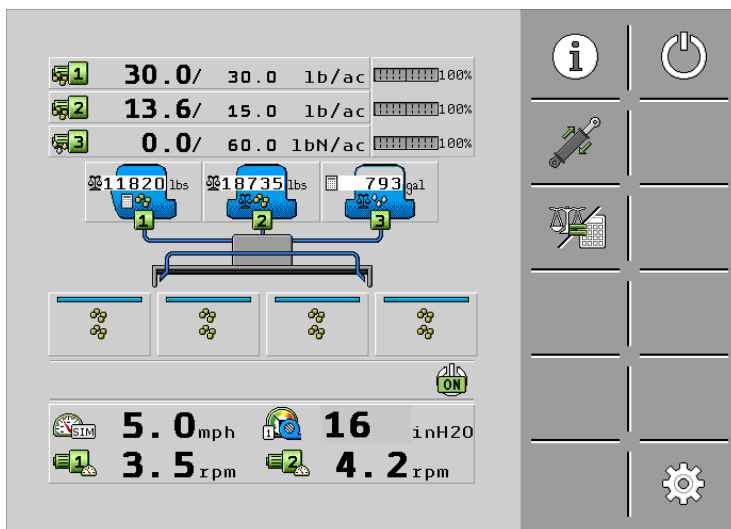




ISOBUS Dry Rate Controller Operation Manual



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SW Version 02.02.05.00

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.

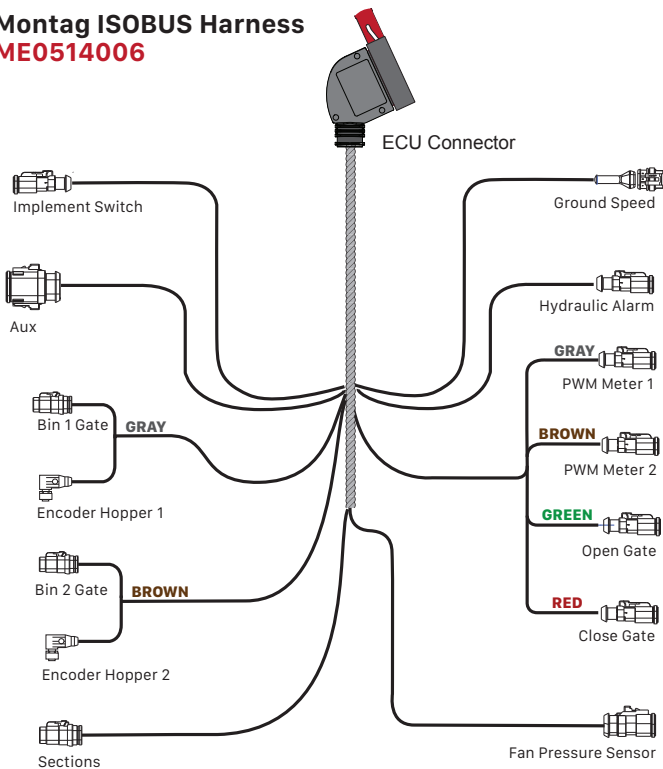
Among other things, the ECU can perform the following tasks:

- Monitoring of the metering shaft
- Starting the calibration using the calibration button
- Monitoring of the fan speed

2.2 System Overview

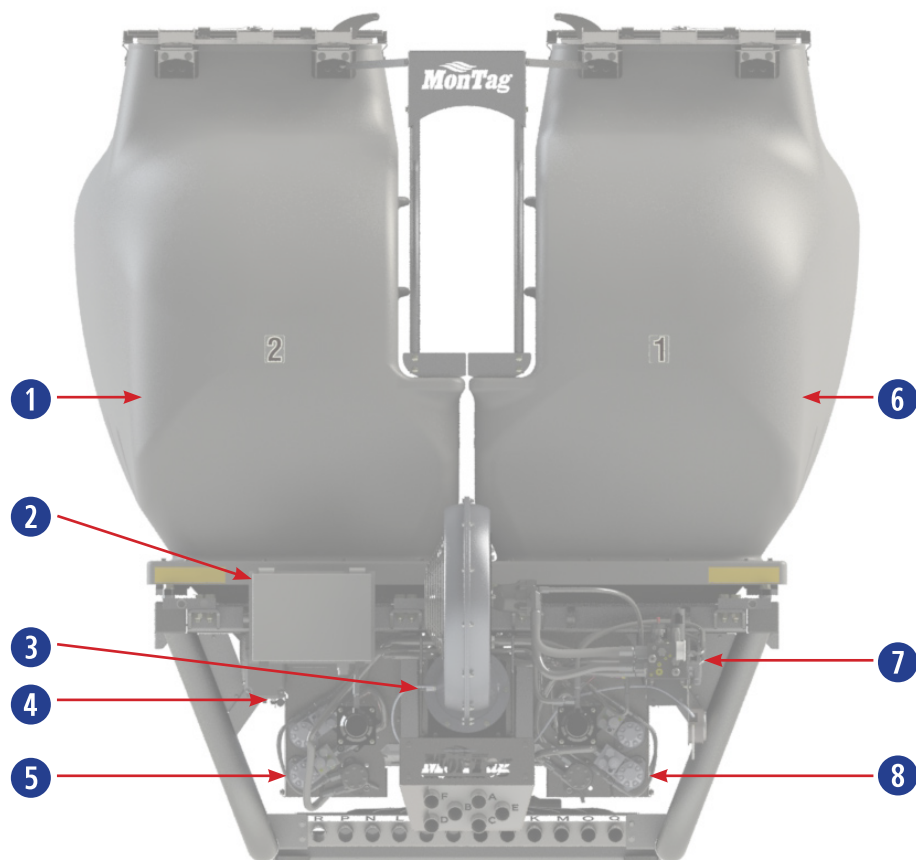
The image below shows the cabling diagram for the Dry Rate Control System.

Montag ISOBUS Harness ME0514006



Note: Liquid support requires a second ECU with the ECU Jumper Harness (ME0502053-02 or -15) and the Raven Generation 3 Harness (ME0512014). [[→ 95](#)]

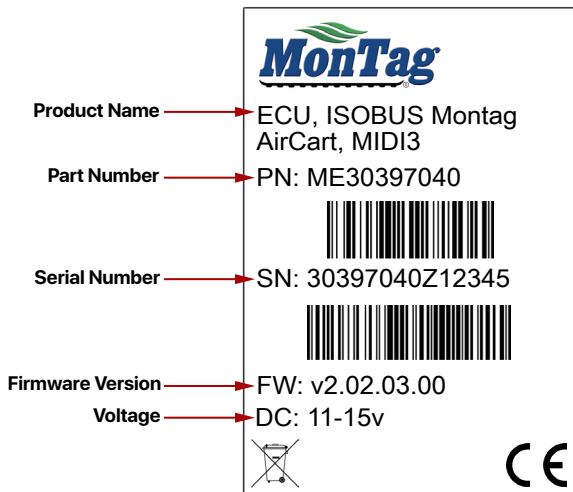
The following diagram shows how the Dry Rate Controller is structured:



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.

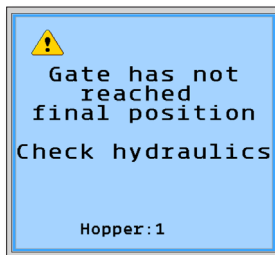
→ You have switched off the ECU.

4.3 Road Mode Feature

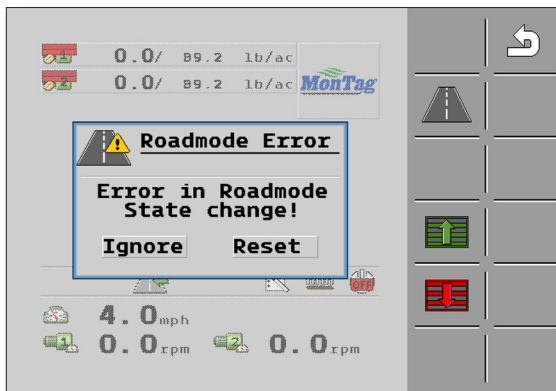
Road Mode should be used whenever you are transporting the air cart to and from the field. This status disables all application and puts the control system in a state for out of the field travel.

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

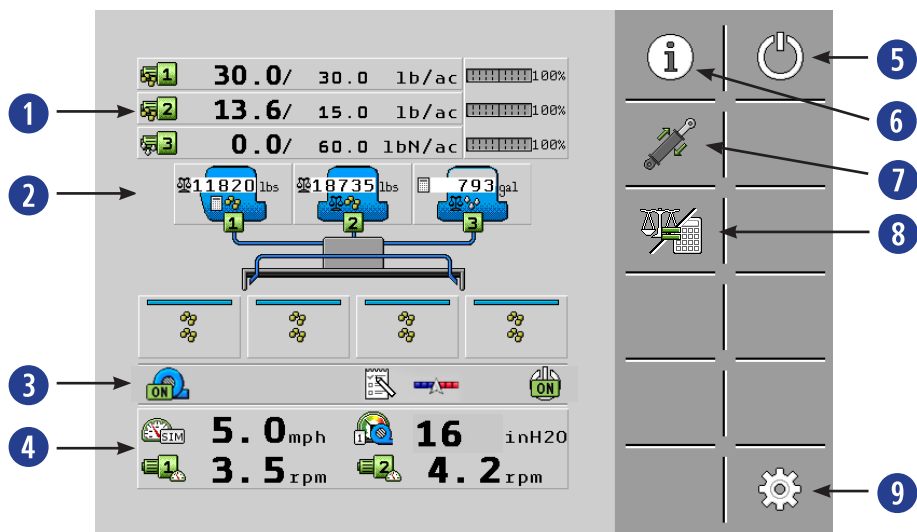
There are function icons that will advance you to the function screen desired. You can touch these (on a touch-screen) or press a function key beside the icon (on a non-touch display) to perform a function.

	<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.

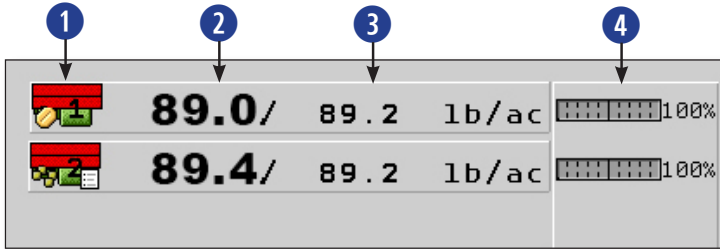
The Run Screen is divided into 9 areas.



1	Hopper Target/Actual Rates
2	Dry Rate Controller Display Area
3	Status Line
4	Visible Values
5	Master On/Off Softkey
6	Results Softkey
7	Hydraulics Softkey
8	Weight Equalizing Softkey
9	Settings Softkey

4.6.1 Hopper Target / Actual Rates

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

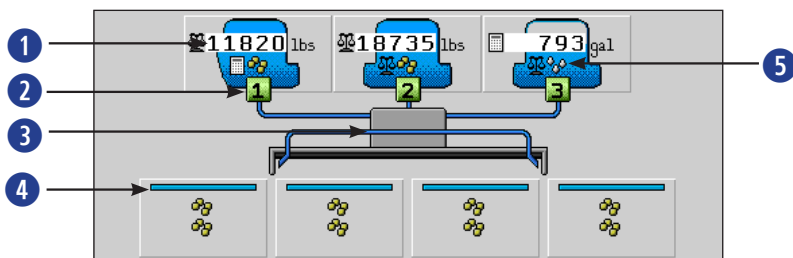


1	Metering Drive Number These icons indicate the number of drives that are setup in the system.	3	Target Rate This area will display the current Target Rate as set by operator.
2	Actual Rate This displays the actual As Applied rate	4	Delta Target Rate Level The bar graph provides feedback for the Delta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

Meter Drive Icons	Description
	Gate fully open with a solid granular product type assigned to the meter.
	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 with a seed product type assigned to the meter.

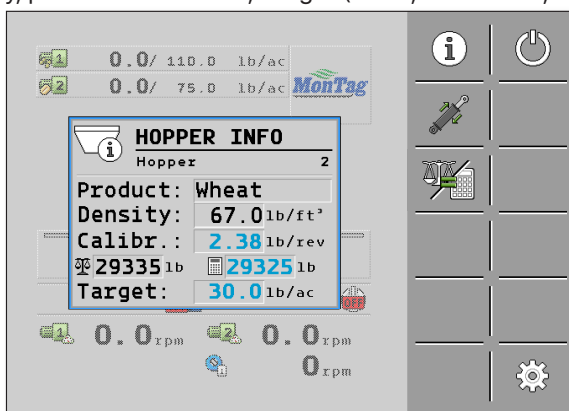
4.6.2 Dry Rate Controller Display Area

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

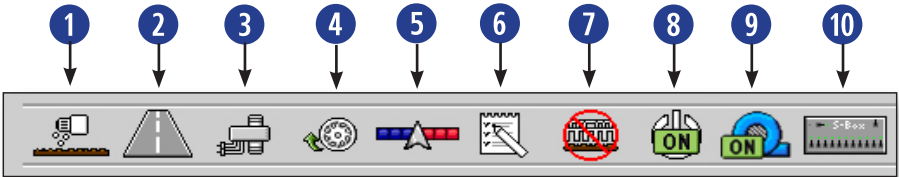
Each hopper can be pressed to show/edit detailed information. This feature works whether the Master is on or off. This information includes product name, product density, product calibration, weight (scale, if installed, and virtual), and target rate.



To set the virtual weight equal to the scale weight, press the weight equaling softkey . **Note that after filling the hoppers, the weights should be synced to allow proper weight/rate calculations** [→ 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. [→ 27]

4.6.3 Status Line

The following information is shown in this area.



