

RECON

WIRELESS BLOCKAGE AND FLOW MONITOR

TROUBLESHOOTING GUIDE

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Recon Wireless Blockage and Flow Monitor Troubleshooting Guide

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Record of Revisions

Revision Number	Change Description	Revision Date	Inserted By
1.0	Initial Release	11/13/14	AAL
1.1	Improved document navigation, added topics	8/19/15	AAL
1.2	Added information about the Intelligent Ag Pro app, general updates.	2/21/17	AAL
1.3	Updated with new hardware and software information	12/06/17	AAL
1.4	Updated access point references, ECU update instructions, and other most recent troubleshooting steps	11/15/19	AAL
2.0	Updated to reflect latest troubleshooting procedures	1/08/21	KF/AAL
2.1	Removed sensor troubleshooting question	2/02/21	AAL

Referenced Documents

Document	Description	Location
iOS 13 Location Services Information Notice	Describes how to enable location services if you've previously declined them.	www.intelligentag.com/wp-content/uploads/2019/10/600870-000034-WBFM-iOS-13-Location-Services-Information-Notice.pdf
Access Point SSID Renaming Information Notice	Describes how to change the SSID of your access point.	www.intelligentag.com/wp-content/uploads/2019/04/600870-000032-WBFM-Access-Point-SSID-Renaming-Information-Notice.pdf
Access Point Channel Configuration Information Notice	Describes how to change the wireless channel that your access point connects to.	www.intelligentag.com/wp-content/uploads/2018/05/600870-000029-WBFM-Access-Point-Channel-Configuration-Information-Notice.pdf
Installation Manual	Describes how to install the WBFM.	www.intelligentag.com/support

TIP: If you don't see your problem listed or your problem is not resolved after completing all troubleshooting steps, contact your Intelligent Ag dealer for assistance.

Before you Begin

Before you begin troubleshooting, make sure that you complete the following items.

1. Make sure that your iPad has the latest iOS software installed.
2. Make sure that you have the latest version of the Recon Wireless Blockage and Flow Monitor app downloaded.
3. Make sure that you have the Recon Wireless Blockage and Flow Monitor app, not the old Intelligent Ag app.
4. Plug in your iPad and make sure that it's charging.
5. Force-restart (hard reboot) your iPad. Press and hold the power button and the home button at the same time until the Apple logo appears.
6. Close all apps except for the Recon Wireless Blockage and Flow Monitor app.
7. Make sure that the tractor is running.
8. Make sure that the TP-Link or Gateway is powered on.
9. Make sure that your iPad is connected to the IASBlockage or IASNetwork2 Wi-Fi network in the iPad settings.
10. If you have a TP-Link, make sure that is in the correct mounting location:
 - **Tow-behind cart:** Mounted on the outside of the rear window facing the ECUs.
 - **Tow-between cart:** Mounted on the top handrail facing the ECUs (requires an extension harness sold separately).
11. Make sure that the red LEDs on the ECUs are facing the TP-Link or gateway.
12. Make sure that the ECUs are powered on.
13. Make sure that the ECU LEDs are blinking once per second.
14. Make sure that all other electronics in the cab are powered down.
15. Make sure that you have allowed all location settings as described in the location services service bulletin: www.intelligentag.com/wp-content/uploads/2019/10/600870-000034-WBFM-iOS-13-Location-Services-Information-Notice.pdf.

Access Point

I can't communicate with the system.

1. Verify that you are connected to the IASBlockage Wi-Fi network in the iPad's Settings page.
NOTE: If you are using two tractors in the same field with separate sets of ECUs, connect the ECUs named WB2 to the IASNetwork2 network.
2. Check for app updates in the App Store. You must be connected to a home Wi-Fi network (not the IASBlockage or IASNetwork2 network). If an update is available, download it.
3. Verify that you have power to your ECUs and that the red LED is blinking about once per second.
4. Verify that your access point has power and that all LEDs except LAN or LAN1 are on.
5. Check for possible Wi-Fi interference. "Forget" any networks that the iPad has been connected to in the past that appear in the My Networks network list.
6. If you have any of the following devices connected, disconnect them:
 - Wireless camera (disconnect both the cab display and camera on implement)
 - Wi-Fi booster/relay station
 - 2-way radio
7. Go to a "quiet" location. If you're in the farmyard, drive out to a field away from the yard's electrical interference and any other interference.
8. Shut off all other electronics except for your blockage and flow monitor components.

The Wi-Fi Network has the wrong name.

Intelligent Ag offers two unique Wi-Fi networks for the WBFM system.

- **IASBlockage:** This is the most common network name. It is referred to as SSID 1. It communicates with ECUs that have stickers with a white background on them and the serial number sequence will utilize the following format: WBM-XXXX.
- **IASNetwork2:** This is used if you have more than one WBFM system. It is referred to as SSID 2. It communicates with ECUs that have stickers with a black background on them and the serial number sequence will utilize the following format: WB2-XXXX.

If you have an access point, refer to the instructions in the [network renaming information notice](#) to change the network name.

If you have a gateway, contact Intelligent Ag to change the network name.

Can I use the TP-Link and the gateway at the same time?

If you are also using Intelligent Ag's Engage Zone Control, the Engage Zone Control gateway works with the WBFM. Do not use a TP-Link.

