MaveriX™

Outback GUIDANCE

M7 M10

875-0490-10 MaveriX Precision Ag Solution

User Guide

Revision: E1

Date: February 10, 2025

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Device Compliance, License, and Patent

Device Compliance

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

This product complies with the essential requirements and other relevant provisions of Directive 2014/53/EU. The declaration of conformity may be consulted at: HTTPS://WWW.HEMISPHEREGNSS.COM/COMPLIANCE-QUALITY.

The product has a Wi-Fi/BT module with the following certifications:

- **FCC ID**: 2AC7Z-ESPWROOM32D
- **IC**: 21098-ESPWROOM32D

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US Patents							
6111549	6876920	7400956	8000381	6397147	7142956	7429952	8018376
6469663	7162348	7437230	8085196	6501346	7277792	7460942	8102325
6539303	7292185	7689354	8138970	6549091	7292186	7808428	8140223
6711501	7373231	7835832	8174437	6744404	7388539	7885745	8184050
6865465	7400294	7948769	8190337	8214111	8217833	8265826	8271194
		8307535	8311696	8334804	RE41358		

Australia Patents		
2002244539	2002325645	2004320401

Support

Contact your local dealer for technical assistance. To find the authorized dealer near you, use our Dealer Locator: HTTPS://WWW.OUTBACKGUIDANCE.COM/SUPPORT/DEALER-LOCATOR
If you need to contact Technical Support:

Outback Guidance
A Division of Hemisphere GNSS
2207 Iowa Street
Hiawatha, KS 66434

Phone: (800) 247-3808
Website: WWW.OUTBACKGUIDANCE.COM
Email: SUPPORT@OUTBACKGUIDANCE.COM
Knowledgebase: HTTPS://OUTBACKGUIDANCE.ZENDESK.COM

Terms and Definitions

The following table lists the terms and definitions used in this document.

Term	Definition
Activation	Activation refers to a feature added through a one-time purchase.
Atlas	Atlas® is a subscription-based service provided by Hemisphere that enables the MaveriX to achieve sub-decimeter accuracy without a base station or datalink.
BeiDou	BeiDou is the global satellite system deployed and maintained by China.
DGPS/DGNSS	Differential GPS/GNSS refers to a receiver using Differential Corrections.
Elevation Mask	Elevation Mask is the minimum angle between a satellite and the horizon for the receiver to use that satellite in the solution.
Firmware	Firmware is the software loaded into the receiver that controls the functionality of the receiver and runs the GNSS engine.
GALILEO	Galileo is a global navigation satellite system implemented by the European Union and the European Space Agency.
GALHAS	Galileo High Accuracy Service (HAS, or GALHAS) is a free high-accuracy positioning system. GALHAS provides precise multi-frequency corrections on the Galileo E6 satellite signal for Galileo and GPS satellites, to improve real-time position accuracy (better than 20 cm horizontal error under normal conditions).
GLONASS	Global Orbiting Navigation Satellite System (GLONASS) is a Global Navigation Satellite System deployed and maintained by Russia.
GNSS	Global Navigation Satellite System (GNSS) is a system that provides autonomous 3D position (latitude, longitude, and altitude) and accurate timing globally by using satellites. Current GNSS providers are GPS, GLONASS, and Galileo.
GPS	Global Position System (GPS) is a global navigation satellite system implemented by the United States.
NMEA	National Marine Electronics Association (NMEA) is a marine electronics organization that sets standards for communication between marine electronics.
RTCM	Radio Technical Commission for Maritime Services (RTCM) is a standard used to define RTK message formats so that receivers from any manufacturer can be used together.
RTK	Real-Time-Kinematic (RTK) is a real-time differential GPS method that provides better accuracy than differential corrections.
SBAS	Satellite Based Augmentation System (SBAS) is a system that provides differential corrections over satellite throughout a wide area or region.
Subscription	A subscription is a feature that is enabled for a limited time. Once the end date of the subscription has been reached, the feature will turn off until the subscription is renewed.
WAAS	Wide Area Augmentation System (WAAS) is a satellite-based augmentation system (SBAS) that provides free differential corrections over satellite in parts of North America.

Chapter 1: Getting Started

Overview

Introduction

This User Guide provides information to help you set up and use your MaveriX Precision Ag software application system.

You can download this manual from the Outback Guidance website at WWW.OUTBACKGUIDANCE.COM.

Contents

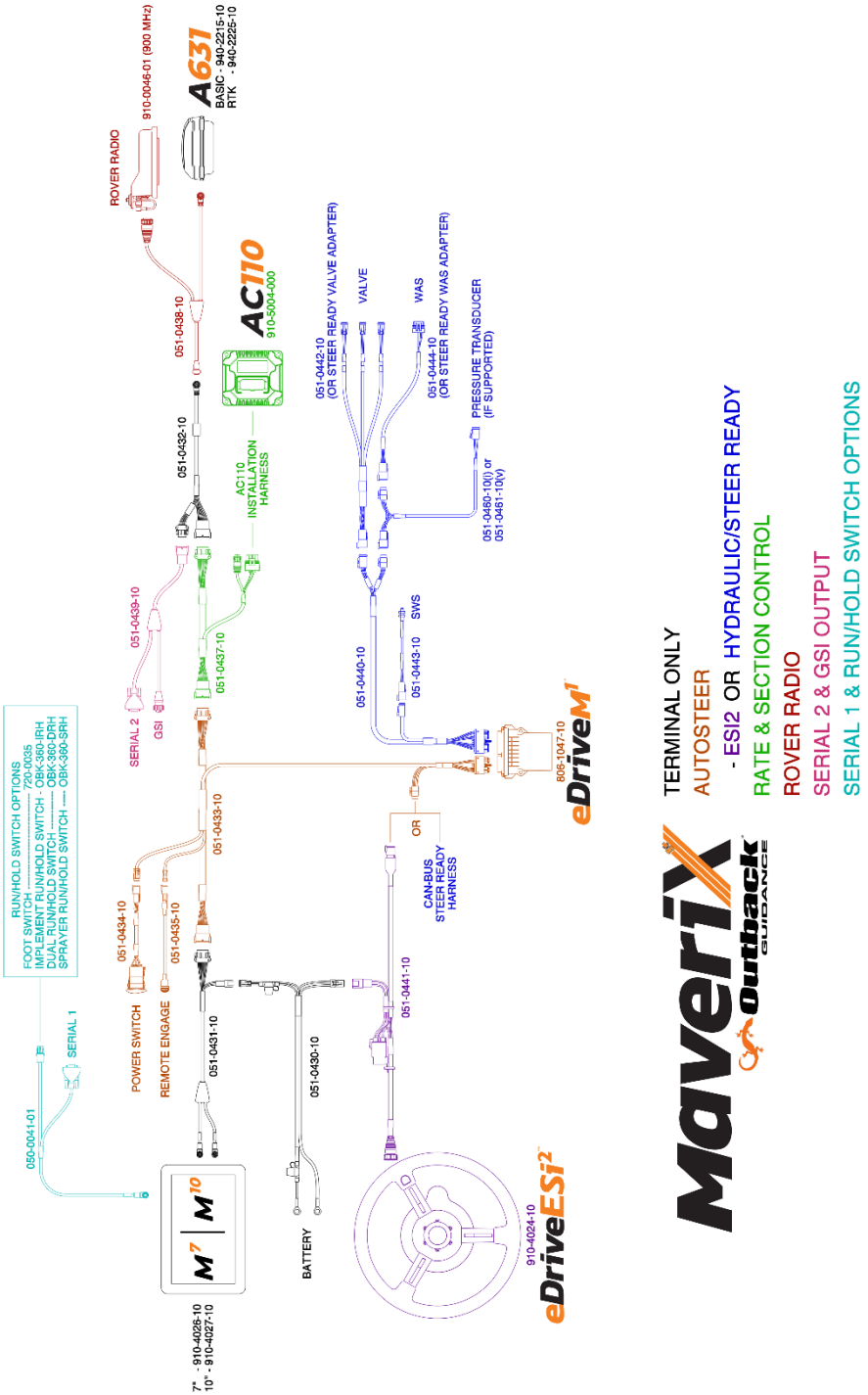
Figure 1-1 shows the MaveriX system terminal front and rear views. **Table 1-1** describes each numbered feature.

Figure 1-1: MaveriX Terminal front and back views

Table 1-1: Terminal features

Item	Description
1	Touch screen
2	USB Port
3	Power Button
4	Wi-Fi Antenna
5	Mounting Ball Area
6	COM1 Port
7	COM2 Port
8	LAN/USB Port
9	Power Port

MaveriX Cable Diagram



Before you mount the terminal, determine an appropriate mounting location. Place the terminal within easy reach and visibility of the driver; typically, this is in the front-right corner of the cab.

WARNING: Do not mount the terminal in a location that impairs the visibility of the controls or the field. Looking at the screen for a prolonged period while operating the vehicle can cause a crash.

1. Use the terminal mounting hardware to mount the terminal. Review the terminal mounting hardware (Figure 1-3).
2. If necessary, loosen the knob on the arm mount and remove the ball mounts from the mounting assembly.

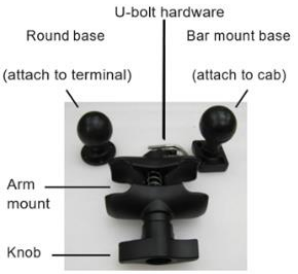


Figure 1-3: Terminal Mounting Hardware

Using the below photo as a guide, complete the following steps:

3. Attach the round base to the back of the terminal using the screws provided.
4. Attach the bar mount base to your preferred location using the included U-bolt hardware.
5. Place one end of the arm mount over the ball of the bar mount base, then tighten the knob enough so the arm mount stays attached.
6. Position the terminal so the round base fits in the open end of the arm mount, then tighten the knob securely.
7. Adjust the terminal to your preferred viewing angle.

Figure 1-4: Terminal back view

Mounting the Antenna

The antenna should be installed on the vehicle's left/right centerline on the cab. If you cannot install the antenna at the exact centerline, refer to Chapter 5, Antenna Offset, for instructions on entering offsets for these values.

Note: Do not place the antenna within two feet of a transmitting radio antenna (such as for a 2-way or business band radio).

1. Clean and dry the vehicle surface where you will attach the antenna mounting plate.
2. Remove the paper backing from the adhesive on the back of the mounting plate (Figure 1-5).
3. Position the mounting plate and press down hard for proper adhesion.

Figure 1-5: Mounting Plate

4. Attach the antenna to the mounting base (see photo below).

Figure 1-6: Antenna and Mounting Base

5. Place the magnetic-mounted antenna on the plate.

Connecting to a Power Source

Using the Cable Diagram as a guide, connect the power cable (P/N: 051-0430-10) to the battery or a 30-amp power source.

1. Connect red (+) to positive and black (-) to negative.
2. Connect the other end of the power cable to the terminal cable P/N: 051-0431-10.
3. Coil excess cable in a protected location, then secure the installation with tie straps.

Routing the Antenna Cable

Adhere to the following when routing the antenna cable:

- Make sure the MaveriX terminal is powered off before attaching the cables.
- Do not bend the cable to a radius of less than 6 inches.
- Do not route the cable within 12 inches of radio wires, power generator wires, a heat source, or moving parts.
- Coil excess cable in a protected location and secure the installation with tie straps.

To route the antenna cable:

1. Securely attach one end of the antenna cable to the antenna.
2. Route the cable through a cab opening where rubber protection exists to protect the cable (Figure 1-7).

Figure 1-7: Antenna Cable Routing

See the Cable Diagram for cable connections.

Installing the Run/Hold Switch

Use the optional **Run/Hold** switch as a remote to pause or restart MaveriX's mapping/data logging function (similar to using the **Apply Widget** on the screen - refer to Chapter 4 for more information on the **Apply Widget**).

Refer to the specific installation guide for each **Run/Hold** switch installation.

1. Connect the **Run/Hold** switch cable of the COM2 cable to the **Run/Hold** switch.
2. Install the **Run/Hold** switch in an easily accessible position.

Installing the Rover Radio

If using the optional RTK correction, mount the rover radio on top of the vehicle cab to ensure line-of-sight to the RTK base station. The bottom of the rover radio includes a built-in magnet for easy placement on the included mounting plate.

1. Clean and dry the vehicle surface where you will attach the rover radio mounting plate.
2. Remove the paper backing from the adhesive strips on the back of the mounting plate (see photo at right).
3. Position the mounting plate and press down hard for proper adhesion.
4. Place the rover radio on the plate.

Figure 1-8: Installing Mounting Plate

5. Attach the rover radio antenna to the rover radio, tightening until snug.

MaveriX Screen Overview

Overview This section helps the user understand the primary areas of the MaveriX terminal and the basic screen gestures.

Home Screen

The **MaveriX Precision Ag Home Screen** displays the following primary areas:

- **Job Mode** – is the primary working mode and includes the map view for the Precision Ag operation.
- **Machines Menu** – allows users to set up and manage different vehicles and implements.
- **GPS Menu** – is used to observe the status of the GNSS receiver and to adjust the corresponding configuration.
- **Diagnostic Menu** – is used to diagnose the MaveriX Precision Ag system and to connect all the system components.
- **Files Menu** – allows the user to manage and import/export the different file types (i.e., jobs, machines, prescriptions, etc.)
- **System Menu** – gives access to all the system settings.

Figure 1-9: Home Screen

Status Ribbon

The **Status Ribbon** is found at the top of the screen:

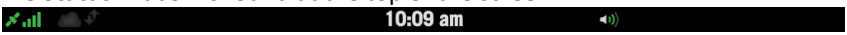


Figure 1-10: Status Ribbon

The **Status Ribbon** provides key information that is always available for the user. This includes the following:

- GNSS Status
- Time
- Sound Status

There are other options that will be shown if they are enabled.

Note: Some options are under development and will be available in future MaveriX versions.

Figure 1-11: Status Ribbon (full)

Table 1-2: Status Bar Options

Image	Description	Displayed
	GNSS signal status and strength	Always displayed. For more information see Chapter 6
	Tilt Compensated GNSS	After selected vehicle is calibrated. For more information see Chapter 5
	Cloud Service (not used at this time)	Always displayed. For more information see Chapter 9
	Wi-Fi connection	Wi-Fi option is enabled. For more information see Chapter 9
	Router (not used at this time)	When Router is enabled. For more information see Chapter 9
	Power system off	When enabled. For more information see Chapter 9
	Current Time	Always displayed. For more information see Chapter 9
	Save in Process	Displayed when job is being saved
	System Volume	Always displayed. For more information see Chapter 9
	Screenshot	When enabled. For more information see Chapter 9
	CPU usage information	When enabled. For more information see Chapter 9

Map Touch Gestures

To change zoom and focus on the **Job Mode** map, use the touch gestures described in the following table:

Table 1-3: Touch Gestures

	Zoom In
	Zoom Out
	Pan Focus
	Reset Zoom and Focus

Chapter 2: Start Up

Overview

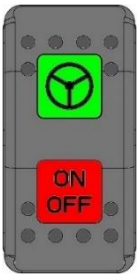
Introduction This chapter explains how to power on/off and use the MaveriX Precision Ag System.

Contents

Powering Up the System

Depending on the components of your system, the outline below will show you how to power the system on/off.

1. If you are using the terminal only, press and hold the power button on the top of the terminal (refer to Terminal Overview) for approximately 3 seconds.
2. If autosteer is installed, the 3-position switch (P/N: 051-0434-10) turns the entire system on and off.
   - The top position enables autosteering
   - The middle position will disable autosteering but leave everything else powered on and communicating
   - The bottom position powers the system off after a countdown is displayed on the screen.



- Autosteer enabled

- Power on/Roading mode

- Power off

Figure 2-1: 3-Position Switch

Note: If using the 3-position switch to power off the system when the switch is in the **Off** position, the screen displays **Turning Off** after 10 seconds. The user can override a power off by repositioning the 3-position switch to the middle or top position before the screen displays the **Turning Off** message.

MaveriX Start-Up

Disclaimer

Each time the MaveriX terminal is powered on, the first screen displayed is the Disclaimer screen. Before operating or servicing the guidance and auto-steering systems, the user should read and understand all the safety information. To read the full End User Agreement, press the green arrow to proceed to the next screen or see the End User License Agreement section at the end of this user guide.

The user is required to select the **I Accept** button to proceed to the **Start Up Menu** screen.

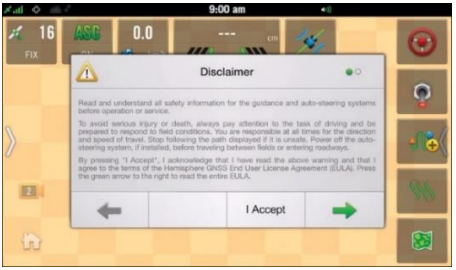


Figure 2-2: Disclaimer

Start Up Menu

The **Start Up Menu** lists the current vehicle profile, the implement profile, and the last job. To proceed, select one of the following options:

- New Job - start a new job
- Continue Job - continue the last job
- Previous Jobs - open the job list to select a previous job
- Skip - skip this step and go to the Job Screen

Note: Skip is the only option if the MaveriX system does not have GNSS correction. After GNSS is acquired, the user can start a new job or open an existing job.

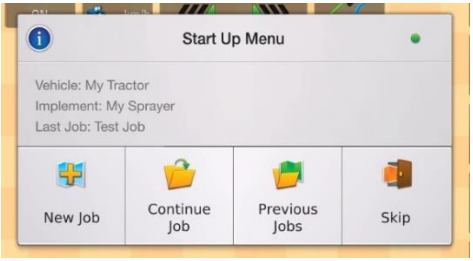


Figure 2-3: Start Up Menu

Using MaveriX

The MaveriX System requires the following to utilize the mapping:

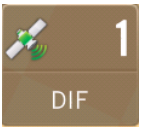


Figure 2-4: GNSS Widget

- GNSS Correction – can be confirmed by the **GNSS Widget**. For more information, see Chapter 4.
- A job must be open.
  - This can be confirmed using the **Job Menu Widget** or the **Job Menu**.

Table 2-1: Job Menu

Job Menu Widget	Job Menu
	

  - Validate that the Close Job option is available. This will confirm that a job is open. For more information, see Chapter 4.


Figure 2-5: Close Job Widget

- Vehicle (and implement in most cases)
  - The MaveriX terminal uses the last vehicle and implement profiles applied, or MaveriX uses the default profiles if no others exist.
  - The user must create a vehicle before use. To create, calibrate, edit, or delete a vehicle or implement, refer to Chapter 5: Machines for more information.

Activations and Subscriptions

While setting up the MaveriX system, please ensure all activations are loaded onto the MaveriX Terminal. To view the active activations and subscriptions, see:

- Ch. 9: System > Activations > Licenses for Activations
- Ch. 9: System > Activations > Subscriptions for Subscriptions

To load an Activation Code onto the MaveriX System, see Ch. 8: Files > Activation Code.

To obtain an Activation or Subscription Code, please contact an Outback Dealer or Outback Customer Support for more information.

Chapter 3: Job Mode

Overview

Introduction This chapter explains how to operate the MaveriX system when in **Job Mode**.

Contents

Job Mode

The main **Job Mode** view includes the below key areas for status updates and navigation while working in this mode.

- Status Ribbon
- Slide-out menu-right
- Slide-out menu-left
- Widgets
- Map view with machine

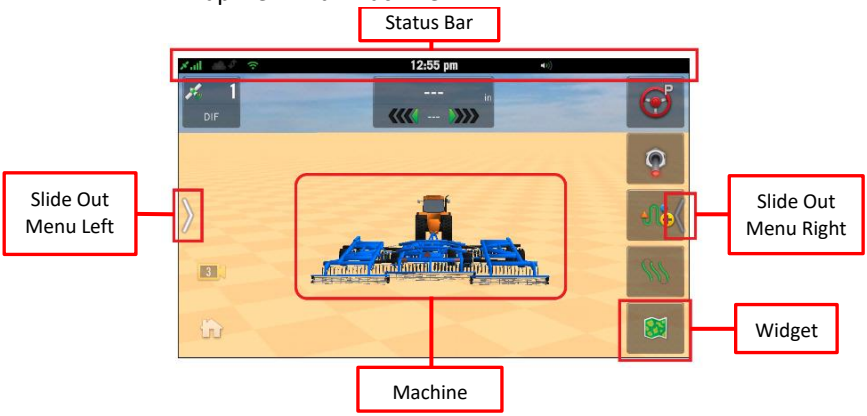


Figure 3-1: Job Mode View

Widgets

A **Widget** provides access to a certain functionality or menu of the MaveriX Precision Ag system while the user is operating the system in **Job Mode**.

Widgets are a key component of the user interface, as they can be added/removed and arranged based on user preference.

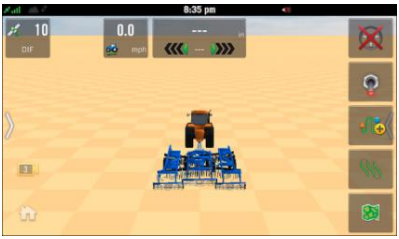


Figure 3-2: Workscreen Layout

Each **Widget** has a unique appearance and can be used to configure the chosen **Workscreens** as desired by the user.

Note: See Chapter 4 Widgets to learn how to configure the **Workscreens** based on your preference.

Slide-Out Menus

The **Job Mode** screen provides two slide-out menus that can be entered by swiping to the center of the screen from the outside bezel of the terminal:

- Slide-out menu right – **Main Menu**
- Slide-out menu left – **Workscreens**

Figure 3-3: Slide-out Menus

Workscreens

The left slide-out menu provides access to the **Workscreens**. This menu switches in real time between six pre-sets that can be adjusted by the user with the following configurations:

- Map view
- Displayed Widgets
- Location of Widgets

Figure 3-4: Left Slide-out Menu

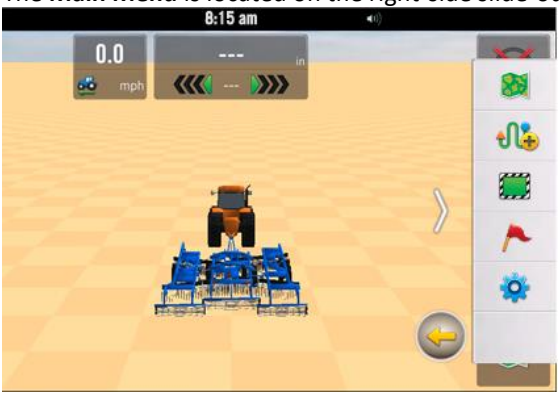
The left slide-out menu closes automatically but can also be closed manually by swiping the white arrow to the left or pressing the yellow back button (right).

Press the desired number of the Workscreen (1 to 6) to use for the current job.

Note: See Chapter 4 Widgets to learn how to configure the **Workscreens** based on your preference.

Main Menu

The **Main Menu** is located on the right-side slide-out menu.



- **Job Menu**
- **Guidance Mode Menu**
- **Boundary Menu**
- **Markers Menu**
- **Job Settings Menu**

Figure 3-5: Right Slide-out Menu

The **Main Menu** closes automatically but can also be closed manually by swiping the white arrow to the right.

To navigate through the **Main Menu**, individual buttons with symbols are used to enter the corresponding menu. The yellow arrow functions as a **back** button and allows the user to return to the previous menu.

Job Menu

The **Job Menu** allows the user to set up and manage jobs while working in **Job Mode**.

Table 3-1: Job Menu Options

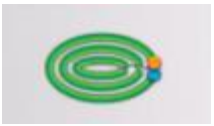
	Start a new job
	Continue a previous job
	Open a previously saved job
	Create a new job from a template
	Close Job (only available if a job is open)

Note: The **Job Menu** can also be reached using the **Job Widget**.

Guidance Mode Menu

The **Guidance Mode Menu** allows the user to set up and manage guidance lines within the map.

Table 3-2: Guidance Mode Menu Options

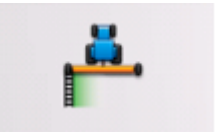
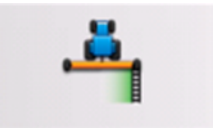
	AB Menu
	A+ Direction Menu
	Freeform Contour
	AB Contour Menu
	Pivot Menu
	AB Closed Menu

Note: The **Guidance Mode Menu** can also be reached using the **Pattern Widget**.

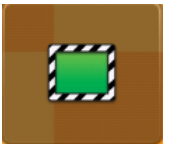
Boundary Menu

The **Boundary Menu** allows the user to set up and manage field boundaries.

Table 3-3: Boundary Menu Options

	Select left boundary
	Select right boundary
	Close boundary
	Cancel boundary

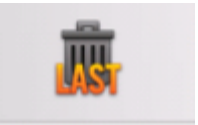
Note: The **Boundary Menu** can also be reached using the **Boundary Widget**.



Marker Menu

The **Marker Menu** can be utilized to mark specific locations (i.e., obstacles or landmarks) within a **Job Map**.

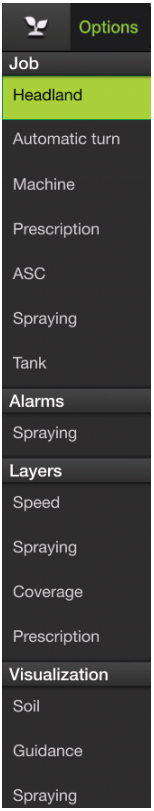
Table 3-4: Marker Menu Options

	Rock
	Tree 1
	Tree 2
	Lake
	Erase the last created marker in job
	Erase all created markers in job

Jobs Settings Menu

The **Jobs Settings Menu** allows the user to view and control settings associated with **Job Mode**.

Job Headland

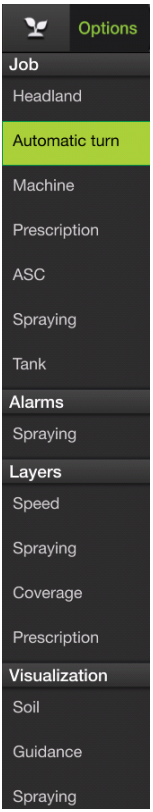


The **Headland Menu** allows the user to adjust the number of Headland passes and turn on/off the **Headland alert**. **Headland alert** notifies operator when entering a previously applied area with an audible alarm.

Figure 3-5: Headland Menu

 -On  -Off

Automatic Turn



Automatic turn (eTurns) requires activation.

Automatic turn (eTurns) is for development purposes only.

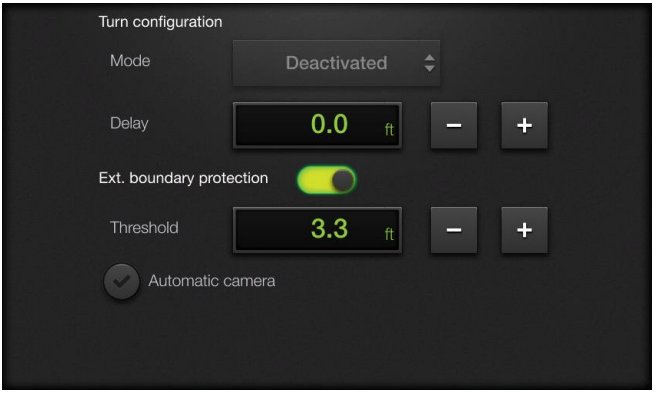
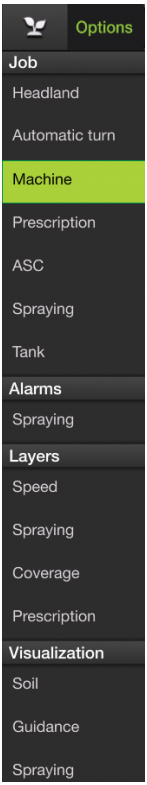


Figure 3-6: Automatic Turn



The **Machine Menu** contains options pertaining to **Guidance**.

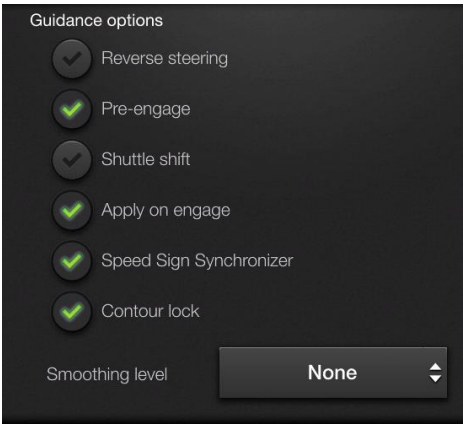


Figure 3-7: Guidance Options

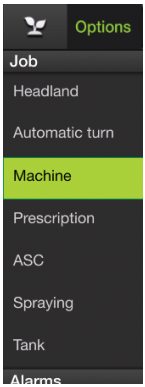
Guidance options:

- **Reverse steering** – enables autosteer to operate while in reverse. *Requires Activation*
- **Pre-engage** – enables user to activate autosteering before all engagement requirements are met. After requirements are met, MaveriX automatically engages on a guideline. Pre-Engage works with all guidance modes. Although the user enables Pre-Engage only once, you must manually press the **Engage** button each time you want to activate it.
- **Shuttle shift** – enables the ability for autosteer to re-engage (for up to 20 seconds) when speed falls below the minimum speed threshold of +/- .5 mph. *Requires Activation*
- **Apply on engage** – enables the Apply to turn on when Autosteer is engaged and turn off the Apply when Autosteer is disengaged.
- **Speed Sign Synchronizer** – enables Automatic Direction Detection.
- **Contour lock** – enables user to stop MaveriX from searching for the closest swath. In Contour Lock mode, guidance:
  - Remains locked on its current swath until you manually unlock it
  - Automatically unlocks if you drive offline by 2 m (or 10% of the swath width) and begins searching for the closest swath again.

To activate or deactivate any **Guidance** options, press on the correlating checkmark:

 -On  -Off

Continued on next page



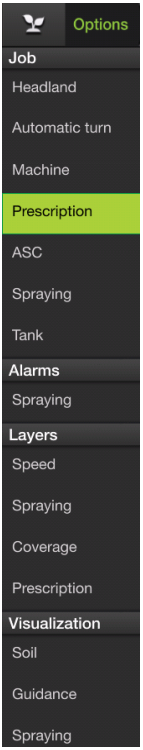
Smoothing level

Figure 3-8: Smoothing Level

Smoothing determines the amount of smoothing of contours and applies to Contour paths and AB Contour paths. The smoothing applied to the current contour is based on the smoothing setting that was active during the preceding pass. Depending on preference and needs, smoothing can be adjusted to None (the default), Low, Medium, or High. For example, you may need to adjust the smoothing if a vehicle/implement combination does not allow turning within a tight radius or a very sharp curvature may not be desired during high-speed operation. Use the following table as a guide to set the smoothing.

Table 3-5: Smoothing settings

Setting	Minimum Radius	Performance
None (default)	5 m	System tries to follow every contour, even if the contour has a very tight curvature but may disengage when following a very tight turn.
Low	10 m	System applies minimum smoothing.
Medium	15 m	System applies medium smoothing.
High	20 m	System generates optimized control paths for high-speed operation where the minimum curvature for each turn is large. It is not suitable for tight-turn operations as unwanted coverage gaps may occur.
Note: MaveriX cannot generate the correct path if the curve diameter is less than twice the minimum radius.		



The **Prescription Menu** allows the user to link a prescription map to the current job.

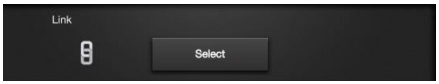
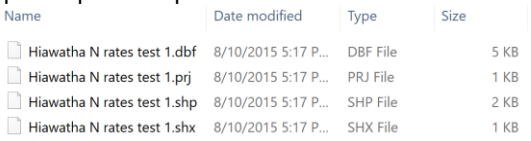


Figure 3-9: Link Prescription Map

To load a prescription map, the files will need to be loaded onto the MaveriX via a USB thumb drive. Ensure all files associated with the prescription map are loaded on the USB thumb drive.



