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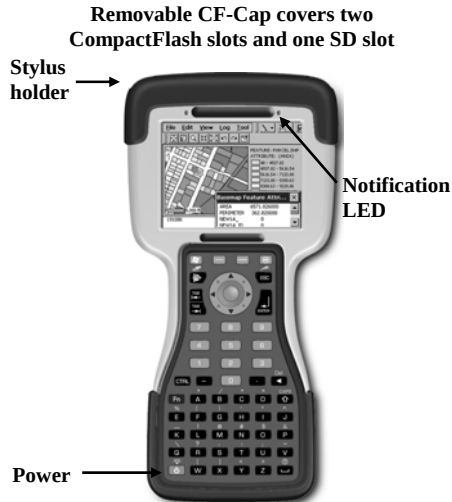
Welcome

Congratulations on your purchase of one of the most advanced handheld computers available on the market today. The rugged design of your handheld allows you to work in harsh outdoor environments. You can operate your unit in blazing heat, subzero cold, driving rain or dusty job sites – places you could not take a consumer-grade handheld computer.

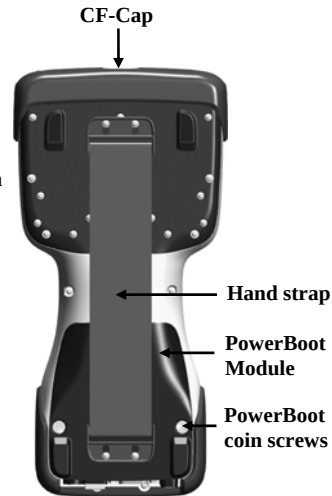
NOTE: Not all the features discussed in this manual will apply to every unit, as many of the features are offered as options. If the feature described does not apply to your unit, please disregard that section.

Device Hardware

Front Panel

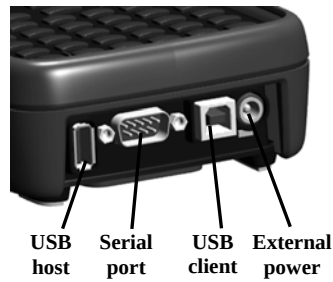
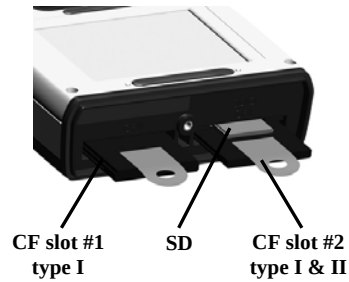


Back Panel



Top View- without Cap Bottom View

CompactFlash and SD card slots



NOTE: Be sure to read the warranty and safety information in this manual prior to using your unit.

Unit Set Up

1. Attach the PowerBoot Module

The PowerBoot Module™ that contains the batteries is shipped detached from the unit. Align the PowerBoot Module with the contacts facing down. Insert the top end of the PowerBoot Module first as shown, and then drop the PowerBoot Module into the unit. Secure by tightening the two screws with the stylus, a coin, or a screwdriver.



2. Attach the hand strap

Insert the strap as shown onto the two small bolts located on the back of the unit, near the bottom of the PowerBoot Module.



Now stretch the hand strap and insert the other end of the strap onto the two bolts at the top of the unit.

3. Charge your unit

The AC charger that ships with your unit comes with adapters to fit almost every electrical outlet and voltage. Connect the correct adapter to the charger, plug the charger into an electrical outlet and plug the DC jack barrel end of the charger into the external power port on the PowerBoot Module. Charge the PowerBoot Module for approximately 4.5 hours.



Warning! Be sure to always use the charger included with your unit. Use of other chargers will void your warranty.

4. Turning your unit on and off

To turn your computer on, press the green Power key on the lower left hand corner of the keypad. To turn the computer off, press the Power key again.

One of the most convenient features of the unit is “instant on” and “instant off” that happens every time the Power key is pressed. Also known as “suspend/resume”, it means that there is no waiting for the computer to boot up every time the unit is turned on. “Instant on” does not occur on the first boot-up.

Power



5. Align the touchscreen

When the unit first turns on (or after a hard reset) the touchscreen may require alignment. A series of targets is displayed in sequence on the screen. Use the stylus to tap the targets firmly and accurately to align the touchscreen. Sometimes it is necessary to repeat the alignment procedure more than once to provide a satisfactory calibration.

6. Using the CF and SD expansion slots

Your unit contains two CompactFlash (CF) slots and one Secure Digital (SD) expansion slot. The SD slot is located within the walls of one of the CF slots. The SD slot is for memory cards only. SDIO devices such as cameras or GPS receivers will not operate in this slot.

To access the CF and SD expansion slots, remove the CF-Cap™. To do this, unscrew the screw on the top of the CF-Cap using the stylus, a coin or a screwdriver as shown, and slide the cap off the main unit.

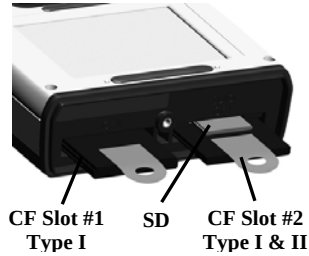


NOTE: When using smaller CF cards (such as memory or Bluetooth), it is **critical** that you attach a CF Card Pull Tab to the CF card before sliding the card into the slot. A Pull Tab will allow you to easily remove the CF card from the slot. Pull Tabs are part of the accessories included with your unit.

With the CF-Cap removed, the 2 CF and 1 SD expansion slots are visible. The CF slots are side by side, and the SD slot can be seen inside the CF slot #2 cavity.

To insert a CF or SD card:

- CF cards must be inserted with the front of the card facing toward the display side of the unit. CF slot #1 supports Type I cards. CF slot #2 supports Type I and II cards.
- SD cards must be inserted with the front of the card facing away from the display.
- Again, be sure to attach a Pull Tab to the smaller CF cards (such as memory or Bluetooth) before sliding the cards into the slots.
- Gently insert the CF card or SD memory card into one of the two CF slots. **Do not force the card into the slot.** The pins can be damaged if the card is not aligned correctly.



When replacing the CF-Cap, first be sure it is oriented correctly. The stylus holder in the CF-Cap is towards the front of the unit. Replace the CF-Cap and tighten the screw to reseal. The cap should be securely tightened, but do not over-tighten the screw.

NOTE: Be sure to correctly orient the CF-Cap when you are reattaching it. The unit is NOT sealed when the cap is off or attached backwards. Water damage caused by improper installation of the CF-Cap is not covered by warranty.

Working with Your Unit

Using the stylus

The touchscreen on your unit works like a mouse on a PC. Use the stylus to navigate and select objects on the screen.

Tap: Tap the screen with the stylus to select or open an item. Tapping is equivalent to clicking an item with the left mouse on your PC.

Touch and hold: When you touch and hold, a circle of blue dots appears around the stylus to indicate that a pop-up menu will soon appear. Touching and holding is equivalent to right-clicking your PC mouse button.

Drag: Hold the stylus on the screen and drag across the screen to select text and images. Drag in a list to select multiple items.

PowerBoot Module

The PowerBoot Module includes the batteries to power the unit, the power port used to charge the unit, and the I/O ports that are used to communicate with other devices (such as a PC) using a USB or serial cable.