Running both the gateway and the TP-Link on the same system will cause ECUs to "jump" from one network to another, causing ECU disconnects.

Can I hardwire my TP-Link to 12 volt power?



WARNING! RISK OF ELECTRICAL SHOCK: Verify that the tractor and power converter are completely powered off before completing these steps. Intelligent Ag is not responsible for any damage that results from modifying WBFM components.

TP-Link Model CPE 5210 and CPE 7210 (supplied with an Ethernet cable that has a cigarette lighter adapter on one end): Cut the cable's power cord immediately before the cigarette lighter adapter and discard the adapter. Twist the brown pair together and connect them to ground. Twist the blue pair together and connect them to FUSED and SWITCHED 12 volt power circuit.

TP-Link Model CPE 210 (supplied with a 12 VDC to 120 VAC inverter): Requires 24 VDC. This TP-Link itself should not be hard wired, but you can hardwire the inverter to 12 VDC fused and switched power.

1. Cut the power converter's power cord immediately before the cigarette lighter adapter and discard the adapter.
2. Separate the two wires and strip about ½ inch of the wire.
3. Connect the power converter wires to a power source—the wire with white text on it is positive, and the wire without text is negative. You may crimp or solder the wires, depending on your preference.
4. Power on the power converter.

The TP-Link only has the power LED on

The TP-Link has lost its configuration file and has been reset to its factory default settings. The most common cause of this is starting the tractor while the TP Link is powered on—the momentary drop in voltage can reset the TP Link. To avoid this, always make sure the TP Link is completely powered down whenever starting the tractor.

To reconfigure the TP-Link, refer to the steps below for your TP-Link model.

TP-Link Model CPE 5210 and 7210: Contact Intelligent Ag for further instructions.

TP-Link Model CPE210: Refer to the WBFM Access Point Configuration Service Bulletin: www.intelligentag.com/wp-content/uploads/2019/09/600870-000028-WBFM-Access-Point-Configuration-Service-Bulletin_rev-1.1.pdf.

My TP Link has no lights on

There is no power to the TP-Link.

1. Check the power cable for damage.
2. Check for blown fuses.
3. If there is power at the connector that plugs into the TP-Link and the TP-Link will not power on, replace the TP-Link.

My TP-Link keeps flashing on and off

1. Check the power cable for damage.
2. Check for fuses that are not making proper contact or are corroded.
3. If there is constant power at the connector that plugs into the TP-Link and the TP-Link is still flashing, replace the TP-Link.

I can't save a new SSID name after a power cycle

Make sure that you press **Save** in the upper right corner of the window after you change the SSID. Refer to step 8 of the [Access Point SSID Renaming information Notice](#).

Why does IAS offer two different SSIDs?

We offer two separate SSIDs to allow two machines to operate in close proximity to one another without the risk of cross talk between the systems.

Gateway 260 doesn't power down

Open the Recon Wireless Blockage and Flow Monitor app. If it prompts you to update the gateway, perform the update. If the update is successful, your wireless network will be named IASBlockage or IASNetwork2 and the gateway will recognize the key switch (blue wire) to power off the gateway with key power.

I can see the Wi-Fi network but I can't connect to it

If you've recently gotten a new WBFM access point, the system may be trying to connect to the old one. "Forget" and re-connect to the IASBlockage or IASNetwork2 network.

1. Tap the **Settings** icon on the iPad home screen.
2. Tap **Wi-Fi**, then tap the network name.
3. Tap **Forget This Network**.
4. Re-connect to the network.

What should the TP-Link LEDs look like?

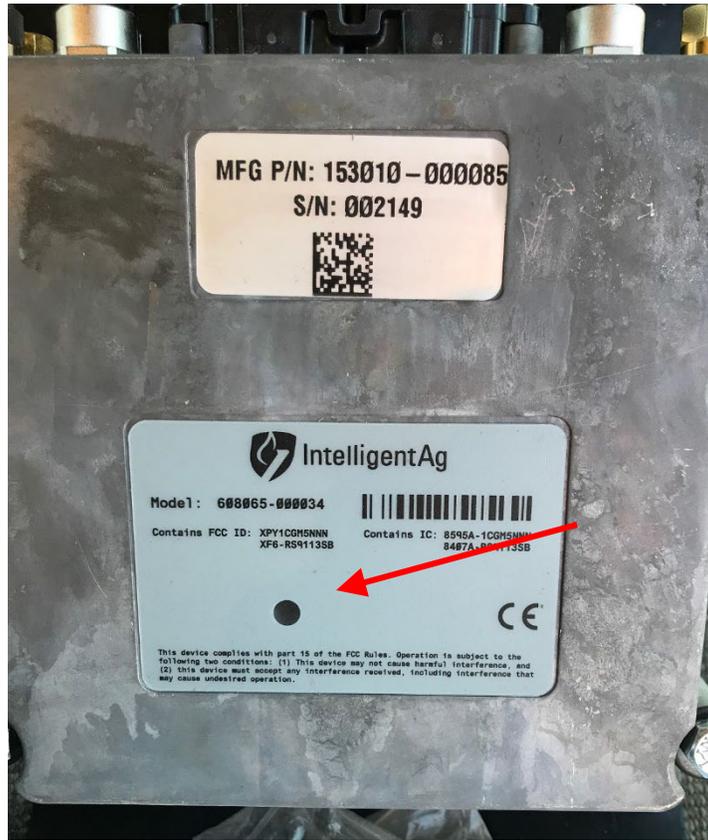


The power light and the 4 signal lights should be green during normal operation.