Name	Date modified	Type	Size
Hiawatha N rates test 1.dbf	8/10/2015 5:17 P...	DBF File	5 KB
Hiawatha N rates test 1.prj	8/10/2015 5:17 P...	PRJ File	1 KB
Hiawatha N rates test 1.shp	8/10/2015 5:17 P...	SHP File	2 KB
Hiawatha N rates test 1.shx	8/10/2015 5:17 P...	SHX File	1 KB

Figure 3-10: Prescription Map File Structure

Transfer the files from the USB to the Terminal via the Files menu (for more information on transferring files see USB Transfer).

Select the file to be transferred and press the  to begin transfer.

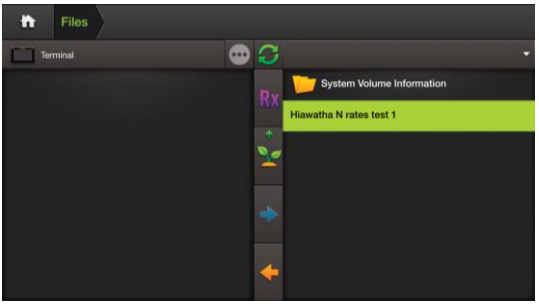


Figure 3-11: File Transfer

After starting the transferring process, the MaveriX will display a popup of polygons and target rates. Press the top of the Target Rate column and select  .

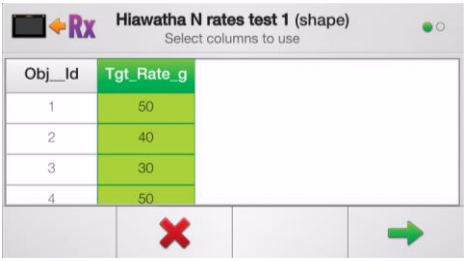
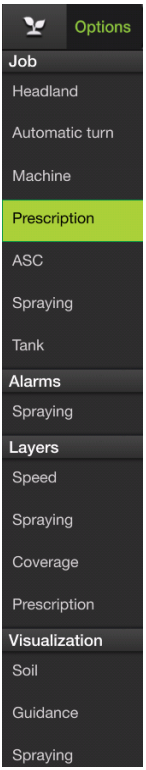


Figure 3-12: Selecting Columns to Use

Continued on next page



Next, ensure the correct application, rate, and units are selected from the drop down menus. Options for "Work" mode are Spraying, NH3, Planting, and Spreader. Options for Layer and Unit are dependent upon the prescription map. Once confirmed select  .

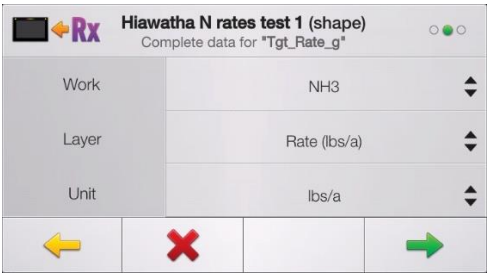


Figure 3-13: Prescription Map Options

The MaveriX will indicate prescription map is loading.

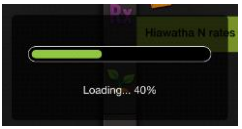


Figure 3-14: Prescription Map Loading

When the prescription map is loaded the MaveriX will display a popup containing a preview of the map loaded. Select the  to complete process.

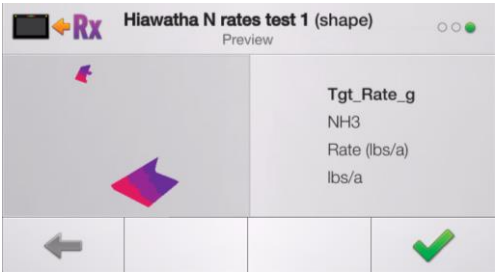


Figure 3-15: Prescription Map Preview

With the prescription map loaded on the MaveriX, return to the **Job Settings Menu > Job > Prescription** to link the Prescription map to the current job. Press **Select** to open the available **Link prescription page.**

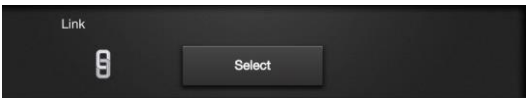
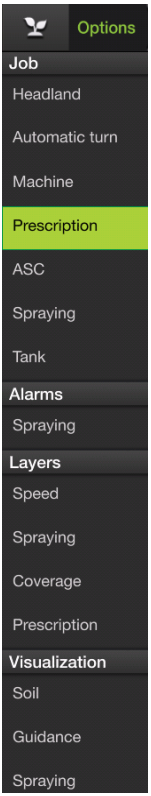


Figure 3-16: Link Prescription Map

Continued on next page



This screen will list all prescription maps loaded on the MaveriX. The list can be sorted by selecting the different options on the bottom left of the screen. They are Map Type, Product Type, and Date. For more information on the selected map, press the information icon in the bottom right corner.

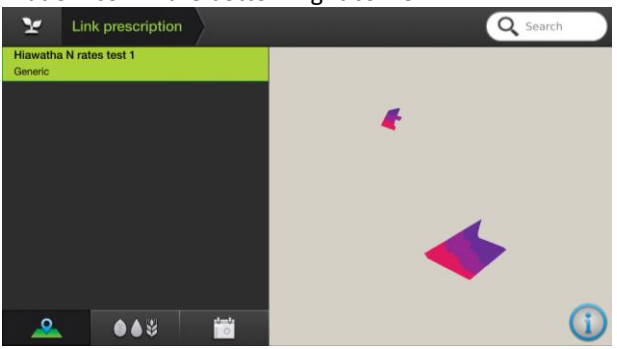


Figure 3-17: Available Prescription List

Double press on desired map to link. Once the map is linked, the MaveriX will return to the Prescription Menu screen, displaying the name of the map. To unlink the map, select the button.

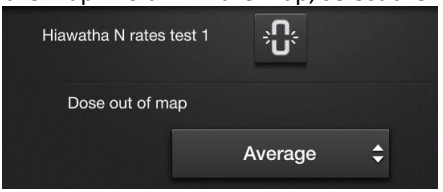


Figure 3-18: Linked Prescription Map

The options to choose from for the dose out of map rate:

- Average – Will apply the average amount
- Preset – User can set the target rate (see Figure 3-19)
- Zero – No amount

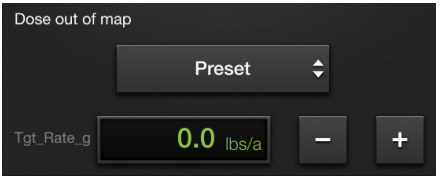
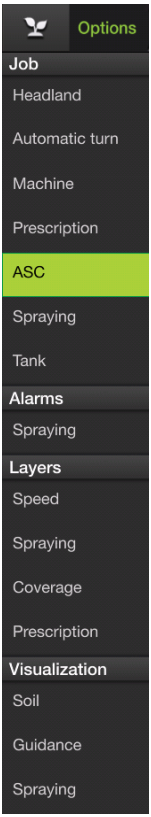


Figure 3-19: Preset Dose Out of Map Setting

The As Applied widget will allow the prescription map to be viewed on the Map View screen.

ASC

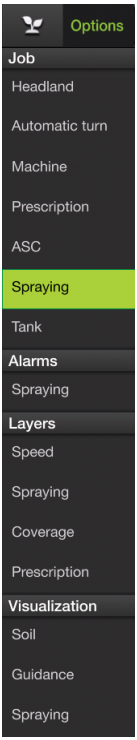


The **ASC (Automatic Section Control) Menu** allows the user to adjust the percentage of the section that must be outside the apply area before shutting off the section. 100% is the entire section.

If AC110 is being used for section control, the percentage set is the percentage of the section in applied area. If no AC110 is being used, the setting will only be used for mapping purposes.

Figure 3-20: ASC Section Control

To change the **Percentage**, the user can use the + and – buttons, or double-press on the value to open a number pad.



In the **Spraying** menu, the PA factor and Nozzles sections are for developmental purposes only. The Pressure Transducer calibration is used to adjust the displayed pressure.

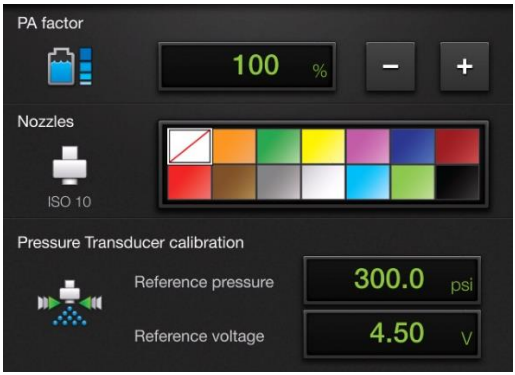


Figure 3-21: Spraying Menu

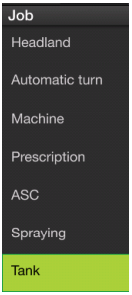
Note: You must have an accurate view of the pressure gauge on the sprayer, an AC110 installed correctly, and switched on to configure successfully.

To adjust the Pressure Transducer calibration, go to **Menu > Diagnostics > AC110 > Inputs**, and scroll to the bottom to **Analog 0 (pin 34)**.

Figure 3-22: AC110 Inputs Diagnostics

Turn on the sprayer under normal operation, record the voltage reading and the pressure from the pressure gauge. Return to **Job Settings Menu> Job > Spraying** and enter the values into the corresponding area. This only effects the Pressure widget's display.

Tank



The **Tank** menu is for development purposes only.

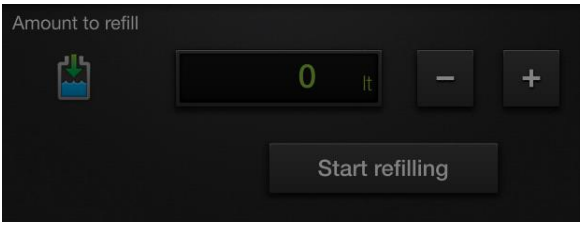
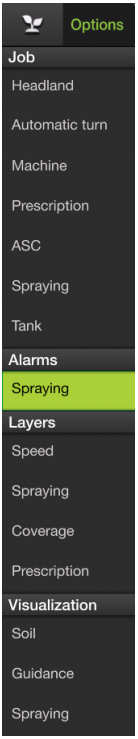


Figure 3-23: Tank

Alarms Spraying



The **Spraying Menu** allows the user to set the parameters for alarms associated with Application.

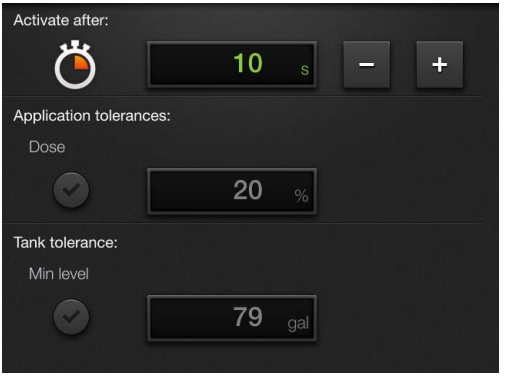


Figure 3-24: Alarms: Spraying Menu

The **Activate after** is used to set the amount of time after a tolerance level is reached the alarm will activate.

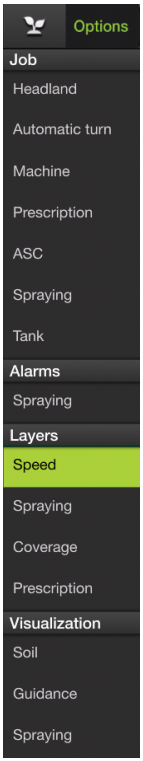
The **Application tolerances** is used to set the percentage above or below target rate for an alarm.

Tank tolerance is where the user can enter the minimum tank level for an alarm to notify the user.

To activate/deactivate **Application tolerances** and **Tank tolerance**, press on the corresponding checkmark:

 -On  -Off

Once activated, the user can adjust percentage or amount by using the + (increase) and – (decrease) buttons or by double-pressing inside the box to open a number pad.



The **Speed** menu is where the user can adjust settings for the **As Applied** layer for speed.

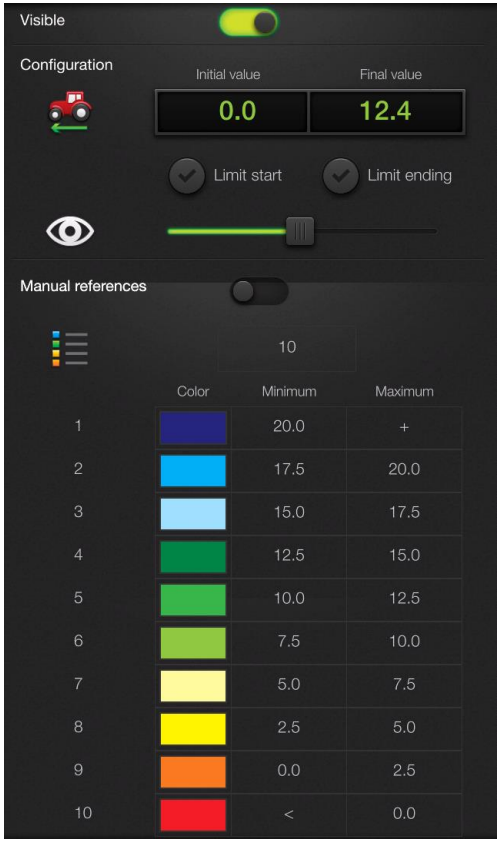
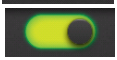


Figure 3-25: Layers: Speed Menu

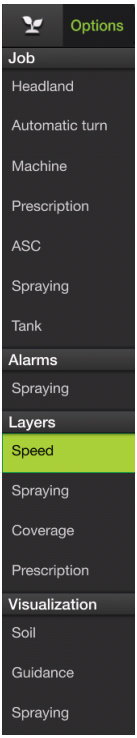
Note: See the **As Applied Widget** for more information.

To turn on/off the As Applied **Speed Layer** option, use the **Visible** button.

 -OFF

 -ON

Continued on next page



The **Configuration** section allows the user to adjust the following information with the **speed and spraying layers**: the minimum (initial value) and maximum (final value) speed, limit the minimum (start) and maximum (ending) speed, and opacity of the layer.

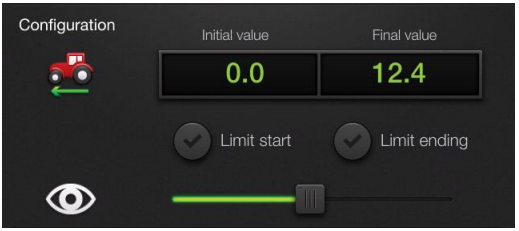


Figure 3-26: Layers: Speed Configuration

The last section of this screen displays the correlating color and speed values. If **Manual** reference is **off**, the default values are used. If **Manual** reference is on, the user can adjust the values for each color and change the color.

Figure 3-27: Color Value Adjustment

To adjust any number values, double press the desired value, and a number pad displays. To adjust the color, double press on the corresponding box to open a color picker screen. Adjust the color with the slider on the left and the shading on the right.

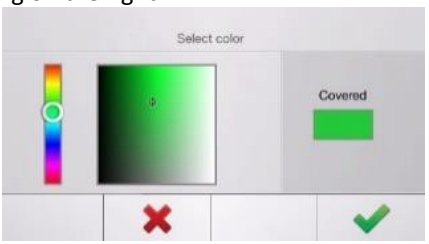


Figure 3-28: Color Adjustment Screen

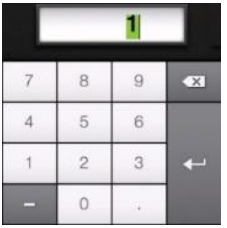
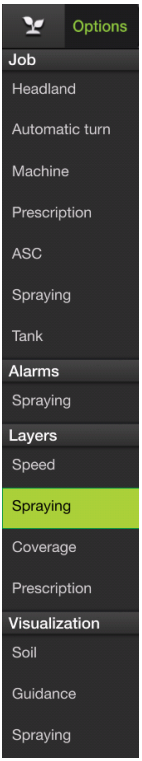


Figure 3-29: Number Pad



The **Spraying Menu** is where the user can adjust settings for the **As Applied** layer for Applied rates.

NOTE: For more information on changing values, see the previous page on Configuration.

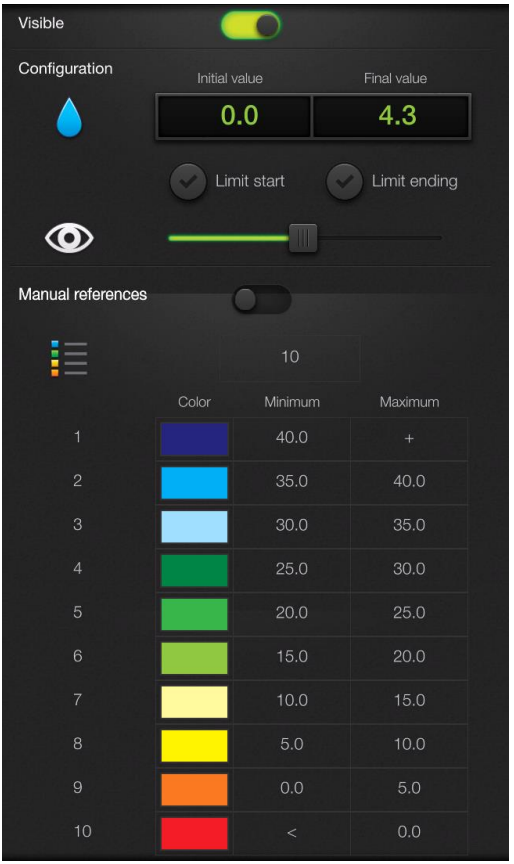
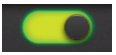


Figure 3-30: Layers Spraying Menu

Note: See the **As Applied Widget** for more information.

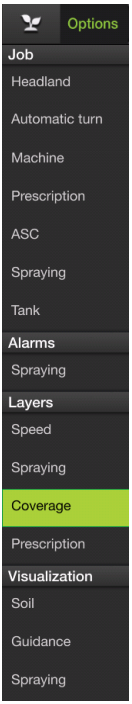
To turn on/off the As Applied **Spraying Layer** option, use the **Visible** button.

 -OFF

 -ON

When the **Manual references** button is turned on, the user will be able to adjust the color and values associated with each level.

Coverage



The **Coverage** menu allows the user to select the colors of the **As Applied** data and opacity.

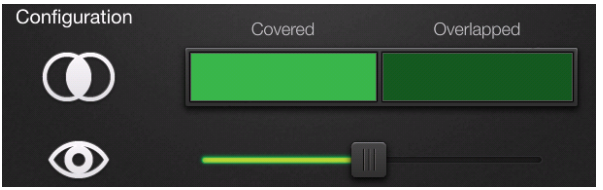


Figure 3-31: Coverage Configuration

To change color(s), double press on the correlating box to open a color picker screen. Adjust the color with the slider on the left and the shading on the right.

The slider bar is used to adjust opacity of overlay. Farther left lessens and farther right increases.

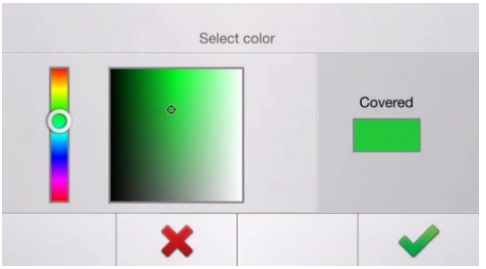


Figure 3-32: Color Adjustment Screen

Prescription

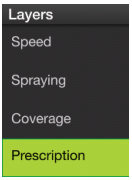
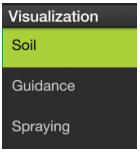


Figure 3-33: Prescription Color Adjustments

The **Prescription** menu is used to adjust the color(s) associated with the values of the Prescription map. *If no Prescription map is selected, it will be blank.*

To adjust colors or opacity, see instructions in Coverage section above.

Visualization
Soil



The **Soil** menu allows the user to select the mapping background.

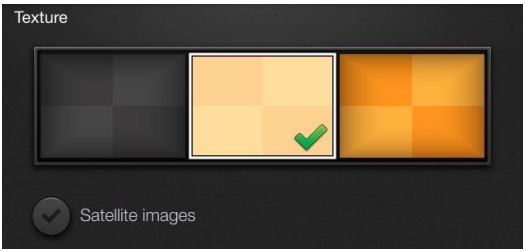
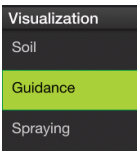


Figure 3-34: Soil Menu

Press on the desired image to change.

Note: Satellite images is for future development and is currently unsupported.

Guidance



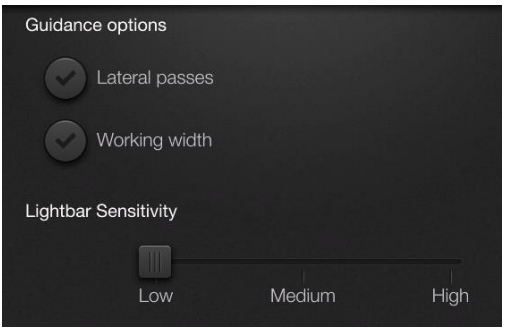


Figure 3-35: Guidance Menu Options

The **Guidance Menu** allows the user to adjust the settings for **guidance** and **lightbar sensitivity**.

Guidance options:

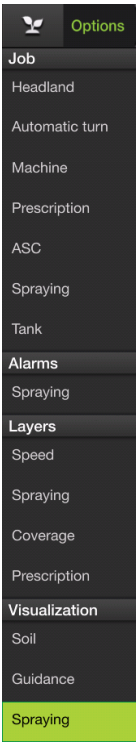
- **Lateral passes** – with Lateral passes enabled, the **Job** screen will display guidance lines to the left and right of the current guidance line.
- **Working width** – with **Working width** enabled, the **Job** screen will display red lines for the implement's working width for the current guidance line.

To activate or deactivate **Guidance** options, press on the correlating checkmark:

 -On  -Off

Lightbar Sensitivity can be adjusted by the slider bar from low to high.

Spraying



The **Spraying Menu** is for troubleshooting purposes only. If either of the options are enabled, the MaveriX will display a line on the map ahead of the implement indicating the location ahead of the working point for Open/Close position or lookahead. The distance is based upon speed and settings under the machine/implement profiles.

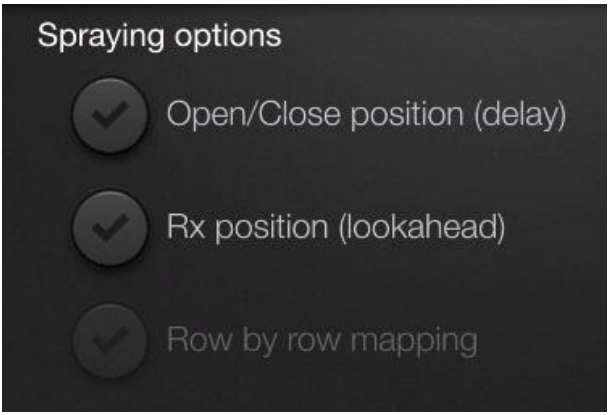


Figure 3-36: Visualization: Spraying Menu

To activate or deactivate **Spraying** options, press on the correlating checkmark:

 -On  -Off

Note: Row by row mapping is for future development and is unsupported.

Chapter 4: Widgets

Overview

Introduction This chapter discusses working with **Workscreens** and **Widgets**.

Contents

Workscreen The **Workscreens** are accessible from the left slide-out menu. Each **Workscreen** can be edited by:

- Adding **Widgets**
- Removing **Widgets**
- Moving **Widgets**

Widgets A **Widget** provides access to a certain functionality or menu of the MaveriX Precision Ag system while the user is operating the system in **Job Mode**.

Widgets are a key component of the user interface and can be added/ removed and arranged based on the user preference.

Each **Widget** has a unique appearance and can be used to configure the chosen **Workscreen** as desired by the user.

The MaveriX application software offers **Widget**s for the following categories:

- Default
- Info
- Job
- Counter
- Guidance
- Application
- AC110

Selecting/Editing Workscreen

From the **Job Mode** screen, open the left slide-out menu by swiping in from the left edge of the screen. Here, you can select from the six customizable Workscreens. The user can also edit which **Widgets** are displayed and their location on the screen.

Figure 4-1: Job Mode Screen

To edit a **Workscreen**, long-press the number you wish to customize.

Figure 4-2: Workscreen Editing

To **Add a Widget** from the list on the left, long-press and drag the **Widget** to the desired location.

To **Remove a Widget**, drag it to the trash bin in the center of the screen.

To **Move a Widget**, drag it to the desired location on the screen.

When finished, select the **save** button in the lower-left of the screen.

Default Widgets

Name	Menu View	On Screen View	Alternate Views		Function
Steering	N/A (Not removable)			Steering not available	-Enable automated steering -Disable automated steering -Review status of the steering system -See Pre-engage section for more information
				Engage criteria not met	
				Pre-engage available	
				Engage criteria met, Ready to engage	
				Engaged	
Home	N/A (Not removable)		N/A	-----	Returns to the **Home** screen
Perspective	N/A (Not removable)			Field View 2D	-Toggles between the different supported perspectives (map views) of the **Job Mode** -See Map View Perspectives for more information.
				Top Down 2D	
				3D	
				In Cab 3D	
				Machine 3D	

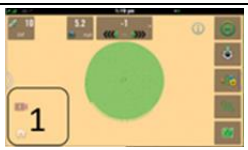
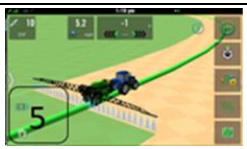
Note: Default Widgets can be moved on the screen, but they cannot be removed from any **Workscreen**, as they are considered essential to the operation of the system.

Continued on next page

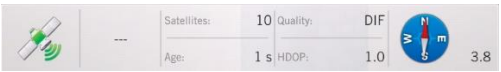
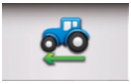
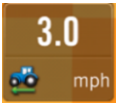
Pre-Engage

	When **Pre-Engage** is enabled a **P** appears on the upper-right of the **Engage** button.
Press the **Engage** button to activate **Pre-Engage** and MaveriX will automatically engage on the guideline when all autosteering criteria are met. **Note:** You have 20 seconds to meet all the criteria—during this time, the **Engage** button flashes between the states to the right. If 20 seconds passes, reactivate **Pre-Engage** if outside of engage limits.	
	Once engaged on the guideline, the **Engage** button remains green. Repeat the above steps as needed (i.e., for each swath).
Note: For more information on **Pre-Engage** see Chapter 3: Job Mode > Jobs Settings menu > Job > Machine.	

Map View Perspectives

View 1		Field View 2D	
View 2		Top Down 2D	
View 3		3D	
View 4		In Cab 3D	
View 5		Machine 3D	

Info Widgets

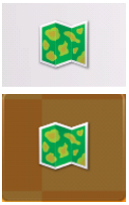
Name	Menu View	On Screen View	Alternant Views	Function
GNSS			(If the **Widget** is tapped on the screen, it provides an extended view, shown below)	- GNSS status - Number of satellites - GNSS quality - Correction age - HDOP
				
Map Scale			-----	Displays map scale according to the zoom level in reference to the checkerboard background
Speed			(If the **Widget** is tapped on the screen, it provides an extended view, shown below)	- Displays vehicle speed - Overrides direction detection
				

Job Widgets

<table>
<tr><th>Name</th><th>Menu View</th><th>On Screen View</th><th colspan="2">Alternant Views</th><th>Function</th></tr>
<tr><td>Job Menu</td><td>  </td><td>  </td><td colspan="2">(See Working view)</td><td>Provides access to the Job Menu (same as accessed using the Main Menu).</td></tr>
<tr><td>Boundary Menu</td><td>  </td><td>  </td><td colspan="2">(See Working view)</td><td>Provides access to the Boundary Menu (same as accessed using the Main Menu).</td></tr>
<tr><td rowspan="3">Job Info</td><td rowspan="3">  </td><td rowspan="3">  </td><td>  </td><td>Job is open</td><td rowspan="2">- Job information
- Job notes
- Total worked area
- Work time</td></tr>
<tr><td>  </td><td>Job not open</td></tr>
<tr><td colspan="3">(Tap the Widget on the screen for an extended view, shown below.)
  </td></tr>
<tr><td rowspan="2">As Applied</td><td rowspan="2">  </td><td>  </td><td colspan="2"> 
Rx only available when Prescription map is linked</td><td>- Provides additional information for coverage map layers
- Toggles coverage layers
- Provides legend for color-coding of the map
- Shading and values are controlled in the Job Settings Menu</td></tr>
<tr><td>  </td><td colspan="3">Total – total acres inside the boundary.
Covered – total worked acres.
Overlapped – total overlapped acres.
Uncovered – total unworked acres.
Note: Will also display percentages of Total for the other categories, when boundary is used.</td></tr>
</table>

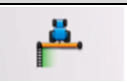
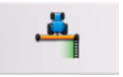
Continued on next page

Job Menu

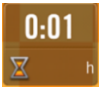
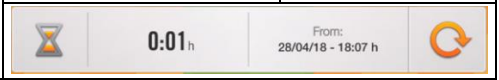
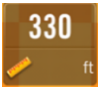
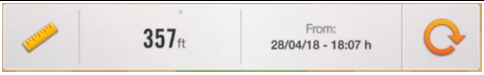
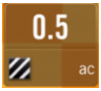
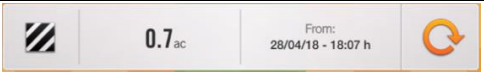
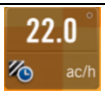


Icon	Function	When selected
	Start a new job	MaveriX will auto name a new job, the user can re-name this. **Name** – Required **Field**, **Client**, and **Notes** – Optional
 **OR** 	Continue last job	**- Only available if the job is closed** - Will open the last job
	Close job	**- Only available if a job is open** - Will close the job
	Open a previously saved job	- Opens the **Fields Menu** - User can view all the jobs on the MaveriX system
	Create a new job from a job template	- If a job is open, will allow the user to use the current job for template. - If job is not open, or if user declines to use open job: - Opens **Fields Menu** - User can select job for use in template - Then select the attributes to use: - Layers - Boundaries - Patterns - Obstacles

Boundary Menu

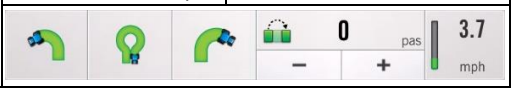
Icon	Function	When selected	
	Select Left Boundary	When selected	
	Select Right Boundary	When selected	
	Close Boundary	When selected, MaveriX will close the boundary from the current position to the start of the boundary position, after confirmation.	
	Cancel Boundary	When selected, will cancel boundary, after confirmation.	

Counter Widgets

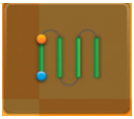
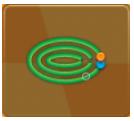
Name	Menu View	On Screen View	Alternant Views	Function
Time Counter			(Tap the **Widget** on the screen for an extended view, shown below.) 	- Count time - Reset count
Distance Counter			(Tap the **Widget** on the screen for an extended view, shown below.) 	- Counts distance - Resets count
Area Counter			(Tap the **Widget** on the screen for an extended view, shown below.) 	- Counts area inside boundary - Resets count
Area/Time Counter			---	Counts coverage rate

Note: With the **Time**, **Distance**, and **Area** counter **Widget**s, the user can reset the measurement by pressing the **Reset** button.	

