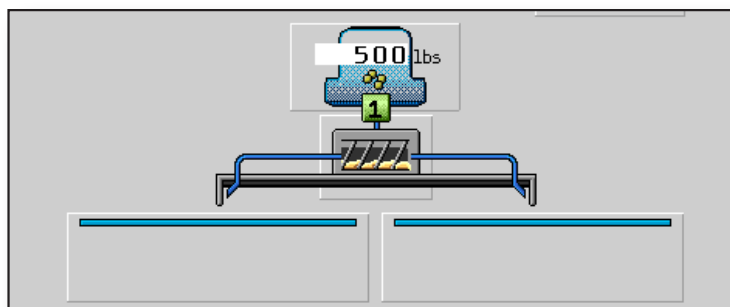


1	Speed Source and MPH
2	Auger 1 RPM
3	Fan Pressure
4	Auger 2 RPM
5	Fan 1 status
6	Fan 2 status
7	Shows the chosen Machine Type

To configure the Dry Rate Controller Display area, Status Line, and Visible Values, refer to section **4.8.5 Run Screen Configuration** [→ 45].










4.6.5 GEN 1 Run Screen

The Dry Rate Controller area of the Run Screen is slightly different for the Gen 1 configuration. The functionality of the software is the same but the mask shows only 1 bin.



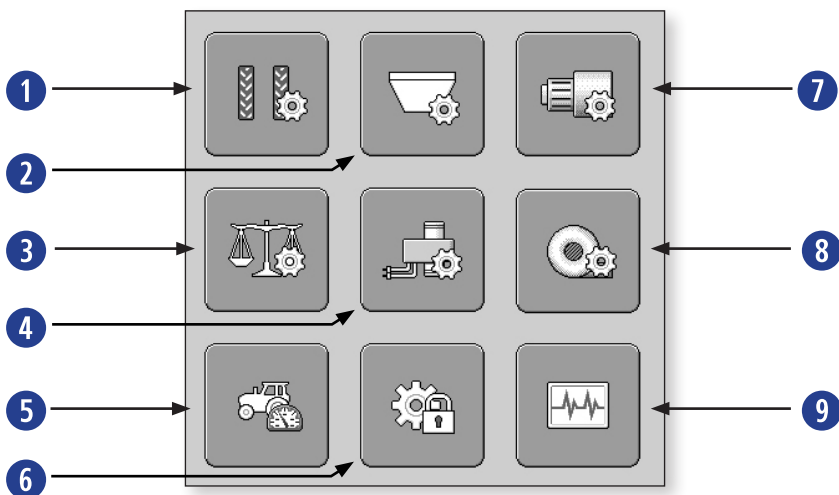
4.6.6 Function Buttons

There are function buttons located on the right side of the screen. Each icon located on the function button depicts what the button is assigned to do.

	Sections Master Switch - Starts applying. The Regulation loop is active.
	Results Icon - Tracks how much of each product has been applied.
	Hydraulics - Tap the icon to access the Function Buttons that control hydraulic operations.
	Road Mode - Activates Road Mode when pressed for transporting the implement. Refer to implement manual for operating instructions.
	Blockage Icon - Allows the sensitivity of the Blockage System to be adjusted.
	Tramline Icon - Allows the setup of Tramlines.
	Gate Open - Tap the icon to open the gate incrementally. Press and hold the icon to open the gate completely.
	Gate Close - Tap the icon to close the gate incrementally. Press and hold the icon to close the gate completely.
	Succession Hopper Switch - This icon appears on the Run Screen when the hopper succession is setup [→ 22]. Pressing the icon will manually switch the bins (turn bin 1 off, turn bin 2 on, and vice versa).

4.7 Settings Screen

Pressing the Setting icon on the Run Screen brings up a second page with 9 different areas to adjust settings.



1	Tramline Settings	6	Configuration Settings
2	Hopper Settings	7	Metering Drives Settings
3	Weigh System Settings	8	Fan Configuration Settings
4	Blockage System Settings	9	Diagnostics
5	Speed Source Settings		

4.7.1 Hopper Settings

The Hopper Settings allow you to choose the product for each hopper, add a Succession Hopper, and enable or disable a hopper.

To access the Hopper Settings from the Run Screen, press Settings. Press the Hopper Settings icon.



Choosing a Product for a Hopper

To choose or change a product for a hopper, press the selectable area under Associated Product. Select the product from the pop-up menu and press the checkmark to save the selection. To change or add a product to the menu, see the Product Configuration section. [→ 51] Density will default to the product database density.

Density

Measure and enter the correct density of the product in the hopper by touching the selectable area.

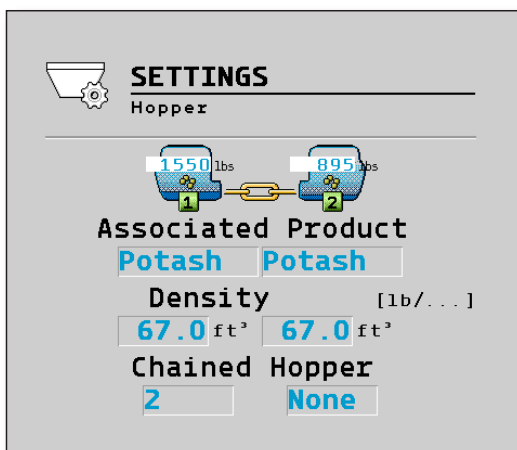
4 Basic Control Principles

Hopper Chaining

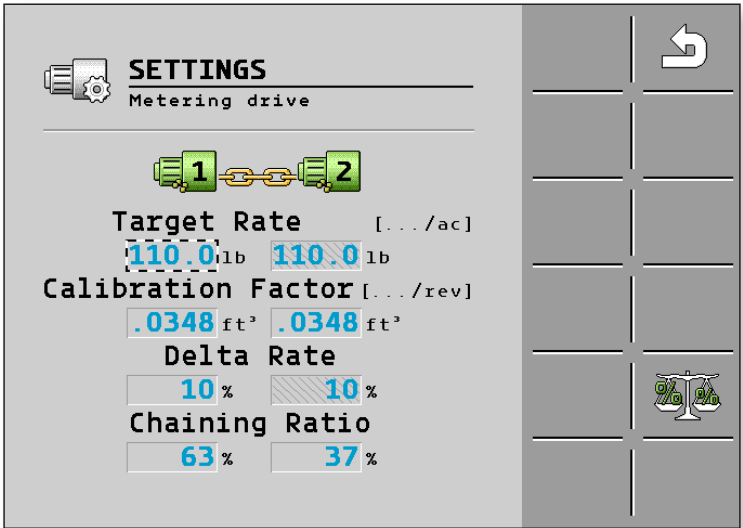
Succession Hopper

This feature is used to link hoppers together. This would apply when running a single product in multiple hoppers. There are two types of hopper succession: Sequential and Parallel. Sequential empties one hopper first and before switching to the second hopper. Parallel empties both hoppers simultaneously. **The factory default for this feature is set to Parallel.** The Hopper Chaining Type can be changed with the OEM passcode in the locked section.

Press the selectable area under Chained Hopper to link the hoppers. **It's important to note that the product of the Chained Hoppers should be the same.** If hoppers are setup with different products, the system will issue an alarm. Select the hopper number from the pop-up menu and press the checkmark to save the selection. Notice the hoppers are now visually linked on the Run Screen.



When hoppers chained together using Parallel Chaining, only one set of Target Rates is adjustable. The Target Rate on the other metering drive will be greyed out and will update automatically.



To empty both hoppers simultaneously, press the Parallel Chaining chaining icon on the lower right of the screen. This feature will come up with a ratio to empty both bins simultaneously.



In the case above, the target rate of both hoppers is 110 lbs, though meter one will have a target rate of 69.3 lbs (63% of the total target rate) and meter two will have a target rate of 40.7 lbs (37% of the total target rate).

Scale Weight & Virtual Weight

	Pressing this icon allows users with scales to set virtual weight. The icon is only available when the unit is stationary (less than .6 MPH) and will set the virtual weight to match the scale weight. This is the only way to change virtual weight for machines using scales. After filling the hoppers, the weights should be synced to allow proper weight/rate calculations.
	Pressing this icon will toggle between scale weight and virtual weight. Hopper weight can be viewed on the Run Screen, on the Hopper Settings page, and on the Weight System Settings page.

4.7.2 Metering Drive Settings

The Metering Drive Settings allow you to set the Target Rate, enter calibration factor for each hopper, and setup the Delta Target Rate.

You can configure or view the following parameters for each metering unit:

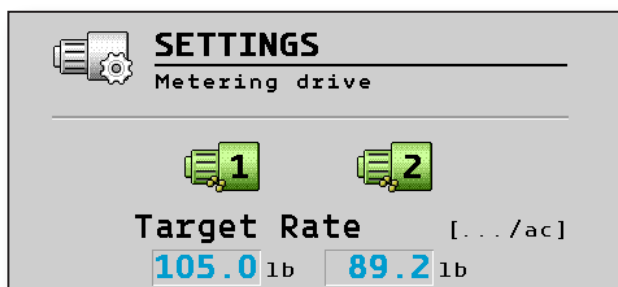
Metering Unit	Defines the currently selected metering unit.
Target rate	Defines how much volume of product should be applied per acre for a manual rate.
Min. Speed	Defines the minimum motor speed in RPM's.
Max. Speed	Defines the maximum motor speed in RPM's.
Calibration Factor	Defines how much volume of product is applied per rotation of the metering shaft.
Delta Rate	Defines what percentage the target rate should be changed when you change it manually during the application.

To access the Metering Drive Settings from the Run Screen, press Settings. Press the Metering Drive Settings icon.



Setting a Target Rate

To choose or change a Target Rate, press the selectable area under the Metering Drive. Type in the Target Rate. Press the checkmark to save your selection.



Hopper Calibration

There are two methods to conduct a Hopper Calibration. If your system does not have a scale system, you use the Catch Test calibration. If your system does have a scale system, you have the option of using the No Catch Test calibration. Both procedures are outlined below. To change the type of calibration, see instruction in the Meter Configuration section (4.8.6).

Hopper Calibration - No Catch Test Method

Hopper Calibration can also be done without doing a Catch Test if you are using a scale system. In order to do this, there is a calibration procedure that needs to be followed. This process must be done any time a new product is added to a hopper that hasn't be calibrated.

- ☒ Verify the product name in the hopper is correct.
 - ☒ Verify the product density is correct.
 - ☒ Verify the correct CRF.
 - ☒ Enter Target Rate that will be simulated.
 - ☒ Vehicle will need to be stationary at the start of the calibration to take an accurate reading of the scales weight.
 - ☒ Run normal application of 250-1000 lbs. Section control and prescriptions can be used.
 - ☒ Confirm the Master Switch is on and sections are enabled. If not, you will get a warning message and will not be able to start calibration.
 - ☒ To complete calibration, vehicle has to be stopped again to ensure a good reading of the scale.
1. The accuracy of the Montag Air Cart depends on using the correct Calibration Factor. This value is for the entire implement width.

To find the Cal. Factor when using ft³/Rev, multiply the number of outputs for your setup by .0026.

ft³/Rev Example: 12 outputs X .0026 = .0288

To find the Cal. Factor when using Lb/Rev, multiply the number of outputs for your setup by .0026 times the density.

Lb/Rev Example: 12 outputs X .0026 X density = 2.184

2. Type in the Calibration Factor. Press the checkmark to save your selection. Notice the example Tank 1 is set as lbs./rev and tank 2 is set as ft³/rev. This is operator configurable by following directions in Product Configuration 4.7.7.

Calibration Factor [... /rev]	
1.87 lb	.0300 ft ³

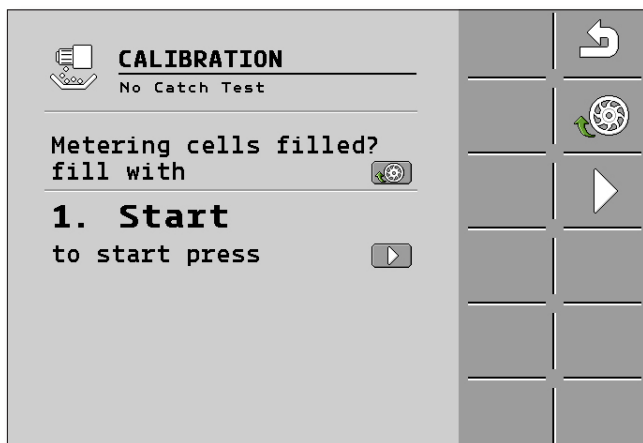
4 Basic Control Principles

Hopper Calibration

3. To begin the Hopper Calibration - No Catch Test process, press the Metering Drive icon.



→ The Calibration screen will be displayed.



4. Start hydraulics and set the operating hydraulic pressure by the fan air pressure reading.

5. Fill the metering cells with product.

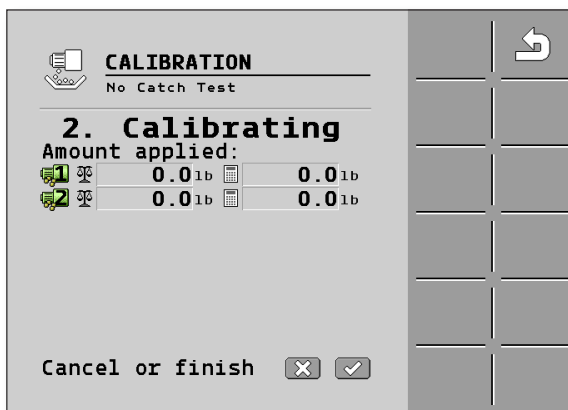
→ The metering cells rotate for a few seconds.



6. Make sure the vehicle is stationary and start the calibration by pressing the play icon.



→ The Configuration 2 screen appears with a field for the applied amount. During the No Catch Test Calibration the system will be reading the scale weight.



7. Start applying product. It is recommended to run 1000 lbs.
8. Stop application of product and stop the calibration on the implement.
Fan must remain running at the same pressure as calibration.

→ The Calibration 3 screen appears.

The screenshot shows the 'CALIBRATION' screen with the subtitle 'No Catch Test'. The main heading is '3. Results' followed by '[.../rev]'. Below this, there are two columns: 'Old:' and 'New:'. Under 'Old:', there are two rows of data: '1.00 lb' and '0.22 lb', each preceded by a small green icon of a hopper. Under 'New:', there are two rows of data: '0.00 lb' and '0.00 lb', each preceded by a small white icon of a hopper. To the right of the 'New:' column, there are two small white square checkboxes. At the bottom of the screen, the text 'Selection will be adopted!' is displayed. On the right side of the screen, there is a vertical column of buttons: a back arrow, a close 'X', a grid of four empty squares, and a checkmark.

