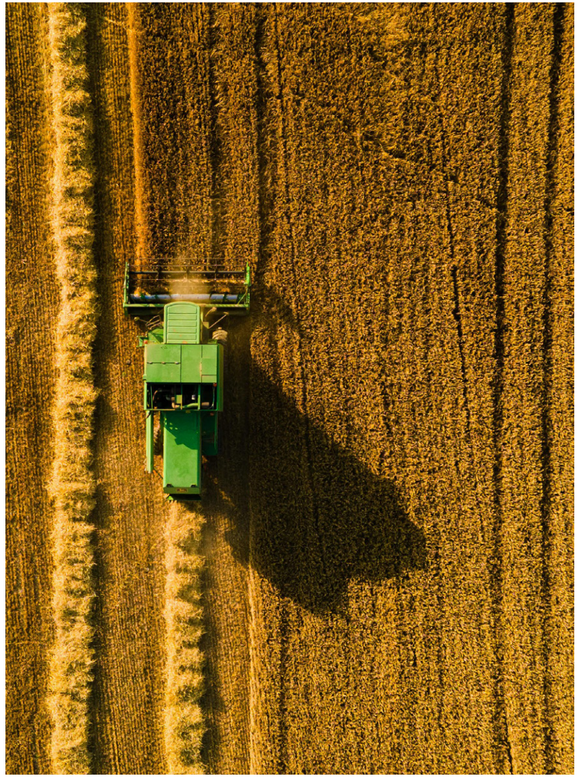
FarmTRX™

Header Height Sensor

Installation Guide and Operation Manual

Version 1
Kit Numbers AG-HS-1000/1001
farmtrx.com



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Safety

Always follow the instructions that accompany a Warning or Caution. These notices are provided to help prevent injury, death, and equipment damage during installation or maintenance.

- WARNING – Indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death.
- CAUTION – Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.
- NOTE – The absence of a warning doesn't mean the task is risk-free. Always stay alert and follow safe work practices.

Warnings

- **WARNING – Feeder house/Header Drop Hazard**
  The feeder house or other hydraulically supported components can drop unexpectedly if hydraulic pressure is lost. Always lower the feeder house completely to the ground or install mechanical locks or rated support stands before working underneath.
- **WARNING – Unexpected Machine Start-Up**
  If the combine is started while you are working on it, serious or fatal injuries may occur. Always remove the ignition key and disconnect the battery before working.
- **WARNING – Electrical Fire or System Damage Risk**
  Improper wiring can result in short circuits, overheating, or fire—especially in agricultural environments with dust and debris. Use only approved components and follow the installation wiring diagrams and specifications provided with this system. Do not modify the harnesses or connectors unless instructed.
- **WARNING – Unstable Working Conditions**
  Always park the machine on firm, level ground before performing any installation or maintenance. Uneven or sloped surfaces increase the risk of unexpected movement, tipping, or falling components, which may lead to equipment damage or personal injury. Engage the parking brake and chock wheels if necessary.

Cautions

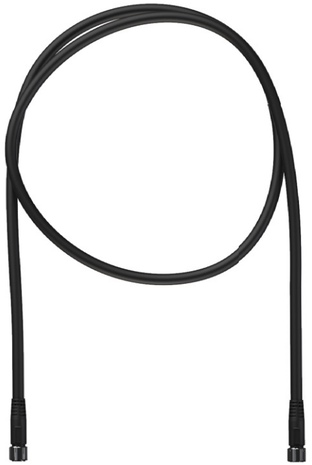
- **CAUTION – Routing of Cables**
  Ensure electrical wiring is routed away from heat sources, sharp edges, and moving parts. Improper routing can lead to abrasion or short circuits.
- **CAUTION – Electrical Short Hazard**
  While working on the machine's electrical system, disconnect the battery to avoid short circuits and damaging electrical components.
- **CAUTION – Battery Safety**
  Battery terminals may contain lead. Wash hands after contact. Prevent accidental short circuits by keeping tools and terminals clear of conductive materials.
- **CAUTION – Do Not Pressure Wash Sensitive Components**
  Avoid spraying high-pressure water or air at electrical connectors, hydraulic seals, control units, or sensors. Moisture or debris can cause malfunctions or corrosion.

