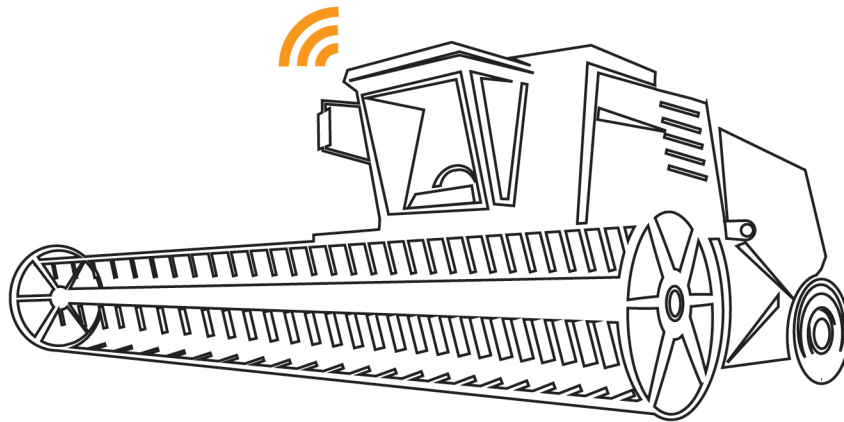




## QUICKCONNECT YIELD MONITOR INSTALLATION MANUAL



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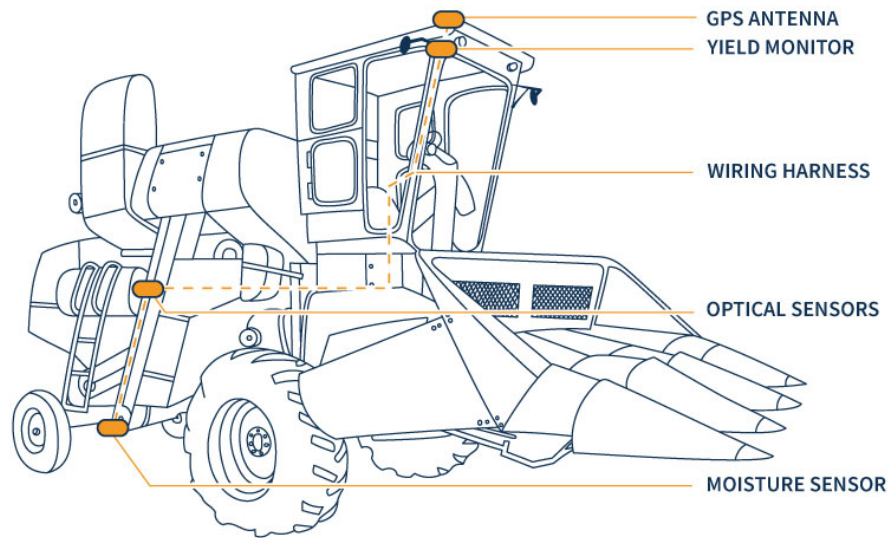
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This guide will demonstrate the installation of a FarmTRX Yield Monitor on a John Deere S770 combine. The installation process can be completed in a matter of hours, on any combine make or model with a clean grain elevator.

To enhance reading, we suggest pairing this guide with our hands-on Yield Monitor QuickConnect Installation Video found on the FarmTRX YouTube channel.

# SYSTEM OVERVIEW



## 1.1 External GPS Antenna:

The external multi-constellation antenna is connected to the Yield Monitor via an SMA connector. The antenna is mounted on the roof of the cab on the centreline of the combine. Use of the antenna will provide better positional accuracy than just the Yield Monitor alone.