Guidance Widgets

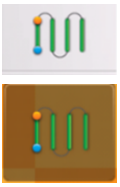
Name	Menu View	On Screen View	Alternant Views	Function
Guidance Menu			See Guidance Menu for more information.	Provides access to the **Guidance Menu** (same as accessed using the **Main Menu**).
Previous Pass			(Tap the **Widget** on the screen for an extended view, shown below.)	- Rename previous guidance path - Toggles between previous guidance lines - Erases previous guidance line - Chooses previous guidance line
				
	Note: To rename a guidance path, double tap on the name to open a keyboard. Guidance path must not be active.			
XTrack			See XTrack for more information.	- Displays current **XTrack** - Shift/Snap - Saves offset - Adjusts steering sensitivity
Steering Guide				- Provides manual guidance directions - Current position offset - Required steering angle
Automatic Turn (eTurns)			(Tap the **Widget** on the screen for an extended view, shown below.)	***For developmental purposes only***
				

Guidance Menu

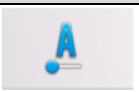
Name	Menu View	On Screen View	Working Screen Views	Function
AB Menu			See AB Menu	Provides access to the **AB Menu** (same as accessed using the **Main Menu**).
A+ Direction Menu			See A+ Direction	Provides access to the **A+ Direction Menu** (same as accessed using the **Main Menu**).
Freeform Contour			See Freeform Contour Guidance	- Enables **Freeform Contour Guidance** - Provides guidance path based off the applied area
AB Contour Menu			See AB Contour	Provides access to the **AB Contour Menu** (same as accessed using the **Main Menu**).
Pivot Menu			See Pivot Menu	Provides access to the **Pivot Menu** (same as accessed using the **Main Menu**)
AB Closed Menu			See AB Closed Menu	Provides access to the **AB Closed Menu** (same as acessed using the **Main Menu**).

Continued on next page

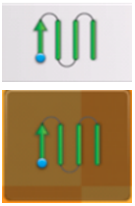
AB Menu



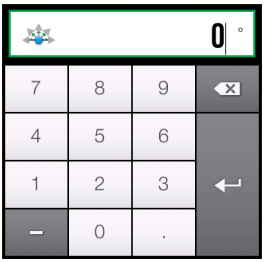
Set up straight **AB** guidance path:

Icon	Function	Use
	Set A Point	Set the first point for an **AB line**.
	Set B Point	Set the second point for an **AB line**, after traveling a minimum of 65 feet from point A.
	Cancel	Cancel guidance setup after confirmation.

A+ Direction Menu



Set up an **A+ Direction** guidance path:

Icon	Function	Use
	Set A Point	Set the first point for an A+ line
	N/A	*(Not used)*
	N/A	*(Not used)*
After the user sets the A point, a number pad displays. Enter the desired degrees from point A.		
		
Note: Touch anywhere on the screen (except the number pad) to cancel setting the point A.		

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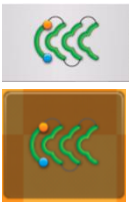
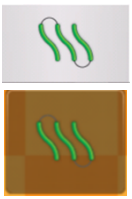
AB Contour



Set up an **AB Contour** guidance path:

Icon	Function	Use
	Set A Point	Set the first point for an AB line.
	Set B Point	Set the second point for an AB line, after traveling a minimum of 150ft from point A.
	Detour	When driving along an AB contour you can create a detour path around the obstacle. You then decide whether to end your path after steering around the obstacle or merge into the original AB contour after driving around the obstacle—in both instances you have created a new AB contour that combines the original AB contour and the detour.
	Cancel	Cancel guidance setup, after confirmation.

Freeform Contour



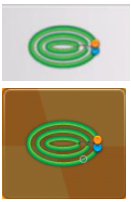
Freeform Contour provides a guidance path based off the applied area. To activate **Freeform Counter,** select either the **Menu** or the **Widget** and the MaveriX will display **FreeForm Contour active**. As the machine approaches the range of the applied area, a guidance line is displayed.

Pivot

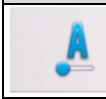
Set up a **Pivot** guidance path:

Icon	Function	Use
	Set Center Point	Sets the center point of the pivot
	Set A Point	Set the first point for a pivot
	Set B Point	Set the second point for a pivot
	Cancel	Cancel guidance setup, after confirmation.

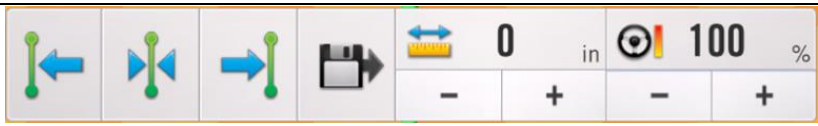
AB Closed

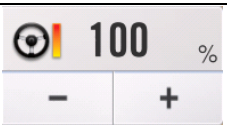


Set up an **AB Closed** guidance path:

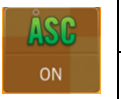
Icon	Function	Use
	Set A Point	Set the first point for an AB line.
	Set B Point	Set the second point for an AB line.
	Cancel	Cancel guidance setup, after confirmation.

XTrack Widget



	Shift guidance lines left.
	Snap guidance line to vehicle's location, parallel to original guidance line.
	Shift guidance lines right.
	Save guidance offset changes.
	Amount to shift guidance lines.
	Steering sensivitity. - Increasing percentage makes steering more aggressive. - Decreasing percentage make steering less aggressive.

Application Widgets

Name	Menu View	On Screen View	Alternant Views		Function
Apply				Apply On	- Apply On - Apply Off **Note:** If **Apply on engage** is enabled, an "A" will be shown on the widget.
				Apply Off	
Automatic Section Control (ASC)				ASC On	- Enables ASC - Disables ASC - Configures ASC boundary behavior
				ASC Off	
Section Control			(See alternante views)		- Sections off - Sections force on (toggle sections status by pressing the section in **Widget**). - Sections in Auto mode

Automatic Section Control (ASC)

If the **ASC Widget** is pressed, the user can configure the **ASC boundary** behavior.

- ASC inside the boundary
- ASC right at boundary
- ASC outside the boundary

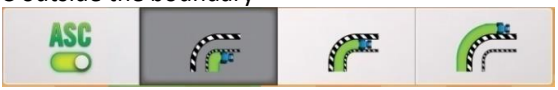


Figure 4-3: ASC Widget On

If **ASC** is turned to **Off** this configuration is greyed out.

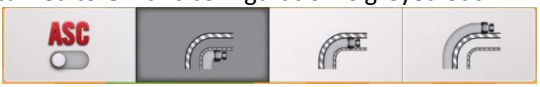


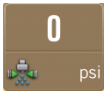
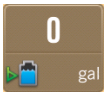
Figure 4-4: ASC Widget Off

Section Control

The **Section Control Widget** provides a visual reference and is used to change the section control configuration and status.

Section-On ASC-On		Section-Off ASC-On	
Section-On ASC-Off		Section-Off ASC-Off	

AC110 Widgets

Name	Menu View	On Screen View	Alternant Views	Function
Pressure			---	See **Job Settings Menu > Job > Spraying** on how to set.
Rate Options			(Tap the **Widget** on the screen for an extended view, shown below.) 	Displays and sets target rates for the AC110 application control. Toggles between **Manual**, **Rate 1**, **Rate 2**, and **Prescription Rate**.
Volume Counter			(Tap the **Widget** on the screen for an extended view, shown below.) 	- Counter to measure applied total volume - Reset (after confirmation)
Tank Level			(Tap the **Widget** on the screen for an extended view, shown below.) 	- Sets tank level - Monitors tank level

Chapter 5: Machines

Overview

Introduction This chapter describes working with machines, including both the vehicle and the implement.

Contents

Machines Menu

The **Machines Menu** is used to set up and configure vehicles and implements for the MaveriX Precision Ag system.

The **Machines Menu** can be reached by following the Home > Machines menu.

Figure 5-1: Machine Menu

This **Machines Menu** allows the user to **create new**, **edit**, or **select an existing vehicle** and **implement profiles**.

The MaveriX has a default vehicle and implement installed (see below). These cannot be deleted, and some fields are not editable. Users should create their own vehicle(s) and implement(s) before using the system.

Figure 5-2: My Tractor/Sprayer

Vehicles

On the **Machines Menu**:

- Select an existing vehicle for use
- Select an existing vehicle to edit or delete
- Create a new vehicle

Swiping left or right will change the highlighted vehicle. To edit or create a new vehicle, highlight the desired selection, and press on it. The highlighted vehicle will be used in the **Job Menu**.

Figure 5-3: Create New

Create Vehicle

Click **Create new** to initiate a new vehicle setup:

Figure 5-4: Create New Vehicle

The **New Vehicle Menu** displays.

Figure 5-5: New Vehicle

Continued on next page

Vehicle Type and Color

Use the **Vehicle type** drop-down menu to choose the desired vehicle type to match your machine:

- Standard Tractor
- Tracked Tractor
- Articulated Tractor
- Rear Boom Sprayer
- Front Boom Sprayer
- Combine
- Swather

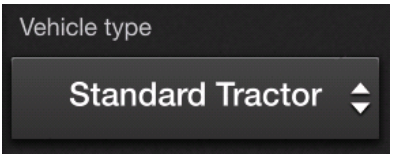


Figure 5-6: Vehicle Type

Note: Depending on the chosen vehicle type, the displayed 3D vehicle model will change accordingly. This also impacts the displayed 3D vehicle model displayed on the map during **Job Mode**.

Use the color configuration bar on the left side of the **New Vehicle Menu** to select the desired color of the vehicle.

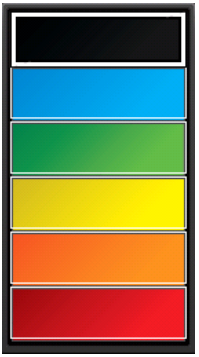


Figure 5-7: Color Options

The vehicle will change color accordingly.

Note: The vehicle color configuration is optional but is not required to complete the vehicle setup.

Continued on next page

Vehicle Name

Identify the **Vehicle Name** area on the screen as shown below.

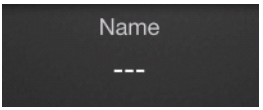


Figure 5-8: Name

Press on the **Vehicle Name** area to open the keyboard.

> **Note:** The **Vehicle Name** can only contain the following:
> - Letters (a-z, A-Z)
> - Numbers (0-9)
> - Hyphens (–)
> - Underscores (_)
> - Spaces
>
> Maximum length of 20-character spaces.

Type the desired **Vehicle Name** and press **Done**.

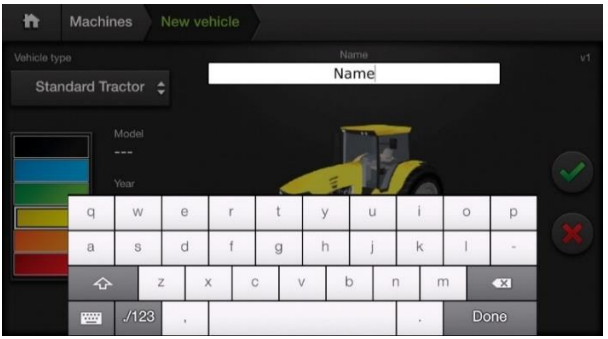


Figure 5-9: Entering Name

The **Vehicle Name** is now configured.

Continued on next page

Vehicle Model and Year

Repeat the same process as **Vehicle Name** to configure the **Vehicle Model** and the **Vehicle Year**.

Figure 5-10: Model and Year

Vehicle Model can use any combination of letters, numbers, and symbols up to 8-character spaces.

Vehicle Year requires 4 digits for the year and must be between 1900-2099.

> **Note:** The **Model** and **Year** configurations for the vehicle are optional, but the **Vehicle Name** is required to complete the configuration.

Completing Vehicle Profile

Once the user has entered the information for the **vehicle profile**:

- Click the **Checkmark** button to complete a new vehicle setup.

- If the vehicle setup is no longer required, it can be canceled with the red X button.

Figure 5-11: Completing Vehicle Profile

This step completes the **Vehicle Information** setup.

Vehicle Information

Once the **Vehicle Information** setup has been completed, the screen will look as shown below:

Figure 5-12: Vehicle Information

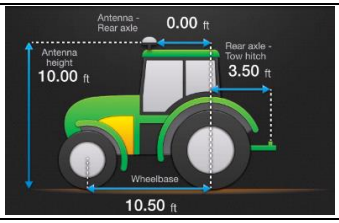
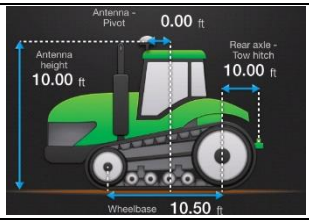
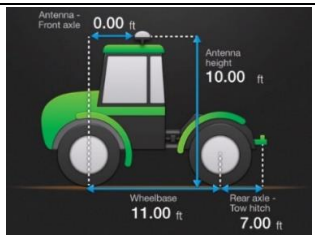
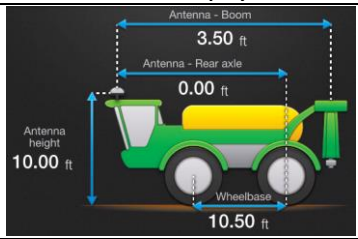
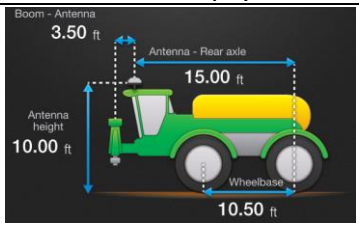
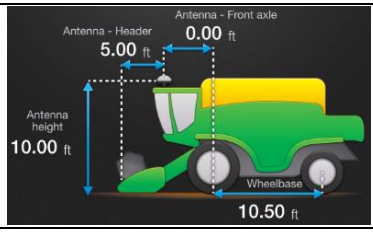
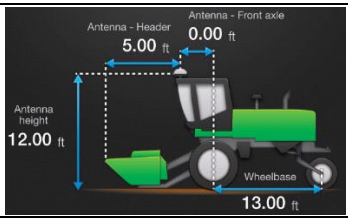
The 3 button options on the right side of the screen are used to:

	Copy current vehicle profile
	Edit current vehicle's information, including: • Name • Year • Model • Color
	Delete current vehicle

Vehicle Dimensions

The **Vehicle Dimensions Menu** is used to configure the following measurements that are specific to each vehicle:

- Antenna Height
- Wheelbase
- Antenna –
  - Rear Axle (standard tractor, rear and front boom sprayer)
  - Front Axle (articulated tractor, combine, and swather)
  - Pivot (tracked tractor)(*center of tracks*)
- Rear Axle – Tow Hitch (standard and articulated tractor)
- Antenna – Boom (rear and front boom sprayer)
- Antenna – Header (combine and swather)

Standard Tractor	Tracked Tractor
	
Articulated Tractor	**Rear Boom Sprayer**
	
Front Boom Sprayer	**Combine**
	
Swather	
	

Continued on next page

Entering Dimensions

Double-click the desired dimension to change the setting for the individual vehicle:

- Will not accept a negative value
- Box around value will be green if entered value is acceptable, red if there is an issue.

Figure 5-13: Entering Dimensions

Push **Enter** to confirm the setting.

Note: The system assigns a default dimension to each **vehicle type**. It is important for automated steering and application control to enter the specific machine measurements for each vehicle.

Measuring Vehicle Dimensions

Measure your vehicle's dimensions before adding the vehicle in the MaveriX Precision Ag system. When adding a vehicle, the system displays the vehicle dimensions for the vehicle type you select (standard tractor, sprayer, etc.).

Antenna height is the vertical distance of the antenna's measurement from the ground up. Typically, you place the antenna on the cab roof.

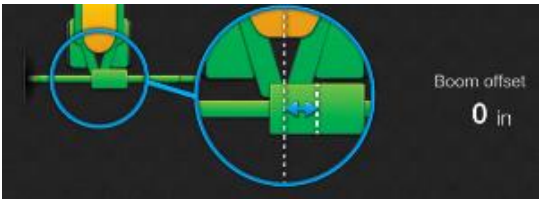
Antenna – Rear axle, Antenna – Front axle, and **Antenna – Pivot** are the perpendicular distance of the antenna's center to the vehicle's pivot point. The vehicle's pivot point depends on the vehicle type, such as a standard tractor or articulated tractor.

Note: Measure the **Antenna – Rear, Antenna – Front axle,** and **Antenna – Pivot** as accurately as possible, as this measurement has some impact on the accuracy of vehicle guidance and is also the reference point from which the implement offset is calculated. Unlike the antenna left/right offset, there is no suitable field method to verify or improve the measurement.

Boom Offset

The **Boom Offset** is the lateral (perpendicular) distance between the center of the centerline of the boom and the centerline of the vehicle.

(Only used for rear and front boom sprayer)



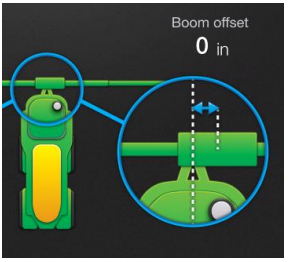


Figure 5-14: Boom Offsets

Antenna Offset

Antenna Offset is the lateral (perpendicular) distance between the center of the GNSS antenna and the centerline of the vehicle.

To achieve optimum steering accuracy, you must determine the **Antenna Offset** in the field. However, you need to complete the calibration procedure before you can conduct the field tests, and to complete vehicle calibration, you need to enter the antenna offset values on the **Vehicle Dimensions** screen. Because you do not have an accurate **Antenna Offset** when working through calibration, you have two options:

1. Leave the **Antenna Offset** as 0.00 and enter the measured offset later
2. Enter an estimated 'provisional' offset value (suggested if you have a noticeable **Antenna Offset** that you can measure or estimate).

When you have completed the vehicle calibration and determined the actual **Antenna Offset**, you can revisit the vehicle dimensions and add the actual value. See **Determining Antenna Offset – Track Method** and **Determining Antenna Offset – Marker Method**, to find your machine's antenna offset measurement.

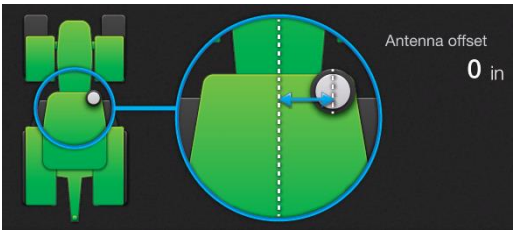


Figure 5-15: Antenna Offset

Determining Antenna Offset – Track Method

To determine the antenna offset using the track method:

1. Set an A=B path (see AB Menu).
2. Maintaining a speed of 5 kph (3 mph) engage steering and let the system steer you along the guideline for at least 100 m. See Pass 1 in the figure on the right.
3. Perform a keyhole turn, re-engage the steering, and let the system steer you along the same guideline. See Pass 2 in the figure to the right.

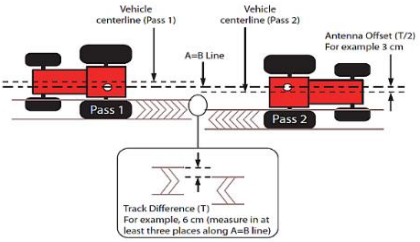


Figure 5-16: Determining Antenna Offset

4. In three separate places along the A=B line, measure the distance between the corresponding track marks (inside edges, outside edges or centers, whichever are easiest to see and measure, see figure above). If there is variation, calculate the average difference. In the figure above the track difference is 6 cm, measured at the outside edges of the track marks at one point on the A=B line.

Note: Take your measurements where the vehicle was travelling with a crosstrack of between 0-1, that is, not just after re-acquiring the A=B line after your turn (this is sometimes referred to as 'allowing settling time').
Halve the measurement (3 cm). This is the amount of the physical antenna offset—the offset you need to compensate for and need to enter as the antenna offset (in meters, 0.03 m) at step 7.

5. Determine the direction of the offset—this is the left or right direction of the antenna's centerline relative to the vehicle centerline when viewed in the direction of travel.
6. Press Home > Machines > (vehicle) > Dimensions.
7. Enter the antenna offset:
   1) Press the Antenna Offset field (white box).
   2) Enter an offset value using the keypad, (a negative value is used for a left offset), then press the enter button to confirm the value and close the screen.

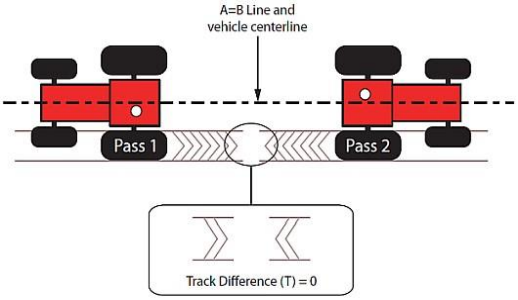


Figure 5-17: Antenna Offset Test

8. Evaluate the completed calibration by letting the system control up and down a new AB path. The tracks should match. If they do not match, repeat the procedure for determining the antenna offset.

Determining Antenna Offset – Marker Method

To determine the antenna offset using the marker method:

1. Set an A=B path (see AB Menu).
2. Maintaining a speed of 5 kph (3 mph) engage steering and let the system steer you along the guideline for at least 100 m. When the crosstrack has stabilized (0-1), place markers along the AB line—at least three—on the centerline of the vehicle (the hitch pinpoint). See Pass 1 in the figure on the right.

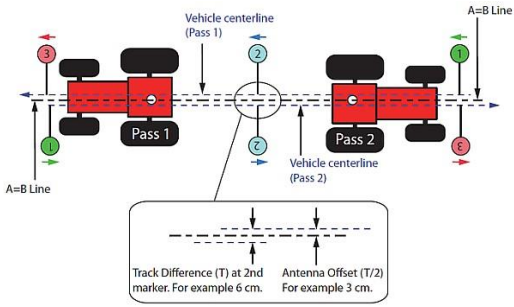


Figure 5-18: Determining Antenna Offset

3. Perform a keyhole turn, re-engage the steering, and let the system steer you along the same guideline. When the crosstrack is stabilized (0-1), place more markers close to those placed on the first pass.

Note: Place your markers while the vehicle is travelling with a crosstrack of between 0-1, that is, not just after re-acquiring the AB line after your turn (this is sometimes referred to as 'allowing settling time').

4. Measure the distance between corresponding markers. In the figure above the centerline difference is 6 cm.

   Halve the measurement (3 cm). This is the amount of the physical offset of the antenna—the offset you need to compensate for and need to enter as the antenna offset (in meters, 0.03 m).

5. Determine the direction of the offset—this is the left or right direction of the antenna's centerline relative to the vehicle centerline when viewed in the direction of travel.
6. Complete steps 6 through 8 in Determining Antenna Offset - Track Method.

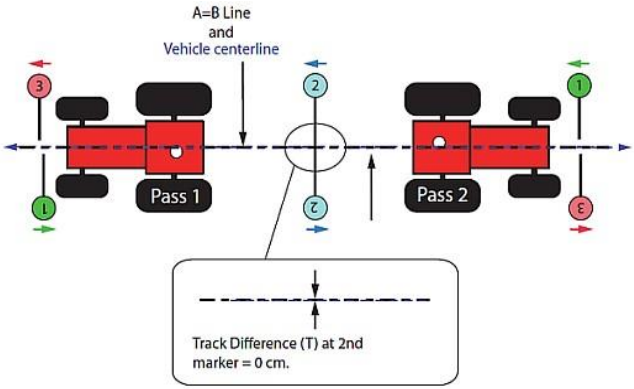


Figure 5-19: Antenna Offset Test

Sections

In the **Sections** portion of the **Dimensions Menu**, the user can adjust the number of sections if Combine or Swather are selected. The default value is 4.

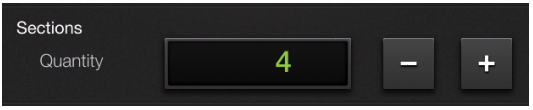


Figure 5-20: Sections Menu View for Combine and Swather

If Front or Rear Boom Sprayer is selected, the user can adjust the number of sections and the measurement of the sections. The total boom width is the sum of all the sections measurements.

Figure 5-21: Sections Menu View

When the sections' quantity is increased to 3 or more odd number of sections, the left measurement is for the center section, and the right measurement is for both the outside right and left sections. All are added together to achieve the total boom width.

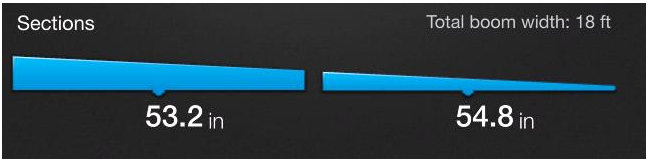


Figure 5-22: Sections Menu Alternate View

When the sections' quantity is increased to 4 or more even number of sections, the displayed sections are mirrored for the left and right sections. All the sections are added together to achieve the total boom width.

Overlap/Skip

(Only used for rear and front boom sprayer, combine, and swather)

Enter a value to drive a pattern where rows intentionally **Skip** or **Overlap**.

When you enter a **Skip** or **Overlap**, the map shows this as an area between swaths in the green coverage lines where a **Skip** is the non-sprayed area between swaths and an **Overlap** is the dark green overlap between swaths.

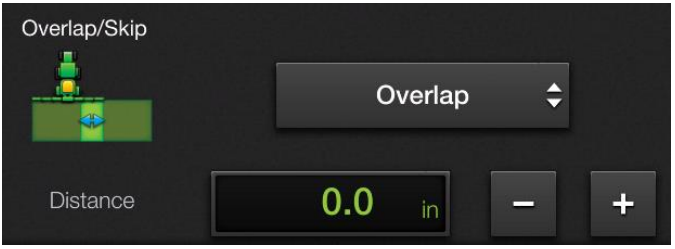


Figure 5-23: Overlap/Skip Menu

Use the drop-down box to change between **Overlap** and **Skip**. To enter a value for **Distance**:

- Double press on the value box to open a number pad for the user to type in the desired value.
- Use the – or + buttons to decrease or increase the value by .1 in for each press.

Application

Only used with rear and front boom sprayer, with AC110.

For more information on setting up the Application section of the vehicle, please see AC110 section of this chapter.

Vehicle Calibration

If the system is used with an **eDriveM1** steering controller, the following vehicle calibration steps must be completed.

Before calibrating a vehicle:

- GNSS antenna is located in its final position and initialized.
- Use the highest accuracy GNSS source the vehicle will use in operations (for example, if planning to use RTK in the field you must use RTK during calibration).
- The 3-position switch, (P/N 051-0434-10) is in the top **Autosteer Enabled** position.

All calibration steps should be completed with the vehicle operating at least 1500 rpms.

Vehicle Calibration:

- Mounting Calibration
- Valve Type
  - Hyd. Proportional (**Requires Activation**)
    - Disengage calibration
    - Valve calibration
    - Wheel angle sensor type
    - Wheel angle
    - Estimate open-loop gain
  - Hyd. Ratiometric (**Requires Activation**)
    - Disengage calibration
    - Valve calibration
    - Wheel angle sensor type
    - Wheel angle
    - Estimate open-loop gain
  - Steering Settings
  - Hyd. Danfoss (**Requires Activation**)
    - Configure
  - Hyd. Danfoss CLS (**Requires Activation**)
  - Fendt MFWD (**Requires Activation**)
  - Claas OSI (**Requires Activation**)
  - Claas (**Requires Activation**)
  - CNH AFS Connect (**Requires Activation**)
  - ESi²
    - Wheel Angel Estimate
    - Wheel Lock
    - Mechanical Play
      (not required to complete calibration)
- Automatic Turn (eTurns)
  - **Requires Activation**
  - ***For developmental purposes only***

    Note*: Only appears in this section for sprayer, combine, and swather.*

Mounting Calibration

The **Mounting** calibration will ensure that the mounting position is defined, and any mounting bias is compensated for. **This calibration step must be completed before any other calibrations.**

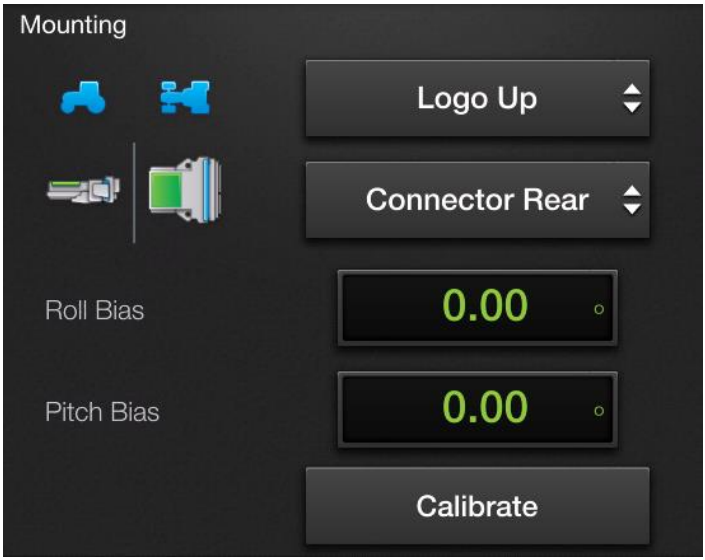
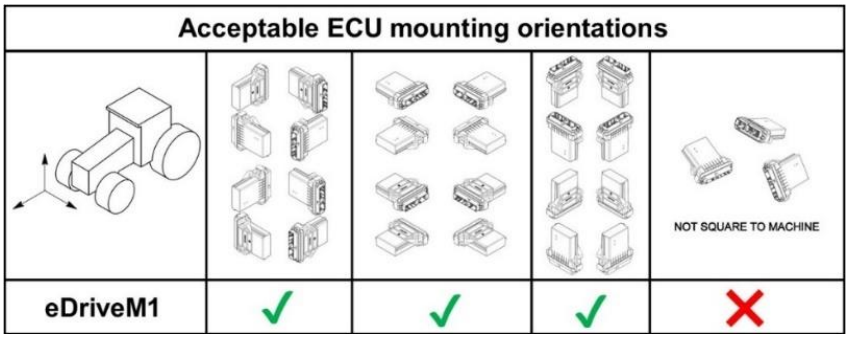


Figure 5-24: Mounting Calibration

1. Enter the direction of the top surface (logo label surface) of the eDriveM1 controller.
2. Enter the direction the connector is facing.



Use the drop-down menus to make the required configuration to align with the specific installation for your machine.

Note: Improper configuration and calibration of the eDriveM1 mounting position will lead to erratic steering behavior and XTrack offset during automated steering.

Continued on next page

Initiate the calibration process by pressing the **Calibrate** button. Follow the onscreen messaging during the different calibration steps.

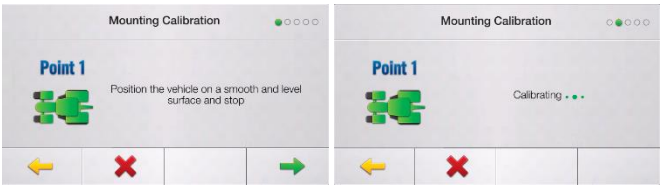
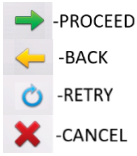


Figure 5-25: Mounting Calibration Steps 1 and 2



After the first two steps, it is required to turn the vehicle around and park in the same position before the second part of the calibration can be initiated.

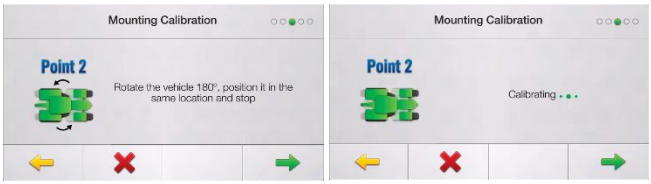


Figure 5-26: Mounting Calibration Steps 3 and 4

Utilize the green and yellow arrows to navigate between the different calibration steps. You can cancel the calibration with the red X if needed.

Figure 5-27: Mounting Calibration Step 5

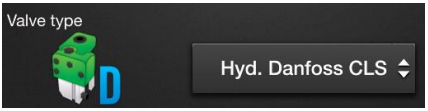
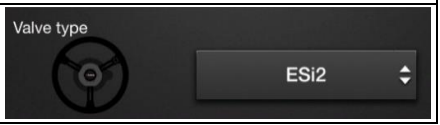
Ensure the calibration has been successful and confirm by pressing the green checkbox.

Valve Type

The **Valve Type** configuration is required to configure the steering interface for the eDriveM1 controller.

For Steer-Ready installations, see Installation Manual for correct valve type to select.

There are 9 options for Valve type (some require an activation):

Hyd. Proportional – select if you installed an Outback Guidance supplied proportional hydraulic valve or supported steer-ready proportional valve. **Requires Activation**	
Hyd. Ratiometric – select if you have a supported steer-ready PVE valve. **Requires Activation**	
Hyd. Danfoss – select if you have a supported steer-ready PVED-CL valve. **Requires Activation**	
Hyd. Danfoss CLS, Claas OSI, Claas, CNH AFS Connect, or Fendt MFWD – select if you have a supported steer-ready PVED-CLS valve. **Requires Activation**	
ESi² – select if you installed an Outback Guidance ESi² (electric steering wheel).	