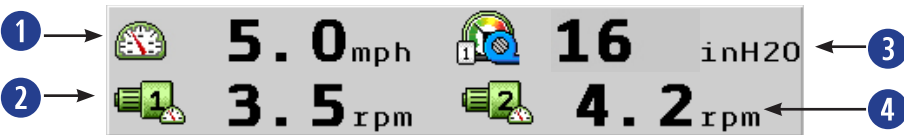
1	Active Calibration - displays when calibration is active (<i>when 'no catch test' is selected</i>)
2	Road Mode indicator - displays when the system is in Road Mode
3	Blockage System - displays icon when a row has blockage
4	Prime indicator - displays when the auger is being filled
5	Section Control 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

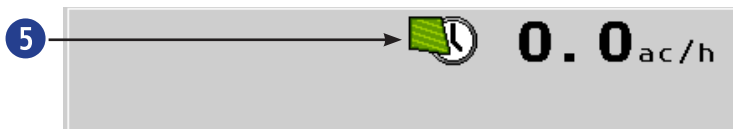
The following information is shown in this area.



4 Basic Control Principles

Visible Values

If you have more than 4 items setup in the Visible Values, you can press the visible values button shown previously to cycle through and see the additional items.

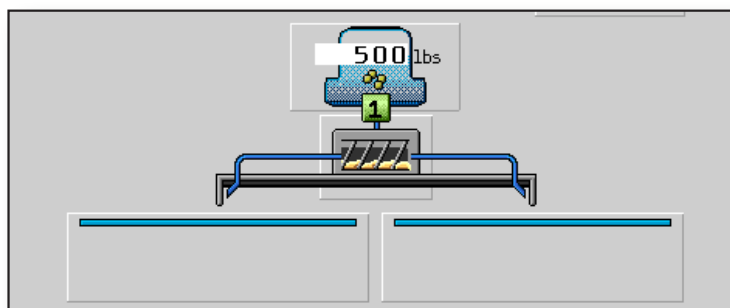


1	Speed Source and MPH
2	Auger 1 RPM
3	Fan Pressure
4	Auger 2 RPM
5	Acres per Hour

To configure the Dry Rate Controller Display area, Status Line, and Visible Values, refer to section **4.8.6 Run Screen Configuration** [→ 60].








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.



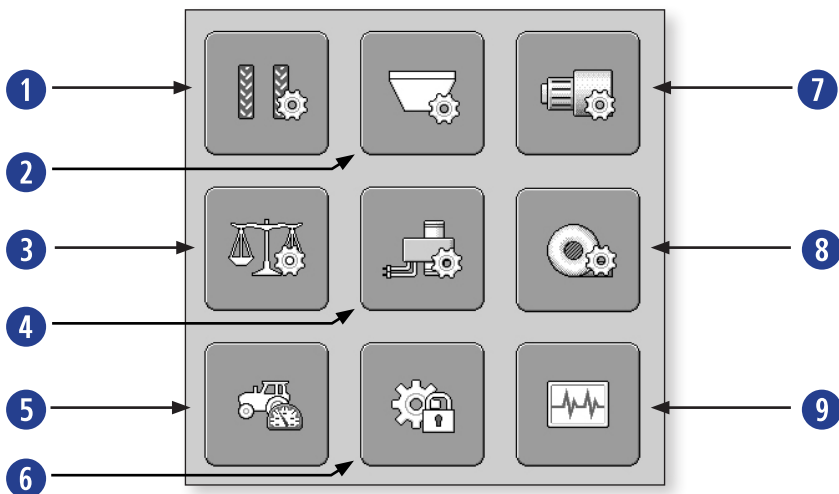
4.6.6 Function Buttons

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.
	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 [→ 23]. Pressing the icon will manually switch the bins (turn bin 1 off, turn bin 2 on, and vise 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.

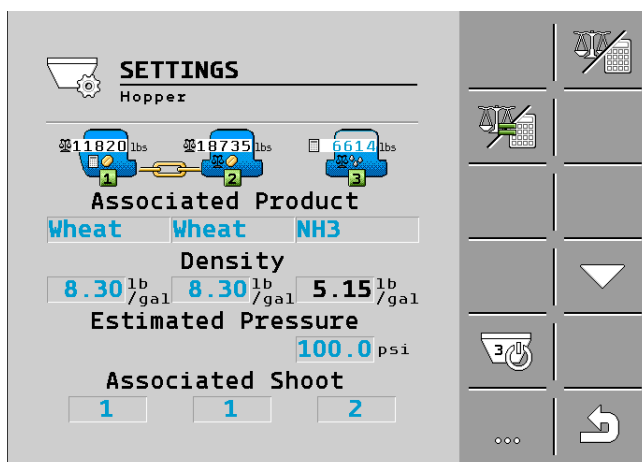


1	Tramline Settings	6	Configuration Settings
2	Hopper Settings	7	Metering Drives Settings
3	Weigh System Settings	8	Fan Configuration Settings (<i>not applicable at this time</i>)
4	Blockage System Settings	9	Diagnostics
5	Speed Source Settings		

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, tap the selectable area under Associated Product. Select the product from the pop-up menu and tap the checkmark or make the selection (dependent on the UT display) to save the selection. Selecting a product for a hopper will update the meter settings for the meter assigned to the hopper. To change or add a product to the menu, see the Product Configuration section. [→ 67]

Set Current Hopper Weight

The user can use a virtual hopper if the applicator is not equipped with a scale by touching the weight on the hopper and entering the current weight value. The weight set by the user will be decremented by the application rate applied. A weight is not required, but the virtual hopper weight will also trigger hopper changes for bin chaining and hopper level alarms.

Density / Estimated Pressure

These parameters will only appear when an ammonia product type is configured. Press the selectable area under Estimated Pressure to enter a hopper pressure in units of psi.

4 Basic Control Principles

Hopper Chaining

Associated Shoot (Distribution Channel)

To assign a shoot to each hopper, tap the selectable area under Associated Shoot. Select the number of the shoot from the pop-up menu to assign it to the hopper number listed above that number on the screen. Tap the check-mark to save the selection.

Associated Shoot		
1	1	2

Press the down arrow softkey to move to the next screen (when applicable) to configure a chained or succession hopper.



Hopper Chaining

This feature is used to link hoppers together and is sometimes referred to as *bin chaining*. This would apply when running a single product in multiple hoppers. The machine would then change from an empty hopper to a full hopper automatically while in working mode or empty the chained hoppers simultaneously.

The factory default for this option is set to Parallel. The Hopper Chaining Type can be changed with the OEM password in the locked section.

*(If chaining a bin, then both hoppers to be chained **must** have the same product assigned or the system will issue a warning. The screen will update and the user will only have one target rate for both hoppers. A visual chaining indicator will appear on the Run Screen for chaining as well. [→ 26])*

Note that chained hoppers require the same shoot.

Sequential Hopper Chaining

This option automatically changes metering from 1 hopper to metering from the next assigned hopper. This occurs once the Virtual Hopper Weight or Scale Weight reaches 5% of the set capacity of the hopper, or the system reaches the Low Level Threshold value that the user has configured.

If the applicator is equipped with hopper level sensors, the sequential bin chaining is triggered when the hopper level sensor indicates a low level in the hopper.

The Sequential Hopper Chaining will utilize the hopper level or weight method to trigger the change from hopper to hopper, which ever occurs first. To set this up, the operator would choose a hopper to be unloaded first then make the next hopper the succession hopper.

Tap the selectable area under Succession Hopper to link the hoppers. Select the hopper number from the pop-up menu and tap the green checkmark to save the selection. Notice the hoppers are now visually linked on the Run Screen, as well as in the Hopper Settings Screen.



The Succession Hopper Switch softkey appears on the Run Screen when the hopper succession is setup [→19]. Pressing the icon will manually switch the bins (turn bin 1 off, turn bin 2 on, and vice versa).



Parallel Hopper Chaining

The Parallel Hopper Chaining method will chain hoppers so that they will run together and empty at the same time. The amount of product ran from each hopper meter will be indicated by a percentage value visible in the Meter Settings screen. The percentage is based on the percentage of the total current weight in the hoppers. Both hopper meters will run to achieve a single target rate, but each meter will run at the percentage assigned based on the volume in each hopper. The meters assigned to these bins will all be set to the same rate. When hoppers are 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.

The operator can still adjust the percentage for this value, if needed, in the Meter screen. The % values will default based on the amount in the 2 hoppers - 5000 in hopper 2 and 1000 in hopper 1 - hopper capacity/total of 2 hoppers = % for each hopper - $5000/6000 = 83\%$ and 17% .

Tap the selectable area under Chained Hopper to link the hoppers. Select the hopper number from the pop-up menu and tap the green checkmark to save the selection.



When refilling chained hoppers, ensure to press the Parallel Chaining chaining softkey. This feature will come up with a ratio to empty both bins simultaneously.



4 Basic Control Principles



Hopper Settings

Hopper Enable/Disable

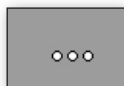
Tapping the Hopper On/Off softkey will stop the meters assigned to the hopper indicated.



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.

Press the three dots softkey to move to the next screen and set up these parameters for any additional hoppers that have been configured.



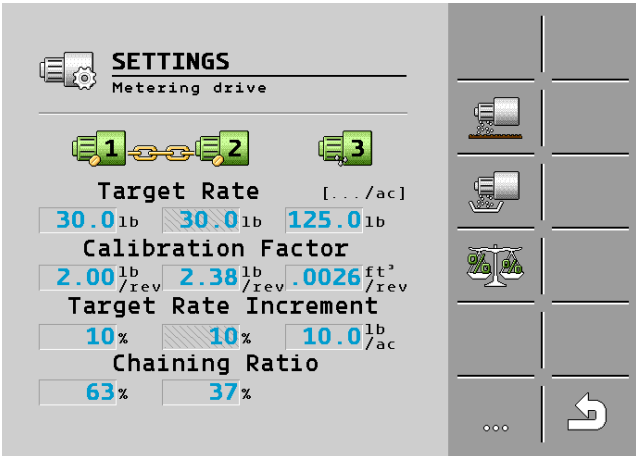
4.7.2 Metering Drive Settings

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.
Calibration Factor	Defines how much volume of product is applied per rotation of the metering shaft.
Target Rate Increment	Defines what percentage the target rate should be changed when you change it manually during the application.
Chaining Ratio	Defines the percentage of product being applied from each chained hopper. <i>The % values will default based on the amount in the 2 hoppers.</i>

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

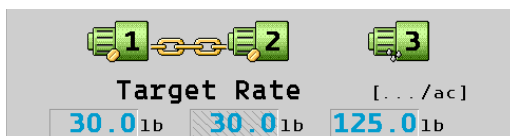


4 Basic Control Principles

Metering Drive Settings

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. *Different product types may have target rates in various units. Ensure the correct value is entered for the unit type.* **Note that when hoppers are chained together using Parallel Chaining, only one set of target rates is adjustable.** [→ 23] **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).

Metering Drive Calibration

To operate the machine accurately, the user must calibrate the product type to the hopper. In order to do this, the working width of the implement must be defined in the Shoot Configuration Screen [→55]; there is then 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 been calibrated. **Note that the type of meter calibration must be set up in the metering unit configuration screen [→64].**

Calibration Factor:

Some manufacturers provide a units/ revolution value for the type of meter installed or provide a method to calculate the initial Calibration factor using cubic feet as the unit of measure. **Refer to the Calibration Chart for calibration factors based on your machine type [→115].** Type in the Calibration Factor on the Metering Drive Settings screen. Tap the checkmark to save the selection.

Calibration Factor		
0.22 ^{lb} / _{rev}	362.6 ^{fl} / _{gal}	45.36 ^{fl oz} / _{rev}

Note: Each meter can have independent calibration types. The setup for each meter may vary. For example, a field run calibration can be used for meter 1 with catch test calibrations used for the remaining meters. Different Calibration softkeys will appear on the Metering Drive Settings screen for these scenarios. The four methods to conduct a Meter Calibration are Catch Test via Amount, Field Run, Catch Test via Acreage, & Catch Test via 1000ft.

Meter Calibration Softkeys:



This softkey will appear when the user has selected any of the catch test calibrations for a meter in the Metering Unit Configuration screens, and will take the user to the Calibration screen to select the meters they wish to perform a calibration on.



This softkey will appear when the user has selected a field run calibration type for a meter in the Metering Unit Configuration screens, and will take the user to the Calibration screen to perform the calibration on the meters that have been selected for a field run calibration type.

Field Run Calibration

Meter Calibration can also be done without doing a Catch Test if you are using a scale system. **This method is also used for an ammonia product type. Note that this type of calibration must be selected for each meter you wish to calibrate via the Field Run method. Ensure that you have selected the calibration type for each individual meter in the Metering Unit Configuration screen [→64]** 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 been 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. (This number may need to be adjusted by product or environment change [→115].)

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. (This number may need to be adjusted by product or environment change [→115].)

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 4.8.8.

Calibration Factor [... /rev]

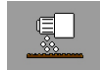
1.87

lb

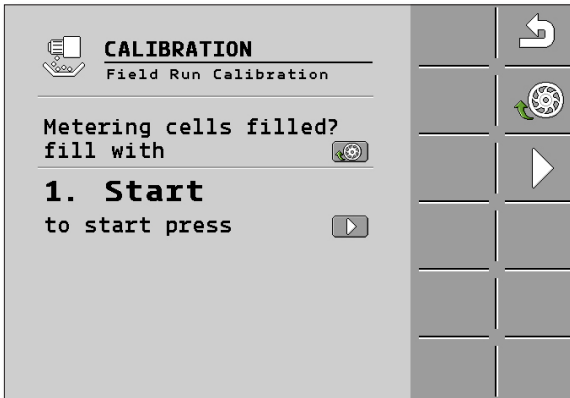
.0300

ft³

3. To begin the Hopper Calibration - Field Run process,
press the Metering Drive softkey.



→ 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.

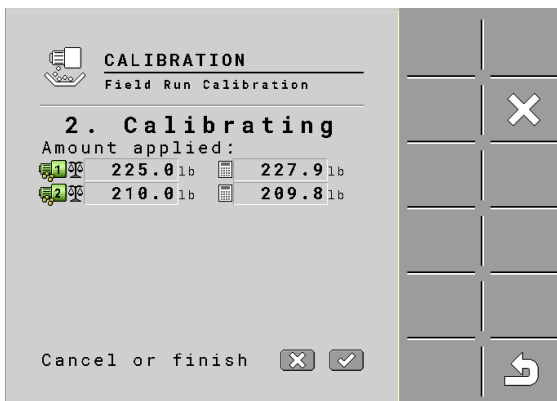


6. Make sure the vehicle is stationary and start the calibration by pressing the play icon.



5. Return to Run Screen. Start applying product in the field as normal. It is recommended to run 1,000 lbs.

6. Stop application of the product and stop the calibration on the implement. Shut-off hydraulics after the flow of product stops. Fan must remain running at the same pressure as calibration.