Battery life: Battery life is very dependent upon the application and operating environment. You can expect about 30 hours of battery life. Typical usage includes using the unit in moderate or high outside temperatures without using the backlight, and using low power CF and SD cards, such as memory cards.

Cold temperatures, heavy use of the backlight and the use of high power consumption CF cards (such as GPS) will all significantly reduce the battery life.

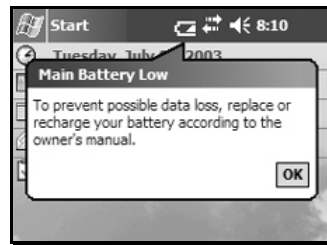
Tips for extending the battery life:

- Use the backlight only when necessary. Use the **Fn + Power** keys to toggle the backlight on and off. Tap **Settings / System / Backlight** to minimize the amount of time the backlight stays on when the unit is idle.

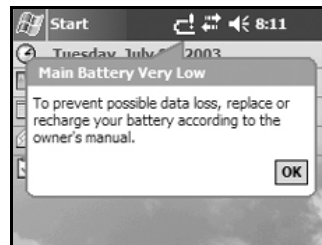
- Use the most energy efficient CF cards that are available for your application and use them only when necessary to perform the desired task.
- Use the embedded wireless capability (Bluetooth or WLAN) only when necessary. Turn off (turn Flight Mode on) when not in use.
- When working in cold temperatures, keep the unit as warm as possible. If feasible, keep the unit inside your coat or in a vehicle when not in use.

Battery warnings: There are two different warnings that will indicate when the battery life is getting low:

Low battery warning



Critical battery warning



The Main Battery Low warning notifies you when your battery level reaches a low level and needs to be recharged. You have only 5% or less of your battery life remaining, so start saving your data as soon as possible.

The Main Battery Very Low warning indicates that the battery level is at a critically low level and you may have only minutes before the unit shuts itself off. Save your work immediately and turn the unit off.

NOTE: Be aware that the accuracy of the battery warnings will vary depending upon temperature, power consumption, and applications. Experimentation with your particular situation will give you a better feel for how the warnings correspond to actual remaining battery life.

If the battery level gets too low, the unit will go into an emergency suspend and will turn itself off. Either charge the PowerBoot Module or swap it out with a fully-charged PowerBoot.

Charging the batteries: The PowerBoot Module can be charged either in or out of the unit.

The AC charger comes with adapters that will fit most electrical outlets worldwide. Attach the appropriate adapter that fits your electrical outlets to the charger. To charge the battery, plug the AC charger into the wall socket. Insert the DC jack barrel connector into the power port on the PowerBoot Module. The unit will be fully charged in approximately 4.5 hours. The acceptable temperature range for charging the battery is between +5°C and +35°C (+41°F and +95°F).

The PowerBoot Module also has an LED that provides an indication of charging status. The LED states are shown in the following table.

Normal usage:	
Off	No charger present, or charger unplugged.
Fast blink	Fast charge.
Slow blink	Topoff charge.
On	Charging complete.
Error conditions:	
One short flash	Battery temperature too cold to charge.
Two short flashes	Battery temperature too hot to charge.
Three short flashes	Wrong charger.

NOTE: When the unit is finished charging and is still connected to the AC charger, the status found in **Settings / System / Power** will report the battery power remaining as if it is still on battery power.

Swapping the PowerBoot Module: The PowerBoot Module is designed to be quickly swapped in the field. If the current PowerBoot Module runs low on power, replace the Module and

continue with your work. (This assumes that you have purchased additional PowerBoot Modules.)

When turned off, the unit saves enough power that you can swap the battery without triggering a hard reset *if you can swap in the new PowerBoot Module within a couple of minutes*. If the saved power runs out before the new PowerBoot is connected, the unit will perform a hard reset when the PowerBoot Module is reattached. All data, configuration, drivers and settings not saved in Built-in Storage or on a flash memory card will be lost. Therefore, *it is strongly recommended that you perform a Sprite Backup before swapping the PowerBoot Module*. See the Backup and Restore section for more information.

To change a PowerBoot Module, perform the following steps:

1. Back up your data to Built-in Storage using the pre-installed Sprite Backup program. (See information on Backup and Restore).
2. Press the Power key and turn the unit **on**. (The unit will automatically turn itself off when you loosen the screws in step 4.)
3. Remove the hand strap from the unit.
4. Using a screwdriver, a coin, or the flat head of the stylus, unlock the 2 screws on the PowerBoot Module by turning them counter-clockwise until the PowerBoot can be removed. Unscrewing the screws turns the unit off and puts it in a special state that prevents it from turning on during alarms and notifications.
5. Remove the PowerBoot Module by taking it out of the unit.
6. Quickly insert the new PowerBoot Module onto the unit.
7. Screw the PowerBoot Module securely into place by turning the 2 screws clockwise until they are fastened.
8. Replace the hand strap.
9. Press the Power key and turn the unit on.

NOTE: The screws **MUST** be tightened before turning the unit on or data could be lost.

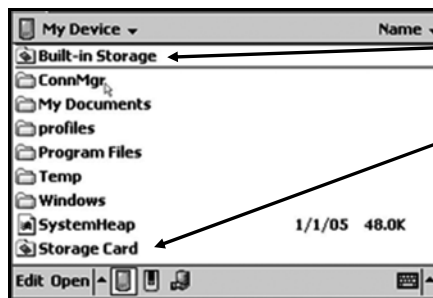
Memory and Built-in Storage

The memory in the unit is used to store software applications, configuration information, drivers and data. The unit has two kinds of memory, flash and RAM. Flash memory is generally known as Built-in Storage.

Built-in Storage memory is nonvolatile storage. The contents are unaffected if the battery is removed or discharged. Therefore, you should keep your data and software application programs in Built-in Storage. The amount of Built-in Storage in your unit will vary depending on your unit configuration. Windows Mobile™ 2003 software for Pocket PC's uses approximately 26 MB of Built-in Storage. The balance is available for your use. Third-party CF or SD memory cards can be used to increase the amount of available storage memory. They work the same as Built-in Storage, except they are removable.

RAM is volatile. This means the contents will be lost if the battery is disconnected or discharged. RAM memory is used to run programs and is often used as the initial storage area for data. The amount of RAM in your unit will vary depending on your unit configuration. Approximately 18 MB is reserved for the operating system. To save RAM memory contents into Built-in Storage, use the pre-installed Sprite Backup program. See the next section "Backup and Restore" for more details about backing up data to memory. Any data in RAM that is not stored to Built-in Storage will be lost if the battery is removed or discharged. **We strongly recommend regularly saving your data.**

The following illustration shows the different kinds of memory as they appear within File Explorer (**Start / Programs / File Explorer**). The nonvolatile Built-in Storage is shown under the top level **My Device** at the top of the list. Tap on the desired folder to change folders.



Built-in Storage: The contents are found in this folder in File Explorer.

Storage Cards: If memory cards are present, the contents are found in these folders in File Explorer.

RAM: All other files and folders displayed by File Explorer are stored in RAM and will need to be backed up.

