

T3RRA



4.4 | Configuring GNSS

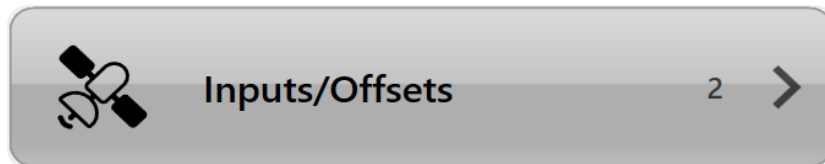
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4.4 | Configuring GNSS

The Inputs/Offsets page is used for selection of input sensors, such as GNSS receivers for height control or Inertial Measurement Units (IMU) for terrain compensation and Tilt / X-slope control.



GNSS Input Configuration

Pre-configuration

Before configuring **COMMAND** for use with receivers such as StarFire, ensure that the following settings have been checked and enabled/disabled as follows within the relevant system (e.g. Greenstar display for StarFire receivers):

Shared Signal - OFF/Disabled

Shared Signal functionality allows two StarFire Receivers to share correctional signals in dual-receiver applications, providing the benefits of the higher signal level.

This setting should be set to OFF/Disabled for usage with **COMMAND**.

RTK-X - OFF/Disabled

John Deere RTK-X is a backup correction feature for StarFire™ receivers that maintains high-accuracy guidance for up to 14 days if the primary radio or mobile RTK signal is lost.

This setting should be set to OFF/Disabled for usage with **COMMAND**.

Inputs

All **COMMAND** machine profiles have at least one height control function intended for use with a GNSS receiver for vertical position feedback.



Settings

Application | Equipment | **COMMAND** | Project | Limits | GPS | Advanced

Height
X-Slope

Inputs

Input Type:
SF Implement S/N: 552681

Fix Type: RTK

Sensor Offsets

☐ Enable sensor offset calculations

Offset

? Sensor Height 0m

? Fore/Aft Distance 0m

? Lateral Distance 0m

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Tap on the dropdown box below **Input Type** to view the different GNSS input options currently available.

This dropdown will update with any StarFire or NMEA 2000 receivers currently connected, which are then displayed with either "SF" or "N2K" followed by the receiver serial number.

Verify that each function ("Height" if using a single receiver, "Height 1" & "Height 2" if using tandem or dual receivers) has a Fix Type of RTK before proceeding.



Fix Type MUST be RTK for accurate automatic control operation - lower accuracy fix types such as GPS only, Differential or Float RTK are not appropriate for accurate implement position control. Poor GNSS quality will affect machine positioning and automatic control performance.

Sensor Offsets

If using a GNSS receiver with **Level COMMAND** that is not capable of IMU-based terrain compensation, sensor offset calculations can be enabled.

Blade Width - Enter the height of the GNSS receiver's measurement point above the cutting edge of the blade.

Positive = Above the cutting edge

Negative = Below the cutting edge

Fore/Aft Distance - Enter the distance forward or backward from the cutting edge of the blade to the GNSS receiver centre point.

Positive = Behind the cutting edge

Negative = In front of the cutting edge

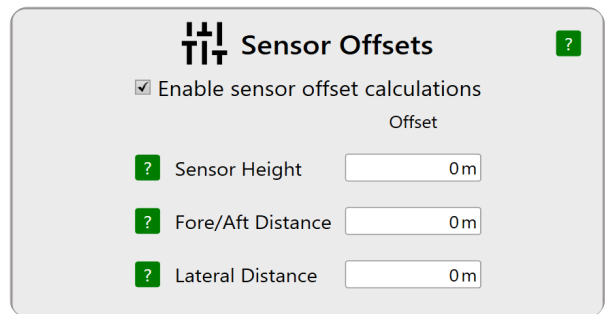
Lateral Distance Enter the distance between the GNSS receiver centre point to the middle of the cutting edge of the blade.

Positive = To the right side of the middle as if standing behind the scraper

Negative = To the left side of the middle as if standing behind the scraper

Sensor Offsets Example:

In the example screenshot below, the GNSS receiver has been mounted:



- 2 metres above the blade cutting edge
- 0.5 metres behind the blade (away from the tractor)
- 0.3 metres to the left of the middle of the blade (looking toward the rear of the scraper)

✓ Inputs / Offsets setup is now complete for profiles with only a height control function.

⚠ If using Height & X-Slope, Tandem receiver or dual receiver profiles, continue on to set up the second control function's inputs/offsets.

X-Slope Input Configuration

Some **COMMAND** machine profiles have a Tilt / X-slope control function intended for use with an IMU for blade tilt / x-slope angle feedback. Tap on the **Input Type** dropdown box to view currently connected IMU sensors, and select the desired input sensor.



Settings

Application | Equipment | **COMMAND** | Project | Limits | GPS | Advanced

↕
Height

↻
X-Slope

Inputs

Input Type:

SF Implement S/N: 552681

IMU Status: Connected

Sensor Offsets

☒ Enable sensor offset calculations

	Actual	Offset
Fore/Aft Angle	-0.42°	0°
Roll Angle	-0.34°	0°
Yaw Angle		0°

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Once selected, **IMU Status** will change to Connected. Additionally, the **Actual** values for **Fore/Aft Angle** and **Roll Angle** below **Sensor Offsets** will begin updating with the current angle of the selected IMU sensor.

Accounting for IMU Mounting with Offsets

In cases where the IMU sensor has not been mounted on the blade at a perfect 0 degree pitch and/or roll angle, the save offset buttons can be used to set the **Fore/Aft Angle** and **Roll Angle** offsets to the current angle reading. Before doing so, use equipment such as a spirit level, or a known level surface to ensure the blade is completely level. Once done, press the **Save** icons to set each of the two offset values to the current angles.



 Offsets are saved in the **COMMAND** ECU and only need to be changed if the position of the IMU sensor has changed, or if fitting the IMU to a different implement.

Settings

Application Equipment **COMMAND** Project Limits GPS Advanced

Height
X-Slope

 Inputs

Input Type:
SF Implement S/N: 552681

IMU Status: Connected

 Sensor Offsets 

☒ Enable sensor offset calculations

	Actual		Offset
 Fore/Aft Angle	-1.07°		-2.406°
 Roll Angle	-1.00°		0.938°
 Yaw Angle			0°

Press "**Back**" to return to the COMMAND Settings Overview and continue on to 4.5 | Setting Valve Configurations.