4 Basic Control Principles

Catch Test via Amount Calibration

7. Return to the Calibration. The Calibration 2 screen appears with a field for the applied amounts. During the Field Run Calibration the system will be reading the scale weights. Enter the actual amount of applied product (in pounds) for each meter that was ran during the calibration.

8. Press the checkmark to save the entered amount.



→ The Calibration 3 screen appears.

The screenshot shows the 'CALIBRATION' screen with the subtitle 'Field Run Calibration'. It displays '3. Results' with two rows of data. Each row has an 'Old' value and a 'New' value, followed by a unit 'ft³ / rev' and a green checkmark in a box. The first row shows '0.0381' for Old and '0.0376' for New. The second row shows '0.0381' for Old and '0.0382' for New. Below the data, it says 'Selection will be adopted!'. To the right of the screen is a vertical column of buttons, including a large 'X' button and a checkmark button.

9. Select the new calibration values for the meters that were apart of the calibration by pressing the white box next to that value to place a green checkmark next to the meter calibration value.

10. Tap the checkmark to save the selections.



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

Catch Test via Amount

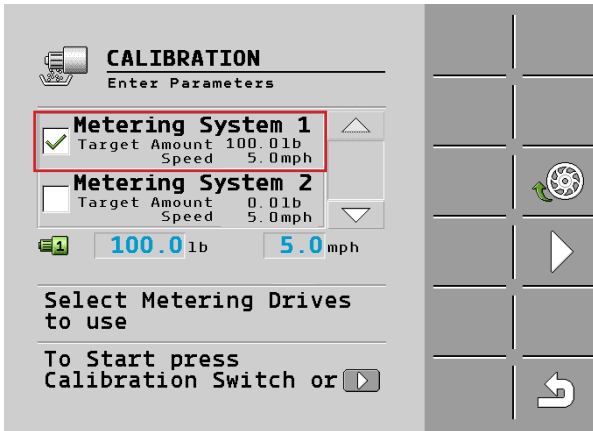
This method is initiated from the UT terminal. The user catches the volume discharged by the system based on the following settings:

- ☒ Enter the target volume that will be simulated.
- ☒ Enter the target speed.

1. To begin the Calibration process, tap the Metering Drive softkey.



→ The Calibration screen will be displayed.



2. Select the Metering Units you wish to calibrate by pressing the white box to place a green checkmark next to that metering system number. **Ensure that the Target Amount and Speed parameters are showing up in that box. Otherwise, another calibration option may have been selected.** Ensure that the correct meter number is shown on the green meter icon as well by pressing on the Metering System button.
3. The ECU calculates the minimum and the maximum speed at which the target rates are possible using the selected metering roll and Minimum and Maximum RPM settings for the meter driving device. Enter the speed into the display. In the amount input box, enter the pounds of product you wish to catch. Start hydraulics and set the operating hydraulic pressure by the fan RPM reading.
4. Prime the meter by filling the metering cells with product.



→ The meter turns for one (1) revolution based on current target speed and calibration factor and times out at 15 seconds. A flashing icon indicates that the prefill is in process.

5. Place a container (seed bag or bucket) under each discharge point. Make sure not to restrict air flow. Follow the manufacturer's recommendation to capture the output of the product during the calibration.

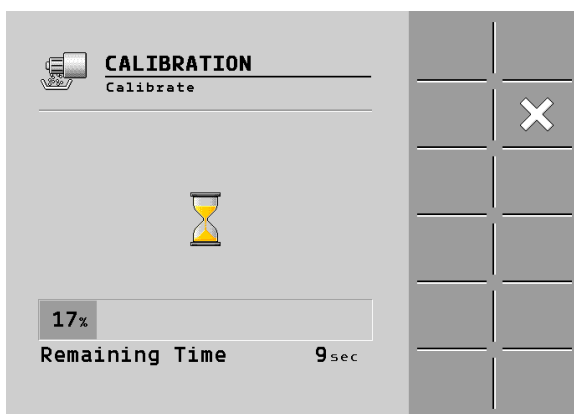


6. Start the calibration by tapping the play softkey.

4 Basic Control Principles

Catch Test via Acreage Calibration

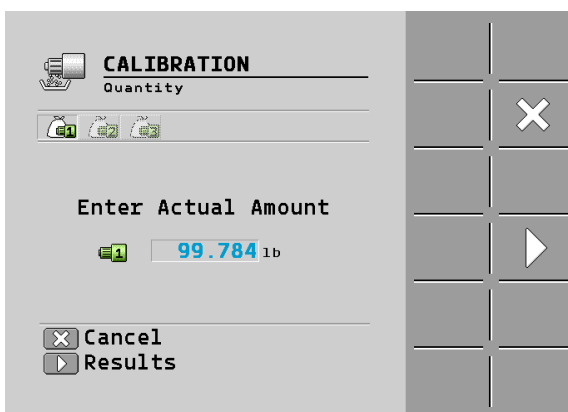
→ The Calibration 2 screen appears counting down the remaining time.



7. Wait until the required quantity has been applied. The ECU calculates a weight from the available data.

8. Stop the calibration on the implement. Shut-off hydraulics after the flow of product stops.

→ The Calibration 3 screen appears.



9. Weigh the product that was caught during the calibration if the product type was solid or seed.

10. Enter the weight in the lb. field. Use the meter buttons at the top of the screen to cycle through all other meters that were also calibrated during this process.



Enter the Actual Amount of product measured for those meters during the test as well.

→ The ECU calculates the deviation in percent between the calculated and the weighed value (*if a scale system is being utilized*).

→ The Calibration 4 screen appears.

11. The meter speed range will be displayed, in addition to the new Calibration Factor. Use the meter buttons at the top of the screen to cycle through the new calibration factors for all other meters that were also calibrated during this process.



12. Tap the checkmark on each meter screen to save the selections.

→ The ECU updates the current meter calibration factor settings for the meter that was calibrated.

Catch Test via Acreage

This method is initiated from the UT terminal. The user catches the volume discharged by the system based on the following settings:

☑ Enter the acreage to cover.

☑ Enter the target speed.

1. To begin the Calibration process, tap the Metering Drive softkey.



→ The Calibration screen will be displayed.

2. Select the Metering Unit Number you wish to calibrate by pressing the white box to place a green checkmark next to that metering system number. **Ensure that the Acreage and Speed parameters are showing up in that box. Otherwise, another calibration option may have been selected.** Ensure that the correct meter number is shown on the green meter icon as well by pressing on the Metering System button.
3. The ECU calculates the minimum and the maximum speed at which the target rates are possible using the selected metering roll and Minimum and Maximum RPM settings for the meter driving device. Enter the speed into the display. In the acreage input box, enter the amount of acres you will be covering.
4. Prime the meter by filling the metering cells with product.



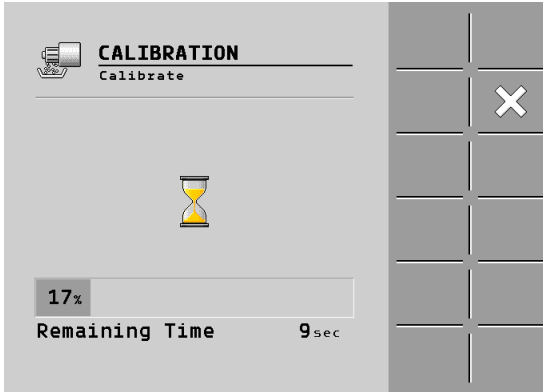
→ The meter turns for one (1) revolution based on current target speed and calibration factor and times out at 15 seconds. A flashing icon indicates that the prefill is in process.

5. Place a container (seed bag or bucket) under each discharge point. Make sure not to restrict air flow. Follow the manufacturer's recommendation to capture the output of the product during the calibration.

6. Start the calibration by tapping the play softkey.



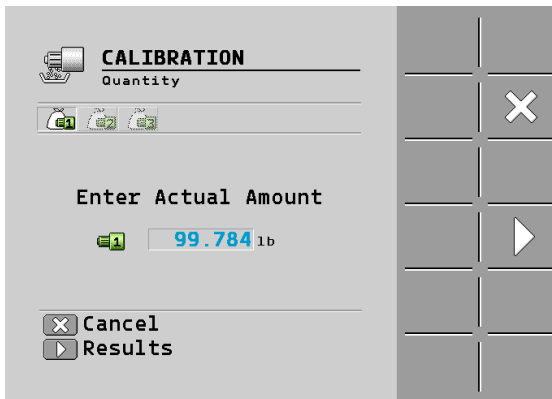
→ The Calibration 2 screen appears counting down the remaining time.



7. Wait until the required quantity has been applied. The ECU calculates a weight from the available data.

8. Stop the calibration on the implement. Shut-off hydraulics after the flow of product stops.

→ The Calibration 3 screen appears.



4 Basic Control Principles

Catch Test via 1000ft. Calibration

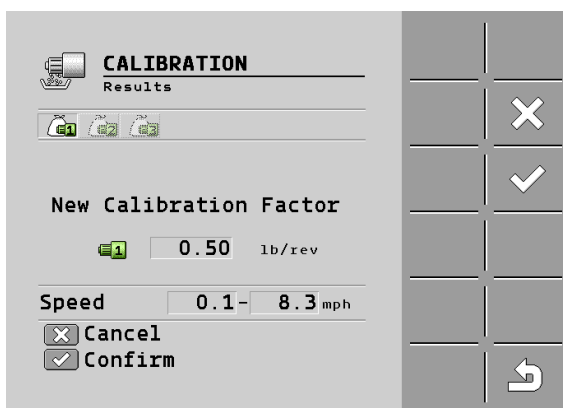
9. The amount the system thought it applied will appear. Weigh the product and enter the actual amount of product (in pounds) that was caught during the calibration. **Use the meter buttons at the top of the screen to cycle through all other meters that were also calibrated during this process.**



Enter the Actual Amount of product measured for those meters during the test as well.

(The ECU calculates the deviation in percent between the calculated and the entered value.)

→ The Calibration 4 screen appears.



11. The meter speed range will be displayed, in addition to the new Calibration Factor. **Use the meter buttons at the top of the screen to cycle through the new calibration factors for all other meters that were also calibrated during this process.**



12. Tap the checkmark on each meter screen to save the selections.

→ The ECU updates the current meter calibration factor settings for the meters that were calibrated.

Catch Test via 1000 ft.

This method is initiated from the UT terminal. The user catches the volume discharged by the system within 1000 feet based on the following settings:

- ☒ Enter the target speed.

1. To begin the Calibration process, tap the Metering Drive softkey.



- The Calibration screen will be displayed.

2. Select the Metering Unit Number you wish to calibrate by pressing the white box to place a green checkmark next to that metering system number. **Ensure that only the Speed parameter is showing up to the right of the green meter icon. Otherwise, another calibration option may have been selected.** Ensure that the correct meter number is shown on the green meter icon as well by pressing on the Metering System button.
3. The ECU calculates the minimum and the maximum speed at which the target rates are possible using the selected metering roll and Minimum and Maximum RPM settings for the meter driving device. Enter the speed into the display. *[The acreage should already be set to 1.00 acre (or 1000 feet)]*
4. Prime the meter by filling the metering cells with product.



- The meter turns for one (1) revolution based on current target speed and calibration factor and times out at 15 seconds. A flashing icon indicates that the prefill is in process.

4 Basic Control Principles

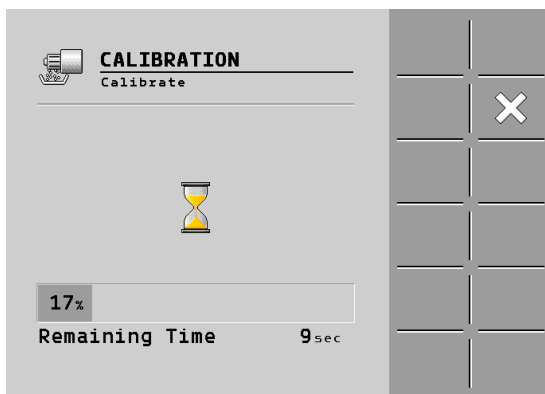
Field Run Calibration

5. Place a container (seed bag or bucket) under each discharge point. Make sure not to restrict air flow. Follow the manufacturer's recommendation to capture the output of the product during the calibration.

6. Start the calibration by tapping the play softkey.



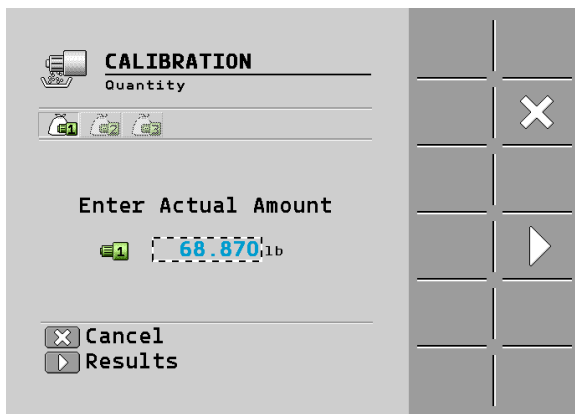
→ The Calibration 2 screen appears counting down the remaining time.



7. Wait until the required quantity has been applied. The ECU calculates a weight from the available data.

8. Stop the calibration on the implement. Shut-off hydraulics after the flow of product stops.

→ The Calibration 3 screen appears.



9. The amount the system thought it applied will appear. Weigh the product and enter the actual amount of product (in pounds) that was caught during the calibration. **Use the meter buttons at the top of the screen to cycle through all other meters that were also calibrated during this process.**



Enter the Actual Amount of product measured for those meters during the test as well.

- The ECU calculates the deviation in percent between the calculated and the entered value.

- The Calibration 4 screen appears.

CALIBRATION
Results

New Calibration Factor
0.50 lb/rev

Speed 0.1 - 8.3 mph

☐ Cancel
☒ Confirm

10. The meter speed range will be displayed, in addition to the new Calibration Factor. **Use the meter buttons at the top of the screen to cycle through the new calibration factors for all other meters that were also calibrated during this process.**



11. Tap the checkmark to save the selection.

- The ECU updates the current meter calibration factor settings for the meter that was calibrated.