What's in the Box

Sensor A
master sensor body

Sensor B
remote sensor body

CANbus M12 terminator



Sensor wire

CANbus M12 wire

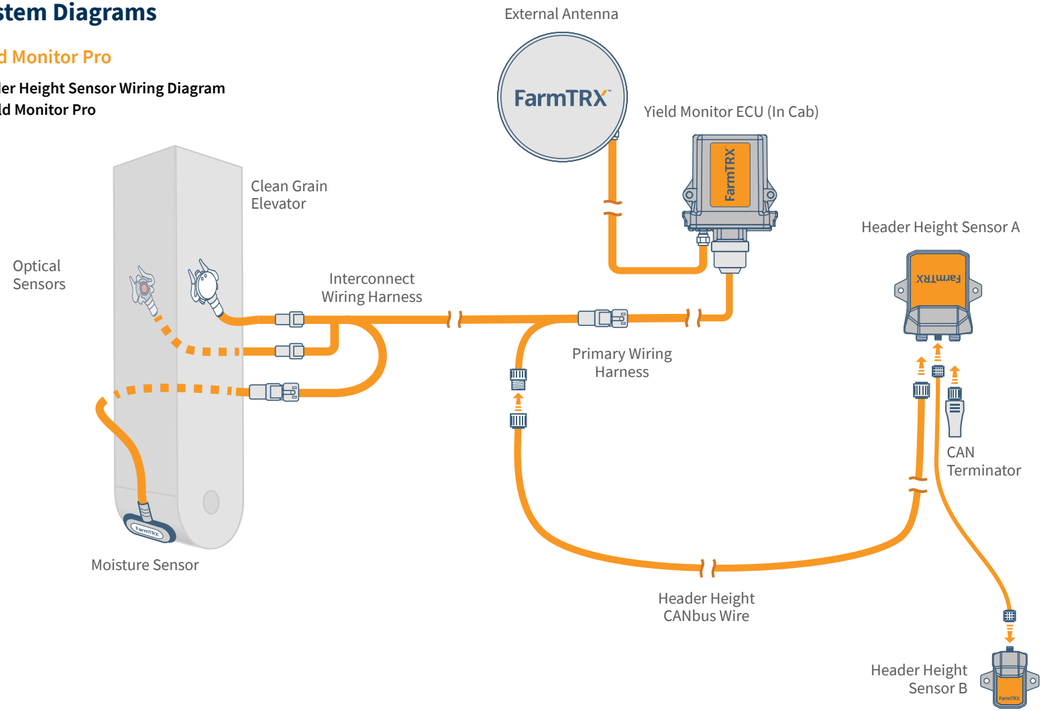
Y-split
(only for retrofit version)

Alcohol swabs (not pictured)

System Diagrams

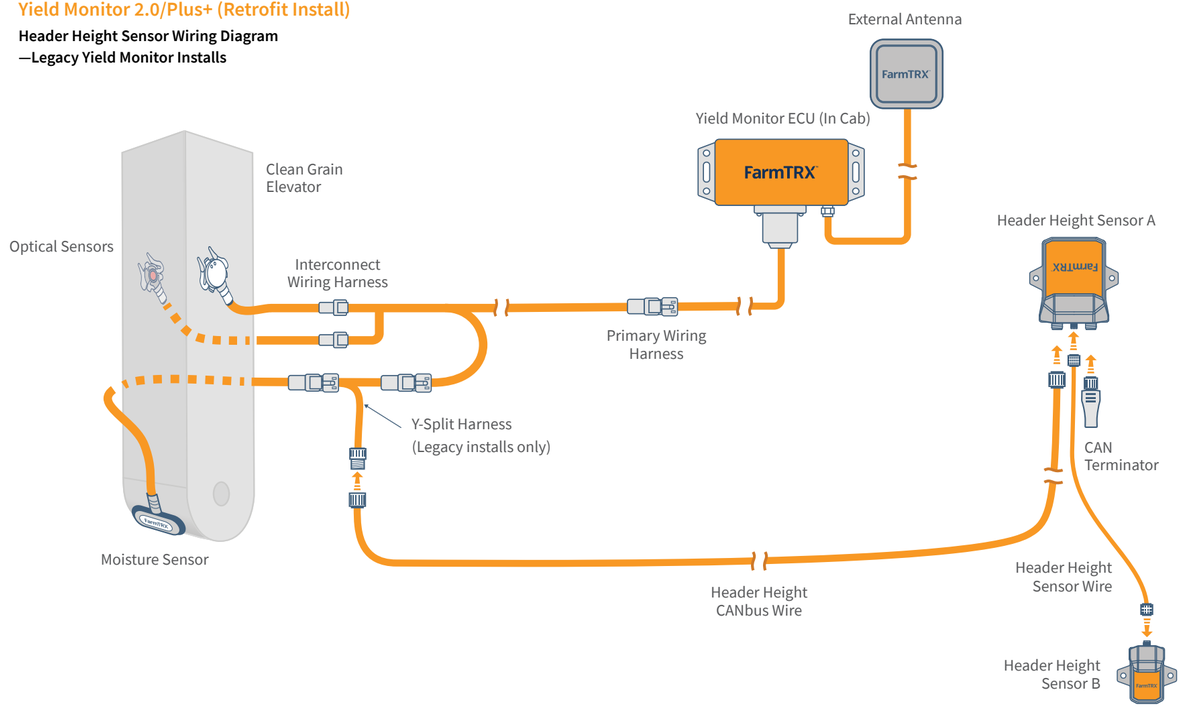
Yield Monitor Pro

Header Height Sensor Wiring Diagram
—Yield Monitor Pro



Yield Monitor 2.0/Plus+ (Retrofit Install)

Header Height Sensor Wiring Diagram
—Legacy Yield Monitor Installs

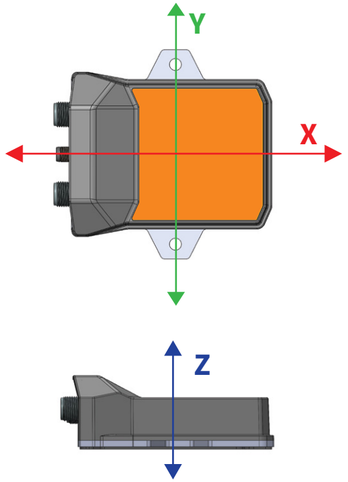


How It Works

Each sensor contains an inertial measurement unit (IMU) which can determine the sensor's orientation relative to the ground.

