

ReconBlockage™

Operator's Guide

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ReconBlockage™ Operator's Guide

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Related Documentation

Document Number	Document Title
600820-000044	ReconBlockage™ Quick Reference Guide
600820-000045	ReconBlockage™ Troubleshooting Guide
600820-000056	ReconBlockage™ for Strip-Till Quick Reference Guide
600820-000057	ReconBlockage™ for Strip-Till Troubleshooting Guide
600840-000069	ReconBlockage™ Installation Manual
600840-000080	ReconBlockage™ for Strip-Till Installation Manual

1. Getting Started

1.1 About ReconBlockage™

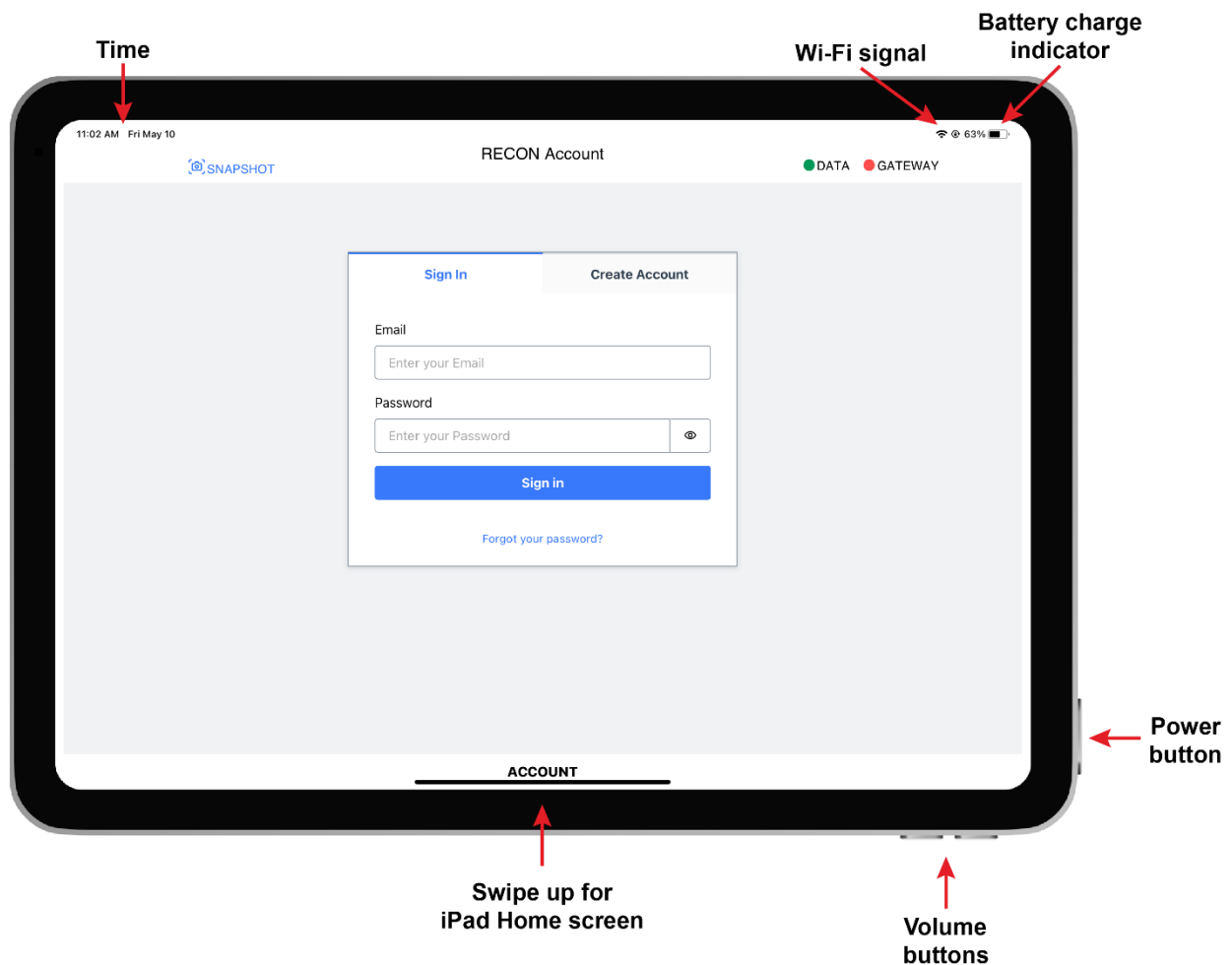
ReconBlockage by Precision Planting® is an acoustic-based monitoring system that quickly and accurately notifies operators of blockages anywhere in their implement.

Use the ReconHub app on your iPad® to monitor your system's performance. For instructions to install the system, see the ReconBlockage or ReconBlockage for Strip-Till Installation Manual from the app's About and Support tab.

For current documentation, iPad and software requirements, and other resources, visit cloud.precisionplanting.com/product-resources.

