# Surveyor

**Note:** Unless otherwise specified the term "Surveyor" includes both Surveyor and Surveyor Plus units.

# Installing the battery packs

The Surveyor is equipped to handle two battery packs at a time. Both batteries are not needed for operation. Using two battery packs will extend the operating time of the unit.

1. Use the edge of a key or a flat point screwdriver to open the two quarter turn latches that release the battery door from the unit.



2. Remove the battery door.

**Note:** The hand strap is attached to the battery door and does not need to be removed to open battery compartment.

3. Insert the battery pack(s) so battery contacts match up. The bottom slot is the main battery while the upper slot is the auxiliary battery.



**Note:** When using one battery pack, the pack can be placed in either compartment. The unit will feel more balanced if placed in the bottom slot.

**Caution:** When not using a battery in the auxiliary slot, using the cover for the auxiliary contacts is recommended. Failure to do so may cause corrosion on the auxiliary contacts.

- 4. Insert the tab on the top of the battery door into the case slots Close the battery door.
- 5. Reattach the battery door of the unit.



### Charge the battery pack

Before using the Surveyor for the first time it is important to make sure the batteries are completely charged. Charge the battery/batteries while inside the unit. Complete the following steps to charge the batteries:

- 1. Attach the outlet adapter into the wall charger.
- 2. Plug the wall charger into an outlet.
- 3. Plug the other end of the wall charger into the DC jack on the Surveyor.



4. Charge the Surveyor at least 4 hours per battery to get a full charge.

**Note:** When charging two battery packs in the unit the charge time increases. The bottom battery will charge first. The left LED light blinks while charging. When the unit is fully charged the LED will be solid when fully charged. The unit will not be damaged if left connected to the wall charger for extended periods of time.

#### Charging temperatures

Only charge your battery pack in temperatures between  $32^{\circ}$  F and  $104^{\circ}$  F ( $0^{\circ}$  C and  $40^{\circ}$  C). For best results, charge the battery pack at room temperature ( $68^{\circ}$  F or  $20^{\circ}$  C).

### **Surveyor Hand strap**

To remove the hand strap of the Surveyor press the latch down toward the unit and then slide down. Either end of the hand strap can be removed.



### **Anatomy of Surveyor**

Pictured below is the available ports on the Surveyor.



### Establish basic settings on the device

We recommend creating a name for the Surveyor so external devices like desktop computers or devices that use Bluetooth<sup>®</sup> technology can differentiate the Surveyor from other devices more easily. The Surveyor is shipped with a unique Device ID which is "FieldPCxxxxxx" where xxxxxxx is the device serial number.

To create a different name, follow these steps:

- 1. Tap *Start* > *Settings*.
- 2. From the System tab, tap *About*.
- 3. Select the *Device ID* tab at the bottom of the screen.

餐 Settings	🖫 📰 ◀€ 12:58 🛛 ok
About	
Your device uses this information to ide itself to other computers. Enter a name starts with a letter and contains the characters _, A-Z, or 0-9.	entify e that
Device name: FieldPC12345678	
Description:	
Version Device ID Copyrights	

4. Type in a new device name.

## Installing ActiveSync® on a desktop computer

Follow the steps below if your desktop computer has Windows<sup>®</sup> XP or 2000. If your desktop computer has Windows Vista<sup>TM</sup> see Installing Windows Mobile<sup>®</sup> Device Center.

- 1. Insert the Getting Started Disc into your desktop computer. A window appears on the display.
- 2. Select your language.

If ActiveSync<sup>®</sup> 4.5 or greater has not been installed on your desktop computer, follow the directions on the screen to install it.



Creating an ActiveSync® connection

1. Plug USB Client end (mini B) of the USB communications cable into your Surveyor.

2. Plug the USB Host end (full size A) of the USB communications cable into your desktop computer.

3. Establish an ActiveSync<sup>®</sup> partnership by following the instructions on the desktop computer screen.

# Installing Windows Mobile® Device Center

If your desktop PC has Windows Vista<sup>TM</sup> complete the following steps:

1. Connect your device to your PC by plugging the USB Client (mini B) into the unit and the USB Host (full size A) into the desktop.

2. Download the Windows Mobile<sup>®</sup> Device Center Installer to your PC by clicking on the download link.

- 3. Select "Run this program from its current location" and click OK.
- 4. Follow the instructions on the screen.