Hyd. Proportional and Ratiometric Calibration Process

Disengage

The **Disengage** section will only populate if Hyd. Proportional or Ratiometric is the selected valve type.

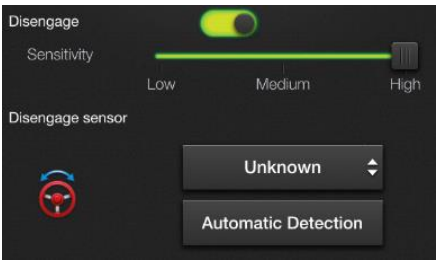


Figure 5-28: Disengage Section

The slider bar is used to adjust the disengage sensitivity.

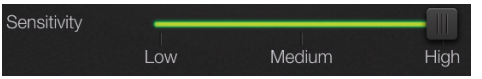


Figure 5-29: Disengage Sensitivity

Disengage Calibration

To calibrate the Disengage sensor, leave Unknown as the type and select Automatic Detection.

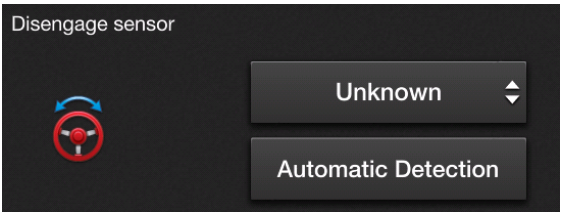


Figure 5-30: Disengage Sensor Calibration

Follow the onscreen messaging during the different calibration steps. Use the green and yellow arrows to navigate between the different calibration steps. You can cancel the calibration with the red X if needed.

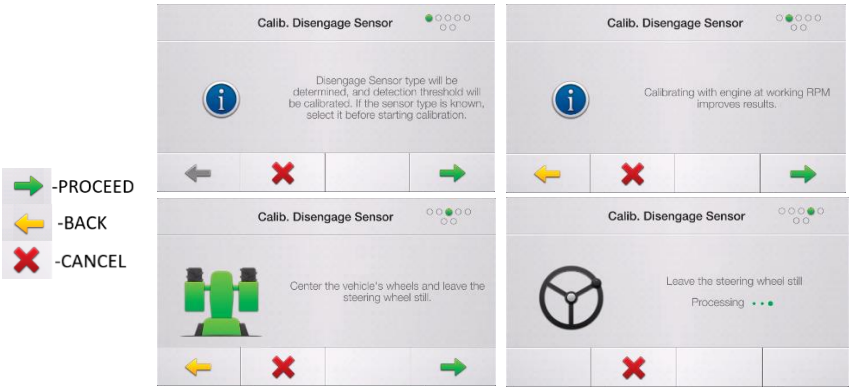


Figure 5-31: Disengage Sensor Calibration Steps 1, 2, 3, and 4

Continued on next page

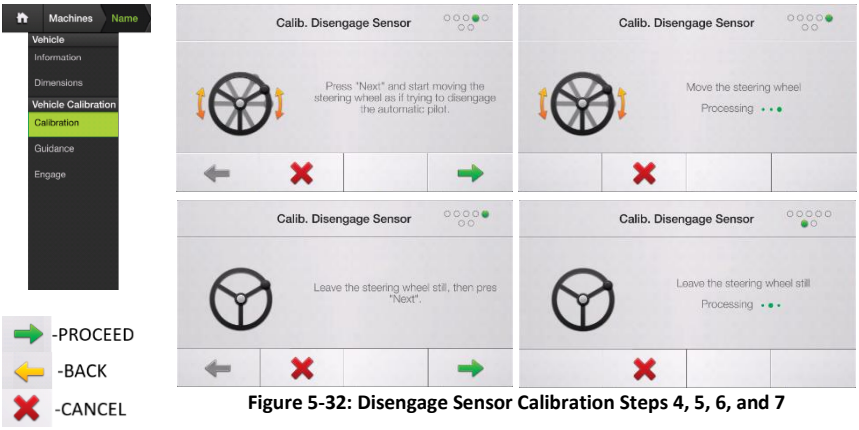


Figure 5-32: Disengage Sensor Calibration Steps 4, 5, 6, and 7

Ensure the calibration has been successful and confirm by pressing the green checkbox.

Figure 5-33: Disengage Sensor Calibration Step 8

After the calibration is completed, the MaveriX will now display the detected disengage sensor type and calibrated value.

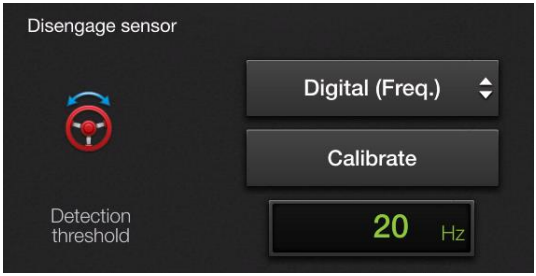


Figure 5-34: Disengage Sensor Calibration Values

Valve Calibration

For either Hyd. Proportional or Ratiometric valve type, press the Calibrate button to begin calibration. Follow the onscreen messaging during the different calibration steps.

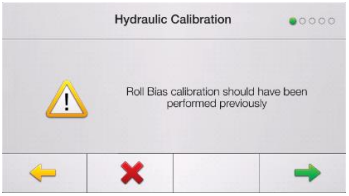
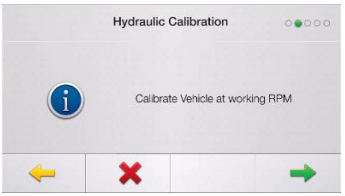


Figure 5-35: Hydraulic Calibration Step 1

The Mounting (Roll Bias) calibration must be completed before the Valve calibration is begun.

Use the green and yellow arrows to navigate between the different calibration steps. You can cancel the calibration with the red X if needed.



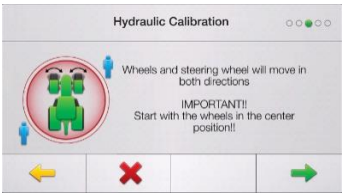


Figure 5-36: Hydraulic Calibration Steps 2 and 3

IMPORTANT!! Start with the wheels in the center position!!

Figure 5-37: Hydraulic Calibration Step 4

Ensure the calibration has been successful and confirm by pressing the green checkbox.

Figure 5-38: Hydraulic Calibration Step 5

Wheel Angle Calibration

The **Wheel angle sensor** will be auto populated by the selected valve type. ***Do not make any changes to this section.***

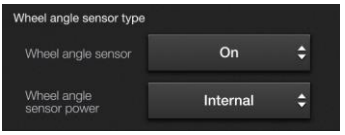


Figure 5-39: Wheel Angle Sensor Type

To calibrate the **Wheel angle**, select Calibrate.

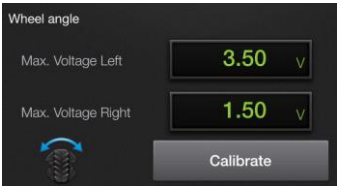


Figure 5-40: Wheel Angle Calibration Values

Follow the onscreen messaging during the different calibration steps. The Wheel angle sensor calibration requires a smooth and clear surface with a diameter of 300 feet.

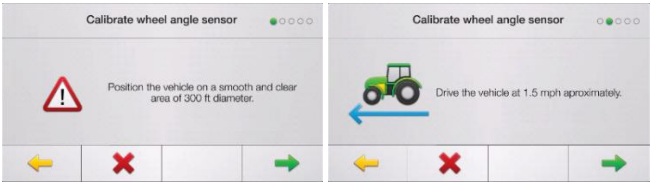


Figure 5-41: Wheel Angle Sensor Calibration Steps 1 and 2

Use the green and yellow arrows to navigate between the different calibration steps. You can cancel the calibration with the red X if needed.

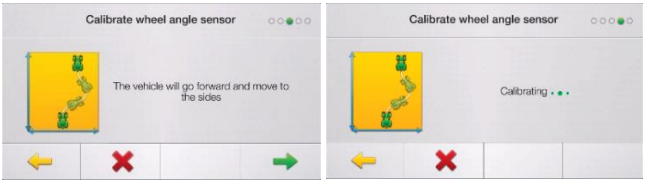


Figure 5-42: Wheel Angle Sensor Calibration Steps 3 and 4

Ensure the calibration has been successful and confirm by pressing the green checkbox.

Figure 5-43: Wheel Angle Sensor Calibration Step 5

Estimate Open-Loop Gain Calibration

To calibrate the **Estimate open-loop gain**, select Calibrate.

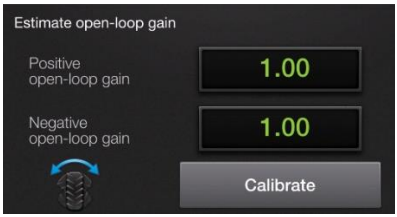


Figure 5-44: Estimate Open-Loop Gain Calibration Values

Follow the onscreen messaging during the different calibration steps. The Estimate open-loop gain calibration requires a smooth and clear surface with a diameter of 300 feet.

Figure 5-45: Estimate Open-Loop Gain Calibration Steps 1 and 2

Use the green and yellow arrows to navigate between the different calibration steps. You can cancel the calibration with the red X if needed.

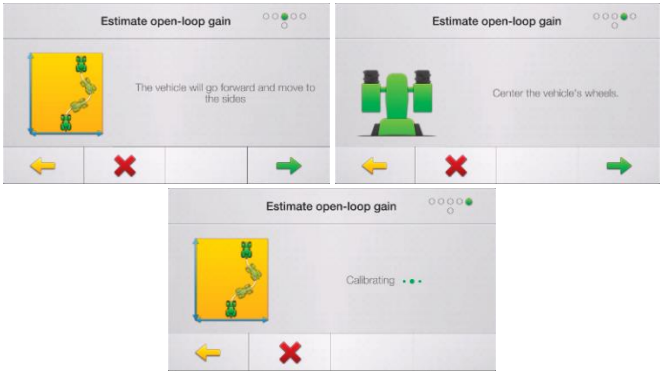


Figure 5-46: Estimate Open-Loop Gain Calibration Steps 3, 4, and 5

Ensure the calibration has been successful and confirm by pressing the green checkbox.

Figure 5-47: Estimate Open-Loop Gain Calibration Step 6

Valve Options

No values should be adjusted on this page unless instructed by an Outback Dealer or Outback Customer Service.

If there is an issue with the machine's performance, a new vehicle profile should be created, and a new vehicle calibration process should be completed.

Note: Not all options are available on all valve types.

The **Valve options** section displays the calibrated values for selected valve type and is used for troubleshooting only.

Figure 5-48: Valve Options

Hyd. Danfoss Calibration Process

For Hyd. Danfoss valve type, press the **Configure** button to begin calibration. Follow the onscreen messaging during the different calibration steps.

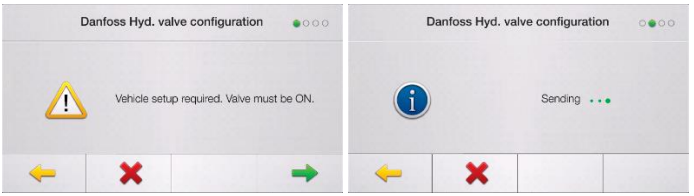


Figure 5-49: Hyd. Danfoss Valve Calibration Steps 1 and 2

Ensure the calibration has been successful and confirm by pressing the green checkbox.

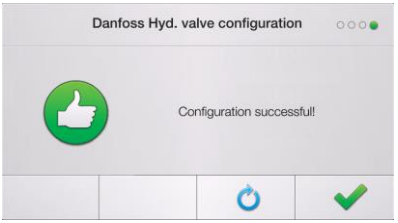


Figure 5-50: Hyd. Danfoss Valve Calibration Step 4

The value from the valve will be populated in the corresponding box for Angle Max. Left and Angle Max. Right.

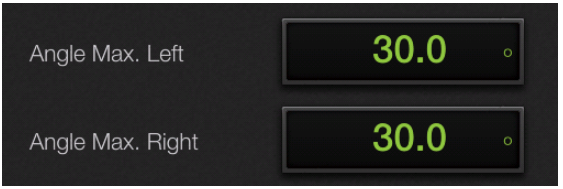


Figure 5-51: Angle Max. Left and Right Values

The **Wheel angle estimate** is required to calibrate the eDrive ESi², it will populate the **Clockwise** and **Counterclockwise** wheel angle estimates. If calibrating a Tracked Tractor with ESi² **Dead Zone** is shown and will be calibrated during the calibration process, see **Figure 5-53**.

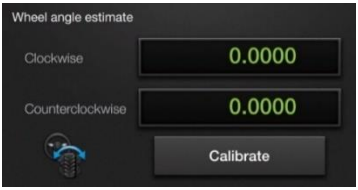


Figure 5-52: Wheel Angle Estimate Calibration Values

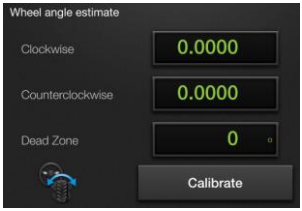


Figure 5-53: Tracked Tractor Calibration Values Only

Note: It is common that the **Clockwise** and **Counterclockwise** wheel angle estimate numbers are not identical.

Initiate the calibration process by pressing the **Calibrate** button. Follow the onscreen messaging during the different calibration steps. The wheel angle estimation calibration requires a smooth and clear surface with a diameter of 300 feet.

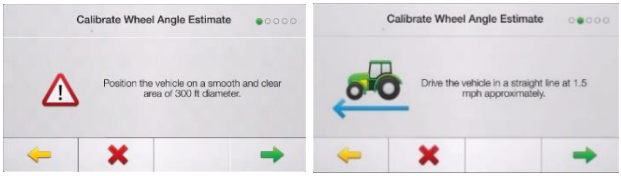


Figure 5-54: Wheel Angle Estimate Calibration Steps 1 and 2

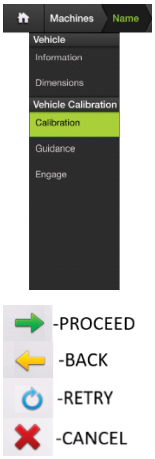
Use the green and yellow arrows to navigate between the different calibration steps. You can cancel the calibration with the red X if needed.

Figure 5-55: Wheel Angle Estimate Calibration Steps 3 and 4

Ensure the calibration has been successful and confirm by pressing the green checkbox.

Figure 5-56: Wheel Angle Estimate Calibration Step 5

Wheel Lock Calibration



Note: This step is not used for Tracked machines

The **Wheel lock (Minimum Turn Radius)** calibration determines the minimum turn radius of the vehicle when it is equipped with the eDriveM1 steering controller.

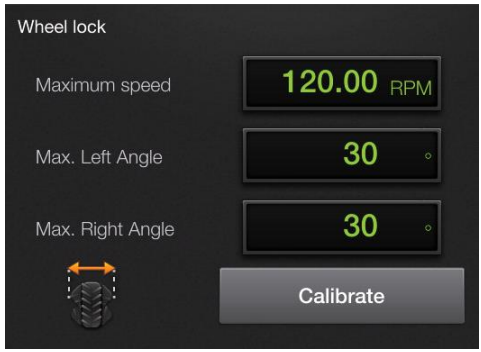


Figure 5-57: Wheel Lock Calibration Values

Initiate the calibration process by pressing the **Calibrate** button. Follow the onscreen messaging during the different calibration steps.

During this calibration, the wheels will turn abruptly to the left and right lock position to determine the minimum turning radius of the vehicle.

Figure 5-58: Wheel Lock Calibration Steps 1 and 2

Use the green and yellow arrows to navigate between the different calibration steps. You can cancel the calibration with the red X if needed.

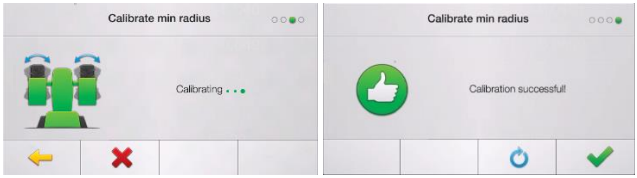


Figure 5-59: Wheel Lock Calibration Steps 3 and 4

Ensure the calibration has been successful and confirm by pressing the green checkbox.

Note: The calibration can be interrupted at any time by stopping the vehicle.

Mechanical Play Calibration

Mechanical Play calibration is used for post calibration steering adjustments and is not required for completion of the calibration.
Note: This is not available for Tracked machines

The default value of 10° is sufficient for most applications.

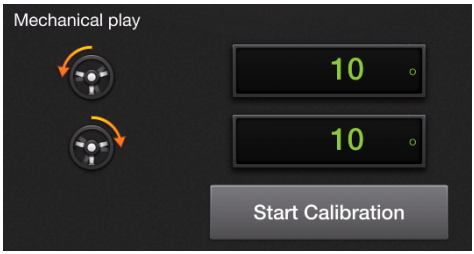
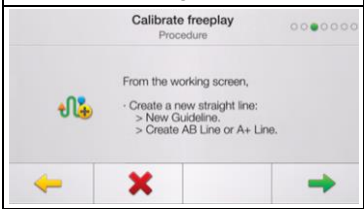
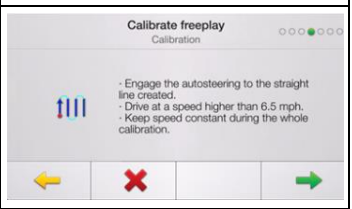


Figure 5-60: Mechanical Play Calibration Values

Press the **Start Calibration** button.

The MaveriX will display the steps necessary to complete the **Mechanical Play Calibration**. Read the screens for the calibration process, and on the last screen press the green checkmark to begin the calibration process.

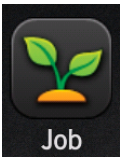
-PROCEED
-BACK
-CANCEL

1	2
	
3	**4**
	
5	**6**
	

Continued on next page

After selecting the green checkmark to begin the calibration process, the Calibration screen appears, and the **Start Calibration** button is changed to **Cancel Calibration**.

Now that the calibration process has begun, the user will go to the **Job Mode**.



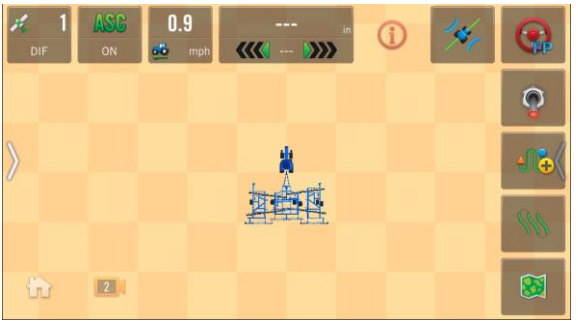


Figure 5-61: Job Mode View

The **Steering Widge**t displays **FP** on the icon, indicating the calibration is active.

Start a new job on the MaveriX. (For more information on starting a new job, see Chapter 4, Job Widgets).

Open the **AB Menu** or the **A+ Direction Menu** and set a straight AB guidance path. (For more information on using Guidance, see Chapter 4, Guidance Menu).

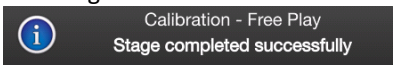
Continued on next page

After the AB line is set:

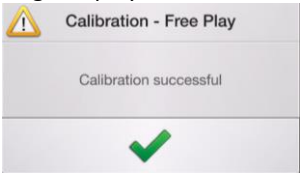
1. Engage the autosteering.
2. Drive at a minimum speed of 6.5 mph (10 kph).
3. Keep speed constant during the entire calibration.
4. While long passes are recommended, the user can disengage and reengage as needed. But it is recommended to stay on a consistent surface.

Figure 5-62: Mechanical Play Calibration View

During the **Mechanical Play** calibration, the MaveriX system displays popup messages 4 times. All 4 messages are the same:



After the 4th message displays, the MaveriX steering system disengages, and the **Calibration Successful** message displays.



Press the green checkmark to confirm the calibration. Then return to the Machine menu > Vehicle Calibration screen to view the calibrated values.

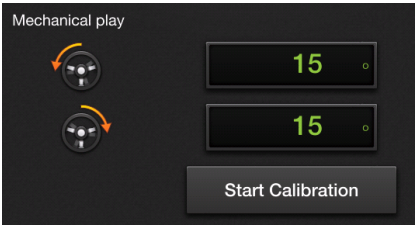


Figure 5-63: Mechanical Play Calibration Values

If the difference between the new values is more than 5 degrees, the **Mechanical Play** calibration will need to be repeated.

Steering Settings

The **Steering Settings** section has two options that the user can turn on or off.

- **Heading Merge** – used for Self-Propelled sprayers at higher speeds only.
- **Adaptive Gain** – should **not** be used unless instructed by Outback Customer Service.

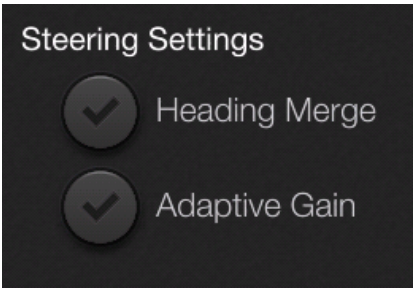


Figure 5-64: Steering Settings

To activate or deactivate either option, press on the correlating checkmark:

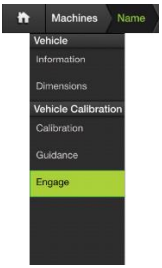
 -ON  -OFF

Guidance

The **Guidance Menu** is for *development purposes only*.

Values should not be adjusted.

Engage



The **Engage Menu** contains settings regarding engaging and disengaging guidance lines.

Hydraulic and Steer Ready	ESi²
	

If **Engage** is turned on, it will open an additional extensive menu.

The user can set:

- Maximum speed allowed for engaging on a guidance line.
- Maximum distance allowed for engagement from the guidance line.
- Maximum angle allowed to engage on a guidance line.

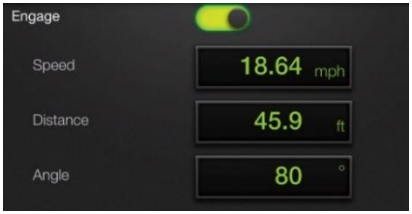


Figure 5-65: Engage Max Values

Aggressiveness – adjust the aggressiveness in which the MaveriX will attempt to engage on a guidance line. 1 is less aggressive and 10 is the most aggressive.

Figure 5-66: Aggressiveness Slide Bar

The **Disengage** section will only populate for ESi² valve type. The **Disengage Sensitivity** should not be adjusted.

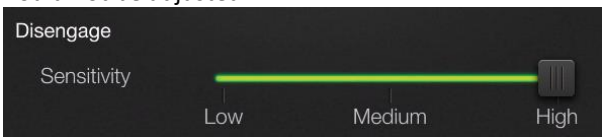


Figure 5-67: Disengage

Vehicle Automatic Turn (eTurns)

The **Automatic turn** (eTurns) will only display in this section if sprayer, combine, or swather vehicle type is selected. If using a Vehicle and Implement see Implement Automatic Turn (eTurns) for calibration.

Automatic Turn requires an activation to use.

Automatic turn (eTurns) is for developmental purposes and is currently unsupported.

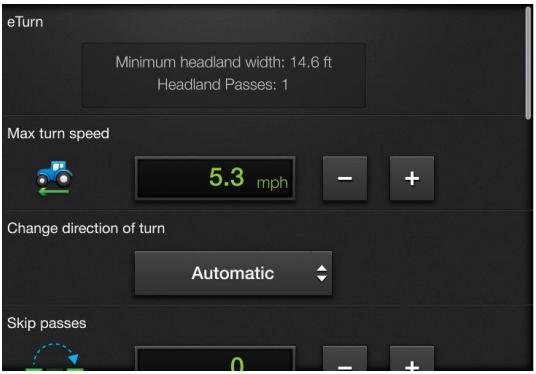


Figure 5-68: Automatic Turn Menu

Implements

On the **Machines Menu**:

- Select an existing implement for use
- Select an existing implement to edit or delete
- Create a new implement

Swiping left or right will change the highlighted implement. To edit or create a new machine, highlight the desired selection, and press on it.

The highlighted implement will be used in the **Job Menu**.

Note: With some vehicle types (example: sprayer), the implement profile is not used. If this vehicle type is selected, the implement section is greyed out.

Figure 5-69: Machine Menu

Create Implement

Click **Create new** to initiate a new implement setup, and the **New Implement Menu** displays.

Figure 5-70: Create New Implement

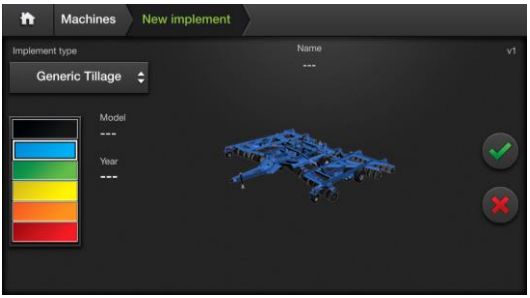


Figure 5-71: New Implement

Implement Type and Color

Use the **Implement type** drop-down menu to choose the type to match your machine.

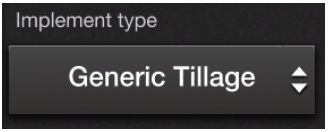


Figure 5-72: Implement Type

Scroll through the list and click to select the desired implement type:

- Generic Tillage
- Planter
- Drill
- Sprayer
- Spreader
- Grain cart

Note: Depending on the chosen implement type, the displayed 3D implement model will change accordingly. This will also impact the displayed 3D implement model that is displayed on the map during **Job Mode**.

Use the color configuration bar on the left side of the **Implement Setup Menu** to configure the desired color of the vehicle.

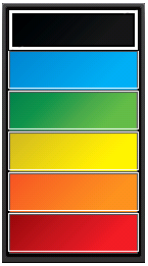


Figure 5-73: Color Options

The vehicle will change the color accordingly.

Note: The vehicle color configuration is optional but is not required to complete the vehicle setup.

Implement Name

Identify the **Implement Name** area within the UI shown in Figure 5-74.

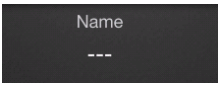


Figure 5-74: Implement Name

Double-click the **Implement Name** area to open the keyboard.

> **Note:** The **Implement Name** can only contain the following:
> - Letters (a-z, A-Z)
> - Numbers (0-9)
> - Hyphens (–)
> - Underscores (_)
> - Spaces
>
> Maximum length of 20-character spaces.

Type the **Implement Name** and press **Done**.

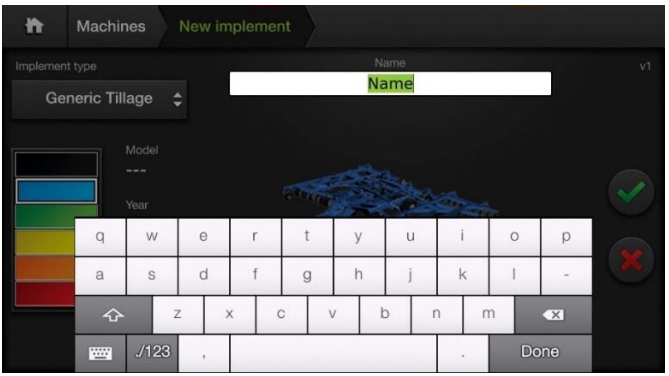


Figure 5-75: Implement Name Input

The **Implement Name** is now configured.

Implement Model and Year

Repeat the same process to configure the **Implement Model** and **Year**.

Figure 5-76: Implement Model and Year

Model can use any combination of letters, numbers, and symbols up to 8-character spaces.

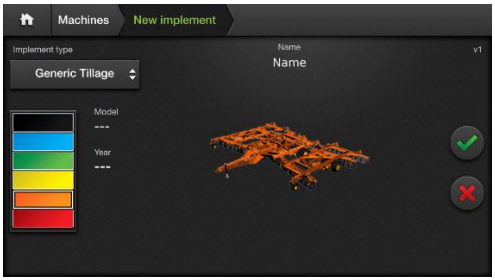
Year requires 4 digits for the year and must be dated between 1900-2099.

> **Note:** The **Model** and **Year** configurations are optional, but the **Implement Name** is required to complete the configuration.

Completing Implement Profile

After the user has entered the information for the **Implement Profile**:

- Click the **Checkmark** button to complete a new **Implement Setup**.
- If the **Implement Setup** is no longer required, it can be canceled with the red X button.



This step completes the new implement creation.

Figure 5-77: New Implement

Implement Information

After the implement creation has been completed, the below screen displays:

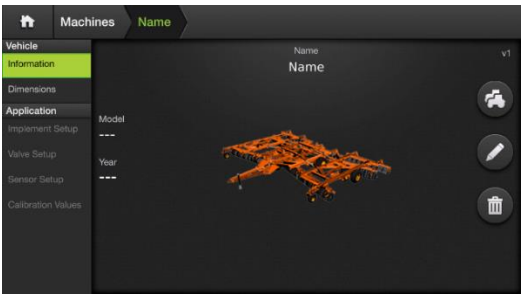


Figure 5-78: Implement Information

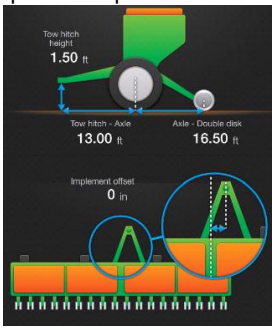
Use the 3 button options on the right side of the screen to complete the following actions:

	- Copy current implement profile
	- Edit current implement's information, including: • Name • Year • Model • Color
	- Delete current implement.

Implement Dimensions

The **Implement Dimensions Menu** allows users to configure the following measurements specific to each implement and the MaveriX Precision Ag system installation:

- Hitch dimensions
- Axle dimensions
- Implement-specific dimensions
- Implement offset
- Sections and total boom width
- Overlap/skip



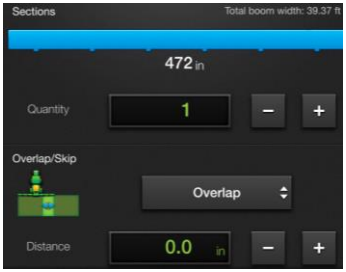


Figure 5-79: Implement Dimensions Menu

Entering Dimensions

Double-click the desired dimension to change the setting for the individual vehicle:

- Some measurements will not accept a negative number.
- The box containing the value will be green if the entered value is acceptable. If the entered value is unacceptable as entered, the box will be red.

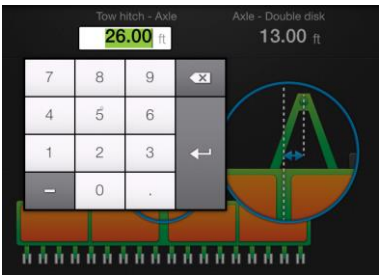


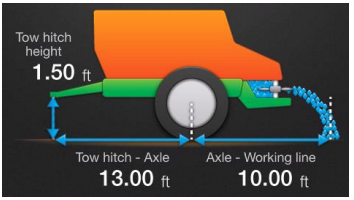
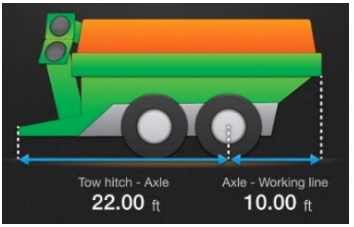
Figure 5-80: Entering Dimensions

Push **Enter** to confirm the setting.

Note: The system assigns a default dimension to each implement type. It is important for automated steering and application control that the specific machine measurements are entered for each vehicle.

Measuring Implement Dimensions

When measuring implement dimensions, refer to the **Dimensions** screen for the specific required measurements for each implement type. Any measurement that is vertical is from the ground to the center of the measurement point. Any measurement that is horizontal is center to center of the measurement points.