## 1. Yield Monitor:

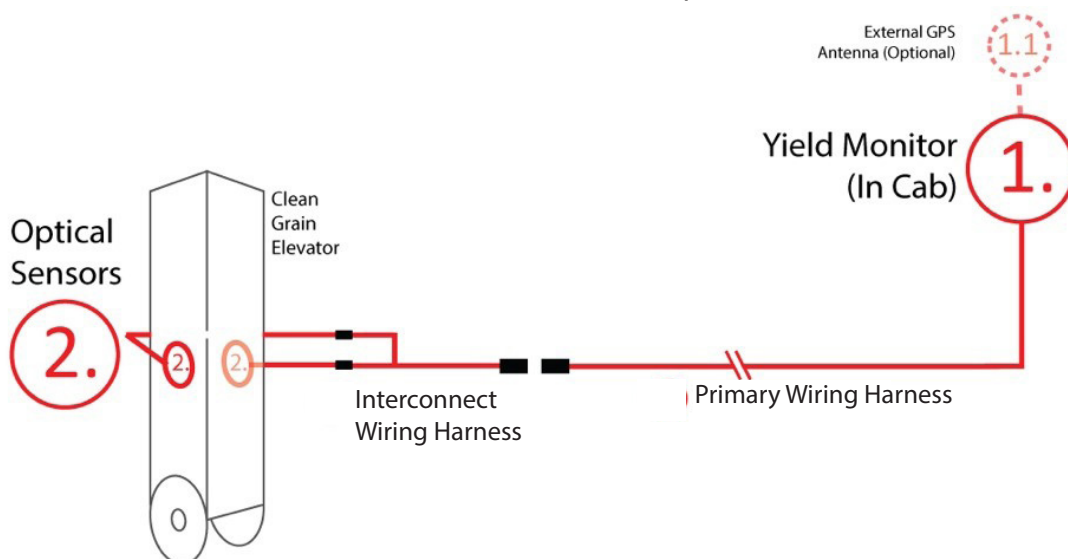
The “brains” of the operation. This device features:

- 32GB of on-board storage (enough to store years of harvesting data)
- Internal GPS antenna
- Bluetooth® connectivity for pairing with a smartphone or tablet.

## 2. Optical Sensors:

Two sensors will be installed on either side of the clean grain elevator: a transmitter and a receiver. A light beam is sent between the two sensors, allowing for grain volume measurement on each paddle. Sensors will be wired directly to the Yield Monitor through supplied harnesses.

The Yield Monitor mounts in the cab of the combine and needs to be wired into switched 12V power.



Components Layout

## COMPONENTS OVERVIEW



1. Yield Monitor Central Processing Unit

2. External GPS Antenna

3. 20 ft. (9 m) Primary Wiring Harness

4. 8 ft. (2.4 m) Sensor Interconnect Wiring Harness

5. Drill Guide Kit

6. QuickConnect Mounting Plates (2)

7. Assembled QuickConnect Optical Sensors and Mounts (2)

Not Pictured:

- Zip Ties
- Alcohol Wipes

## TOOLS REQUIRED

- Power Drill
- Pliers, Vice Grips, or Side Cutters
- Center Punch
- Measuring Tape
- Marker, Pen, or Pencil
- Flat Head Screwdriver
- Masking Tape
- Round Bastard File (optional)

# 1) OPTICAL SENSOR INSTALLATION

Two optical sensors are included with your Yield Monitor. The 2-wire sensor is an emitter, and the 3-wire sensor is a receiver. LED lights can be found on the body of the receiver. The sensors record the amount of grain on each paddle by measuring the amount of time the sensor light is blocked. Your FarmTRX Yield Monitor will automatically transfer these raw sensor readings to your Web App account, so you can post-calibrate all of your fields in a few simple steps online if you do not get around to calibrating in-field while harvesting.

To obtain the most accurate yield data readings, the placement of the optical sensors should meet the following criteria:

1) Sensors should be installed as high up the clean grain elevator as reasonably possible, in a place where you can access the inside and outside of the elevator, taking care to ensure they won't contact moving parts on the combine.

2) Sensors should be centered on the paddles of the elevator chain. Some elevator chains may have brackets supporting the paddles which can interfere with the sensor beam. If this is the case, you can cheat the sensor location outwards to avoid the brackets.

Please refer to the Drilling Measurements Table on page 8 for sensor placement measurement specifications on several combine makes and models. If your combine is not found in the table, please select an appropriate sensor location based on the above two steps.

Still unsure of best sensor placement? Send a photo to [support@farmtrx.com](mailto:support@farmtrx.com) with your planned sensor location and we can provide feedback.