Target Rate Increment

The Target Rate Increment is the percentage or amount of adjustment you want to make to the Target Rate. This can be done using the Delta Rate Softkeys. This option is set up in the Product Configuration in the product database, setting the numeric amount of the rate change and the units.

[→ 68] To choose or change the Target Rate Increment, tap the selectable area under Target Rate Increment. Type in the percentage of change you want to be made with each button press on the Run Screen [→ 78]. Tap the checkmark to save the selection.

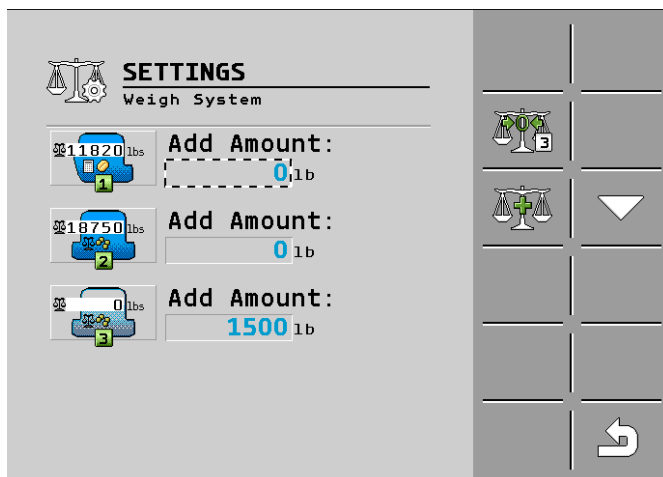
Target Rate Increment					
<input type="text" value="10"/>	%	<input type="text" value="2.0"/>	gal /ac	<input type="text" value="2.00"/>	fl oz /ac

4.7.3 Weigh System Settings

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

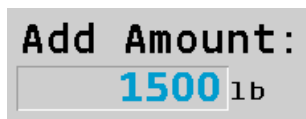


→ The Weigh System screen will be displayed.

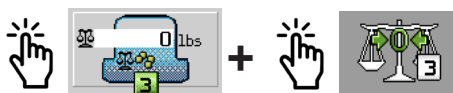


If a scale system is installed on the implement, use this procedure for the filling sequence:

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



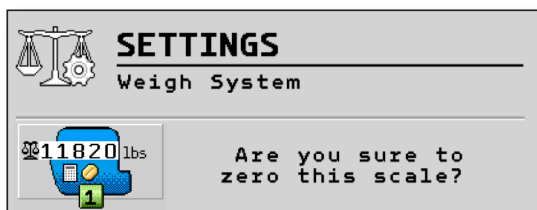
2. Press the press Hopper icon. Press the Add Hopper Weight icon.



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

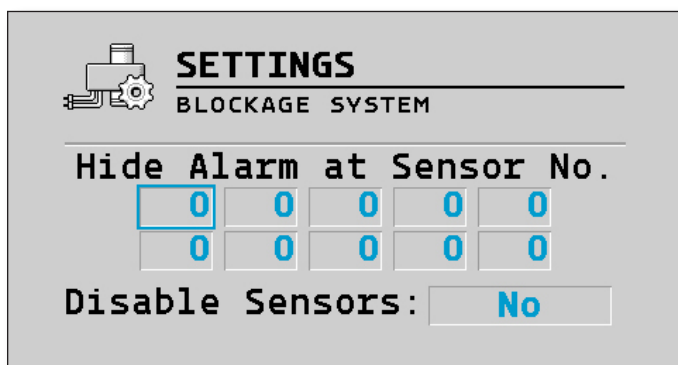


To reset the scale weight, select the hopper. Press the Clear Hopper Weight icon, and you will be prompted to verify you want to zero the scale value. Press the checkmark to confirm. Press the X to cancel.



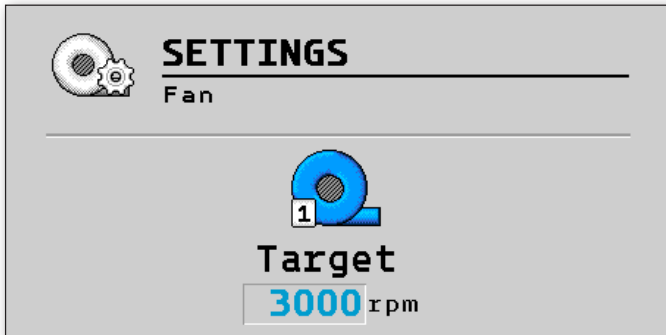
4.7.4 Blockage System Settings

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 (*when a Fortifier profile has been selected*). 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.



- The Speed Calibration screen appears:



SETTINGS

Speed



Simulation mph ☐

Tractor:

Ground mph ☒

Implement mph ☐

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.



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.



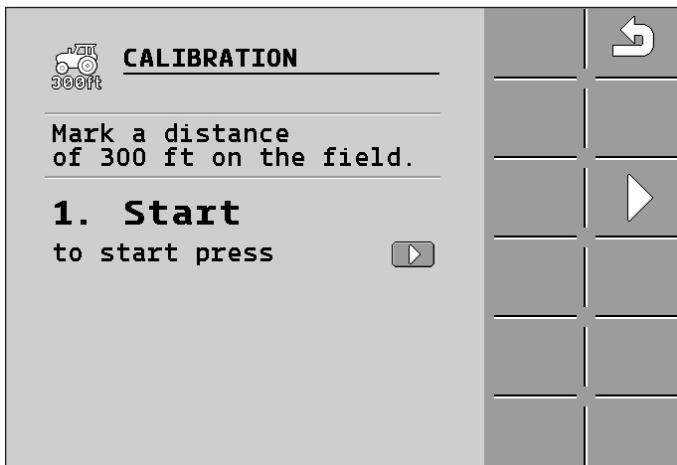
Implement Speed

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.



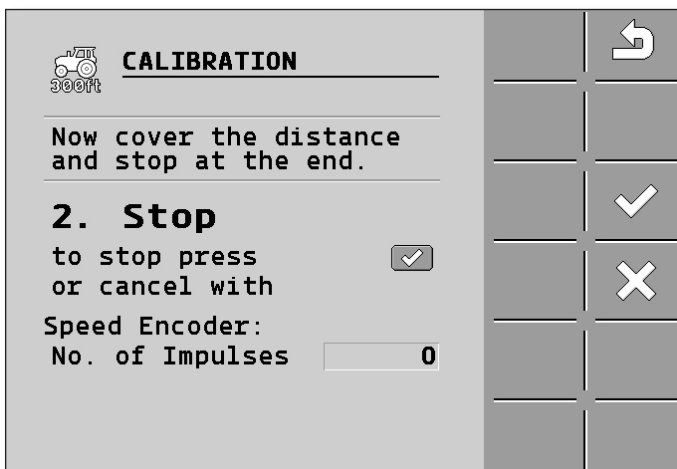
→ The following screen appears:



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



→ The following screen appears:



5. Verify you have stopped at 300 ft.

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



7. Enter the number of pulses.

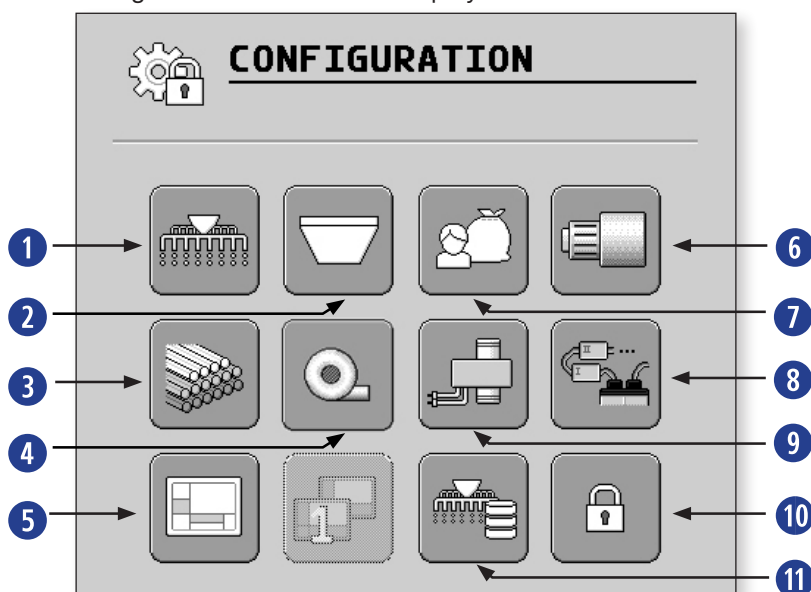
4.8 Configuration Settings

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		

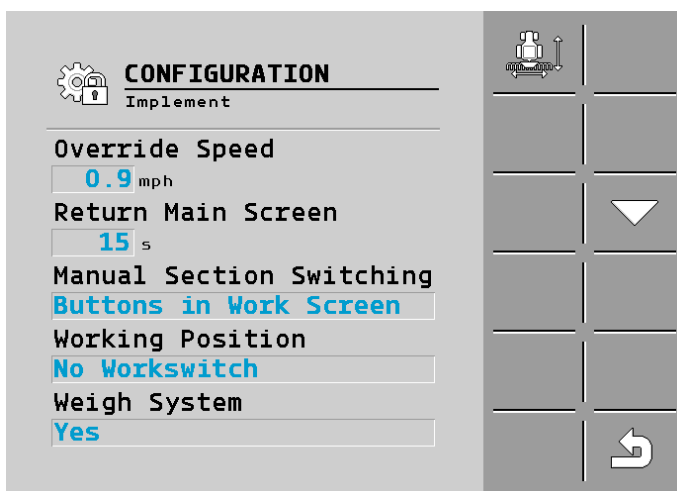
4.8.1 Implement Configuration

Implement Configuration allows you to configure the Override Speed, Return Main Screen time, Manual Section Switching, Working Position, Weigh System, External Master Switch, and Device Class.

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.



Override Speed

The minimum controlled application point. At this speed, the rate will not go lower to prevent the system from reaching a level too slow to maintain.

Return Main Screen

Amount of time the system will take to default back to the main Run Screen when the system is applying.

Manual Section Switching

User can choose to have manual section switching buttons appear on the work screen, or select "No" to disable this feature.

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

Weigh System

The Weigh System selection allows the application to support Digistar ISOLink scales for hoppers. The default setting for the weigh system is set to "no". The Weigh System is an optional feature, and can be enabled by choosing "yes" in the pop-up menu.

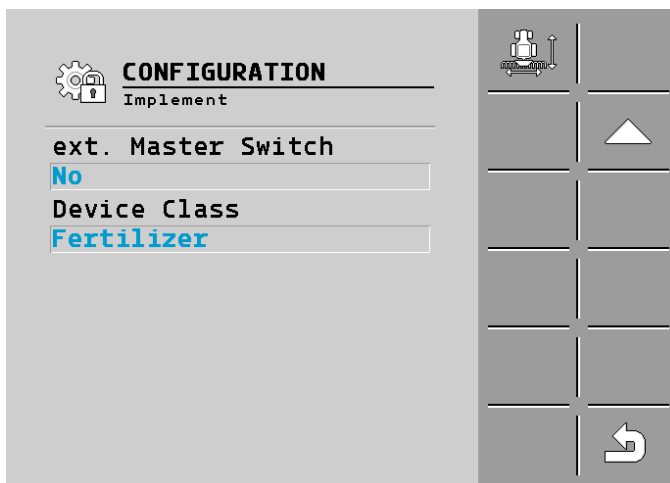
Next, tap the down arrow:



4 Basic Control Principles

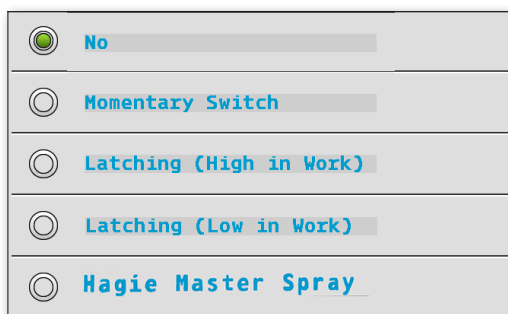
Implement Configuration

→ The Configuration 2 screen appears:



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.



Device Class

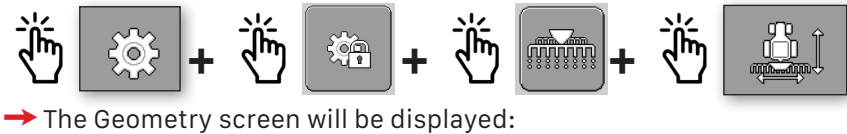
The user can select a Seeder/Planter or Fertilizer Device Class for the chosen application.

4.8.2 Implement Geometry

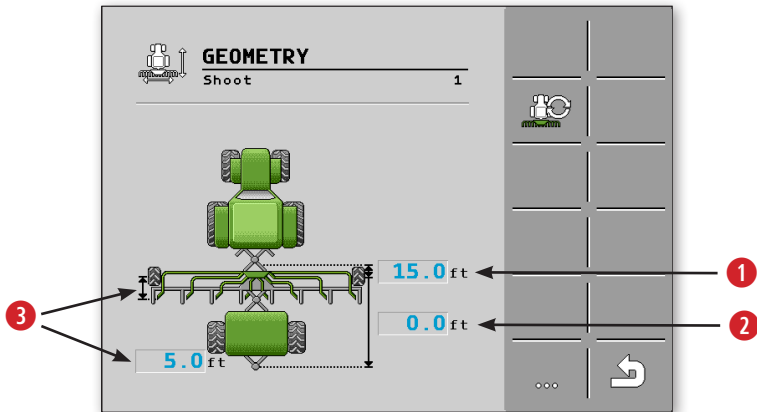
The geometry of an agricultural implement is defined as a series of parameters describing its dimensions. It is important particularly for all systems that are GPS-controlled. The distance you enter depends on whether the implement is towed, mounted on the tractor, or self-propelled.

You must enter the distances for the boom and for the connectors. In doing so, ensure that the center point of the implement axle or pivot point is always the point of origin for all distances. Measurements towards the front are always negative, and measurements towards the rear are always positive. Using the application screen, the positive or negative offset values are handled for the user, and are not needed to setup the shoot geometry.

