

# Quick Start Guide

AGRICULTURE

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**TRIMBLE RESELLER CONFIDENTIAL**

## IMD-900 IMU: Set Up as AutoSense Steering Sensor

The IMD-900 inertial measurement device (IMU) can be configured as a gyroscopic steering sensor for Autopilot™. Mounting of the device is very similar to the Trimble® AutoSense™ device. This document provides instructions for how to set up the IMD-900 IMU as an AutoSense steering sensor:

- **Precision-IQ™**: GFX-750™ display system, TMX-2050™ display
- **FmX® Plus**: TMX-2050™ display
- **Autopilot ToolBox II**: CFX-750 display, FmX integrated display

IMD-900 Setup Requirements	
Component	Version
NavController II/III	v13.75 or higher
TMX-2050 firmware	v5.61 or higher
GFX-750 firmware	v1.61 or higher
Autopilot ToolBox	v4.50 or higher

## IMD-900 IMU Cabling

The IMD-900 cabling, although similar using the 4-pin DTM, is no longer an analog signal into the NavController II/III, but rather communication is accomplished over CAN. With this configuration, a bus must be developed between the NavController II/III and the IMD-900 IMU that has communications (**CAN HI** and **LO**) and power with terminators on both ends of the branch.

The **57407-05** kit has all the parts necessary to complete the setup by using a 12-pin connector to plug into P12 and the terminator next to it. Additionally, the IMD-900 adapter cable and the associated terminator are on the other side:

<http://agpartners.trimble.com>

[www.trimble.com](http://www.trimble.com)

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**IMD-900 Cabling Kit**  
(Part Number 57407-05)



**IMD-900 Cabling Kit**  
Connected to NavController II/III



The device is mounted on the machine in the same fashion as AutoSense. This example shows a setup that has both AutoSense and IMD-900 IMU as the steering sensor:

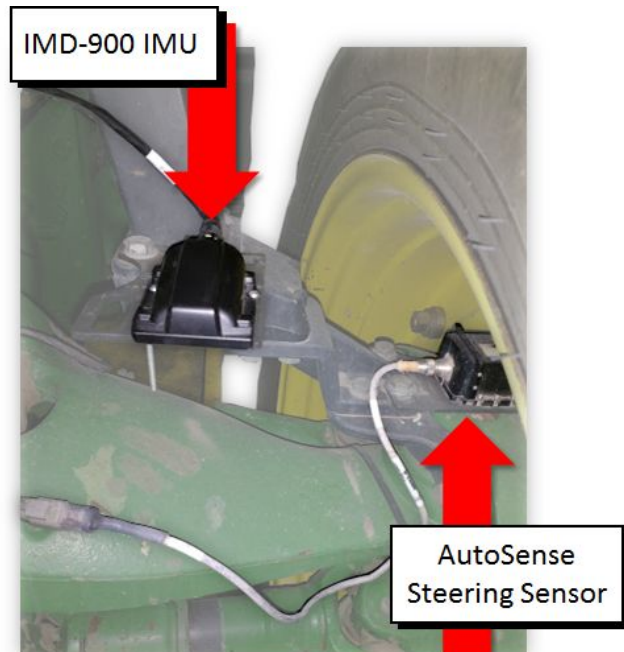
**Caution!**



Do not plug Autosense Steering Sensor cabling into an IMD-900 IMU.

Do not plug IMD-900 IMU cabling into an Autosense Steering Sensor.

The cables are **not** interchangeable.



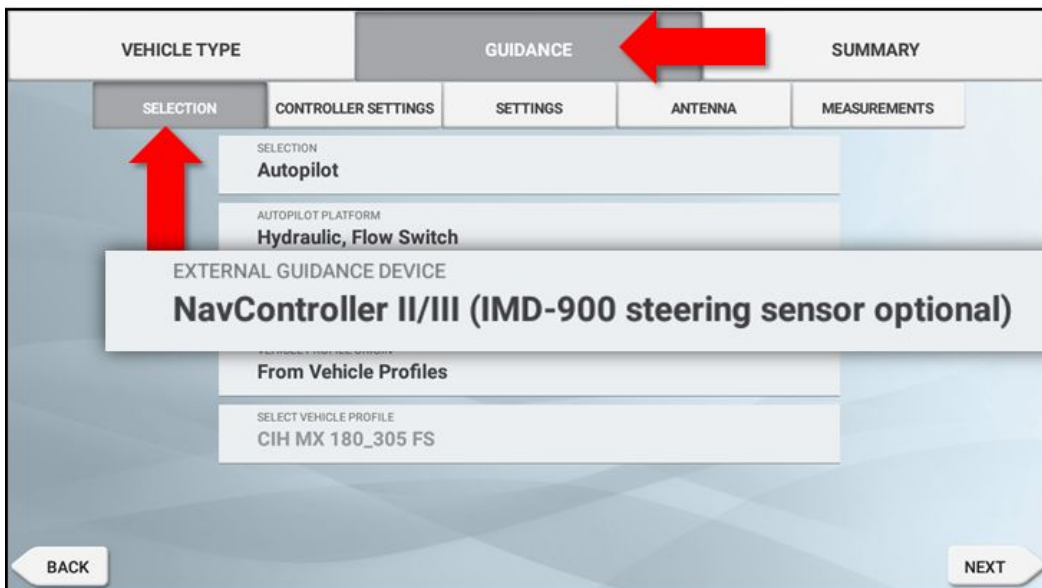
Follow the instructions specific to the vehicle being installed on:

- [Set Up an IMD-900 using Precision-IQ](#)
- [Set Up an IMD-900 using FmX Plus](#)
- [Set Up an IMD-900 using Autopilot Toolbox II](#)

## Set Up an IMD-900 using Precision-IQ

**Supported Displays:** GFX-750 Display System, TMX-2050 Display

1. Verify that the display has the following version of Precision-IQ:
  - TMX-2050: version 5.61 or higher.
  - GFX-750: version 1.61 or higher.
2. On the Precision-IQ Home screen, tap the **Vehicle** tile. Then select a vehicle from the list of available vehicles and tap **Edit**. Tap **Guidance** and then **Selection**.
3. In the External Guidance Device field, verify that the proper selection is made depending on the system being installed/updated - the example below has **NavController II/III (IMD-900 Steering Sensor Optional)** selected for an GFX-750/NAV-900 system using an external NavController III with an IMD-900 as a steering sensor.



Options Vary between GFX-750 display systems and TMX-2050 display systems due to the NAV-900 with the GFX-750.

For a **GFX-750 display system** with Precision-IQ:

- **IMD-900 Cab Roll compensation:** Use this when an IMD-900 is going to be used for cab roll compensation with the NAV-900 internal IMU
- **IMD-900 IMU Replacement:** This option is used when an IMD-900 is to be used as the primary IMU instead of the NAV-900 internal IMU
- **IMD-900 IMU Replacement with IMD-900 Cab Roll Compensation:** This option is used when both the internal IMU in the NAV-900 will be replaced by an external IMD-900 and an additional IMD-900 will be used for cab roll compensation
- **NavController II/III (IMD-900 steering sensor optional) :** This selection is used when an external NavController II or NavController III is being connected to the NAV-900. The guidance controls

and IMU in the external NavController will be used in place of the internal NAV-900 controls and IMU.

**Note:** An IMD-900 can optionally be connected to the external NavController and be used as a steering angle sensor.

- **NavController II/III with IMD-900 Cab Roll Compensation:** This selection is used when an external NavController II or NavController III is being connected to the NAV-900. The guidance controls and IMU in the external NavController will be used in place of the internal NAV-900 controls and IMU. Additionally, an external IMD-900 is also connected to the external NavController to be used for cab roll compensation.

**Note:** A second IMD-900 can optionally be connected to the external NavController and be used as a steering angle sensor.

- **None:** This selection uses the internal controls and IMU from the NAV-900

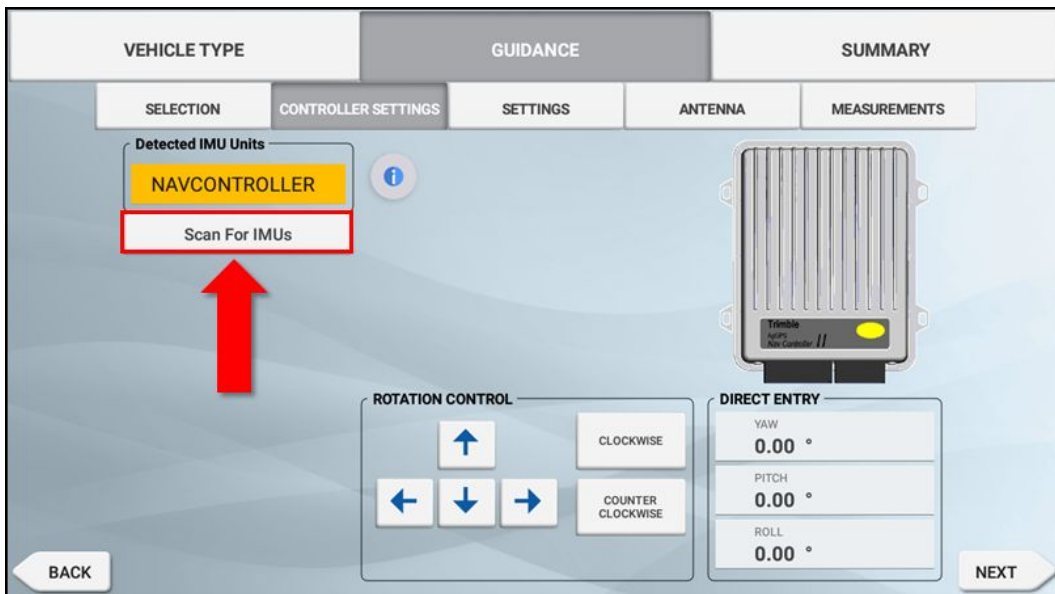
For a **TMX-2050 display** with Precision-IQ:

- **None:** NavController II/III internal IMU used as primary IMU. An IMD-900 can optionally be connected to the external NavController and be used as a steering angle sensor
- **IMD-900 Cab Roll Compensation:** Use this when an IMD-900 is going to be used for cab roll compensation in association with the primary IMU in the NavControllerII/III.

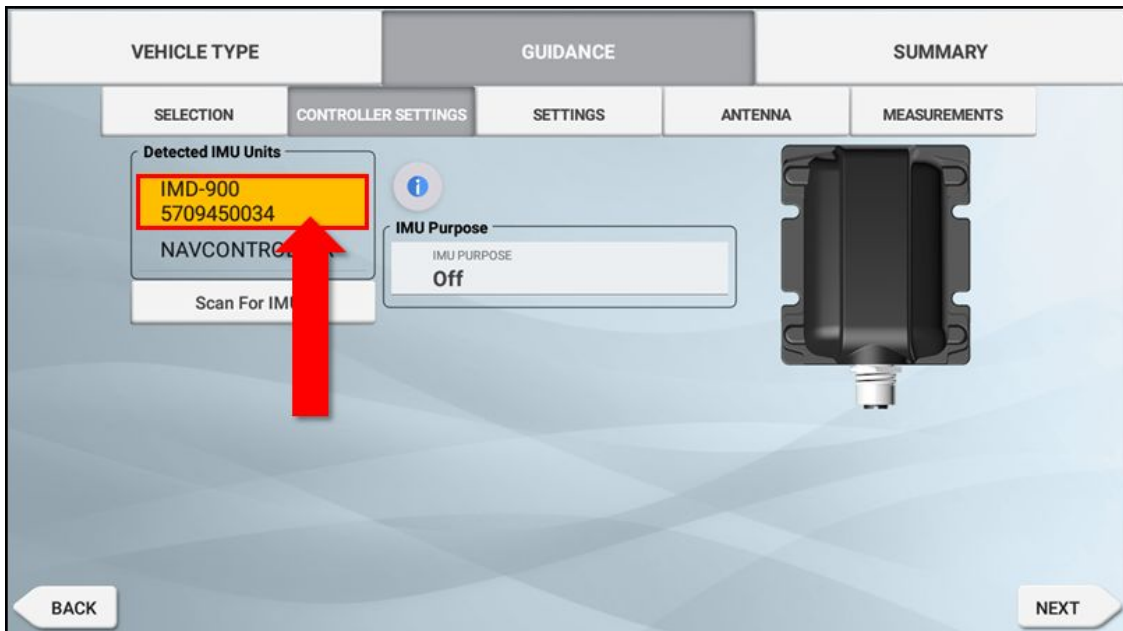
**Note:** A second IMD-900 can optionally be connected to the external NavController and be used as a steering angle sensor.