1.2 Using an iPad

ReconBlockage interfaces with the system using the ReconHub app on an iPad.



Powering on/powering off the iPad

To power on the iPad, press and hold the power button for 3 to 5 seconds.

When the iPad is powered on, press the power button to turn the screen off and put it in sleep mode. Press the power button again to exit sleep mode.

To power off the iPad:

- **iPads with a home button:** Press and hold the power button for 3 to 5 seconds. Then, drag the slider that appears on the screen.
- **iPads without a home button:** Press and hold the power button and one of the volume buttons for 3 to 5 seconds. Then, drag the slider that appears on the screen.

Viewing the iPad Home screen

If you have an app open, swipe up from the bottom of the screen to return to the Home screen.

If your iPad has a Home button, press the Home button to return to the Home screen.

Opening the ReconHub app

IMPORTANT: If you are prompted to enable location services, select **Only While Using the App** or **Always Allow**. If you select **Don't Allow**, this will prevent the iPad from connecting to the gateway network.

IMPORTANT: If you are prompted to allow the app to find and connect to devices on your local network, select **OK**. If you select **Don't Allow**, this will prevent the iPad from connecting to the gateway network.

Tap the ReconHub app on the iPad Home screen to open it.

If you haven't downloaded the app yet, search *ReconHub* in the App Store and download the ReconHub app. Refer to the download instructions in the ReconBlockage™ or ReconBlockage for Strip-Till Installation Manual for more information.

If it's your first time using the app, you'll have to download the correct product within the app. Refer to Section 2 for more information on setting up your system for the first time.

Adjusting iPad volume

Press the top or bottom iPad volume button to adjust the iPad volume.

NOTE: If your iPad has a side switch and it is configured to mute the iPad, ensure that the switch is enabled (the iPad is not muted).

Changing iPad language

1. Tap **Settings** on the iPad Home screen.
2. Tap **General** on the left navigation pane.
3. Tap **Language & Region**.
4. Select the new language.

2. Setting up ReconBlockage™

2.1 Connecting the iPad to the Wireless Network

The iPad must be in close range of the gateway and connected to the gateway's wireless network to communicate with the system.

Make sure that your iPad is connected to the wireless network at the beginning of every planting session. This is especially important if your iPad is connected to another network, such as a home wireless network, between sessions.

To connect the iPad to the wireless network:

1. Make sure that you have power to the gateway. The gateway's LED is green when it's done starting up.
2. Tap the **Settings** icon on your iPad's home screen.
3. Tap **Wi-Fi**. Then, connect to the gateway's network.

If it's your first time connecting to the gateway:

- a. Connect to the **IAS-Base-Image-XXXXXX** network.
"XXXXXX" represents the gateway's serial number.
- b. Open the ReconHub app from the iPad's Home screen. Once the gateway is configured for ReconBlockage, close the app and navigate back to the iPad's Wi-Fi settings.
- c. Connect to the **PrP-XXXXXX** network.

If you've connected to the gateway before: Connect to the **PrP-XXXXXX** network.





4. Press the iPad's Home button or swipe up and open the ReconHub app.

IMPORTANT: If you are prompted to enable location services, select **Only While Using the App** or **Always Allow**. If you select **Don't Allow**, this will prevent the iPad from connecting to the gateway network.

IMPORTANT: If you are prompted to allow the app to find and connect to devices on your local network, select **OK**. If you select **Don't Allow**, this will prevent the iPad from connecting to the gateway network.

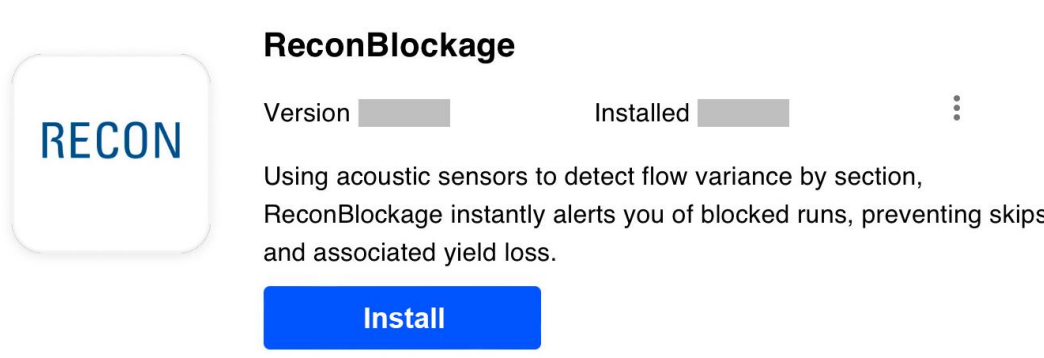
2.2 Viewing Wi-Fi and Gateway Status

The upper right corner of the app shows the Wi-Fi and gateway status. Use the table below to determine what you can do when you're connected to Wi-Fi and what you can do when you're connected to the gateway.