To access the Implement Geometry from the Run Screen, tap the Settings softkey. Tap the Configuration button. Tap the Implement button. Tap the Geometry softkey.



→ The Geometry screen will be displayed:



To enter the dimensions for your implement, tap the selectable areas on the Geometry screen. Enter a new value and tap the checkmark to save the selection.

1	The distance in feet from the hitch-to-implement axle or the pivot point.
2	The distance in feet from the implement axle to the second connection point <i>in the event that another application is attached</i> . This is set to default as a single connector. (If second connector is not configured, contact your Dealer)
3	Location of the application point in relationship to the implement axle or pivot point, depending on the machine setup selected the values are reported to the Task Controller Section Control module with correct + or - values.

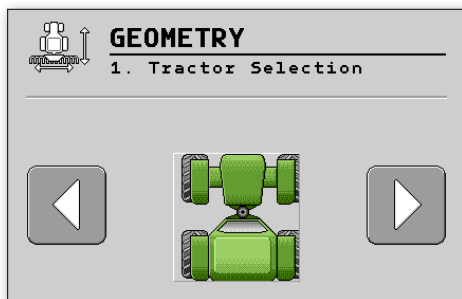
4 Basic Control Principles

Implement Geometry

To select a different implement setup than what is pictured, tap the Geometry Option softkey.

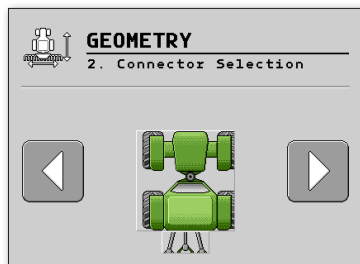


1. Use the left/right arrows to scroll through the tractor selection options.

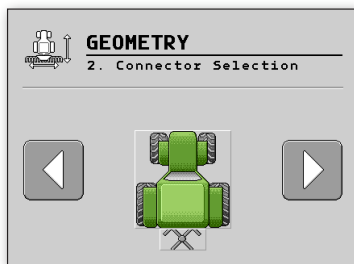


2. Once the correct tractor is visible on the screen, save the selection by tapping on the tractor button.

→ The Connector Selection screen will appear.



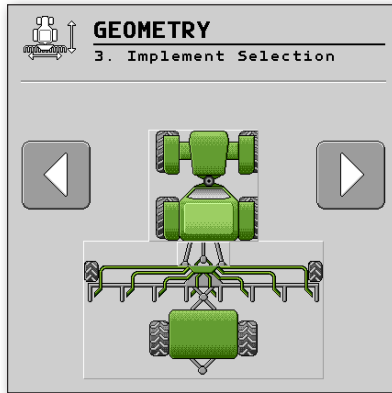
3-Point Hitch



Drawbar Hitch

3. Use the left/right arrows to scroll through the connector selection options. Once the correct connector is visible on the screen, save the selection by tapping on the connector button.

→ The Implement Selection screen will appear.



4. Use the left/right arrows to scroll through the Implement Selection options. Once the correct implement configuration is visible on the screen, save the selection by tapping on the implement button. This will cycle back to the main geometry screen.

5. Tap the softkey with three dots to move to the next shoot.



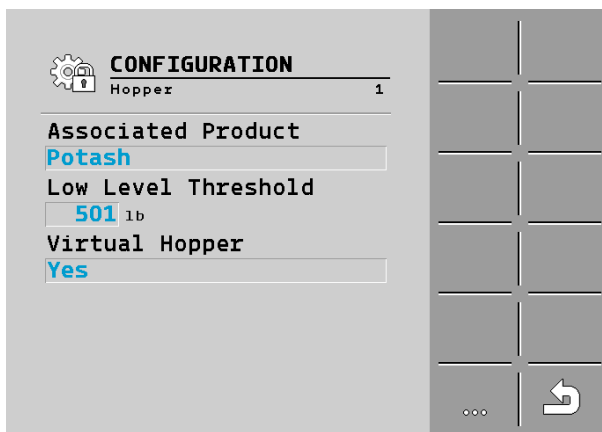
4.8.3 Hopper Configuration

Hopper Configuration allows you to set the Associated Product, Low Level Threshold, and Virtual Hopper for a hopper.

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.

Low Level Threshold

The lowest amount of product the hopper can reach before the system issues an alarm. Also used in sequential bin chaining to switch from one hopper to the next when this low level threshold is reached.

Virtual Hopper

The Virtual Hopper gives an approximate weight of product in 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.



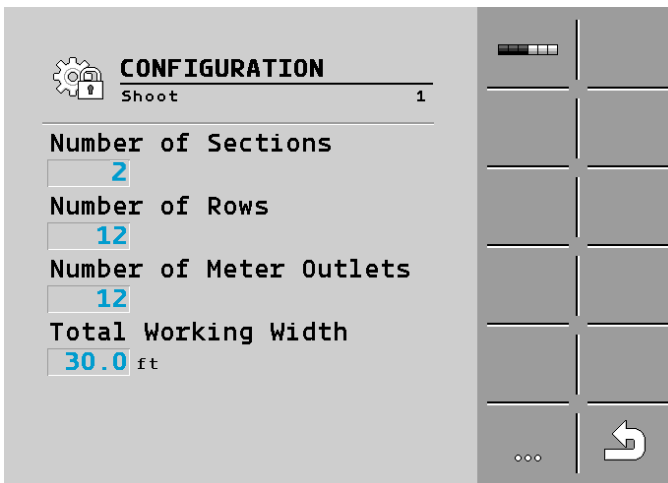
4.8.4 Shoot Configuration

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

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



→ The Configuration screen will be displayed.



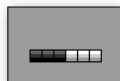
To make changes to the Shoot Configuration, press the selectable area under each parameter. Type the new value into the pop-up screen. Press the checkmark to save your selection.

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

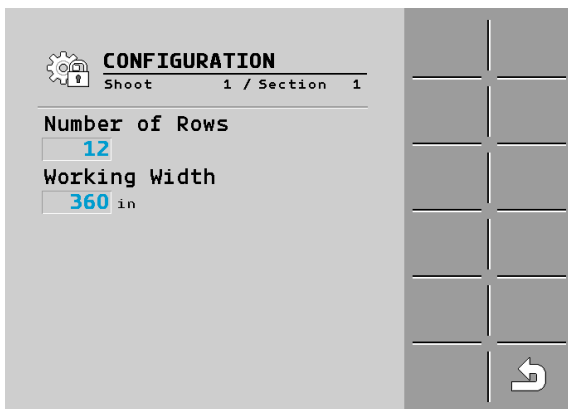


Section Configuration

1. To configure the Sections, tap the Section softkey.



→ The Section Configuration screen will appear:



2. Enter values for each option by tapping the selectable area under each option, entering a new value in the pop-up menu, and tapping the checkmark to save the selection.

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



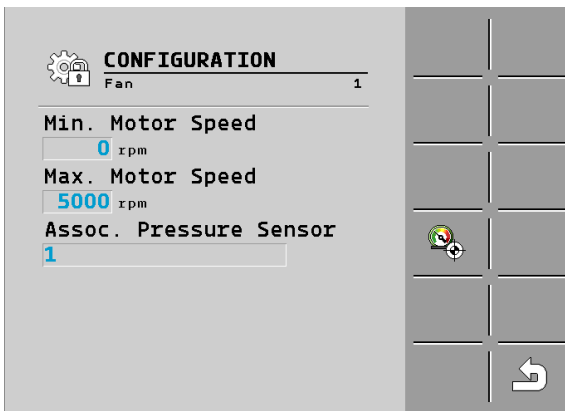
4.8.5 Fan Configuration

The Fan Configuration settings allow a minimum/maximum motor speed to be set, and a pressure sensor to be setup for the fan.

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.



Min./Max. Motor Speed

Allows for manual setting of the minimum and maximum motor speed. This sets the alarm limits for initiating popup warnings.

Assoc. Pressure Sensor

Allows the user to choose which pressure sensor is associated with the fan. Select "1" for the main fan.

Pressure Sensor Calibration

Tap the Calibration softkey on the Pressure Sensor Configuration screen to calibrate the pressure sensor. ***Ensure the correct pressure sensor number is selected before performing the calibration.***



This softkey will not be visible if the Associated Pressure Sensor option is set to No.

4 Basic Control Principles

Fan Pressure Sensor Configuration

→ The Configuration 1 screen will be displayed.

CONFIGURATION

Pressure Sensor	1
Fan	1

Pressure Alarm Limits

Min: inH2O Max: inH2O

Current Sensor Calibration Values

Offset: mA

Slope: inH2O/mA

1. Start Calibration
to start press

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.



→ The Configuration 2 screen will be displayed.

CONFIGURATION

Pressure Sensor	1
Fan	1

2. Calibration

Zero Point Calibration

Power on System without Fan Speed.
Verify Gauge Read Out is 0.
Press ☒ to Advance ☒ to Cancel

Set Zero Value mA

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 a control interface for fan pressure sensor configuration. At the top, a 'CONFIGURATION' header is followed by a status table:

Pressure Sensor	1
Fan	1

Below this is the section '3. Calibration' with the subtitle 'Operation Point'. The instructions read: 'Run System at Operation Setpoint. Enter Gauge Value in Current Pressure. Press [checkmark] to Advance [X] to Cancel'. There are two input fields: 'Set Op. Value' with a value of '20.0' and unit 'inH2O', and 'Input Value' with a value of '5.54' and unit 'mA'. To the right of the screen is a vertical column of buttons: a checkmark, an 'X', and a back arrow at the bottom.

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.

→ The values are updated and the calibration is complete.

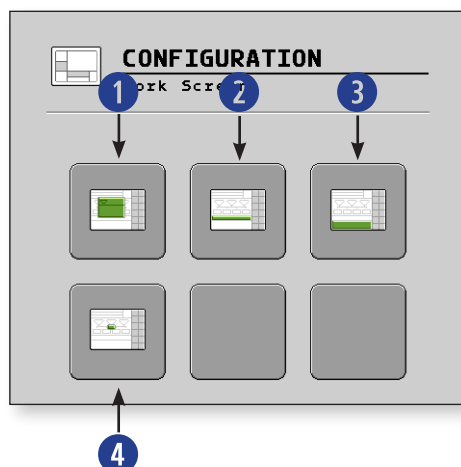
4.8.6 Run Screen Configuration

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.

CONFIGURATION
Hopper Info

Line 1
Product:

Line 2
Density: 0.00 lb/gal

Line 3
Calibr.: 0.0 lb/ac

Line 4
 0 lb 0 lb

Line 5
Target: 0.0 lb/ac

Navigation pane (right):

- Back arrow icon
- Empty box
- Empty box
- Empty box
- Empty box
- Empty box
- Empty box

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 check-mark to save your selection.

CONFIGURATION
Status Line

Position 1	
Position 2	
Position 3	
Position 4	
Position 5	
Position 6	
Position 7	
Position 8	




Bottom toolbar:





-
-
-
-
-
-
-
-

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	

1  **0.0 mph** 3  **0 rpm**
2  **0 rpm** 4 

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

<input type="checkbox"/> None	
<input checked="" type="checkbox"/> Prefill	
<input type="checkbox"/> Fan Control	

Note that Prefill will not appear if an Ammonia product type is selected. Fan Control will only appear if an Ammonia product type is selected.

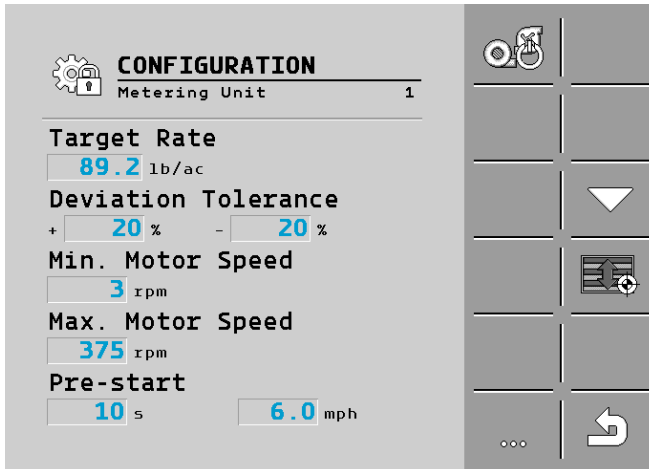
4.8.7 Metering Unit Configuration

The Metering Drive Configuration allows you to set the Target Rate, Deviation Tolerances, Min./Max. Motor Speeds, Prestart Time, Amplification Factor, Calibration Type, Section Control Delay, PWM Resume, and Supplementary Valve assignment.

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.



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

Target Rate

Defines how much volume of product should be applied per acre.

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.

Min./Max. Motor Speed

Defines the lower/upper limit for meter drive motor.

Pre-start Time

This Pre-start time setting adjusts the amount of time the auger runs when the system is primed. The addition of the MPH to this setup will allow this prime function to act as a *jump start*.

Press the down arrow to move to the next screen.



➔ The Metering Unit Configuration 2 screen appears.

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: No, Catch Test via Amount, Field Run, Catch Test via Acreage, and Catch Test via 1000ft. The default for this setting is "Catch Test via Amount", or "Field Run" for an ammonia product type.

Ensure that the correct calibration type has been selected for EACH metering unit. On the meter calibration screen, each metering unit will be set to run the calibration type set here. [➔ 27]

Section Control Delay

This time is used by the UT terminal Task Controller to regulate or look ahead for starting/stopping sections with going into or out of overlap or entering/exiting a boundary of a field. Adjust the setting to increase or decrease this time. Typically, start and stop times should be the same.

PWM Resume/Lock at Last

PWM Resume is used for PWM controlled systems (Hydraulic Motor Actuator Type). Lock at Last is used for Servo Timebased control types with Section or Master/Dump valves in the system. These functions are triggered from the implement switch. PWM Resume uses the last PWM % output and returns the system to that same value once back in work; Otherwise, the value resets to the min PWM value and ramps back up to the desired control level. *Note that PWM resume does not retain this value with External or Master Switch cycling state.*

Lock at Last is used for liquid control systems that use Standard flow control valves with additional Master or Dump Valves, as well as section valves. When the Implement switch is triggered, the system closes all section and Master/Dump valves without adjusting the flow control valves to 0 flow when going out of work; when the system returns to work, the section and master/dump valves reopen and control valve resumes control from its last position.