If only the power light is on the TP Link has lost its configuration. Refer to the instructions in WBFM Access Point Configuration Service Bulletin to configure your TP Link:
www.intelligentag.com/wp-content/uploads/2019/09/600870-000028-WBFM-Access-Point-Configuration-Service-Bulletin_rev-1.1.pdf

The LAN light should only be on during the reconfiguration process while it is connected to a computer.

What should the Gateway LED look like?



LED COLOR	LED STATE	DESCRIPTION
YELLOW	SOLID	BASE SDK (SOFTWARE DEVELOPMENT KIT)
WHITE	SOLID	STARTUP - POWERED PRE-BOOT
PURPLE/BLUE	FLASHING	STARTUP - BOOTING
GREEN	SOLID	NORMAL OPERATION
RED	SOLID	RECOVERY MODE - BOOT ERROR
RED	FLASHING	BIT ERROR
BLUE	FLASHING	REPROGRAMMING MODE

Flashing Green means it is performing the safe shutdown sequence.

ECU

What is an ECU?

The Electronic Control Unit (ECU) communicates the flow measurement data recorded by the flow sensors to the WBFM.



I have old ECUs. Do they work with the Recon Wireless Blockage and Flow Monitor app?

All 24 port ECUs work with the Recon Wireless Blockage and Flow Monitor app. When you're connected to the IASBlockage network and you open the app, the ECUs that are connected to the network will automatically update to the latest version of the ECU software.

I ordered the incorrect ECUs (SSID2). Can we rename them?

ECUs cannot be programmed to read different SSIDs in the field. You will need to get the correct ECUs.

The ECUs will not update

Refer to the steps in *Before you Begin* on page 6.

Why is there a Wi-Fi symbol over an ECU in the app?

You have lost connection to that ECU.

1. Close and re-open the app.
2. Check for possible Wi-Fi interference.
 - a. Disconnect any of the following devices: wireless camera (disconnect both the cab display and camera on implement), Wi-Fi booster/relay station, or 2 way radio.
 - b. Go to a “quiet” location: If you’re in the farm yard, drive out to a field away from the yard’s electrical interference.
 - c. Shut off all other electronics except for your blockage and flow monitor.
3. Ensure that the ECU Power LED is illuminated. If it isn’t:
 - a. Ensure that the ECU is plugged in to tractor power. If it is on key power, the key has to be on.
 - b. Ensure that the connectors are correctly connected on the 3 way splitter. The grey connector should go into the grey end of the splitter and the black connector should go into the black end of the splitter.



- c. Ensure that the connectors are not damaged and that the leads are properly seated.
 - d. Check if any wiring has been pinched or cut by folding the implement wings. This may be the problem if the system was working before moving to another field.
 - e. Connect the ECU wiring harness to a different ECU and see if it powers on.
 - f. Use a multimeter to verify that the ECU power is 11 to 14 volts.
4. Move the access point in the cab or on the implement so that it has a direct line of sight to the ECU.
5. Hard wire the access point to the power source. Refer to the information in *Can I hardwire my TP-Link to 12 volt power?* on page 8.

The ECU will not fit on the tower

Refer to the instructions below for your drill manufacturer.

Pillar: These drills have a sub frame that is sits under the main frame of the drill. The manifolds are mounted low, preventing the standard vertical mounting on the riser.

The ECU can be mounted horizontally on the frame directly in front of the paired manifolds with factory "frame" 3/8" u-bolts. If all run blockage is installed, it may be necessary to bolt the ECU to the back of the risers horizontally in order for the auditory tubes to reach (using in-line sensors). 90 degree sensors should reach without issue. A bracket is required to secure one end of the ECU bracket to the risers.

John Deere: Use a horizontal bracket to mount the ECU. Otherwise, zip tie on the bottom of the bracket. A 3" U-Bolt can be used on the top of the bracket to mount it over the bottom of the manifold.

Bourgault: Use self-tapping screws into the drill's 1" support bracket.

Horsch: Primaries are 5" diameter and require a larger u-bolt than is supplied. The following parts can be procured from Butler Machinery or Horsch:

Description	Part #	Qty
U-bolt 5"	04119709	20
Washer 1/4"	S5A04000	40
Lock Nut 1/4"	00508062	40

Morris: Manifolds are a horizontal fan style. Use self-tapping screws into the frame just below the manifolds.

Other manufacturer: Contact Intelligent Ag for alternative mounting options for your drill.

I keep losing connection to the ECUs

In some situations, the area that you will be seeding may have several sources of Wi-Fi interference. Follow the instructions in the WBFM Access Point Channel Configuration Information Notice to change the channel that the TP link broadcasts on:

www.intelligentag.com/wp-content/uploads/2018/05/600870-000029-WBFM-Access-Point-Channel-Configuration-Information-Notice.pdf.

I cannot see all of my ECUs when running the setup wizard.