Status	Meaning	What you can do
 DATA	Wi-Fi connected	<ul style="list-style-type: none"> • Configure iPad settings • Download or update the app • Download products within the app • Upload diagnostic logs
 GATEWAY	Gateway disconnected	
 DATA	Wi-Fi disconnected	<ul style="list-style-type: none"> • Install gateway firmware updates • Use the system (monitor for blockage and flow issues)
 GATEWAY	Gateway connected	

2.3 Downloading the Product

1. Sign in or register for a new Recon account (make sure you're connected to an internet Wi-Fi network).
2. If it's your first time using the system, download the ReconBlockage product within the ReconHub app.

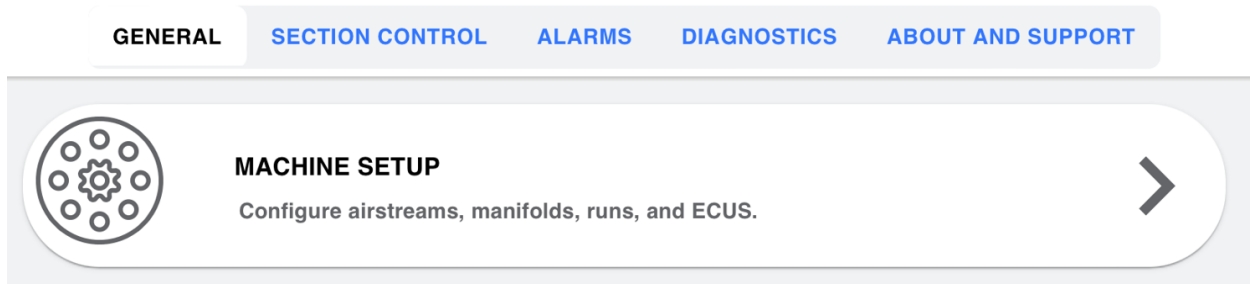


3. Connect back to the gateway Wi-Fi network. The ReconBlockage product will open in the app.

NOTE: If you're prompted to update the gateway, perform the update. When the update is complete, tap **Start ReconBlockage**.

2.4 Initial Configuration

1. Tap **Machine Setup**.



2. Configure your airstreams.

a. Select how many airstreams you'll be monitoring.

- Select **Single** if you are only monitoring 1 product, or if you have two products flowing through the same airstream.
- Select **Double** if you are dual shooting – two products (e.g. seed and fertilizer pellets) simultaneously flowing through the implement through different airstreams.
- Select **Triple** if you are triple shooting – three products simultaneously flowing through the implement through different airstreams.



b. Under M1, select the number of runs on the first manifold or section.



c. Tap **Add Manifold** until the total number of manifolds or sections show.

d. If double or triple shooting, swipe up and repeat the steps above for the other airstreams.

e. When you're done configuring airstreams, tap **Next**.

3. Configure your ECUs.
 - a. Tap **M1**.



- b. Tap the ECU or ECUs that are connected to the manifold or section. The ECU serial number is located on the back of the ECU.

ASSIGN UP TO 4 ECUS TO MANIFOLD



NOTE: If you split a manifold or section's runs across multiple ECUs or joined multiple manifolds or sections on one ECU, refer to the instructions below when assigning ECUs:

- **Splitting:** Select the ECUs that your manifold or section is connected to.
- **Joining:** Select the same ECU for multiple manifolds or sections.

- c. Repeat the steps above for all manifolds or sections in all airstreams.
 - d. When you're done configuring ECUs, tap **Next**.
4. Configure ECU ports.

- a. If your run numbers are installed in the same order as the ECU ports (i.e. Run 1 is on Port 1, Run 2 is on Port 2, etc.), tap **Auto-Assign**.

Otherwise, tap a run number at the bottom of the screen, then tap the port on the ECU that it's connected to. Repeat for each run.