Sensor A is mounted to a fixed point on the combine frame, Sensor B to the feeder house.

Once calibrated, the relative angle between Sensor B and Sensor A is used to determine the height of the combine header. Using the relative angle, it can still function even when the combine is going up, down, or on sidehills.

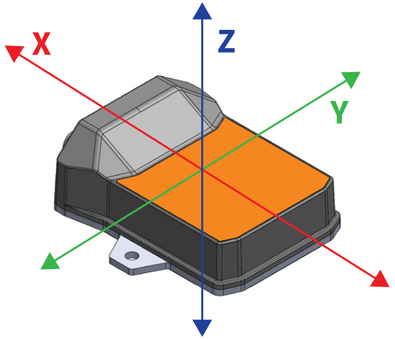


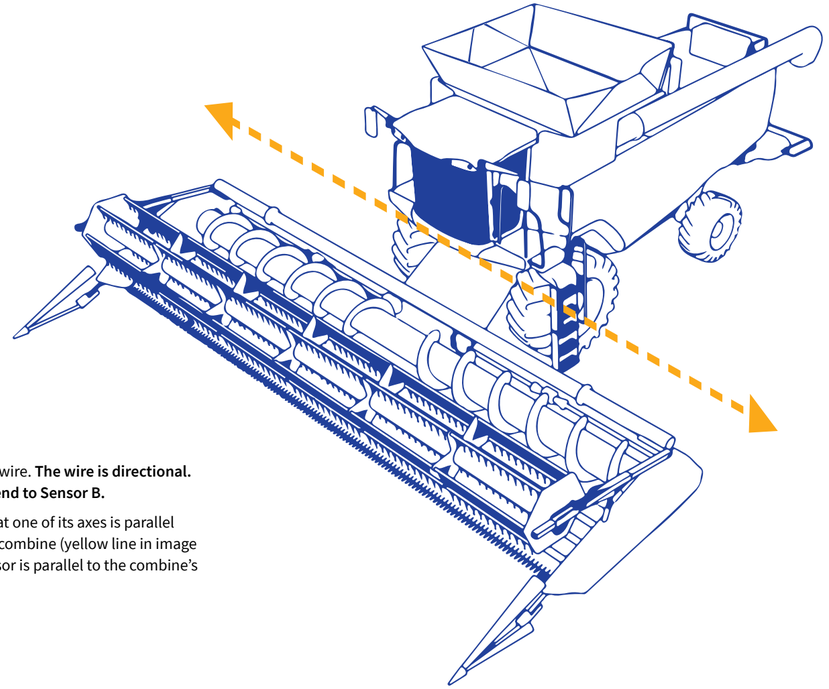
Installation

When choosing an installation location, ensure there is enough free wire to accommodate completely lowering the feeder house. Sensor B will typically mount close to the hinge point of the feeder house to reduce the amount of distance it will travel when the feeder house lowers.

Both Sensor A and Sensor B can be mounted in any orientation, **as long as one axis is parallel to the wheel axle.**

Note: On each label, the X and Y directions are clearly marked. The Z-Direction is pointing upwards.