Supplementary Valves

Allows the user to select a Master or Dump Valve **for an liquid/ammonia application type (when equipped).**

Note: The Dump Valve option will not appear if an Ammonia product type is assigned to the hopper associated to this meter.

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

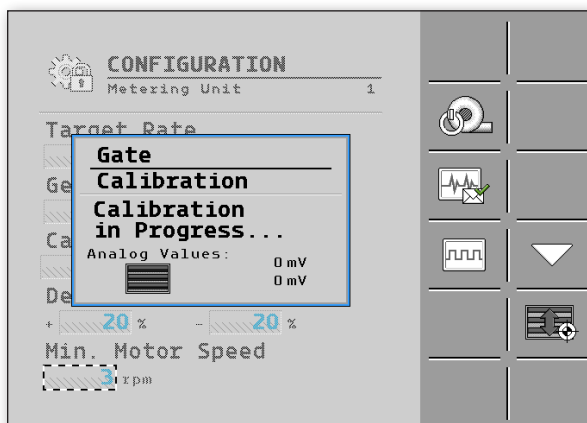


Linear Gate Sensor Calibration

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.

4.8.8 Product Configuration

The Product Configuration allows you to add new products to the database, change the parameters of products, and set the target rate, Target Rate Increment, and Calibration Factor for each meter.

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.

Product Type

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

Target Rate

The Target Rate defines how much mass or volume of product should be applied per acre. The user can also change the target rate units to lb/ac, kds/ac, oz/ac, or ton/ac based on the product type selected. For an ammonia product type, the user can select lb/ac or lbN/ac (when equipped). To change there values, tap the selectable area, type or select the new value in the pop-up menu, and tap the checkmark to save the selection.

Target Rate Increment

The Target Rate Increment is the percentage or unit of adjustment you want to make from the Target Rate on the Run Screen. [→ 78] To change the Target Rate Increment, tap the selectable area under this option. Type in the percentage or unit of change you want to be made with each button press. Tap the checkmark to save the selection. **The units can also be changed to % or lb/ac.**

Calibration Factor & Units

Refer to the previous Calibration explanation in the Metering Drive Calibration section [→ 27].

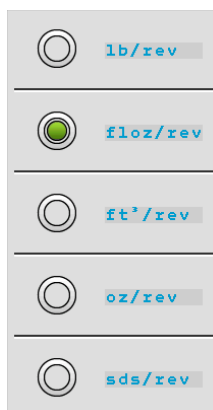
The Calibration Factor will only need updated when a new product is added to the database. (See "Adding a New Product" on the next page)

Refer to the Calibration Chart for calibration factors based on your machine type [→ 115]

A number inputted for one meter under the product database will update **all** meter values for that product to that value **IF** it is a new product being added. If updating a current product, these values must be put in individually for each meter.

To change the calibration factor units, tap the selectable area next to the calibration value.

→ The following options will appear.



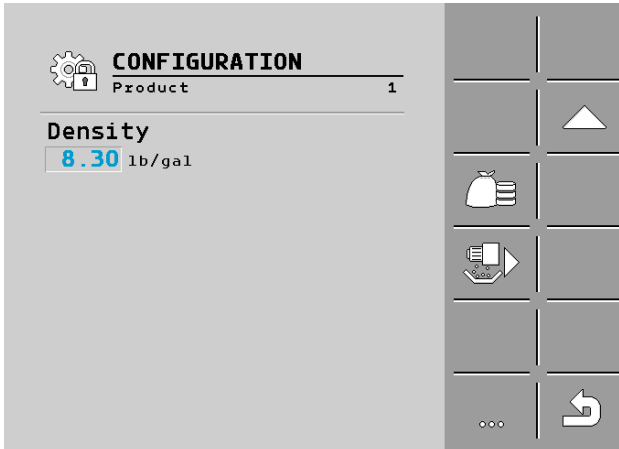
Press the Calibration Meter icon to cycle through the available meters.



Tap the down arrow to move to the next screen:



→ The Product Configuration 2 screen will be displayed.



Density

Enter the Density of the Product Type selected on the previous screen.

Press the icon with three dots to proceed to the next product.



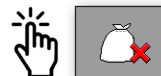
Adding a New Product

To add a new product, tap the Product Database softkey. Tap the Product Addition softkey. Input the new product information. When adding a new product, the Calibration Factor can be entered once on Meter 1 and **all** meter Cal Factors in the Meter 1 Product Database will have the same value.



Removing a Product

To remove a saved product, tap the Product Removal softkey. A pop-up window will ask if you would like to delete the product. Tap Yes to delete the product or no to return to the previous screen. **Note that an active product in a hopper cannot be deleted.**



4.8.9 Blockage System Configuration

The Blockage System Configuration communicates information about the installed modules. **This option is not currently available.**

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

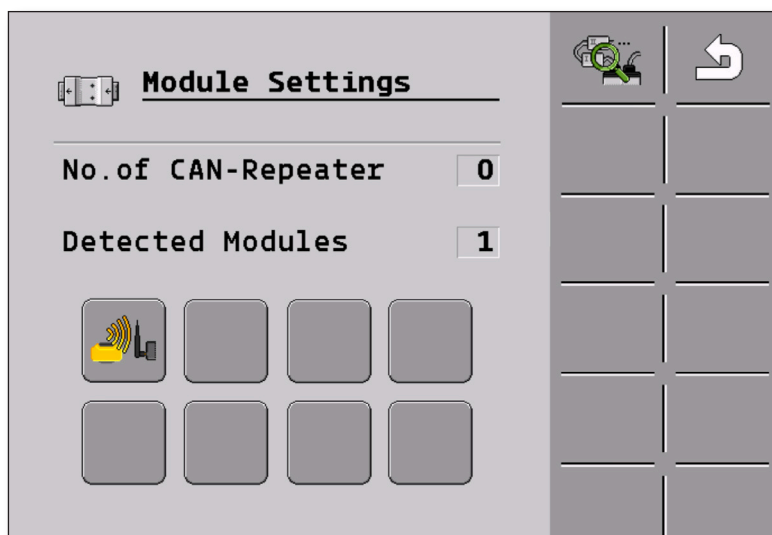


4.8.10 Blockage Chaining Configuration

To access the Blockage Chaining Configuration from the Run Screen, press Settings. Press the Configuration icon. Press the Blockage Chaining Configuration icon. **This option is not currently available.**



→ 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.



4.8.11 Profile Database Configuration

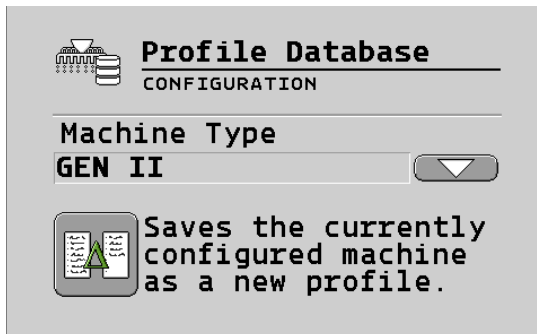
The machine type can be selected in the Profile Database Configuration.

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, Fortifier.

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.

4.8.12 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	
Override Speed	
0.9 mph	
Return Main Screen	
15 s	
Manual Section Switching	
Buttons in Work Screen	
Working Position	
No Workswitch	
Weigh System	
Yes	

+



2

Product Configuration

Pages 51-52



CONFIGURATION	
Product	
Renaming:	
Potash	
Product Type	
Solid	
Target Rate	
15.0 lb/ac	
Target Rate Increment	
10 %	
Calibration Factor	
2.640 lb/rev	

Calculate correct cal factor for machine [→115]. 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. (This number may need to be adjusted by product or environment change [→115].)

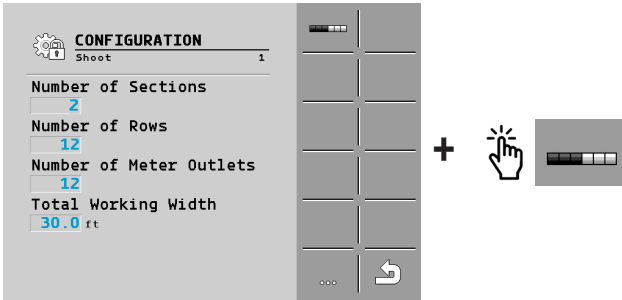
ft³/Rev Example: 12 outputs X .0026 = .0288

To find the Cal. Factor when using Lb/Rev, multiply the number of outputs for your setup by .0026 times the density. (This number may need to be adjusted by product or environment change [→115].)

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

3 Shoot Configuration

Pages 41-42



4 Slide Gate Sensor Calibration

Page 50

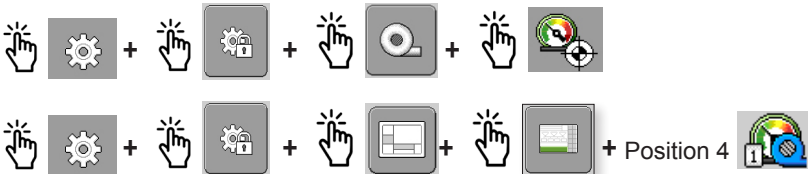
With hydraulics running...



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 2	
Product:	Wheat
Density:	67.0 lb/ft ³
Calibr.:	2.38 lb/rev
29335 lb	29325 lb
Target:	30.0 lb/ac

Pages 21-23



+



SETTINGS

Hoppz

11020 lb 10795 lb 10140 lb

Associated Product

Wheat Wheat NH3

Density

8.30 lb/gal 8.30 lb/gal 5.15 lb/gal


Estimated Pressure

100.0 psi

Associated Shoot

1 1 2



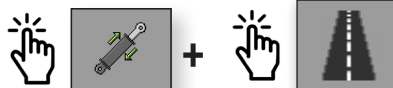
 Equalizes calculated weight to scale weight. It is recommended to equalize your tanks after **every** fill.

75

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



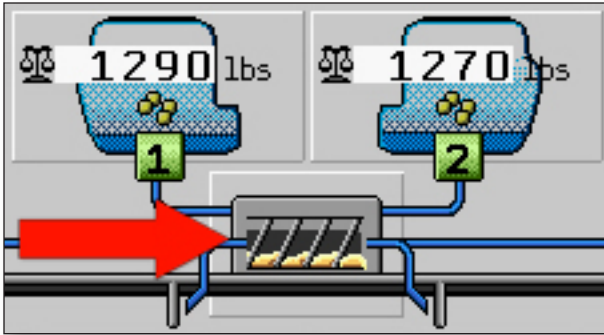
Fill the hopper and watch the weight count down.

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:

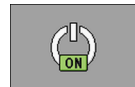


2. Only start driving once the icon is turned off.

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


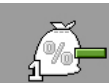



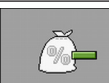

1. Stop applying. Press the Sections Master icon.



- 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:

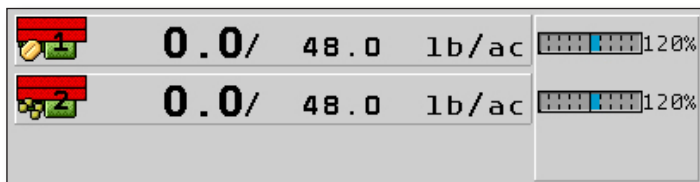


→ Function icons for the adjustment of the Target Rate appear on the right.

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



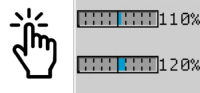
→ The target rate of the metering units will be changed:



→ 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:

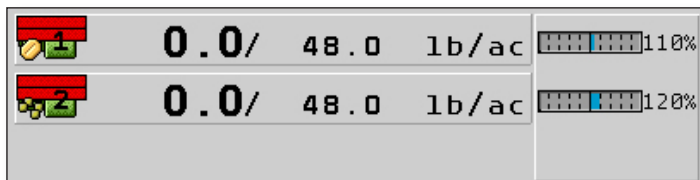


→ Function icons for the adjustment of the Target Rate appear on the right.

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

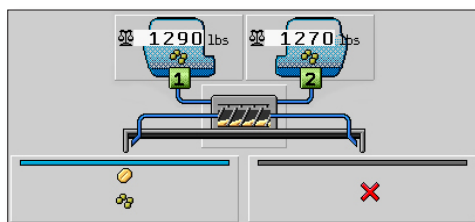
The ECU is used to adjust the position of the hydraulic valves so that the oil pressure is routed to specified parts of the Dry Rate Controller.

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 inches of H2O.

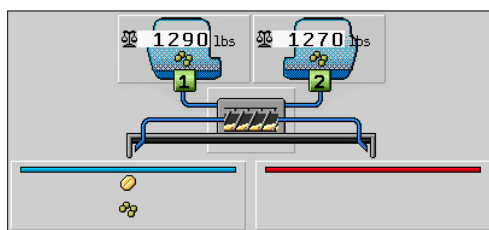
6.6 Operating Section Control

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.

Auto/Manual Section Control Softkey:



This softkey will appear on the right side of the screen when Task Controller is running with Section Control Enabled. This softkey will allow manual control of the sections. If Task Control tells the sections to turn OFF, this will override Task Control to turn the sections ON.

6 Operating the Implement in the Field

Results

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

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



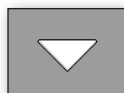
→ The Results screen will be displayed.

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
 - Hopper 1: 0 ton
 - Hopper 2: 0 ton
 - Hopper 3: 0 ton

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.