4. Once the proper selection is made, tap **Next**.

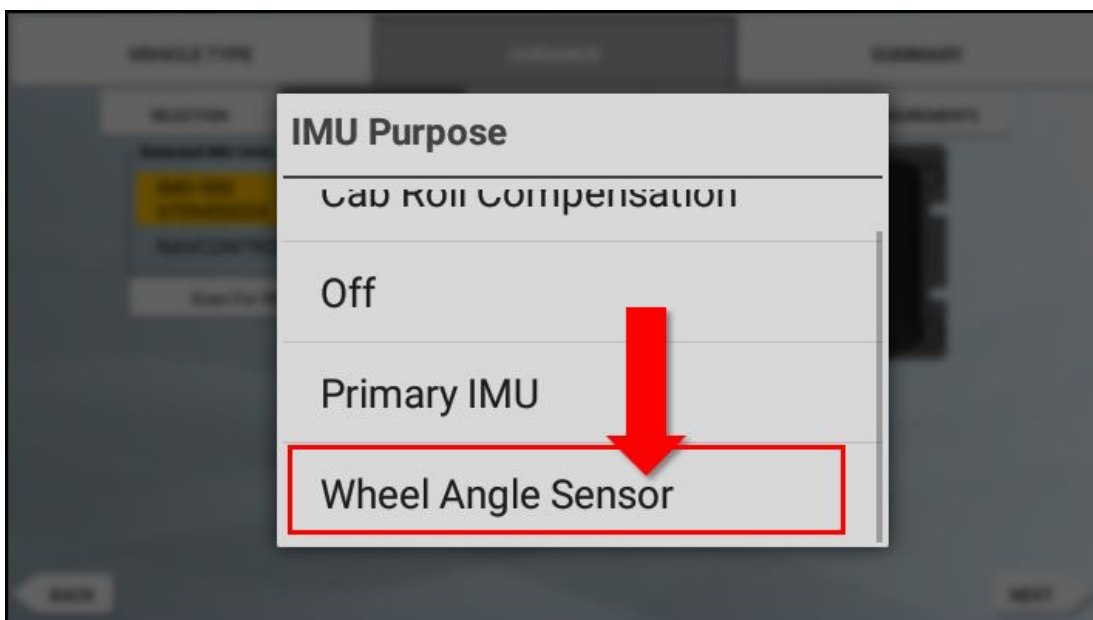
5. On the Controller settings page, tap the **Scan for IMUs** button:



- From the list of Detected IMU Units, select the serial number of the IMD-900 that is being used as a steering sensor:

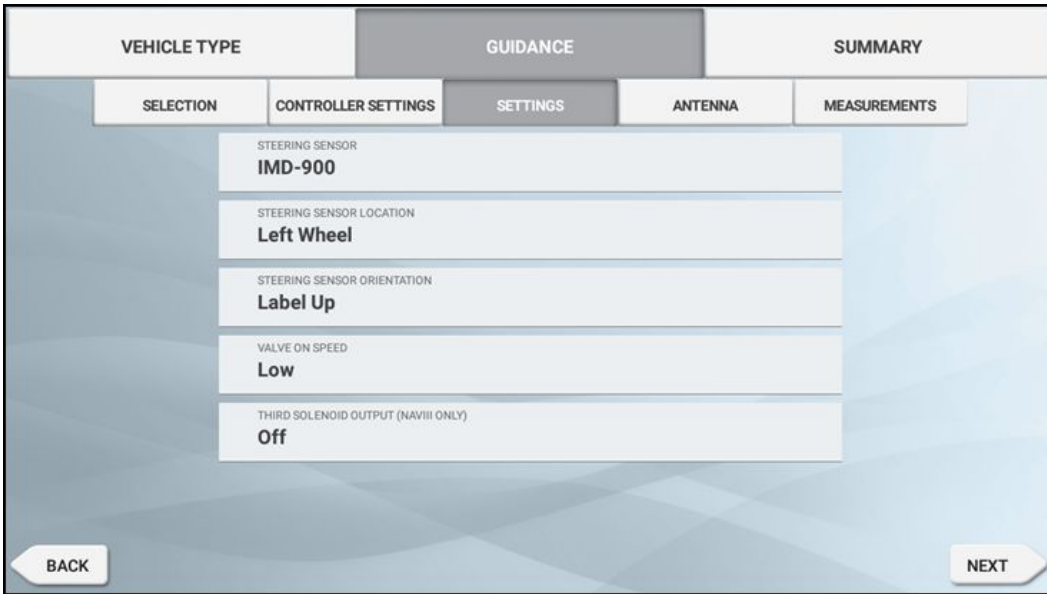


- Tap the **IMU Purpose** field and select **Wheel Angle Sensor** from the pop-up window:



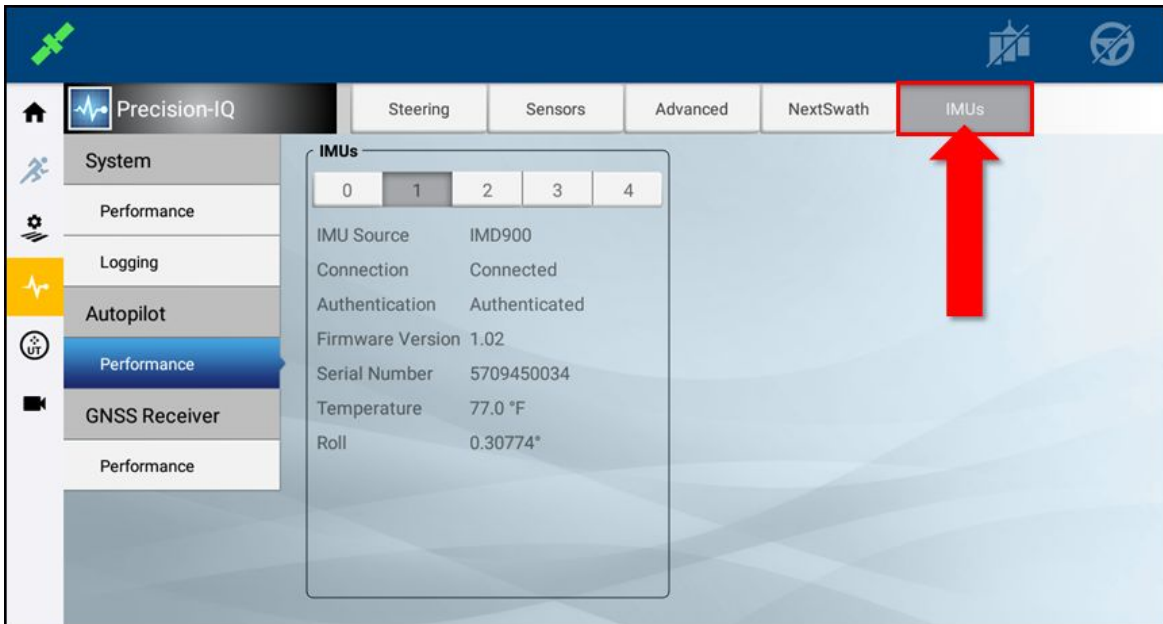
- Tap **Next**.

9. On the Guidance Settings screen, verify that the normal steering sensor settings are correct for the vehicle:



**Note:** The label containing the serial number is on the opposite side of the IMD-900 IMU vs Autosense.

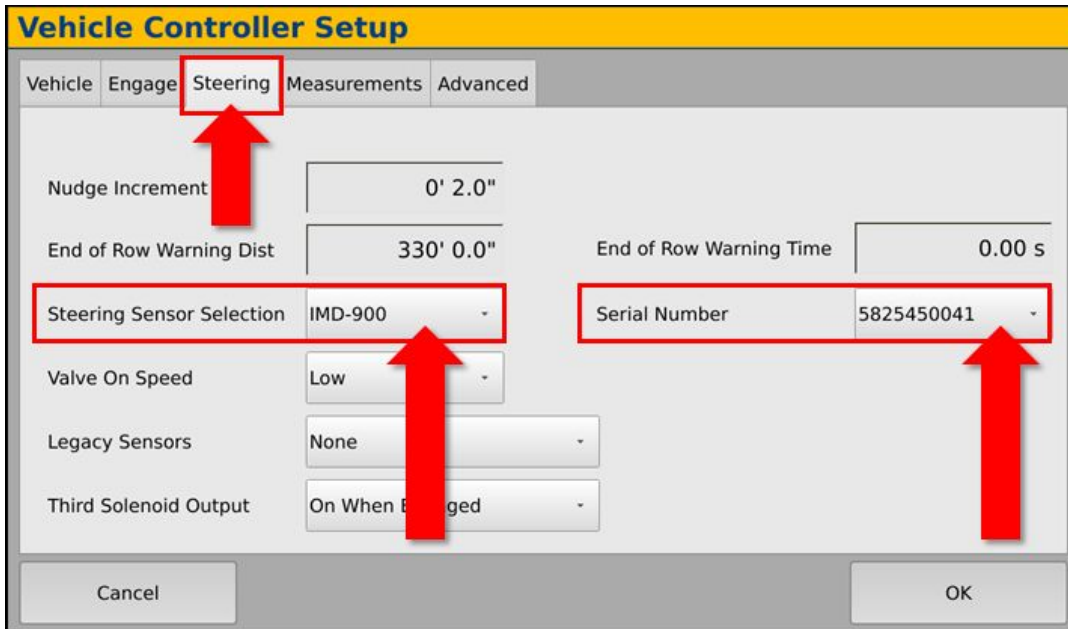
When the IMD-900 is used as a Steering sensor, an IMD-900 tab will show in the Diagnostics and selecting the desired IMU will show its connection status:



# Set Up an IMD-900 using FmX Plus

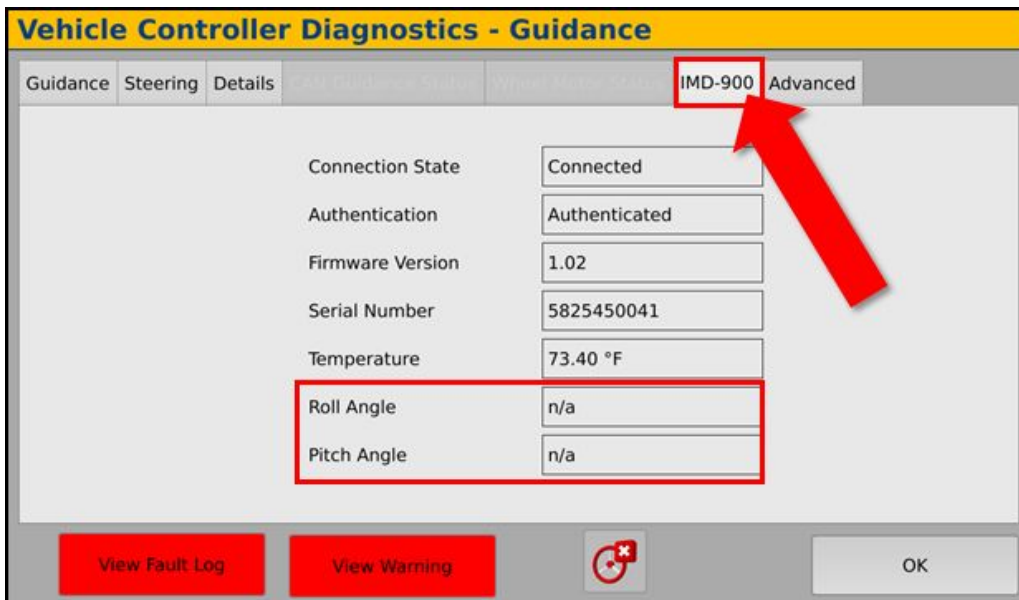
**Supported Displays:** TMX-2050 Display

1. Verify the following firmware versions:
  - TMX-2050: v5.61 or higher.
  - NavController II/III: v13.75 or higher
2. On the Vehicle Controller Setup screen, tap **Steering**. Then change the Steering Sensor Selection to **IMD-900**. Verify that the serial number of the IMD-900 is shown at the right:

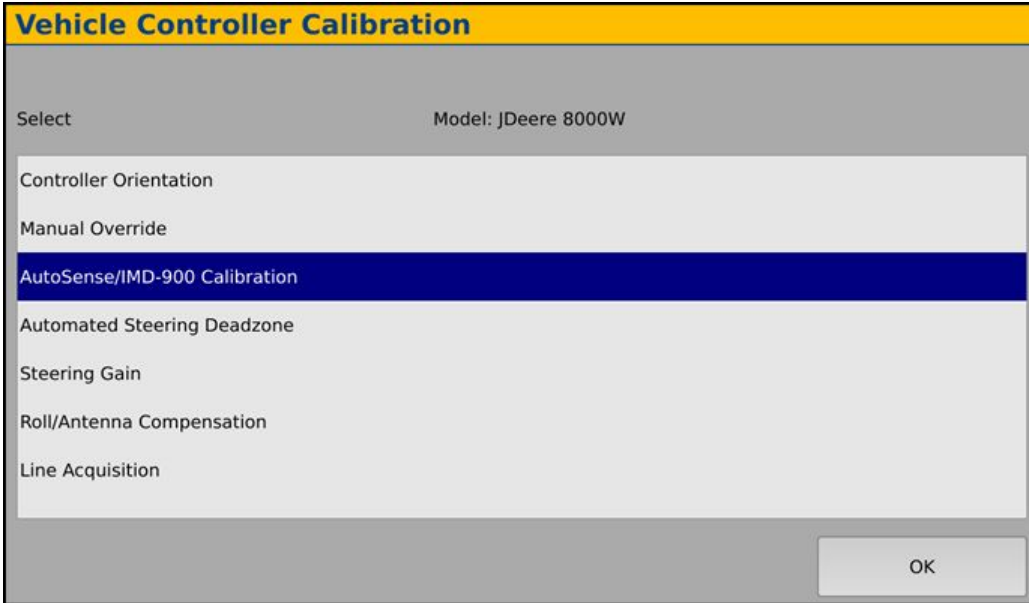


If no serial number is displayed, then check cabling and NavController II/III firmware version.