Backup and Restore

Many programs and unit configurations reside in RAM and collected data is sometimes stored in RAM. RAM memory is volatile and all data and programs residing in RAM will be lost if the battery is disconnected during use or is completely discharged. To prevent such data loss, it is important to regularly back up the RAM to Built-in Storage. Your device comes with a pre-installed backup utility program called Sprite Backup.

Sprite Backup: Sprite Backup is an easy-to-use program that backs up data from RAM to the Built-in Storage memory. To run a backup, tap **Start / Programs / Sprite Backup**.

Once the program loads, tap **Backup Now** and the backup process will begin immediately. When the backup is complete a chime will sound and the screen will show **Operation Complete**. When this occurs, tap **OK**. This will bring up a message box once again telling you that the operation has completed. Tap **OK** to restart (soft reboot) your system. Your backup is now complete. All programs and data are stored in a backup file and stored in Built-in Storage.



We recommend that you run Sprite Backup often to ensure that you never lose any data due to an unforeseen hard reset. Because it's easy to forget to do, Sprite Backup offers scheduling automatic backups as an advanced feature. To set this up, tap **Start / Programs / Sprite Backup**. In the lower left corner tap **Options / Switch to Advanced Mode**. Next, access the scheduling page by tapping **Options / Scheduled Backup / Change Scheduling**. Here you can set single, daily, or weekly automatic backups to run at a particular time. Select the desired frequency and the backup time and tap **OK** to set the schedule.

NOTE: While scheduled automatic backups will help protect you from data loss, even a daily restore may not be enough in an intensive work environment. When collecting a lot of data, remember to backup often. If a hard reset occurs, any data collected between the last backup and the hard reset will be lost.

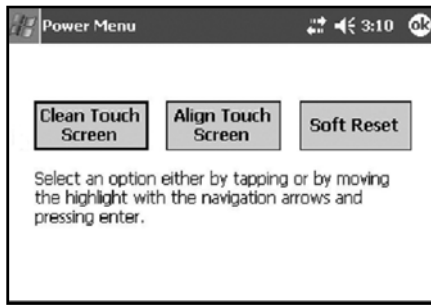
If you experience a hard reset for any reason, you can easily restore your data from your last backup. After a hard reset, the unit will automatically prompt you to do a restore. To run restore manually, tap **Start / Programs / Sprite Backup / Restore Now**. Once the restore is complete, you will be prompted to do a soft reset. After the reset, the unit is restored to its pre-hard reset state.

Power key features

The Power key turns the unit on and off and performs a number of additional functions.

Turn backlight on/off: To toggle the backlight on or off, press **Fn** and then the **Power** key. Once toggled off, the backlight will stay off until it is toggled back on. Screen taps and key presses will not cause it to turn on.

Power menu: Hold down the Power key for about 3 seconds to display a countdown. Continuing to press the Power key will cause a soft reset when the countdown reaches zero. If you release the Power key while the countdown is proceeding, you access the following menu. Tap an option or **OK** to exit.



Clean Touch Screen: Disables the touchscreen for cleaning. Press the enter key to re-enable the touchscreen.

Align Touch Screen: A series of targets are displayed. Use a stylus to tap each target in sequence to align the touchscreen.

Soft Reset: This resets the unit hardware but does not clear the contents of RAM. It can be used to restart a program that has become unresponsive.

Hard reset: A hard reset should be used only if a soft reset fails to resolve an issue. The contents of RAM are cleared during a hard reset. If possible, back up your data before doing a hard reset. See the Backup and Restore section for more information.

To perform a hard reset, press and hold the **Power** key and the **CTRL** key simultaneously for eight to ten seconds. The reset menu will appear with a countdown warning. (Under certain conditions, the countdown will not appear.) Continue to hold both keys down. When the message **Booting** - - - -> appears, release both keys. If a backup was previously performed, the unit will prompt you to restore the most recent backup.

Additional Key Functions

Several screen functions can be initiated from the keypad. Press the first key indicated followed by the second key to initiate the action. The following are some of the most commonly used:

Backlight toggle	Fn + 
Caps Lock	Fn + 
Delete	Fn + 
Windows Start	

Calendar	left 
Contacts	right 

Speaker and microphone

Your unit comes with an integrated speaker and a microphone. The speaker will allow you to hear a variety of media.

To use the microphone, enter the Notes program by tapping **Start / Programs / Notes**. There are two ways to start recording:

1. Tap the cassette icon at the bottom of the screen. Tap the red circle at the bottom left corner of the screen.
2. Press and hold the **Fn** key (Function) and then press and hold the **ESC** key (Escape).

If using the record button, the unit will continue to record until the stop button is pressed. If using the keypad to record, the unit will continue to record until one or both keys are released.

The ideal speaking distance for recording is from 20 to 30 cm (8 to 12 inches). Speak clearly and loudly, but without shouting. The recorded file will automatically be saved in the folder displayed at the top of the screen. To change the directory where recorded files will be saved, tap on the folder icon and navigate to the desired folder.

To play the recorded file, just tap on the desired file from the Notes program and it will begin to play automatically. To begin another recording, press **Fn** and **ESC** keys again or tap the record symbol on the screen. You cannot play and record simultaneously; play back will be disabled during recording.

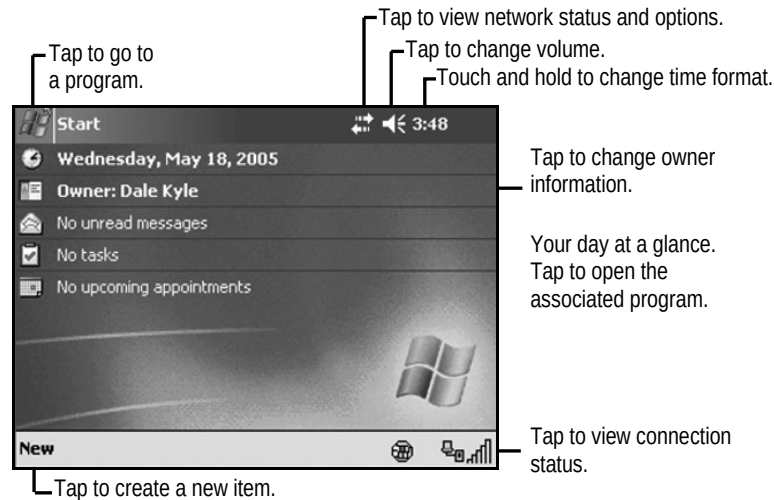
To change the volume, tap on the speaker icon in the status bar of the Today screen (see below). You can either change the volume or mute all sounds coming from the unit.

The Today screen

At the top of the screen are status icons. Tap an icon to view details or change options. (These icons appear at the top of every screen on your unit, not only the Today screen.)

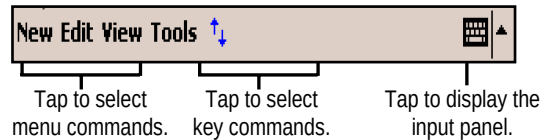
When you turn on your unit for the first time each day (or after four hours of inactivity) the Today screen displays. You can also view it by tapping **Start** / **Today**.

The center of the Today screen provides information that you need for the day. Tap an item to view or edit details.