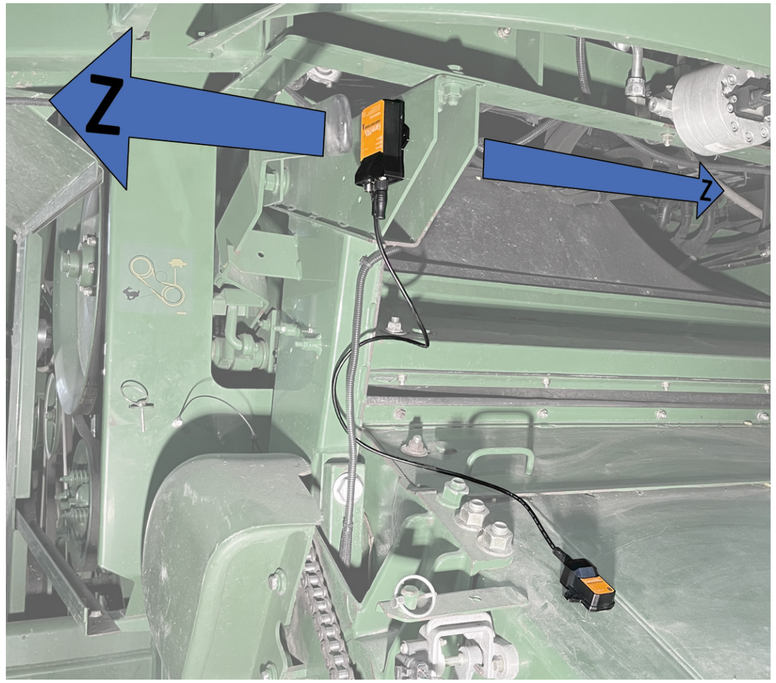


Determine Mount Location

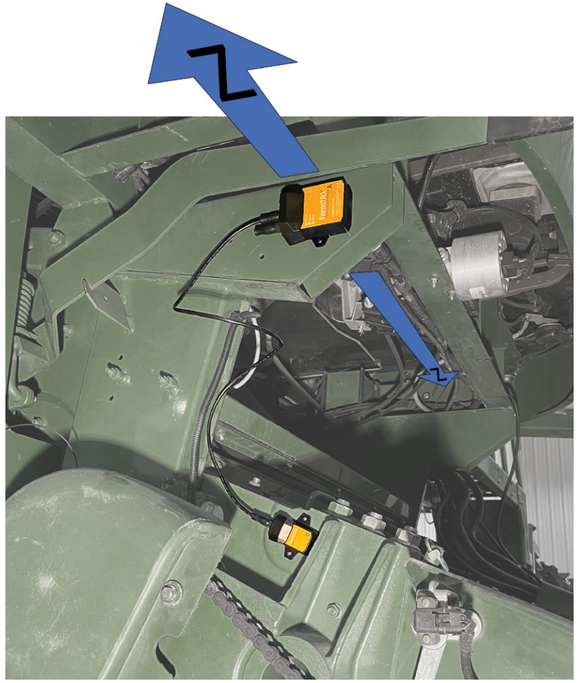
Connect Sensor A to Sensor B using the M8 sensor wire. **The wire is directional. Connect the 6-pin end to Sensor A and the 4-pin end to Sensor B.**

The Header Height Sensor must be mounted so that one of its axes is parallel with the axis running through the front axle of the combine (yellow line in image opposite). It does not matter which axis of the sensor is parallel to the combine's axle, either X, Y or Z will work.

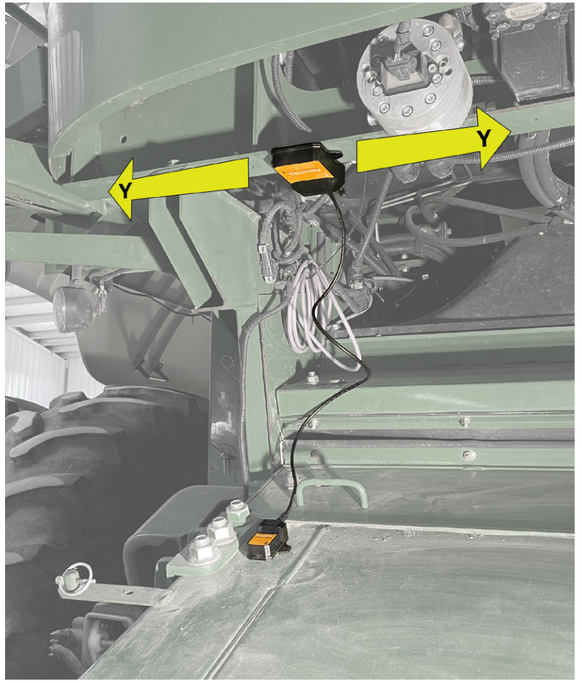
Determine the mounting location for Sensor A (parent sensor). Underneath the cab, there are many possible mounting locations that will allow the sensors X, Y or Z axis to run parallel to the combine's front axle. The following photographs are of example installations.



Z-Axis is parallel with the wheel axles—Connectors facing down



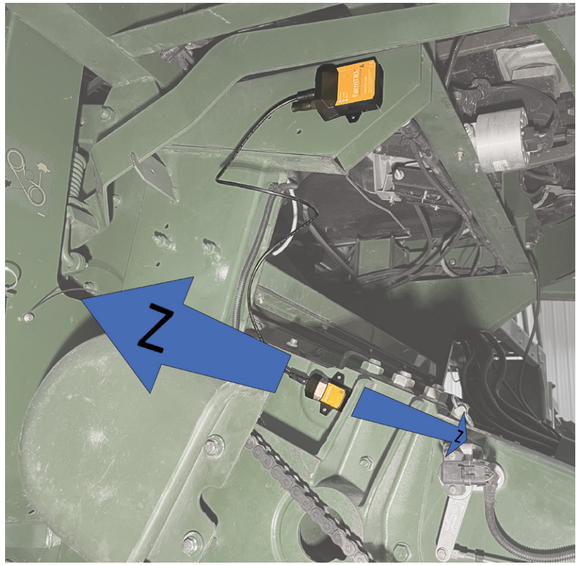
Z-Axis is parallel with the wheel axles—Connectors facing back of combine



