

TK6000 RTK GPS Cell Modem Expansion Pack

Release Notes

June 2012

These notes provide important supplemental information about the TK6000 RTK GPS Cell Modem Expansion Pack.

This expansion pack is designed specifically for the TK6000 and is only supported on models of the TK6000 which support expansion packs.

Additional information and documentation about this product can be found on the Internet at:

http://www.carlsonsw.com/PL_CS_SurveyorPlusGPS.html

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System Requirements

This expansion pack is only compatible with models of the TK6000 that support expansion pack capabilities.

The TK6000 must be running OS 1.1.6 or higher to support this Expansion Pack. The Cell Modem Setup utility must also be installed to configure the cell modem properly.

While the RTK GPS expansion pack will operate on a TK6000 with only one battery pack installed, due to the high current requirements of the cell modem and GPS, it is strongly recommended that two batteries be used in TK6000s with the RTK GPS pack installed.

New Features and Enhancements

This expansion pack provides the following features and enhancements.

- **GPS module update.** This update is a hardware update that integrates a newer version of the GPS module. This update consists of an update from the Novatel OEMv2 module to the newer OEM628 module. The access to the new features in the OEM628 module depends on the capabilities of the software.
- **OmniSTAR support.** The new GPS module includes support for the OmniSTAR service. To access this feature, the software on the device must also support configuration of the OmniSTAR service.

Installation Notes

This section provides important information regarding installation of this expansion pack.

- **Power off TK6000 before installing or removing the expansion pack.** In order to protect your equipment from

damage, you must power off the TK6000 before you install or remove the expansion pack. To power off the device, press and hold the power button until the power button menu appears and then select the power off option.

- **Read the installation and setup guide that is provided with the expansion pack.** The information provided in the setup guide will provide detailed instructions on the steps required to install and configure the expansion pack.
- **Be sure to attach the antenna firmly.** In order to insure a good connection, be sure to attach your antenna firmly (finger tight) using the knurled connector to tighten the antenna (don't use the antenna itself to tighten the connector).
- **Be sure that the expansion pack is attached securely.** The pack must be tightly connected to the main unit to insure that the connector on the pack mates securely with the connector on the main unit. Be sure that all 4 screws are firmly tightened, and that there are no gaps between the main unit and the expansion pack. Be careful not to over-tighten the screws as this may strip the threads on the screw or the screw-hole and may cause connectivity problems because of a loose connection between the pack and the main unit.
- **Removing the expansion pack:** The 4 screws holding the expansion pack in place are not captive screws. Only loosen the screws enough to remove the expansion pack from the TK6000, do not loosen the screws until they come loose from the expansion pack, or you may lose the mounting screws.
- **Antenna Identification.** You may only use antennas provided by the manufacturer. Antennas marked with 3 bars near the base are for use in North America. Antennas marked with 4 bars near the base are for International use outside North America.

Important Notes

- **Reconnect delay after suspend/resume.** When you resume operation of the device after it has suspended it is normal to experience a short delay (anywhere from 15 seconds to as long as 1 minute) when re-establishing a connection using the cell modem. This delay occurs because

the modem is powered off to save power when the device is suspended.

- **Data transfer speeds may vary.** The speed of data transfers may vary depending on factors such as signal strength and signal quality. The speed will also vary based on the type of coverage. In areas with EDGE coverage, you should generally see higher data transfer speeds than in areas where EDGE coverage is not available.
- **How do I test my connection?** The easiest way to test your connection is use Internet Explorer to open a web page.
- **What is IMSI?** IMSI is a unique number associated with your SIM card. It stands for International Manufacturer Subscriber Identifier.
- **What is IMEI?** IMEI is a unique number that identifies the cell modem radio. It stands for International Manufacturer Equipment Identifier.
- **How do I find the IMEI and IMSI?** The Cell Modem Setup utility displays this information. The IMEI number is also printed on the inside cover of the expansion pack.
- **A note about service plans.** We recommend that you contact your carrier and obtain an appropriate data service plan. Many carriers will provide limited data plans that may restrict your connectivity. For example, it may only permit email or access to certain websites.
- **Cell Modem Setup Utility.** If a CD is provided with your Cell Modem, it will contain the installation for the Cell Modem Setup Utility. The Cell Modem Setup Utility can be downloaded from our website at junipersys.com > Support > Downloads > TK6000.
- **Does the cell modem radio support CDMA?** No. This modem is only for use with GSM service.
- **Does the cell modem support SMS or MMS?** No. There is no support for SMS or MMS.
- **Can I place a call to connect with this cell modem?** No. There is no support for voice calls.

