



ULTRA-RUGGED
FIELD PC

AMXU GPS EXPANSION POD

AMXU GPS Expansion Pod Overview

The Field PC AMXU GPS Expansion Pod integrates a SBAS-capable GPS receiver with the Field PC. The Field PC communicates with the receiver. The GPS receiver is a uBlox high-performance, low power, micro GPS receiver that supports NMEA protocols with an accuracy of 2 to 5 meters.



This integrated system includes a GPS Expansion Pod and GPS Pod Setup utility installed on a Field PC. Retrofits on existing Field PCs must be performed at the factory.

Pre-Configured Settings

The GPS Pod Setup utility is installed on the Field PC at the factory and receiver settings are pre-configured. The Windows Mobile GPS Manager is configured to allow multiple applications to share access to the GPS receiver from one port (COM2). The pre-configured settings work for most situations, but can be adjusted as needed.

The GPS Pod is designed to output the most common NMEA-0183 data strings and can be used in conjunction with most GPS programs that support the NMEA-0183 protocol.

Getting Started

Once your Field PC is ready to use and you have installed your GPS program (refer to the Field PC Owner's Manual for instructions), you should be ready to start using the Field PC AMXU GPS Expansion Pod.

Note: If your Field PC has Wi-Fi, for maximum battery performance we recommend that you turn Wi-Fi off if it is not needed.

Open your GPS program. Set the COM port setting in the program to COM2 and the baud rate to 38400 (refer to the program's software manual for more information). The GPS receiver is located and powered on.

You will receive a position fix within approximately 30 seconds if you have a clear view of the sky.

Tips for Using the Field PC AMXU GPS Expansion Pod

Keep the following tips in mind while using the Field PC with the AMXU GPS Expansion Pod:

- For best performance seek locations with the clearest view of the sky as possible. Obstructions such as buildings, trees, power lines, mountains, and your body can keep signals from reaching the receiver.
- Do not cover the antenna with anything while you are using the system (see graphic on page 2).
- Using the GPS Expansion Pod with GIS or GPS software running on the Field PC may cause the Field PC battery to drain at a faster rate. This rate depends on the software and how much processing is taking place.
- The PC card slot is accessible while the GPS Expansion Pod is attached to the Field PC. Refer to the Field PC Owner's Manual for details on how to use it. A flat, brown flex cable that is part of the expansion pod is visible when you open the pod door. Do not twist, bend, or break this cable while you are using the PC card slot.

Reference Information

GPS Pod Setup Utility

The internal GPS receiver settings are pre-configured with the GPS Pod Setup utility as follows:



These settings work for most applications. To make changes to the default settings, exit all GPS programs on your Field PC (this is a requirement) and go to *Start > Programs > AMXU Pod Setup*.

You can select which NMEA message strings are shown, enable/disable SBAS (Satellite Based Augmentation Systems)/WAAS, and indicate whether or not GPS is always on (see the following page for details).

Check or uncheck options to enable or disable them. Setting changes are preserved through suspend, resume and complete power off. To exit the program, select "OK."

NMEA Message String Details

- Protocol: NMEA 0183 Version 2.3
- All messages are sent at a fixed 1 second interval
- Default NMEA messages:
 - RMC Recommended Minimum Data
 - VTG Course Over Ground and Ground Speed
 - GGA Global Positioning System Fix Data
 - GSA GNSS DOP and Active Satellites
 - GSV GNSS Satellites in View
 - GLL Latitude and Longitude with Time of Position Fix and Status
- NMEA messages that can be activated
 - GRS GNSS Range Residuals
 - GST GNSS Pseudo Range Error Statistics
 - ZDA Time And Date
 - GBS GNSS Satellite Fault Detection
 - DTM Datum Reference

“GPS Always On” Setting

The “GPS always on” option is not selected by default. The GPS powers off when the Field PC suspends and powers back on when it resumes. There is typically a 1-5 second delay getting a good position fix on a warm start, but this varies for each situation.

To help you avoid potential start up delays, select “GPS always on.” When selected, the GPS receiver remains powered when the Field PC is suspended. The receiver is

immediately available when the Field PC resumes power, providing an instant position fix. This could be useful if you need a position fix in obstructed areas such as under heavy tree canopy. The GPS receiver requires a stronger signal from the satellites to obtain a position fix at startup than it does when it needs to maintain a fix.

Note: The “GPS always on” setting uses more battery power.

Windows Mobile GPS Manager

The GPS Manager is pre-configured to allow the receiver to provide NMEA messages to multiple GPS applications running on the Field PC.

Default settings:

- COM2: GPS software port used by your GPS program(s).
- COM3: GPS hardware port the GPS receiver is physically connected to. This port is where the GPS Manager receives NMEA data from the receiver.
- Baud Rate: It doesn't matter what you set this to.
- “Manage GPS automatically” is selected.

To use the Windows Mobile GPS Manager, go to the *Start Menu* on the Field PC then to *Settings > System > External GPS* and click on the icon. The GPS control panel opens.

Note: Before you change GPS configuration settings, exit all GPS application software.

When you are finished, click the “OK” button in the upper right hand of the screen to confirm the settings.

Note: the External GPS control panel only support NMEA messages from the GPS receiver.

For more information consult the Field PC Owner’s Manual or Windows Mobile help files.

GPS Receiver Hardware Settings

Below are the default settings used to communicate with the GPS receiver. If you are not using the GPS Manager and your program needs to communicate directly with the GPS receiver, you must put this information into your GPS application.

- COM3
- 38400 Baud
- No Parity
- 8 data Bits
- Stop Bit

Note: The GPS receiver uses the DTR signal on COM3 to control power. If your GPS program has a checkbox or setting to enable the DTR function, enable it for proper operation of the GPS Expansion pod.

Juniper Systems LandMark Mobile GPS Utility has a DTR function option which must be checked.

Reinstalling the AMXU GPS Pod Cab File

If the GPS Pod Setup Utility gets removed from your Field PC (during clean reset, for example) or you want all settings to go back to the factory default, download the GPS Pod Setup Utility CAB file from the website at www.junipersys.com/support. There is also a link to the website on the Field PC distribution CD.

The CAB file does the following:

- Configures the GPS manager (through registry settings) for the GPS pod
- Installs the AMXU GPS Pod Setup utility
- Installs a background task to reconfigure the GPS when the unit is turned on
- Provides registry settings to configure the GPS Expansion Pod

GPS Receiver Specifications

Receiver Type	Specification
Receiver Type	50 channels GPS L1 frequency, C/A Code
Time-To-First-Fix	Cold Start (Autonomous): 32 s Warm Start (Autonomous): 32 s Hot Start (Autonomous): <1 s Aided Starts: <3 s
Sensitivity	Tracking & Navigation: -160 dBm Reacquisition: -160 dBm Cold Start (Autonomous): -144 dBm
Horizontal Position Accuracy	Autonomous: <2.5 m SBAS: <2.0 m
Navigation Update Rate	1 Hz (1 second)
Velocity Accuracy	0.1 m/s
Heading Accuracy	0.1 m/s
Dynamics	≤ 4 g
Operational Limits	Velocity: 515 m/s (1000 knots)

Services

Information about repairs, upgrades, and warranties as well as frequently asked questions and documentation is located on our website at: www.junipersys.com/Support. You can also refer to the Field PC Owner's Manual for more information.



CAUTION: Do not attempt to repair the AMXU GPS Expansion Pod or Field PC yourself. This action voids the warranties.

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