9. Select the calibration.
10. Press the checkmark to confirm.

→ The ECU saves all of the data on the product in the product database.

Delta Rate

The Delta Target Rate is the amount of adjustment you want to make over the Target Rate. This setting is setup as a percentage value by default, but it can be configured as a lb/ac value in the product database [→ 51]. To choose or change the Delta Target Rate, press the selectable area under the Delta Rate. Type in the percentage of change you want to be made with each button press. Press the checkmark to save your selection.

The screenshot shows the 'Delta Rate' screen. It has a title 'Delta Rate' in bold. Below the title, there are two input fields, each containing the number '10' followed by a percentage sign '%'. The input fields are outlined in grey.

4 Basic Control Principles

Hopper Calibration

Hopper Calibration - Catch Test Method

To operate the machine accurately the user must calibrate the product type to the hopper. In order to do this, there is a calibration procedure that needs to be followed. This process must be done any time a new product is added to a hopper that hasn't be calibrated.

☒ Verify the name of the product in the hopper is correct.

☒ Enter target rate that will be simulated.

1. The accuracy of the Montag Air Cart depends on using the correct Calibration Factor. This value is for the entire implement width.

To find the Cal. Factor when using ft^3/Rev , multiply the number of outputs for your setup by .0026. (.0026 is the starting number. This number may need to be adjusted by product or environment change.)

ft^3/Rev Example: 12 outputs X .0026 = .0288

To find the Cal. Factor when using Lb/Rev , multiply the number of outputs for your setup by .0026 times the density. (.0026 is the starting number. This number may need to be adjusted by product or environment change.)

Lb/Rev Example: 12 outputs X .0026 X density = 2.184

➔ To switch between ft^3/Rev and Lb/Rev , refer to section 4.8.7. [➔ 51]

2. Type in the Calibration Factor. Press the checkmark to save your selection. Notice the example Tank 1 is set as $\text{lbs.}/\text{rev}$ and tank 2 is set as ft^3/rev . This is operator configurable by following directions in Product Configuration 4.7.7.

Calibration Factor [. . . /rev]	
1.87 lb	.0300 ft^3

3. To begin the Hopper Calibration - Catch Test process, press the Metering Drive icon.



→ The Calibration screen will be displayed.

CALIBRATION

Speed correct? **15.0** mph Amount? **100** lb

Metering cells filled?
fill with

1. Start
to start press

Speed
min. **1.1** max. **58.8** mph

4. The ECU calculates the minimum and the maximum speed at which these target rates are possible using the selected metering roll. Enter the speed into the display. In the amount input box, enter the pounds of product you want to catch. Start hydraulics and set the operating hydraulic pressure by the fan air pressure reading.

5. Fill the metering cells with product.



→ The metering cells rotate for a few seconds.

6. Place a container (seed bag or bucket) under each discharge point.
Make sure not to restrict air flow.

7. Start the calibration by pressing the play icon.



4 Basic Control Principles

Hopper Calibration

- The Configuration 2 screen appears counting down the applied amount and pulses.

CALIBRATION

2. Calibrate
or cancel with

Rem. Amount **90.26** lb
Rem. Impulses **25505**

8. Wait until the required quantity has been applied. The ECU calculates a weight from the available data.
9. Stop the calibration on the implement. Shut-off hydraulics after the flow of product stops.

- The Calibration 3 screen appears.

CALIBRATION

3. Quantity
based on **25.3** rev.
enter **101.231** lb

☒ Cancel
☒ Confirm

Speed
min. **1.1** max. **58.8** mph

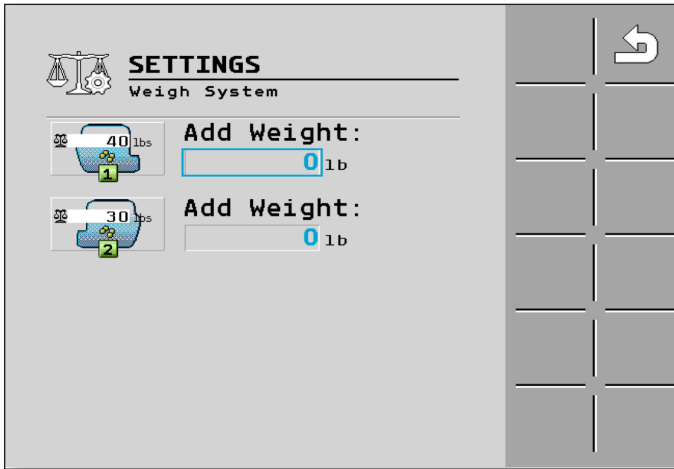
10. Weigh the product that was applied during the calibration.
11. Enter the weight in the lb. field.
- The ECU calculates the deviation in percent between the calculated and the weighed value.
12. Press the checkmark to confirm.
- The ECU saves all of the data on the product in the product database.

4.7.3 Weigh System Settings

To access the Weigh System Settings from the Run Screen, press Settings. Press the Weigh System Settings icon.



→ The Weigh System screen will be displayed.



If a scale system is installed on the implement, use this procedure for the filling sequence:

1. Press the selectable area under Add Weight, and enter the desired weight for the hopper.



2. Press the press Hopper icon. Press the Add Hopper Weight icon.



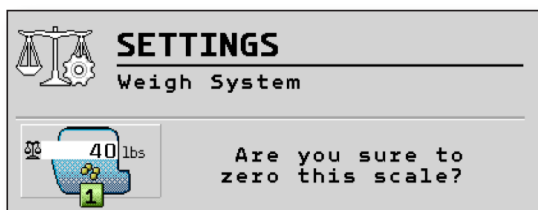
3. Fill the hopper. A warning message will be displayed when the entered weight is reached. Press the checkmark.



4 Basic Control Principles

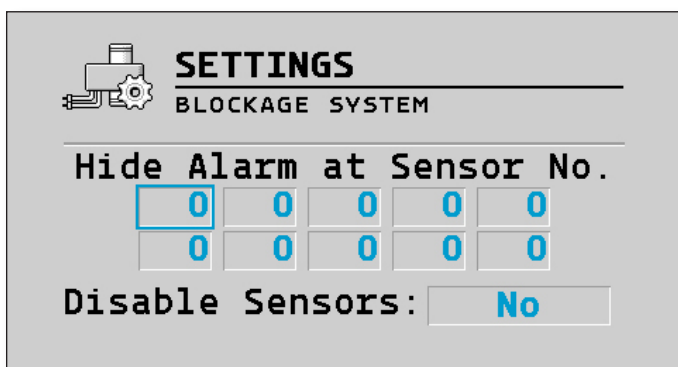
Blockage System Settings

To reset the scale weight, select the hopper. Press the Clear Hopper Weight icon, and you will be prompted to verify you want to zero the scale value. Press the checkmark to confirm. Press the X to cancel.



4.7.4 Blockage System Settings

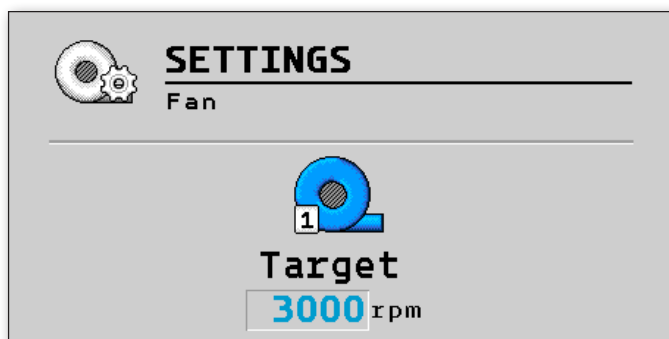
The Blockage System Settings allow you to hide the alarms for individual sensors. The page also allows sensors to be disabled.



4.7.5 Fan Settings

The Fan Settings allow the RPM output to be set for the fan. To access the settings for the fan from the Run Screen, press Settings. Press the Fan Settings icon.





To disable the fan, press the Fan Power icon. An **X** will appear on the fan when it is deactivated.



4.7.6 Speed Signal Settings

The Speed Input Settings allow you to choose where the machine speed is coming from to control the application rate. There are two different working speed sources and one simulated speed source. The Tractor and Implement speed on the display are in real time.

Speed Source	Description
Simulation	The speed is simulated by the display.
Tractor	The speed signal comes from the ISOBUS. You can also use GPS speed if equipped with a tractor ECU.
Implement	The speed signal comes from a source on the implement

1. From the Run Screen, press Settings. Press the Speed Source icon.



4 Basic Control Principles

Speed Signal Settings

→ The Speed Calibration screen appears:

SETTINGS
Speed

Simulation 0.0 mph ☐

Tractor:
Ground 0.0 mph ☒

Implement 0.0 mph ☐
0 Impulses/300ft

2. Press the screen to select the desired speed source.

Simulated Speed

The simulated speed source is used for troubleshooting purposes while not moving. To choose Simulated Speed, press the white box to enter a green check. Enter the desired speed by pressing the selectable area by MPH. Press the green checkmark to confirm. Simulation speed reverts back to 0 after a power cycle, but will remain the selected speed source.

Simulation 0.0 mph ☒

Tractor Speed

Tractor speed source gets the tractor speed off of the ISOBUS. Some machines will have this speed on the bus and other machines will have the ability to use GPS for Speed.

To choose Tractor Speed, press the white box to enter a green checkmark.

Tractor:
Ground 0.0 mph ☒

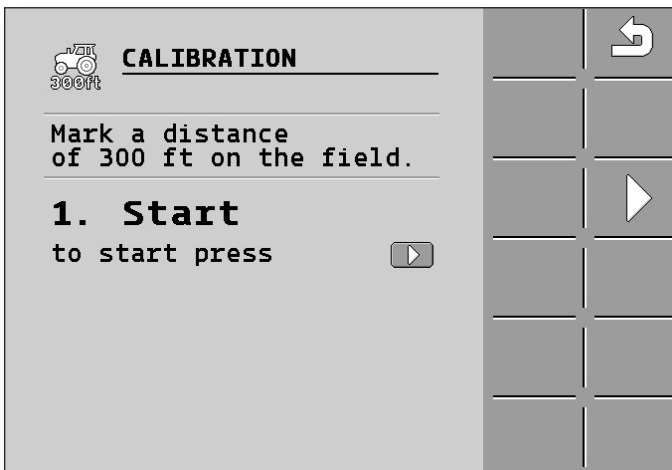
Implement Speed

Implement speed source gets the speed from a pulse either from a wheel sensor or radar.

1. To choose Implement Speed, press the white box to enter a green checkmark.
2. If you want to manually enter a pulse setting, enter the desired speed by pressing the selectable area by MPH. Press the green checkmark to confirm.
3. If you want to calibrate the implement speed, press the Tractor 300 ft. icon.



→ The following screen appears:



4. Mark a distance of 300 ft. Press the Play icon and drive the tractor 300 ft.



4 Basic Control Principles

Speed Signal Settings

→ The following screen appears:

The screenshot shows a calibration screen with a tractor icon and the text "300ft". The title "CALIBRATION" is underlined. The instructions read: "Now cover the distance and stop at the end." Below this, "2. Stop" is displayed in large bold text, followed by "to stop press or cancel with" and a small checkmark icon. The label "Speed Encoder:" is above a text input field containing "0" and the label "No. of Impulses". To the right is a numeric keypad with a back arrow at the top, a checkmark in the second row, and an 'X' in the third row.

5. Verify you have stopped at 300 ft.

6. Press the Check Mark to save the calibration value.



7. Enter the number of pulses.

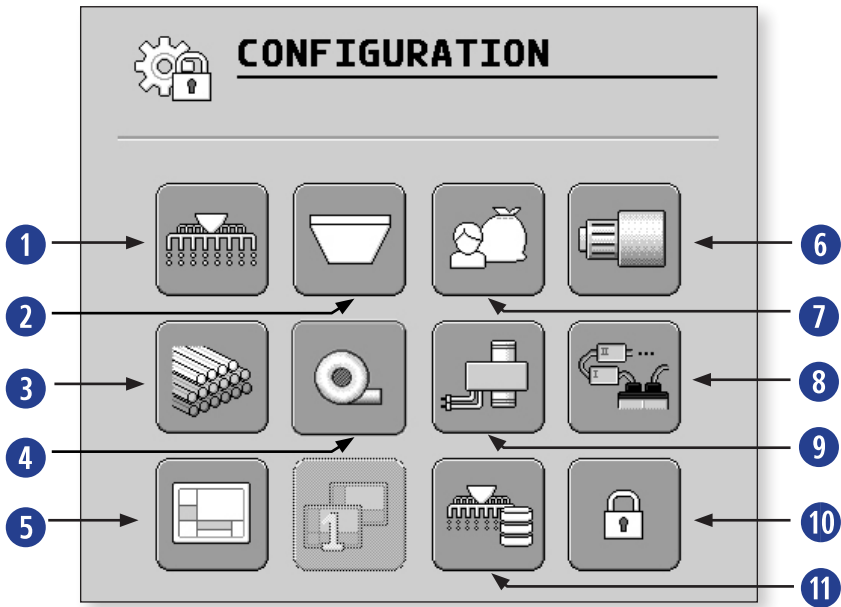
4.8 Configuration Settings

The Configuration Settings allow the setup of different aspects of the control system.

To access the Configuration Settings from the Run Screen, press Settings. Press the Configuration Settings icon.



→ The Configuration screen will be displayed.