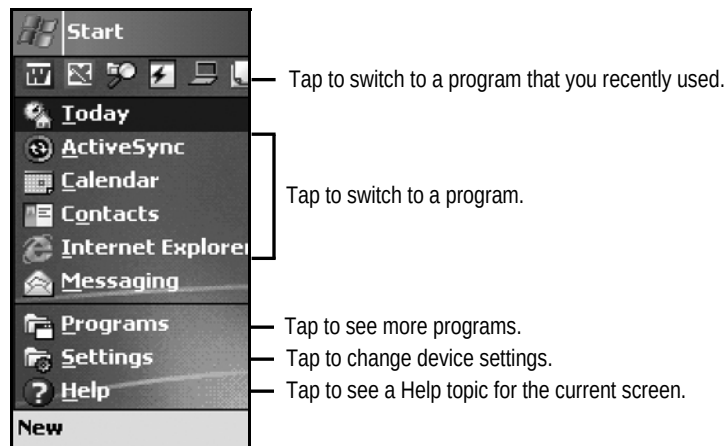
The command bar

At the bottom of the screen is the command bar. You can use its menus and keys to perform tasks in programs. Depending upon which program you are using, the buttons may vary from those depicted below.



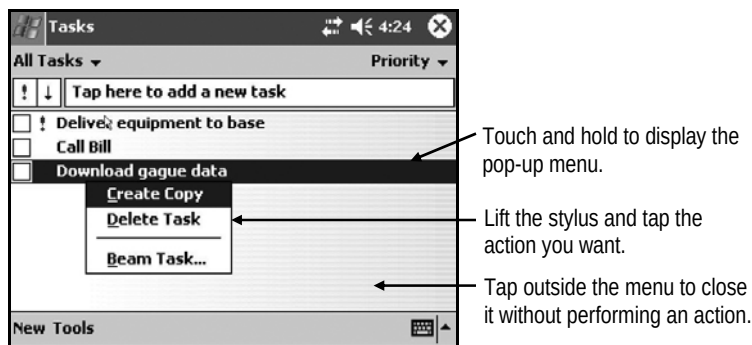
The Start menu

From the Start Menu, you can select **Programs**, **Settings**, and **Help** topics. To display the Start Menu, from the top of any screen, tap **Start**.



Pop-up menus

You can use pop-up menus to quickly select an action for an item. To access a pop-up menu, tap and hold the stylus on an item name.



Settings on Your Unit

Tap **Start / Settings**. You can tap any of the icons on the **Personal**, **System** or **Connections** tabs to customize the unit settings to your own preferences. Tap **X** on the touchscreen or press **OK** on the keypad to exit Settings. Here are a few of the settings on the unit that are worth noting.

Buttons

Tap **Personal / Buttons**. The Buttons (Keys) setting allows you to assign several of the keypad buttons to your favorite programs. By default, these are preset to common applications such as contacts and calendar. The list of assignable keys is on the left hand side of the screen with the program that is assigned by default on the right. Re-assign them by selecting the key you wish to change in section 1 and chose the desired program or action from the pull-down list in section 2.

Sounds and Notifications

Tap **Personal / Sounds & Notifications**. In these screens you can change sound settings related to event notifications, keypad, and screen activity. For example, by default the unit will sound a chime to remind you of any scheduled appointments as well as trigger the Notification LED above the touch screen. If you wish to disable the sound and use the LED only, remove the check mark from the **Events** box.

To change the volume, tap on the speaker icon in the status bar of the Today screen. You can either change the volume or mute all sounds coming from the unit.

Input

Tap **Personal / Input**. You can change settings related to character input, word completion and capitalization.

Backlight

Tap **System / Backlight**. Choose the settings in the **Battery Power**, **External Power** and **Brightness** tabs as needed for your use of the unit. The display backlight has significant impact on battery life.

Screen

Tap **System / Screen**. The orientation can be changed to portrait for some programs that are not screen aware.

Memory

Tap **System / Memory**. Closing programs still leaves them resident in RAM. As more programs are started, available RAM decreases. If RAM resources become low, you can stop programs and remove them from RAM. To stop a program, tap the tab **Running Programs**. You can stop individual programs or tap **Stop All**.

Power

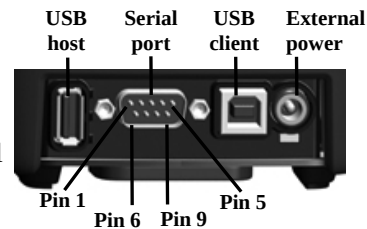
Tap **System / Power**. This screen allows you to view the approximate battery power remaining. Note that both the Main battery and Backup battery levels are shown, but only the Main battery level is significant. Tap the **Advanced** tab and choose the settings for automatically putting the unit into suspend mode when not in use.

Tap **System / Power / Wireless**. If your unit is equipped with either Bluetooth or wLAN, you can turn the wireless capability on or off in this screen.

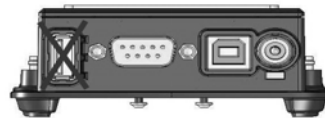
Connecting to Your PC

I/O ports

The unit has both USB and 9-pin serial ports. Connection via USB to a PC require an A-B USB cable (included with the unit). Serial connections require a 9-pin null-modem serial cable (not included with unit).



NOTE: Be aware that the operating system running on the unit does not support the USB Host Port. Please do not try to connect any devices to this port.



You may also increase your connectivity options with CF cards.

Communication

The unit is equipped with multiple ways to communicate with other devices. Many of these ways are described in the following sections. Where noted, your unit may not have that particular feature.

ActiveSync

Microsoft ActiveSync allows you to synchronize information and copy files between your PC and your unit. ActiveSync is pre-installed on your unit. Before connecting your unit to your PC, install ActiveSync on your PC from the Windows Mobile 2003 Second Edition Companion CD that was shipped with your unit. Alternatively, ActiveSync is available as a free download from the Microsoft web site:
www.microsoft.com/windowsmobile/default.mspx

IMPORTANT: Do not connect the unit to the USB port on your PC until after you install ActiveSync. If you prematurely connect the unit to your PC, your PC USB drivers may get into a confused state and ActiveSync will not connect. If you suspect that something like this has happened, then uninstall your PC's ActiveSync, reboot your PC, reconnect the unit and reinstall ActiveSync.

Launch the ActiveSync installer on the PC. You will see the screen **Set Up Microsoft ActiveSync**. Click **Next**. A screen will appear asking what folder to install to. We recommend using the default setting. Click **Next**.

The **Get Connected** dialog box will automatically appear on the PC. Connect the unit to your PC using a USB cable. Tap **Next**. Wait a few seconds while your PC recognizes and connects with your unit.

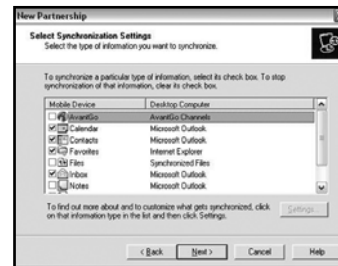


Once your unit has connected with your PC, you will be presented with the **New Partnership** window.



Your unit supports both Standard and Guest partnerships. If you are simply interested in installing software on your unit, or in transferring files between your unit and your PC, a Guest partnership will be sufficient. If you are also interested in synchronizing the information in Microsoft Outlook on your PC (such as e-mail, contacts, calendar, and time) with the unit, then choose **Standard partnership** and click **Next**. You will be presented with the **Select Synchronization Settings** window.