#### Creating Windows Mobile Device Center Connection

Once Windows Mobile<sup>®</sup> Device Center has been installed, plug a USB cable into available port on the computer and the other end into the Surveyor. Windows Mobile<sup>®</sup> Device Center will automatically open. Follow the steps on the screen.

**Note:** For more information about connecting to a PC using either ActiveSync<sup>®</sup> or Windows Mobile<sup>®</sup> Device center visit Microsoft's Windows<sup>®</sup> Mobile website at http://www.microsoft.com/ windowsmobile/default.mspx.

# Specialized keyboard keys

#### Sticky keys

The Shift, Alt, Ctrl, and 2nd keys are called sticky keys. Each sticky key has three modes, Next Key, ON, and OFF. The sticky key mode is determined as follows:

By default all sticky keys are OFF.

Pressing the sticky key once toggles the mode only for the next key pressed. For example, with shift mode OFF (lower case), pressing SHIFT then K displays an upper case K.

Double pressing the sticky key toggles and locks the sticky mode. For example, with the shift mode OFF, double tapping SHIFT locks the shift mode ON (caps lock). All subsequent non-sticky keys pressed are then upper case keys. With the shift mode ON, tapping SHIFT turns caps lock off and all non sticky key presses result in lower case characters.

If you hold down a sticky key it is on for every key stroke until the sticky key is released. The colored backlights indicate when a sticky key is on.

# Window Key 👫

Press the window key to display the Start Menu regardless of the application running.



# Suspending, powering off, resetting, and restoring factory defaults

The Power button allows you to suspend, power off, or reset the device. A series of keyboard actions also lets you restore the hard drive, settings, and icons to their original factory defaults. Below are instructions for each action.

**Suspending the device.** Suspending the Surveyor is different from powering it off: Suspending puts the device to sleep, and when turned back on, the device remembers where it was. Some battery power is used. We recommend suspending your device if you plan to turn it off for less than two weeks.

To suspend your device, briefly press the Power button and release. To resume the device from suspend mode, press the Power button again.

**Powering off the Surveyor.** Powering off the device closes all programs and removes power from all system components except for the real-time clock. Unlike suspend mode, the device resets when it is powered on again. To preserve battery power, we recommend you power off the device if it will be left unused for two weeks or longer.

To power off the Surveyor,

- 1. Save open files and close running programs.
- 2. Press the Power button until the Power Button menu appears.



3. Tap Power Off. A warning dialog appears. Tap OK.



To power on your Surveyor, press the Power button until the amber notification LED comes on.

**Resetting the device.** When installing programs, you are sometimes required to reset your device. Follow the steps below to reset the Surveyor:

- 1. Save open files and close running programs.
- 2. Press the Power button until the Power Button menu appears.
- 3. Choose *Reset*.

If your device locks up, you can reset the device by pressing the Power button for 10 seconds or until the screen goes dark. After a few seconds, the device turns on again.

**Restore factory settings.** Follow the steps below to restore the user storage, settings, and icons on your Surveyor to their original factory defaults.

**WARNING!** Restoring the Surveyor to its original factory state will permanently erase data saved on the Surveyor, any software you installed, and any changes you made to the Surveyor, including settings changes.

To perform a clean boot, which restores everything but the "storage" folder, select reset from the Power Button menu and immediately press and hold Ctrl + Alt + Del until the splash screen appears.

To perform a storage clean, which only erases the "storage" folder, select reset from the Power Button menu and immediately press and hold down Ctrl + Alt + 2 until the splash screen appears.

## Using the stylus

Below are directions for performing shortcuts using the stylus.

To do this	Follow these steps
Select an item	Tap once.
Open an item or file	Tap the item or file.
Cut or copy	Tap and hold until the context menu appears. Select Cut or Copy.
Paste	Tap and hold the area where you want to paste. Select Paste from the context menu that appears.
Open a context menu for an item	Tap and hold the item. The context menu appears.
Drag and drop	Tap and drag the item to the destination and lift up the stylus.
Select multiple items	Drag the stylus over the items.

## Using the touchscreen

This section explains how to disable, protect, clean, and calibrate the touchscreen.