1	Implement Configuration	7	Product Configuration
2	Hopper Configuration	8	Blockage System Configuration
3	Shoot Configuration	9	Blockage Chaining Configuration
4	Fan Configuration	10	Locked Area
5	Status Line Configuration	11	Profile Database Configuration
6	Metering Unit Configuration		

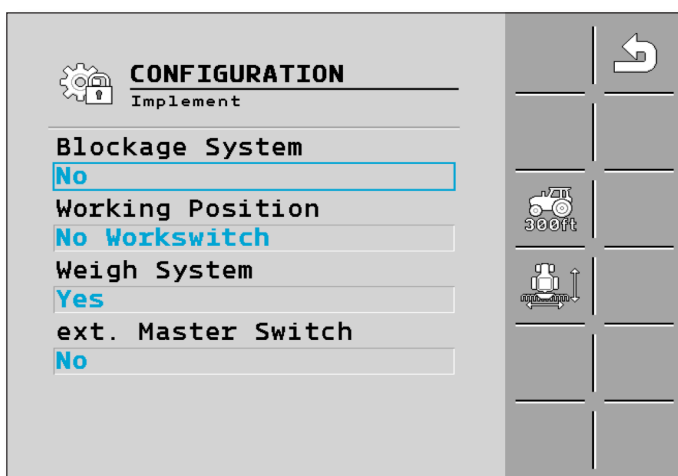
4.8.1 Implement Configuration

Implement Configuration allows you to choose the turn the Tramline System ON/OFF, setup the Blockage System, and configure the Working Switch.

To access the Implement Configuration from the Run Screen, press Settings. Press the Configuration icon. Press the Implement Configuration icon.



→ The Configuration screen will be displayed.



Multiple Rates - GEN 1 only

GEN 1 configured systems will have a Multiple Rate selection on this configuration page. If the display in the tractor can support multiples rates, this setting can be changed to Yes - Multiple per Boom. The No - 1 Rate per Boom setting is the factory default. Consult your display manufacturer regarding compatibility for the multiple rates with one boom.

Multiple Rates
No - 1 Rate per Boom

Blockage System

The Blockage System Configuration allows you to choose the type of system you have on your implement. To choose a system, press the selectable area under the Blockage System. Choose the correct option from the pop-up screen. Press the checkmark to save your selection.

Working Position

The Working Position allows the position of the Workswitch to be configured. To setup the Workswitch, press the selectable area under Workswitch Position. Choose the option for your setup from the pop-up screen. Press the checkmark to save your selection.

<input checked="" type="radio"/>	No Workswitch
<input type="radio"/>	Workswitch OFF in work
<input type="radio"/>	Workswitch ON in work
<input type="radio"/>	ISOBUS Tractor
<input type="radio"/>	Case IH Planter Status

External Master Switch

If an External Master Switch is selected, the onscreen master softkey will be removed. If connected to a Hagie, the "Hagie Master Spray" option may be selected to be operated from the joystick.

<input checked="" type="radio"/>	No
<input type="radio"/>	Momentary Switch
<input type="radio"/>	Latching (High in Work)
<input type="radio"/>	Latching (Low in Work)
<input type="radio"/>	Hagie Master Spray

Implement Geometry

The geometry of an agricultural implement is defined as a series of parameters describing its dimensions. It is important particularly for all systems that are GPS-controlled. The distances you enter depends on whether the implement is towed, mounted on the tractor, or self-propelled.

You must enter the distances for the boom and for the connectors. In doing so, ensure that the center point of the implement axle is always the point of origin for all distances. Measurements towards the front are always positive, and measurements towards the rear are always negative.

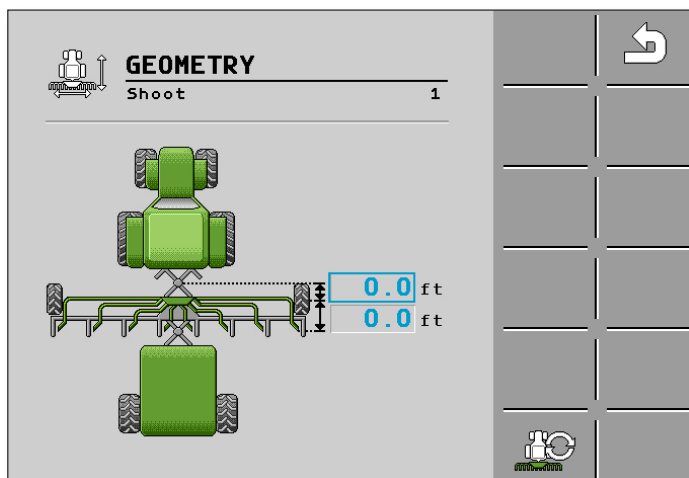
To access the Implement Geometry from the Run Screen, press Settings. Press the Configuration icon. Press the Implement Configuration icon. Press the Geometry icon.

4 Basic Control Principles

Implement Geometry



→ The Geometry screen will be displayed.



To enter the dimensions for your implement, press the selectable areas on the Geometry screen.

1. Enter the distance from the hitch point to the axle.
2. Enter the distance from the axle to the point of product application.

To select a different implement setup than what is pictured, press the Geometry Option icon.



1. Use the left/right arrows to scroll through the options.

	Trail behind implement		Rear implement mounted
	Box drill		Forward implement mounted

2. Press the implement on the screen to save the selection. Press the back arrow to return.

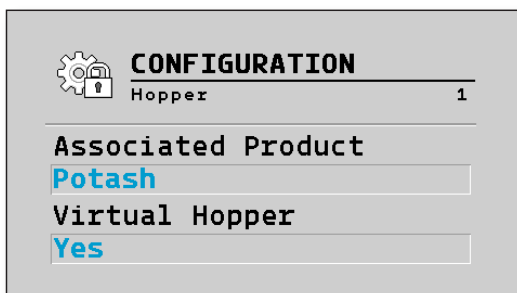
4.8.2 Hopper Configuration

Hopper Configuration allows you to set the Associated Product for a hopper. Press the selectable area under Associated Product.

To access the Hopper Configuration from the Run Screen, press Settings. Press the Configuration icon. Press the Hopper Configuration icon.



→ The Configuration screen will be displayed.



Associated Product - Choose the Product from the pop-up screen and enter the correct weight. Press the checkmark to save your selection.

Virtual Hopper - The Virtual Hopper gives an approximately weight of product in the the hopper based on the the amount added to the hopper and the amount applied from the hopper. Choose Yes or No.

Press the icon with three dots to cycle through the hoppers.



4.8.3 Shoot Configuration

Shoot Configuration allows you to set the number of sections, total working width, and the number of rows for the implement.

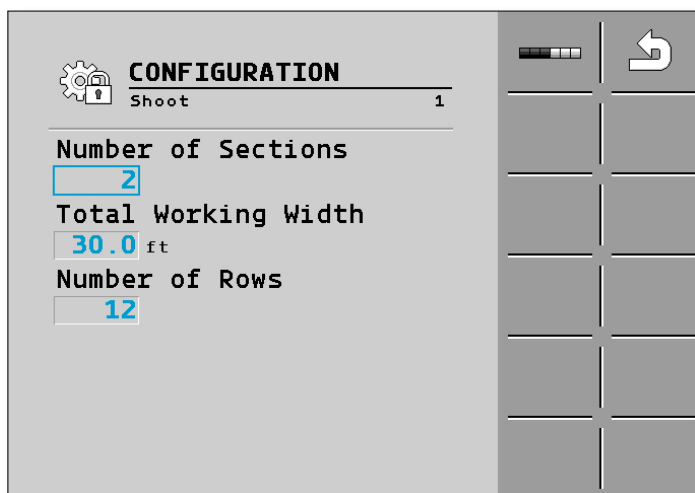
To access the Shoot Configuration from the Run Screen, press Settings. Press the Configuration icon. Press the Shoot Configuration icon.



4 Basic Control Principles

Shoot Configuration

→ The Configuration screen will be displayed.



To make changes to the Shoot Configuration, press the selectable area under Total Working Width and/or Number of Rows. Type in your information into the pop-up screen. Press the checkmark to save your selection.

Section Configuration

1. To configure the sections, press the Section icon.



2. Enter the information for the number of section rows and working width of the sections. Press the checkmark to save your selection.

3. Press the icon with three dots to cycle through the sections.



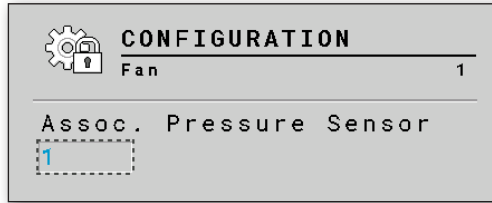
4.8.4 Fan Configuration

The Fan Configuration settings allow a pressure sensor to be setup for each fan in the system.

To access the Fan Configuration from the Run Screen, press Settings. Press the Configuration icon. Press the Fan Configuration icon.



→ The Fan Configuration screen will be displayed.



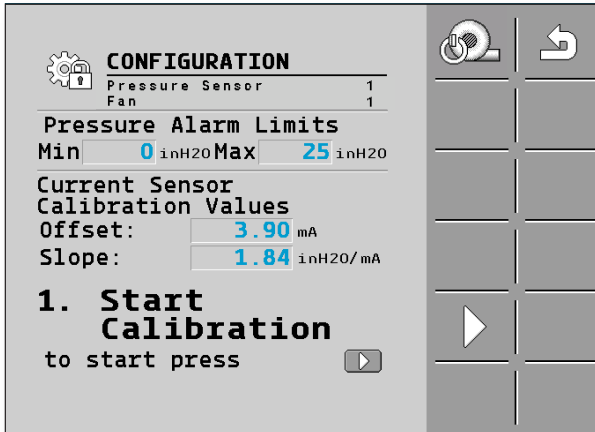
Under the Pressure Sensor, press the selectable area to choose and activate a pressure sensor. Select "1" for the main fan.

Pressure Sensor Calibration

1. Press the Pressure Sensor Calibration icon.



→ The Configuration 1 screen will be displayed.



2. Enter the Min and Max Pressure Alarm limits. The default offset mA should be 3.90 and slope value should be at 1.84 inH2O/mA. These values can be manually entered in this section. The offset and slope values will adjust during the calibration.

3. Press the play icon to begin the calibration.



4 Basic Control Principles

Pressure Sensor Calibration

→ The Configuration 2 screen will be displayed.

The screenshot shows the 'CONFIGURATION' screen with a status bar at the top indicating 'Pressure Sensor 1' and 'Fan 1'. The main heading is '2. Calibration' with the sub-heading 'Zero Point Calibration'. The instructions read: 'Power on System without Fan Speed. Verify Gauge Read Out is 0.' Below this, there are two buttons: a right arrow labeled 'to Advance' and a left arrow labeled 'to Cancel'. At the bottom, the 'Set Zero Value' is displayed as '0.02 mA'. On the right side of the screen is a vertical control panel with a power button at the top, followed by a checkmark button and an 'X' button, and then four empty square buttons.

4. On the second calibration page the Set Zero Value will pick up the mA reading of the pressure sensor. The hydraulic fan must be off before pressing the checkmark. Once turned off, press the checkmark to continue.



→ The Configuration 3 screen will be displayed.

The screenshot shows the 'CONFIGURATION' screen with the same status bar. The main heading is '3. Calibration' with the sub-heading 'Operation Point'. The instructions read: 'Run System at Operation Setpoint. Enter Gauge Value in Current Pressure.' Below this, there are two buttons: a right arrow labeled 'to Advance' and a left arrow labeled 'to Cancel'. At the bottom, there are two input fields: 'Set Op. Value' with a value of '0 inH2O' and 'Input Value' with a value of '0.04 mA'. On the right side of the screen is a vertical control panel with a power button at the top, followed by a checkmark button and an 'X' button, and then four empty square buttons.

5. Turn the hydraulic fan on to approximately 20 inches to proceed. On the third calibration screen manually enter in the reading from the fan pressure gauge on the machine in the Set Op. Value area. Press the checkmark to complete the calibration.
6. The values are updated and the calibration is complete.

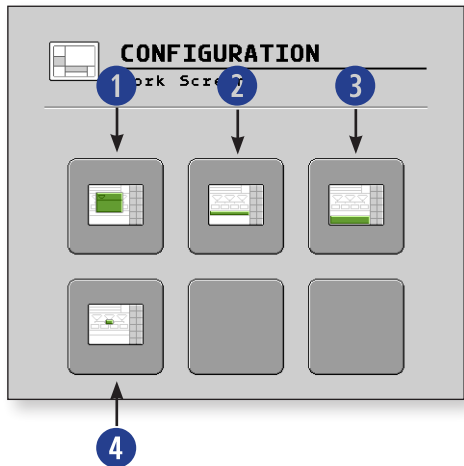
4.8.5 Run Screen Configuration

The Dry Rate Controller Display area, Status Line, and Visible Values on the Run Screen are configurable.

To access the Run Screen Configuration from the Run Screen, press Settings. Press the Configuration icon. Press the Run Screen Configuration icon.



→ The Run Screen Configuration screen will be displayed.



1	Dry Rate Controller Display area
2	Status Line area
3	Visible Values area
4	Center Icon Area

Dry Rate Controller Display Area

Selecting a line area allows the information to be reorganized.

The screenshot shows a configuration screen titled "CONFIGURATION" with the subtitle "Hopper Info". It contains five lines for configuration:

- Line 1: **Product:** (text input field)
- Line 2: **Density:** 0.00 lb/gal
- Line 3: **Calibr.:** 0.0 lb/ac
- Line 4: **0 lb** (with a calculator icon) **0 lb** (with a calculator icon)
- Line 5: **Target:** 0.0 lb/ac

On the right side of the screen, there is a vertical column of six empty rectangular boxes, with a curved arrow icon at the top right.

Status Line Area

To make changes, press the selectable area next to each position. Choose the status icon from the pop-up menu you want for the position. Press the checkmark to save your selection.


The screenshot shows a configuration screen titled "CONFIGURATION" with the subtitle "Status Line". It contains eight positions, each with a status icon:

- Position 1: (Icon: Hopper)
- Position 2: (Icon: Clock)
- Position 3: (Icon: Road)
- Position 4: (Icon: Gear)
- Position 5: (Icon: Star)
- Position 6: (Icon: Document)
- Position 7: (Icon: Stop)
- Position 8: (Icon: ON)

At the bottom of the screen, there is a horizontal row of icons: Hopper, Clock, Road, OFF, Star, Document, STOP, and ON.

Visible Values Area


Press the selectable area next to each position. Choose the status icon from the pop-up menu you want for the position. Press the checkmark to save your selection.



CONFIGURATION


Bottom Area 1

Position 1




0.0 mph

Position 2




0 rpm

Position 3




0 rpm


Position 4




0.0 mph



0 rpm




0 rpm



Center Icon Area

Press the selectable area next to each position. Choose the status icon from the pop-up menu you want for the position.




CONFIGURATION


Center Area

☐ None

☒ Prefill



☐ Fan Control



4.8.6 Metering Drive Configuration

The Metering Drive Configuration allows you to set the Target Rate, set Deviation Tolerances, Min. Rotational Speed, and Max. Rotational Speed.