	Generic Tillage
	Planter Drill
	Pull-Type Sprayer
	Spreader
	Grain Cart

Sections

In the **Sections** portion of the **Dimensions Menu**, the user can adjust the number of sections and the measurement of the sections. The total boom width is the sum of all the sections measurements.

Figure 5-81: Sections

When the sections' quantity is increased to 3 or more odd number of sections, the left measurement is for the center section, and the right measurement is for both the outside right and left sections.

Figure 5-82: Sections Alternate View

When the sections' quantity is increased to 4 or more even number of sections, the displayed sections are mirrored for the left and right sections.

Overlap/Skip

Enter a value to drive a pattern where rows intentionally **Skip** or **Overlap**.

When you enter a **Skip** or **Overlap**, the map shows this as an area between swaths in the green coverage lines where a **Skip** is the non-sprayed area between swaths and an **Overlap** is the dark green overlap between swaths.

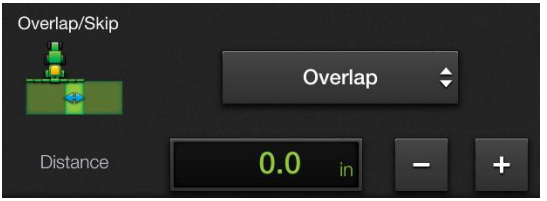


Figure 5-83: Overlap/Skip

Use the drop-down box to change between **Overlap** and **Skip**. To enter a value for **Distance**:

- Double press on the value box to open a number pad to type in the value.
- Use the – or + buttons to decrease or increase the value by .1 in for each press.

Implement Offsets

The **left/right implement offset** is the lateral (perpendicular) distance between the center of the implement and the centerline of the vehicle.

When calibrating a **left/right implement offset**, you are compensating for a **physical implement offset**.

To compensate for a **physical implement offset**:

- Measure the effect of the uncompensated implement offset
- Calculate the offset adjustment required
- Enter the calculated adjustment to compensate for the physical implement offset

Calibration is required if the vehicle successfully repeats its passes while driving up and down on a straight A=B line without an implement but shows an offset (skip or overlap) during field work with an implement attached. In this case, the implement is not centered in relation to the vehicle centerline. To compensate for this, complete a **left/right implement offset** calibration for each implement used with MaveriX.

The **left/right implement offset** (for which you will compensate) comprises a measured distance (the amount of the offset) and a direction (left or right of vehicle centerline). In the figure to the left, the offset distance (or amount) is X, and the direction is right. Because it is difficult to measure the **left/right implement offset** on the vehicle/implement combination, you must determine the offset in the field to ensure maximum field work accuracy.

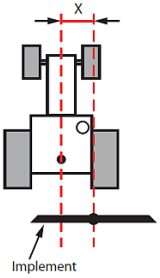


Figure 5-84: Implement Offset

Note: Calibration compensates for a static **left/right implement offset** caused by the physical dimensions of the implement. It does not prevent offsets caused by dynamic movements of the implement (such as drift on a slope).

See Setting the Left/Right Implement Offset - Preferred Method and Setting the Left/Right Implement Offset - Alternative Method that describe the two ways to determine the left/right implement offset.

Setting the Left/Right Implement Offset – Preferred Method

This method for setting the implement offset is the preferred method because it eliminates the possibility of errors caused by an incorrect vehicle width. To determine the implement offset:

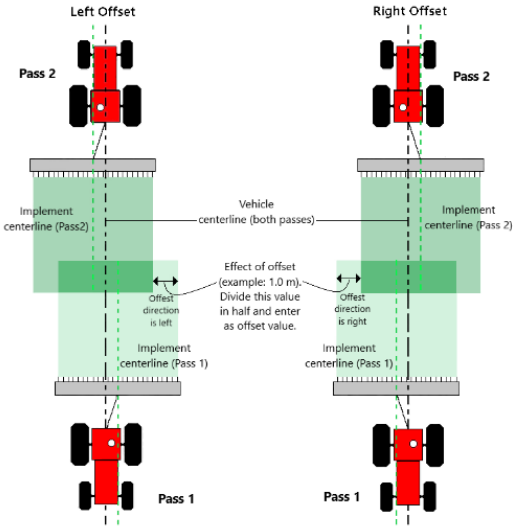


Figure 5-85: Determining Implement Offset

1. Set an AB guidance path. See AB Menu.
2. Maintaining a speed of 5 kph (3 mph) engage steering and, with good crosstrack and the implement straight, let the system steer you along the guideline for at least 100m. Ensure the implement is in sufficient contact with the ground to leave a visible swath. See Pass 1 in the figure above.
3. Perform a keyhole turn, re-engage the steering, and let the system steer you down the same guideline, again with good crosstrack and with the implement straight. See Pass 2 in the figure to the left.
4. Measure the effect of the uncompensated implement offset shown in the figure to the left (1.00 m in example)—it is the width of the first swath not covered by the second swath.
5. Divide the measurement by two. This is the amount of the physical offset of the implement—the offset you need to compensate for and need to enter as the implement offset in the Implement Configuration screen (see step 7 below)—so 0.5 m in the figure above (and see step 8 below).
6. Determine the direction of the offset—this is the left or right direction of the implement's centerline relative to the vehicle centerline when viewed in the direction of travel. See the figure above for examples of both a left and right offset.

Continued on next page

7. Navigate to the **Dimensions Menu** (Home > Machines > (implement) > Dimensions), if necessary, scroll down to display the screen below.

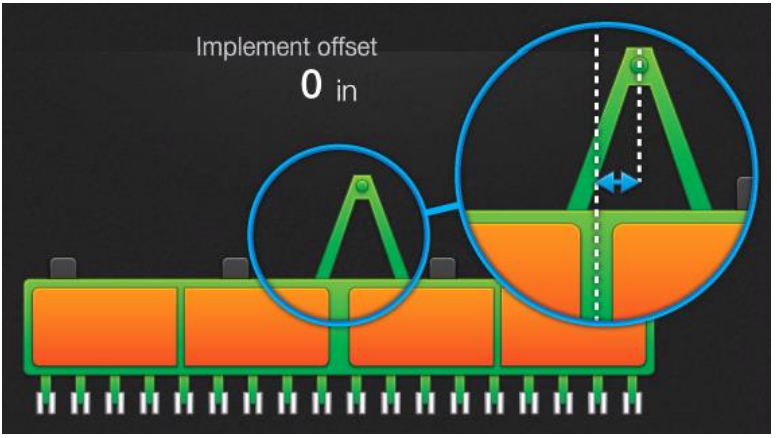


Figure 5-86: Entering Implement Offset

8. Enter the left or right implement offset by selecting the **Implement offset** value (displayed at 0 is picture above). This opens a number pad for the user to enter the value in inches. Enter a positive value for a right offset and a negative value for a left offset.
9. Test the completed calibration by letting the system control up and down on a new A=B line. The second swath should overlay the first exactly. If it does not, repeat the calibration.

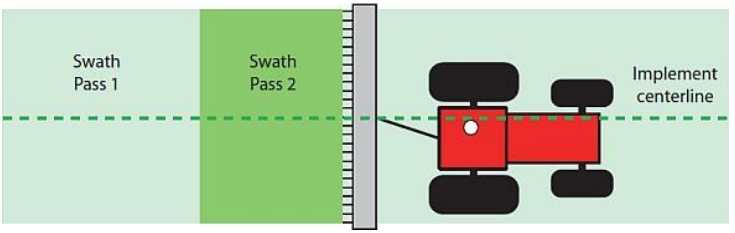


Figure 5-87: Implement Offset Test

Note: If test results show skips or overlaps after calibrating both the antenna and implement offsets, make sure the implement width is correct.

Setting the Left/Right Implement Offset - Alternative Method

With this method, instead of driving two passes on the same guideline—one in each direction—drive three passes on adjacent guidelines.

Depending on the direction of your implement offset (left or right), you will get a skip or an overlap on the second pass and the opposite on the third pass.

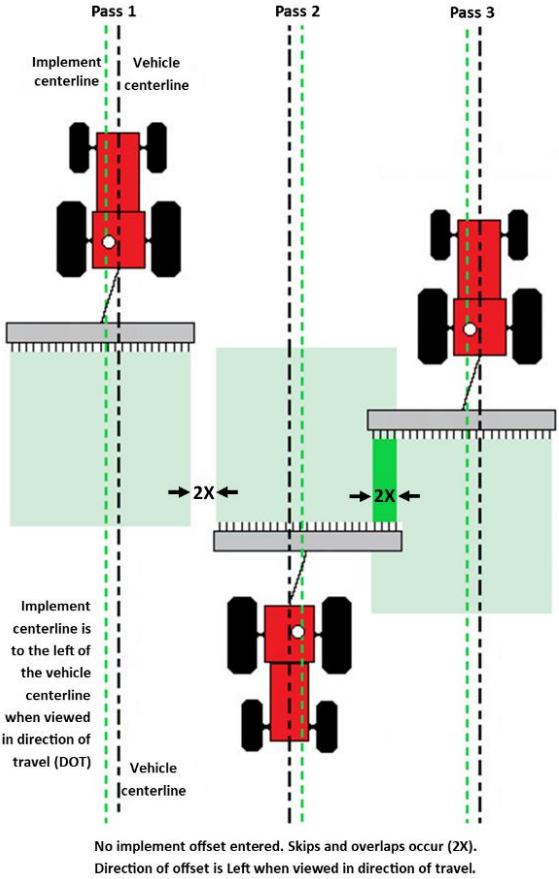
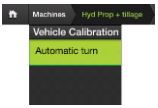


Figure 5-88: Determining Implement Offset Alternative

The amount of skip and overlap will be the same. Either one you choose to measure (2X) divide it in half and enter the result as the implement offset (X) along with the direction of the offset.

Note: If the offset were to the right, Pass 2 would produce overlap, Pass 3 would produce skip.

Implement Automatic Turn (eTurns)



Automatic Turn requires an activation to use.

Automatic turn (eTurns) is for developmental purposes and is currently unsupported.

To access the calibration menu for Implement Automatic Turn (eTurns) select the Link icon between the Vehicle and Implement.

Figure 5-89: Vehicle/Implement Link

Once the Link icon is selected, the user will be directed to the calibration screen.

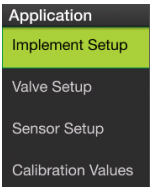
Figure 5-90: Implement eTurn Calibration

Once the calibration is completed, the Link icon turns green.

Figure 5-91: Completed eTurns Calibration

If using only a vehicle, see Vehicle Automatic Turn (eTurns) for calibration.

AC110



For both **Vehicle** and **Implement** profiles, the **Application** (AC110) setup is the same process.

Note: The **Application** section is only available if an AC110 is connected to the MaveriX system and powered on.

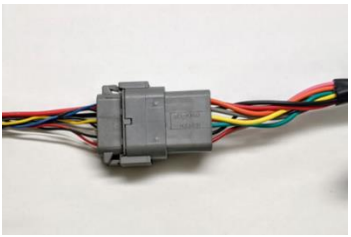
Connecting to AC110

Verify Terminal and AC110 Software

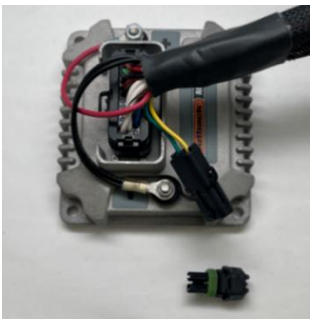
Verify that the minimum installed software on the MaveriX is v1.4 and the AC110 is 3.1.6 b01. To verify current software, go to Diagnostics > Terminal > Information and Diagnostics > AC110 > Information.
For the latest software please visit the Outback Guidance Knowledgebase.

Harness Connections

The MaveriX terminal connects to any existing AC110 installation harness by using the 051-0437-10 harness. Connect this harness by teeing into any 12 pin junction in the MaveriX system and connecting the round connector labeled AC110 to its corresponding connector on the AC110 installation harness. For a complete system cabling diagram please refer to the MaveriX Cable Diagram.



When using the AC110 with a MaveriX terminal, locate the 2 pin weatherpack CANBUS terminator on the AC110 installation harness and remove it. If using the AC110 with Rebel or older outback terminals, reinstall the terminator.



Powering on AC110

AC110 can be powered on one of two ways; The 054-0185-000 power switch cable or the 051-0437-10 cable. Connect the 4-pin connector of the 054-0185-000 or the 051-0437-10 cable to the AC110 harness. If using the 054-0185-000 cable, the AC110 will be switched on/off manually. If using the 051-0437-10 cable the AC110 will be switched on/off automatically with the MaveriX terminal.

054-0185-000

051-0437-10

Implement Setup

In the **Implement Setup** section, the user can set the following options:

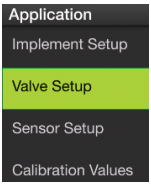
- **Tank capacity -** set the amount of product in the tank.
- **Nozzles quantity -** set the total number of nozzles for the boom.
- **Sections delay -** *(see **Table 5-1** , below for more information)*
- **Overlap Tolerance** - Enter the amount of overlap for entering and exiting the headlands.
- **Look ahead -** set the valve advanced time.
  - (***Prescription Maps Only***)
  - (***Future Development***)

Figure 5-92: Implement Setup Menu

Table 5-1: Section Delay

	**On Time** - Enter the number of seconds needed to open the boom valves and build pressure ahead of an unapplied area. Increase the number to turn on sooner.
	**Off Time** - Enter the number of seconds needed to close the boom valves ahead of a previously applied area. Increase the number to turn off sooner.

Valve Setup



In the **Valve Setup** section contains:

- **Master valve** – *used for development purposes only.*

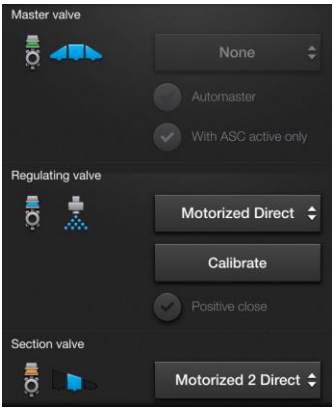
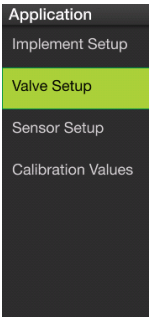


Figure 5-93: Valve Setup Menu

- **Regulating valve** – in this section the user will select the Regulating valve type from the following options:
  - **Motorized Direct** – Two-wire electric motor opens/closes the flow control valve to increase/decrease the application flow rate.
  - **Motorized Inverse** – Two-wire electric motor opens/closes the flow control valve to inversely decrease/increase the application flow rate.
  - **PWM** – Electrohydraulic solenoid valve proportionally increases application flow rate with increased duty cycle (voltage).
  - **PWM Ground** – Electrohydraulic solenoid valve proportionally decreases application flow rate with increased duty cycle (voltage).
  - **PWM 2** – Similar to PWM but with a slower algorithm; use when rate control is too unstable when using PWM.
  - **PWM 2 Ground** – PWM 2 Ground Similar to PWM Ground but with a slower algorithm; use when rate control is too unstable when using PWM Ground.
    - **Positive close** (On or Off) – Turn on for installations where the rate control valve is also used to stop and start product application, for example when no boom On/Off or section valves are present.
- **Section valve** – in this section the user will select the Section valve type from the following options:
  - **Motorized 2 Direct** - electric motorized valve that is:
    1) driven open with a positive voltage signal, and
    2) driven closed by a negative voltage signal across two signal wires.
  - **Motorized 2 Inverse** - electric motorized valve that is:
    1) driven open with a positive voltage signal, and
    2) driven closed by a negative voltage signal across two signal wires.
  - **Motor/SOL 1 Direct** - electric motor or solenoid valve that is:
    1) driven open with a single positive voltage signal, and
    2) returned to a closed position by a spring or other automatic means.
  - **Motor/SOL 1 Inverse** - electric motor or solenoid valve that is:
    1) driven closed with a single positive voltage signal, and
    2) returned to an opened position by a spring or other automatic means.

AC110 Calibration



To Calibrate AC110, first the user will need to setup the Regulating valve type, whether Positive close needs to be on or off, and the Section valve type. It will also require the user to have water in the tank to run calibration. After the information is entered, select the Calibrate button.

Figure 5-94: Regulating Valve Options

The below message will display, to proceed with the calibration of the AC110, press the green arrow, to cancel press the red X or yellow back arrow.

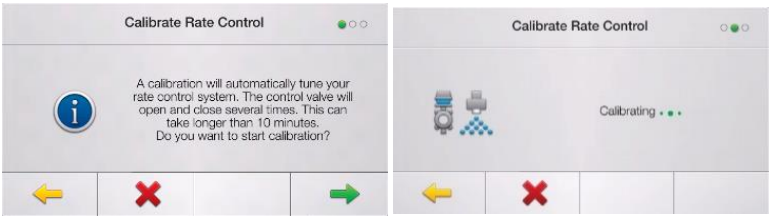


Figure 5-95: Rate Control Calibration Steps 1 and 2

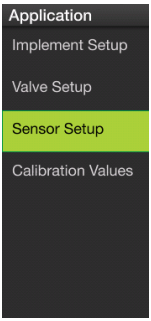
Note: The calibration process can be canceled at any time by pressing the red X or yellow back arrow.

If there is a failure during the calibration process, the following message will display.

Figure 5-96: Rate Control Calibration Error

After a successful calibraiton is completed the following message will display. Press the green arrow to complete calibration process or the blue arrow to re-run calibration.

Figure 5-97: Rate Control Calibration Completion



The **Master Switch** section is used to select the location of the Master Switch (Internal or AC110).

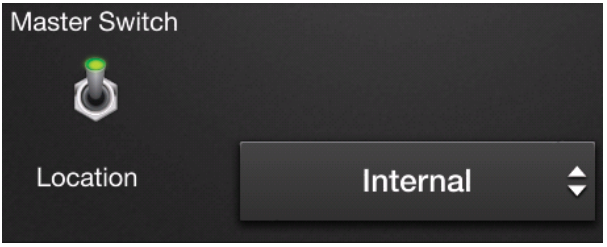


Figure 5-98: Master Switch

Internal – If using the Apply widget on MaveriX.
AC110 – If using an External Master switch.

Figure 5-99: Spraying Flowmeter

Spraying flowmeter

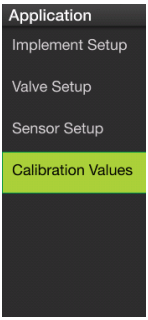
Press to display a keypad where you enter a meter calibration value. Locate the meter calibration tag or stamp on the flow meter and the corresponding calibration value.

- For Raven systems, divide the calibration number by 10 and enter this number. For example, if 169 is the calibration value, enter 16.9.
- For TeeJet meters, enter the number as is.
- Many TeeJet meters list the calibration value in pulses/liter. It may be easier to change the units in MaveriX to metric, enter the meter calibration, then change units back to U.S.

Nh3 Mode

- Set to On for NH3 (anhydrous ammonia) control. Rate will be in lbs. nitrogen/acre (US) or kgs nitrogen/hectare (metric). The volume remaining in the tank will be lbs. or kgs of NH3.
- Set to Off to set any other liquid as the application liquid.

Calibration Values



The **Calibration Values** page contains settings and the calibration values from the calibration. See **Table 5-2: Calibration Values Descriptions.**

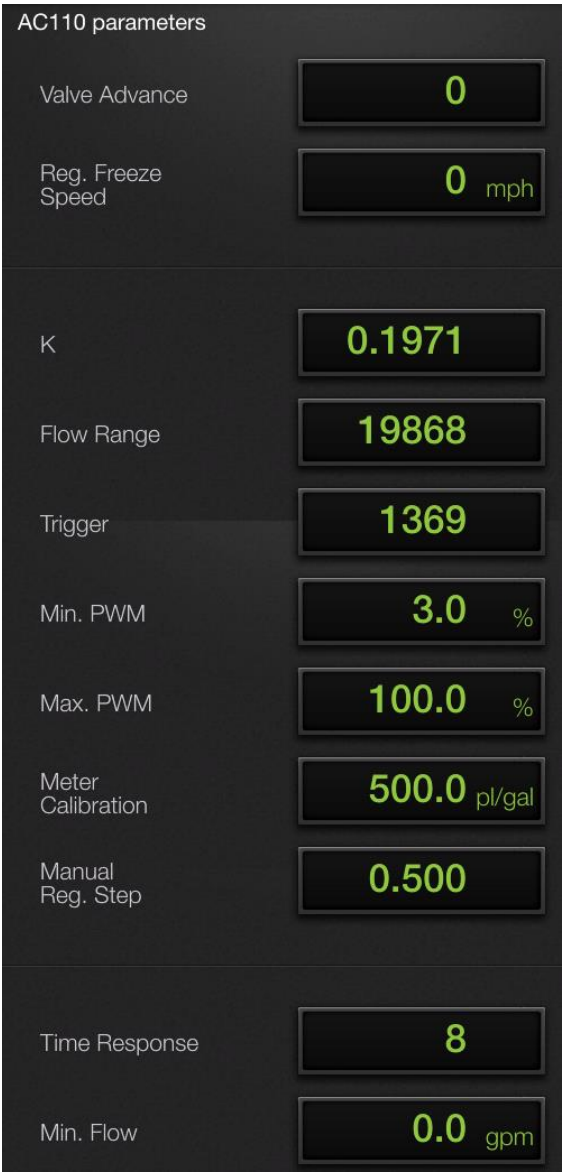


Figure 5-100: AC110 Calibration Values

Continued on next page

Table 5-2: Calibration Values Descriptions

Name	Description
Valve Advance	*(Applies to PWM and motorized valves only)* For PWM and motorized valves you can enter a value to increase the valve position when coming out of headlands. For example, if spray comes on and briefly turns off when coming out of a headland (due to the boom having to recharge) you can enter a Valve Advance value to compensate for this. The range of Valve Advance values is 0 – 20 for PWM and Servo/motorized valves, where: • For PWM, 0 – 20 equals 0 – 20% increase from valve's current position • For motorized, 0 – 20 equals 0 – 2000 ms When you are no longer applying product (Apply button displays Off or section is Off): • For PWM, the system increases the valve's position by the % you entered • For motorized, the system opens the valve the specified number of ms before it normally opens
Reg. Freeze Speed	Set the min speed of vehicle and the regulating valve will be held constant and not adjust below this configurable speed.
K	Gain, or how fast the system attempts to hit the target rate.
Flow Range	The maximum flow of the system in pulses.
Trigger	How soon before the target rate that the system switches to fine control. (l/min or gal/min)
Min. PWM	Minimum voltage (percentage) to receive a control valve response.
Max. PWM	Maximum voltage (percentage) to receive a control valve response.
Meter Calibration	The value entered for the Flow Meter's calibration value.
Manual Reg. Step	The amount (seconds or volts) in manual mode when pressing the increase or decrease buttons on the Rate Option widget. (**Note:** *Servo valve is seconds and PWM valve is volts.*)
Time Response	Measure of how quickly the rate control system will react before adjusting the actual rate when it deviates from the target rate.
Min. Flow	Without a Min Flow setting the tips on your sprayer may shut off when flow drops below a certain rate (such as due to a drop in vehicle speed when traveling through a rough spot in the field). The Min Flow value you enter is the flow rate above which MaveriX will continue to spray (apply product) and not close the regulating value completely and will maintain a minimum flow independent of speed and number of sections closed. (**continued on next page**)

Continued on next page

Continued from Table 5-2:

To determine the Min Flow Setting value for your implement:

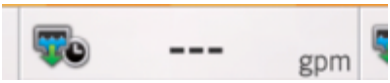
1. Identify the flow rate at which the spray tips begin to shut off.

   a. Put the system in Manual mode.

Figure 5-101: Rate Options Widget

   Open the Rate Options widget to display the Product Rate panel, set to Manual, then press the Rate Bump arrows (up arrow increases rate, down arrow decreases rate) to drop the rate until the tips shut off. See Ch. 4: Widgets for more information.

   b. Identify what the flow value is on the Rate Options widget.



2. Enter a Min Flow Setting value that is slightly higher than the value from the previous step.

   Go to the Home Screen > Select the Machines icon > Select the current vehicle or implement > under Application, select Calibration Values > scroll down to Min Flow and double click in box to open number pad > enter value > press the enter key.

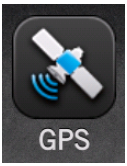
Chapter 6: GPS

Overview

Introduction This chapter covers the **GPS Menu** on the MaveriX terminal.

Contents

GPS Menu Overview



The **GPS Menu** is used to review and configure all GPS settings for the MaveriX Precision Ag system.

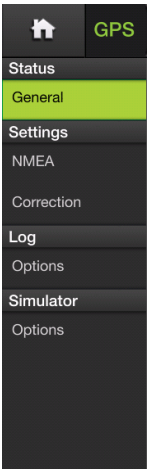
The main sections of the **GPS Menu** are as follows:

- General
- Settings
- Log
- Simulator

Access the **System Menu** from the **Home Screen** to review and configure all the system settings.

Figure 6-1: GPS Menu

GPS Status



The **Status** page includes general information about the GPS system status. It can be reached by following the Home > GPS > Status > General menu. The **Status** page includes the following information (see Table 6-1 for section descriptions):

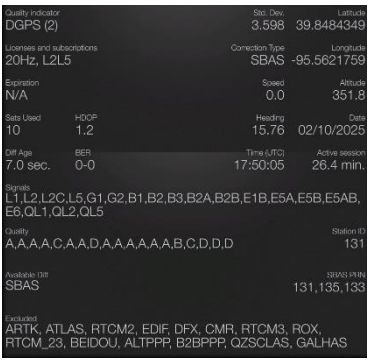


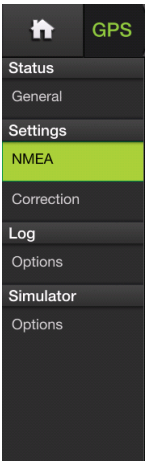
Figure 6-2: GPS Status

Continued on next page

Table 6-1: GPS status page

<table>
<tr><th>Section</th><th>Description</th></tr>
<tr><td>Quality Indicator</td><td>2 – SBAS
4 – RTK Fix, GALHAS Converged, or Atlas Converged
5 – RTK Float, GALHAS Converging, or Atlas Converging</td></tr>
<tr><td>Std. Dev.</td><td>Standard Deviation – Pseudo-estimate of the DGPS solution accuracy determined as the RMS value of the positional residual errors. Std Dev is valid only if 6 or more satellites are used in the solution calculation.</td></tr>
<tr><td>Latitude</td><td>Vehicle’s current latitude position</td></tr>
<tr><td>Licenses and Subscriptions</td><td>Active GNSS licenses or subscriptions</td></tr>
<tr><td>Correction Type</td><td>Type of differential correction being used.</td></tr>
<tr><td>Longitude</td><td>Vehicle’s current longitude position</td></tr>
<tr><td>Expiration</td><td>Expiration date of GNSS subscriptions</td></tr>
<tr><td>Speed</td><td>Vehicle’s current speed</td></tr>
<tr><td>Altitude</td><td>Vehicle’s current altitude</td></tr>
<tr><td>Sats Used</td><td>Number of GPS satellites used to calculate the position</td></tr>
<tr><td>HDOP</td><td>Horizontal Dilution of Precision</td></tr>
<tr><td>Heading</td><td>Vehicle’s current heading in degrees</td></tr>
<tr><td>Date</td><td>Current date</td></tr>
<tr><td rowspan="2">Diff Age</td><td colspan="4">Age of the corrections used in the DGPS calculation. Values > 120 seconds require acquiring a new RTK lock. Below are the typical Diff Age in seconds by correction type.</td></tr>
<tr><td>RTK</td><td>Atlas</td><td>GALHAS</td><td>SBAS</td></tr>
<tr><td></td><td>1-2</td><td>10-18</td><td>2-12</td><td>6-10</td></tr>
<tr><td>BER</td><td>Bit Error Rate – Relative strength of the correction satellites. Two numbers are shown separated by a hyphen. The number can be from 0 to 500, with 0 being the best and 500 being the worst.</td></tr>
<tr><td>Time (UTC)</td><td>Current UTC time</td></tr>
<tr><td>Active Session</td><td>Length of current session</td></tr>
<tr><td>Signals</td><td>GNSS signals being used</td></tr>
<tr><td>Quality</td><td>Quality of GNSS signals</td></tr>
<tr><td>Station ID</td><td>ID of correction station</td></tr>
<tr><td>Available Diff</td><td>Differential corrections the receiver is getting</td></tr>
<tr><td>SBAS PRN</td><td>Satellites used by SBAS</td></tr>
<tr><td>Excluded</td><td>Differential corrections the receiver is not using (excluded from the differential solution)</td></tr>
</table>

NMEA Input



The **Settings NMEA** page allows users to review and configure the GPS NMEA settings.

It can be reached by following the Home > GPS > Settings > NMEA menu.

The **NMEA Input** screen provides an overview of the connected receiver, the receiver settings, and the received NMEA message.

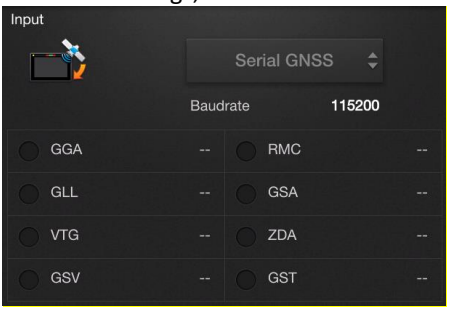
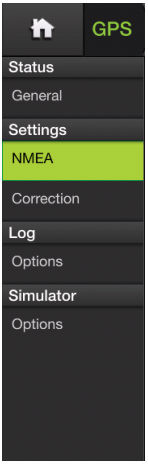


Figure 6-3: NMEA Input

NMEA Output



The **NMEA Output** screen provides an overview of the NMEA GNSS output of the terminal and the according configuration. This screen can be used to configure the settings to meet the requirements for a third-party controller and/or implement.

It can be reached by following the Home > GPS > Settings > NMEA menu and scrolling down.

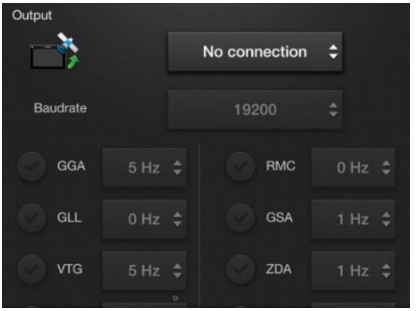
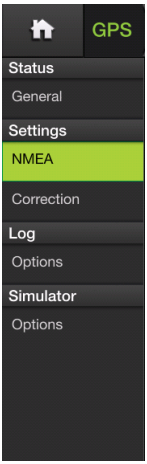


Figure 6-4: NMEA Output

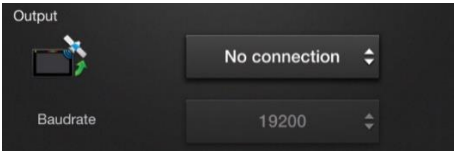
The **NMEA Output** screen controls the output settings for the COM2 (050-0041-01) output. See MaveriX Cable Diagram, for cable options.

Continued on next page

Terminal Connection & Baud Rate Settings



Identify the terminal connection and baud rate settings within the **Output Menu**.

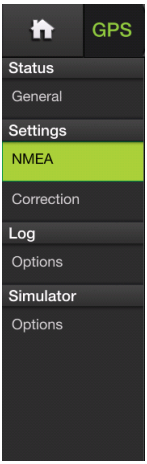


Use the drop-down menu to select the desired **terminal connection**.

Highlight to select the desired **baud rate** from the drop-down menu. Baud rate values available in drop-down:

- 4800
- 9600
- 19200
- 38400
- 57600
- 115200

NMEA Output Configuration



The **NMEA Output configuration** screen allows users to set the desired frequency for the following NMEA output messages.