**Disabling the touchscreen.** The touchscreen can be disabled to help prevent unwanted keystrokes when using the device in certain situations, such as walking through bushes between locations. To disable the touchscreen press the 2nd key followed by the right soft key. To re-enable the touchscreen use the same keystrokes.

**Protecting the touchscreen.** The touchscreen is sealed to protect your device against water and dust. To protect your touchscreen, we recommend that you apply a touchscreen protector to the screen.

**CAUTION:** Be sure to replace the screen protector as often as the screen protector packaging directs.

#### **Cleaning the Touchscreen.**

- 1. Press the 2nd key + right soft key to disable the touchscreen.
- 2. Use a clean cotton cloth to wipe off the screen.

**Note:** Do not use anything abrasive that could scratch the screen (including tissues and paper towels).

3. Press the 2nd key + right soft key to enable the touchscreen.

**Calibrating the touchscreen.** If the touchscreen is not responding accurately to stylus taps, try calibrating the touchscreen manually using the following steps:

1. Tap *Start > Settings*. The Settings window appears, as shown here.



2. Select the *System* tab at the bottom of the display.



- 3. Scroll down and tap on the Screen icon.
- 4. When the Screen window appears, tap Align Screen.
- 5. Follow the directions on the display to calibrate the touchscreen.



6. After you calibrate the touchscreen, the Screen window appears again. Tap *OK* to exit the screen.

## Understanding the Today screen

The Today screen is the default screen you see when your device powers on. From the Today screen you can view or select

Today's date Owner information Messages Tasks Upcoming appointments Lock or unlock your device



To lock the device, simply tap on the words "Device unlocked." To unlock the device, tap on the word "Unlock" on the two screens that appear.

## Using the Start menu

The Start menu is the main access point for all programs in Windows Mobile<sup>®</sup>. It allows you to access files, programs, or system settings.

To access the Start menu, tap the Start menu icon in the top left corner of your screen or press the Start menu button on the keypad. The Start menu appears, giving you links to programs, settings, and menus.



# **Entering information**

At the bottom of the display is a data entry icon. Tapping on the icon allows you to enter information using the stylus. Specifically, you can choose to:

Select alphanumeric characters from the on-screen Keyboard utility (the default input method).

Use Letter Recognizer. This input method recognizes character strokes and gestures.

Enter text using *Block Recognizer*. This utility recognizes letters from single strokes.

Use *Transcriber*, a program that allows you to enter data using cursive, print, or mixed handwriting.

**Note:** For more details about using each input method, go to *Start > Settings > Input* and choose the input method from the Input method window.

When you are ready to enter text, you can switch from the default input method (keyboard) by following these steps:

1. On the bottom center of the screen, tap the arrow next to the input method icon (shown). If the input selector arrow is not displayed, tap the input method icon.



2. The input method menu appears. Tap the input method you want from the list of options.

餐 Notes		:49 <mark>ok</mark>
		=
	Options	-
123 1 2 Tab 9 V CAP a Shift z Ctl áü 1	Block Recognizer - =    • Keyboard - : =    Letter Recognizer : : : :   Transcriber ↑ ← :	
New	🔤 🔺 🛛 Menu	

3. Using the selected input method, enter your text.

## **Recognizing status icons**

Status icons show the status of operations on the Surveyor. Status icons and their functions are listed in the following chart.

Icon	Name	Function
<b>(</b>	Charge indicator	Tells you when the device is charging.
¥	Speaker	Tap to control volume.
Ē	Remaining battery capacity	Tap to see how much battery power remains in both battery packs.
<b>16</b>	Touch Screen	Touch screen disabled.

For an additional list of icons and their functions, follow these steps:

- 1. Tap *Start* > *Help*.
- 2. Select *Contents* located in the bottom left corner.

- 3. Tap on Start using your device.
- 4. Tap on What do these icons indicate?

# **Recognizing soft keys**

These context-sensitive keys appear as words, buttons, or tabs on the menu bar. Tap on these keys to perform actions or open menus. The keys — located at the top of the keyboard can be used to select the soft keys.



# Backlight

Dimming or turning off the display backlight saves battery power when the device is running. To dim or turn off the backlight, follow these steps:

1. Tap *Start* > *Settings* > *System* > *Backlight*.



2. Select the Brightness tab. The Brightness window for battery power appears.

3. Drag the backlight slider slightly down to dim the backlight, and drag the slider up to brighten the backlight.

The Backlight Enabled checkbox applies when the device is running on battery power. To

completely disable the backlight when on battery power, uncheck this checkbox.