To access the Metering Drive Configuration from the Run Screen, press Settings. Press the Configuration icon. Press the Metering Drive Configuration icon.



→ The Metering Unit Configuration screen will be displayed.

CONFIGURATION	
Metering Unit	1
Target Rate	89.2 lb/ac
Deviation Tolerance	+ 20 % - 20 %
Pre-start	5 s 3.1 mph
Amplification factor	5.00
Calibration Type	No Catch Test Calibr.

The right-hand panel contains navigation icons: a back arrow, a circular arrow, a downward arrow, a list icon with a plus sign, and a three-dot menu icon.

Press the selectable area next to the parameter you want to change. Enter a new value. Press the checkmark to save your selection.

Deviation Tolerance

This setting allows you to set the alarm threshold for the Target Rate. If the applied rate varies outside the set Deviation Tolerance, the system will show an alarm.

Pre-start Time

This Pre-start time setting adjusts the amount of time the auger runs when the system is primed.

Amplification Factor

This Amplification Factor changes the control loop aggressiveness. Increasing the number makes the meter more aggressive. Decreasing the number makes the meter less aggressive. If the system is slow to reach the target rate, increase the number. If the meter struggles to hold rate, decrease the number.

Calibration Type

Choose the type of calibration for the control system. The choices are: No, Calibration Switch, Simple Catch Test, and No Catch Test Calibration.

Press the down arrow for additional metering settings.



Section Control Delay

The amount of time it takes pressing the button to shut a section off and when it stops applying at the application point. Adjust the setting to increase or decrease this time. Typically, start and stop times should be the same.

Rate/Weight Monitoring Alarm

If a weigh system is installed and enabled, this setting allows the adjustment of allowable percentage error between the applied rate and the scale system. This feature compares how much product the system has applied to the actual scale weight of product. When the system is performing correctly, these two measurements should be in sync. If there is a discrepancy between the two measurements that is greater than the set monitoring percentage, the system will alert the operator. This could indicate a bridging problem in one of the hoppers. To engage this feature, place a check mark in the Rate/Weight Monitoring area and set the allowable percentage of discrepancy.

Press the icon with three dots to cycle to the next Metering Unit.



4 Basic Control Principles

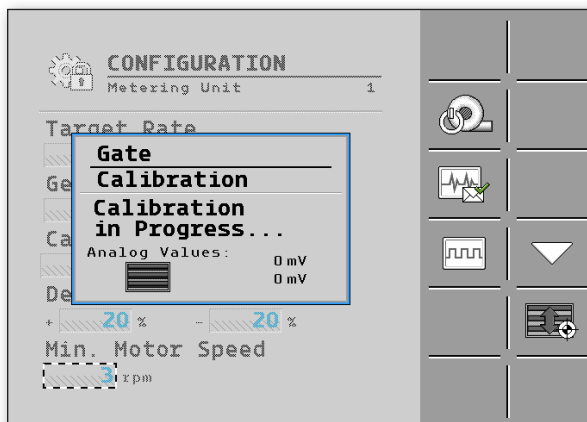
Metering Drive Configuration

Linear Gate Sensor Calibration

Press the Gate Sensor Calibration icon to begin.



→ The following window will appear:



This calibration will move the gate from one position to the next to ensure that the hydraulic sensor is calibrated correctly and that the gate is closed when the system is placed in Road Mode. Note that the system **must** be on hydraulically to move the actuators.

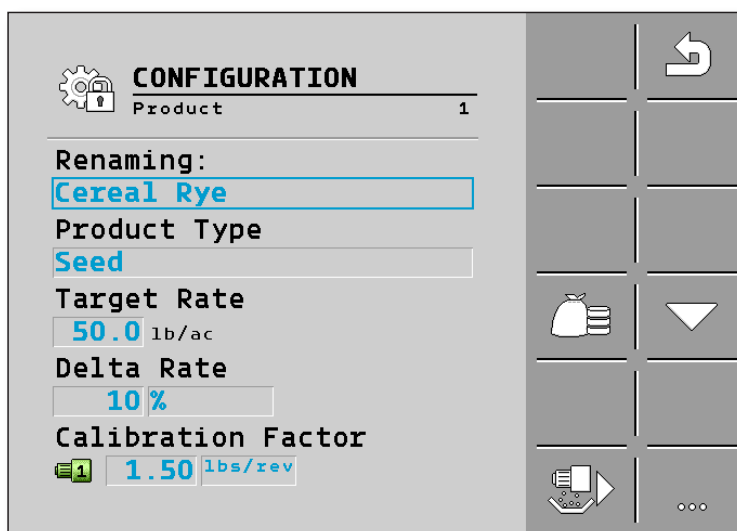
4.8.7 Product Configuration

The Product Configuration allows you to add new products to the database, change the parameters of products, set the target rate, and set the Delta Target Rate.

To access the Product Configuration from the Run Screen, press Settings. Press the Configuration icon. Press the Product Configuration icon.



→ The Product Configuration screen will be displayed.



Renaming a Product

To rename product, press the selectable area and type in the new name. Press the checkmark to save your selection. Press the icon with three dots to proceed to the next product.



Product Type

To change the product type, press the selectable area and choose one of the options: seed, liquid, or solid. Press the checkmark to save your selection.

Target Rate

To choose or change a Target Rate, press the selectable area under the Metering Drive. Type in the Target Rate. Press the checkmark to save your selection.

Delta Target Rate

The Delta Target Rate is the percentage of adjustment you want to make over the Target Rate on the Run Screen. To choose or change the Delta Target Rate, press the selectable area under the Delta Rate. Type in the percentage of change you want to be made with each button press. Press the checkmark to save your selection. Rate values can be in percentage or lb/ac.

Calibration Factor & Units

Refer to the previous Hopper Calibration explanation in section 4.7.2 Metering Drive Settings [→ 24].

To a change the product application units, press the selectable area and choose from the pop-up menu. Press the checkmark to save your selection.

- Seed will always be in lbs/rev
- Liquids will always be in oz/rev.
- Solids can be lbs/rev or ft³/rev.



Press the Calibration Meter icon to cycle through the available meters. Each meter can have a calibration factor per product per hopper.



Adding a New Product

To add a new product, press the Product Database icon. Press the Product Addition icon. Input the new product information.



4.8.8 Blockage System Configuration

The Blockage System Configuration communicates information about the installed modules.

To access the Blockage System Configuration from the Run Screen, press Settings. Press the Configuration icon. Press the Blockage Configuration icon.

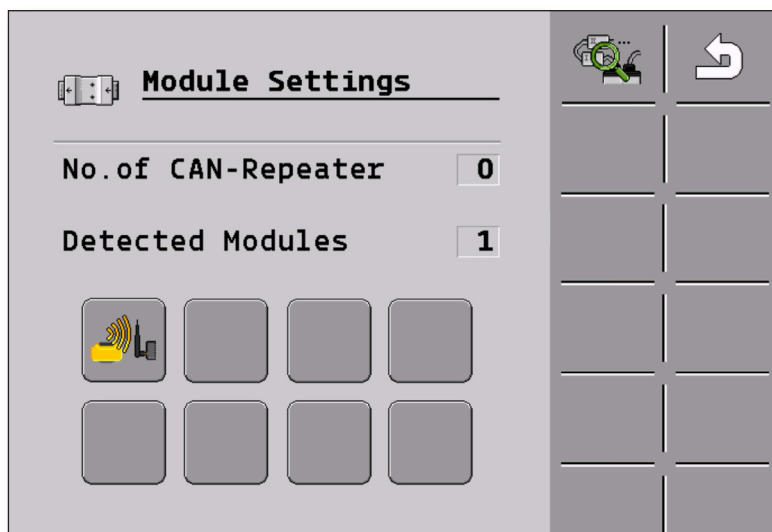


4.8.9 Blockage Chaining Configuration

To access the Blockage Chaining Configuration from the Run Screen, press Settings. Press the Configuration icon. Press the Blockage Chaining Configuration icon. This icon will be grayed out if you have the Blockage System setting set to No in Implement Configuration [→ 38].



→ The Blockage Chaining Configuration screen will be displayed.



Press the Blockage Chaining icon to start the search procedure for modules. The number of detected modules will appear on the screen.



The J.Assy Blockage System icon will appear on the screen when a module is detected.



4.8.10 Profile Database Configuration

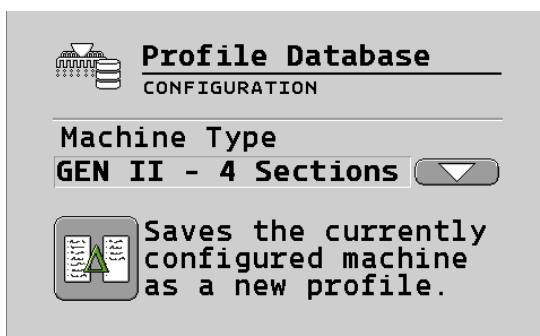
The machine type can be selected in the Profile Database Configuration.

To access this feature from the Run Screen, press Settings. Press the Configuration icon. Press the Database Configuration icon.



Pressing the down arrow under Machine Type brings up a list of selectable options. The operator can choose: Gen I - 1 Section, Gen I - 2 Sections, Gen II - 1 Section, Gen II - 2 Sections, Gen II - 3 Sections, Gen II - 4 Sections, Gen II mini - 1 Section, Gen II mini - 2 Sections, Gen II mini - 3 Sections, Gen II mini - 4 Sections, Fortifier - 1 section, Fortifier - 2 sections, Fortifier - 3 sections, and Fortifier - 3 sections.

The current machine type can be saved as a new profile by pressing the Save Configuration icon.



Press the **RED X** to delete the current profile and reset back to factory defaults.

4.8.11 Locked Area

Certain settings for the ISOBUS Control System reside behind a locked area. You can contact your dealer for questions on how to access this area.

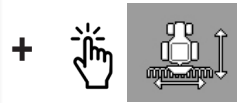
5 Set-Up Guide:

1 Implement Configuration

Manual Pages 38-40



CONFIGURATION	
Implement	
Blockage System	No
Working Position	No Workswitch
Weigh System	Yes
ext. Master Switch	No



2 Product Configuration

Pages 51-52



CONFIGURATION	
Product	
Renaming:	Cereal Rye
Product Type	Seed
Target Rate	50.0 lb/ac
Delta Rate	10 %
Calibration Factor	1.50 lbs/rev

Calculate correct cal factor for machine. Both meters must have values added.

Use density scale to determine density.

1. The accuracy of the Montag Air Cart depends on using the correct Calibration Factor. This value is for the entire implement width.

To find the Cal. Factor when using ft³/Rev, multiply the number of outputs for your setup by .0026. (.0026 is the starting number. This number may need to be adjusted by product or environment change.)

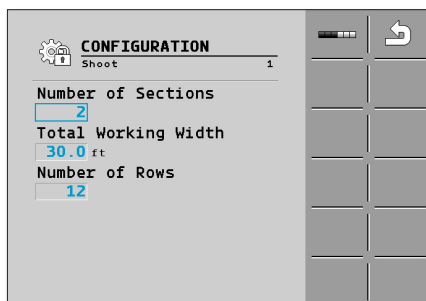
ft³/Rev Example: 12 outputs X .0026 = .0288

To find the Cal. Factor when using Lb/Rev, multiply the number of outputs for your setup by .0026 times the density. (.0026 is the starting number. This number may need to be adjusted by product or environment change.)

Lb/Rev Example: 12 outputs X .0026 X density = 2.184

3 Shoot Configuration

Pages 41-42



4 Slide Gate Sensor Calibration

Page 50

With hydraulics running...



5 Fan Pressure Sensor Calibration

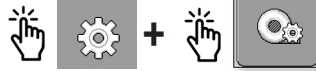
Pages 42-44 & 47

Follow the on screen commands.



6 Fan Settings

Pages 32-33



If using a Fortifier, set fan speed 4500-5500 RPM

7 Speed Settings

Pages 33-36



SETTINGS		
Speed		
Simulation	0.0 mph	<input type="checkbox"/>
Tractor:		
Ground	0.0 mph	<input checked="" type="checkbox"/>
Implement	0.0 mph	<input type="checkbox"/>
	0 Impulses/300ft	

It is recommended to run in simulation speed with **no product** in the tank to check correct set-up

8 Hopper Info Screen

Pages 16 & 46



HOPPER INFO	
Hopper	1
Product:	Potash
Density:	67.0 lb/ft ³
Calibr.:	.0348 ft ³ /rev
	305 lb
Target:	110.0 lb/ac

9

Hopper Settings

Pages 21-23



+



SETTINGS
Hopper

25 lbs 145 lbs

Associated Product
Wheat Urea

Density {lb/...}
62.4 lb/ft³ 62.4 lb/ft³

Chained Hopper
None None



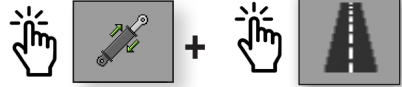
Equalizes calculated weight to scale weight. It is recommended to equalize your tanks after **every** fill.

Note: Some set-up features may not be available in earlier software versions.

10 Additional Set-Up Features

Road Mode Feature

Page 12



Slide Gate Feature

Page 19



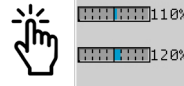
Gate Open - Tap the icon to open the gate incrementally. Press and hold the icon to open the gate completely.



Gate Close - Tap the icon to close the gate incrementally. Press and hold the icon to close the gate completely.

Adjusting Rate in both Tanks

Pages 61-62



Using Prescriptions

Page 64



Bin Chaining Feature

Pages 22-23



Chained Hopper

2 None



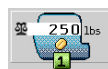
Tap to bring up chaining ratios for parallel chaining

Tank Fill Feature

Pages 31-32



Add Weight:
275.0 lb



Fill the hopper and watch the weight count down.

6 Operating the Implement in the Field

6.1 Filling Auger with Product

To be able to apply product from the beginning and avoid blank spots at the start of the field, you must fill the metering cells of the control system before you start driving. You can also use the pre-metering function.

1. On the Run Screen, press Metering Cell icon.



- As long as the metering cells are being filled, the following icon appears in the Status Line of the Run Screen:

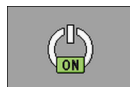


2. Only start driving once the icon is turned off.

6.2 Start Applying

- ☒ The implement is moving.
- ☒ The implement is lowered.
- ☒ The metering cells are filled with product.
- ☒ The fan has reached the minimum revolution speed.