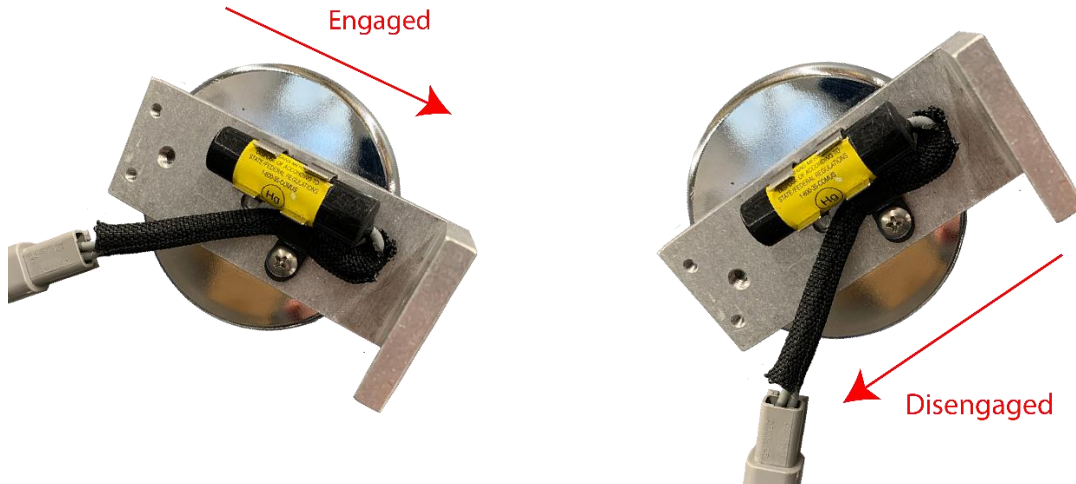
RUNS ON MANIFOLD 1



- b. Tap the next arrow > under the manifold to assign ports for the next manifold or section.
 - c. When you're done configuring ECU ports, tap **Apply Changes**.

2.5 Verifying Work Switch Setup

Follow the instructions below to verify that the work switch has been correctly installed and is communicating with the app.



1. Verify your work switch position.
 - a. Tap **Settings** in the bottom navigation, then tap **General** at the top.
 - b. Make sure that the **Work Switch Position** setting matches your current opener position.
2. Verify that the app's work switch status is correct.
 - a. Navigate to the **Dashboard** screen in the app.
 - b. Lower the implement and verify that the work switch status turns green. ●
 - c. Raise the implement and verify that the work switch status turns red. ●
 - d. Lower the implement again and verify that the work switch status turns green. ●

If the work switch status is not the correct color, go back to the **Settings** page and change the work switch position.

If the status doesn't change when you adjust the implement's hydraulic system, contact your dealer for assistance.

2.6 Adjusting Alarms Settings

Configure system alarms on the Alarms Settings page. Tap **Settings** in the bottom navigation, then tap **Alarms** at the top.

1. **Enable or disable the blocked run alarm.** Tap the **Blockage Alarm** switch.
2. **Enable or disable the ECU offline alarm.** Enable the **ECU Offline Alarm** switch to sound an alarm when the app has not received data from an ECU for more than 15 seconds.
3. **Set alarm delays.** Drag the **Alarm Delay** slider to adjust the number of seconds between when the system detects a blockage and when the alarm sounds.
4. **Change alarm volume.** Drag the **Alarm Volume** slider to adjust the volume of alarms.

2.7 Editing Configuration

To edit or add manifolds or sections and runs that were not included during the initial configuration of ReconBlockage™, tap **Settings** on the bottom navigation, then make sure you're on the **General** page. Tap **Machine Setup** and edit the configuration.

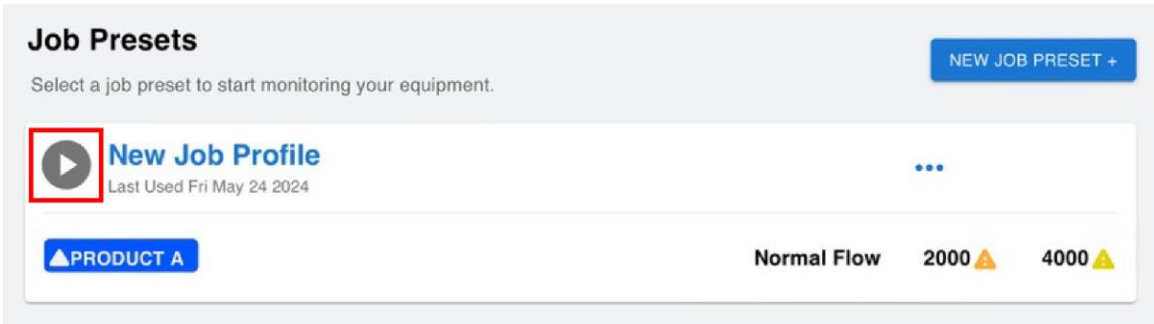
2.8 Creating Job Presets

Job presets allow you to edit your main configuration for specific applications. Once you've configured your system, create a job preset to begin monitoring your equipment.

TIP: Use these steps to configure your system for split ranking.

1. Tap **Dashboard** on the bottom navigation, then tap **Go to Profiles** (if prompted) or **Create Job Preset** in the upper right corner.
2. Tap **New Job Preset**.
3. Type a job profile name.
4. Enter a product name for Airstream A.
5. Select the flow level. If you are applying product at a low application rate, you can adjust your flow rate settings to prevent the flow alarm from falsely triggering.
 - **Normal:** Use when applying seed at a rate greater than 7 pounds/acre. Used for most products.
 - **Low:** Use when applying seed at a rate between 5 to 7 pounds/acre. Often used with canola, flax, alfalfa, and grass.
 - **Very Low:** Use when applying seed at a rate less than 5 pounds/acre. Often used with canola and sunflowers.