1. Verify that you are connected to the IASBlockage Wi-Fi network in the iPad's Settings page.
NOTE: If you are using two tractors in the same field with separate sets of ECUs, connect the ECUs named WB2 to the IASNetwork2 network.
2. Check for app updates in the App Store. You must be connected to a home Wi Fi network (not the IASBlockage or IASNetwork2 network). If an update is available, download it.
3. Verify that you have power to your ECUs and that the red LED is blinking about once per second.
4. Verify that your access point has power and that all LEDS except LAN or LAN1 are on.
5. Check for possible Wi-Fi interference.
6. If you have any of the following devices connected, disconnect them:
 - Wireless camera (disconnect both the cab display and camera on implement)
 - Wi-Fi booster/relay station
 - 2-way radio
7. Go to a "quiet" location: If you're in the farmyard, drive out to a field away from the yard's electrical interference and any other interference.
8. Shut off all other electronics except for your blockage and flow monitor components.
9. Complete all other steps in *Before you Begin* on page 6.

Sensors were damaged during storage and now the ECU will not read flow

If the sensors were damaged during storage, it is likely that moisture or dust got into the microphone and has damaged it. Swapping the auditory hose to an unused port and see if the new port works.

- If it works, navigate to the Edit Config screen in the app settings and re-assign the port.
- If it still does not work, verify that the sensor has been replaced with a new one and that the auditory tube is not kinked or pinched anywhere.

The ECUs are not connecting.

1. Refer to the steps in *Before you Begin* on page 6.
2. Check the LEDs on the ECU.
 - **If the Power LED is on:**
 - **Slow blinking LED (about one blink every 3 seconds)**
 1. Verify that the iPad is connected to the IASBlockage or IASNetwork2 Wi-Fi network.
 2. Disconnect and reconnect power to the ECUs. Refer to the troubleshooting steps in **My ECUs are not updating correctly**.
 3. Restart the app.
 - a. Double-click the iPad's Home button.
 - b. Swipe right until you have located the Recon Wireless Blockage and Flow Monitor app.
 - c. Swipe up on the app's preview to close it.
 - d. Press the home button to return back to your home screen. Re-open the app.
 4. Uninstall and reinstall the iPad app.
 - **Fast blinking LED (multiple blinks per second)**
 1. A firmware update could be in progress. If the app says "Firmware update in progress," wait for the update to complete.
 2. A firmware update did not install correctly.
 - a. Completely close the app.
 - i. Double-click the Home button.
 - ii. Swipe right until you have located the app.
 - iii. Swipe up on the app's preview to close it.
 - iv. Press the home button to return back to your home screen.
 - b. Disconnect power to the ECU.
 - c. Re-open the app.
 - d. Re-connect power to the ECU.
 3. Make sure that you're not using an old app. Delete the Intelligent Ag (red app) or Intelligent Ag Pro app if you have it on your iPad.

- **Solid red LED**
 1. Disconnect and reconnect the ECU harness from the intermediary harness. Make sure that the connection is secure and that there is no dirt impeding it.
 2. Plug the ECU into a different harness. It may be an issue with the Wi-Fi module.
 - **If the Power LED is off:** Ensure there is power to the harness leading up to the ECU.
3. Check for voltage starting at the ECU closest to the center Y of the harness and record measurement observed. ECUs require a minimum of 10 VDC but may experience disconnects when below 12 VDC. If low voltage is found, trace the issue back to the closest ECU that had 12 VDC and begin checking all connections from that point on for corroded pins, debris in the connectors or damaged harness. Replace components as required.

There is power at the 4 pin plug going into the ECU, but the ECU will not turn on

1. Check to make sure the pins are seated in the 4 pin plug.
2. Thoroughly clean the plug and make sure there is no debris or corrosion in or on the pins.
3. If the ECU still will not turn on, replace the ECU.

How much current does each ECU use?

Each ECU draws 110mA.

What does the blinking on the ECU mean?

Blink Frequency	Meaning
once per second	Normal operation
once every 2 seconds	in queue for update
once every ½ second	ECU is updating

My ECU intermittently disconnects

1. Close the app by double-tapping the home button and swiping the app towards the top of the screen. Reopen the app.
2. Are there any wireless cameras or router boosters within a 1 mile radius? If these devices are present, disconnect power to the devices or move equipment out of range. Close and reopen the app.
3. Is the machine near any high voltage power lines? If so, move the machine away from the power lines. Close and reopen the app.
4. Disconnect power to all ECUs. Wait 10 seconds, then reconnect power. Close and reopen the app.
5. Disconnect power to the TP-Link router. Wait 10 seconds, then reconnect power. Close and reopen the app.
6. Position the TP-Link router so that it is in a vertical orientation with the TP-Link logo facing the ECUs. Close and reopen the app.
7. Move the TP-Link router closer to the ECUs. You may power it from another vehicle or splice into power at a different point on the machine. Close and reopen the app. If resolved, mount the TP-Link router closer to the ECUs. Remove the vehicle adapter from the power harness on the TP-Link router and wire directly to a different connector or power source. Refer to the instructions in *Can I hardwire my TP-Link to 12 volt power?* on page 8.
8. Are the LED lights flashing on all ECUs? If all LEDs are not flashing and power is present on some, but not all ECUs, verify that the power harnesses are properly installed and that the connector pins are properly seated in the connectors. To test, you can swap harnesses from a functioning ECU. If power is good, contact your Intelligent Ag authorized dealer for a replacement ECU.
9. Watch each ECU LED light for 60 seconds. Does the LED ever pause, skip, or flicker? If the LED flashes erratically, find an ECU at the end of the power harness circuit. Without disconnecting power to the ECU, back probe the wires at the power connector. Monitor the voltage with a multimeter for 60 seconds. If power drops below 9V or exceeds 14V, ensure that only the ECUs are drawing from the circuit and that the tractor's alternator is functioning properly.
10. Does the LED flash at a different rate than the next ECU? If the LED flashes at a faster or slower rate, this indicates that the ECU is attempting a firmware update. Cycle power to the ECU, and close and reopen the app. If not resolved, fill out the System Configuration Table in Appendix A of this document. Delete and reinstall the app. Run the Setup wizard inputting the details you recorded.
11. Remove the convenience outlet connector from the Tractor Harness and direct wire to a different power source.