#### Adjusting the backlight timer

By default, the display backlight is set to turn off after one minute of inactivity. To adjust the time when your backlight turns off, follow these steps:

🐉 Settings		Ð	# ◀€ 2:32	ok
Backlight				
Warning: Using backlight while on battery power will substantially reduce battery life. ✓ Turn off backlight if device is not used for ✓ Turn on backlight when a button is pressed or the screen is tapped				
Battery Power	External Power	Brightness		
Adjust power settings to conserve power.				

1. Tap *Start > Settings > System > Backlight*. The Backlight window appears. To change the timer for external power, tap the *External Power* tab.

- 2. Select or deselect the two options.
- 3. If you selected the first checkbox, choose the length of time before the backlight turns off.

# Bluetooth<sup>®</sup> drivers and profiles

Microsoft<sup>®</sup> Bluetooth drivers are loaded onto your Surveyor at the factory. These drivers support the following profiles: serial port, file transfer, audio/visual control, dial up networking, object push, human interface device, and advanced audio distribution.

Identify the power status of Bluetooth using Wireless Manager

To determine the power status of the Bluetooth tap *Start* > *Settings* > *Connections tab* > *Bluetooth* > *Mode tab*.

Note: By default, Bluetooth is turned off. If you turn Bluetooth on and then suspend the device, Bluetooth turns off while the Surveyor is suspended to save battery power. When you resume (turn on) the Surveyor, Bluetooth turns on automatically.



#### Make the Surveyor discoverable to another device

To allow other devices that use Bluetooth wireless technology to detect the Surveyor and communicate with it, you must make your device discoverable or establish a partnership with the other device.

Follow these steps to make your device discoverable:

- 1. Tap *Start* > *Settings* > *Connections* tab.
- 2. Tap Bluetooth.

3. Select the *Turn on Bluetooth* checkbox, and then select the checkbox to *Make this device discoverable to other devices*.

#### Create a Bluetooth partnership

A partnership is created between the Surveyor and another device that uses Bluetooth wireless technology to help exchange information securely. Follow the steps below to create a partnership:

1. Make sure the two devices are turned on, discoverable, and within at least 30 feet of one another.

2. Tap *Start* > *Settings* and then tap the *Connections* tab.

3. Tap *Bluetooth* > *Devices* tab > *Add New Device*. Your device searches for other devices with Bluetooth capabilities and displays them in the list.

🏞 Sel	ttings			国 📰 ┥€ 7:21	ok
Blueto	oth				
Tap Ado Bluetool its settir	d new de th devic ngs.	evice to sear es. Tap on a	ch for other device to mo	odify	
Add n	ew de	vice			
Douisos	Mode	COM Boxto			
Devices	mode	COMPORS			

4. The name of the Bluetooth device appears. Tap the name, then tap Next.

🔧 Settings	📑 🗱 ┥€ 12:46 🛛 ok
Enter Passkey	2
Enter a passkey to establish a connection with BTGPS.	a secure
Passkey:	
Back	Next

5. If the Bluetooth device has an assigned passkey, enter the number. If the device has not already been assigned a passkey but requires one, enter an alphanumeric passkey on the Surveyor between 1 and 16 characters. Tap *Next*.

Note: If you are unsure whether your device requires a passkey and whether one has already been assigned to your Bluetooth device, see the user documentation that came with the Bluetooth device.

**Important:** If the Bluetooth device does not use a passkey, leave the passkey blank and tap Next. A message appears, asking if you want to add the device to the device list. Choose No and skip to step 7.



Note: It is important to choose No when you are asked whether you want to add to the device to the device list; choosing Yes sends you back to the passkey screen.

6. Enter the same passkey on the other device.

7. In the Partnership Settings screen on the Surveyor, you can assign a new name to the device in the *Display Name* option.

8. Select the service you want to use from the Services box, then tap *Finish*.

#### Bluetooth virtual COM ports

Some application programs connect using a virtual COM port (serial port) when making a Bluetooth connection. To make a connection possible for such programs, you must first set up a virtual COM port on the Surveyor. Once created, this virtual port can be used like any other COM port. For example, you can use a virtual COM port for programs that connect to a GPS receiver. You can also use it to connect to a printer that is enabled with Bluetooth technology.