6. Configure Mass Flow Alarms and Section Variance Alarms.
 - a. Enable or disable the mass flow and section variance alarm.
 - b. Set the alarm thresholds.
7. Configure manifolds or sections. Tap a run to disable or enable it for this preset. Or, use one of the options at the bottom to toggle all, even, or odd runs.
8. When you're done configuring a preset, tap the play button next to the preset on the Dashboard. Then, tap **Start Monitoring**.



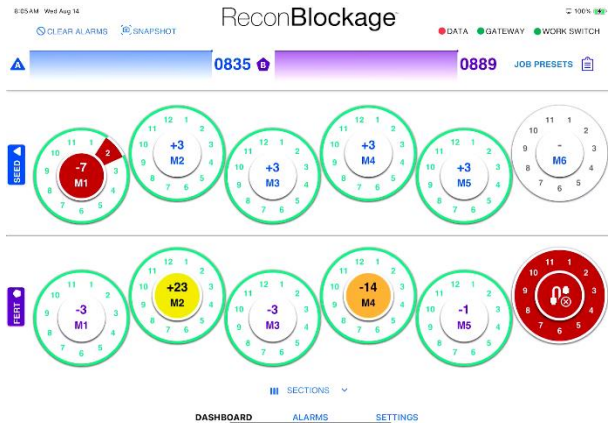
3. Monitoring Blockage and Flow

TIP: Tap **Snapshot** in the upper left corner to take a screenshot of the current screen. When prompted, make sure you give the app permission to add to your photos.

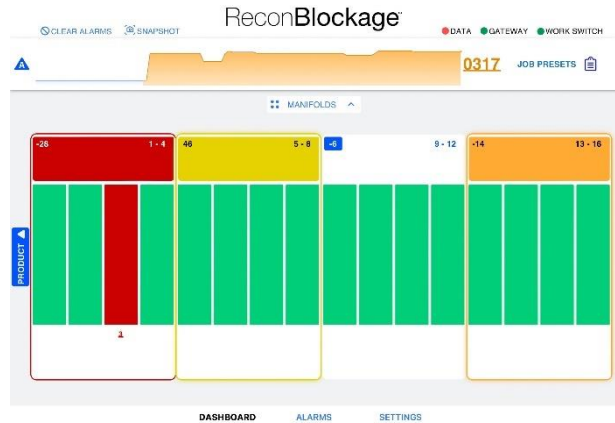
3.1 Viewing the Dashboard

Use the Dashboard to monitor for blockages during application.

On the Dashboard, tap **Manifolds** to visualize the system in manifolds. Tap **Sections** to visualize the system in sections.



Manifold view

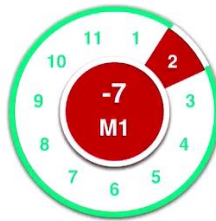


Section view

3.2 Viewing Blockages

When a blockage is detected, an audio alarm will sound (if enabled) and the blocked run will turn red.

After a blockage has existed for 5 seconds, it begins to blink. This blockage will show as blocked even when the toolbar is lifted out of the ground to unblock the run. It will turn green once the sensor is sensing flow again.



If you haven't already, we recommend marking the ECU port number connected to the sensor on a location easily visible on each hose. This makes it easier to identify which run is blocked.

If you configured your ECUs in order from left to right, with run numbers installed in the same order as the ECU ports (i.e. Run 1 is on Port 1, Port 2 is on Port 2, etc.), the image below shows how a six-manifold system would be displayed in the app.



Top: Tractor connected to a six-manifold implement.
Bottom: Dashboard.

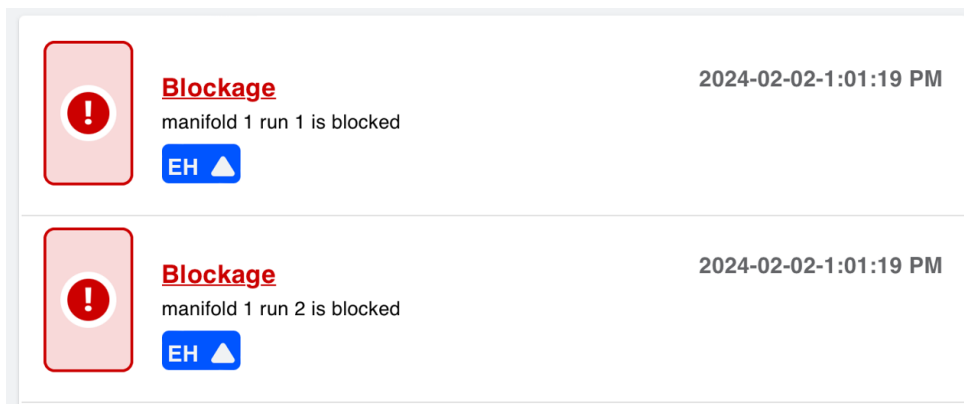
NOTE: When the implement is out of the ground, the app might display that all runs are blocked (because no material is flowing through the runs), but the audio alarm will not sound. Residual seed or other product can cause the flow and blockage readings to fluctuate for a few minutes after stopping application.