Recon Wireless Blockage and Flow Monitor App

Why am I experiencing section variance?

Manifold flow variances of up to 10% are common. On large implements, outer manifolds may consistently vary by more than 10%.

1. Verify that primary runs are clear of obstructions.
2. Remove manifold caps and run your fan to clear any debris.
3. Check for obstructions at the cart's meter roll.
4. Check for obstructions at the bottom of the bin.

If your machine is outside of these ranges there could be more air going to that section. The only way to verify this is with an anemometer at the towers and comparing the wind speed.

If you're experiencing section variance with a low rate product (such as canola), refer to the steps in the next section.

Why am I experiencing section variance with a low rate product (canola)?

This is normal. The system works by hearing the amount of sound generated by product striking the sensor plate. The size and speed of the product has a large effect on the amount of sound generated.

What is the mass flow number?

The Wireless Blockage & Flow Monitor provides a Mass Flow number to help you ensure consistent product application. Mass Flow can alert you to equipment issues that are disrupting flow such as open bin lids, product bridging, meter buildup, and primary blockage. It is a relative number and shouldn't be confused with seeding rate or population. The Mass Flow number is affected by changes in ground speed, fan speed, product type, and application rate. Be wary of claims made by other monitoring systems pertaining to seed counting accuracy. The best way to ensure your desired application rate is being met is by obtaining a seeds per pound figure from your seed supplier. Learn more here: <http://connectinsystem.com/optimal-seeding-rate>.

What do I do if the mass flow number is abnormal?

If there has been a recent change in rate, fan speed, or product, a different mass flow number is normal. If there hasn't, try the following steps.

1. Verify that there is product left in your bins. Flow will be reduced if a bin runs empty.
2. See if there is product bridging over the metering roll.
3. Verify that bin lids are securely latched. Verify that all primary hoses are securely attached.

Why can't I see mass flow or individual flow levels?

1. Refer to the steps in *Before you Begin* on page 6.
2. Restart the app.
 - a. Double-click the Home button.
 - b. Swipe left or right until you have located the Recon Wireless Blockage and Flow Monitor app.
 - c. Swipe up on the app's preview to close it.
 - d. Press the Home button to return to your home screen. Re-open the app.
3. Check for app updates in the App Store. You must be connected to a home Wi Fi network (not the IASBlockage or IASNetwork2 network). If an update is available, download it.

Why am I seeing false blockages?

1. Do a crank test to ensure that product flows from each opener.
2. On air seeders, ensure that you can feel air flow beneath the opener.
3. Ensure that the flow rate is set correctly in the app's settings page.
4. Configure light products, such as canola, flax, alfalfa, and grass, as "low" product flow. Configure very low rate products such as sunflower as "very low" product flow.
5. Navigate to the Edit Config screen in the app settings and verify that each primary or section has the correct ECU serial number assigned to it.
6. Navigate to the Edit Config screen in the app settings, then tap the green arrow in the lower right of the screen until you advance to the port config screen. Verify that ECU ports are enabled and correctly mapped.
7. Verify that you are checking the right hose. Before shutting off product flow, take a screenshot of the blockage screen (press the iPad's top button and Home button at the same time). The screenshot will be stored in your iPad's photos.
8. Verify that the auditory hose is not kinked or pinched.
9. Verify that the auditory hose is attached to the correct ECU port.
10. Verify that the auditory hose is securely attached to the ECU by pushing the hose onto the ECU port.
11. Move the auditory hose to a new port on the ECU to assess if the problem is a port on the ECU not functioning correctly. Ensure that you re-assign that run to the new ECU port in the app by pressing and holding until it "lifts " and then dragging it and dropping it on the new port.
12. If inline sensors are installed, verify that they are not installed backwards or upside down. The arrow on the sensor should point downward.
13. Check if the sensor is clogged.
14. Disconnect the seed hose to check for buildup on the sensor membrane.

Why are my towers “ghosting” in the app?

1. Make sure that you are using the Recon Wireless Blockage and Flow Monitor app, not the old Intelligent Ag app.
2. Make sure that you have the most recent version of the app.
3. If you have Section Control Sense enabled in the app, change the Disable alarms setting to 90% and the Enable alarms setting to 20%.

How do I add additional sensors to an existing system?