When setting up a virtual COM port, you must specify if the COM port is an outgoing COM port or an incoming COM port.

An outgoing COM port means that the Surveyor initiates communication with the other device. For example, when you are using a Bluetooth GPS receiver, the Surveyor initiates the request for data; thus, the virtual COM port connecting with the receiver would be an outgoing COM port.

An incoming COM port means that the other device is initiating the communication with the Surveyor. For example, a desktop computer might initiate a Bluetooth ActiveSync connection with the device via the virtual COM port.

For more details about setting up outgoing and incoming COM Ports, read the following sections.

#### Set up an outgoing Bluetooth COM port

Use this option if you want to assign the virtual COM port as an outgoing COM port (*i.e.*, you want to use the Surveyor to initiate communications with another device).

Follow the steps below to set up an outgoing Bluetooth COM port.

1. Make sure you have paired with the serial port device you want to communicate with. To do this, follow the steps in the section called *Create a Bluetooth partnership* in this chapter.

2. Select the COM Ports tab.

3. Tap *New Outgoing Port*, the second option shown.



4. The *Add a Device* screen appears. Tap on the name of the device you want to set up as an outgoing port.

🐉 Settings	- 🗄 🗱 📢 12:46	ok
Add a Device		2
Select the device you want to add		
BTGPS		1
	Williamsee	_
Cancel 🚟	Next	

5. Select a numbered COM port from the list of ports that appear. If the port cannot be created, it is in use. Select a different numbered port.

🐉 Settings		ok
Bluetooth		2
Port:		
COM6	*	
Secure Connection		

6. **Important:** Deselect the *Secure Connection* option below the list of COM ports, as shown above. Deselecting this option ensures that the device disconnects its Bluetooth connection only when you tell it to.

7. Tap Finish.

Once the virtual COM port is assigned using the outgoing Bluetooth COM port, specify the COM port assignment within your application as explained in the user documentation for the application. An example follows.

Suppose you are using a Bluetooth-enabled GPS receiver with the device and a navigation program on the Surveyor. In this example, assume you have set up a virtual COM port between the Surveyor and the GPS receiver and that you assigned the outgoing COM port as COM 6. To assign the COM port in your navigation program, you would then follow these steps:

- 1. Locate the place in the navigation program where the COM port is chosen.
- 2. Select COM Port 6 as the COM port for the Bluetooth GPS receiver.

#### Set up an incoming Bluetooth COM port

Use this option if you want to assign the virtual COM port as an Incoming COM port (i.e., you want another device to initiate communications with the Surveyor). If you are connected with a Bluetooth device that supports serial communications, follow these steps to set up the incoming Bluetooth COM port:

- 1. Press the COM Ports tab.
- 2. Tap on New Incoming Port.
- 3. Select a numbered COM port from the list.

Note: If the port cannot be created, it is in use. Select a different numbered port.

4. **Important:** Deselect (clear) the *Secure Connection* checkbox. Deselecting this option ensures that the device disconnects its Bluetooth connection only when you tell it to.

### Wi-Fi for Surveyor Plus

When the Surveyor is connected through Wi-Fi, the icon 👧 appears in the tool bar.

Connecting to Wi-Fi Network

Many times when entering an access point a bubble will pop up on your screen asking if the network connects to the network or a private or corporate network. Choose the correct network and tap *Connect*. The choice will be stored in the Connection Manager for future use.

To actively look for a network connection complete the following steps:

1. Activate Wi-Fi by going to *Start > Settings > Connections tab > Wireless Manager*.



2. Turning the Wi-Fi on automatically scans the area for available networks.



3. When the Surveyor has completed the scan a list of available networks and their strengths will appear in *Start* > *Settings* > *Connections tab* > *Wi-Fi* 

🐉 Settings	Ð	%+ € 2:44	ok
Configure Wireless Nel	tworks		?
Add New			-
alexander	Connected		=
five	Available		
fillone	Available		
<u>Aulicovon</u>	ماطدانديده		
Networks to access:			
All Available		-	
All Available			
Vonly access points Only computer-to-com	inuter		_
connect	parer	Menu	

#### 4. Tap on the desired network to connect.

Note: If the network is password protected a window will appear for the password to be inserted.