3.2.1 Silencing the Audio Alarm

When an alarm is sounding, silence it by tapping **Clear Alarms**. It will stay silent until another issue is detected.

3.2.2 Viewing Alarm History

To view recent alarms, tap **Alarms** on the bottom navigation.



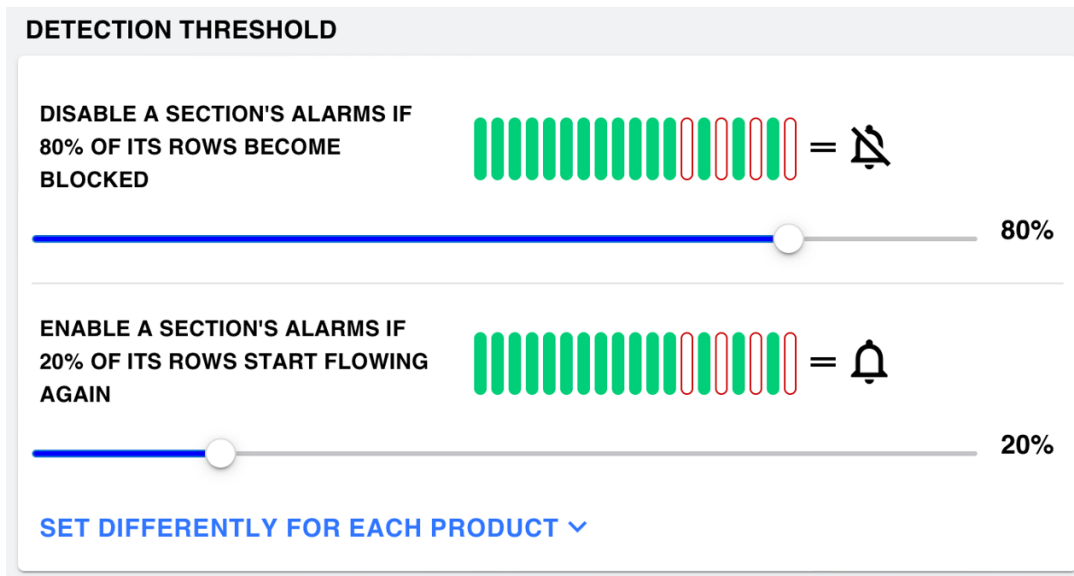
3.2.3 OPTIONAL: Monitoring with Section Control

If your implement has a section control system and you enable section control in the app, the manifolds or sections that are not in use due to section control will appear dimmed.

NOTE: All sections will appear dimmed if the work switch is disengaged while section control is enabled.

To enable section control:

1. Tap **Settings** on the bottom navigation, then tap **Section Control** on the top navigation.
2. Adjust the detection threshold.
 - The higher the percentage on the top slider, the longer it will take for a section alarm to shut off when runs become blocked.
 - The higher the percentage on the bottom slider, the longer it will take for a section alarm to sound when blocked runs become unblocked.
3. If you're monitoring more than one airstream and want different alarm settings for each of them, tap **Set Differently for Each Product** and enter the thresholds.



3.2.4 OPTIONAL: Calibrating Sensors for High Fan Noise

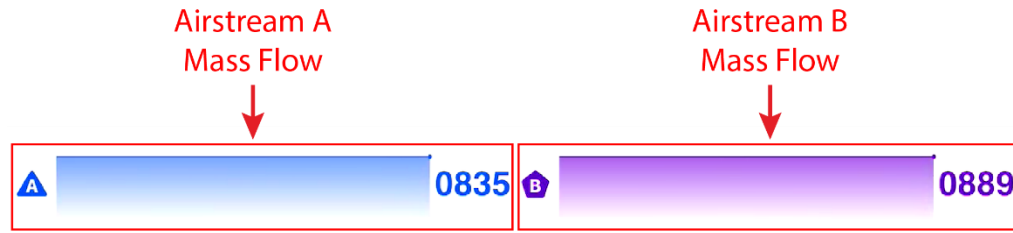
Once you've used the system, if false flow is detected on your runs when the fan is on and no product is running, calibrate your sensors for high fan noise. This is especially prevalent on machines with on-board tanks.

NOTE: Re-calibrate the sensors whenever product, product rate, tractor RPM, fan speed, or machine configuration (moving or replacing a part) is changed.

1. Set the tractor engine to the RPM that will be used during application.
2. Engage the hydraulics to the fan and set the fan to the RPM that will be used during application.
3. Allow the fan to stabilize for one minute. This ensures that the fan and airflow are at the operating speed.
4. Tap **Settings** on the bottom navigation, then tap **General** on the top navigation.
5. Without product running, tap **Run Calibration** in the Calibration Mode section. Then, tap **Begin**.
6. Tap **Finish** when calibration is complete.