1. Verify that the sensors you have are the same size and style as the currently installed sensors.
2. Verify that you have enough available and working ports to accept the new sensors on the ECU.
3. Install the sensors in the same manner as the other sensors on the drill. Make note of what tower, ECU serial number, run and ECU port the sensors are connected to.
4. Open the app. Tap the **Settings** icon, then tap **Edit Config**. Change the number of sensors accordingly on each tower.
5. Navigate to the next page (the port config page). Edit each ECU to make the layout on screen match the actual layout on the drill by dragging and dropping ports. When you're done, save and exit.
6. Navigate to the main blockage screen and verify that the new sensors were added.

The mass flow does not change in the app

1. Verify that the work switch is set correctly.
2. Verify that the work switch is green when seeding.

The work switch is green when the drill is in the air and white when it is in the ground

Navigate to the **Settings** page in the app and enable the **Work Switch Inverted** switch.

The alarms are not making any noise

1. Verify that the iPad is not muted with the side switch.
2. Verify that the work switch is green.
3. Force-restart the iPad.
 - a. Press and hold the Home button and the power button on your iPad until it turns off.
 - b. Turn on the iPad.

How do I set up a triple shoot configuration on a SeedMaster?

Two cart systems on SeedMasters have two distribution systems. One is the traditional manifold/primary system with dual shoot from a tow between or tow behind tank. The other system is a direct to run distribution system from an on-frame tank. The direct shoot tank is intended to provide better delivery of large seed crops such as pulses with larger venturi size, less seed damage, ability to provide inoculant with the seed etc. For more information, visit <https://www.seedmaster.ca/ultrapro.php#upji>.

As such, it may be acceptable to monitor two separate tank systems and combination of products with one iPad by configuring the manifolds (all with one SSID) and changing the product designation accordingly for each manifold.

Example:

Product A:

Product: Peas with inoculant and or fertilizer from on-frame tank (all single shoot/multi tank) and fertilizer from tow-behind tank.

Setup: Set ECU/manifolds (i.e. On-frame tank ECUs 17 - 20) as Product A.

Product B:

Set ECU/Manifold's (i.e. Tow-behind cart ECUs 1-8 as Product B and/or 9 - 16 if used) as Product B. If not used, turn off.

NOTE: This will give a combined flow percentage for both manifolds if both are used (i.e. #1 and #9 combined) if monitoring two manifolds as one product. It will, however, provide individual run blockage which is most important for all runs simultaneously for all three air product streams.

How do I update the Recon Wireless Blockage and Flow Monitor app?

1. Download updates in the App Store.
 - a. Connect the iPad to an internet-enabled network.
 - b. Open the App Store and search for *Recon Blockage Monitor*. If there is an update available, tap **Update**.
 - c. Keep the iPad connected to the internet until the app is downloaded.
2. Take the iPad to the machine and connect to the Intelligent Ag network. Check the following:
 - a. Verify that the tractor is running.
 - b. Verify that the iPad is fully charged and connected to a charging cable.
 - c. Verify that the ECUs all have a minimum of 12 VDC.
 - d. Verify that the TP-Link has the power light on and the 4 signal lights on. The LAN light should be off.
3. Open the app. The first time you open the app, it will automatically update your ECUs.

Why are there no audible alarms when a blocked run is displayed?

1. Verify that the iPad is not muted with the side switch (if applicable) or that the volume is not turned all the way down. Swipe down from the top right corner of the iPad screen and make sure that the mute  icon does not appear.
2. Verify that audible alarms are enabled in the app's settings.
3. Verify that the alarm delay in the app's settings isn't set too high.
4. If you are dual shooting, ensure that the app is configured for two products.
 - a. Tap the settings  icon.
 - b. Tap **Edit Config**.
 - c. Tap on a Primary or Section number and select the correct product type. For example, seed could be Product A and fertilizer could be Product B.
5. Lift and lower the implement and verify that the work switch indicator in the app changes.
6. Restart the app.
 - a. Double-click the Home button.
 - b. Swipe right until you have located the Recon Wireless Blockage and Flow Monitor app.
 - c. Swipe up on the app's preview to close it.
 - d. Press the Home button to return back to your home screen.
 - e. Re-open the app.

I cannot access the setup wizard

1. Verify that the iPad is connected to the Intelligent Ag network.
2. Verify that the app is not in demo mode.

My port configuration isn't saving

Make sure that you tap **Done** in the lower right corner to save your configuration.

I have the Intelligent Ag app. How do I get the Recon Wireless Blockage and Flow Monitor app?

1. Download the Recon Wireless Blockage and Flow Monitor app from the App Store.
 - a. Connect the iPad to the internet.
 - b. Tap the App Store icon from the iPad's home screen.
 - c. Type *Recon Blockage Monitor* in the search field and tap **Search**.
 - d. Tap **Get** next to the Recon Wireless Blockage and Flow Monitor app when it appears in your search results and install the app.
2. Open the old Intelligent Ag app. Write down your settings so that you can configure them in the new app.
3. Delete the old Intelligent Ag app so that the two apps do not interfere with each other.

Sensors

I have fertilizer buildup on my sensors

Cleaning Buildup

Fertilizer buildup on sensors can cause false blockages in the app. Gently scrape off buildup with a screwdriver. Or, use a garden hose with a nozzle. If you use water to clean the sensor, make sure the system is completely dry before running product through it.