1. Start applying. Press the Sections Master icon.



6.3 Stop Applying




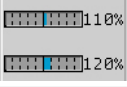

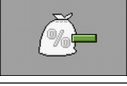

1. Stop applying. Press the Sections Master icon.



- All of the metering drives are stopped.

6.4 Adjusting the Target Rate during Operation

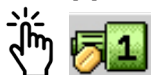
The Target Rate can be adjusted while working. This can be done for both hoppers together or independently. Use the icons on the right side of the display to increase, decrease or return to the Target Rate.

Function Icon	Meaning
	Increases the Target Rate of a specific hopper. The target rate is increased by the percentage you defined in Product Configuration.
	Reduces the Target Rate of a specific hopper. The target rate is reduced by the percentage you defined in Product Configuration.
	Restores the target rate of a specific hopper back to 100%.
	This icon shows the delta target rate for the hoppers. Pressing this icon brings up the icons below on the right side of the screen.
	Increases the Target Rate for both hoppers. The target rate is reduced by the percentage you defined in Product Configuration.
	Reduces the Target Rate for both hoppers. The target rate is reduced by the percentage you defined in Product Configuration.
	Restores the target rate back to 100%.

- ☒ You have defined the **Target Rate** and **Delta Target** rate in Product Configuration.

Changing the Target Rate of an Individual Hopper:

1. On the Run Screen, press a Metering Drive:

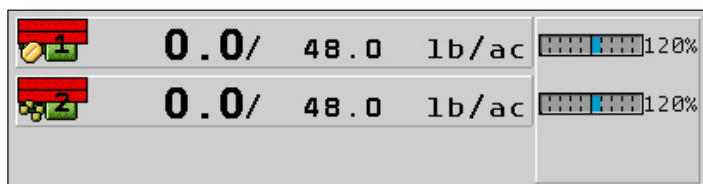


→ Function icons for the adjustment of the Target Rate appear on the right.

2. Press the increase or decrease icon from the right side of the display to change the Target Rate.



→ The target rate of the metering units will be changed:



→ The ECU regulates the application according to the new Target Rate.

Changing the Target Rate for both Hoppers:

1. On the Run Screen, press Delta Target Rate icon:

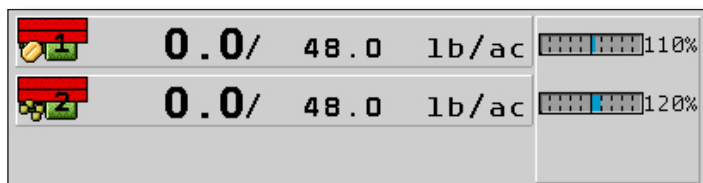


→ Function icons for the adjustment of the Target Rate appear on the right.

2. Press the increase or decrease icon from the right side of the display to change the Target Rate.



→ The target rate of the metering units will be changed:



→ The ECU regulates the application according to the new Target Rate.

6.5 Operating the Hydraulic System with the ECU

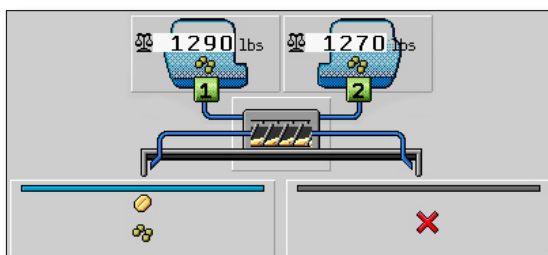
The ECU is used to adjust the position of the hydraulic valves so that the oil pressure is routed to specified parts of the Dry Rate Controller.

When operating the Dry Rate Controller with the ECU, remember that it cannot control the oil pressure. You have to use the control unit in the tractor to generate pressure in the system. Adjust the hydraulics by setting the fan pressure between 10-22 (depending on rates, product density, and rows). Run at the lowest rate without causing blockage. It is best to start higher and decrease hydraulics to the optimal setting for the machine and application. Running too high will cause premature hose failure and use more horse power. Most machines will run 15-18 in H₂O.

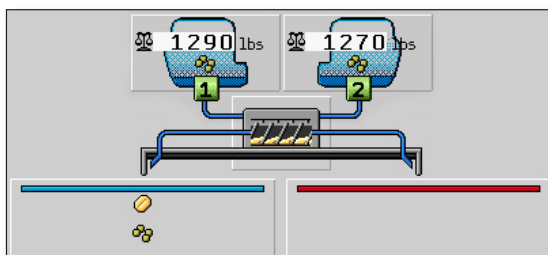
6.6 Operating Section Control

With section control, you can switch the sections of your implement. The size of the respective sections that you can switch depends on the implement type and equipment.

On the Run Screen, you can see which sections are switched on or off.



Left section is on and right section is off.



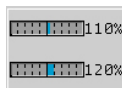
Left section is on and right section has been turned off by the Task Controller.

When product is coming out of the section, there is a granular icon in the window. The color of the section indicates its status: **BLUE** = sections on, **GREY** = sections manually off, **RED** = sections turned off by section control.

6.7 Using Prescriptions

Prescriptions allow the Task Controller to vary the application rate while the system is in operation. Consult your OEM display manual for instructions on how to load prescriptions for your specific display. Once a prescription is loaded into the display, follow these steps to assign it to the Dry Rate Controller System:

1. From the Run Screen, press the Delta Target Rate icon.
2. Press the Prescription icon from the right side menu.
This icon will only appear if the display has a prescription loaded.
3. When the system is using a prescription, the meter icon will change.



6.8 Viewing and Clearing Counters Page

The counters page is used to store trip values, amount applied, area, time, and distance. These values are allowed to be cleared whenever the operator needs them to be cleared.

It also stores total tonnage, area, working time, distance and powered on time. These values are stored in the ECU and can only be cleared by a service tech.

1. Select the trip values function button on the main page.
A list of the products and empty blanks will be displayed.



→ The Results screen will be displayed.

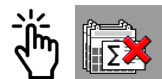
RESULTS		Area, Quantity	
DAP			
Trip		Season	
92.6 ac		543.3 ac	
237.2 lb		1211.1 lb	
Potash			
Trip		Season	
92.6 ac		543.3 ac	
314.8 lb		1801.3 lb	

2. To clear the trip results press the corresponding hopper trip clear function icon.



RESULTS			
Area, Quantity			
DAP			
Trip	Season		
0.00 ac	543.3 ac		
0 lb	1211.1 lb		
Potash			
Trip	Season		
0.00 ac	543.3 ac		
0 lb	1801.3 lb		

3. To clear the season results press the corresponding hopper season clear function icon.



RESULTS			
Area, Quantity			
DAP			
Trip	Season		
0.00 ac	0.00 ac		
0 lb	0 lb		
Potash			
Trip	Season		
0.00 ac	0.00 ac		
0 lb	0 lb		

6 Operating the Implement in the Field

Results

4. To view the total values press the total function icon
The Total Counter Page will be shown.



→ The Results screen will be displayed.

TOTAL RESULTS

1	Service Hours	40 h
2	Total Time	5 h
3	Total Distance	16 mi
4	Total Area	15 ac
5	Total Quantity	0 lb

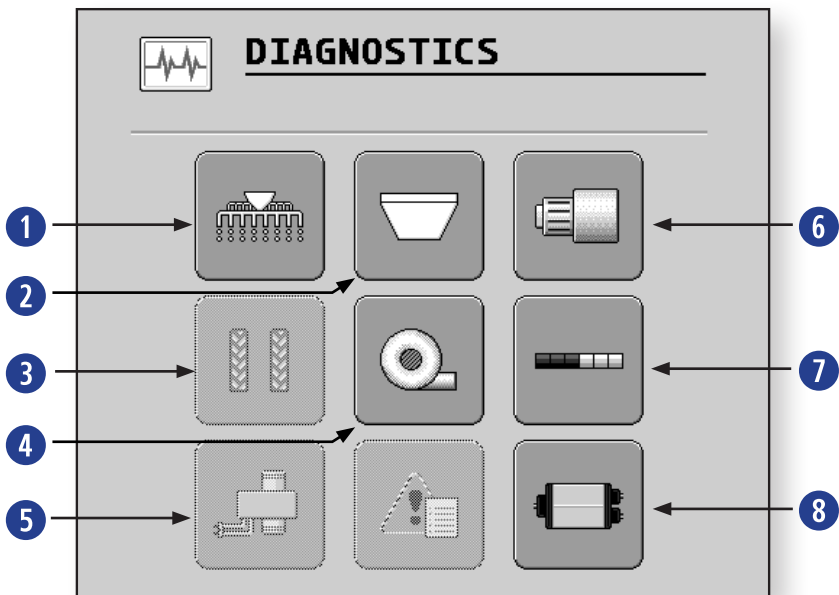
Below the Total Quantity field, there are two small red and green icons with numbers 1 and 2, and the text "0 lb" next to each.

1	Service Hours Total time powered up since ECU was powered up.
2	Total Time Total time during work since ECU was powered up.
3	Total Distance Total distance traveled during work since ECU was powered up.
4	Total Area Total area covered during work since ECU was powered up.
5	Total Quantity The total weight of each hopper since ECU was powered up.

7 Troubleshooting

7.1 Performing Diagnostics

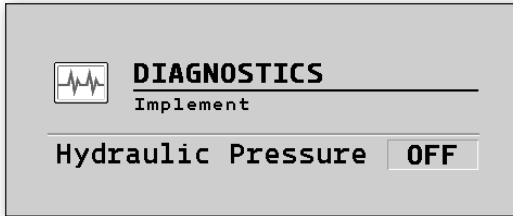
The Diagnostics screen allows you to read the measured values for all of the pins that are connected to the junction box. In addition, you can test whether the functions of the ECU are working as desired.



1	Implement Diagnostics	5	Blockage Diagnostics
2	Hopper Diagnostics	6	Metering Diagnostics
3	Tramline Diagnostics (<i>not used</i>)	7	Section Diagnostics
4	Fan Diagnostics	8	ECU Diagnostics

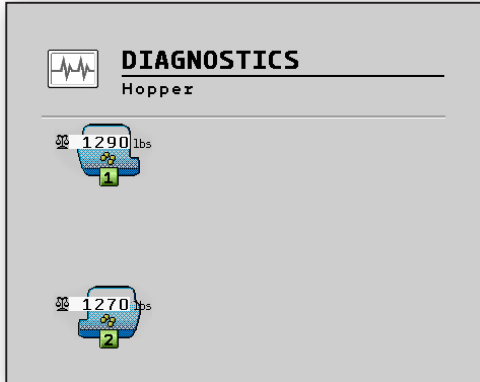
Implement Diagnostics

The Implement Diagnostics show feedback for Radar Impulses, Working Position, and the Calibration Switch.



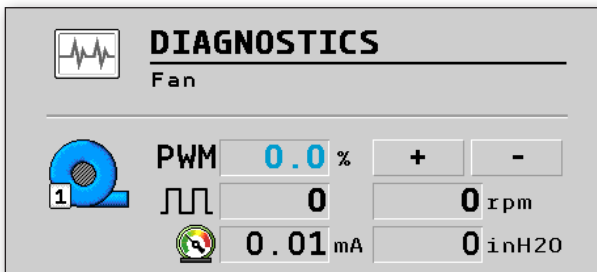
Hopper Diagnostics

The Hopper Diagnostics show feedback on hopper weight and hopper product.



Fan Diagnostics

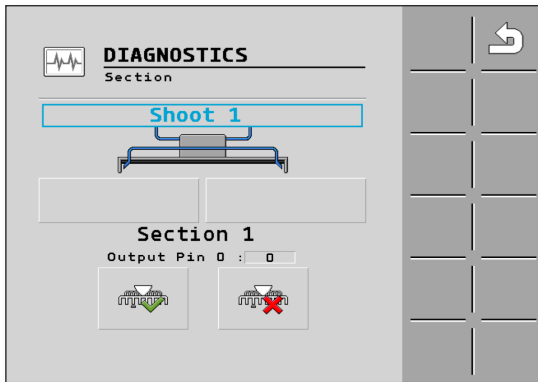
The Fan Diagnostics show feedback on fan impulses and fan RPM. Pressure Sensor feedback will only be shown if a pressure sensor is enabled.



Section Diagnostics

The Section Diagnostics show the output pin numbers for each section.

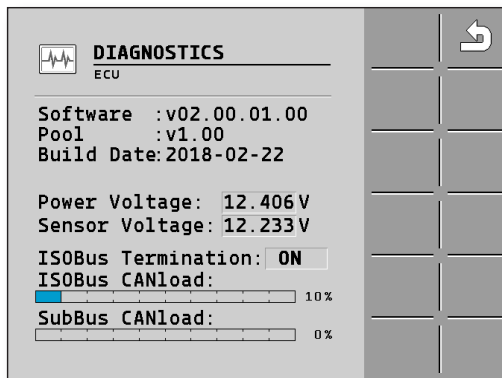
- Select the section to diagnose.
- This page identifies which section is selected and the ECU pin.
- Output 0=ON 0v or 1=OFF 12v
- Press the checkmark and X icons to turn sections on and/or off.
- **WARNING:** If sections are turned off on this screen, they do not reset when you return to the Run Screen.