3.3 Monitoring Mass Flow Rate

The total flow rate for all manifolds or sections of each airstream appears on the top of the Dashboard, as shown below.



The mass flow rate is arbitrary and does not correspond to a specific unit of measurement. As you become more familiar with the mass flow rate, you will be able to determine what range of mass flow numbers indicates good product flow. Once you have determined this range, you may want to set an alarm based on these parameters. See Section 2.6 for more information on these settings.

Mass flow can fluctuate with changes in product type, application rate, ground speed, and fan speed. An abnormal mass flow number could indicate any of the following:

- Open or leaking cart lid
- Product bridging in bin
- Meter roller buildup
- Leaking or blocked primary

3.4 Monitoring Variance

ReconBlockage™ also monitors the variance between all manifolds or sections on the implement.

3.4.1 Variance Meanings

The variance of a manifold or section is a percentage of flow in relation to the flow of the other manifolds or sections in that airstream.

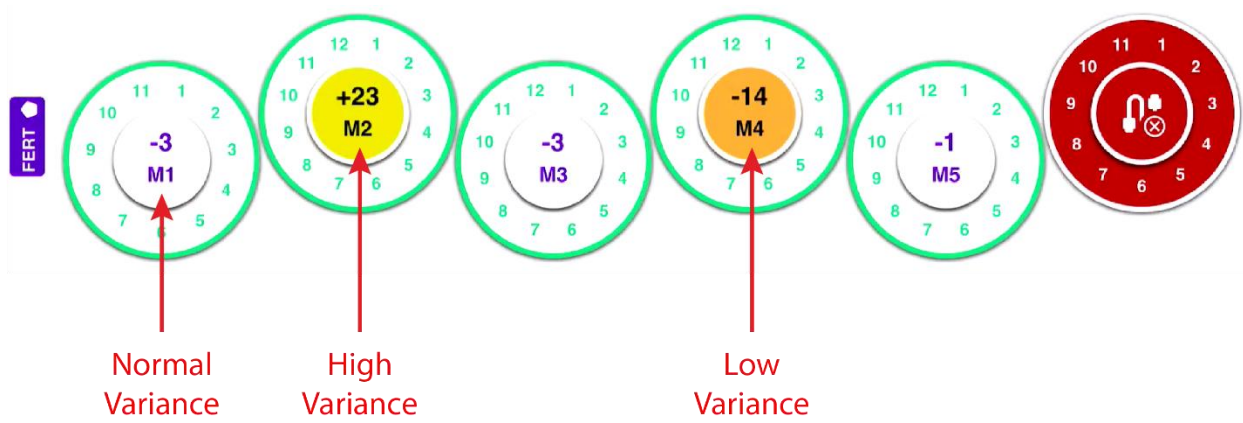
- **0% variance:** all manifolds or sections have **equal** flow levels.
- **Positive variance:** manifold or section has **above average** flow level.
- **Negative variance:** manifold or section has **below average** flow level. May indicate poor product flow or low product levels.

The variance for each manifold or section appears directly above the manifold or section's name or number on the Dashboard. The manifold or section's variance is given in real time and will continuously update.

3.4.2 Variance Colors

Color	Meaning
Yellow	Variance is high
Orange	Variance is low
Gray*	Variance is normal
Red	A run is blocked

*Variance text color (blue, purple, or green) corresponds with the product color.




For more information about setting the variance threshold, see Section 2.8.


3.5 Monitoring the ECU Status LED

A status LED is located on the front of the ECU. Multiple built-in-tests (BITs) periodically check the status of the ECUs. Refer to the LED status meanings below.

14-Port ECU (ReconBlockage™)

	LED Status	Meaning
	Flashing green	Normal operation
	Flashing purple/blue	ECU is starting up
	Flashing blue	ECU is reprogramming
	Flashing white	High fan noise calibration in progress
	Light off	No power to ECU

4-Port ECU (ReconBlockage for Strip-Till)

	LED Status	Meaning
	Flashing (1 flash per second)	Normal operation
	Fast flashing (2 flashes per second)	ECU is starting up
	Fast flashing (4 flashes per second)	ECU is reprogramming
	Light off	No power to ECU

4. Adjusting Settings

Customize settings in the Settings page.