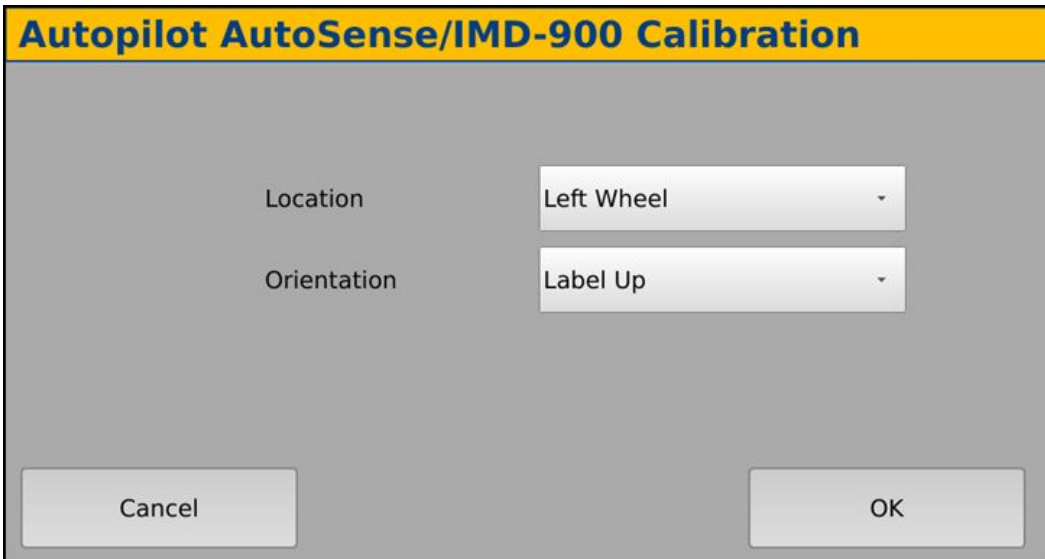
3. Tap **OK**.
4. Under the Autopilot Diagnostics page, a tab for IMU data will populate. The Pitch and Roll angles will be **N/A** as these are not applicable for steering sensor implementations.



5. Just like AutoSense, the setup for the IMD-900 is in Autopilot calibration:



6. Set the proper wheel location and orientation as per legacy Autosense setup:



**Notes:**

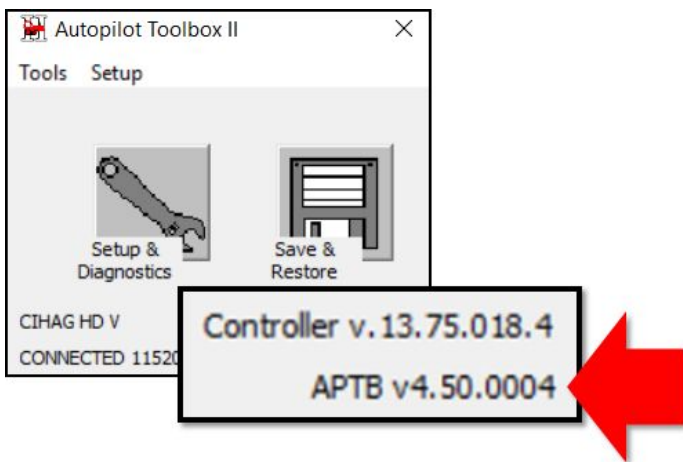
- Since the IMD-900 is a CAN device as opposed to an analog signal, a pseudo-voltage is displayed as opposed to the actual sensor voltage in the diagnostics page.
- When sitting still, the voltage value will read 0, and the steering angle will drift to the maximum angle (to one side – just like the current Autosense does). Upon movement, the voltage will fluctuate based on rotations felt.



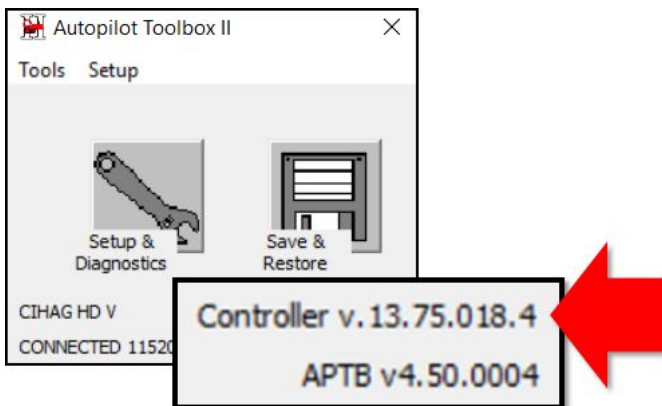
# Set Up an IMD-900 using Autopilot Toolbox II