Preventing Buildup

Fertilizer build-up issues often depend on the quality of the product supplied to you. Dusty products combined with high humidity can coat many components throughout an air seeder. The blockage sensor is oftentimes the first indication of poor quality fertilizer, and without it, you may be caught unaware when this muck plugs a manifold or metering roll. If you have encountered this issue, we recommend administering one or more of the following remedies:

- Soy or canola oil additives: www.thecombineforum.com/forums/20-sprayers-chemicals-fertilizer/201322-anyone-applied-soy-canola-oilfertilizer.html#post1707170
- Nitrogen Stabilizer (Agrotain): www.kochagronomicservices.com/us/products/agriculture/agrotain
- Substitute sulfate products with Mezz or 40 Rock
 - Mezz (12-40-0-10s-1zn)
 - 40 rock (12-40-0-7s-1zn) (least dusty)
- Blockage Prevention System: The BPS is a hydraulic oil cooler that significantly reduces humidity. More info: www.airguardproducts.com/Store/Airguard-Blockage-Prevention

Detailed results: www.thecombineforum.com/forums/19-planting-tillage/199930-airguard-blockage-preventionsystem.html

How do I install my 90 degree sensors if I don't have enough space for the seed hoses to point straight down?

If the seed hose connected to the sensor does not have enough space to point downward, turn the sensors so that the hoses are parallel to the ground. The sensors can be mounted at any angle between 90 degrees and 270 degrees.

Which way do I install my 1.5" inline sensors?

There's an arrow on the sensor that indicates direction of flow. The sensors should be installed with the arrow pointing in the direction of flow.

How do I mount my 1" and 1.25" streamline sensors?

Refer to the section called *Installing Streamline 1-inch and 1.25-inch flow sensors* in the Recon Wireless Blockage and Flow Monitor (WBFM) Installation Manual.

Why are my sensors wearing out?

It is normal for sensors to start to wear out after 5-7 years in regular conditions.

Can I shorten or lengthen the auditory tubes?

No, all of the auditory tubes need to be the same length so that the same amount of sound is coming from each sensor.

Is there a sensor available for primary lines?

No. The only sensors available are the 1" and 1.25" Streamline sensors and the 1.5" inline sensors. There are small amounts of 90 degree sensors available as replacement parts only.

What is the maximum distance that a sensor can be mounted from the tower?

We recommend a minimum of 8" from the tower. There is no maximum as long as all of the sensors on the machine can be mounted at equal distances from the tower. They must also be mounted so that the exit end of the sensor is lower than any other portion of the hose between the manifold and sensor.

My sensors are not showing flow

1. Swap sensor locations to the opposite part of the manifold or try a different manifold. It is possible the sensor is on a part of the manifold that does not have as much product running through it as the other runs, thus giving a lower acoustic signal.
2. Checked for a kinked acoustic hose.
3. Take off the sensor and look to see if there is build-up on the plate.
4. Swap acoustic hose with another sensor that is working and see if it moves to the other sensor.
 - If it move to the other sensor, then the sensor is damaged.
 - If it stays on the same port, then the microphone in the ECU is damaged.
5. Check for unusual wear in the poly around the metal plate in the sensor.
6. Check for cracked gaskets.
7. Check for dented plate.

Can I replace parts of a sensor?

No, the sensors are not a repairable component.

Can I replace the auditory tubes?

Yes, the tubing comes in a 10' bulk roll (part number 353070-000082).

My hoses are loose in the sensor. Do I need adapters?

Yes, refer to the list of part numbers below for your sensor type. Call your IAS dealer to order adapters.

90° Adapters

- WMB Adapter hose - 351060-000008

1" Streamline sensors

- Adapter, Sensor, Inline 1" TO 7/8" - 353070-000038

1 1/4" Streamline Adapters

- Adapter, Sensor, Inline 1-1/4" TO 1-1/8" - 353070-000113
- Adapter, Sensor, Inline 1-1/4" TO 1" - 353070-000252
- Adapter, Sensor, Inline 1-1/4" TO 15/16" - 353070-000112

1 1/2" Inline Adapters

- WBM 1-1/4" Hose Adapter - 353070-000032
- WBM 7/8" Hose Adapter - 353070-000029
- WBM 15/16" Hose Adapter - 353070-000031
- WBM 1" Hose Adapter - 353070-000022
- WBM 1-1/8" Hose Adapter - 353070-000030

Harness

How do I use the three way splitter?

Match the harness color to the splitter color. The grey harness connector should plug into the grey connector of the splitter and the black harness connector should plug into the black end of the splitter.

Do I need to run power to the cab of the tractor?

No, you can also wire the tractor harness to a 12 volt battery on the implement or wire it into the 7 pin implement connector.

What is the best way to prepare the harnessing before installation?

Before connecting any harnessing, lay the harnesses on the ground and map out how they will be connected. When you start the installation, start with the ECU harnessing and work your way back to the hitch of the tractor. Refer to the wiring diagrams in the appendix of your installation manual.