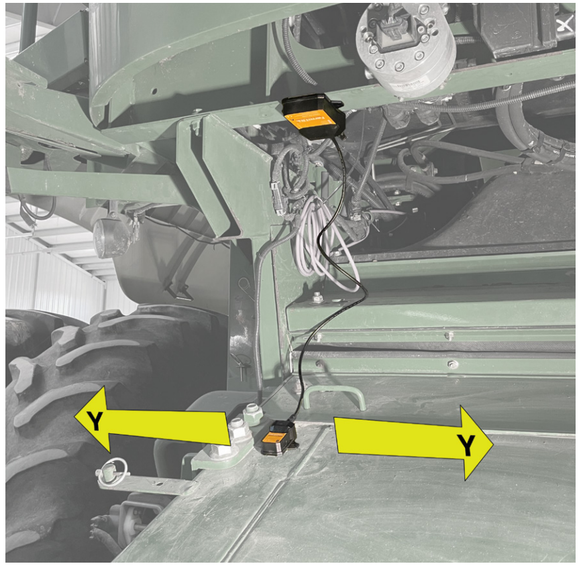
Y-Axis is parallel with the wheel axles—Connectors facing back of combine

The same principles of mounting apply to Sensor B. It is usually the simplest to mount the sensor with the label facing up and connectors backwards, like shown in the previous images. Below are some examples of Sensor B mounting location.

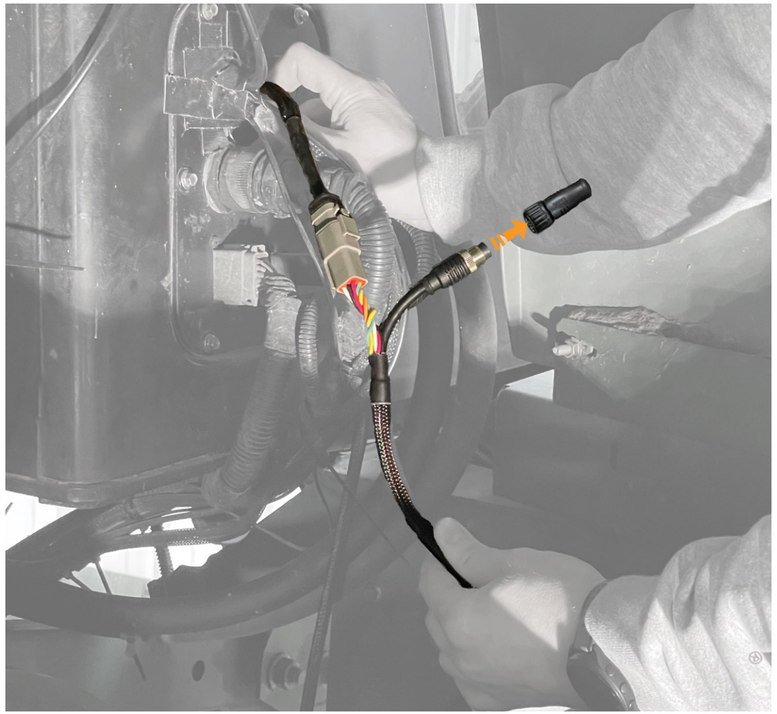
Once the ideal mounting location has been determined for your combine, proceed to the next step.



Z-Axis is parallel with the wheel axles—Connectors facing back of combine



Y-Axis is parallel with the wheel axles—Connectors facing back of combine



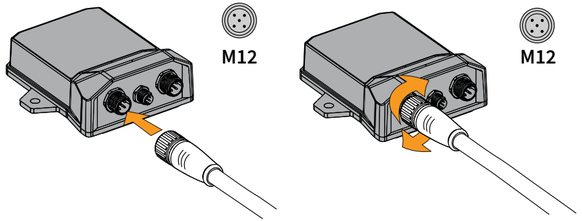
Connecting to Wire Harness

If you are attaching a Header Height Sensor to a legacy FarmTRX Yield Monitor (generation 2 or 3), skip to the section below labelled “Retrofit Install”.

The Yield Monitor Pro comes with an M12 connector branching off the head of the Sensor Interconnect Harness. There will be a CANbus terminator threaded on to this connector.

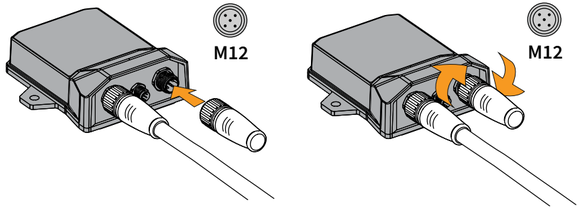
1. Remove the CAN terminator by unthreading and set aside somewhere safe.
2. Attach the M12 CAN wire, it is bi-directional and may be installed either way.
3. Route the CAN wire under the cab towards Header Height Sensor A. Use zip ties to secure it to existing wires running underneath the cab. Make sure the wire is tightly secured and will not interfere with mechanical linkages.