**Supported Displays:** CFC-750, FmX Integrated Display

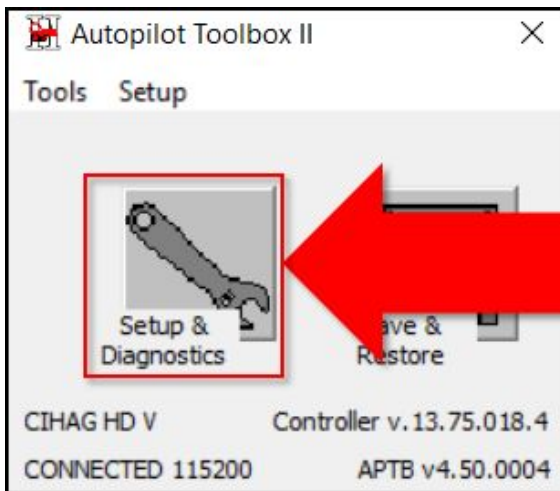
1. Verify that the computer has version 4.50 or higher of AutoPilot Toolbox II installed.



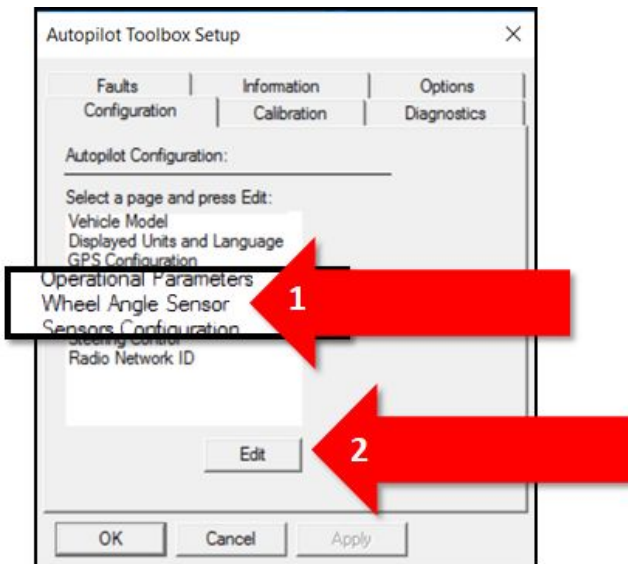
2. Using a serial-to-USB cable, connect to the serial port on the 54602 cable.
3. Once the computer is connected to the NAV Controller, verify that the NAV Controller has version **13.75** or higher of firmware installed.



4. Click **Setup & Diagnostics**:



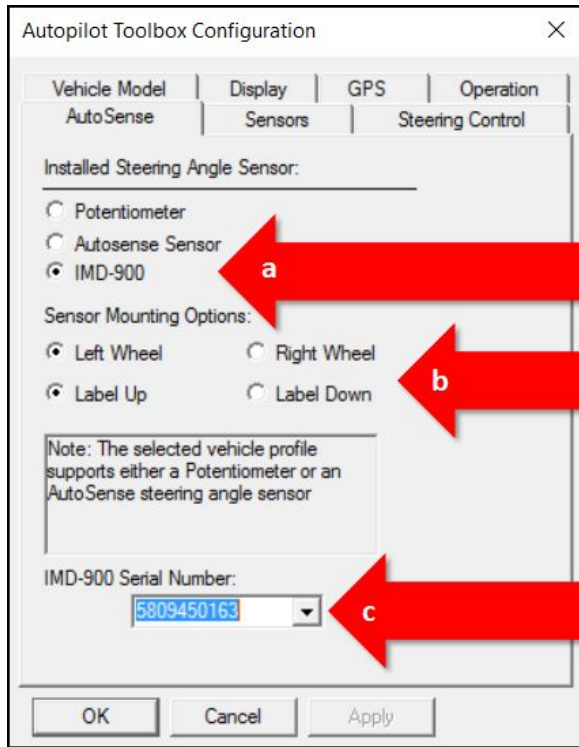
5. On the Autopilot Toolbox setup pop-up, under the **Configuration** tab, select **Wheel Angle Sensor**, then click **Edit**:



6. Click the **AutoSense** tab, then update the following configurations:
  - a. In the Installed Steering Angle Sensor section, select the **IMD-900** option.
  - b. In the Sensor Mounting Options, select the correct orientation of the IMD-900.

**Note:** The label on the IMD-900 is on the opposite side of the sensor from the old AutoSense sensor.

- c. In the IMD-900 Serial Number section, click the drop-down arrow and select the correct serial number for the IMD-900.



## For More Information

Contact Trimble Support.