Select the types of information that you want to synchronize and click **Next**. Wait a few moments while ActiveSync synchronizes the selected information types with the unit.



Once connected over ActiveSync, you will see a window similar to the ones below on your PC. Click on the **Explore** icon to view the file structure on the unit in a way similar to Windows Explorer on your PC.

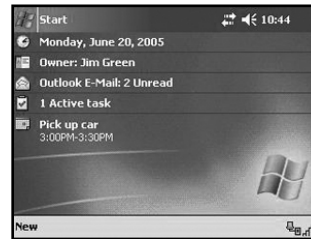
Guest Partnership:



Standard Partnership:



If you created a Standard Partnership, the display on your unit will reflect the information that was synchronized from the PC.



Tip: Run a system backup after creating a Standard Partnership so that the partnership and synchronized information survive a power loss or unexpected hard reset. See the Backup and Restore section for more information.

Troubleshooting ActiveSync connection problems

1. Confirm that the unit is configured to communicate with the PC. Choose **Start / ActiveSync / Tools / Options / Options**. Confirm that **Enable PC sync using this connection** is checked, and that **USB default** is selected from the dropdown list.
2. If you are running personal firewall software on the PC, try disabling it. ActiveSync needs certain TCP/IP ports to be open.

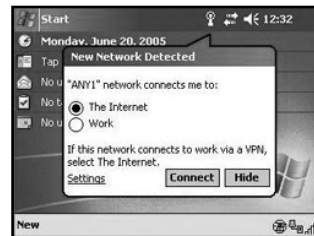
3. Try soft resetting the unit and rebooting the PC. To soft reset the unit, hold down the Power button until **Booting** - - - -> appears across the bottom of the screen.
4. If you have more than one unit, PC and/or cable, testing different combinations of equipment can help isolate the cause of the problem.
5. As noted earlier, if you suspect that the unit may have been connected to the PC USB port before ActiveSync was installed, then uninstall ActiveSync, reboot the PC, and reinstall ActiveSync.

Wireless LAN (802.11b)

Your unit may include embedded 802.11b or wireless LAN (wLAN) capability. If the configuration of your unit includes embedded 802.11b, then your unit has the ability to wirelessly connect to the Internet and other data networks by connecting to available access points or hot spots. Once connected, you can browse the Internet or fileshares on the local network.

The wLAN is on by default. To turn wLAN off, tap **Start / Settings / System / Power**, then tap on the **Wireless** tab and tap **Wireless Signals Off**. Turning wLAN off will save battery power and may speed up other processes so it is recommended that you turn off wLAN when not in use. There are also some alternative ways to disable wLAN. You can turn wLAN off and access other wireless parameters from the Wireless Client application (tap **Start / Programs / Wireless Client**). A shortcut way to disable wLAN is to tap on the radio icon on the status bar and tap **Turn on flight mode**.

If the unit detects a wireless network or hot spot, it will open a window similar to the one shown:



An Internet connection is one in which Virtual Private Network (VPN) services are not involved and proxy servers may or may not

be utilized. This can include a typical Internet connection through a corporate wireless network. A **Work** connection allows you to view fileshares on a corporate network and can also be used to remotely synchronize with your PC if you have already created an ActiveSync Standard Partnership.

Select **Internet** or **Work** as appropriate, and tap **Connect**.

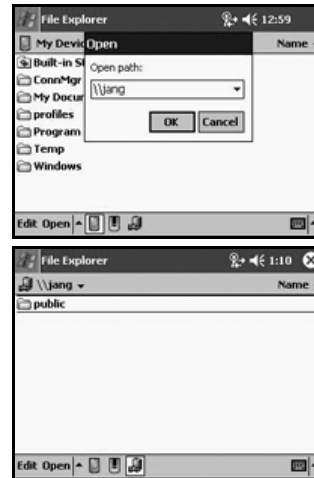
Depending upon the configuration of the wireless network, you may be prompted to enter a Wireless Encryption Protocol (WEP) key for authentication purposes. Obtain the WEP key from your network administrator.

Tip: Run a system backup after establishing a wLAN connection so that the settings survive a power loss or unexpected hard reset. See the Backup and Restore section for more information.

If you chose to create an Internet connection, open Pocket Internet Explorer on the unit (**Start / Internet Explorer**) and browse the Internet much as you would browse the Internet on a PC. Note that Pocket Internet Explorer does not support some features that are supported by desktop PC browsers. For instance, there are no pop-up windows under Pocket Internet Explorer, and you may be unable to use web-based e-mail and access other sites on the Internet.

If you chose to create a **Work** connection, open File Explorer on unit. Tap **Open** to open a window, allowing you to enter the name of a computer on the network on which you want to view fileshares. Tap **OK**.

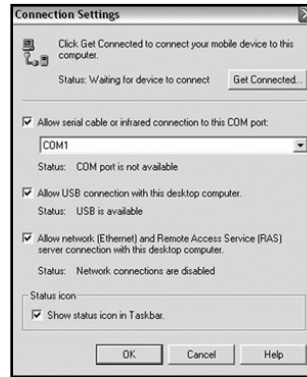
From here, you can browse the network fileshares and copy and paste files between PCs on the network and the unit.



ActiveSync over an wLAN connection

If you create an ActiveSync Standard Partnership between your unit and your PC, it is possible to synchronize e-mail and other information on your unit across the wireless network.

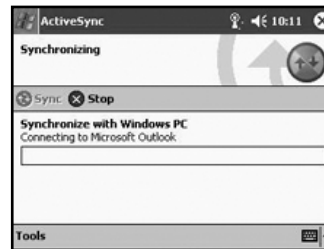
Open ActiveSync on the PC and choose **File / Connection Settings**. Confirm that **Allow network (Ethernet) and Remote Access Service (RAS) server connection with this desktop computer** is checked.



Confirm that you have created a Standard (not Guest) Partnership between unit and your PC with ActiveSync. Confirm that the unit is connected to the wireless network, and that the connection type is **Work**, not **Internet**. Finally, confirm that your PC is connected to the same network (not necessarily wirelessly).

At this point, provided that you are within range of the wireless network, you can synchronize the information on your unit with the information in Outlook on your PC.

On the unit, choose **Start / ActiveSync / Sync**. Wait several moments while the unit connects to your PC over the wireless network, and then synchronizes the information on unit with the information on the PC.



Troubleshooting wLAN connection problems

1. Confirm that the unit has an appropriate IP address. On the unit, choose **Start / Programs / Wireless Client / Advanced / Network Troubleshooting** to view the unit's IP address.

- Confirm that the IP address is appropriate for the network to which you are trying to connect (for instance, 10.0.x.x or 192.168.x.x). Consult with your network administrator to confirm what appropriate IP addresses look like for your network. By default, the unit obtains an IP address from a DHCP server. If your network uses static IP addresses, then choose **Start / Settings / Connections / Network Cards / Network Adapters / Wireless B Network Driver**. Enable the **Use specific IP address** and enter the appropriate IP address.
2. If your unit has an appropriate IP address, confirm whether you can ping another computer on the network. On unit, choose **Start / Programs / Wireless Client / Advanced / Network Troubleshooting**. Enter either the IP address or the name of another PC on the network, and tap **Contact**.
 3. If the unit seems to be connected to the network, but you are having difficulty using the network connection, choose **Start / Settings / Connections / Network Cards / Network Adapters**, and confirm that the connection is appropriately configured as either a **Work** or **Internet** connection.