4. Thread the CAN wire on to Header Height Sensor A.



5. Thread the CAN terminator (set aside in step 1) on to the second M12 connector on Header Height Sensor A.

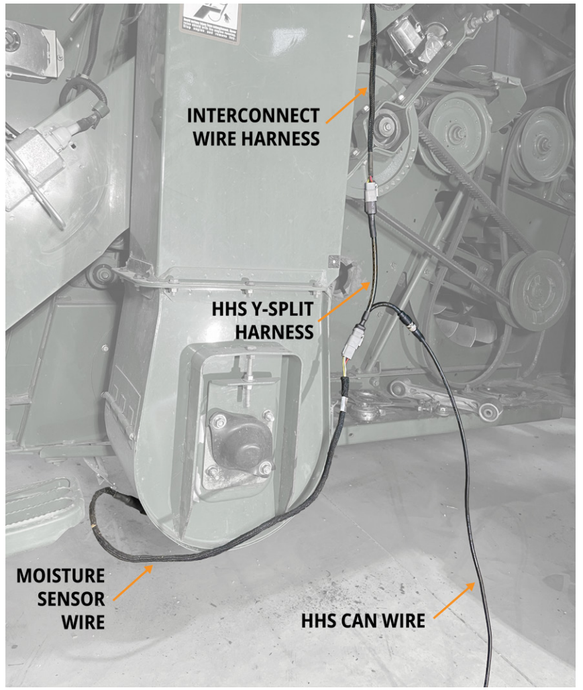
Sensor A connected with CAN wire and CAN terminator



Retrofit to Legacy FarmTRX Systems

For Yield Monitor 2.0, or Plus+ (generation 2 and 3, respectively), the Header Height Sensor must be installed at the end of the CANbus to conform to CANbus electrical requirements.

1. Disconnect the Moisture Sensor from the end of the Sensor Interconnect Harness
2. Connect the provided Y-split adapter to the end of the Interconnect Harness
3. Re-connect the Moisture Sensor to the Y-splitter
4. Attach the M12 CAN wire, it is bi-directional and may be installed either way
5. Route the CAN wire to the Header Height Sensor A under the cab. The best solution will be to re-trace the path of the Yield Monitor wire harness and zip tie the CAN wire to the existing harness. Make sure the wire is tightly secured and will not interfere with mechanical linkages.
6. Thread the CAN wire on to Header Height Sensor A
7. Thread the provided CAN terminator on to the second M12 connector on Header Height Sensor A
8. Carefully secure excess wire

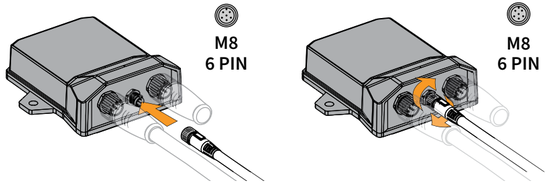


Wire placement for retrofit connection

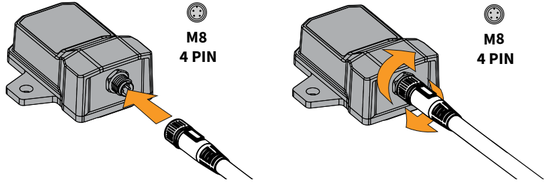
Mounting Sensors

1. Connect Sensor A to Sensor B using the M8 sensor wire
   a. The M8 sensor wire is directional (Sensor A accepts 6-pin, Sensor B accepts 4-pin), ensure the labels on the wire are connected to the right sensor body
2. Hard Fastening **(OPTIONAL)**
   This is optional, using the provided VHB will keep the sensors secured if properly applied. However, if preferred, and depending on mounting location, the sensors can be hard fastened using the steps below. Skip to step 3 if only using VHB.
   a. Use the provided drilling templates
   b. Use a center punch and drill into your combine with a drill bit sized for metric M5 or #10 imperial fasteners
3. Prepare surface for VHB mount
   a. Wipe away any dust and build-up until surface is completely clean and free of dust, grease or dirt.
   b. Once clean of dust, wipe down surface with provided isopropyl alcohol swabs
   c. Allow alcohol to evaporate
4. Once dry, remove the red VHB backing and firmly press on the sensor
   a. Bond strength is improved by good pressure and ideally applied at 21°C (70°F) or greater. Minimum temperature for application is 10°C (50°F).
5. If hard fastening, use self-tapping screws or standard screws + washers and lock nuts (not provided) to secure the sensors

Note: before drilling into any mounting surfaces, be sure to inspect both sides for wires/cables, hoses or any moving parts that the fasteners or drill bits may come into contact with. Ensure there is full fastener clearance on both the near and opposite side of the mounting surface.



Sensor A – 6-pin connection



Sensor B – 4-pin connection

In App Setup

Now that installation is complete, there are two steps left to calibrate the sensors for your combine. The first step is to orient the sensor bodies. The second step is to set the height range for the installed header and establish a maximum cutting height.