ECU Diagnostics

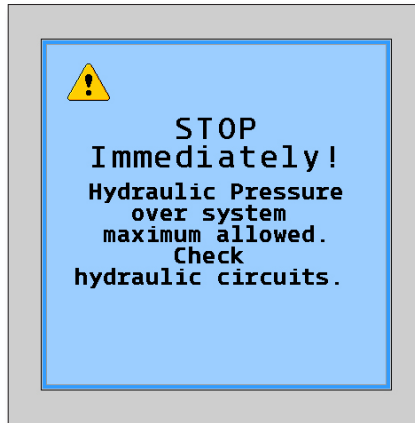
The ECU Diagnostics shows:

- Software Version
- Object Pool Version
- Power Voltage and Sensor Voltage
- ISOBUS CANload and SubBus CANload



7.2 Case Drain Alarm

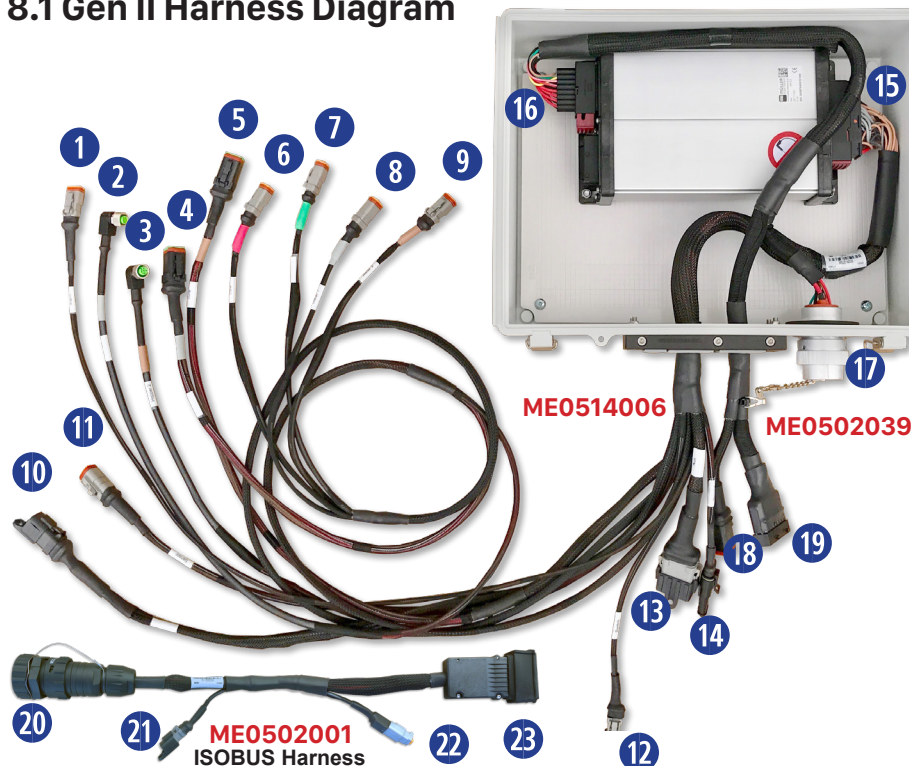
The Case Drain Alarm is a safety warning on the Dry Rate Controller. Should you see this alarm on your display, all product application is stopped until the issue is corrected.



For updated manuals and additional supporting materials,
visit our website @ MontagMfg.com

8 Technical Data

8.1 Gen II Harness Diagram



8.2 Gen II Cable Pin Diagrams

1

Hydraulic Alarm - X8 ME0514006		
Cavity	Description	Wire Color
1	Hyd Press Sensor	Tan
2	0v Electronic	Black/White

2

Encoder Hopper 1 - X6 ME0514006		
Cavity	Description	Wire Color
1	12v Electronic	Red/White
3	0v Electronic	Black/White
4	Meter 1 Encoder	Tan

3

Encoder Hopper 2 - X7 ME0514006		
Cavity	Description	Wire Color
1	12v Electronic	Red/White
3	0v Electronic	Black/White
4	Meter 2 Encoder	Tan

4

Bin 1 Gate - X12 ME0514006		
Cavity	Description	Wire Color
1	Plug	
2	0v Electronic	Black/White
3	12v Electronic	Red/White
4	12v Electronic	Red/White
5	Closed Hopper 1	Tan
6	Opened Hopper 1	Tan

5

Bin 2 Gate - X13 ME0514006		
Cavity	Description	Wire Color
1	Plug	
2	0v Electronic	Black/White
3	12v Electronic	Red/White
4	12v Electronic	Red/White
5	Closed Hopper 2	Tan
6	Opened Hopper 2	Tan

6

Close Gate - X15		ME0514006
Cavity	Description	Wire Color
1	Close Gate HS	Grey
2	0v High Current	Black

7

Open Gate - X16		ME0514006
Cavity	Description	Wire Color
1	Open Gate HS	Grey
2	0v High Current	Black

8

PWM Meter 1 - X2		ME0514006
Cavity	Description	Wire Color
1	PWM Meter 1	Grey
2	0v High Current	Black

9

PWM Meter 2 - X3		ME0514006
Cavity	Description	Wire Color
1	PWM Meter 2	Grey
2	0v High Current	Black

10

Sections - X5		ME0514006
Cavity	Description	Wire Color
1	0v High Current	Black
2	Section W	Grey
3	Section X	Grey
4	Section Y	Grey
5	Section Z	Grey
6	0v HC	Black

11

Fan Pressure Sensor - X17		ME0514006
Cavity	Description	Wire Color
A	12v Electronic	Red/White
B	Fan Pressure Sensor	Tan
C	0v Electronic	Black/White

12

Implement Switch - X10		ME0514006
Cavity	Description	Wire Color
1	Work Position	Tan
2	0v Electronic	Black/White

13

Aux - 18		ME0514006
Cavity	Description	Wire Color
1	12v High Current	Red
2	Bin 1 Pressure	Tan
3	Bin 2 Pressure	Tan
4	12v Electronic	Red/White
5	0v Electronic	Black/White
6	Fan Encoder	Tan
7	Aux Input 1	Tan
8	Aux Input 2	Tan
9	Fan 1 PWM HS	Grey
10	Aux Output 1	Grey
11	Aux Output 2	Grey
12	0v High Current	Black

14

Ground Speed - X11		ME0514006
Cavity	Description	Wire Color
1	0v Electronic	Black/White
3	12v Electronic	Red/White
4	Machine Speed Signal	Tan

15

Main - X1		ME0502039
Cavity	Description	Wire Color
1	12v High Current	Red
2	Bin 1 Pressure	Tan
3	Bin 2 Pressure	Tan
4		
5		
6		
7	Section W	Grey
8	Section X	Grey
9	Section Y	Grey
10	Section Z	Grey
11		
12		
13		
14		
15	Aux Output 1	Grey
16	Work Position	Tan
17	Hyd Pressure Sensor	Tan
18	Aux Input 1	Grey
19	Fan 1 PWM HS	Grey
20		
21	PWM Meter 1	Grey
22	PWM Meter 2	Grey
23	Aux Output 2	Grey
24		
25	Open Gate HS	Grey
26	Close Gate HS	Grey
27		
28		
29		
30	Aux Input 2	Grey
31	Fan1 Pressure	Tan
32	12v Electronic	Red/White
33	0v Electronic	Black/White
34	Meter 1 Encoder	Tan
35	Meter 2 Encoder	Tan
36	Machine Speed	Tan
37	Fan Encoder	Tan
38	Opened Hopper 1	Tan
39	Closed Hopper 1	Tan
40	Opened Hopper 2	Tan
41	Closed Hopper 2	Tan
42	0v High Current	Black

16

ECU 1 - X1		ME0514006
Cavity	Description	Wire Color
1	Termination Sense	Tan
2	CAN-L	Green
3	CAN-GND	Black/White
4	0v Electronic	Black/White
5	0v High Current	Black
6	0v High Current	Black
7	0v High Current	Black
8	0v High Current	Black
9	Plug	
10	CAN-H	Yellow
11	CAN-EN	Pink
12	12v Electronic	Red/White
13	12v High Current	Red
14	12v High Current	Red
15	12v High Current	Red
16	12v High Current	Red

17

ISO Out - X3		ME0502039
Cavity	Description	Wire Color
1	0v High Current	Black
2	0v Electronic	Black/White
3	12v High Current	Red
4	12v Electronic	Red/White
5	Termination Control	Tan
6	CAN-EN	Pink
7	CAN-GND	Black/White
8	CAN-H	Yellow
9	CAN-L	Green

18

Scale/CAN - X2		ME0502039
Cavity	Description	Wire Color
1	12v Electronic	Red/White
2	CAN-H	Yellow
3	0v Electronic	Black/White
4	CAN-L	Green
5	Plug	
6	Plug	

19

ISO Input - X4		ME0502039
Cavity	Description	Wire Color
1	Plug	
2	CAN-L	Green
3	CAN-GND	Black/White
4	0v Electronic	Black/White
5	0v High Current	Black
6	0v High Current	Black
7	0v High Current	Black
8	0v High Current	Black
9	Plug	
10	CAN-H	Yellow
11	CAN-EN	Pink
12	12v Electronic	Red/White
13	12v High Current	Red
14	12v High Current	Red
15	12v High Current	Red
16	12v High Current	Red

23

ECU Connection - X2		ME0502001
Cavity	Description	Wire Color
1	Plug	
2	CAN-L	Green
3	CAN-GND	Black/White
4	0v Electronic	Black/White
5	0v High Current	Black
6	0v High Current	Black
7	0v High Current	Black
8	0v High Current	Black
9	Plug	
10	CAN-H	Yellow
11	CAN-EN	Pink
12	12v Electronic	Red/White
13	12v High Current	Red
14	12v High Current	Red
15	12v High Current	Red
16	12v High Current	Red

20

ISO Tractor - X1		ME0502001
Cavity	Description	Wire Color
1	0v High Current	Black
2	0v Electronic	Black/White
3	12v High Current	Red
4	12v Electronic	Red/White
5	Termination Control	Tan
6	CAN-EN	Pink
7	CAN-GND	Black/White
8	CAN-H	Yellow
9	CAN-L	Green

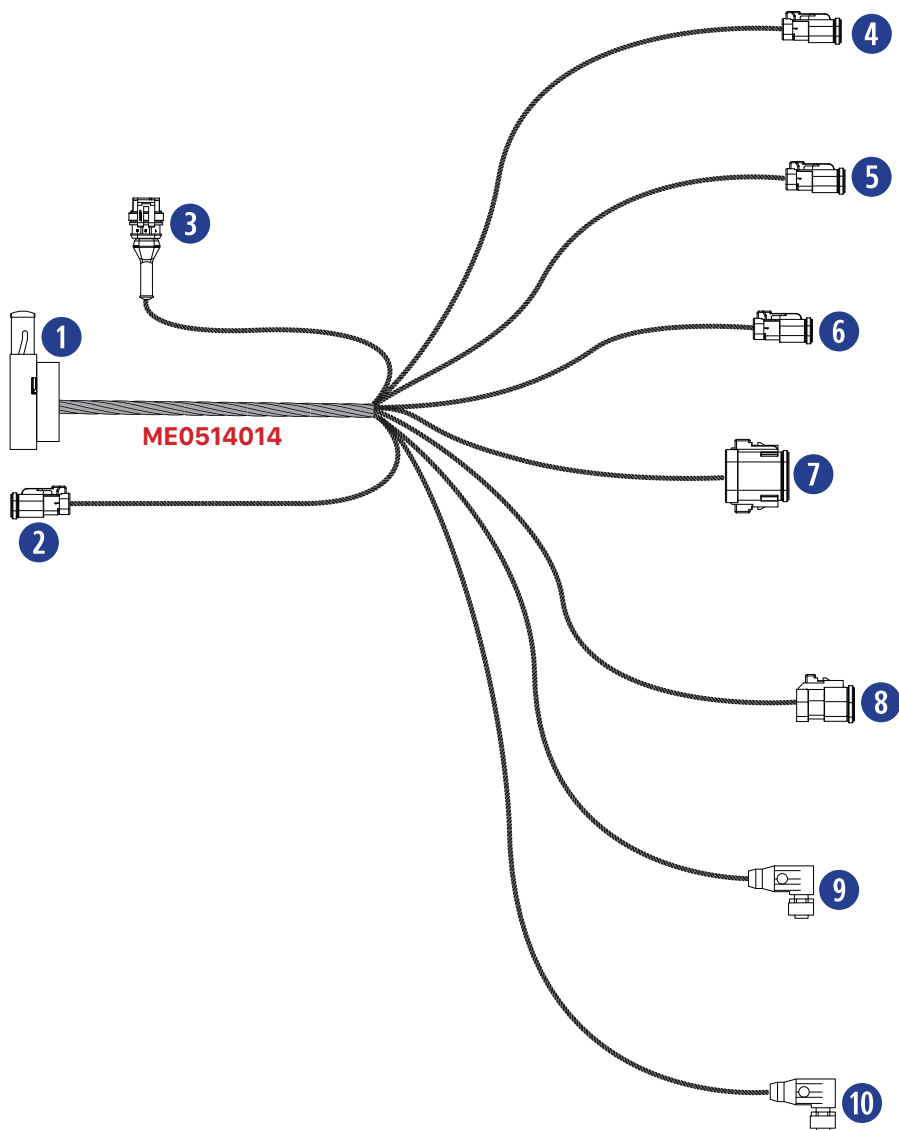
21

Remote Master - X3		ME0502001
Cavity	Description	Wire Color
1	Master Switch	Tan
2	0v Electronic	Black/White

22

Remote Master - X4		ME0502001
Cavity	Description	Wire Color
1	Master Switch	Tan
2	0v Electronic	Black/White

8.3 Gen I Harness Diagram



8.4 Gen I Cable Pin Diagrams

1

Main - X1		ME0514014
Cavity	Description	Wire Color
1	12v High Current	Red
2	Bin 1 Pressure	Tan
3	Bin 2 Pressure	Tan
4	5v Electronic	Red/White
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15	Aux Output 1	Grey
16	Work Position	Tan
17	Hyd Pressure Sensor	Tan
18	Fan 2 Pressure	Grey
19	Fan 1 PWM HS	Grey
20		
21	PWM Meter 1	Grey
22	PWM Meter 2	Grey
23	Fan 2 PWM	Grey
24		
25		
26		
27		
28		
29		
30	Fan 2 Encoder	Grey
31	Fan1 Pressure	Tan
32	12v Electronic	Red/White
33	0v Electronic	Black/White
34	Meter 1 Encoder	Tan
35	Meter 2 Encoder	Tan
36	Machine Speed	Tan
37	Fan 1 Encoder	Tan
38		
39		
40		
41		
42	0v High Current	Black

2

Imp Switch - X10		ME0514014
Cavity	Description	Wire Color
1	Imp Switch	Tan
2	0v Electronic	Black

3

Ground Speed - X11		ME0514014
Cavity	Description	Wire Color
1	0v Electronic	Black/White
2	12v Electronic	Red/White
3	Machine Speed Signal	Tan

4

Hydraulic Alarm - X8		ME0514014
Cavity	Description	Wire Color
1	Hyd Pressure Sensor	Tan
2	0v Electronic	Black

5

PWM Meter 1 - X2		ME0514014
Cavity	Description	Wire Color
1	PWM Meter 1	Grey
2	0v High Current	Black

6

PWM Meter 2 - X3		ME0514014
Cavity	Description	Wire Color
1	PWM Meter 2	Grey
2	0v High Current	Black