Figure 6-5: NMEA Output Message Options

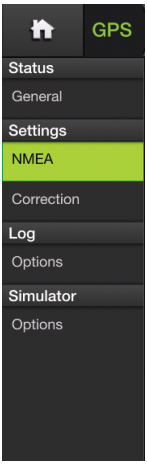
Continued on next page

Table 6-2: NMEA Output Message Descriptions

Message	Description
GGA	GPS position data (latitude, longitude, number of satellites used, age of differential corrections, etc.)
GLL	Latitude and longitude data
VTG	Course-over-ground and ground speed
GSV	GNSS satellites in view
RMC	Contains recommended minimum specific GNSS data (latitude, longitude, ground speed, navigational status, etc.)
GSA	GPS DOP and active satellite information
ZDA	UTC time and date information
GST	GNSS pseudo range error statistics and position accuracy
Diff	Turn RTCM3 messages on or off

Note: If the MaveriX has a fully calibrated and powered eDrive connected, the NMEA output is roll corrected. To verify, the below image would display on the status bar.

NMEA Messages



Choose the desired NMEA message and activate it by clicking the **Enable** button. After a message type is enabled, the button shows a green checkmark.

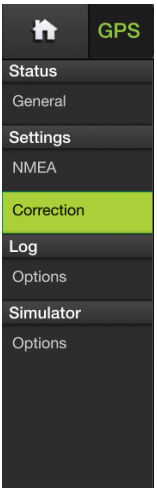
Click on the **Frequency** window to configure the message rate for the desired NMEA message.

Click the drop-down list to select the desired frequency in Hz.

Each message will display the available frequencies

Correction

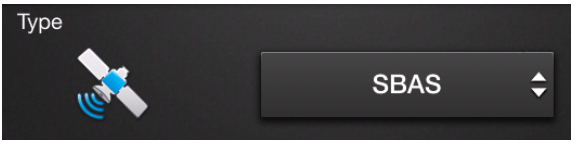
SBAS



The **Settings Correction** page allows users to review and configure the correction for the GPS receiver of the MaveriX Precision Ag system.

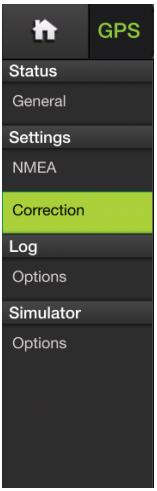
It can be reached by following the Home > GPS > Settings > Correction menu.

The default correction setting is **SBAS** (required for WAAS (NA) or EGNOS (EU) corrections).

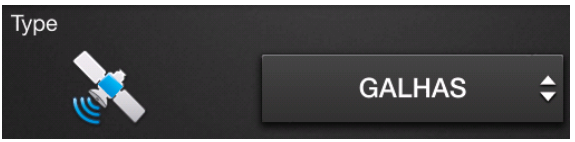


Click the current setting (**SBAS**) in the **Correction Menu** and select the desired **GNSS correction** from the drop-down menu.

GALHAS

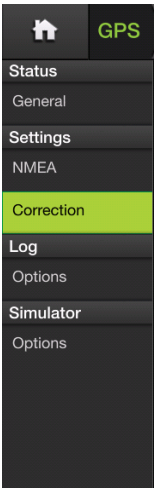


The **GALHAS Correction** source enables the receiver to use the GALHAS L-band correction service.

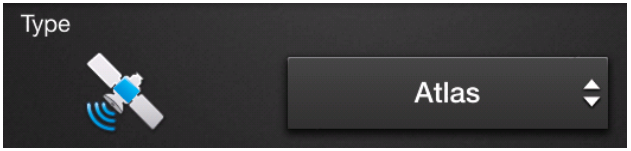


Note: The GALHAS correction requires the antenna firmware be at 6.1Aa01 or newer and a mFreq (L2_L5) activation.

Atlas

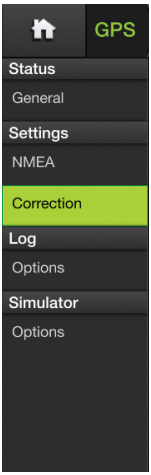


The **Atlas Correction** source enables the receiver to use the Hemisphere GNSS Atlas L-band correction service.



Note: The Atlas frequency and baud rate are automated settings performed by the GNSS receiver depending on its position.

RTK Radio



If the **RTK Radio Correction source** is selected, the default RTK setting is to support an external radio.

Figure 6-6: RTK Correction Options

The **RTK Radio Correction setting** performs the following functions:

- Detects a connected radio
- Queries the radio link
- Updates the RSSI readings of the radio

RTK Radio Detection

Press the **Detect Radio** button to initiate the radio detection. This step must be completed before the **Radio Link Configuration** becomes available.

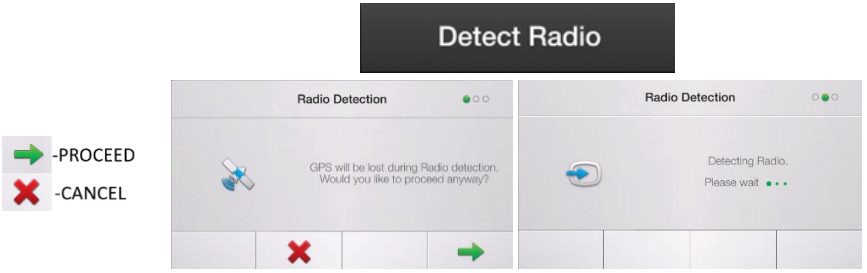


Figure 6-7: RTK Radio Detection Steps 1 and 2

Press the green arrow to start **Radio Detection**.

If radio detection is successful, the following screen will be displayed:

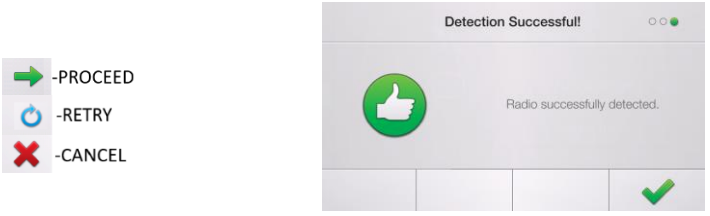


Figure 6-8: RTK Radio Detection Step 3

Press the green checkmark to proceed, radio detection completed.

If the radio detection fails, the following screen displays:

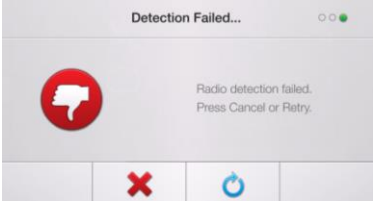


Figure 6-9: RTK Radio Detection Step 3 Failure

Press the blue arrow to retry radio detection, or the red X to cancel.

RTK Radio Link

Press the **Radio Link** button to open **Radio Link Configuration**. (Complete **Radio Detection** steps first.)

-PROCEED
-CANCEL

Radio Link - Radio Channel

- Double-click the entry field to type in the required radio channel.
- Click the green arrow to move to the next setting.

Figure 6-10: RTK Radio Link Step 1

Radio Link – Mode

-PROCEED
-BACK
-CANCEL

- Click the entry field to open the drop-down menu
- Select the required radio mode
- Click the green arrow to move to the next setting

Figure 6-11: RTK Radio Link Step 2

Radio Link – Apply Changes

- Press the green arrow to apply changes to the radio.

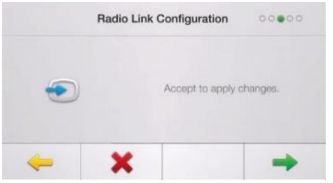


Figure 6-12: RTK Radio Link Step 3

- The Figure 6-13 displays while the radio is being configure

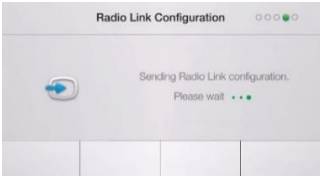


Figure 6-13: RTK Radio Link Step 4

- When the radio is successfully configured, the below image will be displayed.
- Press the green checkmark to return the **GPS Settings**.

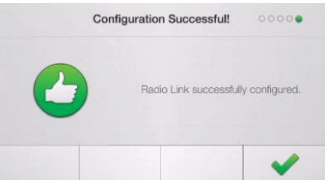


Figure 6-14: RTK Radio Link Step 5

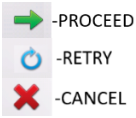
RTK Radio – RSSI Update

RSSI - **Received Signal Strength Indicator** -the actual power in the received radio signal (in dBm).

Note: GPS will be lost during an RSSI update.

Press the green arrow to initiate the **RSSI update**.

Figure 6-15: RSSI Update Step 1



Wait for the **RSSI** to update.

Figure 6-16: RSSI Update Step 2

When a successful **RSSI Update** is completed, the below screen displays, confirming the update and the new **RSSI value**. Press the green arrow to return to **GPS Settings**.

Figure 6-17: RSSI Update Step 3

If the **RSSI Update** fails, the below image displyas. Press the blue arrow to retry the update or the red X to cancel.

Figure 6-18: RSSI Update Step 3 Failure

RTK NTRIP

To review and configure the **NTRIP setting**, adjust the **RTK Settings Menu** to **NTRIP Settings**.

Figure 6-19: RTK NTRIP

Press the **View/Edit** button to review and configure the following NTRIP settings:

- Server Address
- Port
- Mount Point
- User ID
- Password

The bottom button will either display **Start** or **Stop**.

- If **Start** is displayed, the **NTRIP** corrections are not being used.
- If **Stop** is displayed, the MaveriX system is using the supplied **NTRIP** corrections.

The Rx and Tx in the bottom-left corner can be used to verify the data transfer is accruing.

RTK NTRIP Settings

-PROCEED
-BACK
-CANCEL

For all following steps:

- Double-click the entry field to type in the required information.
- Click the green arrow to move to the next setting.

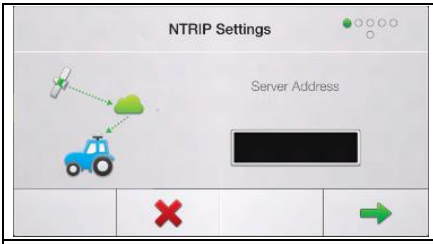


Figure 6-20: Server Address

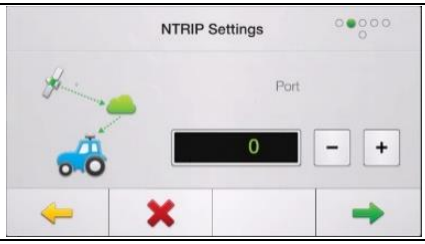


Figure 6-21: Port

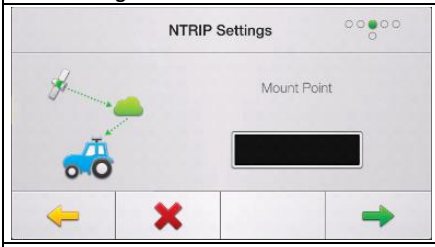


Figure 6-22: Mount Point

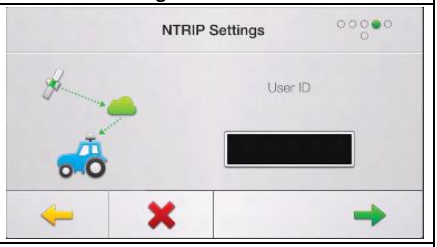


Figure 6-23: User ID

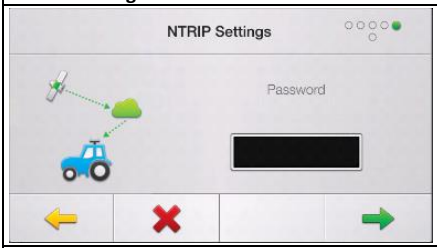


Figure 6-24: Password

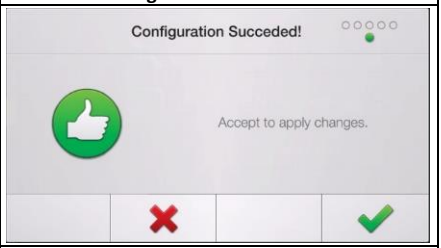
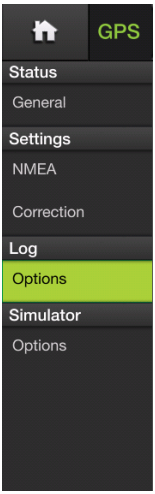


Figure 6-25: Configuration Complete

- Click the green arrow to accept and apply the entered changes.
- Click the red X to cancel the configuration.

GPS Log



The **Log Options** page allows users to review and configure the option to create data logs of the GPS receiver with the MaveriX Precision Ag system. It can be reached by following the Home > GPS > Log > Options menu. By default, the GPS data logger is turned off.

Click the **Logger** switch to turn the GPS data logging function on. The system is now ready to start a GPS log.

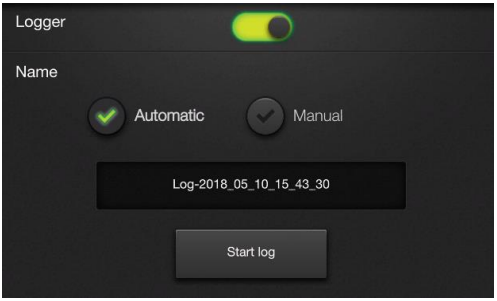


Figure 6-26: GPS Logger On

Create an Automatic Log

Press the **Start log** button to start a GNSS data log. By default, the system generates an automatic file name. The **Making log** message verifies that a GPS log is being generated.

Press the red X button to finalize the data log.

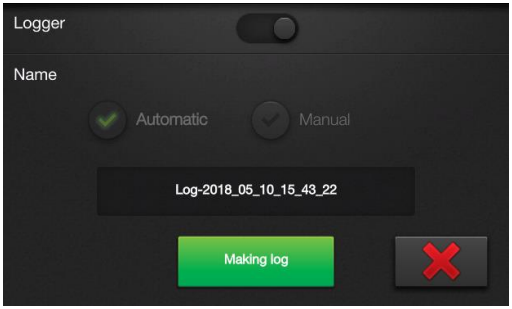


Figure 6-27: Automatic Log Activated

Note: The GPS data log can be managed and exported per the **Files Menu**. See Chapter 8, USB Transfer about this procedure.

Create a Manual Log

If it is required to use a file name that differs from the automatically generated name, click to set the file name generation to **Manual**.

The green checkmark changes to indicate the current setting.

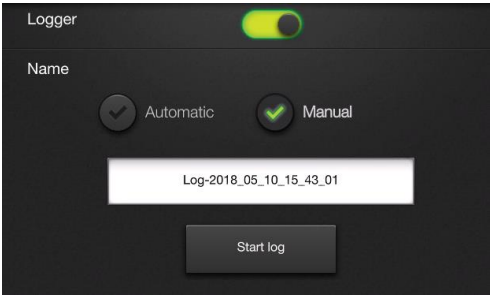


Figure 6-28: Manual Log

Click in the window with the log file name to type the desired file name before generating the log.

Press the **Start log** button to start a GPS data log. The **Making log** message verifies that a GPS log is being generated.

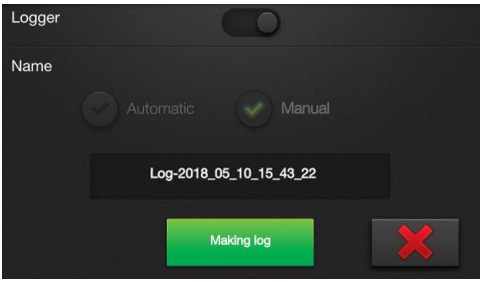


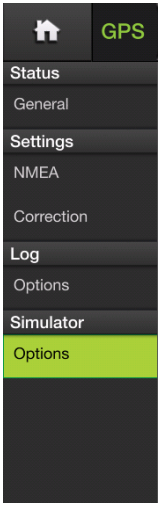
Figure 6-29: Manual Log Activated

Press the red X button to finalize the data log.

Note: The GPS data log can be managed and exported per the **Files Menu**. See Chapter 8, USB Transfer about this procedure.

Simulator

WARNING: The MaveriX Simulator should be used only for demonstrations and development use.



The **Simulator Options** page provides the user the option to configure and use the integrated **GNSS simulator** of the MaveriX Precision Ag system.

The **GNSS simulato**r is off by default. To turn on the **GNSS simulator**, use the **Simulator** switch.

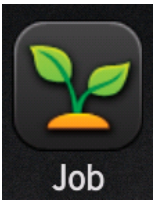
The **Simulator** options are as following:

- Log *(not supported, development testing only)*
- ESI2 *(not supported, development testing only)*
- USB Controllers *(not supported, development testing only)*
- Touch Screen

Figure 6-30: Simulator Options

To turn on the **Touch Screen Simulator**, select the button next to **Touch Screen**. The button turns green when the simulator is active.

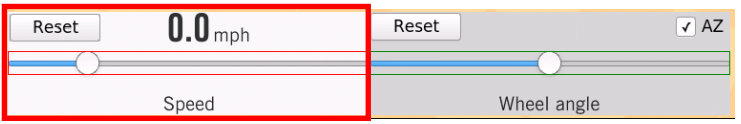
Touch Screen Simulator



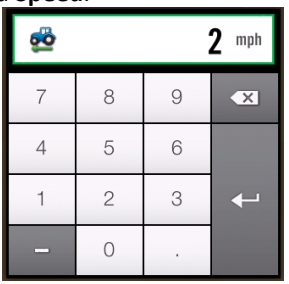
To use the **Touch Screen Simulator**, from the **Job** screen, press the **GPS Widget** twice.

- The first press opens **GPS information**

- The second press opens **Simulator** options.
  - To control the speed of the simulator, use the left slider bar.



    - **Speed** can also be entered in by double-clicking on the **Speed**, then typing in the desired **Speed**.



    - The **Reset** button can be used to bring the speed back to zero.
  - To control the **Wheel angle** (steering) of the simulator, use the right slider bar.

    - The **Reset** button can be used to bring the steering back to center.
    - The AZ in the top right-hand corner stands for **Automatic Zero**.

☑ AZ	If the box is checked next to **AZ**, then the steering will automatically return to center.
☐ AZ	If unchecked, the steering will remain in the last set position.

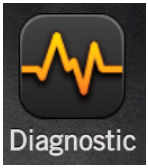
Chapter 7: Diagnostic

Overview

Introduction This chapter contains information about the **Diagnostic Menu** on the MaveriX terminal.

Contents

Diagnostic Menu



The **Diagnostic Menu** is used to view diagnostic information, upgrade firmware, and validate communication on the MaveriX Precision Ag system.

Sections in the **Diagnostic Menu** include:

- GNSS
- Terminal
- Valve Type
  - Hyd. Proportional, Hyd. Ratiometric, Hyd. Danfoss, Hyd. Danfoss CLS, Fendt MFWD, Claas OSI, Claas, CNH AFS Connect, or ESi²
- eDrive
- AC110
- Logs…

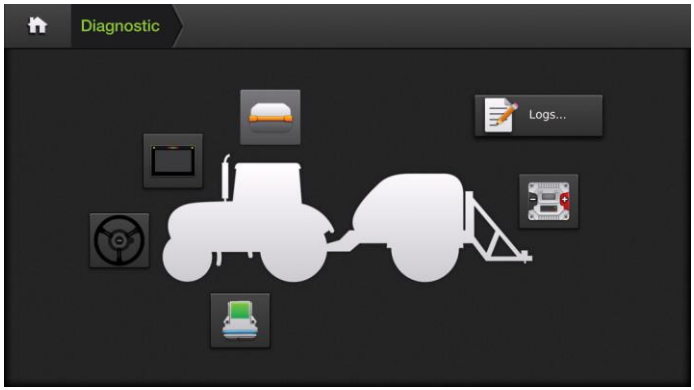


Figure 7-1: Diagnostic Menu

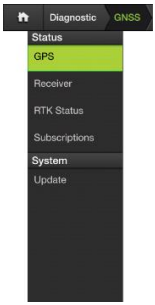
Firmware Compatibility Table

Terminal	GNSS	eDriveM1	ESi²	AC110
1.3	6.0Aa04a	1.3.2b27	1.73	N/A
1.4	6.0Aa04a	1.3.3b16	1.73	3.1.6b01
1.5.1	6.0Aa04a	1.3.4b22	1.73	3.1.6b02
1.6.4	6.0Aa05e	1.4.0b03	1.73	3.1.6b02
1.7.2	6.0Aa05e	1.7.1b01	1.73	3.1.6b02
1.8.2	6.0Aa05e	1.8.1b04	1.73	3.1.6b02
1.9	6.1Aa03	1.9.1b01	1.73	3.1.6b02

GNSS

The **GNSS Menu** contains information for the **GNSS antenna**.

GPS Menu



The **GPS Menu** contains all information shown below. See the GPS Status table for definitions.

GPS Status	
GNSS Subscriptions	L2L5, 20Hz
ATLAS Expiration Date	N/A
Correction Type Used	SBAS
Standard Deviation	0.431
Diff Age	6
BER	0-0
Signal Strength (L-band)	0
Signals	L1,L2,L2C,L5,G1,G2,B1,B2,B3,B2A,B2B, E1B,E5A,E5B,E5AB,E6,QL1,QL2,QL5
SNR	A,A,A,A,A,A,A,D,A,A,A,B,A,A,B,D,D,D,D
Satellites Used	5,5,3,2,2,2,4,0,4,4,4,3,3,3,0,0,0,0, 0
L-band frequency	0.0000
L-band baudrate	600
L-band mode	Auto
Status	DGPS (2)
Station ID	131
SBAS PRN	131,135,133
Available Diff	SBAS, EDIF
Excluded	ARTK, ATLAS, RTCM2, EDIF, DFX, CMR, RTCM3, ROX, RTCM_23, BEIDOU, ALTPPP, B2BPPP, QZSCLAS, GALHAS
Rover Slip Flag	0
Base Slip Flag	0
Scintillation (Ionospheric)	0
Distance to base [ft]	-
ARM Status (ArmStat)	1F
NAVCON	55AAAA

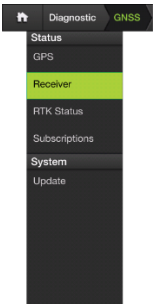
Figure 7-2: GPS Menu

Continued on next page

Table 7-1: GPS Status

Section	Description			
GNSS Subscriptions	Active GNSS subscriptions			
ATLAS Expiration Date	Expiration date of current Atlas correction. Will display as date if subscribed, “N/A” if not subscribed/expired			
Correction Type Used	Type of differential correction being used.			
Standard Deviation	Pseudo-estimate of the DGPS solution accuracy determined as the RMS value of the positional residual errors. Std Dev is valid only if 6 or more satellites are used in the solution calculation.			
Diff Age	Age of the corrections used in the DGPS calculation. Values > 120 seconds require acquiring a new RTK lock. Below are the typical Diff Age in seconds by correction type.			
	RTK	**Atlas**	**GALHAS**	**SBAS**
	1-2	10-18	2-12	6-10
BER	Bit Error Rate – Relative strength of the correction satellites. Two numbers are shown separated by a hyphen. The number can be from 0 to 500, with 0 being the best and 500 being the worst.			
Signal Strength (L-band)	Signal Strength of the Atlas L-Band correction signal. The value can range from 0 to 99, with 0 indication no signal and 99 being the highest strength.			
Signals	GNSS signals being used			
SNR	Quality of GNSS signals			
Satellites Used	Number of GPS satellites used to calculate the position			
L-band frequency	Frequency used for L-band correction			
L-band baud rate	Data rate for L-Band service (preset configuration that does not change during operation)			
L-Band Mode	Indicates the Atlas frequency mode. Default setting is “AUTO”.			
Status	2 – SBAS 4 – RTK Fix, GALHAS Converged, or Atlas Converged 5 – RTK Float, GALHAS Converging, or Atlas Converging			
Station ID	ID of correction station			
SBAS PRN	Satellites used by SBAS			
Available Diff	Differential corrections the receiver is receiving			
Excluded	Differential corrections the receiver is not using (excluded from the differential solution)			
Rover Slip Flag	Indicator for potential receiver jamming or other reception issues (non-zero indicates issue)			
Base Slip Flag	Same as Rover Slip Flag, only applies if receiver is used as RTK base			
Scintillation (Ionospheric)	Indicator for ionospheric scintillation. 0 (little or no scintillation – does not adversely affect RTK solution) 1-100 (scintillation detected – adversely affects RTK solution)			
Distance to base [ft]	Distance between base and rover			
ARM Status (ArmStat)	*For troubleshooting purposes only*			
NAVCON	*For troubleshooting purposes only*			

Receiver



The **Receiver Menu** contains information about the GNSS receiver. See the table below the image for definitions.

Figure 7-3: Receiver Menu

Table 7-2: Receiver Status

Section	Description
Receiver	Type of receiver
Applications	Available applications
GPS Firmware	GPS firmware version
GLONASS State	State of GLONASS subscription, where value is one of the following: • Enabled (valid subscription entered) • Disabled (no subscription entered)
Serial Number	ESN of the receiver
Active	*For troubleshooting purposes only*
Bootloader	Current boot loader version (used to update the firmware)
GNSS Out	Shows if outputting GNSS information in NMEA messages
Fleet	*For troubleshooting purposes only*
HW Version	Hardware version of receiver
Production Date	Manufacturing date of receiver

RTK Status

The **RTK Status Menu** contains information on RTK. See **Table 7-3** for definitions.

Note: If not in RTK, this screen will not display information other than Active Mode.

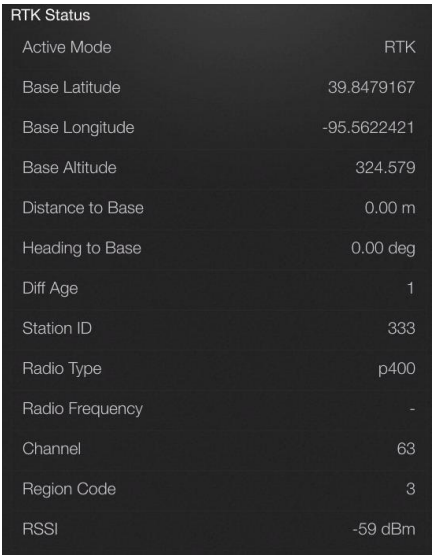


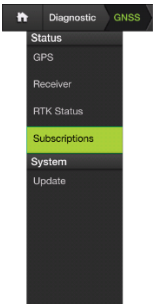
Figure 7-4: RTK Status Menu

Table 7-3: RTK Status

Section	Description
Active Mode	User-selected correction type
Base Latitude[1]	Latitude of the base station in decimal degrees
Base Longitude[1]	Longitude of the base station in decimal degrees
Base Altitude[1]	Ellipsoidal height of the base station
Distance to Base[1]	Distance between base and rover
Heading to Base[1]	Angle of heading to base station
Diff Age	Age of the corrections used in the DGPS calculation. Values > 120 seconds require acquiring a new RTK lock. For RTK, the Diff Age is typically 1-2 seconds.
Station ID	Base station ID
Radio Type[1, 2]	Radio type in the rover receiver
Channel[1, 2]	*This field appears only if you have a 920MHz radio connected.* Channel you entered when setting up your radio; it is the same channel you entered on your base station radio.
Region Code[1, 2]	*This field only appears if you have a 920 MHz radio connected and is used for troubleshooting purposes only*
RSSI[1, 2]	Received signal strength indicator - actual power in the received radio signal (in dBm).

[1] Only appears if correction type is set to **RTK**.
[2] Only appears if **Detect Radio** is activated. See Chapter. 6 GPS for more information.

Subscriptions



The **Subscriptions Menu** contains information associated with GNSS subscriptions.

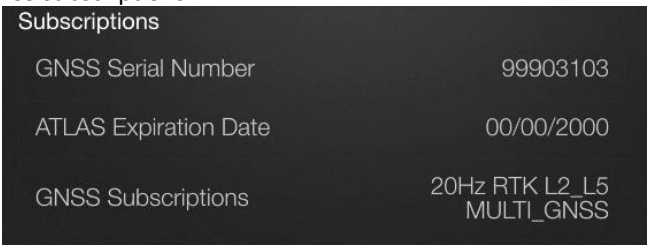


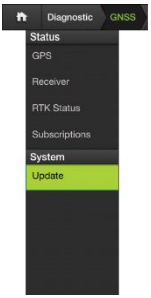
Figure 7-5: Subscriptions

GNSS Serial Number – is the receiver's Electronic Serial Number (ESN).

Atlas Expiration Date – displays the expiration date of the current Atlas subscription, or **00/00/2000** if no Atlas subscription is active.

GNSS Subscriptions – lists all **GNSS** subscriptions on the receiver.

Update



NOTE: The inactive slot must be loaded first.

The **Update** menu is for updating an A631 antenna.

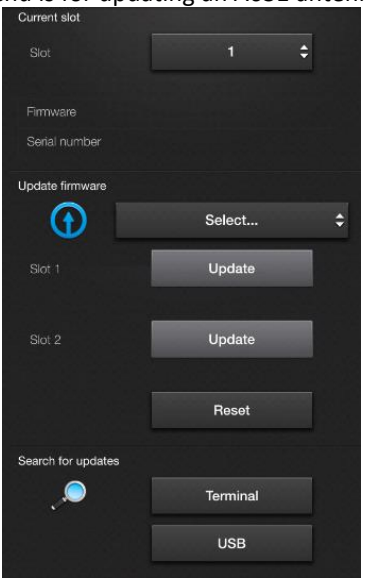


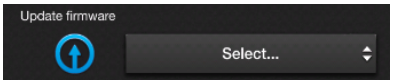
Figure 7-6: Update Menu

Continued on next page

NOTE: The inactive slot must be loaded first.

To update the firmware on the antenna, select the **Terminal** button under the **Search for updates** section. This will make the GNSS firmware included in the MaveriX software available.

Under the **Update firmware** section, select the dropdown arrow and select the new firmware to update.



Press the **Update** button for Slot 2. A message will be displayed below the button on the update progress. Once complete the system needs to be rebooted.

Follow the same steps to update Slot 1. Once complete the system needs to be rebooted.

Once terminal has rebooted, go to the Diagnostics page and verify **Firmware** version is correct.

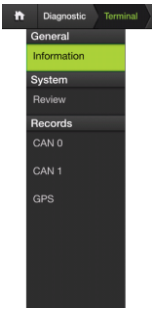
NOTE: The update process does not allow the same firmware to be reloaded.

If update is unsuccessful, contact Outback Guidance Global Customer Care at support@outbackguidance.com.

Terminal

The **Terminal Menu** contains information associated with the MaveriX terminal.

Information



The **Information Menu** contains information associated with the MaveriX terminal, shown below.

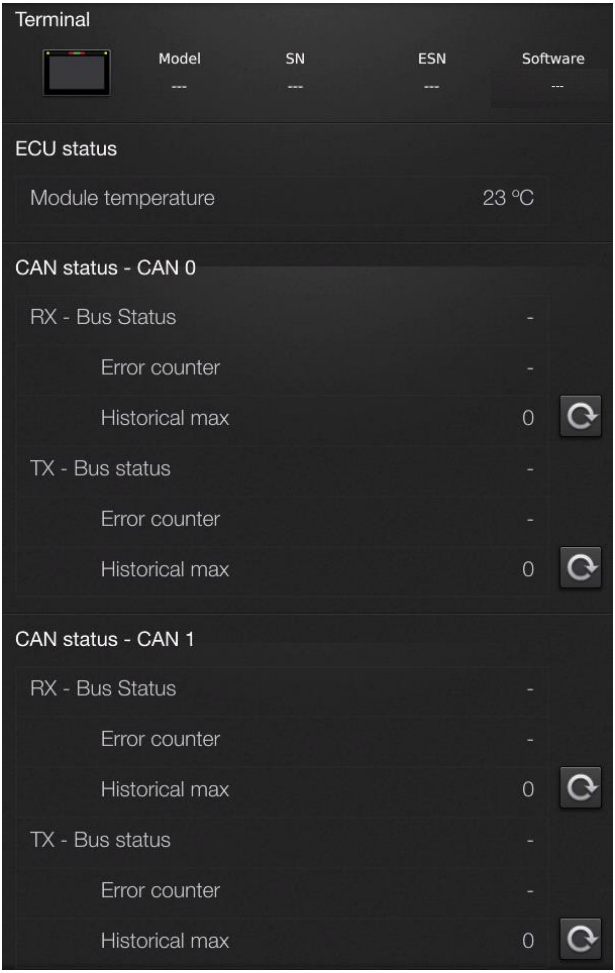
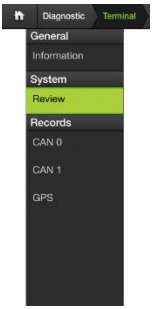


Figure 7-7: Information Menu

Review



The **Review Menu** is used for future development and is currently unsupported.