*Assembled QuickConnect Optical Sensors*



*QuickConnect Mounting Plates*



*QuickConnect Mounting Plate and Drilling Guide*



*Drill Guide Kit*



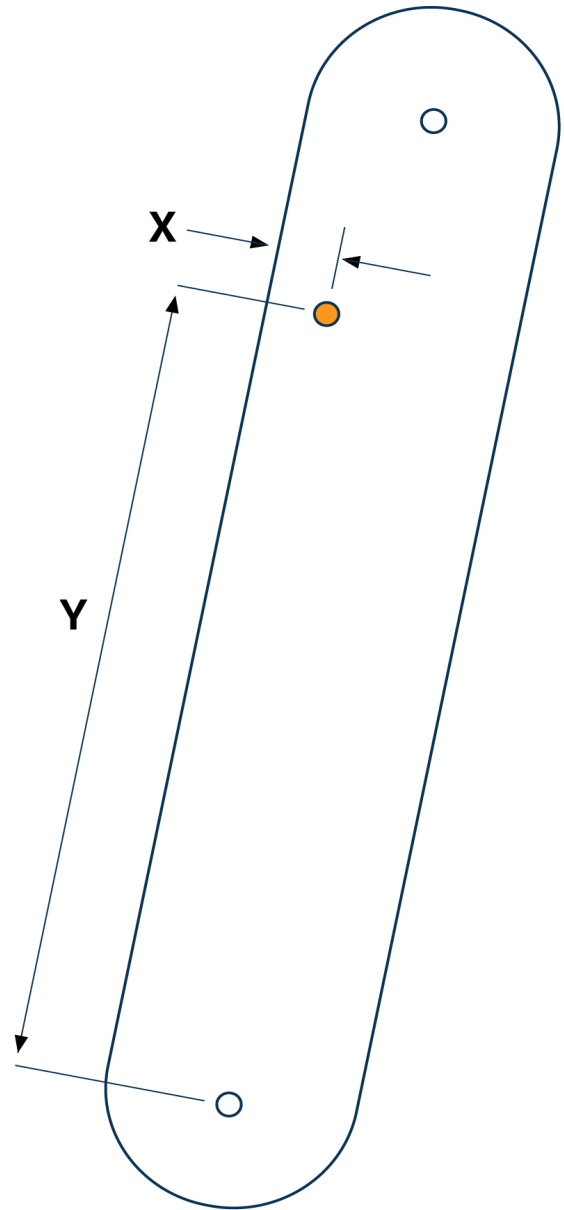
*Sensor Interconnect Wiring Harness*

## MEASURING AND MARKING FOR SENSOR LOCATION

Next, you will need to measure and mark where to drill holes for the sensors on the clean grain elevator. On the upwards direction, the sensors will mount on the inside and outside face of the elevator (where filled paddles of grain pass by).

The Drilling Measurements Table below displays the measurements for common combines:

| Combine     | Model                 | Distance X (in) | Height Y (in) |
|-------------|-----------------------|-----------------|---------------|
| Case IH     | 1660                  | 1.75            | 41.5          |
|             | 1680                  | 1.75            | 75.5          |
|             | 2X88*                 | 1.75            | 75.5          |
|             | 7088                  | 1.75            | 75.5          |
|             | 7120/8120             | 1.5             | 57            |
| New Holland | CR/CX X00, CR/CX X000 | 1.75            | 62            |
|             | TR9X                  | 1.5             | 43            |
| John Deere  | 9500                  | 2.25            | 62            |
|             | 96X0                  | 2.25            | 62            |
|             | 9X50                  | 2.25            | 62            |
|             | 9X60                  | 2.25            | 62            |
|             | 9X70                  | 2.25            | 62            |
| Gleaner     | R7X                   | 1.25            | 56            |
| Challenger  | 670                   | 1.5             | 70            |
|             | 670B                  | 1.75            | 65            |