7

Aux - 18		ME0514014
Cavity	Description	Wire Color
1	12v High Current	Red
2	Bin 1 Pressure	Tan
3	Bin 2 Pressure	Tan
4	12v Electronic	Red/White
5	0v Electronic	Black/White
6	Fan 1 Encoder	Tan
7	Fan 2 Pressure	Tan
8	Fan 2 Encoder	Tan
9	Fan 1 PWM	Grey
10	Aux Output 1	Grey
11	Fan 2 PWM	Grey
12	0v High Current	Black

8

Fan Pressure Sensor - X17		ME0514014
Cavity	Description	Wire Color
A	12v Electronic	Red/White
B	Fan Pressure Sensor	Tan
C	0v Electronic	Black/White

8

Technical Data

Cable Pin Diagram

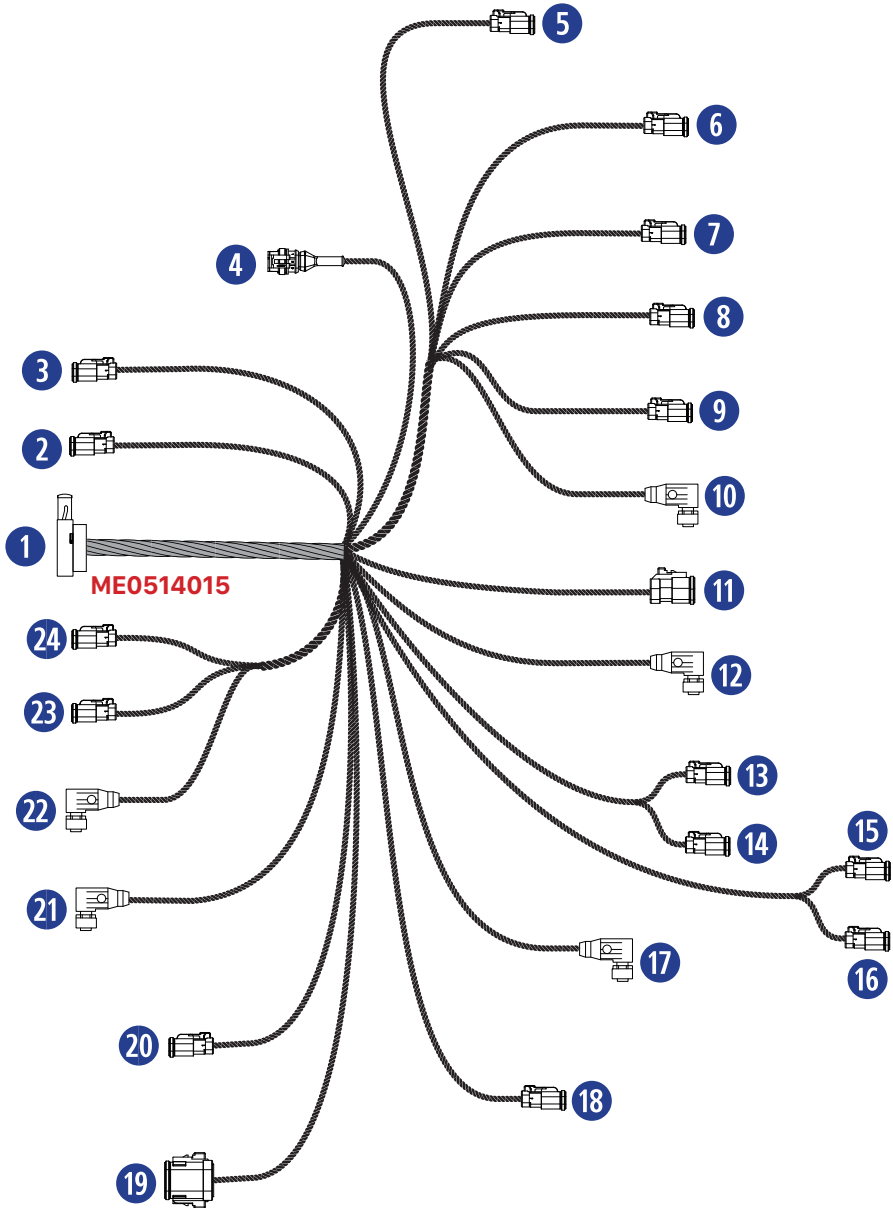
9

Encoder Hopper 1 - X6 ME0514014		
Cavity	Description	Wire Color
1	12v Electronic	Red/White
2		
3	0v Electronic	Black/White
4	Meter 1 Encoder	Tan
5	5v Electronic	Red/White

10

Encoder Hopper 2 - X7 ME0514014		
Cavity	Description	Wire Color
1	12v Electronic	Red/White
2		
3	0v Electronic	Black/White
4	Meter 2 Encoder	Tan
5	5v Electronic	Red/White

8.5 Fortifier Harness Diagram



8.6 Fortifier Cable Pin Diagrams

1

Main - X1		ME0514015
Cavity	Description	Wire Color
1	12v High Current	Red
2	Fan 2 Pressure Sensor	Tan
3	Fan 3 Encoder	Tan
4		
5	Aux Output 1	Grey
6		
7	Section W	Grey
8	Section X	Grey
9	Section Y	Grey
10	Section Z	Grey
11		
12		
13		
14	Aux Input	Tan
15	Fan 3 PWM	Grey
16	Work Position	Tan
17	Hyd Pressure Sensor	Tan
18	Fan 2 Pressure	Grey
19	Fan 1 PWM	Grey
20		
21	PWM Meter 1	Grey
22	PWM Meter 2	Grey
23	Fan 2 PWM	Grey
24		
25	Open Gate HS	Grey
26	Close Gate HS	Grey
27		
28		
29		
30	Fan 2 Encoder	Grey
31	Fan1 Pressure	Tan
32	12v Electronic	Red/White
33	0v Electronic	Black/White
34	Meter 1 Encoder	Tan
35	Meter 2 Encoder	Tan
36	Machine Speed	Tan
37	Fan 1 Encoder	Tan
38	Gate Sensor 1	Tan
39	Gate Sensor 2	Tan
40		
41		
42	0v High Current	Black

2

Section Z - X21		ME0514015
Cavity	Description	Wire Color
1	Section Z	Grey
2	0v High Current	Black

3

Section Y - X20		ME0514015
Cavity	Description	Wire Color
1	Section Y	Grey
2	0v High Current	Black

4

Ground Speed - X11		ME0514015
Cavity	Description	Wire Color
1	0v Electronic	Black/White
2	12v Electronic	Red/White
3	Machine Speed Signal	Tan

5

Hydraulic Alarm - X8		ME0514015
Cavity	Description	Wire Color
1	Hyd Pressure Sensor	Tan
2	0v Electronic	Black

6

PWM Meter 1 - X2		ME0514015
Cavity	Description	Wire Color
1	PWM Meter 1	Grey
2	0v High Current	Black

7

PWM Meter 2 - X3		ME0514015
Cavity	Description	Wire Color
1	PWM Meter 2	Grey
2	0v High Current	Black

8

Open Gate - X16		ME0514015
Cavity	Description	Wire Color
1	Open Gate HS	Grey
2	0v High Current	Black

9

Close Gate - X15		ME0514015
Cavity	Description	Wire Color
1	Close Gate HS	Grey
2	0v High Current	Black

10

Encoder Hopper 2 - X7		ME0514015
Cavity	Description	Wire Color
1	12v Electronic	Red/White
2		
3	0v Electronic	Black/White
4	Meter 2 Encoder	Tan

11

Fan Pressure Sensor - X17 ME0514015		
Cavity	Description	Wire Color
A	12v Electronic	Red/White
B	Fan Pressure Sensor	Tan
C	0v Electronic	Black/White

12

Encoder Hopper 1 - X6 ME0514015		
Cavity	Description	Wire Color
1	12v Electronic	Red/White
2		
3	0v Electronic	Black/White
4	Meter 2 Encoder	Tan

13

Section W - X25 ME0514015		
Cavity	Description	Wire Color
1	Section W	Grey
2	0v High Current	Black

14

Section X - X26 ME0514015		
Cavity	Description	Wire Color
1	Section X	Grey
2	0v High Current	Black

15

Section W - X27 ME0514015		
Cavity	Description	Wire Color
1	Section W	Grey
2	0v High Current	Black

16

Section X - X28 ME0514015		
Cavity	Description	Wire Color
1	Section X	Grey
2	0v High Current	Black

17

Bin 1 Gate - X12 ME0514015		
Cavity	Description	Wire Color
1	12v Electronic	Red/White
2	Gate Sensor 2	Tan
3	0v Electronic	Black/White

18

PWM Fan 1 - X29 ME0514015		
Cavity	Description	Wire Color
1	PWM Fan 1	Grey
2	0v High Current	Black

19

Aux - 18 ME0514015		
Cavity	Description	Wire Color
1	12v High Current	Red
2	Fan 1 Pressure	Tan
3	Fan 2 Pressure	Tan
4	12v Electronic	Red/White
5	0v Electronic	Black/White
6	Aux Input	Tan
7	Fan 2 Pressure	Tan
8	Fan 2 Encoder	Tan
9	Aux Output 1	Grey
10	Fan 3 PWM	Grey
11	Fan 2 PWM	Grey
12	0v High Current	Black

20

Imp Switch - X10 ME0514015		
Cavity	Description	Wire Color
1	Imp Switch	Tan
2	0v Electronic	Black

21

Encoder Fan 1 - X19 ME0514015		
Cavity	Description	Wire Color
1	12v Electronic	Red/White
2		
3	0v Electronic	Black/White
4	Fan1 Encoder	Tan

22

Bin 2 Gate - X13 ME0514015		
Cavity	Description	Wire Color
1	12v Electronic	Red/White
2	Gate Sensor 2	Tan
3	0v Electronic	Black/White

23

Section Z - X23 ME0514015		
Cavity	Description	Wire Color
1	Section Z	Grey
2	0v High Current	Black

24

Section Y - X22 ME0514015		
Cavity	Description	Wire Color
1	Section Y	Grey
2	0v High Current	Black

8.7 Troubleshooting Controller Issues

8.7.1 Gen II Troubleshooting

Symptom	Problem	Solution
Scale drops off/doesn't show up	Digistar VT does not show up on homepage	<p>Check Digistar ISO connection, the 6 pin Deutsch connector (18" whip out the bottom of the SL2140 ISO control box) for corrosion/damage/bad connection.</p> <p>Remove cover (4 screws) on the SL2140 ISO. On the right side there should be 4 blue LED on, and the 3 status LED on the left side should be off.</p> <p>Check system voltage, on Montag screen, under diagnostic button, under ECU, voltage should be 12.2V or greater.</p> <p>Check ISO Connector at tractor for corrosion/connection.</p> <p>Restart tractor, let screen power up for 20 sec before starting tractor.</p> <p>Verify all ISO connections are correct. Verify correct ISO terminations are in place.</p> <p>If using a monitor that requires a USB key for data, try a different USB key, or try removing it.</p>
Digistar VT good, not on Montag homepage	Scales not set up	Verify scale system setting is set to "Yes" on Montag VT.
Scales showing erratic readings	Possible bad Scale Link ISO node, j-box, or load cell	<p>Verify correct Digistar Cal # for both tanks are setup 115030 and cal 5333.</p> <p>Use GT 400 interactive troubleshooting guide and watch trouble shooting video under controller info tab on Montag website for troubleshooting diagnostics.</p> <p>If testing loadcell by tap test, if bad will jump 1-2 thousand.</p> <p>Look for areas of hang-up or binding.</p>
Calculated weight and actual weight off	Set-up incorrect	<p>In hopper screen equalize weights and recheck.</p> <p>Check cal factor correct, check density of the product with Density scale.</p> <p>Check # of rows and total implement width.</p> <p>Configure a new product and retry.</p> <p>Example set-up 200lb/ac, 5 mph, 65lb/ft³, 12 row, 30' total width, Cal factor .03, the auger speed should be 31 ± 1 RPM auger speed</p>
	Calibration factor off	<p>Do calibration test- either catch or no-catch test. No catch test calibration must be started with fan on and ended with fan on. Also start and stop test on level ground for scale accuracy.</p> <p>Verify no sheared couplers.</p> <p>Verify hydraulic motor drive shaft couplers are properly connected.</p>

Montag screen drops off/doesn't show up	Montag VT does not show up on home page	<p>Check ISO Connector at tractor for corrosion/connection. Restart tractor, let screen power up for 20 sec before starting tractor.</p> <p>Verify all ISO connections are correct. Verify correct ISO terminations are in place.</p> <p>If using a monitor that requires a USB key for data, try a different USB key, or try removing it.</p> <p>Make VT1 post monitor and VT2 Armrest (Deere only)</p> <p>Check Digistar ISO connection, the 6 pin Deutsch connector (18" whip out the bottom of the SL2140 ISO control box) for corrosion/damage/bad connection.</p>
Controller not working	Erratic and inconsistent results from controller	<p>Delete object pool on monitor.</p> <p>Check system voltage, on Montag screen, under diagnostic button, under ECU, voltage should be 12.2V or greater.</p>
Slide gate will not open	Slide gate will not function	<p>Make sure hydraulics are engaged.</p> <p>If in road mode, push road mode button to get to application mode</p> <p>Check slide gates from diagnostics screen.</p> <p>Verify solenoid and position sensor harness connections are good and harness is in good condition.</p>
	Slide gates open/close opposite controller	<p>Harness connections at coil are swapped. Switch red and green harness at coil on hydraulic block on Fortifier.</p>
No Product being delivered -All rows	Fan not turning	<p>Verify all tractor hydraulic couplers are fully engaged</p> <p>With tractor off and key removed, see if fan rotates by hand. If fan is not binding on housing, and does not rotate by hand, replace fan motor.</p> <p>Fan not calibrated or out of calibration. Calibrate per instructions in ISO Dry Rate Controller Operation Manual.</p>
	Fan air gauge pressure less than 12 inch H2O	<p>Fan rotation must be clockwise (CW) when viewed from the screen side of fan. If rotation is not CW, see Hydraulic Schematics in Montag manual and plumb as shown for your machine.</p> <p>If analog gauge reads correct, but digital transducer reads incorrect, calibrate air sensor following instructions in manual.</p> <p>Set gap between fan and shroud to 1/4 inch (6MM).</p> <p>Check gap between fan impeller and end of housing (.0625-.156").</p> <p>Check for any air leaks in plenum tray or air chambers or anywhere in system.</p>

	Augers turn wrong direction	Augers must turn CCW. Check hydraulic schematic and verify each hydraulic motor is in correct position. Check all augers and clean out system. Close slide gate and run meters in diagnostics mode. Check all augers for rotation and replace any sheared couplers. Clean out hoses and make sure air is coming out each hose at toolbar before starting to apply fertilizer.
	Auger(s) not turning	Confirm fan is running. Augers will only turn while fan is running. Confirm augers are not obstructed. Safely remove any obstructions by following instructions in section 9.9 in Montag manual. Check controller set-up is complete with correct product info (density, cal factor, rate, ground speed is registering. If using prescriptions, verify mapping is in correct format and entered correctly. Verify prescription icon is by rate on home screen, and a non-zero target rate is on display side. Verify sections are on and if using section control, be sure not located in an already applied area.
	Master switch/ work switch not set-up correctly	Follow instructions in manual for correct set-up. Work switch icon on status line will toggle on/off when toolbar is lowered/raised. When master is toggled on the off master icon on the meter will switch to augers and section boxes will become lit.
	Problem with encoder or PWM valve	Shut slide gate and run meters in diagnostic screen. If still does not run, set meters to 100% and check for 12 VDC at PWM valve. Look for harness damage. If augers turn but no RPM, check encoder harness for given tank. Test for 12 VDC on pins 1 & 3 of encoder harness. Remove plastic cap over encoder motor shaft to verify hydraulic flow at encoder motor. If 12VDC and motor turning replace sensor in motor. Follow replacement instructions. (Entire motor must be returned w/ speed sensor unadjusted if still under warranty)
	Controller not seeing speed	Check that controller is seeing speed and correct speed when machine is moving. Verify GPS and display is properly set-up and functioning.
No Fertilizer in 1 or more rows	Coupler(s) sheared/hoses plugged	Check all augers and clean out system. Close slide gate and run meters in diagnostics mode. Check all augers for rotation and replace any sheared couplers. Clean out hoses and make sure air coming out each hose at toolbar before starting to apply fertilizer.