Bluetooth

Bluetooth is a short-range (about 10 meters or 30 feet) radio technology that allows Bluetooth-enabled devices in close proximity to communicate with each other without using cables. If your unit is equipped with embedded Bluetooth capability, then you can use Bluetooth to replace operations formerly requiring cables. Bluetooth on the unit is disabled by default. To enable Bluetooth on the unit, choose **Start / Settings / Connections / Bluetooth**. Check the box **Turn on Bluetooth**. If you want other Bluetooth devices to be able to find your unit, also check the box **Make this device discoverable to other devices**.

Tip: After configuring your Bluetooth connections, turn Bluetooth discovery off on the unit. This will improve your unit's security, and will slightly improve your unit's battery life.

The details of configuring Bluetooth connections vary depending upon how the other Bluetooth device works. Several examples (unit

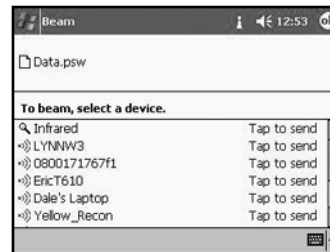
to unit; unit to/from a PC) are discussed in the following sections. Note that you cannot use Bluetooth to create an ActiveSync connection between the unit and your PC. ActiveSync Bluetooth connections are not supported.

Bluetooth file transfer between two units

It is possible to transfer files from one unit to another over a Bluetooth connection. Choose **Start / Settings / Connections / Bluetooth**, and confirm that Bluetooth is enabled on both units. Confirm that the unit that will receive the file is discoverable.

Launch File Explorer on the unit that will send the file. Browse to the file to be sent, and touch and hold on it. Choose “Beam File” from the menu that appears. Wait for several moments while the sending unit searches for Bluetooth devices in the vicinity.

Select the receiving unit from the list, and tap **to send**. Wait for a few moments while the file is transferred. The receiving unit will open a window asking whether you want to accept the file. Choose **Yes**. The file will be saved in the My Documents folder on the unit.



Bluetooth file transfer from a unit to a PC

It is possible to transfer files from a unit to a Bluetooth-enabled PC over a Bluetooth connection. These instructions are based on a PC running the Windows XP operating system with Service Pack 2 and a USB Bluetooth dongle. The native Microsoft Bluetooth support is used; there are no drivers installed for the dongle.

On the unit, choose **Start / Settings / Connections / Bluetooth**, and confirm that Bluetooth is enabled. It is not necessary for the unit to be discoverable.

On the PC, right click on the **Bluetooth** icon in the system tray and choose **Open Bluetooth Settings / Options**. Confirm that the PC is discoverable and connectable.

On the PC, right click on the **Bluetooth** icon in the system tray and choose **Receive a File**. A Bluetooth File Transfer Wizard will open on the PC and indicate that it is waiting to receive a file.



Launch File Explorer on the unit that will send the file. Browse to the file to be sent, and touch and hold on it. Choose **Beam File** from the menu that appears. Wait for several moments while the sending unit searches for Bluetooth devices in the vicinity.

Select the PC from the list of Bluetooth devices and tap **Tap to Send**. Wait for a few moments while the file is transferred. The Bluetooth File Transfer Wizard on the PC will ask you to confirm that you want to accept the file and will allow you to browse to a suitable location to save the file.

Bluetooth file transfer from a PC to a unit

It is possible to transfer files from a Bluetooth-enabled PC to a unit over a Bluetooth connection. These instructions are based on a PC running the Windows XP operating system with Service Pack 2 and a USB Bluetooth dongle. The native Microsoft Bluetooth support is used; there are no drivers installed for the dongle.

On the unit, choose **Start / Settings / Connections / Bluetooth**. Confirm that Bluetooth is enabled and that the unit is discoverable.

On the PC, right click on the **Bluetooth** icon in the lower right corner of the Today screen. Choose **Send a File** to launch the Bluetooth File Transfer Wizard on the PC. Tap **Browse** to allow the PC to search for Bluetooth devices in the vicinity. Select the unit

from the list of devices and choose **OK**. Proceed through the Bluetooth File Transfer Wizard on the PC to transfer the file. Wait a few moments while the file is transferred.

The unit will open a window to confirm that you want to accept the file. Choose **Yes**. The file will be saved in the My Documents folder on the unit.

Troubleshooting Bluetooth connection problems

If your unit cannot find another Bluetooth device, confirm that the device is within range (less than 10 meters / 30 feet) of other Bluetooth-enabled devices. Also confirm that the device is turned on and has been configured to be discoverable. Bluetooth devices such as printers and cell phones are typically not discoverable by default.

Additional connectivity

The unit supports several kinds of connections in addition to ActiveSync, embedded Bluetooth and wLAN. If you do not have embedded Bluetooth or wLAN, you can purchase a CF card to get the functionality. In addition to Bluetooth and wLAN, the following types of connectivity are also possible:

Modem: The unit supports dial-up connections to an Internet Service Provider and sending and receiving e-mail with file attachments. (You will need to purchase an external modem or a CF modem.)

Web-enabled cell phones: The unit can connect to the Internet via Bluetooth and web-enabled cell phones that are compatible with Pocket PC devices. USB phones are not supported. Refer to your phone service provider for more information on establishing Internet connections via your cell phone.

VPN: The unit includes support for Virtual Private Network (VPN) connections. Used together with a connection to the Internet, a VPN connection allows you to browse network files from a remote site and also supports remote synchronization with your PC via

ActiveSync. Note that the network you access must be configured to allow VPN connections.

For more information on creating these connections, see the web site listed under reference materials on the last page of this manual.

Installing additional software on your unit

The unit can run third-party software designed for Microsoft Windows Mobile 2003 Second Edition Pocket PC devices. However, not all Windows Mobile third-party programs are screen rotation aware and therefore may not run properly in a landscape environment. The screen orientation can be changed in **Settings / System / Screen** that will allow these programs to run correctly.

Most third-party software is installed by running a setup program on the PC while the unit is connected with ActiveSync. If prompted by the installation wizard, perform a soft reset to complete the installation.

NOTE: Follow the setup instructions that came with your software.

Caring for Your Unit

Cleaning the unit

Clean the unit with a soft cloth dampened with either water or a diluted mild detergent. **Do not use any chemical cleaners and do not put the unit in the dishwasher.**

Mechanical shock

The unit is designed to resist damage for drops up to 1.22 meters (4.0 ft). However, you should protect the display from impact, pressure, or abrasive substances that can scratch it or crack it. The unit should not be dropped unnecessarily.

Care of the touchscreen

Use only the included stylus or other devices specifically designed for use with touchscreens. The use of ballpoint pens, sticks, nails or other sharp objects to operate the touchscreen will scratch and/or damage the unit. Abrasives may scratch touchscreens. Keep the touchscreen clean by gently wiping the display, using a soft cloth dampened either with clean water or glass cleaner. **Do not apply any cleaner directly to the display. Do not use any abrasive cleaners.**

Use the screen protectors included with the unit to keep the touchscreen clean and protected. To apply a screen protector, first clean the display thoroughly. Peel the backing from the screen protector. Align the edge, and then drop the remainder onto the display. Use a credit card, if necessary, to squeegee the air from underneath the screen protector.