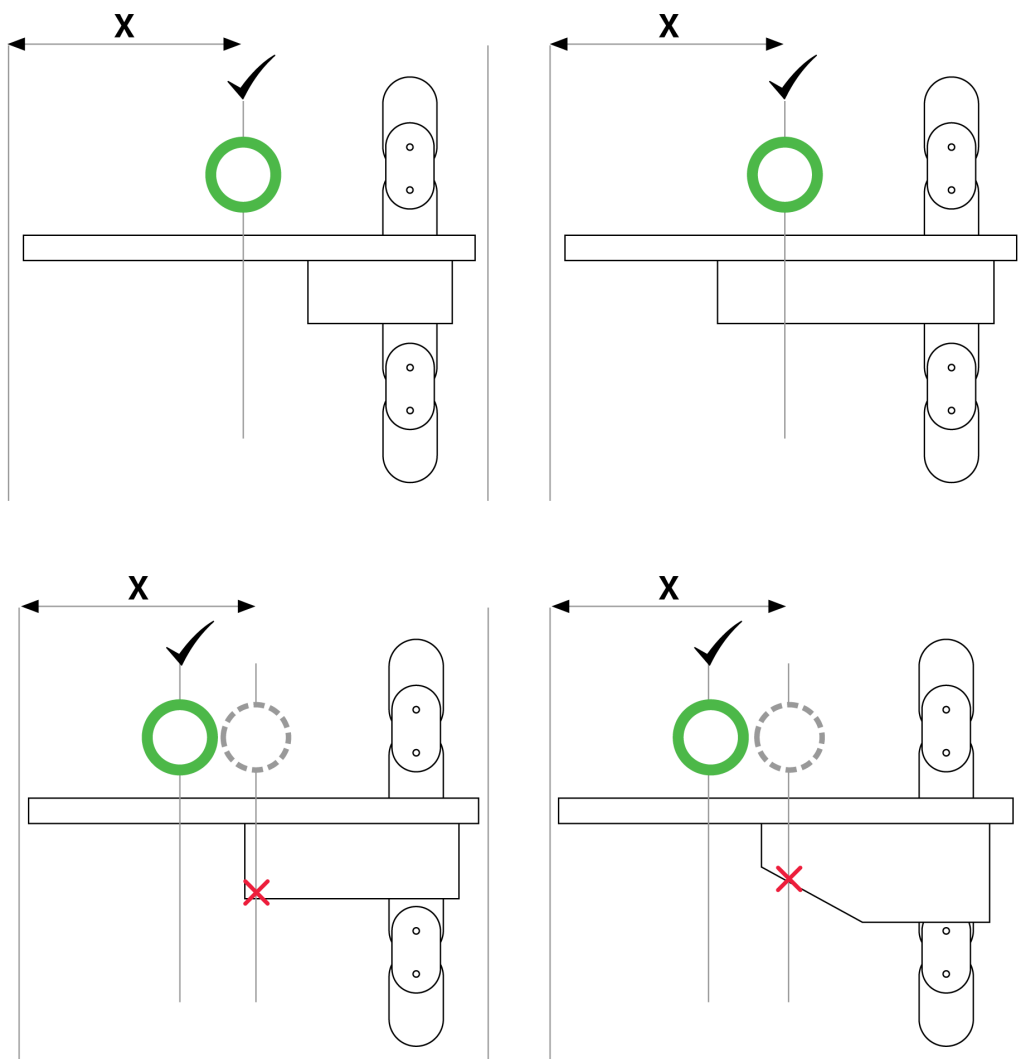


\*Specific models of Case IH combines may require moving the sensor location to avoid a tensioner rod. If you have specific questions for this model please email [support@farmtrx.com](mailto:support@farmtrx.com) or call 1-800-991-5136.

If your model is not shown in the Drilling Measurements Table, remember the main principles for successful sensor installation:

- 1) Place sensors as high in the clean grain elevator as reasonably possible.
- 2) Place sensors centered on the paddles of the elevator chain.

The key to achieving accurate results from your sensors is to make sure the sensors are only measuring variations in grain on top of each paddle. When measuring for the X value, take note of the brackets supporting each paddle. If the X distance places the sensor too close to the edge of the supporting bracket, or if it lines up with an angle on the bracket, they must be moved slightly. The diagram below highlights several installation examples with the profile views of varying paddle support brackets and the best places to drill the sensor holes.



Note: At this stage, it is crucial that the elevator chain and paddles are in good shape – the chain should not be overly loose. If loose, with paddles worn down or missing, the quality and accuracy of yield readings will be negatively impacted.

1) Using measurements from the Drilling Measurements Table, measure and mark the height (Y). Measure from the center of the bearing, to height (Y), and mark. We recommend using masking tape to make marking easier. Use a framing square to trace the height (Y) across the masking tape on the clean grain elevator.



*Height (Y) from the center of the bearing to the center of the drill hole*

With the height (Y) marked across the clean grain elevator, measure and mark the distance (X).



*Distance (X) from the back of the clean grain elevator to the center of the drill hole*

Note: It is very important that optical sensors are installed directly opposite each other, so take care when marking mounting holes. As stated above, you don't need to follow the table measurements exactly. As long as the sensors are mounted high up on the elevator while centered on the paddles, you will receive accurate results.