	Product Bridging	With fan still running look at auger cartridge for bridging or obstruction which does not allow product to flow evenly. Shut off fan and then back on to see if issue persists. Air pressure may be too high Open/close slide gate Product too moist or has too many fines
Not holding rate	Alarm "Metering drive cannot maintain target rate"	Check for correct product info (density, cal factor, rate). Augers RPM should be between 5- 105 range. Verify correct ground speed. Adjust meter amplification factor. Add a new product with correct numbers. Clear object pool by following monitor manufacturers instructions. Power cycle controller Verify correct cal factor for that product for that meter. May need to increase ground speed if running too low of an auger speeds (under 10 RPM).
One tank not holding rate	Set-up incorrect Bad speed sensor cable	Check for correct product info (density, cal factor, rate). Shut slide gate and run meters in diagnostic, verify shaft RPM's for both tanks. Check all harnesses and harness connections to motor encoders and PWM valves. Power cycle controller/display.
Section Control not working	Sections turn off, but will not go back on	If running an Ag Leader, verify target rate entered on both Ag Leader and Montag. If section box gray with red X, then touch button again to shut off manual section button. If section box red with red X, then map or controller is turning section off. If in an already applied area, section will be red. Move to an area not applied yet, or shut off section control on display. If a prescription is loaded, move within map area. Verify look ahead and implement geometry settings are correct.
Mapping not working	Layers not set-up correctly	Contact monitor dealer for set-up instruction for 2 product application.
Rate is not correct	Using bin chaining	Follow instructions in controller operations manual. Total auger RPM must be under 130 RPM to prevent plugging.

8.7.2 Fortifier Troubleshooting

Symptom	Problem	Solution
Scale drops off/doesn't show up	Digistar VT does not show up on homepage	<p>Check Digistar ISO connection, the 6 pin Deutsch connector (18" whip out the bottom of the SL2140 ISO control box) for corrosion/damage/bad connection.</p> <p>Remove cover (4 screws) on the SL2140 ISO. On the right side there should be 4 blue LED on, and the 3 status LED on the left side should be off.</p> <p>Check system voltage, on Montag screen, under diagnostic button, under ECU, voltage should be 12.2V or greater.</p> <p>Check ISO Connector under Fortifier for corrosion/connection.</p> <p>Restart Hagie/Display.</p> <p>Verify all ISO connections are correct.</p> <p>If using a monitor that requires a USB key for data, try a different USB key, or try removing it.</p>
Digistar VT good, not on Montag homepage	Scales not set up	Verify scale system setting is set to "Yes" on Montag VT.
Scales showing erratic readings	Possible bad Scale Link ISO node, j-box, or load cell	<p>Verify correct Digistar Cal # for both tanks are setup 115030 and Cal 5333.</p> <p>Use GT 400 interactive troubleshooting guide and watch trouble shooting video under controller info tab on Montag website for troubleshooting diagnostics.</p>
Calculated weight and actual weight off	Set-up incorrect	<p>In hopper screen equalize weights and recheck.</p> <p>Check cal factor correct, check density of the product with Density scale.</p> <p>Check # of rows and total implement width.</p> <p>Configure as a new product and retry.</p> <p>Example set-up 30 lb./ac, 10 mph, 45lb/ft³, 12 row, 120' total width, Cal factor .036, the auger speed should be 45 ± 1 RPM auger speed</p>
	Calibration factor off	<p>Do calibration test- either catch or no-catch test.</p> <p>Verify no sheared couplers.</p> <p>Verify hydraulic motor drive shaft couplers are properly connected.</p> <p>No catch test calibration must be started with fan on and ended with fan on. Also start and stop test on level ground for scale accuracy.</p>

Montag screen drops off/doesn't show up	Montag VT does not show up on home page	<p>Check all ISO and power connectors under machine for corrosion/connection. Verify all ISO connections are correct. Restart machine/Display.</p> <p>If using a monitor that requires a USB key for data, try a different USB key, or try removing it.</p> <p>Check Digistar ISO connection, the 6 pin Deutsch connector (18" whip out the bottom of the SL2140 ISO control box) for corrosion/damage/bad connection.</p> <p>Remove liquid ECU from BUS. (JD2630)</p>
Controller not working	Erratic and inconsistent results from controller	<p>Delete object pool on monitor.</p> <p>Check system voltage, on Montag screen, under diagnostic button, under ECU, voltage should be 12.2V or greater.</p>
Slide gate will not open	Slide gate will not function	<p>Make sure hydraulic couplers are properly connected and fan is on.</p> <p>If in road mode, push road mode button to get to application mode</p> <p>Check slide gates from diagnostics screen.</p> <p>Verify solenoid and position sensor harness connections are good and harness is in good condition.</p> <p>Slide gates not calibrated or incorrect calibration. See calibration instructions in Controller Operation Manual.</p>
	Slide gates open/close opposite controller	<p>Harness connections at coil are swapped. Switch red and green harness at coil on hydraulic block on Fortifier.</p>
No Product being delivered -All rows	Fan not turning	<p>Verify all three hydraulic couplers are fully engaged</p> <p>With machine off and key removed, see if fan rotates by hand. If fan is not binding on housing, and does not rotate by hand, replace fan motor.</p> <p>Fan not calibrated or out of calibration. Calibrate per instructions in ISO Dry Rate Controller Operation Manual.</p>
	Fan air gauge pressure less than 12 inch H2O	<p>Fan rotation must be clockwise (CW) when viewed from the screen side of fan. If rotation is not CW, see Hydraulic Schematics in Montag manual and plumb as shown for your machine.</p> <p>If analog gauge reads correct, but digital transducer reads incorrect, calibrate air sensor following instructions in manual.</p> <p>Set gap between fan and pick-up bolts to 1/4 inch (6MM).</p> <p>Check gap between fan impeller and end of housing (.0625-.156").</p> <p>Check for any air leaks in plenum tray or air chambers or anywhere in system.</p>

	Augers turn wrong direction	Augers must turn CCW. Check hydraulic schematic and verify each hydraulic motor is in correct position. Check all augers and clean out system. Close slide gate and run meters in diagnostics mode. Check all augers for rotation and replace any sheared couplers. Clean out hoses and make sure air is coming out each hose at boom before starting to apply product.
	Auger(s) not turning	Confirm fan is running. Augers will only turn while fan is running. Confirm augers are not obstructed. Safely remove any obstructions by following clean-out instructions in section 9.9 in Montag manual. Check controller set-up is complete with correct product info (density, cal factor, rate, ground speed is registering. If using prescriptions, verify mapping is in correct format and entered correctly. Verify prescription icon is by rate on home screen, and a non-zero target rate is on display side. Verify sections are on and if using section control, be sure not located in an already applied area.
	Master switch not set up correctly	Follow instructions in controller manual for correct master switch set-up. When master is toggled on, the off master icon on the meter will switch to augers, section boxes will become lit, and boom section lights will switch on.
	Problem with encoder or PWM valve	Shut slide gate and run meters in diagnostic screen. If still does not run, set meters to 100% and check for 12 VDC at PWM valve. Look for harness damage. If augers turn but no RPM, check encoder harness for given tank. Test for 12 VDC on pins 1 & 3 of encoder harness. Remove plastic cap over encoder motor shaft to verify hydraulic flow at encoder motor. If 12VDC at harness and motor turning replace/adjust sensor in motor. Follow replacement instructions as not to void any current warranty.
	Controller not seeing speed	Check that controller is seeing speed and correct speed when machine is moving. Verify GPS and display is properly set-up and functioning.
No Fertilizer in 1 or more rows	Coupler(s) sheared/hoses plugged	Check all augers and clean out system. Close slide gate and run meters in diagnostics mode. Check all augers for rotation and replace any sheared couplers. Clean out hoses and make sure air coming out each hose at toolbar before starting to apply fertilizer. See instructions for calculated and actual weight off. If using bin chaining, verify set up correctly as directed in controller operation manual. Combined auger speeds should be less than 130 RPM.

	Product Bridging	With fan still running look at auger cartridge for bridging or obstruction which does not allow product to flow evenly. Shut off fan and then back on to see if issue persists. Air pressure may be too high Open/close slide gate Product too moist or has too many fines
Not holding rate	Alarm "Metering drive cannot maintain target rate"	Check for correct product info (density, cal factor, rate). Augers RPM should be between 5- 105 range. Verify correct ground speed. Adjust meter amplification factor. Add a new product with correct numbers. Clear object pool by following monitor manufacturers instructions. Power cycle controller/display. Verify correct cal factor for that product for that meter. May need to increase ground speed if running too low of an auger speeds (under 10 RPM).
One tank not holding rate	Set-up incorrect Bad speed sensor cable	Check for correct product info (density, cal factor, rate). Shut slide gate and run meters in diagnostic, verify shaft RPM's for both tanks. Check all harnesses and harness connections to motor encoders and PWM valves. Power cycle controller/display.
Section Control not working	Sections turn off, but will not go back on	If running an Ag Leader, verify target rate entered on both Ag Leader and Montag. If section box gray with red X, then touch button again to shut off manual section button. If section box red with red X, then map or controller is turning section off. If in an already applied area, section will be red. Move to an area not applied yet, or shut off section control on display. If a prescription is loaded, move within map area. Verify look ahead and implement geometry settings are correct.
Mapping not working	Layers not set-up correctly	Contact monitor dealer for set-up instruction for 2 product application.
Rate is not correct	Using bin chaining	Follow instructions in controller operations manual. Total auger RPM must be under 130 RPM to prevent plugging.

8.8 ISOBUS Strip Till/Air Cart Page Reference Guide

(Reference list originates from the Run Screen)



.....Settings screen Page 20

Select these options under Settings:



.....Hopper Settings Page 21



.....Set virtual weight equal to scale weight Page 23



.....Toggle between scale and virtual weight Page 23



.....Hopper 1 ON/OFF Page 21



.....Hopper 2 ON/OFF Page 21



.....Metering Drive Settings Page 24



.....No Catch Test Calibration Page 25



.....Weigh System Settings Page 31




.....Blockage System Settings Page 32




.....Fan Settings Page 32

Speed Signal Settings	Page 33
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Implement Speed Calibration	Page 35
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Configuration Settings	Page 37
--	-----------------------------	---------


Diagnostics Settings	Page 67
--	---------------------------	---------

From the Configuration Settings, you can navigate to the following screens:

Implement Configuration	Page 38
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Implement Speed Calibration	Page 35
---	----------------------------------	---------


Implement Geometry	Page 39
---	-------------------------	---------

Hopper Configuration (Set up an Associated Product)	Page 41
---	---	---------

Product Configuration	Page 51
--	----------------------------	---------

Product Database	Page 52
---	-----------------------	---------

Add a new Product	Page 52
---	------------------------	---------

Meter Calibration (Toggle between meter calibration factor for 2 Hoppers)	Page 52
---	--	---------



.....Metering Drive Configuration Page 48
(Choose a calibration method and set the Target Rate)



.....Shoot Configuration Page 41
(Set up the Sections, Rows, and Working Width)



.....Section Configuration Page 42



.....Fan Configuration Page 42
(Assign and calibrate an Associated Pressure Sensor)



.....Blockage Configuration Page 53
(Access information about installed modules)



.....Blockage Chaining Configuration Page 53
(Search for and detect modules)



.....Run Screen Configuration Page 45
(Customize Run Screen Feedback)



.....Hopper Information Configuration Page 46



.....Status Line Configuration Page 46



.....Bottom Area Configuration Page 47



.....Center Area Configuration Page 47



.....Profile Database Configuration Page 54
(Select and save new profiles)



.....Locked Area Page 54

(Unlocks additional features for Dealer and OEM only)

From the Diagnostics Settings, you can navigate to the following screens:



.....Implement Diagnostics Page 68



.....Hopper Diagnostics Page 68



.....Metering Drive Diagnostics Page 69



.....Gate Open Page 69



.....Gate Close Page 69



.....Section Diagnostics Page 70



.....Fan Diagnostics Page 68



.....Blockage Diagnostics Page 69



.....ECU Diagnostics Page 70

Additional features on the Run Screen:

.....Hydraulics

Page 19



.....Road Mode

Page 19



.....Gate Open

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.....Gate Close

Page 19



.....Results

Page 64



.....Trip Clear

Page 65



.....Season Clear

Page 65



.....Total Results

Page 66