背 Settings		® % ⊀	2:41
Configure Netwo	rk Authenticati	ion	2
Authentication:	Open	•	
Data Encryption:	WEP	•	
🗌 The key is auto	matically provided	1	
Network key:			
Key index: 1	•		
Back		Nex	t

#### Managing Connections

To adjust the Wi-Fi settings access the Managing Connections window go to *Start > Settings > Connections tab > Connections*.

월 Settings	🔮 🗱 ┥€ 3:18	ok
Connections		2
My Work Network Add a new modem connection Add a new VPN server connection Set up my proxy server		
Tasks Advanced		

# **Battery warnings**

**WARNING!** This device comes with a lithium ion rechargeable battery pack. To reduce the risk of fire or burns, do not disassemble, crush, puncture, short external contacts, or expose the battery pack to fire.

Risk of explosion if battery is replaced by an incorrect type.

Follow these additional safety guidelines:

Use only battery packs approved for use with this device.

Do not store or leave your device or battery pack near a heat source such as a radiator, fireplace, stove, electric heater, or other heat-generating appliance, or otherwise expose it to temperatures in excess of  $140^{\circ}$  F ( $60^{\circ}$  C).

Do not try to open the battery pack.

Do not carry a battery pack in your pocket, purse, or other container where metal objects (such as car keys or paper clips) could short-circuit the battery pack terminals.

Keep the battery pack contacts clean. If they get dirty, wipe them off with a soft cloth.

Dispose of the battery pack properly. See the section called Disposing of your Surveyor and battery packs in this manual for instructions.

Do not install the battery pack backwards so that the polarity is reversed.

Do not connect the positive terminal and the negative terminal of the battery pack to each other with any metal object (such as wire).

Do not solder directly onto the battery pack.

Do not place the battery pack in direct sunshine.

In the rare event that the battery pack leaks and fluid gets into the eye, do not rub the eye. Rinse well with water and immediately seek medical care.

# **Equipment warnings**

**WARNING!** To reduce the risk of personal injury, electrical shock, fire or damage to the equipment:

Plug the wall charger into an electrical outlet that is easily accessible at all times.

Disconnect power from the equipment by unplugging the wall charger from the electrical outlet or unplugging the synchronization cable from the host computer.

Do not place anything on the wall charger cord or any of the other cables. Arrange them so that no one may accidentally step on or trip over them.

Do not pull on a cord or cable. When unplugging the wall charger from the electrical outlet, pull on the plug, not the cord.

Use only wall chargers intended for the Surveyor. Using any other external power source can damage your product and void your warranty.

To comply with FCC and other national rf exposure safety requirements this device may not operated in conjunction with, or co-located with, other transmitting devices. The product is designed for hand-held use and with a separation distance of at least 20 cm from the head/body.

### **Repairing the Surveyor**

If the Surveyor is in need of repair, call your service center for a Return Materials Authorization number (RMA).

**IMPORTANT:** Do not attempt to service the device yourself. This action voids the warranty.

## **Disposing of battery packs**

The lithium-ion battery packs for your Surveyor are recyclable. Avoid placing them in the trash or municipal waste system.

To find the nearest battery recycling center in the USA, visit the Rechargeable Battery Recycling Corporation's website at *www.rbrc.org/call2recycle/index.html* or call 1-800-8-battery.

	Surveyor	Surveyor Plus
Operating System	Microsoft <sup>®</sup> Windows Mobile <sup>®</sup> 6	Microsoft <sup>®</sup> Windows Mobile <sup>®</sup> 6
Processor	Intel <sup>®</sup> XScale <sup>®</sup> PXA270, 520 MHz	Intel <sup>®</sup> XScale <sup>®</sup> PXA270, 624 MHz
Memory	64 MB RAM	128 MB RAM
Primary Storage	256 MB	512 MB
Display	3.5" (89 mm) QVGA active matrix color TFT transflective LCD with LED backlight; 240 x 320 pixels	3.5" (89 mm) QVGA active matrix color TFT transflective LCD with LED backlight; 240 x 320 pixels
Touchscreen	Sealed, resistive, pressure sensitive, enable/disable	Sealed, resistive, pressure sensitive, enable/disable