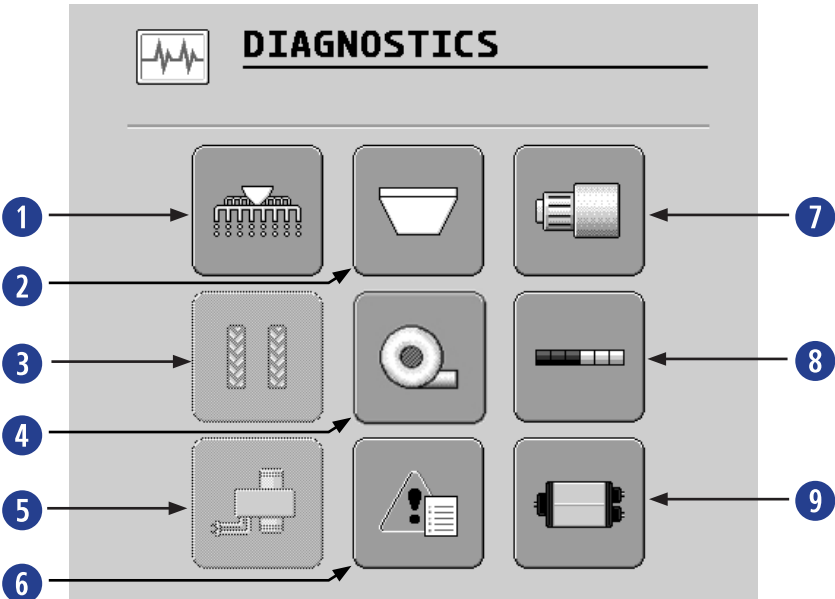
Press the down arrow to view the Total Quantities for additional meters
(when applicable).



7 Troubleshooting

7.1 Performing Diagnostics

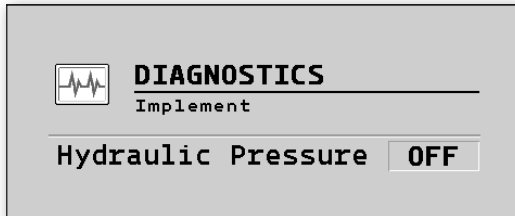
The Diagnostics screen allows you to read the measured values for all of the pins that are connected to the junction box. In addition, you can test whether the functions of the ECU are working as desired.



1	Implement Diagnostics	6	Alarms
2	Hopper Diagnostics	7	Metering Diagnostics
3	Tramline Diagnostics <i>(not used)</i>	8	Section Diagnostics
4	Fan Diagnostics	9	ECU Diagnostics
5	Blockage Diagnostics		

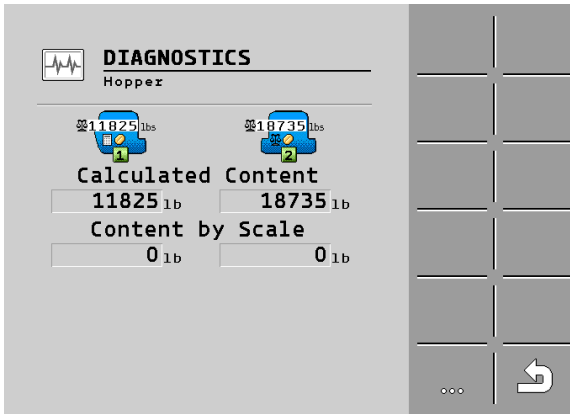
Implement Diagnostics

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



Hopper Diagnostics

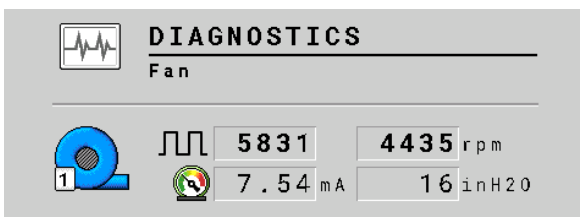
The Hopper Diagnostics show feedback on hopper weight and hopper product.



Press the three dots softkey to cycle to hopper diagnostics for any additional hoppers (*When applicable*).

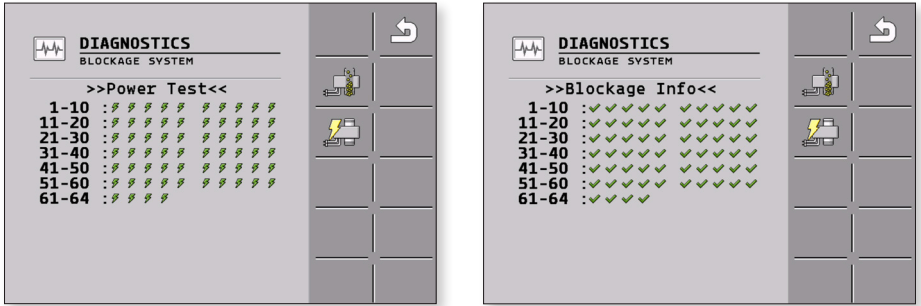
Fan Diagnostics

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



Blockage Diagnostics

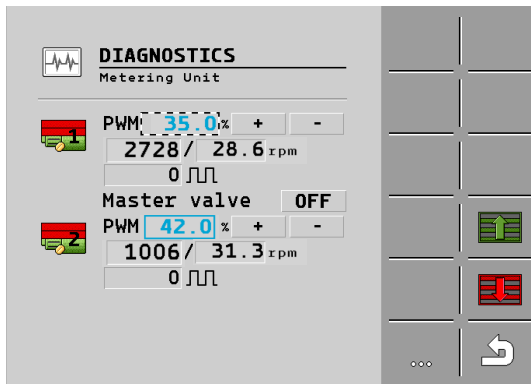
Blockage Diagnostics give feedback on J. Assy blockage sensors.



Metering Diagnostics

The Metering Diagnostics show PWM feedback. If applying, entering this screen will show PWM output per percentage, the number of pulses and RPM of the meters.

- Pressing the plus or minus buttons manually controls meter speed.
- A manual PWM percentage can be used entered into the selectable area.
- If either of these diagnostic tools are used, the drives will turn regardless of Master Switch state, fan speed, ground speed, or working position.
- Leaving this screen will either return to controlling to rate if the Master Switch is on and applying, or the drives will shut off if the machine is not applying (due to master off, working position out of work, zero speed.....).



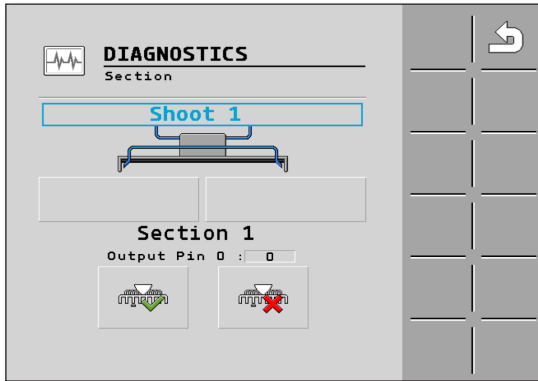
Press the icon with three dots to view additional meter feedback.



Section Diagnostics

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

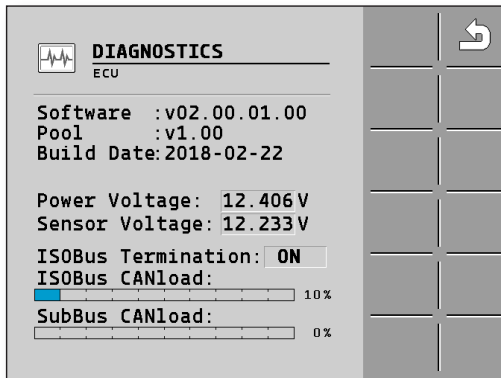
- Select the section to diagnose.
- This page identifies which section is selected and the ECU pin.
- Output 0=ON 0v or 1=OFF 12v
- Press the checkmark and X icons to turn sections on and/or off.
- **WARNING:** If sections are turned off on this screen, they do not reset when you return to the Run Screen.



ECU Diagnostics

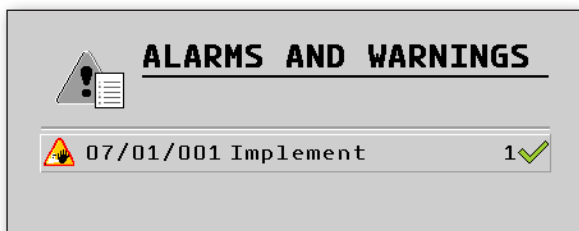
The ECU Diagnostics shows:

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



Alarms

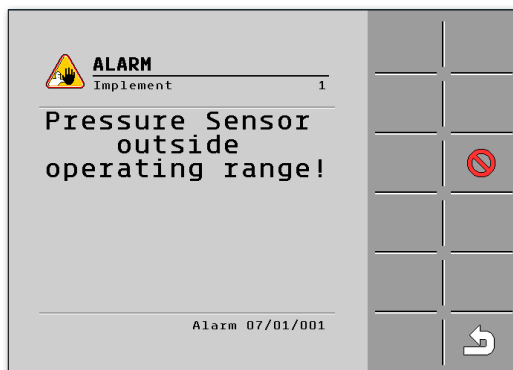
The Alarm Concepts Diagnostics show warnings and alarms that the system has issued for the current power cycle (*This list is cleared upon powering down the ECU*). The green checkmark or red circle on the right side of each button shows whether the alarm was accepted or rejected by the user when issued.



Tapping on each warning button will bring up the details of the alarm.

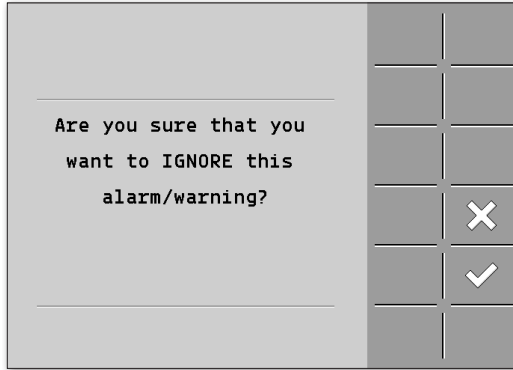


If the alarm was originally accepted when issued, a red circle softkey will appear on the right side of the screen.



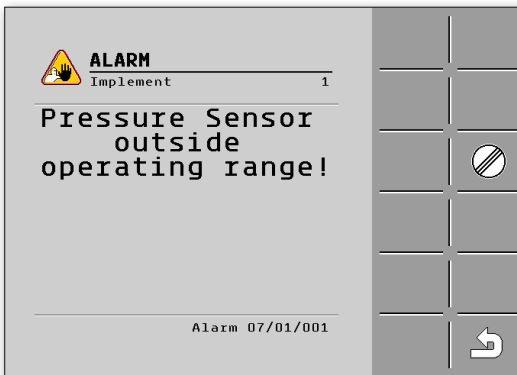
Tap this softkey to ignore the alarm.

→ The following screen will appear.



To confirm ignoring the alarm, press the checkmark softkey. To decline ignoring the alarm, press the X softkey to return to the previous screen.

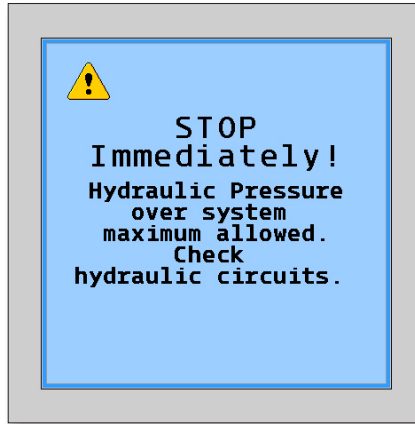
If the alarm was originally ignored when issued, a white circle softkey will appear on the right side of the screen.



Tapping this softkey will accept the alarm and return you to the main Alarm Concepts screen. Accepting a previously ignored alarm will also remove the Alarm Concepts Icon from the Status Line of the Run Screen. [→ 17] (Configure the Alarm Concepts Status Line Icon in the Status Line Configuration.[→ 61]

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.