2. With height (Y) and distance (X) marked, use a center punch to mark the location for drilling the sensor mount pilot holes.



3. At the marked location, drill a pilot hole using a 1/8" drill bit.



4. Using the pilot hole as a starting point, use a step drill bit to drill an 18 mm or 3/4" hole.



*Step drill-bit*

5. Use a file to remove sharp burs from the drilled hole.



6. **IMPORTANT:** Use an alcohol swab to thoroughly clean the area around the drilled hole, ensuring that all oil, grease, and residue are completely removed from the elevator face.

Let the alcohol evaporate completely so the surface of the elevator around the drilled hole is dry.

If any oxidized paint is present on the elevator door around the drilled hole, use a household cleaning product to thoroughly clean and prep the area prior to using an alcohol swab.

**Note:** The Sensor Mounting Plates stick directly onto the elevator door. To ensure proper adhesion, the door must be thoroughly cleaned of all residue.



7. Using a flashlight, look into the elevator to ensure there is no paddle directly behind the drilled hole. If there is a paddle in the way, advance the elevator chain until the space behind the hole is clear.

## INSTALLING THE QUICKCONNECT SENSORS - PART ONE

8. Remove the backing on the adhesive side of the Mounting Plate and insert the Drill Guide into the Mounting Plate. Turn the Drill Guide clockwise to secure it in the mounting plate.

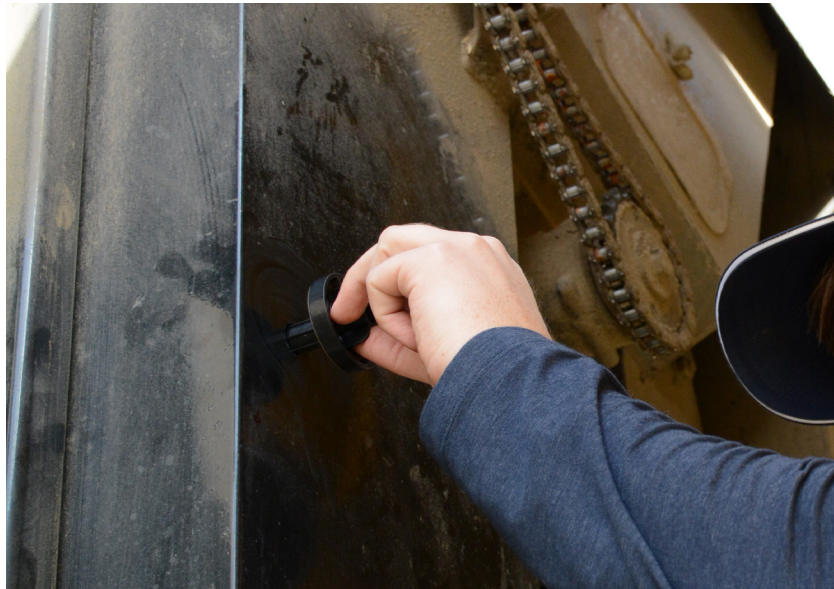


*Adhesive backing removed*



*Inserted Drill Guide*

9. After ensuring the area around the drilled hole is completely clean and dry (Step 6), align the Drill Guide with the hole and press firmly against the side of the elevator for at least 15 seconds.



10. Leave the Mounting Plate and the Drill Guide in place on the elevator to allow the adhesive bond to cure.

To allow time for the adhesive to cure, the next step will be installing the Yield Monitor and connecting to power, then running the wiring harness from the cab to the elevator.



## 2. YIELD MONITOR INSTALLATION

Choosing where to install the Yield Monitor is largely up to the user and we urge installers to make placement decisions based on first-hand knowledge of their machine. This guide will describe the best-practice procedure for placing your Yield Monitor to ensure the most accurate readings. If at any point you are unsure of how to proceed with installation, reach out to our support team at [support@farmtrx.com](mailto:support@farmtrx.com) or call 1-800-991-5136.

Components used in this step:



*Yield Monitor*



*20 ft. Primary Wiring Harness*



### *T-Splice Connectors*

The Yield Monitor installs in the cab of your combine and is powered by 12V switched power. The Yield Monitor draws less than 1 Amp of current, so splicing into the radio line is acceptable. The external antenna found in your Yield Monitor package will be mounted to the roof of the cab on the centerline, connecting to the Yield Monitor through the SMA connector. By connecting the Yield Monitor to an external antenna, the user has the option to store the Yield Monitor anywhere inside the combine cab.