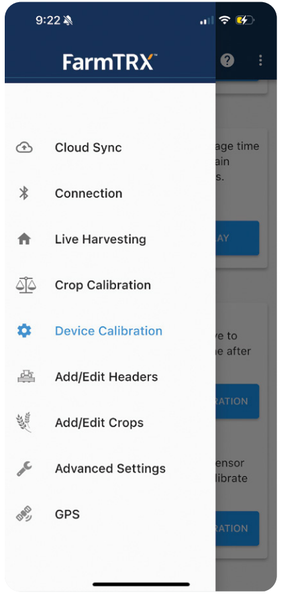
Once a maximum cutting height is set, the Yield Monitor will not count area if the header is lifted above the set threshold.

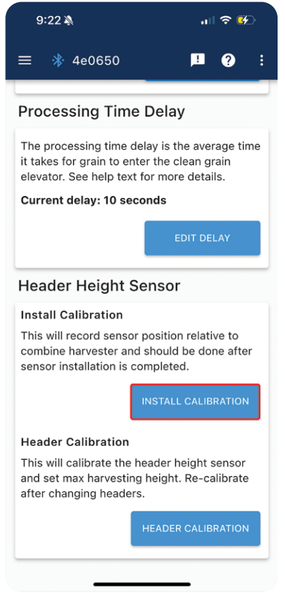
Installation Calibration

Ensure that the combine is on level ground.

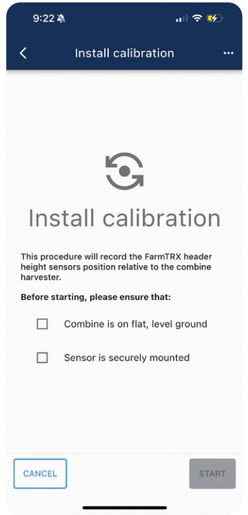
Power up the system and connect to the Yield Monitor listed in the available devices section of the Harvest Mobile App. After connection is established, the device must be oriented based off the direction the labels and connectors are facing.

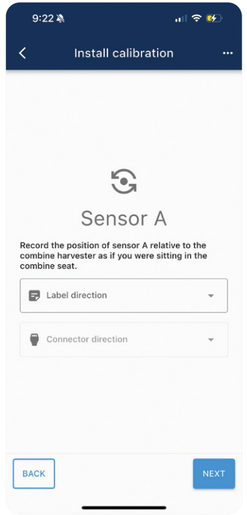
1. Navigate to the app Main Menu by pressing the ☰ icon
2. Select “Device Calibration”
3. Under Header Height Sensor, select “Install Calibration”

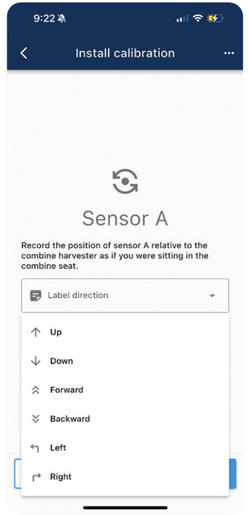


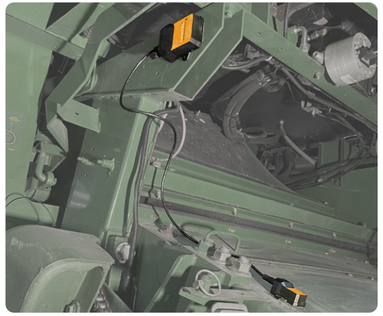


4. Confirm the combine is on flat, level ground and the sensor is securely mounted, then press “Start”
5. Using the direction the combine is facing as “forward,” follow the prompts to orient the sensors:



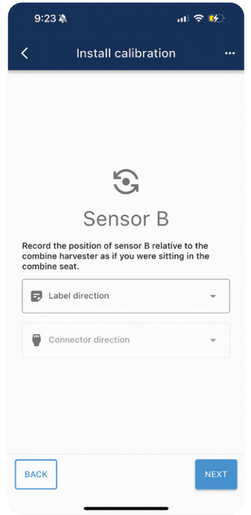


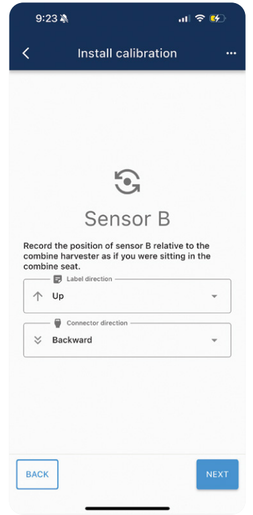


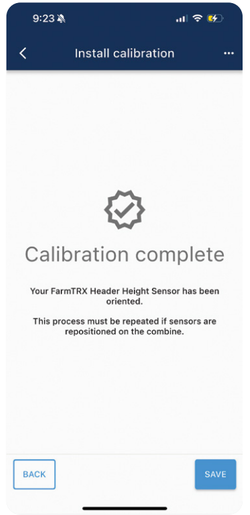


For example, in the image above, Sensor A is mounted with label facing Right, and connectors facing backward. Sensor B is mounted with label facing up and connectors backward.