To clear old firmware versions off the MaveriX terminal, select **Clear all** under the **Modules versions** section.

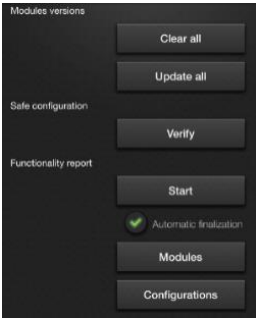
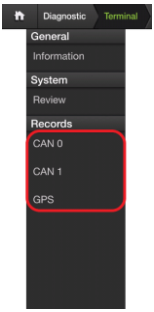


Figure 7-8: Review Menu

Records



The **Records** section of **Terminal Diagnostics** is used for log recording; and can be used for either CAN or GPS logging.

CAN	GPS
	

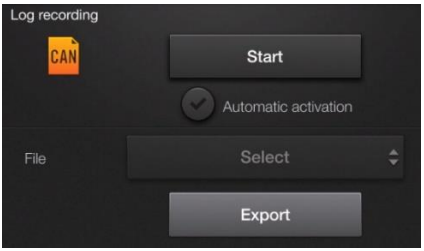


Figure 7-9: Records Menu Options

- **CAN 0** – is used for logging **Terminal, AC110** and **Steering** logs.
- **CAN 1** – is for future development.
- **GPS** – is used for logging **GPS logs**.

To create a log:

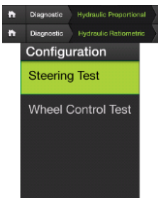
a. Press the **Start** button.
b. A message displays with the name of the log file.
c. Press the **Stop** button when the log is complete.
d. Select the log file from the drop-down menu.
e. Press the **Export** button.

Note: For more information on working with **Files**, see Chapter 8: Files, on File Management.

Valve Type
Hydraulic Proportional and Ratiometric

The **Hydraulic Proportional and Ratiometric Menu** contains information associated with the **Hydraulic Proportional and Ratiometric** valve types.

Steering Test



The **Steering Test** allows the user to verify the valve is responding properly.

The **Output** selection has a drop-down with 2 options:

1. Steering Test (default)
2. PWM (w/ Pre-Map) (*development use only*)
3. User Override (*development use only*)

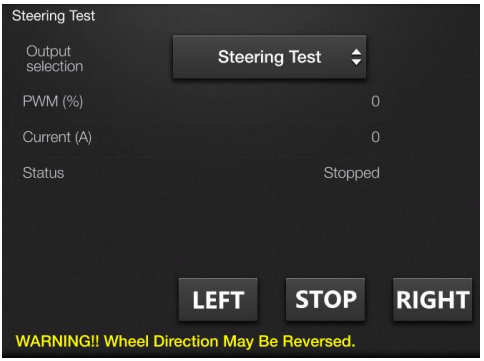


Figure 7-10: Hyd. Proportional and Ratiometric Steering Test

Wheel Control Test

The **Wheel Control Test Menu** is for development use only.

Figure 7-11: Wheel Control Test Menu

Hydraulic Danfoss

The **Hydraulic Danfoss Menu** contains information associated with the **Hydraulic Danfoss** valve type.

Status

The **Status Menu** displays information from the **Hyd. Danfoss** valve.

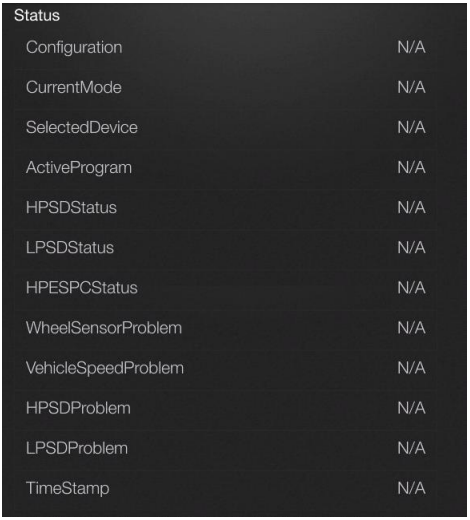


Figure 7-12: Status Menu

Wheel Control Test

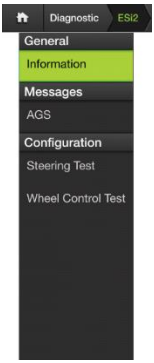
The **Wheel Control Test Menu** is for development use only.

Figure 7-13: Wheel Control Test Menu

ESi2

The **ESi2 Menu** contains information associated with the **ESi2**.

Information



The **ESi2 Information Menu** displays information from the **ESi2**.

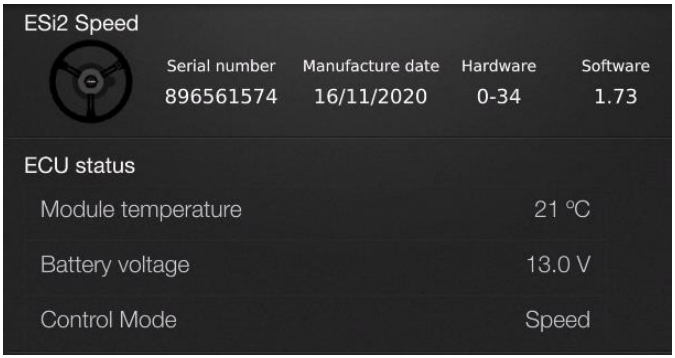


Figure 7-14: ESi² Information Menu

AGS

The **AGS (Autoguide Status) Menu** is for development use only.

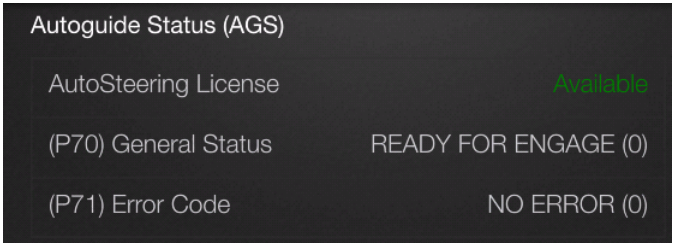
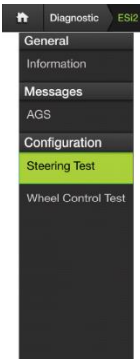


Figure 7-15: AGS Menu

Steering Test



The **Steering Test Menu** contains the diagnostic steering test.

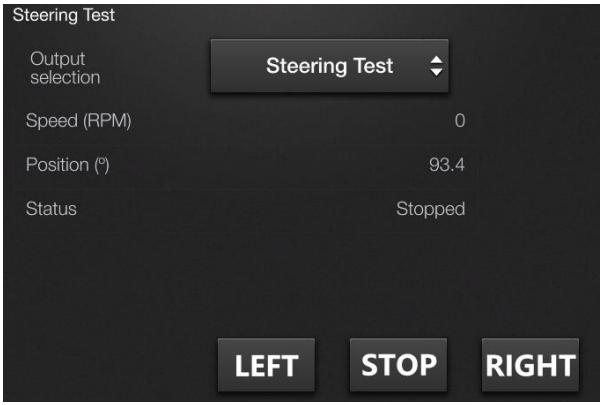
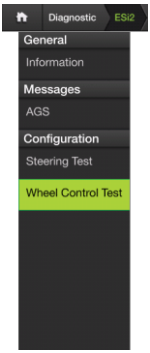


Figure 7-16: ESi² Steering Test Menu

The **Output** selection has a drop-down with 2 options:

1. Steering Test (default)
2. User Override (*development use only*)

Wheel Control Test



The **Wheel Control Test Menu** is for development use only.

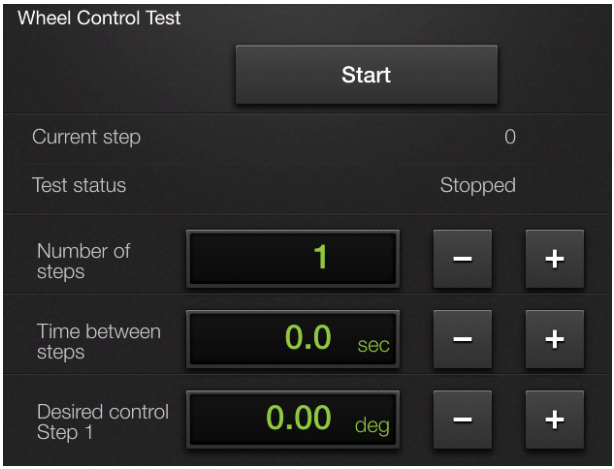


Figure 7-17: Wheel Control Test Menu

eDrive

The **eDrive Menu** contains information associated with the eDriveM1.

Information

The **eDrive Information Menu** contains information pertaining to the **eDriveM1**, shown below.

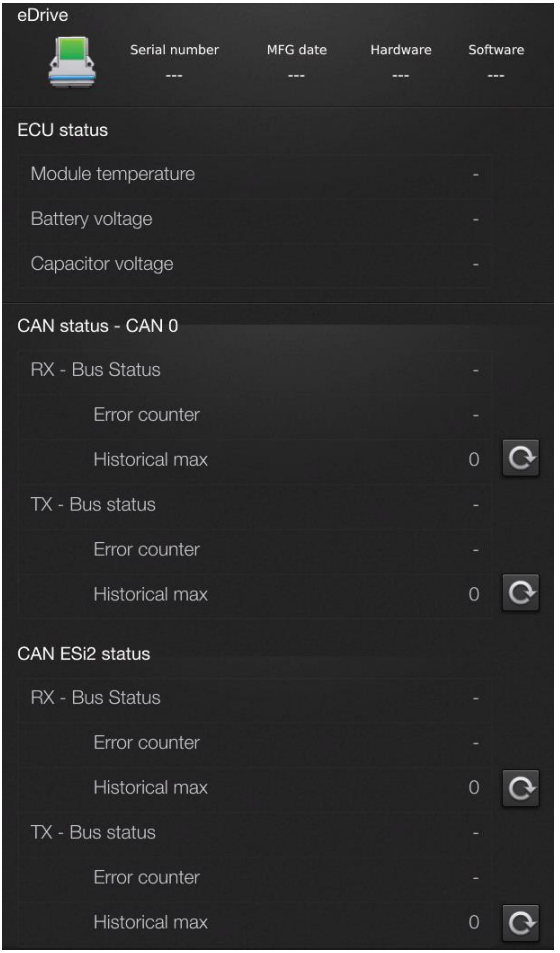
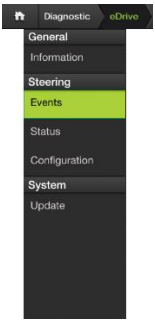


Figure 7-18: eDrive Information Menu

Events



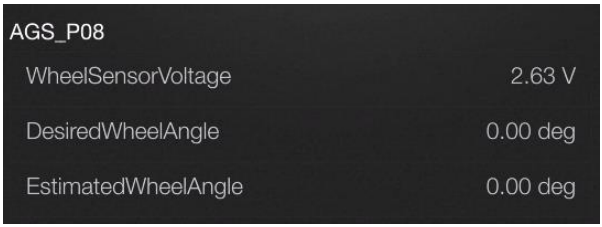
The **Events Menu** contains error messages from the **eDriveM1**. This is for troubleshooting use.

Status Menu

The **Status Menu** displays information from the eDriveM1, to be used for troubleshooting. The **Status Menu** continually updates all readings.

Within the Status menu:

- AGS_P08 can be used to troubleshoot the Wheel Angle Sensor.



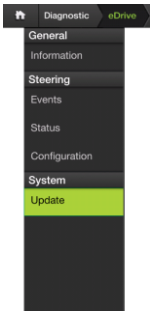
- AGS_P11 can be used to troubleshoot the Disengage device.

Configuration Menu

The **Configuration Menu** displays information from the eDriveM1, to be used for troubleshooting.

The **Configuration Menu** requires the user to press the **Read** button at the top of the page to start displaying the information.

Update



The **Update Menu** allows the user to update the firmware in the **eDriveM1**. To update the firmware on the M1, select the **Terminal** button under the **Search for updates** section. This will make the M1 firmware included in the MaveriX software available.

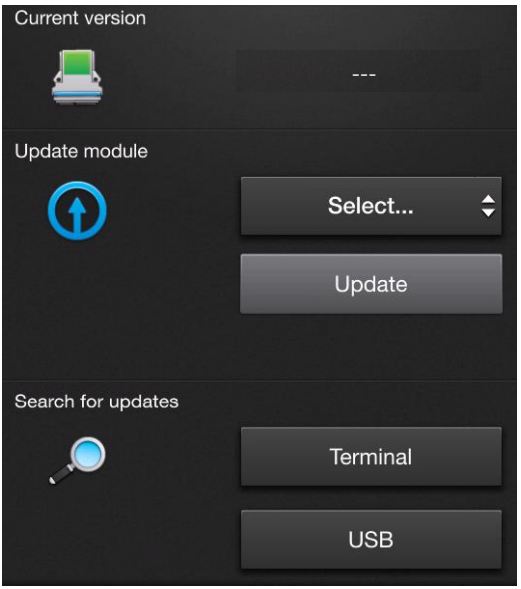
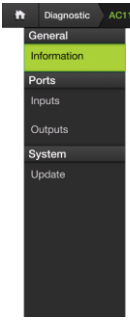


Figure 7-19: eDrive Update Menu

AC110

The **AC110 Menu** contains information associated with the AC110.

Information



The **AC110 Information Menu** contains information pertaining to the **AC110**, shown below.

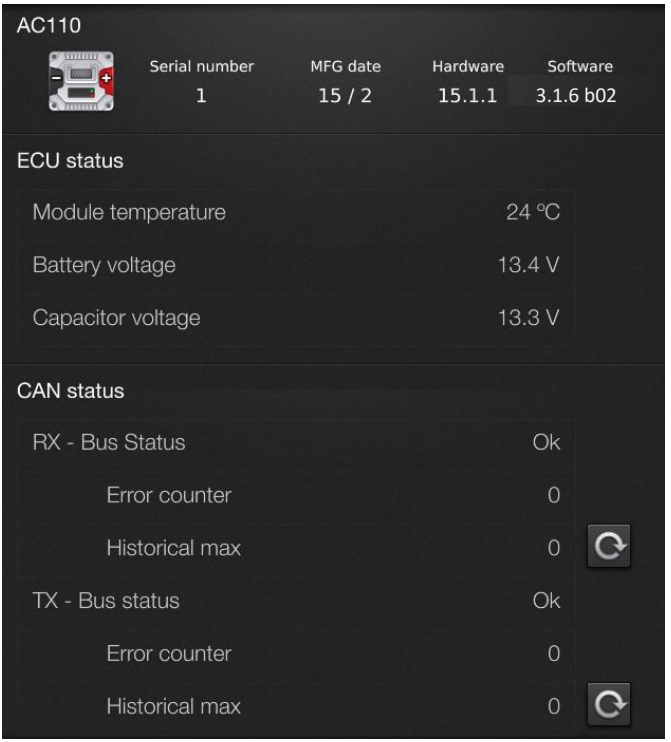


Figure 7-20: AC110 Information Menu

Ports

Under the **Ports** section, the **Inputs** and **Outputs** pages are used for troubleshooting and diagnostics.

Update

The **Update Menu** allows the user to update the firmware in the **AC110**.

To update the firmware on the AC110, select the **Terminal** button under the **Search for updates** section. This will make the AC110 firmware included in the MaveriX software available.

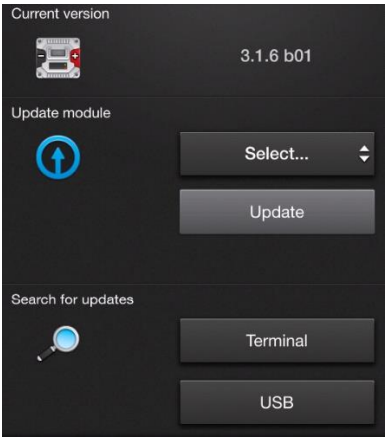
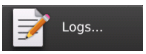


Figure 7-21: AC110 Update Menu

Logs



The **Logs Menu** contains error messages from the MaveriX system. This is for troubleshooting use.

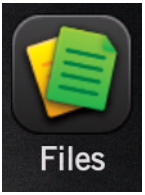
Chapter 8: Files

Overview

Introduction This chapter details working with different file types in the **Files Menu**.

Contents

File & Data Management



The **Files Menu** is used to manage data files on the MaveriX Precision Ag system. Users can review, import, and export different supported file types.

Access the **Files Menu** from the **Home Screen** to review and configure all system settings.

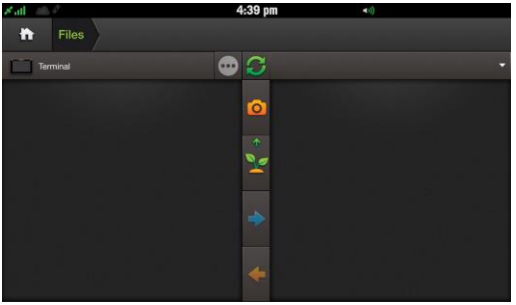
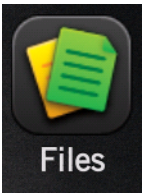


Figure 8-1: Files Menu

File Browser



The main browser view consists of the following:

- MaveriX Terminal data (left side)
- USB Drive data (right side)
- File organization and transfer (middle)

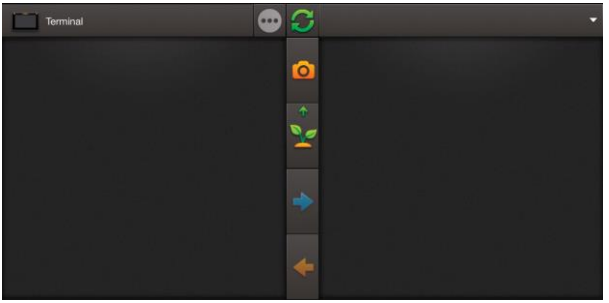
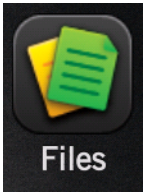


Figure 8-2: File Browser Layout

Click the **refresh button** to show the latest status of available data files on either the MaveriX terminal or the USB drive connected to the terminal.

Click the **refresh button** to update the file status.

File Types



The default file type is the **Map file**. Press the map file symbol (under the **Refresh** button) to open the file type selector.

Use the **File Type** selector to choose the **File Type** shown and managed per the file browser.

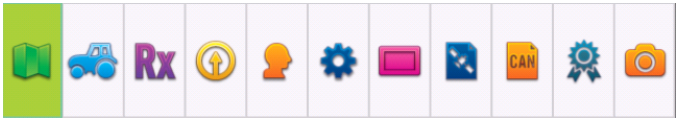
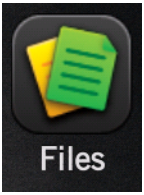


Table 8-1: File Types

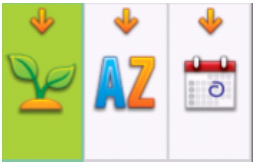
Icon	Description	Icon	Description
	Map		Widget Configurations
	Machines		GPS Logs
	Prescriptions		CAN Logs
	Updates		Activations
	Profiles		Screenshots
	Configurations		

File Sorting



The **File Sorting** selector allows the user to choose the sorting method for the different file types. The standard **File Sortin**g method is by **Job**. Press the button to open the **File Sorting** selector.

Choose the desired sorting method by pressing the corresponding symbol.



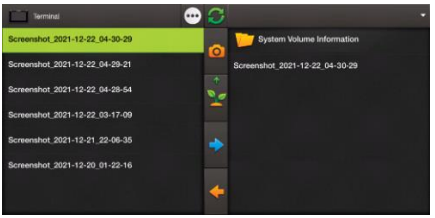
Once the configuration has been made, the files will be re-sorted within the file browser.

Table 8-2: File Sorting Icons

Icon	Description
	Sort by Job
	Sort Alphabetical
	Sort by Date

USB Transfer

The **File Transfer** between the MaveriX Precision Ag terminal and a **USB** drive is established with the following steps.

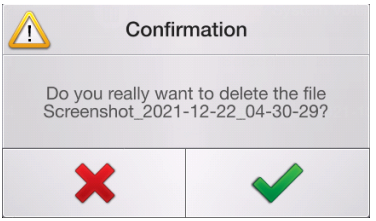
1. Connect a **USB** flash drive to the terminal. It will be automatically detected by the terminal and the file browser display as follows:	
2. Choose the desired **File** type.	
3. Highlight and select the desired **File** to be transferred.	
4. Click the blue transfer arrow to transfer the **File** to the **USB** flash drive. Click the orange transfer arrow to transfer from the **USB** to the terminal. 	

Deleting Files

To delete a **File**, highlight and select the desired **File**.

Click the  button to open the **Delete** button.

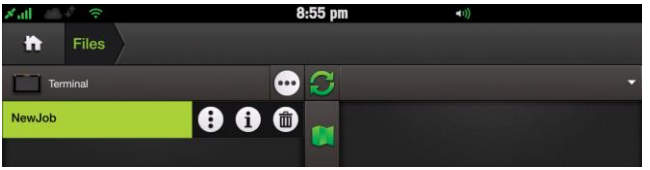
Select the  button. After selecting the  button, the following confirmation screen displays.



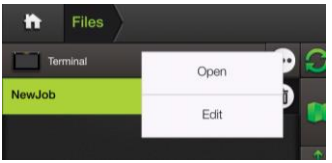
Select the green checkmark to confirm deletion. Select the red X to cancel.

Map files, also known as Job files, can be edited through the **Files** menu.

Select (highlight) the Map file, then select the button.



Select the button to access the menu and select **Edit** to edit the Map information.



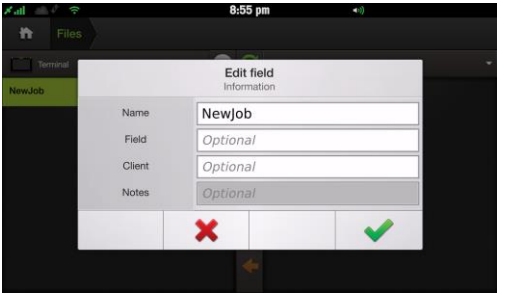


Figure 8-3: Edit Field Information

Select the button to view the Map file.

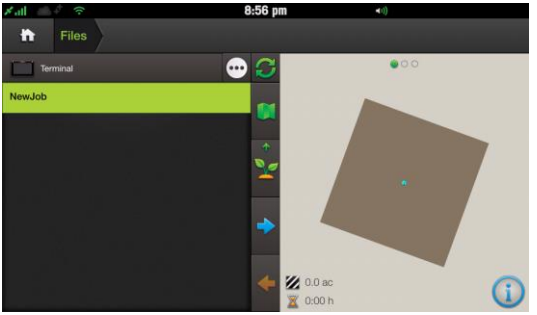
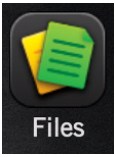


Figure 8-4: Map File View

Activation Code



To input an **Activation code**, the code will need to loaded onto a USB thumbdrive.

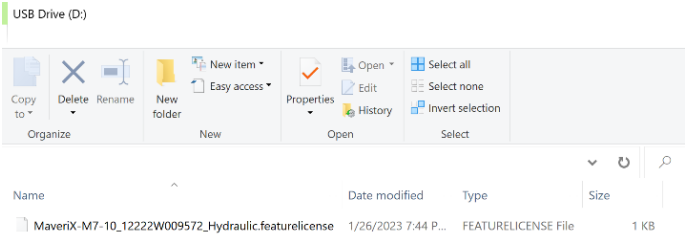
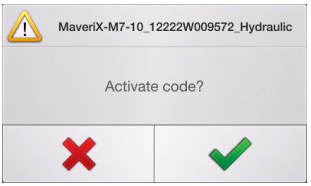


Figure 8-3: Activation Code on USB Thumb Drive

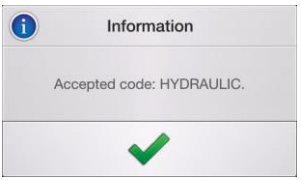
Import the Activation code onto the terminal (see USB Transfer for more information on this process).

Figure 8-4: Activation Code Transfer

Once transferred to the terminal, double press on the file located in the Terminal window. The MaveriX will display a popup window. To activate the code select the green check mark.



Once the code is accepted, press the green checkmark to continue. The process can be repeated for mulitple codes.



Job Summary

To get a **Job Summary** report for a job, you will first need to export the **Job**(s) onto a **USB** thumb drive (See USB Transfer for more information).

Take the **USB** and open the files on a computer.

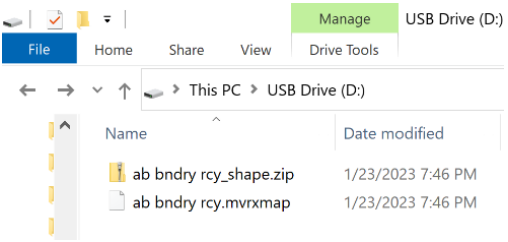


Figure 8-5: Job Summary File

Open the folder labeled: (your job name)_shape. In the image above it is: *ab bndry rcy_shape*

Open or save the PDF.

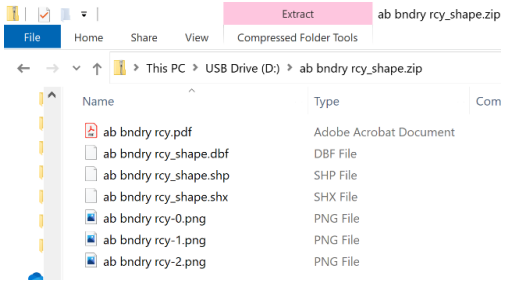
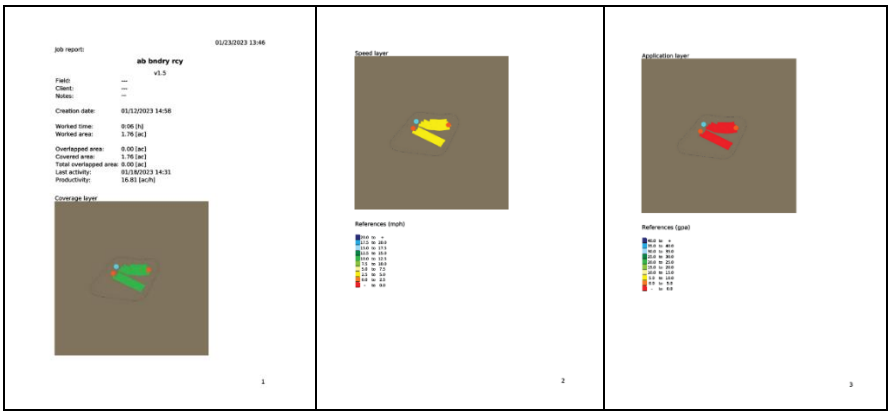


Figure 8-6: Job Summary PDF

There are 4 sections of the Job Summary PDF.

1. Job Report
2. Coverage layer map
3. Speed layer map
4. Application layer map

Below are images of a **Job Summary**:



Chapter 9: System

Overview

Introduction This chapter explains the **System Menu** and settings.

Contents

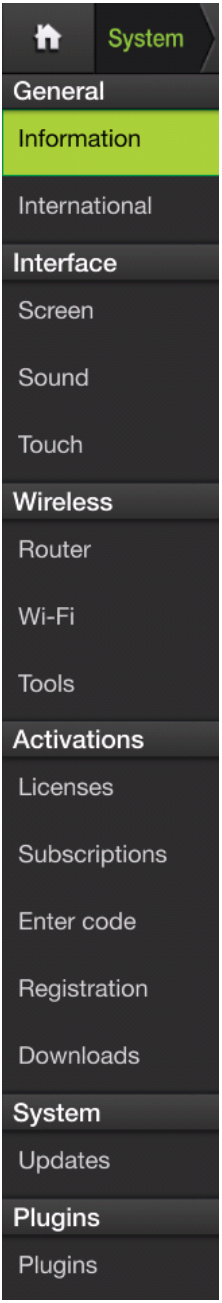
System Menu

The **System Menu** is used to review and configure all system settings for the MaveriX Precision Ag system.

The main sections of the **System Menu** are as follows:

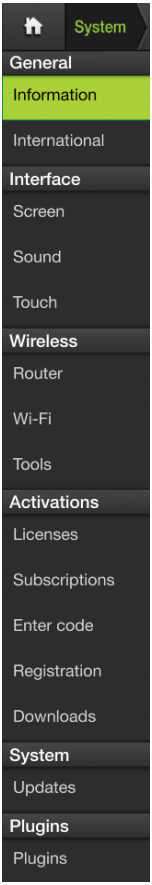
- General
- Interface
- Wireless
- Activations
- System
- Plugins

Access the **System Menu** from the **Home Screen** to review and configure all system settings.



General
Information

The **Information** page includes general information about the system and the status. It can be reached by following the Home > System > General > Information menu.



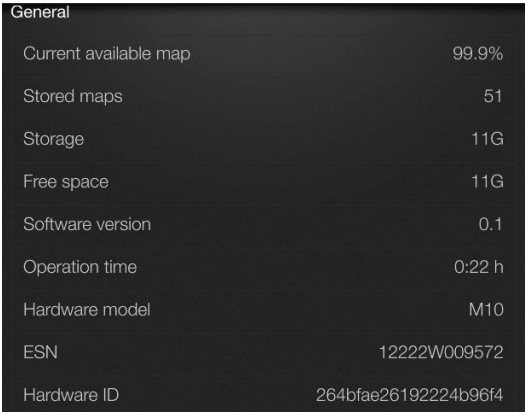


Figure 9-1: General Information

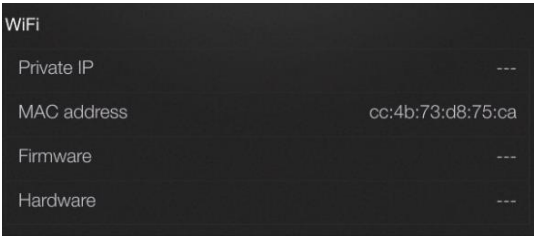


Figure 9-2: WiFi Information

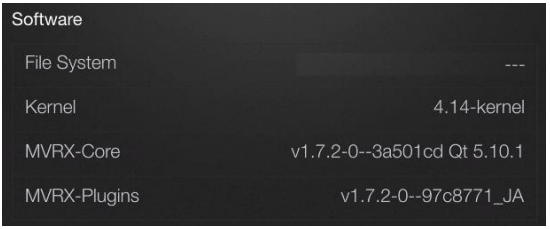


Figure 9-3: Software Information

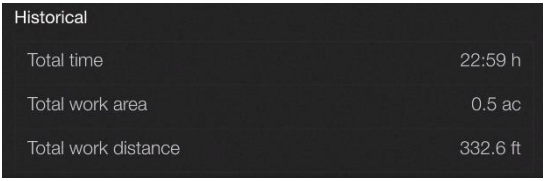
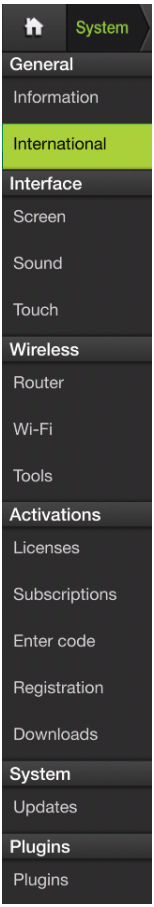


Figure 9-4: Historical Information

International



The **International Menu** allows the user to review and adjust the current settings for **Language**, **Units of measure**, and **Time zone** according to location.