In the event that you cannot use the external antenna, the Yield Monitor contains an internal GPS. However, if choosing to forego the external antenna, the Yield Monitor will need to be mounted along the centerline of the cab above the headliner with the label facing skyward.

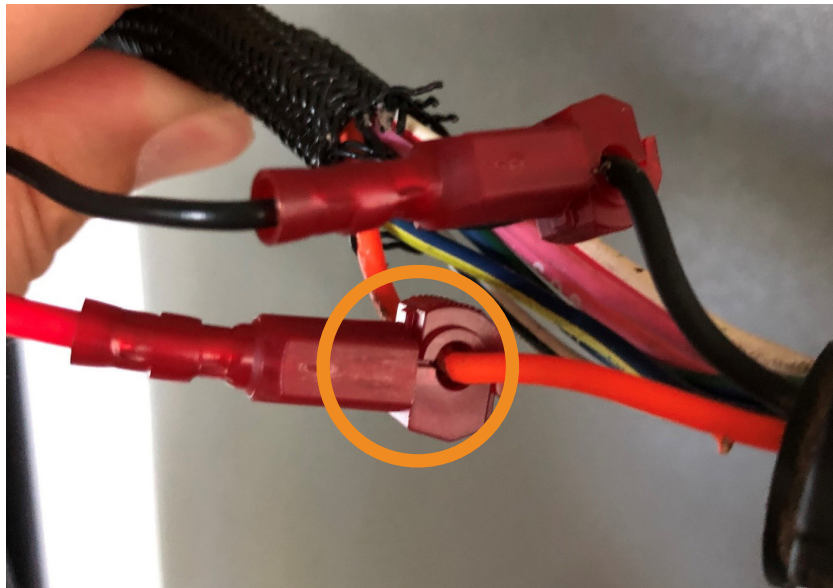
## INSTALLING THE YIELD MONITOR

1. Remove any headliner panels or lights needed to access 12V switched power and create a free space to install the Yield Monitor. To ensure optimal Bluetooth® connectivity, do not place the Yield Monitor directly next to radio interference, such as a two-way radio.

2. Use the supplied T-Splice Connectors to connect to +12V and Ground. Use pliers to snap the T-Splice Connectors onto the wires. Be sure to use the correct size connector and ensure the connector “snaps” shut.

- Use the Blue T-Splice connector for 18-14 AWG wire
- Use the Red T-Splice connector for 22-18 AWG wire

3. With the T-Splice connectors attached to 12V switched power, attach the Red spade connector from the lead on the Primary Wiring Harness to +12V and the Black spade connector to Ground.



Note: It is crucial the installer ensures full engagement between the spade and T-Splice connectors. If connectors are not fully pressed together there is the risk of an intermittent power supply. You will encounter frequent Bluetooth® disconnection and missing field data if the Yield Monitor has an intermittent power source or poor grounding.

4. Connect the 15 Pin connector of the Primary Wiring Harness to the Yield Monitor and tighten screws.



*Yield Monitor installed in user-chosen location*

5. Mount the Yield Monitor in a safe, dry and dust-free location. Install the external antenna connected to the Yield Monitor directly onto the roof of the cab along the centerline of the combine. If you are electing not to use an external antenna, mount the Yield Monitor with the label facing skywards above the headliner on the centreline of the combine. Use double-sided tape to secure in place.

For combines with a metal roof, the base of the external antenna has a magnet. For plastic roofs, use double-sided tape to secure in place. Run wiring into the cab and connect to the Yield Monitor.

## WIRING HARNESS ROUTING

1. Once the Yield Monitor is mounted, the Primary Wiring Harness will need to be routed outside of the cab and towards the clean grain elevator. The Wiring Harness can exit at the base of a window if the seal allows, at an existing wiring grommet, or by drilling a new location.



*Routing of Primary Wiring Harness along inside of door post with ignition switch assembly removed for access*

2. Once the Primary Wiring Harness has been routed outside of the cab, determine a safe pathway to the clean grain elevator, avoiding any moving parts on the combine.

**Note:** It is crucial that the Primary Wiring Harness is secured away from any moving parts or belts, anything that may cause breaks or wear.