6. Follow the same steps for Sensor B, selecting the relevant label and connector directions using the same criteria as Sensor A.
7. Sensor orientation is now complete, if successful you will see the following screen. Press “Save” to save and return to the main screen.



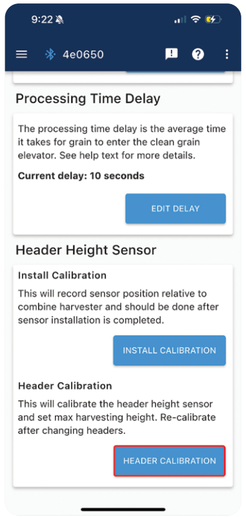


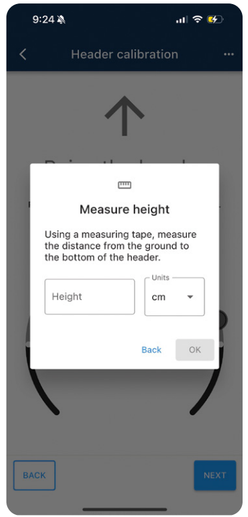


Header Calibration

This stage will calibrate the Header Height Sensor and establish a max cutting height. You may need to repeat this step if you change headers. For example, switching from a platform header to a corn head, the max cut height will need to be re-calibrated.
A tape measure is required for this step.

1. Select Header Calibration from the main menu
2. Follow the instructions in the app and lower the header until it just touches the ground. Do not push the header into the ground as this will affect the accuracy of the readings.
3. Press “Next” once the header is just touching the ground
4. Raise the header as high as possible
5. Measure the distance from the ground straight up to the cutter bar and enter the value into the app

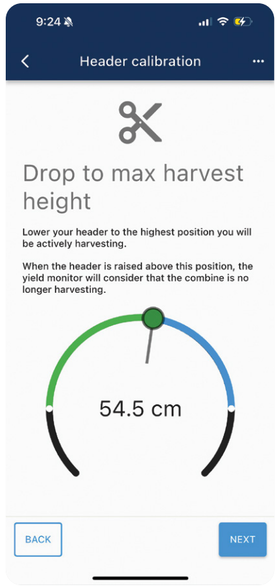


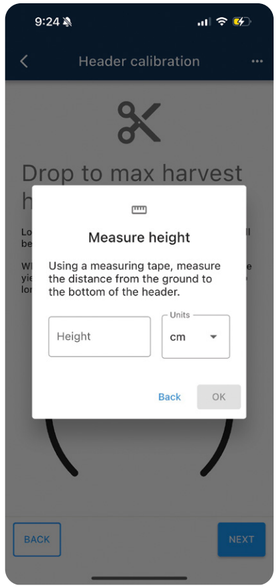


6. Lower the header to the maximum cutting height while harvesting.
   Any time the header is raised above this level, the area will stop counting in the FarmTRX Harvest App. Once at max cut height, measure the distance from the ground to the cutter bar and enter the value in the app.
7. Press “OK” and “Save”

Operation

While harvesting, you can change one of the tiles of the Live Harvesting screen to the “Header Height” tile. This will show the active cutting height of the header. A green border will be present when the header is below the max harvesting height threshold.





Troubleshooting

- FarmTRX mobile app will not let the orientation process complete
  - Incorrect label/connector direction has been selected in the app. Repeat the process and ensure the direction of the sensor label and connectors are properly chosen.
  - Combine is on uneven surface and there is too much pitch/roll.
  - The sensor body does not have one axis parallel to the wheel axle.
- Area is not counting in the mobile app while actively harvesting
  - Max harvest height threshold was set too low. If the header is lifted above the max harvesting height threshold established during the header calibration process, area will not be counted. To fix, re-do header calibration and set a higher max harvest height.
- No readings from the Header Height Sensor
  - CANbus error. Check that all wires are properly connected. Additionally, check the colour of the CANbus LED on Sensor A. If the LED is red there is a CAN fault. Disconnect the wires and re-connect, ensuring proper CAN terminators are attached.
  - Sensor wire connecting Sensor A to Sensor B is not making good connection. Power down the system, disconnect the sensor bodies from the sensor wire, re-connect, then re-power system.

Interpreting LEDs

LABEL	COLOUR	STATUS	RECOMMENDED SOLUTION
“SENSOR”			
	White	Sensor not calibrated	Navigate to the Device Calibration page in the FarmTRX mobile app and perform Install Calibration and Header Calibration process.
	Green	Below max harvest height	
	Blue	Above max harvest height	
	Orange	Roll too high	Check that sensors are still properly installed, re-do calibrations.
	Yellow	Out of calibration range	Check that sensors are still properly installed, re-do calibrations.
	Red	Error	Check that Sensor A is properly connected to Sensor B.
“CANBUS”			
	Green	System normal	
	Green/Blue	Transmitting data	
	Yellow	Warning	Check that CAN terminators are installed.
	Red	CANBUS fault	Check the harnesses and make sure the wires are not chafed or shorted out.
“RADIO”			
	Off	Not connected over Bluetooth®	
	Blue	Connected over Bluetooth®	

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