Cell Modem Operation

Once the expansion pack has been properly configured and set up, the following icons can be displayed on the status bar.

No SIM Card icon - After the cell modem has been properly configured using the CellModemSetup utility, if the expansion pack is attached to the unit without a SIM card installed, the No SIM card icon will be displayed. This icon notifies the user that a) no SIM card is installed and b) it will be impossible to create an internet connection using the cell modem until a valid SIM card is installed.

No Internet Connection icon (2 horizontal arrows with an x) - This icon is displayed when there is no internet connection present. Assuming the expansion pack is properly installed and has a valid SIM card installed, there are two ways to establish an internet connection. First, if the application automatically establishes an internet connection (Internet Explorer is one example of an application that automatically establishes an internet connection, consult with your application supplier to determine the capabilities of the application), simply run the application and attempt to access the internet. Second, for applications that do not automatically establish internet connections, go to the connections menu (tap Start > Settings > Connections or tap the No Internet Connection icon > Settings) then tap Manage Existing Connections, tap and hold Modem connection until the menu is displayed, then select Connect. If your internet connection has been dropped by the cell modem, this icon will be displayed and you must follow the procedures described above to re-establish an Internet Connection.

Internet Connection icon (2 horizontal arrows) - This icon is displayed when an internet connection is present.

Signal Strength icon - When an internet connection has been established using the cell modem, the Signal Strength icon is displayed. This icon contains either the letter E or G and from 0

to 4 bars. The E indicates EDGE and the G indicates GPRS. The quality of the cell modem signal and the data transmission speed is dependent on the number of signal strength bars displayed. When no bars or only 1 bar is displayed, the signal strength is weak and the data transmission speed will be slower than when there are 2 or more bars. If there are no bars displayed, the cell modem can still maintain an internet connection, but may not be able to transmit any data. With no bars displayed, it may be necessary to move to another location with better signal strength in order to send and receive data effectively. As long as the Internet Connection icon is displayed, the cell modem will automatically send and receive data once sufficient signal strength is obtained. Once the No Internet Connection icon is displayed, the internet connection has been lost and it will be necessary to reestablish an internet connection as described above before data will be sent or received.

GPS Operation

The Expansion Pack contains a high performance GNSS receiver, the OEM628 manufactured by Novatel.

A third party application software package, (SurvCE from Carlson Software is one example) is required to initialize, access and utilize the GPS receiver.

Documentation describing the operation of the OEM628 GPS receiver can be found on the Novatel website:

<http://www.novatel.com/support/>

Known Issues

- Battery Strength indicator – The TK6000's battery capacity indicator (1-4 bars) on the Windows Mobile status bar only reports the battery capacity for the main battery pack (bottom compartment). When two battery packs are installed, you must go to Start/Settings/System/Power to view the capacity of the second (labeled backup – upper

compartment) battery. Since both batteries are discharged at the same time, if two fully charged batteries are placed in the TK6000, then the battery capacity indicator is correct. If the main and backup batteries have different charge levels, the battery capacity indicator may not correctly display the available battery life.

- Cell Modem Setup Utility – The Cell Modem Setup utility does not work with SIM cards that require PIN codes to activate. Disable the PIN code in the SIM card before using with the RTK GPS expansion pack. [3043].
- TK6000 Reset After Drop – When a TK6000/Surveyor unit is dropped, the impact can momentarily disconnect the battery or batteries. Normally this does not cause a problem because the supercap has more than enough energy to power the handheld until the battery reconnects. If the GPS and cell modem are powered on and the cell modem is transmitting at the exact instance the battery disconnects on impact, the TK6000/Surveyor may immediately go into a Power Fault state.. A soft reset may need to be performed to restore expansion pack functionality.
- Internet Explorer – In some instances, when Internet Explorer (IE) is minimized but still running in the background and the cellular data connection is manually disconnected, activating IE and accessing a website will reestablish the cell modem connection, but IE will not be able to find the desired website and may generate an error message. The work around is to use the Task Manager (2nd key then left soft function key) to close IE, then suspend and resume the unit. Reload IE and the desired website should then be found. If IE still does not connect, power off the unit and then power it back on (or perform a hard reset).[3077]

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