### 3. OPTICAL SENSOR INSTALLATION - PART TWO

1. Returning to the elevator, turn the Drill Guide counterclockwise to remove from the Mounting Plate.
2. Put the Drill Guide onto the 12" (30 cm) drill extension and put into drill. Attach the 1/8" (3 mm) pilot bit.



3. Insert the Drill Guide into the Mounting Plate and turn clockwise to secure in place. This will ensure straight alignment of the drill. Proceed to drill a hole into the back wall of the elevator.



4. Turn the Drill Guide counterclockwise to remove from the Mounting Plate. Remove the pilot drill bit and replace with the step drill bit.
5. Carefully align the tip of the step drill bit with the pilot hole in the back elevator wall. You will be able to feel the tip engage.
6. Insert the Drill Guide into the exterior Mounting Plate. Drill the step drill bit through the back wall. If necessary, deburr the back hole.

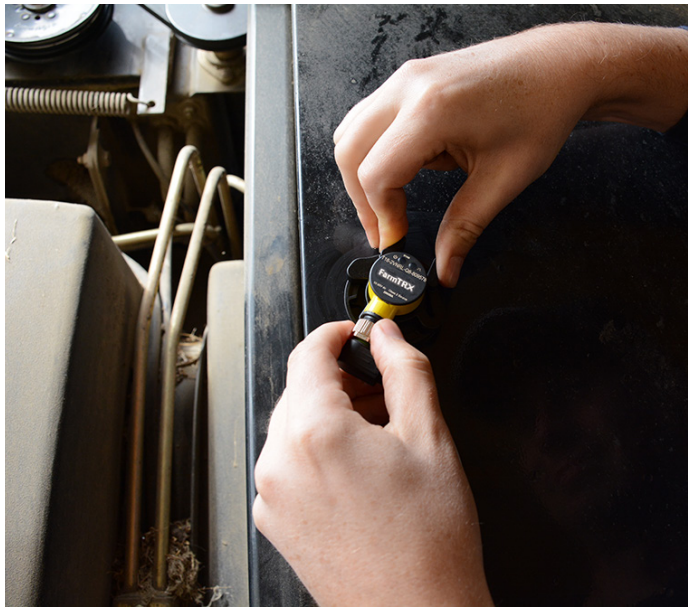


7. Use an alcohol swab to thoroughly clean the area around the drilled hole on the back surface of the elevator, ensuring that all oil, grease, and residue are completely removed from the elevator face.

Let the alcohol evaporate completely.



8. Remove the backing on the adhesive side of the Mounting Plate and insert the Drill Guide into the Mounting Plate. Turn the Drill Guide clockwise to lock into place.
9. Align the Drill Guide with the hole and press firmly against the side of the elevator, pushing consistently for 15 seconds.
10. Leave in place for one minute, then remove the Drill Guide.
11. Insert both sensors and turn clockwise to secure in place. Connect the sensors to the Wiring Harness.



*Front face of elevator*



*Back of elevator*

## TESTING THE YIELD MONITOR

Once the optical sensors are installed and connected to the Yield Monitor, the system can be tested in the following ways:

1. Power on the harvester. This should power on the Yield Monitor wired to switched 12V power.
2. To test the power: Using your smartphone or tablet, download and open the FarmTRX Harvest App on the Apple App store or Google Play store. Navigate to the Connection page to search/scan for Bluetooth® devices. A device called “YM:\_\_\_” should appear under Available Devices. If it does not appear, try pressing the refresh button. If it still does not appear you may need to cycle Bluetooth® on your phone or tablet off and on.
3. Test the optical sensors. With the harvester powered on (the engine does not need to be running for this), go to the clean grain elevator and turn the thresher drive by hand. When the empty paddles pass by the optical sensors, the sensor with the LED lights will blink. If blinking occurs then the optical sensors are powered on correctly and in alignment.

## SUPPORT AND NEXT STEPS

Congratulations, your Yield Monitor is now fully installed and ready to use. You are ready to move onto the two steps below.

1. Setup of the FarmTRX Harvest App on an Apple iOS or Android device.
2. Register for your FarmTRX Web Application account. If your farm is located in the Americas, register at <https://web.farmtrx.app>. If your farm is located in Europe, the Middle East or Africa, register at <https://eu.farmtrx.app>.