

4.2 GPS

The X35 console can interact with a GPS that is used in the following applications: guidance, variable rate control and mapping. The GPS signal is also used to determine ground speed (the preferred method). To access GPS settings from the Main Setup menu select System/GPS.

Depending on what receiver is being used, the main GPS menu may have slightly different options, refer to *Figure 4.13*.



Figure 4.13 - GPS Setup Menu

4.2.1 Receiver

To select a GPS receiver, select System/GPS/Receiver.

1. **GPS Receiver** - allows the user to select the type of the receiver from the provided list.

Choosing a different receiver from the one that was currently selected will require a system restart.

Note

Please reference the manuals that came with your GPS system to properly configure it to output the necessary GPS NMEA strings (GGA, VTG, ZDA, and etc.) to properly communicate with the X35 console. Additional harnesses may be required; please discuss this with the Dealer of your GPS system. Note that the baud rate and COM port settings of your system as they are required to properly configure the X35 console.

For non-Topcon receivers select NMEA Source.

Note

If one of the Topcon receivers was selected, refer to the *Topcon X35 Guidance and Auto Steering Operator's manual* for detailed information on setting up Topcon GPS receivers.

The following sections will explain GPS set up for receivers with Type set as Other.

GPS receivers need to be outputting GGA, VTG & ZDA strings for the X35 console. Refer to the manual for your GPS equipment.

2. **Baud Rate** - baud rate refers to the speed of the data transfer and depends on the equipment being used.
 - a. Default baud rate is 19200, 8N1 (8 data bits, No parity, 1 Stop bit).
 - b. Confirm with the GPS manual, what the output baud rate is. Select the Baud Rate from the list (refer to *Figure 4.15*) to match the output of the GPS baud rate.



Figure 4.14 - Receiver Selection



Figure 4.15 - Baud Rate Selection

4.3 Serial Ports

This setting is used to set which port on your X35 console will receive GPS signal. It will also send the signal to other devices, that are not directly connected to GPS select System/Serial Ports.

Note

COM1 is used for GPS input.

1. **GPS Receiver COM** - select 1.
2. **GPS Output COM** - not used.
3. **LH5000 Rate Sensor COM** - not used.

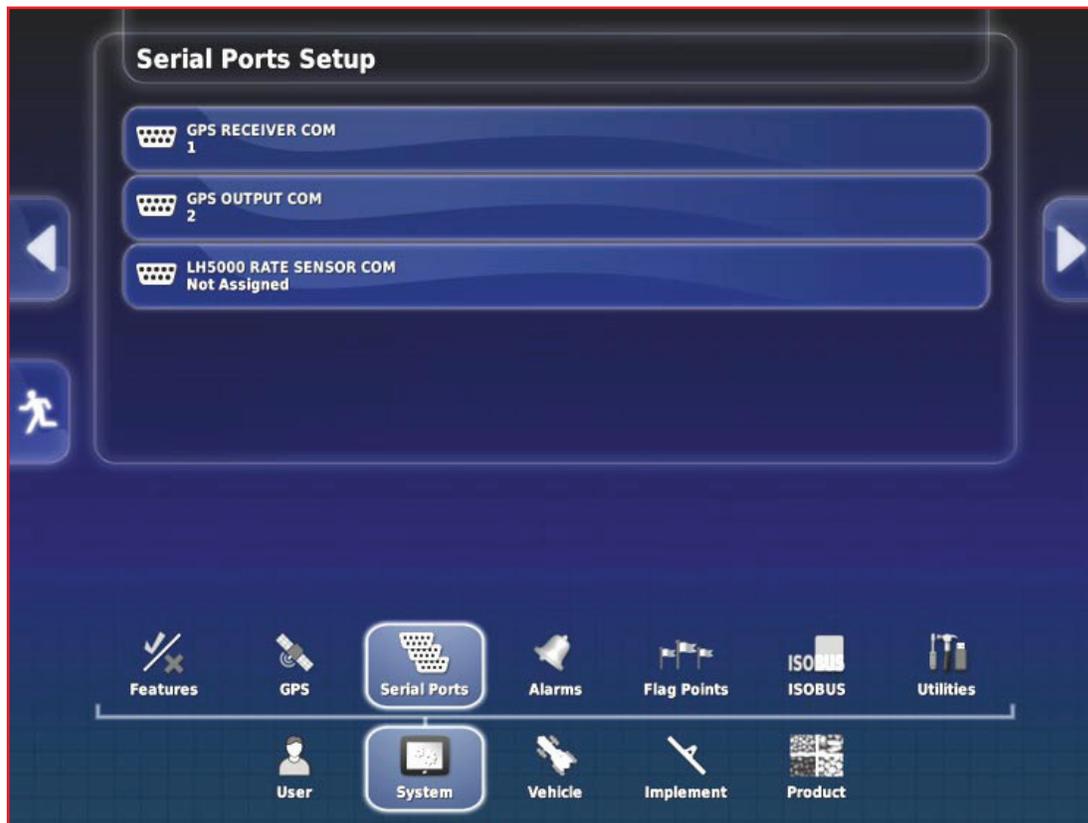


Figure 4.18 - Serial Ports

10.3 GPS Details (Mini-View Window)



Select the  button to open the GPS Information mini-view window.

There are three tabs available to view information:

1. **GPS Position** (*Figure 10.13*) - this tab displays the Latitude and Longitude (positioning of the vehicle), Easting and Northing (Universal Transverse Mercator (UTMS) position and the zone of the vehicle).
2. **Vehicle Orientation** (*Figure 10.14*) - displays the altitude, the heading (degrees), the actual speed of the vehicle, and the roll/pitch of the vehicle.
 - a. Roll is the left/right tipping of the vehicle.
 - b. Pitch is the forward/back tipping of the vehicle.
3. **GPS Accuracy** (*Figure 10.15*) - displays the number of available satellites, the correction age in seconds, the HDOP and HRSM.
 - a. The lower value of HDOP and HRSM indicates with better accuracy.
 - b. The satellite and correction icons can display different colours, refer to *Section 10.1.2 - Dashboard Items*.

Note

The HDOP (Horizontal Dilution of Precision) indicates the effect on accuracy of the number of satellite sources and their geometry. The HRMS (Horizontal Root Means Squared) calculates an average horizontal position, from the source information from the satellites. A lower value indicates better accuracy:

Good accuracy	HDOP < 1.0
Average accuracy	HDOP 1.0 - 4.0
Poor accuracy	HDOP > 4.0
No signal	GPS invalid 0

Keep the antennae clear of obstructions to maintain accurate GPS readings.



Figure 10.13 - GPS Position



Figure 10.14 - Vehicle Orientation



Figure 10.15 - GPS Accuracy