Work Switch

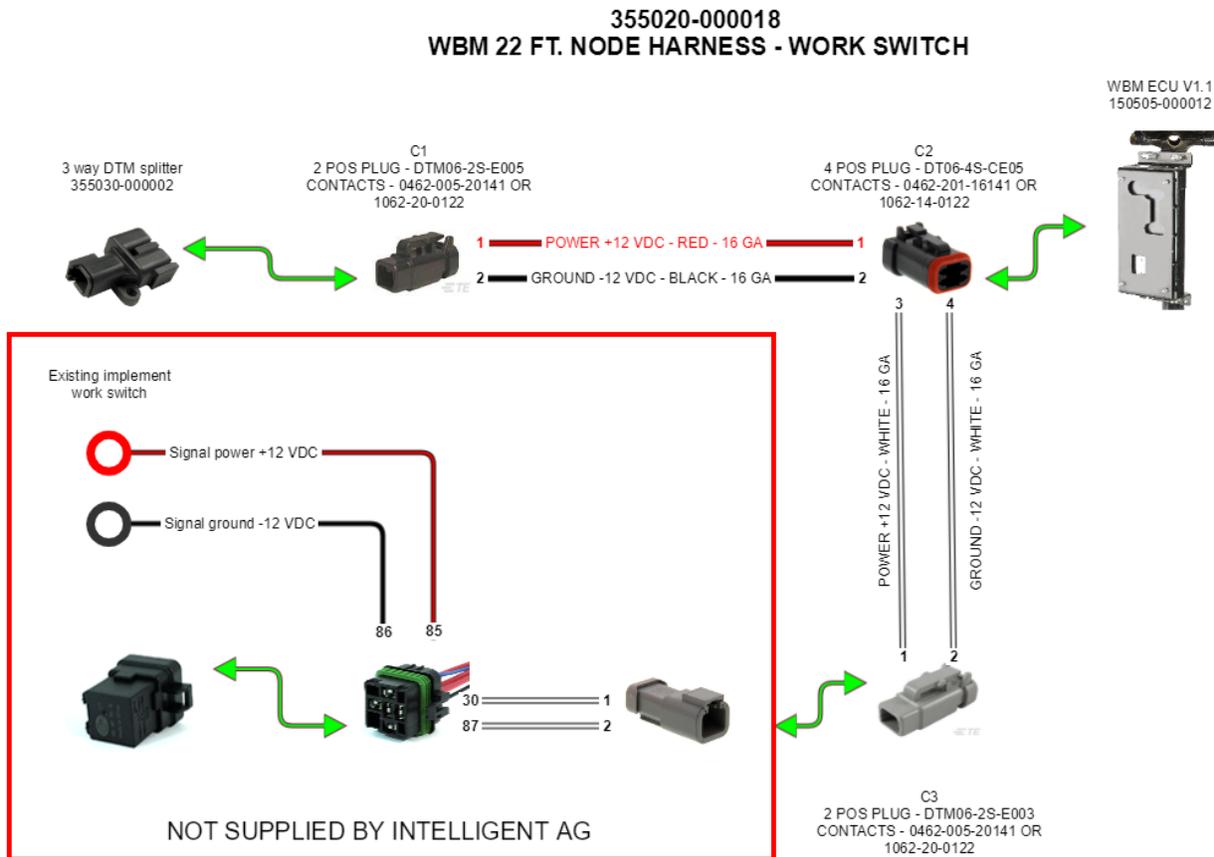
The work switch is not working

The work switch is an open-closed switch. When closed, it completes the circuit between pins 3 and 4 of the ECU that you have programmed as the work switch ECU in the settings of the Recon Wireless Blockage and Flow app. This setting can be inverted so that you have full control over how you choose to mount the work switch.

Verify that you have the correct ECU selected and that the work switch is mounted in a way that it can cycle when the implement is in the ground and out of the ground.

I don't want to use the provided work switch. Can I wire the system to the clutch power?

You can't wire the system direct to power that is supplied from a source on the drill or cart, but you can wire a relay in that is activated by the clutch or similar device powering on. Refer to the diagram below.



Why isn't my work switch functioning?

1. Refer to the steps in *Installing the Work Switch* in the WBFM Installation Manual.
2. If the work switch indicator is showing that it's disengaged while the implement is in the ground and engaged while it is out of the ground, verify that your work switch configuration is correct.
 - a. Tap the settings  icon.
 - b. Ensure that the **Work Switch Inverted** setting is correct based on your work switch method.
3. Make sure the work switch ECU is connected (a Wi-Fi symbol will display over the ECU on the app if it is disconnected).
4. Ensure that your ECU serial numbers are set up in the correct order. For example, you might have set up the ECUs on the manifolds from left to right (from the perspective of standing behind the tractor), but entered them in the app from right to left. The illustration below shows a left to right setup.



- a. Tap the settings  icon.
 - b. Verify that the ECU serial number listed next to **Work Switch** is the one that is plugged into the work switch on the implement.
5. Verify that the work switch ECU's Power LED is illuminated and flashing.
 6. Verify that the correct ECU serial number is selected as the work switch ECU in the app.
 7. If you're using the proximity work switch, verify that the work switch is installed an appropriate distance from the magnet. The magnet can activate the work switch up to 4 inches away.
 8. If you are using the whisker switch, verify that it has not moved. If it has, reposition it and add a small amount of silicone between the mount magnet and the implement. This will aid in eliminating future moving.
 9. Try to connect the work switch harness to another ECU.