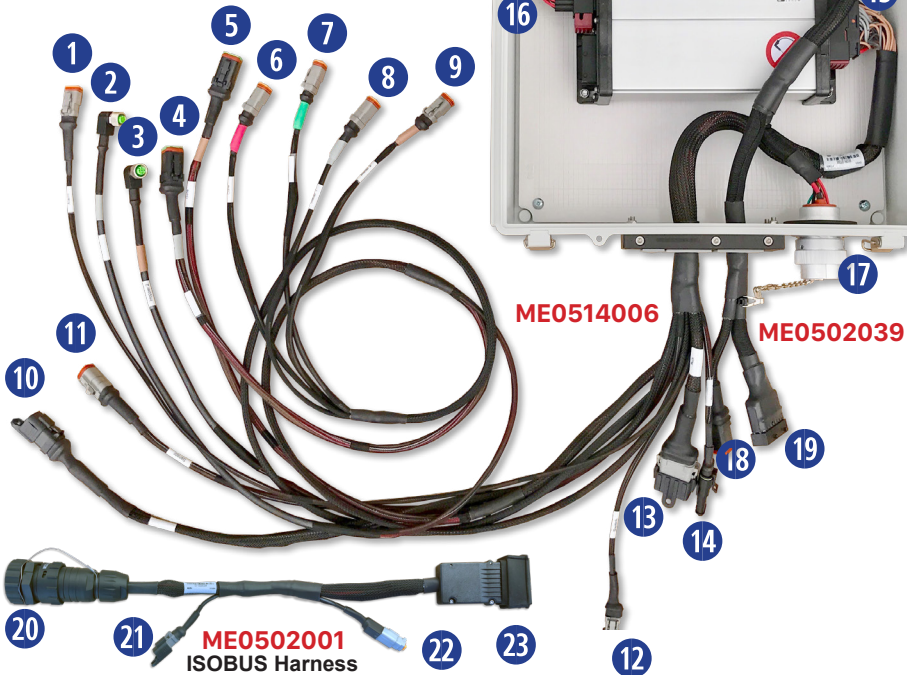


For updated manuals and additional supporting materials,

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

8

Technical Data

Gen II Cable Pin Diagrams

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

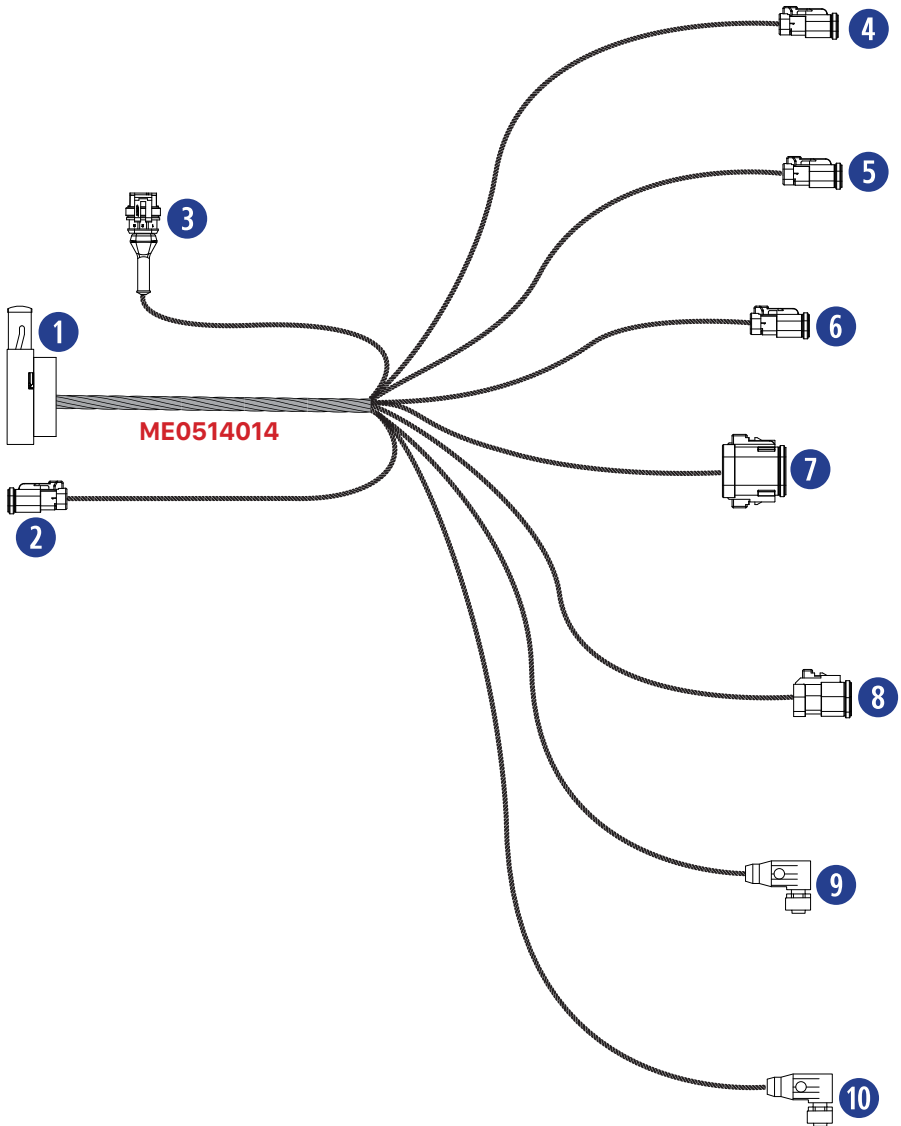
21

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

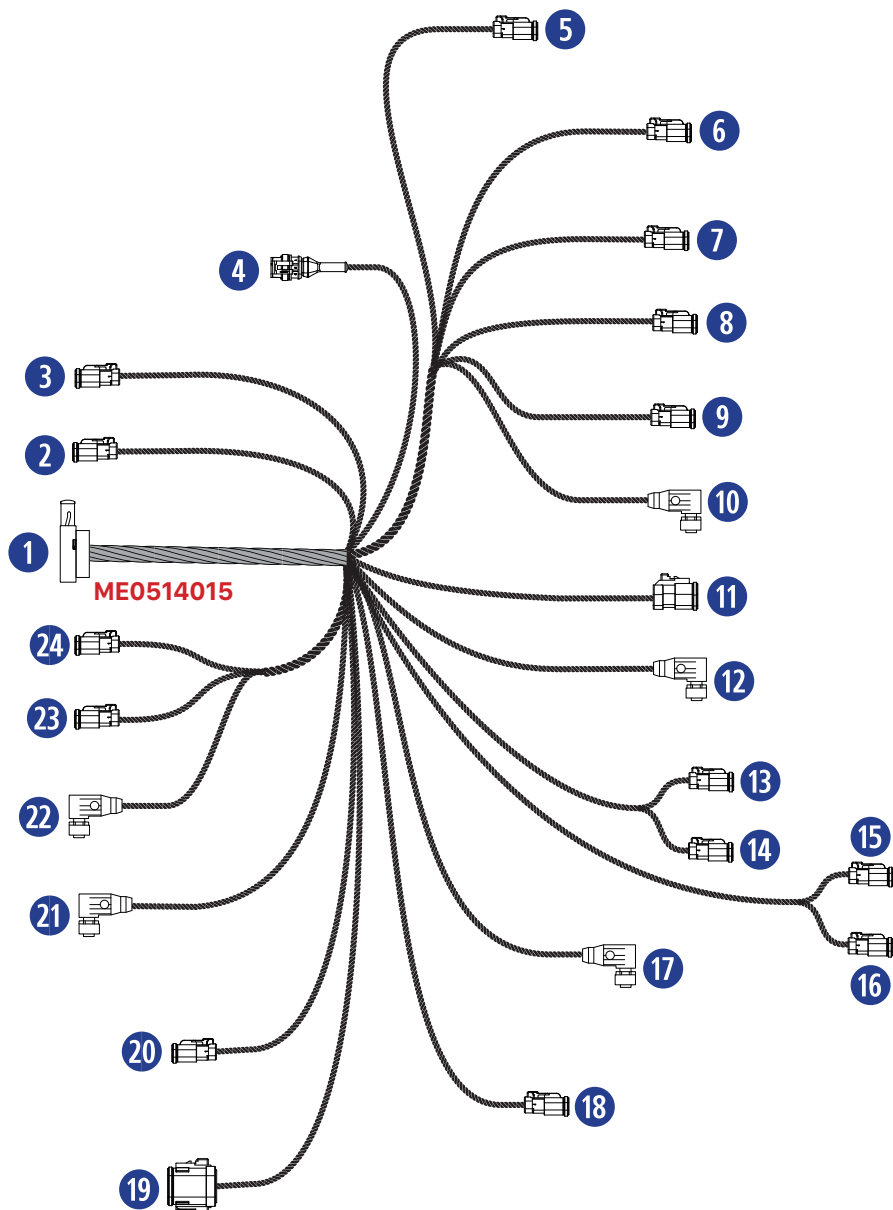
9

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

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

3	Section Y - X20 ME0514015	
	Cavity	Wire Color
	1	Section Y
	2	0v High Current

4	Ground Speed - X11 ME0514015	
	Cavity	Wire Color
	1	0v Electronic
	2	12v Electronic
	3	Machine Speed Signal

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

6	PWM Meter 1 - X2 ME0514015	
	Cavity	Wire Color
	1	PWM Meter 1
	2	0v High Current

7	PWM Meter 2 - X3 ME0514015	
	Cavity	Wire Color
	1	PWM Meter 2
	2	0v High Current

8	Open Gate - X16 ME0514015	
	Cavity	Wire Color
	1	Open Gate HS
	2	0v High Current

9	Close Gate - X15 ME0514015	
	Cavity	Wire Color
	1	Close Gate HS
	2	0v High Current

10	Encoder Hopper 2 - X7 ME0514015	
	Cavity	Wire Color
	1	12v Electronic
	2	
	3	0v Electronic
	4	Meter 2 Encoder

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 Issue

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
<u>Select these options under Settings:</u>		
	.....Hopper Settings	Page 21
	.....Set virtual weight equal to scale weight	Page 24
	.....Toggle between scale and virtual weight	Page 24
	.....Hopper 1 ON/OFF	Page 24
	.....Metering Drive Settings	Page 25
	.....Catch Test Calibrations	Page 27
	.....No Catch Test Calibration	Page 27
	.....Weigh System Settings	Page 41
	.....Blockage System Settings	Page 42
	.....Fan Settings	Page 43



.....Speed Signal Settings Page 44



.....Implement Speed Calibration Page 46



.....Configuration Settings Page 47



.....Diagnostics Settings Page 84

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



.....Implement Configuration Page 48



.....Implement Geometry Page 51



.....Hopper Configuration Page 54

(Set up an Associated Product)



.....Product Configuration Page 67



.....Product Database Page 69



.....Add a new Product Page 69



.....Meter Calibration (Toggle between meter calibration factor for 2 Hoppers) Page 68



.....Metering Drive Configuration Page 63
(Choose a calibration method and set the Target Rate)



.....Shoot Configuration Page 55
(Set up the Sections, Rows, and Working Width)



.....Section Configuration Page 56



.....Fan Configuration Page 57
(Assign and calibrate an Associated Pressure Sensor)



.....Blockage Configuration Page 70
(Access information about installed modules)



.....Blockage Chaining Configuration Page 70
(Search for and detect modules)



.....Run Screen Configuration Page 60
(Customize Run Screen Feedback)



.....Hopper Information Configuration Page 61



.....Status Line Configuration Page 61



.....Bottom Area Configuration Page 62



.....Center Area Configuration Page 62



.....Profile Database Configuration Page 71
(Select and save new profiles)



.....Locked Area

Page 71

(Unlocks additional features for Dealer and OEM only)

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



.....Implement Diagnostics

Page 85



.....Hopper Diagnostics

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.....Metering Drive Diagnostics

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.....Gate Open

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.....Gate Close

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.....Section Diagnostics

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.....Fan Diagnostics

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.....Blockage Diagnostics

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.....Alarms

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.....ECU Diagnostics

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Additional features on the Run Screen:



.....Hydraulics

Page 11



.....Road Mode

Page 12



.....Gate Open

Page 12



.....Gate Close

Page 12



.....Results

Page 81



.....Trip Clear

Page 82



.....Season Clear

Page 82



.....Total Results

Page 83



.....Set virtual weight equal to scale weight

Page 24

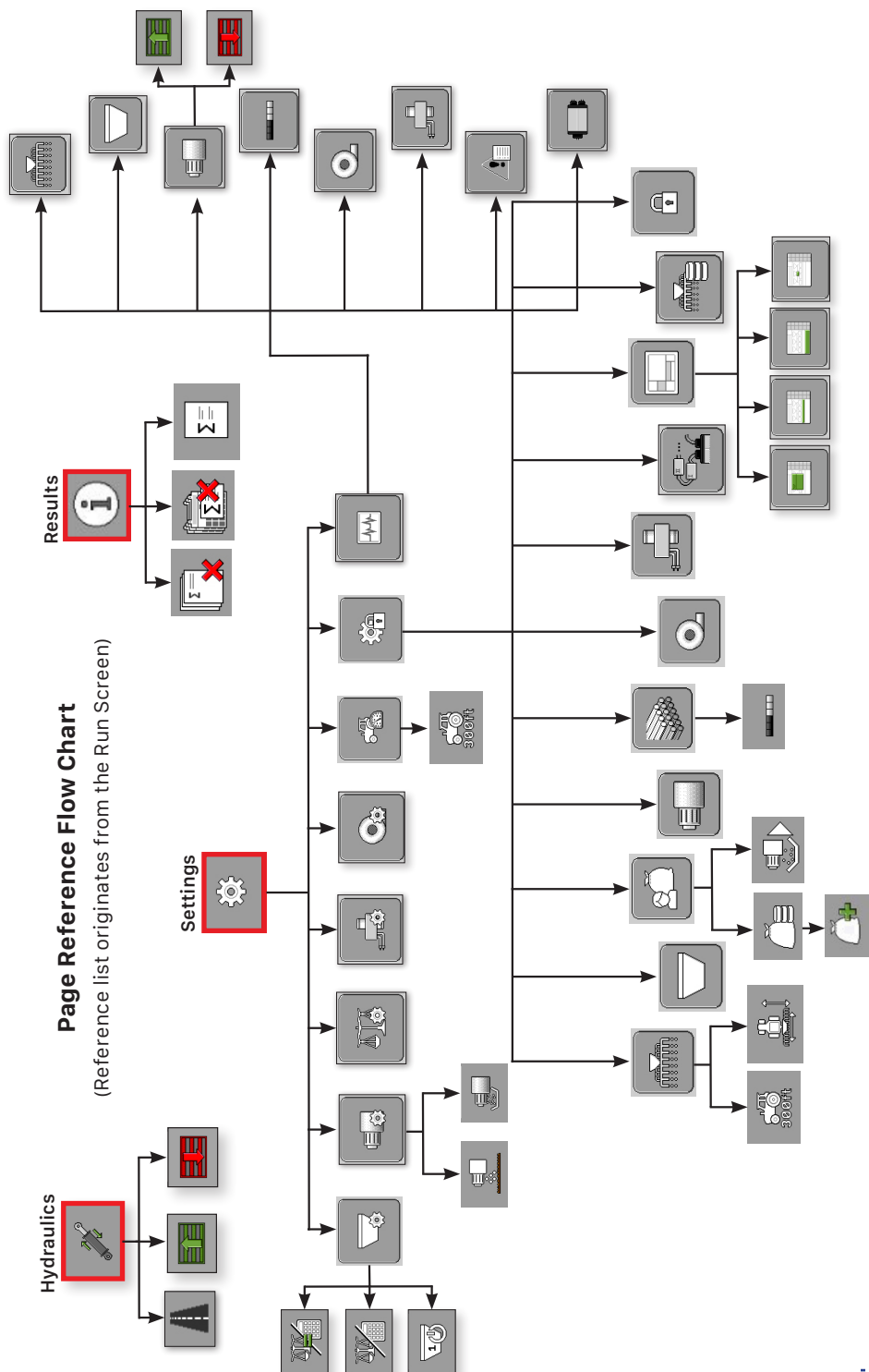


.....Auto/Manual Section Control

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Page Reference Flow Chart

(Reference list originates from the Run Screen)



8.9 Calibration Chart for Machine Types

MACHINE TYPE	CAL/ROW	NUMBER OF ROW MACHINE					
	FT ³ /ROW	8	9	12	16	18	24
GEN I STANDARD OUTPUT (2" HOSES)	0.0016	0.0128	X	0.0192	0.0256	0.0288	X
GEN I HIGH OUTPUT (2.5" HOSES)	0.0032	0.0256	X	0.0384	0.0512	0.0576	0.0768
GEN II	0.0026	0.0208	X	0.0312	0.0416	0.0468	X
FORTIFIER	0.0026	X	0.0234	0.0312	X	X	X
2108	0.0026	0.0208	X	X	X	X	X
2208	0.0026	0.0208	X	X	X	X	X