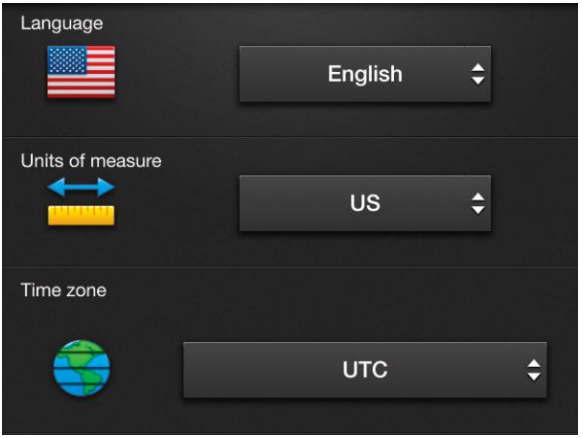
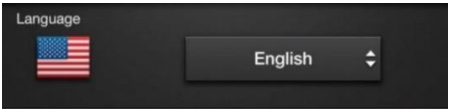


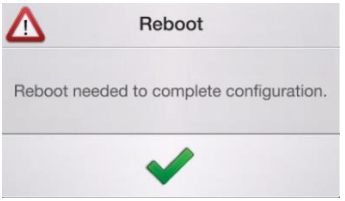
Figure 9-5: International Menu

To adjust the **language**, use the arrows to scroll in the **Language** window.

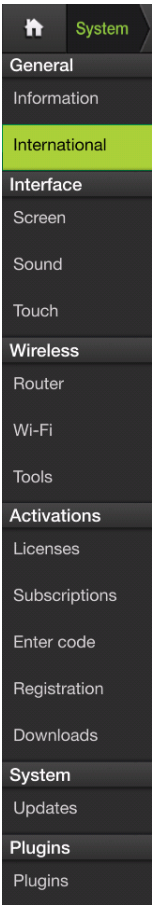


A scroll bar opens that allows the user to choose the desired **language** from a list of supported languages. The selected **language** is highlighted in green.

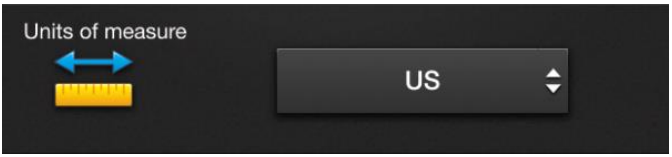
If the **language** setting has been changed, a reboot of the terminal is required to complete the new configuration.



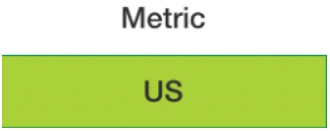
Continued on next page



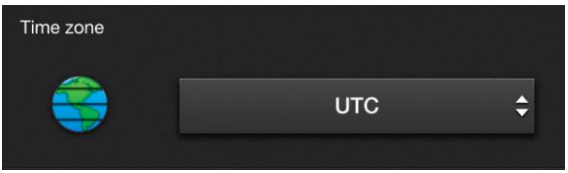
To adjust the **Units of Measure** setting, use the arrows to scroll in the **Units of Measure** window.



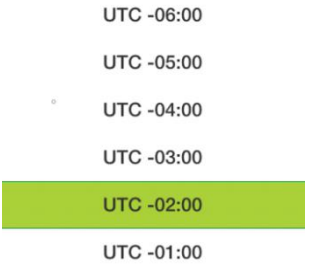
A scroll bar opens that allows the user to choose the desired **Unit of Measure** from a list of supported units. The selected **Unit of Measure** is highlighted in green.

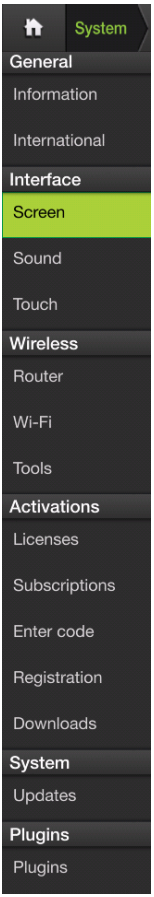


To adjust the **Time Zone** setting, use the arrows to scroll in the **Time zone** window.



A scroll bar opens that allows the user to choose the desired **Time Zone** from a list of supported **Time Zones**. The selected **Time Zone** is highlighted in green.





The **Screen** menu allows the user to review and configure the settings for the screen brightness and the screenshot function.

The **Screen** page can be reached by following the Home > System > Interface > Screen menu.

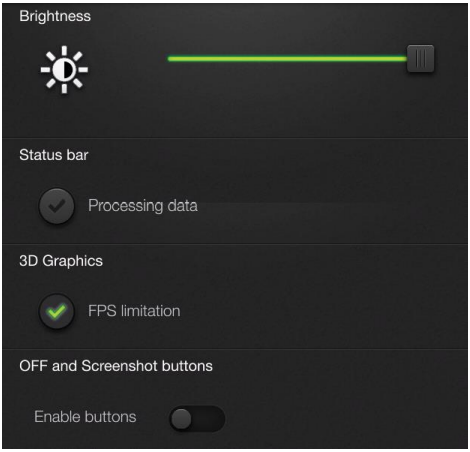
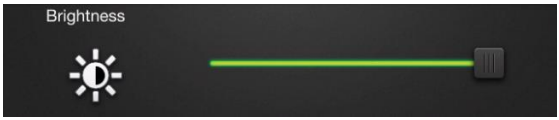
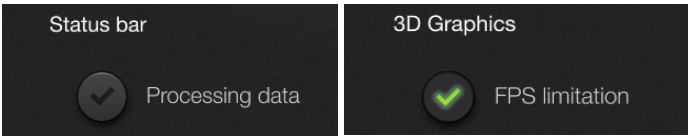


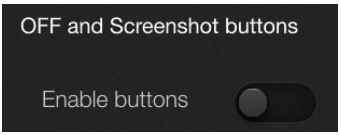
Figure 9-6: Screen Menu

Click on the button slider to adjust the brightness of the screen from low (left) to high (right).

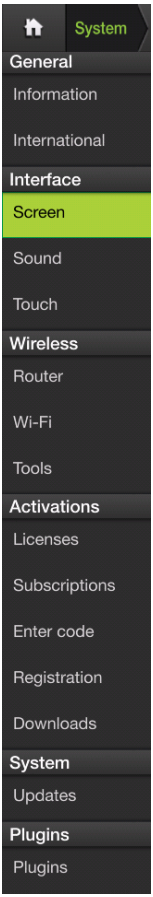


Status Bar, 3D Graphics, and Off and Screenshot buttons are used for *development purposes only*.

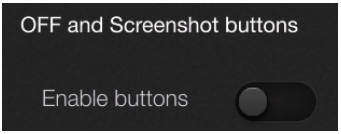




Continued on next page



The OFF and Screenshot buttons are for development purposes only, but the screenshot function can be used.

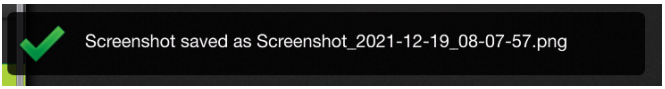


The **Screenshot** function allows the user to take screenshots of the current User Interface (UI). This feature can be helpful for record keeping or trouble shooting with customer service.

There are two ways to take a screenshot:

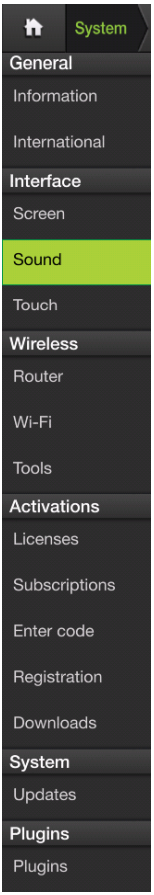
a. Double press the power button
b. Enable the "**OFF and Screenshot buttons**" and select the SCR button from Status Ribbon.

When a successful screenshot is taken, using either method, a message will temporarily be displayed on the screen with the name of the screenshot:



Note: Screenshot files are saved in the **Files Menu** of the MaveriX Precision Ag terminal and can be exported to a USB drive for transfer. (See USB Transfer for more information.)

Sound



The volume for sounds related to **General**, **System**, **Alerts**, and **Multimedia** can be adjusted in this menu.

Navigate to the Home > System > Interface > Sound menu.

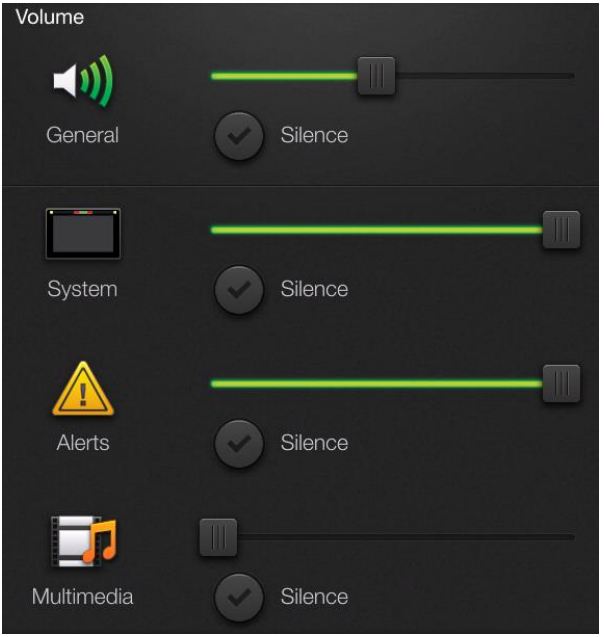
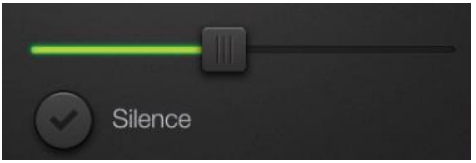


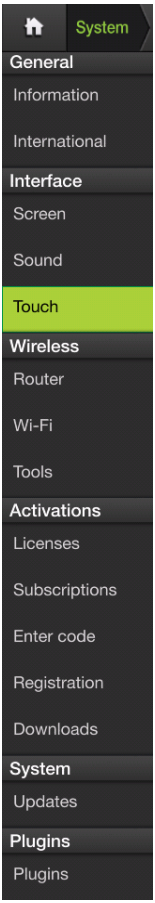
Figure 9-7: Sound Menu

Click the slider button to adjust the **Sound** volume from low (left) to high (right).



The **Silence** button can be used to mute the sound level completely. If the **Silence** button is pressed, a red checkmark appears, and the volume bar changes color from green to grey.

Touch

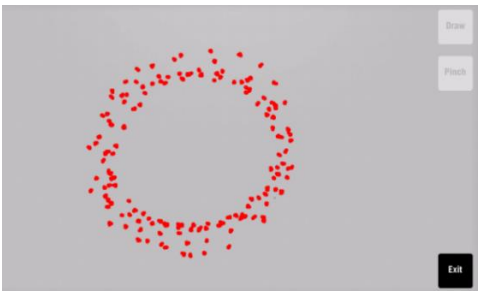


The **Touch Menu** allows the user to review the touch screen functionality.

It can be reached by following the Home > System > Interface > Touch menu.

The **Touch Menu** includes two main functions: **Draw** and **Pinch**.

Use the **Draw** button to activate the draw function for the touchscreen. Once the **Draw** function has been activated, move your finger across the screen and notice the tracks marked with red dots.



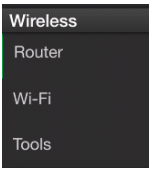
Finalize the **Draw** function by pressing the **Exit** button at the lower-right corner of the screen.

Use the **Pinch** button to activate the pinch function for the touchscreen. You can adjust the size of the tractor on the screen using a pinching motion on the touch screen. Click the **Pinch** button to use the **Pinch** function for the touch screen.

Once the **Pinch** function has been activated, use the press and hold technique to move the tractor across the screen.

Finalize the **Pinch** function by pressing the **Exit** button at the lower-right corner of the screen.

Wireless



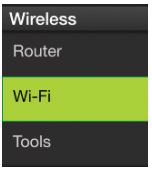
The **Wireless** menu allows the user to review and configure the **Wireless** functionality of the MaveriX terminal application. It can be reached by following the Home > System > Wireless menu.

The **Router Menu** is for development use only.

The **Wi-Fi Menu** is used to manage network connections.

The **Tools Menu** is for development use only.

Wi-Fi



Use the **Network Off/On** switch to enable the **Wi-Fi** functionality.

The **Automatic Mode** setting allows the MaveriX terminal to automatically search for network signals. **Automatic Mode** is on by default and should not be turned off.

The **Automatic Connection** setting allows the MaveriX terminal application to automatically connect to known networks when they are available.

To connect to a **WiFi network**, the user selects from a list of available networks by selecting on the network name.

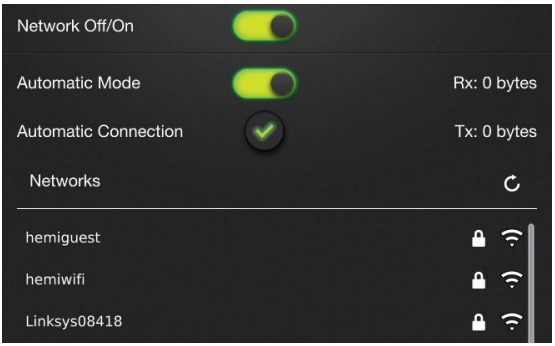
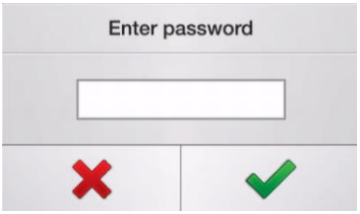
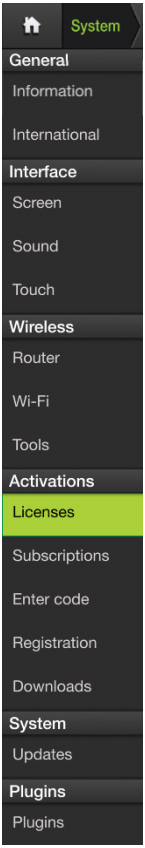


Figure 9-8: WiFi Menu

Type the appropriate password by pressing inside the white box. This will open a keypad. Confirm with the green checkmark button within the **Enter** password window. (To cancel, press the red X)



Activations
Licenses



The **Activations Menu** is used to view the activations of the MaveriX system. To input Activation Code(s) using USB thumb drive, see Ch.8: Files: Activation Code.

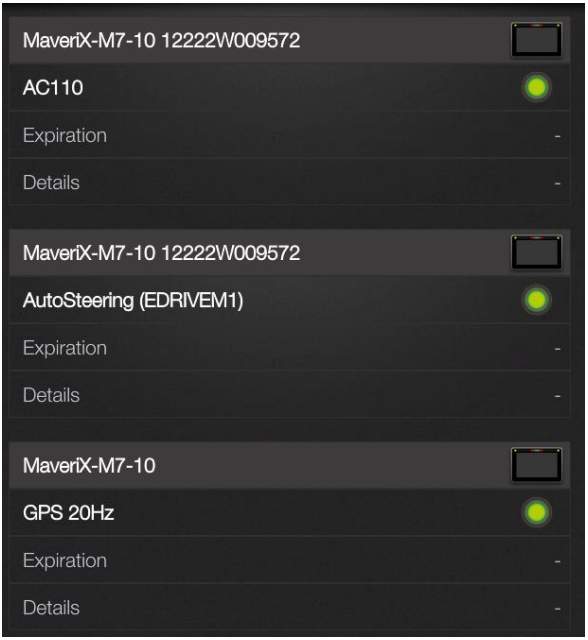


Figure 9-9: Activations Menu

Activations include:

- MaveriX System
  - AC110 – required for using AC110
  - AutoSteering (EDRIVEM1) – required to use eDriveM1
  - eTurns – required to use AutoTurns (***future development***)
  - Hydraulic – required to use Proportional and Ratiometric valve types.
  - Shuttle shift and Reverse steering – required for Shuttle Shift and Reverse Steering.
  - Steer Ready CAN – required for any CAN Steer Ready valve.
- GNSS antenna
  - GPS 20Hz
  - L2L5 (mFreq)
  - RTK Correction

Subscriptions

The **Subscriptions Menu** is used to view the subscriptions of the MaveriX system. The **CLOUD** subscription is for development purposes only.

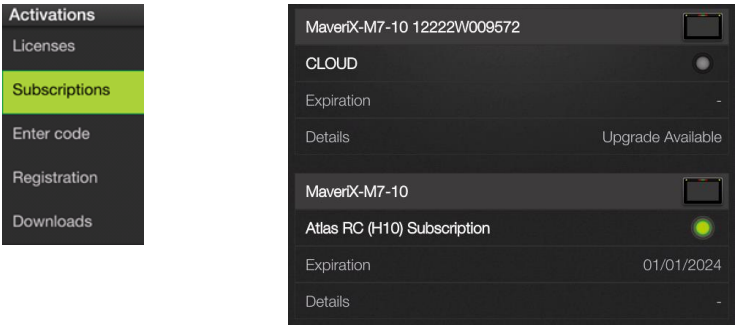


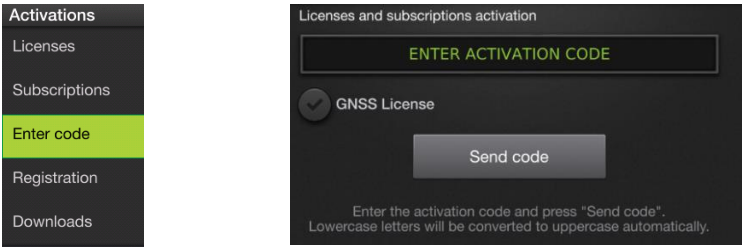
Figure 9-10: Subscriptions Menu

The other subscriptions that will display are:

- Atlas RC (H10)
- Atlas BA (H30)

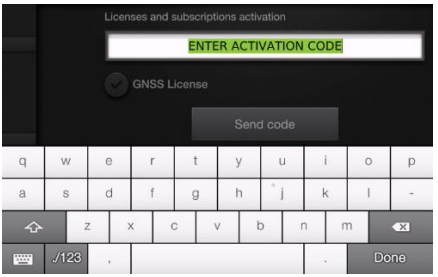
Enter Code

To enter a new **Activation Code**, double-click the **Enter Activation Code** window.

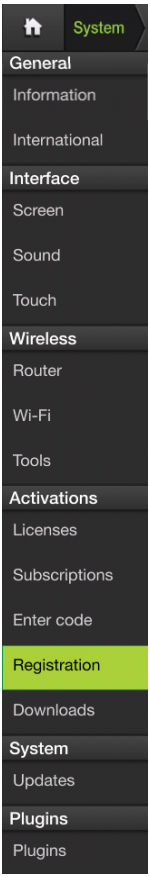


Type the **Activation Code** and confirm your entry by pushing the **Done** button.

Push the **Send** code button to submit the **Activation Code**.



Registration



The **Registration** is for future development and is not currently supported. To register your product, please contact your Outback Dealer or Outback Customer Service.

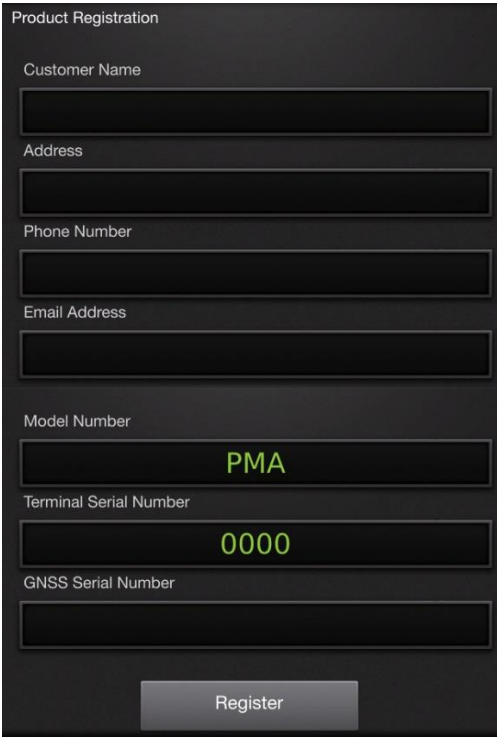
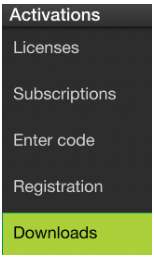


Figure 9-11: Registration Menu

Downloads Menu



The **Downloads Menu** is for future development use only and is currently unsupported.

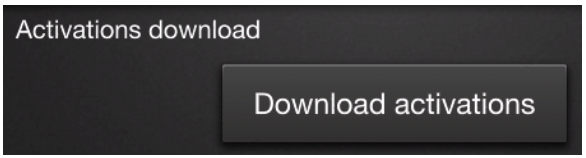
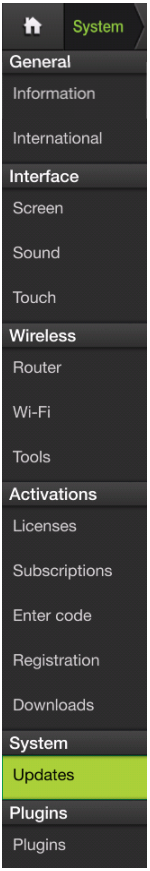


Figure 9-12: Downloads Menu

System
Updates



The **System Updates** page is used to manage the firmware version of the MaveriX terminal application. It can be reached by following the Home > System > Updates menu.

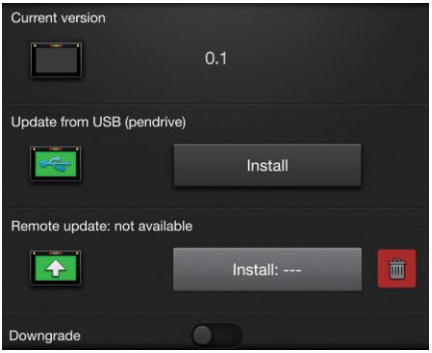
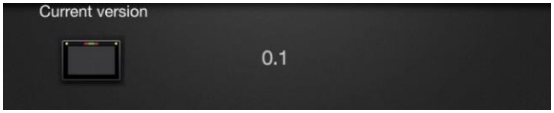
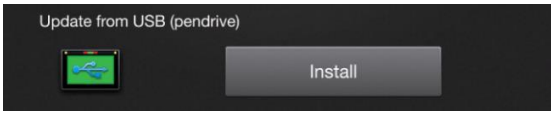


Figure 9-13: System Updates Menu

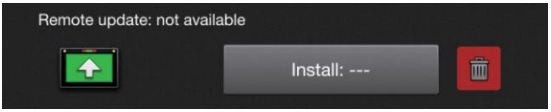
This section is not used, to check the current software version go to **Home > Diagnostics > Terminal > Information**.



Update the software by using a **USB** drive.



Initiate a software update over Wi-Fi. *Future development, currently unsupported.*

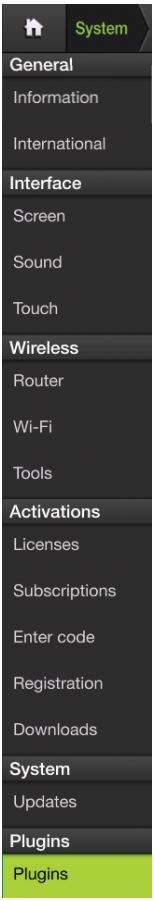


Note: The remote update requires an internet connection to the terminal through a WiFi interface. See Chapter 9: System, Wireless for Wi-Fi connections.

Software downgrades must be enabled by activating the downgrade switch.

Note: Software downgrades are disabled by default.

Plugins



The **Plugins Menu** is password protected and is only accessible by developers.

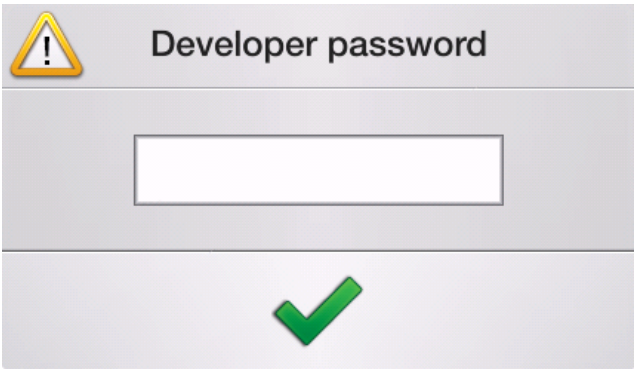


Figure 9-14: Plugins Menu

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24. **FORCE MAJEURE EVENT.** Neither party will have the right to claim damages as a result of the other's inability to perform or any delay in performance due to unforeseeable circumstances beyond its reasonable control, such as labor disputes, strikes, lockouts, war, riot, insurrection, epidemic, Internet virus attack, Internet failure, supplier failure, act of God, or governmental action not the fault of the non-performing party.
25. **FORUM FOR DISPUTES**. The parties agree that the courts located in Calgary, Alberta, Canada and the courts of appeal there from will have exclusive jurisdiction to resolve any disputes between Licensee and Hemisphere concerning this Agreement or Licensee's use or inability to use the Software and the parties hereby irrevocably agree to attorn to the jurisdiction of those courts. Notwithstanding the foregoing, either party may apply to any court of competent jurisdiction for injunctive relief.
26. **APPLICABLE LAW**. This Agreement shall be governed by the laws of the Province of Alberta, Canada, exclusive of any of its choice of law and conflicts of law jurisprudence.
27. **CISG.** The United Nations Convention on Contracts for the International Sale of Goods will not apply to this Agreement or any transaction hereunder.

GENERAL. This is the entire agreement between Licensee and Hemisphere relating to the Product and Licensee's use of the same, and supersedes all prior, collateral or contemporaneous oral or written representations, warranties or agreements regarding the same. No amendment to or modification of this Agreement will be binding unless in writing and signed by duly authorized representatives of the parties. Any and all terms and conditions set out in any correspondence between the parties or set out in a purchase order which are different from or in addition to the terms and conditions set forth herein, shall have no application and no written notice of same shall be required. In the event that one or more of the provisions of this Agreement is found to be illegal or unenforceable, this Agreement shall not be rendered inoperative but the remaining provisions shall continue in full force and effect.

Warranty Notice

COVERED PRODUCTS: This warranty covers all products manufactured by Hemisphere GNSS and purchased by the end purchaser (the "Products"), unless otherwise specifically and expressly agreed in writing by Hemisphere GNSS.

LIMITED WARRANTY: Hemisphere GNSS warrants solely to the end purchaser of the Products, subject to the exclusions and procedures set forth below, that the Products sold to such end purchaser and its internal components shall be free, under normal use and maintenance, from defects in materials, and workmanship and will substantially conform to Hemisphere GNSS's applicable specifications for the Product, for a period of 12 months from delivery of such Product to such end purchaser (the ”Warranty Period”). Repairs and replacement components for the Products are warranted, subject to the exclusions and procedures set forth below, to be free, under normal use and maintenance, from defects in material and workmanship, and will substantially conform to Hemisphere GNSS's applicable specifications for the Product, for 90 days from performance or delivery, or for the balance of the original Warranty Period, whichever is greater.

EXCLUSION OF ALL OTHER WARRANTIES. The LIMITED WARRANTY shall apply only if the Product is properly and correctly installed, configured, interfaced, maintained, stored, and operated in accordance with Hemisphere GNSS relevant User’s Manual and Specifications, AND the Product is not modified or misused. The Product is provided “AS IS” and the implied warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE and ALL OTHER WARRANTIES, express, implied or arising by statute, by course of dealing or by trade usage, in connection with the design, sale, installation, service or use of any products or any component thereof, are EXCLUDED from this transaction and shall not apply to the Product. The LIMITED WARRANTY is IN LIEU OF any other warranty, express or implied, including but not limited to, any warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE, title, and non-infringement.

LIMITATION OF REMEDIES. The purchaser’s EXCLUSIVE REMEDY against Hemisphere GNSS shall be, at Hemisphere GNSS's option, the repair or replacement of any defective Product or components thereof. The purchaser shall notify Hemisphere GNSS or a Hemisphere GNSS's approved service center immediately of any defect. Repairs shall be made through a Hemisphere GNSS approved service center only. Repair, modification or service of Hemisphere GNSS products by any party other than a Hemisphere GNSS approved service center shall render this warranty null and void. The remedy in this paragraph shall only be applied in the event that the Product is properly and correctly installed, configured, interfaced, maintained, stored, and operated in accordance with Hemisphere GNSS's relevant User’s Manual and Specifications, AND the Product is not modified or misused. NO OTHER REMEDY (INCLUDING, BUT NOT LIMITED TO, SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL OR CONTINGENT DAMAGES FOR LOST PROFITS, LOST SALES, INJURY TO PERSON OR PROPERTY, OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL LOSS) SHALL BE AVAILABLE TO PURCHASER, even if Hemisphere GNSS has been advised of the possibility of such damages. Without limiting the foregoing, Hemisphere GNSS shall not be liable for any damages of any kind resulting from installation, use, quality, performance or accuracy of any Product.

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HEMISPHERE IS NOT RESPONSIBLE FOR PURCHASER'S NEGLIGENCE OR UNAUTHORIZED USES OF THE PRODUCT. IN NO EVENT SHALL Hemisphere GNSS BE IN ANY WAY RESPONSIBLE FOR ANY DAMAGES RESULTING FROM PURCHASER'S OWN NEGLIGENCE, OR FROM OPERATION OF THE PRODUCT IN ANY WAY OTHER THAN AS SPECIFIED IN Hemisphere GNSS's RELEVANT USER'S MANUAL AND SPECIFICATIONS. Hemisphere GNSS is NOT RESPONSIBLE for defects or performance problems resulting from (1) misuse, abuse, improper installation, neglect of Product; (2) the utilization of the Product with hardware or software products, information, data, systems, interfaces or devices not made, supplied or specified by Hemisphere GNSS; (3) the operation of the Product under any specification other than, or in addition to, the specifications set forth in Hemisphere GNSS's relevant User's Manual and Specifications; (4) damage caused by accident or natural events, such as lightning (or other electrical discharge) or fresh/ salt water immersion of Product; (5) damage occurring in transit; (6) normal wear and tear; or (7) the operation or failure of operation of any satellite-based positioning system or differential correction service; or the availability or performance of any satellite-based positioning signal or differential correction signal.
THE PURCHASER IS RESPONSIBLE FOR OPERATING THE VEHICLE SAFELY. The purchaser is solely responsible for the safe operation of the vehicle used in connection with the Product, and for maintaining proper system control settings. UNSAFE DRIVING OR SYSTEM CONTROL SETTINGS CAN RESULT IN PROPERTY DAMAGE, INJURY, OR DEATH.
The purchaser is solely responsible for his/her safety and for the safety of others. The purchaser is solely responsible for maintaining control of the automated steering system at all times. THE PURCHASER IS SOLELY RESPONSIBLE FOR ENSURING THE PRODUCT IS PROPERLY AND CORRECTLY INSTALLED, CONFIGURED, INTERFACED, MAINTAINED, STORED, AND OPERATED IN ACCORDANCE WITH Hemisphere GNSS's RELEVANT USER'S MANUAL AND SPECIFICATIONS. Hemisphere GNSS does not warrant or guarantee the positioning and navigation precision or accuracy obtained when using Products. Products are not intended for primary navigation or for use in safety of life applications. The potential accuracy of Products as stated in Hemisphere GNSS literature and/or Product specifications serves to provide only an estimate of achievable accuracy based on performance specifications provided by the satellite service operator (i.e. US Department of Defense in the case of GPS and differential correction service provider. Hemisphere GNSS reserves the right to modify Products without any obligation to notify, supply or install any improvements or alterations to existing Products.
GOVERNING LAW. This agreement and any disputes relating to, concerning or based upon the Product shall be governed by and interpreted in accordance with the laws of the State of Arizona.
OBTAINING WARRANTY SERVICE. In order to obtain warranty service, the end purchaser must bring the Product to a Hemisphere GNSS approved service center along with the end purchaser's proof of purchase. Hemisphere GNSS does not warrant claims asserted after the end of the warranty period. For any questions regarding warranty service or to obtain information regarding the location of any of Hemisphere GNSS approved service center, contact Hemisphere GNSS at the following address:

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