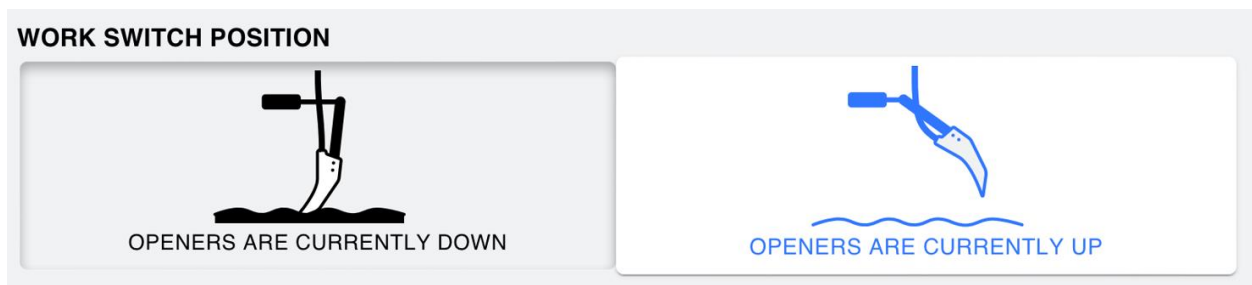
4.1 Change Appearance

1. Tap **Settings** on the bottom navigation, then tap **General** on the top navigation.
2. Select **Light** or **Dark** mode.



4.2 Change Work Switch Position

1. Tap **Settings** on the bottom navigation, then tap **General** on the top navigation.
2. Select **Openers are Currently Down** or **Openers are Currently Up**.



4.3 Calibrate Sensors for High Fan Noise

1. Tap **Settings** on the bottom navigation, then tap **General** on the top navigation.
2. If false flow is detected on your runs when the fan is on and no product is running, calibrate your system for high fan noise. For more information on configuring high fan noise, see Section 3.2.4.

CALIBRATION MODE

Calibration mode is currently disabled

RUN CALIBRATION

4.4 Reset Variance

Tare the tower variance to reset variance to zero. Use this feature once product flow has stabilized during application.

1. Tap **Settings** on the bottom navigation, then tap **General** on the top navigation.
2. Tap **Tare**.

TOWER VARIANCE TARE

Capture current variance tare.

TARE

CLEAR

4.5 Configure Section Control

1. Tap **Settings** on the bottom navigation, then tap **Section Control** on the top navigation.
2. Enable or disable section control and set alarm thresholds. See Section 3.2.3 for more information.

SECTION CONTROL

Is the implement operating with section control?



4.6 Configure Alarms

1. Tap **Settings** on the bottom navigation, then tap **Alarms** on the top navigation.
2. Adjust alarm settings. See Section 2.6 for more information on these settings.

ALARMS SETTINGS

Blockage Alarm

Triggers an alarm when a manifold/section or run/row becomes blocked.

Ecu Offline Alarm

Triggers an alarm when an ECU becomes disconnected from the gateway.

Alarm Delay

After an alarm reading occurs, it's alarm does not trigger for 3s.

2s

Alarm Volume

68%

5. Troubleshooting

Use the **Diagnostics** and **About and Support** tabs to find information on your system or troubleshoot issues.

If you're looking for support documentation such as installation manuals, user guides, and troubleshooting guides, visit cloud.precisionplanting.com/product-resources.

5.1 Viewing System Information

To view gateway and sensor information, tap **Settings** on the bottom navigation, then tap **About and Support** on the top navigation. This information is typically used for troubleshooting an issue.

5.2 Change Product Installation

If you've selected the wrong product in the app, change product installation.

1. Tap **Settings** on the bottom navigation, then tap **About and Support** on the top navigation.
2. Tap **Switch ReconBlockage**.


5.3 Change Wi-Fi Channel

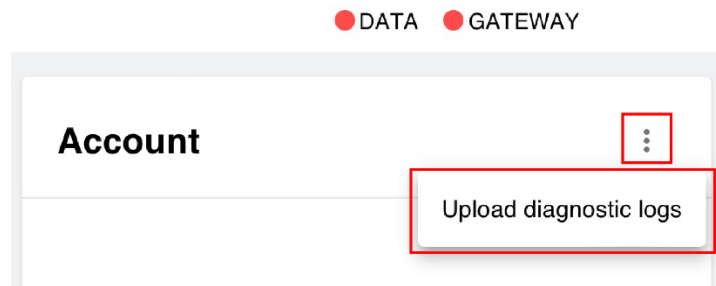
If you're having Wi-Fi signal interference issues, try changing the Wi-Fi channel.

1. Tap **Settings** on the bottom navigation, then tap **Diagnostics** on the top navigation.
2. Change the **Channel** to a different number.

5.4 Uploading Diagnostic Logs

Use the Diagnostics tab to upload diagnostic files to Precision Planting.

1. Tap **Settings** on the bottom navigation, then tap **Diagnostics** on the top navigation.
2. Select the box next to the date(s) of the log you want to submit. Logs will save to your iPad once the box is selected.
3. Navigate to your iPad's settings and connect to a Wi-Fi network.
4. Re-open the app. On the Account page, tap the ellipses  in the upper right corner. Then, tap **Upload diagnostic logs**.



5. Tap **Confirm** in the pop-up box to start the upload. Stay connected to the internet and keep the app open until it notifies you that the upload is complete.