Care of the PowerBoot Module

The PowerBoot Module contains rechargeable Lithium Ion (Li-Ion) cells that power the unit.

Charging guidelines:

- It is not possible to overcharge the batteries. They are self-regulated. You may leave them on charge indefinitely with no adverse consequences to their service life.
- Use only the charger supplied with your unit. Use of other chargers may void your warranty.
- The acceptable temperature range for charging the battery is between +5°C and +35°C (+41°F and +95°F). This is based on the internal battery temperature that may be different than the ambient temperature. If the battery detects a temperature too high or too low for charging, the LED will flash a warning sequence. The PowerBoot Module will defer charging until it detects appropriate temperatures.

Storage guidelines:

- If you have a spare PowerBoot Module that is not in use, do not store it in a place where temperatures exceed room temperature for long periods (like the glove box of a vehicle in warm climates). Long-term storage at very warm temperatures (over +35°C / +95°F) will reduce service life and will accelerate the normally very slow loss of charge capacity.
- For prolonged storage situations, store the PowerBoot Module at approximately 50% charge level.
- Do not store the PowerBoot Module with loose metal parts (like keys in your pocket) that might short the terminals. This could result in high currents and dangerously high temperatures.

Environmental Considerations

The unit's rugged design allows you to run your Pocket PC applications in harsh outdoor environments. Here are some considerations that will help you get the most out of your unit when working in very wet, hot or cold conditions.

Water

This handheld computer is designed to withstand accidental immersion. To maintain the unit's water resistant seal, it is important to ensure that the CF-Cap is correctly oriented with the stylus holder facing the front of the unit, and that the screw on the CF-Cap is tightened but not over-tightened. Failure to reattach the CF-Cap screw could cause leakage and will void your warranty.

Because the PowerBoot Module is designed to easily disconnect from the unit, water can occasionally find its way onto the metal contacts between the battery and the unit. After working in very wet conditions remove the battery and check the contacts to see if they are wet. If so, dry the contacts on both the unit and the battery with a tissue, paper towel or clean cloth before storing the unit for overnight or longer.

Temperature range

The operational temperature range is from -30°C to +60°C (-22°F to +140° F). In addition, the unit can be stored at temperatures from -40°C to +70°C (-40°F to +158°F). Although the unit is designed to be rugged, do not leave it in direct sunlight or in a parked vehicle in the sunlight for extended periods.

Batteries perform best at room temperatures. The unit battery pack also has a very stable capacity as temperature rises above the human comfort level. However, cold temperatures cause battery life to drop, and the colder the temperature the greater the reduction in available battery life. Battery life reduction will also depend upon other usage conditions, including backlight status, CPU load, embedded wireless status and the use of power consuming CF devices. Under very cold conditions (-20°C / -4°F and below), you can expect your battery life to be shortened by anywhere from 30 to 70 percent.

If you anticipate working under very cold conditions, consider carrying a fully charged, spare battery in a warm place. The unit is designed to make battery replacement a simple process. Anything that you can do to keep the unit and the spare battery warm (for instance, keeping it in a pocket under your coat) will improve your battery performance.

At moderate temperatures, you can expect your battery to last about 300 full charge/discharge cycles before its performance noticeably declines.

Hardware Specifications

OS	Windows Mobile for Pocket PC 2003 Second Edition
CPU	Intel® PXA 270 XScale CPU
RAM (VOLATILE)	64 or 128 MB SDRAM
ROM (NONVOLATILE)	256 or 512 MB of NAND Flash
DISPLAY	Landscape 3.8" Color ¼ VGA display, sunlight readable, backlit
BATTERY LIFE	30 hours continuous room temperature operation with default settings and no backlight
BATTERY CHARGING	~4.5 hours to full charge; 80% charge in 2 hours
BATTERY CAPACITY	6600 mAh Lithium-Ion
I/O PORTS	Power, RS-232 serial (9-pin), USB client
SOUND	Integrated sealed speaker and microphone
EXPANSION PORTS	2 CF slots 1xType I and 1xType II, 1 SD slot
ENVIRONMENTAL	Submersible, drop-resistant, dust-proof (see Environmental section)
INTEGRATED CAPABILITIES	Optional Integrated Bluetooth and WLAN (802.11b) capability

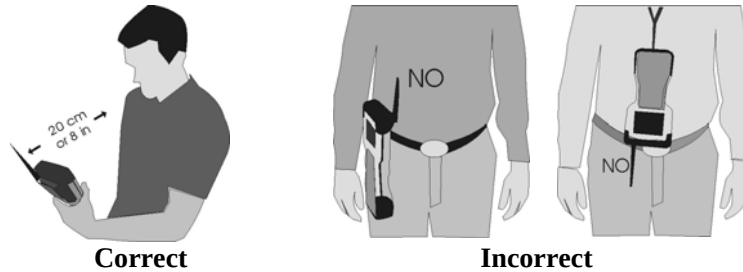
Environmental Specifications

TEMPERATURE	Operation: -30°C to +60°C (-22°F to +140°F) Storage: -40°C to +70°C (-40°F to +158°F)
WATER	Submersible to 1 meter for 30 minutes, IP67, MIL-STD 810F, Method 512.4, Procedure 1
DROP	1.22 m (4.0 ft.) onto concrete
SAND AND DUST	Sealed against dust, IP67, MIL-STD 810F, Method 510.4, Procedures I and II
VIBRATION	Mil-STD 810F Method 514.5
ALTITUDE	To 4572 m (15,000 ft) at a nominal temperature of +23°C (+73°F) Mil-STD 810F Method 500.4, Procedures I, II, & III
EMI	Meets FCC class B requirements

Safe Use of Your Unit

Carrying the unit

Due to radio frequency emissions, it is unsafe to operate the radio with the unit in a holster, dangling from a lanyard, or with any method that keeps the powered unit in very close proximity to the head or torso. For safe operation, carry the unit in your hand with the antennas located at least 20 cm (~8 inches) from the head or torso. See the following illustration for the correct and incorrect way to operate the unit.



Repair

Please do not attempt to dismantle the unit for repair. There are no user-serviceable parts inside. For service, please use the contact details listed on the last page of this manual or your local dealer.

Battery safety

- Use only the battery supplied with your unit to power the unit. Use of other power sources could damage the unit, void your warranty and pose safety hazards.
- **Caution:** Do not attempt to disassemble the battery pack. There are no user serviceable parts in the battery pack. If it is defective return it to the manufacturer for service. Disassembly or modification of the pack could pose safety hazards of burn, fire and exposure to harmful chemicals.
- Handle a damaged or leaking battery with extreme care. If the electrolyte comes in contact with your skin, wash the exposed area with soap and water. If it comes in contact with the eye, flush the eye with water for 15 minutes and seek medical attention.

- Lithium Ion batteries are classified by the U. S. federal government as non-hazardous waste and are safe for disposal in the normal municipal waste stream. These batteries, however, do contain recyclable materials and are accepted for recycling.

Environmental hazards

The unit contains no mercury or cadmium.