### **Product Specifications**

Micro SD Card Slots	Disabled	microSD header 3.3 V; user accessible
Keyboard	Nine-way directional button, standard key functions	Nine-way directional button, standard key functions
Operating Temperature	-4° to 122° F (-20° to 50° C)	-4° to 122° F (-20° to 50° C)
Storage Temperature	-22° to 140° F (-30° to 60° C)	-22° to 140° F (-30° to 60° C)
Battery Charging Temperature	32° to 104° F (0° to 40° C)	32° to 104° F (0° to 40° C)
Dust proof, water proof rating	IP67 Sealed rating, waterproof and dustproof	IP67 Sealed rating, waterproof and dustproof
Batteries	Intelligent, rechargeable Li-Ion battery pack,	Intelligent, rechargeable Li-Ion battery pack,
I/O Module	Serial port 9-pin D-sub connector, USB Host (Full A), USB Client (Mini B), 12 VDC jack for power input and battery charging	Serial port 9-pin D-sub connector, USB Host (Full A), USB Client (Mini B), 12 VDC jack for power input and battery charging
COM 1 Port	9-pin D-sub connector; full modem control signals, 5 V @ 200 mA available on API pin 4 and/or RI pin 9; controlled by DTR signal; conformal coated	9-pin D-sub connector; full modem control signals, 5 V @ 200 mA available on DTR pin 4; controlled by DTR signal; conformal coated
Current Limits	USB Host: 5 V; 9-pin D-sub connector: 5 V on DTR line; recommended maximum combined output current: 500 mA; short circuit protected	USB Host: 5 V; 9-pin D-sub connector: 5 V on DTR line; recommended maximum combined output current: 500 mA; short circuit protected
Power	Voltage +12 VDC; Range 10–20 VDC; Current: Max 12 V @ 850 mA; reverse polarity protection; over voltage protection; auto shut off	Voltage +12 VDC; Range 10–20 VDC; Current: Max 12 V @ 850 mA; reverse polarity protection; over voltage protection; auto shut off
Wireless Communication Options	Integrated Bluetooth	Integrated Bluetooth and Wi-Fi
Internal Clock	Battery-backed real time clock	Battery-backed real time clock
Enunciators	External power/charge LED and notification LED; other enunciators on system tray	External power/charge LED and notification LED; other enunciators on system tray

# **Regulatory Information**

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 when the equipment is used in a commercial or residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not used in accordance with the reference guide, may cause harmful interference to radio communication. 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.

This device complies with Part 15 of the FCC Rules. Operation of this equipment is subject to the following two conditions:

1. The device may not cause harmful interference.

2. This device must accept any interference received, including interference that may cause undesired operation.

**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. Wall chargers approved for this product employ special provisions to avoid radio interference and should not be altered or substituted.

**CAUTION:** Changes or modifications to the Surveyor that are not expressly approved by the manufacturer could void the user's authority to operate the equipment.

## **Industry Canada**

This Class B digital apparatus complies with Canadian ICES-003.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired

operation of the device.

# Industrie Canada

Cet appareil numérique de classe B est conforme à la norme sur le matériel brouilleur canadienne ICES-003.

Son utilisation doit être soumise aux deux conditions suivantes : (1) cet appareil ne doit pas générer d'interférence, et (2) cet appareil doit accepter toute interférence captée, y compris celles qui peuvent nuire à son bon fonctionnement.

# **European Union**

The telecommunication functions of this device may be used in the following EU and EFTA countries: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovak Republic, Romania, Slovenia, Spain, Sweden, Switzerland, and United Kingdom.

Restrictions apply to the operation of the 802.11b/g radio in this device. Use of channel 14 is outside of the band of frequencies permitted in the European Union and should not be used.

# **CE** marking

Products bearing the CE marking comply with the EMC Directive (89/336/EEC), the R&TTE Directive (1999/5/EC), and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

CE compliance of this device is valid only if powered with/by a CE-marked wall charger provided by the manufacturer. Compliance with these directives implies conformity to the following European Norms (in parentheses are the equivalent international standards and regulations):

EN 55022 (CISPR 22)—Electromagnetic Interference

EN 55024 (IEC 61000-4-2, 3, 4, 5, 6, 8, 11)— Electromagnetic Immunity EN 60950 (IEC 60950)—Product Safety