AC charger safety

- Use only AC chargers intended for the unit. Other external power sources may damage your product and may void the warranty.
 - Make certain that the input voltage on the charger matches the voltage in your location.
 - Make certain that the charger has prongs compatible with your outlets.
- AC chargers are designed for **indoor use only**. Avoid using the AC charger in wet areas.
- Unplug the AC charger from power when not in use.
- Do not short out the output connector.

Troubleshooting and FAQ's

How do I delete files?

Open File Explorer and browse to the file to be deleted. Use the stylus to touch and hold on the file, and then choose **Delete** from the menu that appears.

How can I enable caps lock?

press **Fn** key (to the left of the “A” button), and then the up arrow key (to the right of the “D” button) to toggle caps lock.

Where is the Recycle Bin?

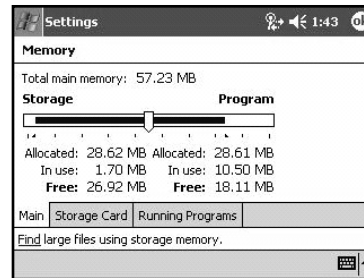
Unlike desktop PCs, the Windows Mobile 2003 operating system does not support a Recycle Bin. Once you delete a file, it is gone for good, so be very careful.

Is there anything I can do to make the display more viewable?

The default backlight brightness is set to about 65 percent of the maximum brightness. Choose **Start / Settings / System / Backlight / Brightness**, and adjust the slider to increase display brightness; however, doing this will reduce battery life. Also, confirm that you have one – and only one! – screen protector in place.

How can I tell how much memory is available?

Choose **Start / Settings / System / Memory** to view available RAM. As an example here, 18.11 MB of RAM is available for applications and 26.92 MB of RAM is available for files. (The Windows Mobile operating system manages the allocation of Storage Memory and Program Memory, so moving the slider bar has only a temporary effect.)



Tap **Storage Card** to view available memory in the Built-in Storage area. If a CF or SD memory card is installed, tap on the dropdown arrow next to **Built-in Storage** and choose **Storage Card**.

When I work outside in the sunshine with sunglasses, the screen is very dark and hard to see. What can I do?

If your sunglasses are polarized, they may be polarized at an angle incompatible with the display. Try using non-polarized sunglasses or else try to find sunglasses that have a different polarization orientation.

I am worried that my battery isn't performing as well as it should. Is there any way that I can test it to see whether it's ok?

The operating system includes a Battery Logger utility to help evaluate battery performance. To run a battery log, configure the unit to never go to sleep (**Start / Settings / System / Power / Advanced** and uncheck the box under **On battery power**). Tap **OK**. Run the Battery Logger utility (**Start / Programs / Battery Logger**). Enter a file name and file location (or use the default), and

tap **Tools / Start Battery Logging**. This utility creates a file that records the battery voltage at intervals. Connect the AC charger to the unit and charge the unit fully (~4.5 hours). Disconnect external power and allow the program to run until the battery is exhausted and the unit shuts down. Reapply AC power and soft reset the unit to close the power logging utility. Copy the file to the PC, and then open it in any text editor. Check the time of the first and last entry in the file to determine how many hours elapsed before the unit turned off to preserve memory. A healthy battery should run about 30 hours if the backlight is off.

It is critically important that my battery doesn't fail during a job. Do you have any suggestions?

Consider carrying a well-charged spare battery in the field. The unit is designed so that battery replacement can be easily done.

My unit won't communicate with my PC over an ActiveSync USB connection.

Make sure that there aren't any open applications running on the unit, which may be interfering with communication. One way to immediately close all open applications is to perform a soft reset (See the section on Power Button Features).

Choose **Start / ActiveSync / Tools / Options / Options**, and make sure that **Enable PC sync using this connection** is checked and that **USB Default** is selected from the dropdown list.

Try disabling any personal firewall software, which is running on your PC. Firewalls may block TCP/IP from opening ports, which are required by ActiveSync.

How can I see file extensions or file attributes?

The File Explorer that is included in the Windows Mobile 2003 operating system does not have as many features as the Windows Explorer program on a desktop PC. There is no support for viewing file extensions or attributes from within File Explorer.

There are two ways to get around this limitation: If you connect to the unit over ActiveSync (refer to the **Communication** section for details), you can browse from the PC and view file extensions and attributes. Alternatively, third party file management programs are available for Windows Mobile 2003 devices. These third-party programs may support viewing file extensions, file attributes, zip archives, and more. Some third-party programs may also support a Recycle Bin and other useful file management features.

Can I work with Microsoft Office files in Pocket Word and Pocket Excel?

Microsoft Pocket Word and Pocket Excel are trimmed down versions of the Microsoft Word and Excel PC applications. Microsoft Pocket applications allow you to view simple documents and to make simple changes on your unit. However, Pocket Word and Pocket Excel do not support all of the formatting and other features (such as macros) that are supported by the PC applications.

If you use ActiveSync to transfer .doc or .xls files from the PC to the unit, these files will automatically be converted to .pwd (Pocket Word) or .pxl (Pocket Excel) files. If you then copy the .pwd or .pxl files back to the desktop, they will be converted back to .doc or .xls files, but some formatting and other attributes may be lost.

Can I use my USB memory stick (or mouse, keyboard, cell phone or other USB device) with my unit?

Not at the present time. USB uses a host/client architecture, and all of these devices are clients. The unit is also a USB client, and two USB clients cannot communicate with each other.

NOTE: The unit does have a physical USB host port on the bottom of the PowerBoot Module, but it is not currently supported.

Can I use my SDIO device with my unit?

No, the SD port is for memory cards only.

Regulatory Information

U.S.A.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Canada

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

Declaration of Conformity

Europe

According to ISO / IEC Guide 22 and EN 450 14

Manufacturer's Name: Tripod Data Systems, Inc.
Manufacturer's Address: 345 SW Avery Ave.
Corvallis, OR 97333 USA

Declares, under our sole responsibility, that the product:

Product Name: Field Data Collector
Model Number: Ranger X
Product Options: ALL

conforms to the following Product Specifications:

Safety: EN60950-1:2001

EMC: EN 55022: 1994 +A1, A2: 1997 EN 55022: 1998 +A1:2000

EN 61000-3-2, 1995+A1+A2: 1998

EN 61000-3-2:2000 EN 61000-3-3:1995

EN 61000-3-3:1995+A1:2001 CFR 47, Part 15, Subpart B

EN 55024:1998* EN 55024:1998+A1:2001*

R&TTE Directive 1999/5/EC:

EN 300 328 V1.6.1

EN 301 489-1 V1.4.1

EN 301 489-17 V1.2.1

Supplementary Information:

In addition to meeting the above EMC requirements during system test, the AC Charger provided with this product has been certified to IEC 60950 +A1, A2, A3, A4, A11.

* Product is battery powered.

Corvallis, OR USA

CAUTION:

Only approved accessories may be used with this equipment. In general, all cables must be high quality, shielded, correctly terminated, and normally restricted to two meters in length. AC chargers approved for this product employ special provisions to avoid radio interference and should not be altered or substituted.

Unapproved modifications or operations beyond or in conflict with these instructions for use may void authorization by the authorities to operate the equipment.

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